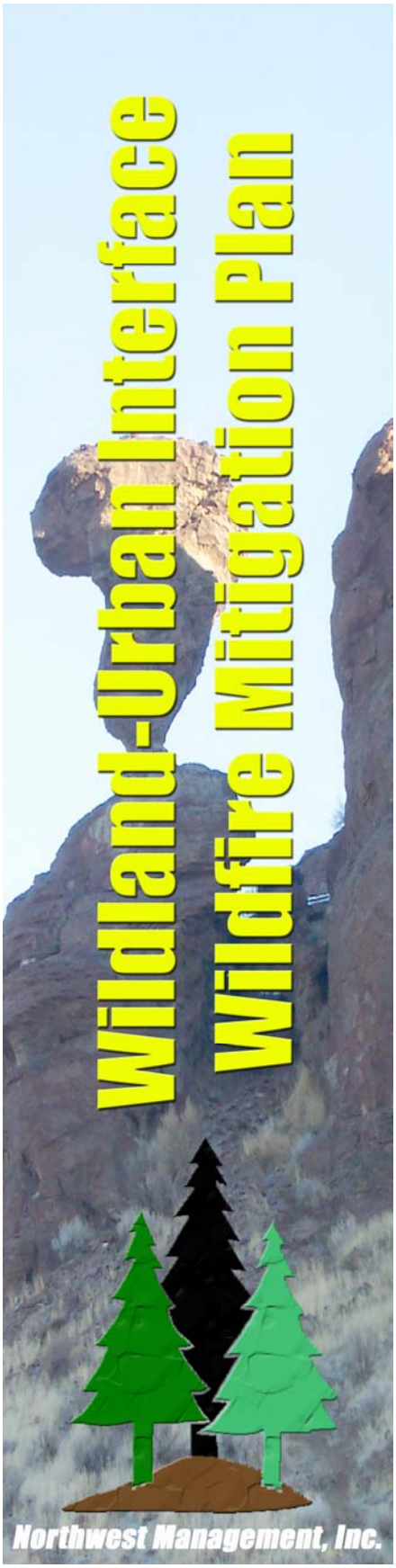

Twin Falls County, Idaho, Wildland-Urban Interface Wildfire Mitigation Plan

Main Document

September 28, 2004

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

This plan was developed by the Twin Falls County Wildland-Urban Interface Wildfire Mitigation Plan Committee in cooperation with Northwest Management, Inc., 233 E. Palouse River Dr. P.O. Box 9748, Moscow, Idaho 83843, Phone: (208) 883-4488, Fax: (208) 883-1098, 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.

Twin Falls County Commissioners
and the employees of Twin Falls County

Mid-Snake Resource Conservation and Development Association

USDI Bureau of Land Management

USDA Forest Service

Idaho Bureau of Homeland Security

Federal Emergency Management Agency

Idaho Department of Lands

Northwest Management, Inc.

To obtain copies of this plan contact:

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Twin Falls County Courthouse
425 Shoshone St N.
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Other Cooperating Organizations in this Planning Effort

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Chapter I: Overview of this Plan and its Development

1 Introduction

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

- Twin Falls County Commissioners and County Departments
- Idaho Department of Lands
- USDI Bureau of Land Management, Upper Snake River District (also providing funding through the National Fire Plan)
- USDA Forest Service
- Idaho Bureau of Disaster Services
- Mid-Snake Resource Conservation and Development
- Twin Falls Fire Department
- Rock Creek Rural Fire Department
- Filer Rural Fire Department
- Buhl Rural Fire Department
- Castleford Rural Fire Department
- Salmon Tract Rural Fire Department

The Twin Falls County Commissioners, working cooperatively with the Mid-Snake RC&D, solicited competitive bids from companies to provide the service of leading the assessment and the writing of the **Twin Falls 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. Established in 1984 NMI provides natural resource management services across the USA. The Project Manager from Northwest Management, Inc. was Dr. William E. Schlosser, a professional forester and regional planner.

1.1 *Goals and Guiding Principles*

1.1.1 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

1.1.2 Additional State and Federal Guidelines Adopted

The Wildland-Urban Interface Wildfire Mitigation Plan component of this All Hazards Mitigation Plan will include compatibility with FEMA requirements while also adhering to the guidelines proposed in the National Fire Plan, the Idaho Statewide Implementation Plan, and the Healthy Forests Restoration Act (2004). 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.
- Healthy Forests Restoration Act (2004)

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

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

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

1.1.2.1 National Fire Plan

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 fulfills 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 agree that reducing the threat of wildland fire to people, communities, and ecosystems will require:

- Firefighter and public safety continuing as the highest priority.
- A sustained, long-term and cost-effective investment of resources by all public and private parties, recognizing overall budget parameters affecting Federal, State, Tribal, and local governments.
- A unified effort to implement the collaborative framework called for in the Strategy in a manner that ensures timely decisions at each level.

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

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

1.1.2.2 Idaho Statewide Implementation Strategy

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

Emphasis is on a collaborative approach at the following levels:

- County
- State

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

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

It is recognized that implementation activities such as; hazardous fuel treatment, equipment purchases, training, home owner education, community wildland fire mitigation planning, and other activities, will be occurring concurrently with this County wide planning effort.

1.1.2.2.1 County Wildland Fire Interagency Group

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

1) Documentation of the process used to develop the mitigation plan. How the plan was developed, who was involved and how the public was involved.
2) A risk assessment to identify vulnerabilities to wildfire in the wildland-urban interface (WUI).
3) A prioritized mitigation strategy that addresses each of the risks. Examples of these strategies could be: training for fire departments, public education, hazardous fuel treatments, equipment, communications, additional planning, new facilities, infrastructure improvements, code and/or ordinance revision, volunteer efforts, evacuation plans, etc.
4) A process for maintenance of the plan which will include monitoring and evaluation of mitigation activities
5) Documentation that the plan has been formally adopted by the involved agencies. Basically a signature page of all involved officials.

This five-element plan is an abbreviated version of the FEMA mitigation plan and will begin to meet the requirements for that plan. To develop these plans each county should bring together the following individuals, as appropriate for each county, to make up the County Wildland Fire Interagency Group. It is important that this group has representation from agencies with wildland fire suppression responsibilities:

- County Commissioners (Lead)
- Local Fire Chiefs
- Idaho Department of Lands representative
- USDA Forest Service representative
- USDI Bureau of Land Management representative
- US Fish and Wildlife representative
- Bureau of Indian Affairs
- Local Tribal leaders
- Bureau of Disaster Services
- LEPC Chairperson
- Resource Conservation and Development representative
- State Fish and Game representative
- Interested citizens and community leaders as appropriate
- Other officials as appropriate

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

If a plan has been previously completed, the Commissioners will determine if the recommended five elements have been addressed. The Counties will provide a copy of the completed mitigation plan to the Idaho Department of Lands National Fire Plan Coordinator, which will include a contact list of individuals that developed the plan.

1.1.2.3 National Association of State Foresters

1.1.2.3.1 Identifying and Prioritizing Communities at Risk

This plan is written with the intent to provide the information necessary for decision makers (elected officials) to make informed decisions in order to prioritize projects across the entire county. These decisions may be made from within the council of Commissioners, or through the recommendations of ad hoc groups tasked with making prioritized lists of projects. It is not necessary to rank projects numerically, although that is one approach, rather it may be possible to rank them categorically (high priority set, medium priority set, and so forth) and still accomplish the goals and objectives set forth in this planning document.

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

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

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

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

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

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

1.1.2.3.2 Conceptual Approach

1. NASF fully supports the definition of the Wildland Urban Interface (WUI) previously published in the Federal Register. Further, proximity to federal lands should not be a consideration. The WUI is a set of conditions that exists on, or near, areas of wildland fuels nation-wide, regardless of land ownership.
2. Communities at risk (or, alternately, landscapes of similar risk) should be identified on a state-by-state basis with the involvement of all agencies with wildland fire protection responsibilities: state, local, tribal, and federal.
3. It is neither reasonable nor feasible to attempt to prioritize communities on a rank order basis. Rather, communities (or landscapes) should be sorted into three, broad categories or zones of risk: high, medium, and low. Each state, in collaboration with its local partners, will develop the specific criteria it will use to sort communities or landscapes into the three categories. NASF recommends using the publication "Wildland/Urban Interface Fire Hazard Assessment Methodology" developed by the National Wildland/Urban Interface Fire Protection Program (circa 1998) as a reference guide. (This program, which has since evolved into the Firewise Program, is under the oversight of the National Wildfire Coordinating Group (NWCG)). At minimum, states should consider the following factors when assessing the relative degree of exposure each community (landscape) faces.
    - **Risk:** Using historic fire occurrence records and other factors, assess the anticipated probability of a wildfire ignition.
    - **Hazard:** Assess the fuel conditions surrounding the community using a methodology such as fire condition class, or [other] process.
    - **Values Protected:** Evaluate the human values associated with the community or landscape, such as homes, businesses, and community infrastructure (e.g. water systems, utilities, transportation systems, critical care facilities, schools, manufacturing and industrial sites, and high value commercial timber lands).
    - **Protection Capabilities:** Assess the wildland fire protection capabilities of the agencies and local fire departments with jurisdiction.
4. Prioritize by project not by community. Annually prioritize projects within each state using the collaborative process defined in the national, interagency MOU "For the Development of a Collaborative Fuels Treatment Program". Assign the highest priorities to projects that will provide the greatest benefits either on the landscape or to communities. Attempt to properly sequence treatments on the landscape by working first around and within communities, and then moving further out into the surrounding landscape. This will require:
    - First, focus on the zone of highest overall risk but consider projects in all zones. Identify a set of projects that will effectively reduce the level of risk to communities within the zone.
    - Second, determining the community's willingness and readiness to actively participate in an identified project.
    - Third, determining the willingness and ability of the owner of the surrounding land to undertake, and maintain, a complementary project.

- Last, set priorities by looking for projects that best meet the three criteria above. It is important to note that projects with the greatest potential to reduce risk to communities and the landscape may not be those in the highest risk zone, particularly if either the community or the surrounding landowner is not willing or able to actively participate.

5. It is important, and necessary, that we be able to demonstrate a level of accomplishment that justifies to Congress the value of continuing the current level of appropriations for the National Fire Plan. Although appealing to appropriators and others, it is not likely that many communities (if any) will ever be removed from the list of communities at risk. Even after treatment, all communities will remain at some, albeit reduced, level of risk. However, by using a science-based system for measuring relative risk, we can likely show that, after treatment (or a series of treatments), communities are at "*reduced risk*".

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

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

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

1.1.2.4 Healthy Forests Restoration Act

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

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

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

The Twin Falls County Wildland-Urban Interface Wildfire Mitigation Plan is developed to adhere to the principles of the HFRA while providing recommendations consistent with the policy document which should assist the federal land management agencies (US Forest Service and Bureau of Land Management) with implementing wildfire mitigation projects in Twin Falls

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

1.1.3 Local Guidelines and Integration with Other Efforts

1.1.3.1 Twin Falls County Fire Mitigation Planning Effort and Philosophy

The goals of this planning process include the integration of the National Fire Plan, the Idaho Statewide Implementation Strategy, the Healthy Forests Restoration Act, and 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.

1.1.3.1.1 Mission Statement

To make Twin Falls 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.

1.1.3.1.2 Vision Statement

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

1.1.3.1.3 Goals

- To reduce the area of WUI land burned and losses experienced because of wildfires where these fires threaten communities in the wildland-urban interface
- Prioritize the protection of people, structures, infrastructure, and unique ecosystems that contribute to our way of life and the sustainability of the local and regional economy
- Educate communities about the unique challenges of wildfire in the wildland-urban interface (WUI)
- Establish mitigation priorities and develop mitigation strategies in Twin Falls County
- Strategically locate and plan fuel reduction projects
- Provide recommendations for alternative treatment methods, such as brush density, herbicide treatments, fuel reduction techniques, and disposal or removal of treated fuels
- Meet or exceed the requirements of the National Fire Plan and FEMA for a County level Fire Mitigation Plan

Chapter 2: Planning Process

2 Documenting the Planning Process

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

2.1.1 Description of the Planning Process

The Twin Falls 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 Twin Falls County. This included an area encompassing Jerome, Owyhee, Cassia, Blaine, Gooding, Elmore and Minidoka Counties to insure a robust dataset for making inferences about fires in Twin Falls 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 wildfire specialists, rural fire chiefs and representatives of the BLM and Forest Service.
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.

Planning efforts were led by the Project Director, Dr. William E. Schlosser, of Northwest Management, Inc. Dr. Schlosser holds 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). Project Specialist John T. McGee led community and committee involvement efforts. Fire Management specialists Ken Homik and Dennis Thomas coordinated fire mitigation planning recommendations. Together, they led a team of resource professionals that included fire mitigation specialists, wildfire control specialists, resource management professionals, and hazard mitigation experts.

They were the point-people for team members to share data and information with during the plan's development. They and 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 effectively to integrate a wide spectrum of observations and interpretations about the project.

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

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

2.2 *Public Involvement*

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

2.2.1 News Releases

Under the auspices of the Twin Falls County Wildland-Urban Interface Wildfire Mitigation Planning Committee, news releases were submitted to the Buhl Herald and the Twin Falls Times News area news papers and radio.

2.2.1.1 Radio Messages

A short news release was aired over the KEZI, KOOL, and KLIX radio stations the week of July 20, 2004 to announcing the goals of the planning committee, the purpose of the mitigation plan, the date and times of public meetings, and contact information.

2.2.1.2 Newspaper Articles

Committee and public meeting announcements were submitted to the **Buhl Herald** and the **Twin Falls Times News**. The following is an example of one of the newspaper announcements that was submitted to the local newspaper.

Hot Topic: Twin Falls County Plans to Mitigate Wildfire Risk

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

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

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

For more information on the Fire Mitigation Plan projects in Twin Falls County, contact your County Commissioner, John McGee, the Twin Falls County local coordinator, at 208-459-8404 or William Schlosser at the Northwest Management, Inc. office in Moscow, Idaho at 208-883-4488.

2.2.2 Public Mail Survey

In order to collect a broad base of perceptions about wildland fire and individual risk factors of homeowners in Twin Falls County, a mail survey was conducted. Using a county database of landowners in Twin Falls County, homeowners from the Wildland-Urban Interface surrounding each community were identified. In order to be included in the database, individuals were selected that own property and have a dwelling in Twin Falls County, as well as a mailing address in Twin Falls County. Residents outside urban areas and city centers where targeted since these are the homes most likely to be exposed to risk factors associated with wildland fire. This database created a list of unique names to which was affixed a random number that contributed to the probability of being selected for the public mail survey. A total of 225 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 July 20, 2004, and included a cover letter, a survey, and an offer of receiving a custom GIS map of the area of their selection in Twin Falls County if they would complete and return the survey. The free map incentive was tied into assisting their community and helping their interests by participating in this process. Each letter also informed residents about the planning process. A return self-addressed enveloped was included in each packet. A postcard reminder was sent to the non-respondents on July 29, 2004, encouraging their response. A final mailing, with a revised cover letter pleading with them to participate, was sent to non-respondents on August 10, 2004.

Surveys were returned during the months of July and August. A total of 102 residents responded to the survey (as of September 10, 2004). No surveys were returned as undeliverable, and two responded that they no longer live in the area. The effective response rate for this survey was 45%. Statistically, this response rate allows the interpretation of all of the response variables significantly at the 99% confidence level.

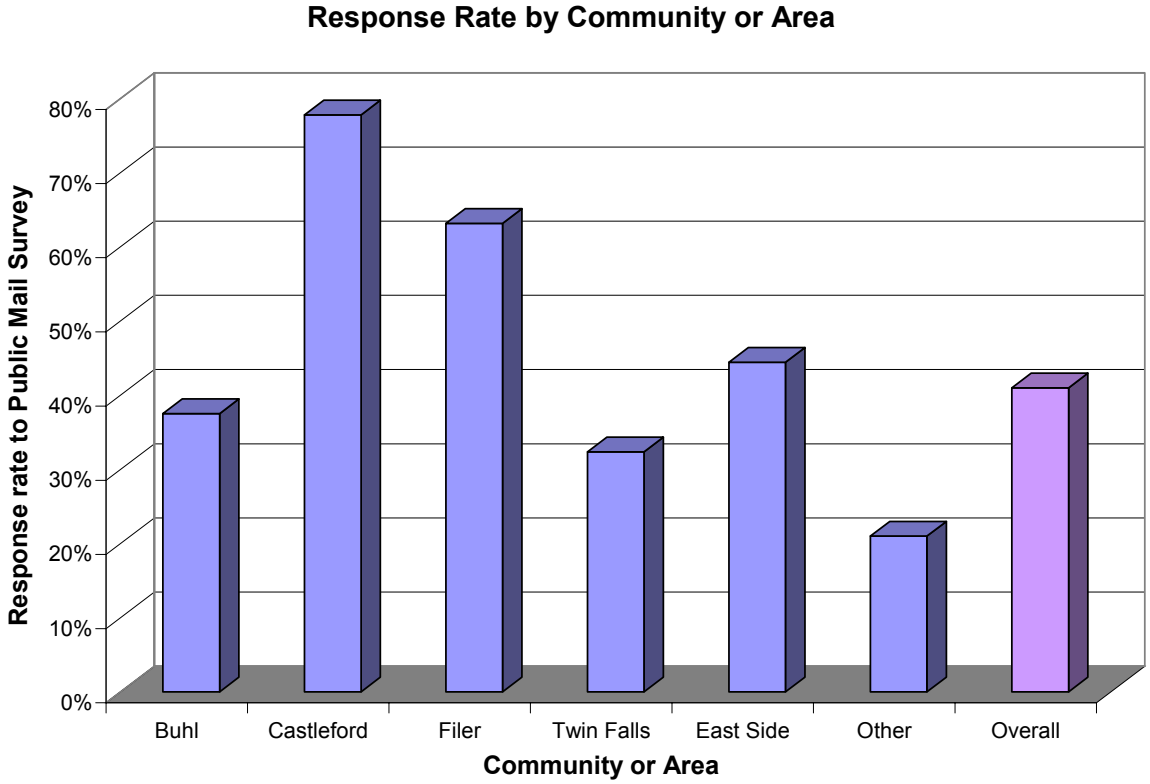
2.2.2.1 Survey Results

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. *Survey information will be updated until the completion of the plan.*

Of the survey respondents, 98% have a home within Twin Falls County. All respondents consider this their primary residence. About 63% of the respondents were from the Buhl area, 11% were from the Twin Falls area, 13% were from the Filer area, 6% were from the East Side of the County (including Kimberly, Hansen and Murtaugh) and 7% where from the Castleford area.

Response rates were determined by communities or group of communities within Twin Falls County. The response rate indicates the percent of surveys returned relative to the number of surveys sent to each community (Figure 1.1).

Figure 1.1. Response Rate to survey by community or area.



All of the respondents (100%) correctly identified that they have emergency telephone 911 services in their area. Ninety one percent of the respondents correctly identified that they have structural fire protection, while the remaining 9% identified that they did not have any structural protection. Of these, 5% did indeed have structural protection when they indicated that they were in an unprotected area.

Respondents were asked to indicate the type of roofing material covering the main structure of their home. Approximately 58% of respondents indicated their homes were covered with a composite material (asphalt shingles). About 17% indicated their home were covered with a

metal (eg., aluminum, tin) roofing material. Roughly 19% of the respondents indicated they have a wooden roofing material such as shakes or shingles. Two percent of the respondents indicated that they have a ceramic tile roof, and 6% did not indicate what types of roofing material they had.

Residents were asked to evaluate the proximity of brush within certain distances of their homes. Often, the density of brush around a home is an indicator of increased fire risk. The results are presented in Table 2.1

Table 2.1 Survey responses indicating the proximity of brush to homes.

% area in brush	Within 250 feet of your home	Within 75 feet of your home
No brush	55%	70%
Less than 10% of area	16%	13%
Between 10% and 25%	15%	6%
More than 25% of area	10%	7%

Ninety three percent of those returning the survey indicated they have a lawn surrounding their home. Of these individual home sites, 100% indicated they keep this lawn green through the fire season.

The average driveway length of the respondents was approximately 547 feet long, from their main road to their parking area. Roughly 3% of the respondents had a driveway over ½ mile long, and a corresponding 13% had a driveway over ¼ of a mile long. Of these homes with lengthy driveways, roughly 67% have turnouts allowing two vehicles to pass each other in the case of an emergency. Seventeen percent of the respondents indicate that they have a bridge accessing their property. Of these, 86% indicated that the bridge was adequate to support a heavy fire engine. Approximately 71% of all homeowners indicated they have an alternative escape route, with the remaining 29% indicating only one-way-in and one-way-out.

Nearly all respondents (97%) indicated they have some type of tools to use against a wildfire that threatens their home. Table 2.2 summarizes these responses.

Table 2.2. Percent of homes with indicated fire fighting tools in Twin Falls County.

99% – Hand tools (shovel, Pulaski, etc.)
21% – Portable water tank
13% – Stationery water tank
55% – Pond, lake, or stream water supply close
19% – Water pump and fire hose
26% – Equipment suitable for creating fire breaks (bulldozer, cat, skidder, etc.)

Roughly 27% of the respondents in Twin Falls County indicated they have someone in their household trained in wildland fire fighting. Approximately 18% 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 ask whether homeowners conduct periodic fire mitigation efforts on their property. Respondents were asked if they conduct a periodic fuels reduction program near their home sites, such as grass or brush burning. Sixty seven percent of the respondents indicate that they periodically burn or mow grass and brush in the vicinity of their home. Forty eight percent responded that livestock (cattle, horses, sheep) graze the grasses and forbs around their home sites.

Respondents were asked to complete a fuel hazard rating worksheet to assess their home's fire risk rating. An additional column titled "results" has been added to the table, showing the percent of respondents circling each rating (Table 2.3).

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

Table 2.3. Fuel Hazard Rating Worksheet		Rating	Results
Fuel Hazard	Small, light fuels (grasses, forbs, weeds, shrubs)	1	73%
	Medium size fuels (brush, large shrubs, small trees)	2	27%
	Heavy, large fuels (woodlands, timber, heavy brush)	3	0%
Slope Hazard	Mild slopes (0-5%)	1	80%
	Moderate slope (6-20%)	2	12%
	Steep Slopes (21-40%)	3	8%
	Extreme slopes (41% and greater)	4	1%
Structure Hazard	Noncombustible roof and noncombustible siding materials	1	31%
	Noncombustible roof and combustible siding material	3	22%
	Combustible roof and noncombustible siding material	7	17%
	Combustible roof and combustible siding materials	10	30%
Additional Factors	Rough topography that contains several steep canyons or ridges	+2	Average -1.9 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.

Fuel hazard __1.2___ x Slope Hazard ____1.3___ = ____2.5____		
Structural hazard	+	____5.1___
Additional factors	(+ or -)	___-1.9__
Total Hazard Points	=	____5.7__.

Table 2.4. Percent of respondents in each risk category as determined by the survey respondents.
00% – Extreme Risk = 26 + points
05% – High Risk = 16–25 points
30% – Moderate Risk = 6–15 points
65% – Low Risk = 6 or less points

Maximum household rating form score was 16 points, as assessed by the homeowners. These numbers were compared to observations made by field crews trained in wildland fire fighting. These results indicate that for the most part, these indications are only slightly lower than the risk rating assigned by the "professionals". Anecdotal evidence would indicate that Twin Falls County landowners involved in this survey have a more realistic view of wildfire risk than the landowners in other Idaho counties where these questions have been asked.

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?" Approximately 46% of the respondents indicated a desire to participate in this type of training.

Homeowners were also asked, "How do you feel Wildland-Urban Interface Fire Mitigation projects should be funded in the areas surrounding homes, communities, and infrastructure such as power lines and major roads?" Responses are summarized in Table 2.5.

Table 2.5. Public Opinion of Wildfire Mitigation Funding Preferences.

	Mark the box that best applies to your preference		
	100% Public Funding	**Cost-Share (Public & Private)**	**Privately Funded (Owner or Company)**
Home Defensibility Projects	15%	36%	48%
Community Defensibility Projects	46%	42%	12%
Infrastructure Projects Roads, Bridges, Power Lines, Etc.	63%	22%	16%

2.2.2.2 Committee Meetings

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

- Bill Brockman .....Twin Falls County Commissioner
- Bud Compher .....Filer Fire Department
- C.W. Bill Robinson .....Rock Creek Fire Department
- Curtis Jensen .....Bureau of Land Management
- Dennis S. Thomas.....Northwest Management, Inc.
- Earl Tyree.....Buhl Fire Department
- Ed Gudgell .....Twin Falls County Sheriff
- Gary Grindstaff.....Twin Falls County Commissioner
- Jackie Frey.....Department of Emergency Services
- Jody Galan .....Twin Falls County Commissioner
- John McGee.....Northwest Management, Inc.

- Jon Skinner .....Bureau of Land Managment
- Julie Thomas.....Mid-Snake RC&D
- Ken Homik.....Northwest Management, Inc.
- Mark Grimes.....Buhl Fire Department
- Rochelle Ahrens.....Sawtooth National Forest
- Rod Davis.....Salmon Tract Rural Fire Department
- Ron Clark .....Twin Falls City Fire Chief
- Seth Christensen.....Castleford Fire Protection District
- Toby Brown .....Northwest Management, Inc.
- Tom Mikesell .....Twin Falls County Commissioner
- Tony Beitia .....Sawtooth National Forest
- Wayne Tousley .....Twin Falls County Sheriff
- William E. Schlosser .....Northwest Management, Inc.

Committee Meetings were scheduled and held on the following dates:

January 24, 2004

John McGee opened the first meeting of the Twin Falls Fire Mitigation Planning Committee by making introductions and explaining the planning process. He also went over specific information the committee would need to provide and approximate completion dates for each step of the project. The committee agreed that the fourth Tuesday of each month would work for everybody present. The location of each meeting can change depending on availability of meeting venues. Contact information was exchanged between members.

John presented the committee with a set of preliminary maps created by Northwest Management, Inc. Members were then asked to review the maps, make corrections, and identify significant infrastructure.

John discussed the importance of the resources and capabilities guide and asked fire departments to either e-mail filled out forms to him or Dr. Schlosser at NMI. They also need to update the County's Operations Plan.

NMI personnel have already made assessments of each community including fuels, access, potential treatments, and pictures. These assessments will be handed out as soon as possible. The committee was asked to provide any information on past, current, or planned fire mitigation projects.

John discussed the importance of public involvement to the planning process. Any community members interested are welcome to attend the committee meetings. Additionally, the public survey will be distributed as soon as the Assessor's office is able to provide the cadastral data. Public information meetings will also be held towards the end of the planning process to share information with residents and gather any additional input.

February 24, 2004

John McGee from NMI opened the meeting by introducing new attendees and updating the committee on accomplishments since the last meeting. March 23, 2004 was confirmed for the next meeting date.

The maps that were reviewed at the last meeting are in the process of being updated and will be presented for another round of changes at the next meeting.

The resources and capabilities guide was discussed in detail. Fire departments need to make sure they include future needs and projections for their districts as well as a "Wish List" of new equipment, better training, facility updates, etc. A short list of needs was compiled.

- Digital radios – need to update to narrow band (SIRCOMM)
- Repeaters/Antennas – SIRCOMM did not put in repeater near Buhl for tactical units, so during busy fire seasons Mark must use SIRCOMM as the repeater. There are also major dead spots by Hollister (Shoshone Basin).
- SIRCOMM needs to install repeater near Rock Creek because there is currently no communication network in this area.
- All districts need water tenders
- Update apparatus
- Need better training of firefighters as well as incentives for recruitment and retention. Would support the development of a central training center, so that local training was more feasible. (Red card, hazmat, pathogens, ladder work, LPG and natural gas, and vehicle extrication)
- Fire Works trunks and more access to education programs and teachers
- Grant writer

March 23, 2004

John opened the meeting by updating the committee on NMI accomplishments, which included completion of the draft community assessments and updated maps. John presented a completed version of the Adams County plan, so members could see what the final product should look like. Chapters 3 and 4 involving the community assessments, fire department information, and specific recommendations were discussed at length.

NMI is still waiting for information from Rock Creek and Castleford Fire Departments. Curtis will help get this information.

Questions were asked regarding the survey information. John explained that addresses in major population centers, such as Twin Falls, will be thrown out of the data base. The BLM would like to work with NMI to make sure areas of concern are covered by the surveys.

April 27, 2004

John McGee, Northwest Management, Inc., began the meeting by handing out the draft versions of the community assessments. Committee members were asked to review the document and send changes and corrections either to him or Dr. Schlosser in Moscow. Ken Homik, Northwest Management, Inc. is trying to set up meetings with all of the fire departments to discuss and complete the resources and capabilities guide. This information must be completed ASAP.

John presented the new GIS map set for corrections by the committee. Primary and secondary escape routes, repeater locations, water sources, etc. need to be identified on the maps. The County Assessor's office needs to send NMI the cadastral data in order for public surveys to be prepared.

Twin Falls County is currently involved in the Red Zone program, which is software that allows officials to collect fire related information such as home site assessments and areas of concern and compile the data.

The committee would like electronic copies of the community assessments, resources and capabilities guide, and draft plan.

July 27, 2004

John McGee, Northwest Management, Inc. began the committee meeting by listing NMI's accomplishments since the last meeting. 241 public survey forms were sent out on July 20. The 1st reminder postcard will be sent on July 30 and the 2nd survey will be sent around the 10th of August. Press releases sent out to the three area radio stations and Times News and Buhl Herald. Results will be compliled and updated during the remainder of the planning process.

NMI is continuing to update the community assessments draft document as comments and changes come in. Ken Homik, NMI, spent the 15th and 16th in the county talking to local fire chiefs and integrating new information into the assessments. There was a short discussion concerning the format used in the Buhl assessment. Additional comments should be directed to Ken Homik.

All of the resources and capabilities guides have been collected! This information can now be integrated into the final document. The committee reviewed and discussed some of the action items that have been identified so far.

There have been no recent changes to the maps; however, if any additional corrections need to be made contact Dr. Schlosser at NMI in Moscow.

The committee is currently in the process of collecting proposed and past wildland treatments or mitigation activities that have taken place in the county. The BLM and the Forest Service are providing information. Specific recommendations for each community were also discussed.

August 24, 2004

This was a review of the draft version of the Twin Falls Fire Mitigation Plan. The meeting immediately began with a discussion of east side public participation. Few surveys had been tallied within the Rock Creek protection area. It was uncertain as to whether this was due to lack of response by east side residents or whether the mailing was somehow skewed to the west side. A number of possible alternatives were discussed, including an additional public meeting and additional survey distributions. No decision on what corrective action, if any, would be taken until after mailing information could be ascertained.

Very productive discussion on all components of the plan where held. There was interest in developing an Executive Summary for easier public consumption. Ken Homik from NMI indicated that Chapters 4 and 5 could be clipped out of the document, with references made to the main document for distribution to interested individuals.

Review, corrections, and clarifications on the Community Assessments and Mitigation Activities were made for the bulk of the meeting. Edits would be forwarded to Ken Homik of NMI for incorporation into the plan. A revised schedule for committee and public review as well as final review was agreed upon.

2.2.2.3 Public Meetings

Formal public meetings were scheduled on August 11, 2004, in Hansen and Twin Falls, on August 12, 2004 at Buhl, and September 15, 2004, in Kimberly. The purpose of these meetings was to share information on the planning process with a broadly representative cross section of Twin Falls County landowners. All 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.

Attendance at the public meetings included four individuals at Hansen, five at the meeting in Twin Falls, five at the meeting in Buhl, and .

2.2.2.3.1 Hansen Public Meeting

August 11 – City Meeting Hall – 5:30 pm

2.2.2.3.2 Twin Falls Public Meeting

August 11, 2004 – Twin Falls Fire Department - 7:30pm

2.2.2.3.3 Buhl Public Meeting

August 12, 2004 – Buhl City Hall – 6:00 pm

2.2.2.3.4 Kimberly Public Meeting

September 15, 2004 – Rock Creek Fire Station – 5:00 pm

A public meeting was held at the Rock Creek Fire Department in Kimberly on September 15th at 5:00 PM. The meeting was held to discuss with and inform the public in the Kimberly area of Twin Falls County about the Twin Falls County Fire Mitigation Plan. Bill Brockman, Twin Falls County Commissioner was in attendance. John McGee with NMI gave a presentation about NMI and the Wildfire Mitigation Plan and Commissioner Brockman talked about the working group. Northwest Management contacted over 50 residents by phone to inform them of the meeting.

The group brought up some questions including what the recommended distance was going to be on firebreaks along major roadways in the county. Bill Robison explained that the Cassia Co. FMP listed a 200 ft. barrier, but that the Twin Falls Co. FMP group decided that a cross county standard was unnecessary because of the variation of terrain and circumstances across the county. Bill Robison also noted the use of cattle grazing as a method to reduce fuels in the county.

The group also asked about the disposal of brush and fuel removed from private property. The group determined that there was such a program and that Curtis Jensen with the BLM or Julie Thomas with the RC & D needed to be contacted for more information.

2.2.2.3.5 Meeting Notices

Public notices of these meetings were submitted to the **Buhl Herald** and the **Twin Falls Times News.** The notices were asked to run from August 4 to August 12, 2004.

Twin Falls County Wildland Urban Interface Wildfire Mitigation Plan

The public is invited to attend meetings and provide input concerning in the Twin Falls County Fire Mitigation Plan. The Plan includes risk analysis at the community level with predictive models for where fires are likely to ignite and where they are likely to spread rapidly once ignited. The committee involved includes rural and wildland fire districts, land managers, elected officials, agency representatives, and others.

For more information on the Fire Mitigation Plan or if you have questions contact Northwest Management, Inc. project managers William Schlosser or Dennis Thomas at (208) 883-4488, the Twin Falls local coordinator John McGee at (208) 459-8404, or your County Commissioner.

Meeting dates and locations are listed below:

August 11, 2004 5:30 PM to 7:00 PM

Hansen City Meeting Hall

½ block from 388 Main

August 11, 2004 7:30 PM to 9:00 PM

Twin Falls Fire Department

345 2nd Avenue E.

(next to City Hall)

August 12, 2004 6:00 PM to 8:00 PM

Buhl City Hall

203 Broadway Avenue N.

2.3 *Review of the WUI Wildfire Mitigation Plan*

Reviews of sections of this document were conducted by the planning committee during the planning process as maps, summaries, written assessments and mitigation recommendations were completed. These individuals included fire mitigation specialists, fire fighters, planners, elected officials, BLM representatives and others involved in the coordination process. Preliminary findings were discussed and comments were collected and integrated into the plan.

A formal review of the DRAFT plan was conducted by planning committee members from August 18, 2004 until September 10, 2004. Numerous comments, suggestions, and edits were provided and integrated into the revised plan submitted for Public Review. The Public Review document was made available on September 10, 2004, at the County Courthouse, local Libraries, the US Forest Service, and the Bureau of Land Management offices in Twin Falls County. The Public Review process is open from September 10, until September 24, 2004. The Twin Falls County Commissioners are expected to vote on, and accept the finalized plan on September 28, 2004.

All comments to this Draft of the plan should be in writing and provided to one of the County Commissioners, or sent directly to Northwest Management, Inc., in care of Ken Homik at Homik@consulting-foresters.com or by fax to Northwest Management, Inc. at 208-883-1098.

Chapter 3: County Characteristics & Risk Assessment

3 Background and Area Description

3.1 *Demographics*

The population in Twin Falls County has been growing steadily.Twin Falls County reported an increase in total population from 53,580 in 1990 to 67,082 in 2000 with approximately 23,811 households. Twin Falls County has eight incorporated places, including Buhl (pop. 3985), Castleford (pop. 277) Filer (pop. 1,620), Hansen (pop. 970), Hollister (237), Kimberly (pop. 2614), Murtaugh (pop. 139), and Twin Falls (34,469). Nearly 64% of the total county population resides in Twin Falls. Unincorporated communities include Roseworth, Berger, Rogerson, and Rock Creek. The total land area of the county is roughly 1,928.47 square miles (1,234,220 acres).

Table 3.1 summarizes some relevant demographic statistics for Twin Falls County.

Table 3.1. Selected demographic statistics for Twin Falls County, Idaho, from the Census 2000.

Subject	Number	Percent
Total population	**64,284**	**100.0**
SEX AND AGE		
Male	31,645	49.2
Female	32,639	50.8
Under 5 years	4,756	7.4
5 to 9 years	4,614	7.2
10 to 14 years	5,235	8.1
15 to 19 years	5,532	8.6
20 to 24 years	4,603	7.2
25 to 34 years	7,504	11.7
35 to 44 years	9,193	14.3
45 to 54 years	8,247	12.8
55 to 59 years	2,938	4.6
60 to 64 years	2,568	4.0
65 to 74 years	4,417	6.9
75 to 84 years	3,349	5.2
85 years and over	1,328	2.1
Median age (years)	34.9	(X)
18 years and over	46,381	72.2
Male	22,464	34.9
Female	23,917	37.2
21 years and over	43,053	67.0
62 years and over	10,590	16.5

Table 3.1. Selected demographic statistics for Twin Falls County, Idaho, from the Census 2000.

Subject	Number	Percent
65 years and over	9,094	14.1
Male	3,809	5.9
Female	5,285	8.2
RELATIONSHIP		
Population	**64,284**	**100.0**
In households	62,861	97.8
Householder	23,811	37.0
Spouse	13,742	21.4
Child	20,186	31.4
Own child under 18 years	16,560	25.8
Other relatives	2,258	3.5
Under 18 years	859	1.3
Nonrelatives	2,864	4.5
Unmarried partner	1,161	1.8
In group quarters	1,423	2.2
Institutionalized population	668	1.0
Noninstitutionalized population	755	1.2
HOUSEHOLDS BY TYPE		
Households	**23,811**	**100.0**
Family households (families)	16,938	71.1
With own children under 18 years	8,329	35.0
Married-couple family	13,597	57.1
With own children under 18 years	6,253	26.3
Female householder, no husband present	2,340	9.8
With own children under 18 years	1,461	6.1
Nonfamily households	6,873	28.9
Householder living alone	5,620	23.6
Householder 65 years and over	2,535	10.6
Households with individuals under 18 years	8,912	37.4
Households with individuals 65 years and over	8,482	35.6
Average household size	2.64	(X)
Average family size	3.14	(X)
HOUSING TENURE		
Occupied housing units	**23,853**	**100.0**
Owner-occupied housing units	16,292	68.3
Renter-occupied housing units	7,561	31.7
Average household size of owner-occupied unit	2.64	(X)

Table 3.1. Selected demographic statistics for Twin Falls County, Idaho, from the Census 2000.

Subject	Number	Percent
Average household size of renter-occupied unit	2.64	(X)

(X) Not applicable
[1] Other Asian alone, or two or more Asian categories.
[2] Other Pacific Islander alone, or two or more Native Hawaiian and Other Pacific Islander categories.
[3] In combination with one or more other races listed. The six numbers may add to more than the total population and the six percentages may add to more than 100 percent because individuals may report more than one race.
Source: U.S. Census Bureau, Census 2000 Summary File 1, Matrices P1, P3, P4, P8, P9, P12, P13, P,17, P18, P19, P20, P23, P27, P28, P33, PCT5, PCT8, PCT11, PCT15, H1, H3, H4, H5, H11, and H12.

3.2 *Socioeconomics*

Twin Falls County had a total of 23,853 occupied housing units and a population density of 33.4 persons per square mile reported in the 2000 Census (Table 3.1). Ethnicity in Twin Falls County is distributed: white 92.5%, black or African American 0.2%, American Indian or Alaskan Native 0.7%, other race 3.8%, two or more races 2.0%, Hispanic or Latino 9.4%, and white alone (not Hispanic or Latino) 98.0%.

Specific economic data for census tracts is collected by the US Census. Census tracts are relatively permanent statistical subdivisions of a county. Census tracts are designed to be homogeneous with respect to population characteristics, economic status, and living conditions. The spatial size of census tracts varies widely depending on the density of settlement. Census tract boundaries are delineated with the intention of being maintained over a long time so that statistical comparisons can be made from census to census. Eight tracts have been identified in Twin Falls County including Buhl, Castleford, Filer, Hollister, Kimberly, Twin Falls, Hansen, and Murtaugh. Twin Falls County households earn a median income of $34,506 annually. In 2000, Hollister, Twin Falls, and Kimberly had median household incomes of $34,514, 34,726, and 35,470, respectively, which were above the County median income during the same period. The communities of Buhl, Castleford, Filer, Hansen, and Murtaugh had a median household incomes of $33,962, $22,083, $34,140, $29,125, and $28,977, respectively, which are below the Twin Falls County median during the same period.

Table 3.2 shows the dispersal of households in various income categories of all communities.

Table 3.2. Income in 1999	Twin Falls County	
	Number	Percent
Households	**23,811**	**100.0**
Less than $10,000	2,193	9.2
$10,000 to $14,999	2,023	8.5
$15,000 to $24,999	4,119	17.3
$25,000 to $34,999	3,737	15.7
$35,000 to $49,999	4,716	19.8
$50,000 to $74,999	4,196	17.6
$75,000 to $99,999	1,470	6.2
$100,000 to $149,999	838	3.5
$150,000 to $199,999	164	0.7
$200,000 or more	355	1.5
Median household income (dollars)	34,506	(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 Twin Falls County, a significant number of families are at or below the poverty level. Approximately 9.1% of Twin Falls County families are below poverty level (Table 3.3).

Table 3.3. Poverty Status in 1999 (below poverty level)	**Twin Falls County**	
	Number	**Percent**
Families	**1,543**	**(X)**
Percent below poverty level	(X)	9.1
With related children under 18 years	1,212	(X)
Percent below poverty level	(X)	13.9
With related children under 5 years	703	(X)
Percent below poverty level	(X)	20.3
Families with female householder, no husband present	**707**	**(X)**
Percent below poverty level	(X)	30.2
With related children under 18 years	626	(X)
Percent below poverty level	(X)	39.0
With related children under 5 years	334	(X)
Percent below poverty level	(X)	49.0
Individuals	**8,038**	**(X)**
Percent below poverty level	(X)	12.7
18 years and over	5,093	(X)
Percent below poverty level	(X)	11.2
65 years and over	810	(X)
Percent below poverty level	(X)	9.3
Related children under 18 years	2,780	(X)
Percent below poverty level	(X)	16.0
Related children 5 to 17 years	1,711	(X)
Percent below poverty level	(X)	13.4
Unrelated individuals 15 years and over	2,565	(X)
Percent below poverty level	(X)	25.7

(Census 2000)

The unemployment rate was 3.9% in Twin Falls County in 1999, compared to 4.4% nationally during the same period. Approximately 8.6% of the Twin Falls County employed population worked in natural resources, with much of the indirect employment relying on the employment created through these natural resource occupations; Table 3.4 (Census 2000).

Table 3.4. Employment & Industry	**Twin Falls County**	
	Number	**Percent**
Employed civilian population 16 years and over	**29,916**	**100.0**
OCCUPATION		
Management, professional, and related occupations	8,193	27.4

Table 3.4. Employment & Industry	Twin Falls County	
	Number	Percent
Service occupations	4,969	16.6
Sales and office occupations	7,578	25.3
Farming, fishing, and forestry occupations	1,324	4.4
Construction, extraction, and maintenance occupations	2,944	9.8
Production, transportation, and material moving occupations	4,908	16.4
INDUSTRY		
Agriculture, forestry, fishing and hunting, and mining	2,585	8.6
Construction	1,939	6.5
Manufacturing	3,619	12.1
Wholesale trade	1,386	4.6
Retail trade	4,128	13.8
Transportation and warehousing, and utilities	1,684	5.6
Information	422	1.4
Finance, insurance, real estate, and rental and leasing	1,273	4.3
Professional, scientific, management, administrative, and waste management services	1,903	6.4
Educational, health and social services	5,699	19.1
Arts, entertainment, recreation, accommodation and food services	2,628	8.8
Other services (except public administration)	1,553	5.2
Public administration	1,097	3.7

Approximately 77% of Twin Falls County's employed persons are private wage and salary workers, while around 13% are government workers (Table 3.5).

Table 3.5. Class of Worker	Twin Falls County	
	Number	Percent
Private wage and salary workers	22,879	76.5
Government workers	3,937	13.2
Self-employed workers in own not incorporated business	2,997	10.0
Unpaid family workers	103	0.3

(Census 2000)

3.2.1 European Settlement of Twin Falls County

Information summarized from Jerome and Twin Falls Counties soil survey

The first known inhabitants in the area were Shoshone and Northern Paiute Indians, who seasonally migrated between the Snake River and the southern uplands. In 1811 the Pacific Fur Company explored the area. Beaver trappers frequented the local streams in the 1820's and 1830's. The Oregon Trail, which generally followed the Snake River, was established in 1843. Emigrants passed through the area until 1863, when the Halliday Stage Line built Home Station on Rock Creek. Two years later Rock Creek Station, the area's first store, was erected next to Home Station. About 1865 gold was discovered along the Snake River. The placer mining camps of Dry Town, Mudbarville, Springtown, and Waterbug boomed, but they were busted by 1875.

Cattle ranching, an important industry in the late 1870's, remained the main industry in the area until the availability of irrigation water for farming. In 1903 Milner Dam on the Snake River was completed. Farmers then settled the central part of the area, which resulted in the establishment of Jerome and Twin Falls Counties. The city of Twin Falls was platted in 1904, and Twin Falls County was formed from the western part of Cassia County in 1907. In 1919 Jerome County was created from parts of Minidoka, Lincoln, and Gooding Counties. The city of Jerome was founded the same year. The towns of Buhl, Jerome, and Twin Falls became the main shopping and industrial centers. Other smaller towns served as secondary shopping centers for their immediate areas.

3.3 *Description of Twin Falls County*

Twin Falls County is located in south central Idaho in an area known as the “Magic Valley”. This area and a large portion of southern Idaho is typified as a semiarid steppe environment receiving approximately 8-10 inches of precipitation annually. Native vegetation in this climate type consists of 10-15 species of sagebrush and bunchgrasses. The vast majority of the county is relatively flat making it ideal for extensive agricultural development. The southwest corner is characterized by gently rolling topography that extends into Nevada. These slopes, although fairly mild, are unsuitable for farming; thus, this area is primarily managed by the Bureau of Land Management (BLM) or privately owned ranches. The USDA Forest Service owns the steeper slopes rising in the southeast corner of the county. This primarily west aspect range reaches a height of approximately 7,200 feet with stunted subalpine vegetation community on the upper slopes.

Much of Twin Falls County was well established as a booming cattle community by the 1870’s, but by the early 1890’s wool production was also flourishing. The completion of the Milner Dam in the northeast corner of the county in 1905 allowed the expansion of widespread irrigation throughout the area south of the Snake River. Additionally, the Salmon Falls Dam, constructed in 1910, provided the southern region of the county with a water resource for irrigation. Continued access to irrigation resources has led to agricultural development on almost every acre of privately owned land.

Twin Falls County has a narrow economic base that is almost solely dependent on agriculture or a related industry. Over the past century, employment through agricultural farming and livestock ranching has been significant in the region. As one of the most productive regions in the world, agriculture is the major contributor to the economic stability of the County. Of the 1,232,064 total land acres within the county, 558,124 are privately owned (45% of total) and approximately 250,000 acres (20% of total) support irrigated crops. Potatoes, corn, sugar beets, peas, grain, and alfalfa are commonly grown in Twin Falls County. Sparse rainfall makes irrigation essential for successful farming. The Reclamation Act of 1902 provided funds for construction of reservoirs, canals, and irrigation control structures that began operating in 1904. Irrigation water is applied mainly by surface methods, but some sprinkler systems are used. Use of commercial fertilizers and improved varieties of crops has increased overall average yields.

Commercial cattle raising operations and industries associated with beef production are also very widespread. 543,946 of the total acres (44%) in the county are managed by the BLM, much of which has been leased for livestock grazing. Cattle ranches were the dominant agricultural industry before the development of irrigated farmland. Livestock still provide almost one-half of the agricultural income, and about 65 percent of the land in the area is used for livestock. Irrigation projects reduced the acreage of rangeland by about 30 percent, but many farms still have small cow-calf or beef operations. Dairies, which furnish products statewide, and stock operations are increasing. Sheep and hogs are raised on a few farms.

3.3.1 Highways

The main highways weaving through the county are U.S. Highway 93 and 30, State Highways 74 and 50. U.S. 93 is the sole paved route connecting the northern and southern regions of Twin Falls County. U.S. 30 and the other paved state and county roads traverse the more populated areas between the Snake River and the open rangelands. All of these roadways are typically bordered by rangeland or agricultural fields. Heavy large truck traffic is particularly intense during the summer and fall months due to harvesting activities.

3.3.2 Rivers

The only major river in the County is the Snake River, which forms the northern border of the county. During the Great Migration over the Oregon Trail and still today, the Snake River was a large financial entity in Twin Falls County providing many recreational and economic resources. Other important bodies of water in the county are Murtaugh Lake, Salmon Falls Creek Reservoir, Salmon Falls Creek, Cedar Creek Reservoir, and a multitude of small streams and springs and irrigation canals.

3.3.3 Temperature

In winter, the average daily temperature is 29 degrees Fahrenheit. The lowest temperature on record was -27 degrees in Hollister, Idaho on December 22, 1990. In summer, the average daily temperature is 67 degrees Fahrenheit. The highest temperature on record for Twin Falls County is 101 degrees.

3.3.4 Growing Season

The total annual precipitation is about 10 inches. Of this, about 3 inches, or 30%, usually falls in June through September. The growing season for most crops falls within this period.

3.3.5 Days of Sunshine

The sun shines 83 percent of the time in summer and 45 percent of the time in winter.

3.3.6 Recreation

The deep canyons, open deserts, and rolling uplands provide year-round outdoor opportunities for hunters, fishermen, water and winter sports enthusiasts, picnickers, hikers, campers, sightseers, and students of photography and nature.

Salmon Falls Creek Reservoir provides developed camp sites, excellent year-round fishing, boat ramps, hiking, and restroom and picnic facilities. This reservoir is located approximately 7 miles from Rogerson off U.S. Highway 93, making it particularly attractive for day use and travelers.

Fishing in the County's rivers, streams, reservoirs, and lakes is a favorite activity of many people. The Snake River, which forms the northern border of the County, has many sportsman access sites for fishing, camping, and sightseeing. The river also offers a multitude of boating, rafting, and swimming opportunities. The spectacular Shoshone Falls north of Kimberly has a well maintained picnicking and viewing area for visitors. Murtaugh Lake is located just off US 30 near Murtaugh and offers picnicking, boating, wildlife viewing, and waterfowl hunting; however, this site is closed during the colder months.

The Sawtooth National Forest along the eastern boundary of the County has several developed campsites and trails. The Magic Mountain Ski Resort is also located in this region, providing area residents with skiing, snowshoeing, snowboarding, and snowmobiling opportunities.

Balanced Rock is a very unique natural feature located near Castleford. Twin Falls County maintains a small park near the site offering picnicking and bathroom facilities. The Hagerman Fossil Beds National Monument covers a large portion in the northwestern most region of the County. This area has a rich history, which is explained in its entirety at the Hagerman Fossil Beds Visitor Center in Hagerman, Gooding County, Idaho.

Urban recreational facilities, such as parks, ballfields, playgrounds, swimming pools, tennis courts, and golf courses are in or around the major population centers. 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.

3.3.7 Resource Dependency

The communities of Twin Falls 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 Hollister and Castleford were the only communities experiencing significant growth, 64.6% and 54.7%, 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 Buhl, Filer, Hollister, Murtaugh, and Castleford fall into this category as an "Agriculture Only" dependent community. Twin Falls is considered under the heading of a "Travel and Tourism" dependent community. Kimberly and Hansen were a combination of "Travel & Tourism and Agriculture" (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 Twin Falls County are summarized in Table 3.6.

Table 3.6. Levels of direct employment by industrial sector

Community	Economic Diversity Index	Agriculture	Timber	Travel and Tourism	State/Local Government	Federal Government	Mining and Minerals
Buhl	Med. High	Med. High	Low	Med. Low	Low	Low	Low
Castleford	Med. High	High	Low	Low	High	Low	Low
Filer	High	Med. High	Low	Med. Low	Med. High	Low	Low
Hansen	Med. Low	Med. High	Low	Med. High	High	Low	Low
Hollister	Low	High	Low	Low	Low	Low	Low
Kimberly	Med. High	High	Low	Med. High	Low	Low	Low
Murtaugh	Med. Low	High	Low	Low	Med. High	Low	Low
Twin Falls	High	Low	Low	Med. High	Med. High	Low	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

3.4 *Emergency Services & Planning and Zoning*

Southern Idaho Regional Communications Center (SIRCOMM) serves as the dispatching center for all structural and emergency medical 911 calls made in county outside the City of Twin Falls. SIRCOMM has enhanced 911 services, the automated number identification and automated location identification. SIRCOMM dispatches through a highly specialized Computer Assisted Dispatch or CAD system. The system is designed to automate the flow of information through the emergency communications center. CAD systems take the initial call-for-service data, link it to pre-defined data required for the emergency response, and switch the call to the various operators in the center that are responsible for dispatching the emergency response. The city of Twin Falls maintains its own enhanced 911dispatch center, coordinating emergency services within the city limits.

Wildland fire dispatching is coordinated through Interagency Dispatch in Shoshone, Idaho and is based on a closest available force philosophy. The closest available resource is immediately dispatched to an incident, regardless of whether the resource is affiliated with the Forest Service, the BLM or rural fire departments. This assures rapid initial attack of wildland incidents. Incidents within the city limits of Twin Falls are dispatched through the Twin Falls City dispatching center.

The Twin Falls County Planning & Zoning Commission recognizes the need for improved Road Standards. The Commission is actively researching design standards and plans to recommend that the County adopt standards for new construction that comply with the International Fire Code.

3.4.1 Growth and Development

Recently, communities in Twin Falls County have made efforts to diversify its economic base and expand job opportunities to other economic sectors such as retail. Twin Falls, the most populace city in the county, is reporting an approximate population increase of 3.5% to 4.5% per year. This is up from the average increase of only 1.2% during the agricultural recession of the 1980's and early 1990's. Population growth and efforts to attract businesses to the area have led to broad scale renovation projects and an escalation in new residential construction projects. Emphasis on homebuilding projects has switched from rural farms and ranches to city subdivisions.

3.5 *Cultural Resources*

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

The United States has a unique legal relationship with Indian tribal governments defined in history, the U.S. Constitution, treaties, statutes, Executive Orders, and court decisions. Since the formation of the union, the United States has recognized Indian tribes as domestic dependant nations under its protection. The Federal Government has enacted numerous regulations that establish and define a trust relationship with Indian tribes.

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

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

Table 3.7. National Register of Historic Places in Twin Falls County, Idaho.

Item Number	Resource Name	Address	City	Listed	Architect or Building Designer
1	James Alvis House	1311 Pole Line Rd	Twin Falls	1980	Bryant, Jeremiah H.
2	Bickel School	607 2nd Ave E.	Twin Falls	1990	Chytraus, Enoch and McQuaker, Andrew
3	T.P. Bowlby Barn	NE of Buhl	Buhl	1983	Schick, Henry

Table 3.7. National Register of Historic Places in Twin Falls County, Idaho.					
Item Number	**Resource Name**	**Address**	**City**	**Listed**	**Architect or Building Designer**
4	Buhl IOOF Building	1014-16 Main	Buhl	1984	Nisbet, Morgan B.
5	Caldron Linn	2 mi E of Murtaugh	Murtaugh	1972	
6	Alfred Carlson Barn	NE of Buhl	Buhl	1989	Schick, Henry
7	Cedar Draw School	4300 N Rd between 1900 & 2000 E	Buhl	1991	
8	Continental Oil Co. Complex	2nd Ave S & 6th St.	Twin Falls	1982	
9	Dau-Webbenhorst Barn	SE of Buhl	Buhl	1983	Schick, Henry
10	Achille Duquesne House	710 W. Midway	Filer	1993	Duquesne, Achille
11	Hollister School	2464 Salmon Ave	Hollister	1991	
12	Hotel Buhl	1004 Main	Buhl	1985	
13	Idaho Power Substation	Van Buren St. & Filer Ave	Twin Falls	1978	Wayland & Fennell
14	Kimberly High School	141 Center St. W	Kimberly	1990	
15	Gustave Kunze Barn	SE of Buhl	Buhl	1994	Schick, Henry
16	Rudolf Kunze Barn	NE of Buhl	Buhl	1994	
17	Lincoln School	238 7th St.	Twin Falls	1990	Poynter, Herb and McQuaker, Andrew
18	Lincoln Street Electric Streetlights	Lincoln St.	Twin Falls	1992	
19	Art and Frieda Maxwell Barn	SE of Buhl	Buhl	1983	Schick, Henry
20	Robert McCollum House	708 E Shoshone St	Twin Falls	1982	
21	Milner Dam and the Twin Falls Main Canal	Twin Falls Canal between Murtaugh & Milner Lakes	Murtaugh	1986	
22	Burton Morse House	136 10th Ave N	Twin Falls	1993	Morse, Burton
23	D.H. Peck House	207 E 8th Ave	Twin Falls	1993	
24	Pleasant Valley School	3501 E 3100 N	Kimberly	1991	
25	Pleasant Valley School	2500 E 3600 N	Twin Falls	1991	
26	Walter Priebe House	155 7th Ave	Twin Falls	1993	
27	Ramona Theater	113 Broadway	Buhl	1976	Morse, Burton
28	Henry Schick Barn	Se of Buhl	Buhl	1983	Schick, Henry
29	Harvey C. Smith House	255 4th Ave E	Twin Falls	1978	Smith, C. Harvey
30	Stricker Store and Farm	N of Rock Creek	Twin Falls	1979	Bascomb, James
31	Twin Falls Bank and Trust Co. Building	102 Main Ave S	Twin Falls	1986	Smith, C. Harvey
32	Twin Falls Canal Co. Building	162 2nd St. W	Twin Falls	1996	
33	Twin Falls City Park Historic District	2nd N, 2nd E, Shoshone St., 4th Ave, 6th Ave	Twin Falls	1978	Multiple
34	Twin Falls Downtown Historic District	Downtown	Twin Falls	2000	Et al., Morse, Burton
35	Twin Falls Milling and Elevator Co. Warehouse	516 2nd St S	Twin Falls	1995	

Table 3.7. National Register of Historic Places in Twin Falls County, Idaho.					
Item Number	Resource Name	Address	City	Listed	Architect or Building Designer
36	Twin Falls Original Townsite Residential Historic District	Blue Lakes Ave, Addison Ave, 2nd Ave E, 2nd Ave W	Twin Falls	2001	Morse, Burton; Smith, C. Harvey; et al
37	Twin Falls Warehouse Historic District	2nd Ave, 4th St S & W, Minidoka Ave	Twin Falls	1997	
38	US Post Office	Main	Buhl	1989	Simon, Louis A.
39	Union School	21337 US 30	Filer	2003	

Hazard mitigation activities in and around these sites has the potential to affect historic places. In all cases, mitigation work will be intended to reduce the potential of damaging the site due to natural and man caused disasters. Areas where ground disturbance will occur will need to be inventoried depending on the location. Such actions may include, but are not limited to, constructing firelines (handline, mechanical line, etc.), building new roads to creeks to fill water tankers, mechanical treatments, etc. Only those burn acres that may impact cultural resources that are sensitive to burning (i.e., buildings, peeled bark trees, etc.) would be examined. Burns over lithic sites are not expected to have an impact, as long as the fire is of low intensity and short duration. Some areas with heavy vegetation may need to be examined after the burn to locate and record any cultural resources although this is expected to be minimal. Traditional Cultural Properties (TCPs) may also need to be identified. Potential impact to TCPs will depend on what values make the property important and will be assessed on an individual basis.

3.5.1 The Oregon Trail

The general route stretches from Independence, Missouri, to Oregon City, Oregon. This 2,170 mile long trail passes through Missouri, Kansas, Nebraska, Wyoming, Idaho and Oregon. As the harbinger of America's westward expansion, the Oregon Trail was the pathway to the Pacific for fur traders, gold seekers, missionaries and emigrants. Beginning in 1841 and continuing for more than 20 years, an estimated 300,000 emigrants followed this route from Missouri to Oregon on a trip that took five months to complete.

The Oregon Trail and other alternate trail routes run throughout the northern portion of Twin Falls County. The trail passes just south of the City of Twin Falls before following the banks of the Snake River, and then exiting to the northwest.

Special attention to potential impacts to the Oregon Trail will need to be addressed prior to implementation of vegetative treatments along the trail.

3.6 *Transportation*

Primary access to and from Twin Falls County is provided by US Highways 93 and 30, both of which are two-lane paved roads with turnouts. US 30 traverses the county from east to west (paralleling Interstate 84) through the more populace communities of Kimberly, Twin Falls, Filer, and Buhl. US 93 enters the County near Idavada (Jackpot, Nevada) and travels north until meeting US 30. State Highways 74 and 50 along with County routes G1, G2, and G3 also offer paved connections between communities. Smaller roads (many gravel) provide access to the adjoining areas within the county. A variety of trails and unimproved roads are to be found throughout the region.

Many of the roads in the county were originally built to facilitate ranching and farming activities. As such, they can support trucks, farming equipment, and fire fighting equipment referenced in

this document. However, many of the new roads have been built for home site access, especially for new subdivisions of homes. In most cases, these roads are adequate to facilitate equipment. County building codes for new developments should be adhered to closely to insure this tendency continues.

3.7 *Vegetation & Climate*

Vegetation in Twin Falls 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 3.8.

The most represented vegetated cover type is a Basin & Wyoming Big Sagebrush type at approximately 39% of the County's total area. Agricultural land is the second most common plant cover type at 32% of the county's total area. Perennial Grasslands represent approximately 10% of the total.

Table 3.8. Cover Types in Twin Falls County

	Acres	Percent of County's Total Area
Basin & Wyoming Big Sagebrush	477,293	38.7%
Agricultural Land	389,714	31.6%
Perennial Grassland	127,271	10.3%
Mountain Big Sagebrush	93,065	7.5%
Low Sagebrush	36,948	3.0%
Bitterbrush	22,360	1.8%
Warm Mesic Shrubs	21,067	1.7%
High Intensity Urban	12,227	1.0%
Shrub/Steppe Annual Grass-Forb	9,693	0.8%
Water	6,152	0.5%
Shrub Dominated Riparian	5,025	0.4%
Aspen	4,681	0.4%
Salt-desert Shrub	4,597	0.4%
Utah Juniper	4,246	0.3%
Rabbitbrush	4,241	0.3%
Mountain Low Sagebrush	2,857	0.2%
Curlleaf Mountain Mahogany	2,127	0.2%
Perennial Grass Slope	1,922	0.2%
Douglas-fir	1,332	0.1%
Western Juniper	1,179	0.1%
Disturbed, High	1,076	0.1%
Mixed Subalpine Forest	1,010	0.1%
Low Intensity Urban	946	0.1%
Foothills Grassland	673	0.1%
Subalpine Fir	661	0.1%
Needleleaf Dominated Riparian	546	0.0%
Broadleaf Dominated Riparian	420	0.0%
Wet Meadow	297	0.0%

Table 3.8. Cover Types in Twin Falls County	Acres	Percent of County's Total Area
Disturbed, Low	173	0.0%
Exposed Rock	104	0.0%
Mixed Barren Land	67	0.0%
Lodgepole Pine	47	0.0%
Shallow Marsh	34	0.0%
Deep Marsh	32	0.0%
Graminiod or Forb Dominated Riparian	15	0.0%
Mud Flat	10	0.0%
Montane Parklands and Subalpine Meadow	7	0.0%

Vegetative communities within the county follow the strong moisture and temperature gradient related to the major river drainages. Limited precipitation and soil conditions result in a relatively arid vegetated environment. As moisture availability increases, so does the abundance of conifer species, with subalpine forest communities present in the highest elevations where precipitation and elevation provide more available moisture during the growing season.

3.7.1 Rangeland

Rangeland is generally divided into winter, spring/fall, and summer range depending upon elevation and location. Over 65% of land in Twin Falls County are classified as rangeland. The Bureau of Land Management (BLM) and Forest Service administer the majority of the public lands in the County. Range fires occur frequently in the Snake River Plains during summer. When this happens the land is usually seeded to select grasses in the fall so better forage cover is obtained.

3.7.2 Monthly Climate Summaries in Twin Falls County

3.7.2.1 Castleford, Idaho (101551)

Period of Record Monthly Climate Summary

Period of Record : 6/ 1/1963 to 12/31/2003

Table 3.9. Climate records for Castleford, Idaho (Twin Falls County)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	37.2	43.9	53.6	62.4	71.7	80.1	88.3	86.6	77.0	64.5	48.1	37.1	62.5
Average Min. Temperature (F)	20.1	23.8	28.3	34.0	41.0	47.8	53.5	51.9	44.1	35.2	27.2	19.7	35.6
Average Total Precipitation (in.)	1.24	0.76	0.95	0.97	1.19	1.05	0.23	0.40	0.52	0.58	1.03	1.12	10.05
Average Total SnowFall (in.)	4.5	2.6	1.1	0.3	0.2	0.0	0.0	0.0	0.0	0.1	1.6	4.6	14.9
Average Snow Depth (in.)	1	0	0	0	0	0	0	0	0	0	0	1	0

Percent of possible observations for period of record. Max. Temp.: 97.7% Min. Temp.: 97.7% Precipitation: 97.3% Snowfall: 95.9% Snow Depth: 90.8%

3.7.2.2 Buhl, Idaho (101220)

Period of Record Monthly Climate Summary

Period of Record : 1/ 1/1978 to 12/31/2003

Table 3.10. Climate records for Buhl, Idaho (Twin Falls)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	34.6	40.8	51.0	59.5	67.7	77.0	86.3	85.9	75.5	63.1	45.6	35.6	60.2
Average Min. Temperature (F)	19.7	23.3	30.0	35.8	42.9	49.9	56.8	55.4	46.6	37.1	26.9	20.2	37.0
Average Total Precipitation (in.)	1.10	0.69	1.07	0.92	1.14	0.78	0.29	0.31	0.48	0.64	1.00	0.89	9.31
Average Total SnowFall (in.)	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.9
Average Snow Depth (in.)	0	0	0	0	0	0	0	0	0	0	0	0	0

Percent of possible observations for period of record. Max. Temp.: 97.6% Min. Temp.: 97.7% Precipitation: 97.4% Snowfall: 81.2% Snow Depth: 80.3%

3.7.2.3 Twin Falls, Idaho (109299)

Period of Record Monthly Climate Summary

Period of Record : 8/ 1/1948 to 7/31/1977

Table 3.11. Climate records for Twin Falls, Idaho (Twin Falls County)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	37.2	43.9	50.3	60.4	70.1	78.6	88.7	86.5	77.3	65.1	50.6	40.1	62.4
Average Min. Temperature (F)	18.6	23.1	26.4	33.4	41.7	48.8	54.8	52.1	43.3	34.0	26.9	21.2	35.4
Average Total Precipitation (in.)	1.06	0.75	0.84	0.81	1.13	0.88	0.20	0.41	0.54	0.69	0.93	1.11	9.36
Average Total SnowFall (in.)	6.3	3.4	2.9	0.8	0.8	0.0	0.0	0.0	0.1	0.4	1.3	5.4	21.5
Average Snow Depth (in.)	1	0	0	0	0	0	0	0	0	0	0	0	0

Percent of possible observations for period of record. Max. Temp.: 99.9% Min. Temp.: 99.7% Precipitation: 99.6% Snowfall: 97.9% Snow Depth: 93.9%

3.7.2.4 Hollister, Idaho (104295)

Period of Record Monthly Climate Summary

Period of Record : 8/ 1/1948 to 12/31/2003

Table 3.12. Climate records for Hollister, Idaho (Twin Falls County)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	36.1	42.9	49.6	59.5	68.1	77.1	87.0	84.5	74.9	63.6	48.7	39.6	61.0

Table 3.12. Climate records for Hollister, Idaho (Twin Falls County)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Min. Temperature (F)	17.4	23.5	26.3	32.2	39.3	46.4	54.3	52.5	44.3	35.7	27.0	20.5	34.9
Average Total Precipitation (in.)	0.99	0.55	0.87	0.90	1.40	1.19	0.50	0.53	0.68	0.71	0.84	0.93	10.09
Average Total SnowFall (in.)	4.6	2.8	2.4	1.0	0.7	0.0	0.0	0.0	0.0	0.2	1.2	3.5	16.3
Average Snow Depth (in.)	0	0	0	0	0	0	0	0	0	0	0	0	0

Percent of possible observations for period of record. Max. Temp.: 87.8% Min. Temp.: 87.5% Precipitation: 95.5% Snowfall: 87.2% Snow Depth: 82.6%

3.7.2.5 Twin Falls WSO, Idaho (109303)

Period of Record Monthly Climate Summary

Period of Record : 4/13/1963 to 2/29/2004

Table 3.13. Climate records for Twin Falls, Idaho (Twin Falls County)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	35.9	41.6	50.4	58.4	67.6	76.1	85.1	84.1	74.5	63.0	47.2	37.0	60.1
Average Min. Temperature (F)	19.8	23.1	28.4	33.5	41.3	48.0	53.2	51.4	43.1	34.1	26.9	19.9	35.2
Average Total Precipitation (in.)	1.20	0.81	1.09	1.01	1.23	0.90	0.27	0.47	0.62	0.68	1.19	1.19	10.67
Average Total SnowFall (in.)	6.7	4.9	3.2	1.5	0.6	0.0	0.0	0.0	0.1	0.2	3.6	6.3	27.0
Average Snow Depth (in.)	1	1	0	0	0	0	0	0	0	0	0	1	0

Percent of possible observations for period of record. Max. Temp.: 99.6% Min. Temp.: 99.5% Precipitation: 99.5% Snowfall: 99.8% Snow Depth: 99.7%

3.8 *Wildfire Hazard Profiles*

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

Detailed records of fire ignition and extent have been compiled by the Bureau of Land Management, Upper Snake River District and the USDA Forest Service, Sawtooth National Forest.

The following (Table 3.14) is a summary of fire ignitions as recorded by the Bureau of Land Management Upper Snake River for the period 1983-2002.

Table 3.14. Wildfire ignitions recorded by the Bureau of Land Management Upper Snake River District 1994-2003.

Cause	Cause Code	1994-95	1996-97	1998-99	2000-01	2002-03	% of Ignitions
Natural	1	91	88	106	122	53	28.9%
Campfires	2	4	4	2	7	6	1.4%
Smoking	3	1	0	1	1	2	0.3%
Fire Use	4	20	27	30	11	15	6.5%
Incendiary	5	6	1	5	27	12	3.2%
Equipment	6	28	20	51	81	46	14.2%
Railroads	7	17	18	26	18	13	5.8%
Juveniles	8	2	2	7	9	4	1.5%
Miscellaneous	9	37	66	31	46	19	12.5%
Non-Specific Human Caused		0	0	4	8	29	2.6%
Sub-Total (All Human Caused)		115	138	157	208	146	48.0%
Not Classified		77	110	110	45	27	
Total All Fire Ignitions		**283**	**336**	**373**	**375**	**226**	

The Ignitions recorded by the Sawtooth National Forest, within Twin Falls County from 1950-2000 is summarized in Table 3.15.

Table 3.15. Wildfire ignitions recorded by the Sawtooth National Forest 1950-2000 in Twin Falls County.

	Cause Code								
Year	1 Lightning	2 Equip-ment Use	3 Smoking	4 Camp Fires	5 Debris Burning	6 Railroad	7 Arson	8 Juvenile	9 Misc.
Total	37	10	16	21	2	0	2	1	3
Percent of Total	40.2%	10.9%	17.4%	22.8%	2.2%	0.0%	2.2%	1.1%	3.3%

Figure 3.1. Bureau of Land Management Upper Snake River Wildfire Ignition Profile.

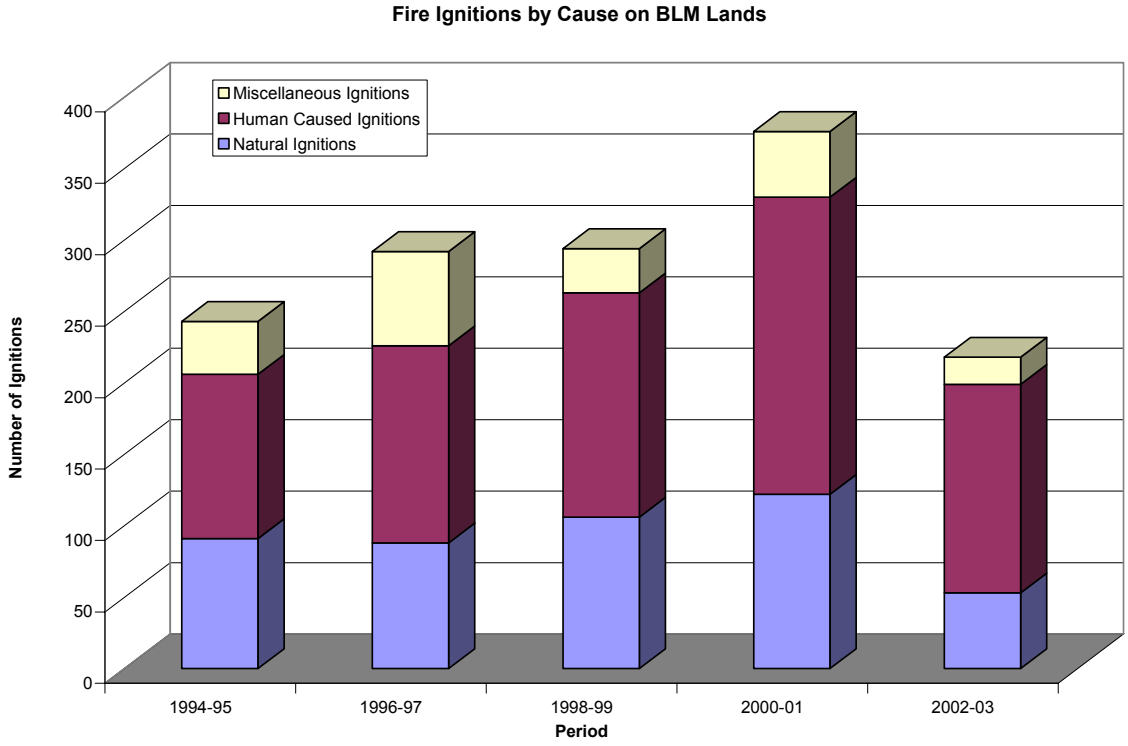
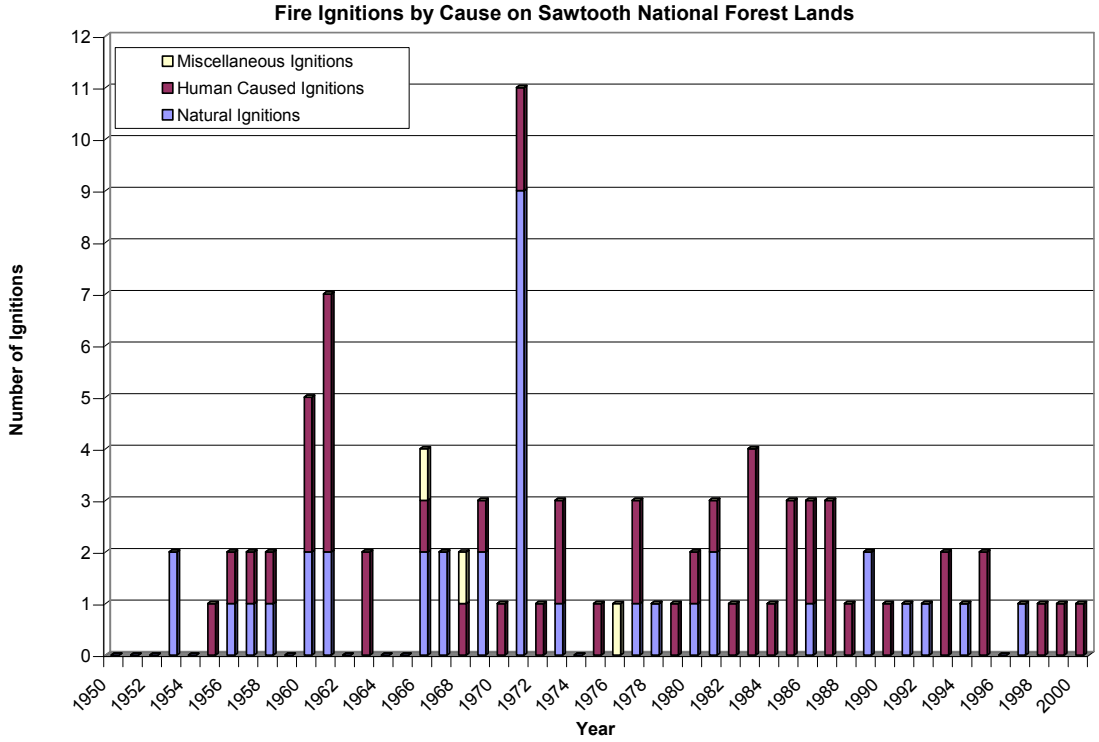


Figure 3.2. Sawtooth National Forest area of Twin Falls County Wildfire Ignition Profile.



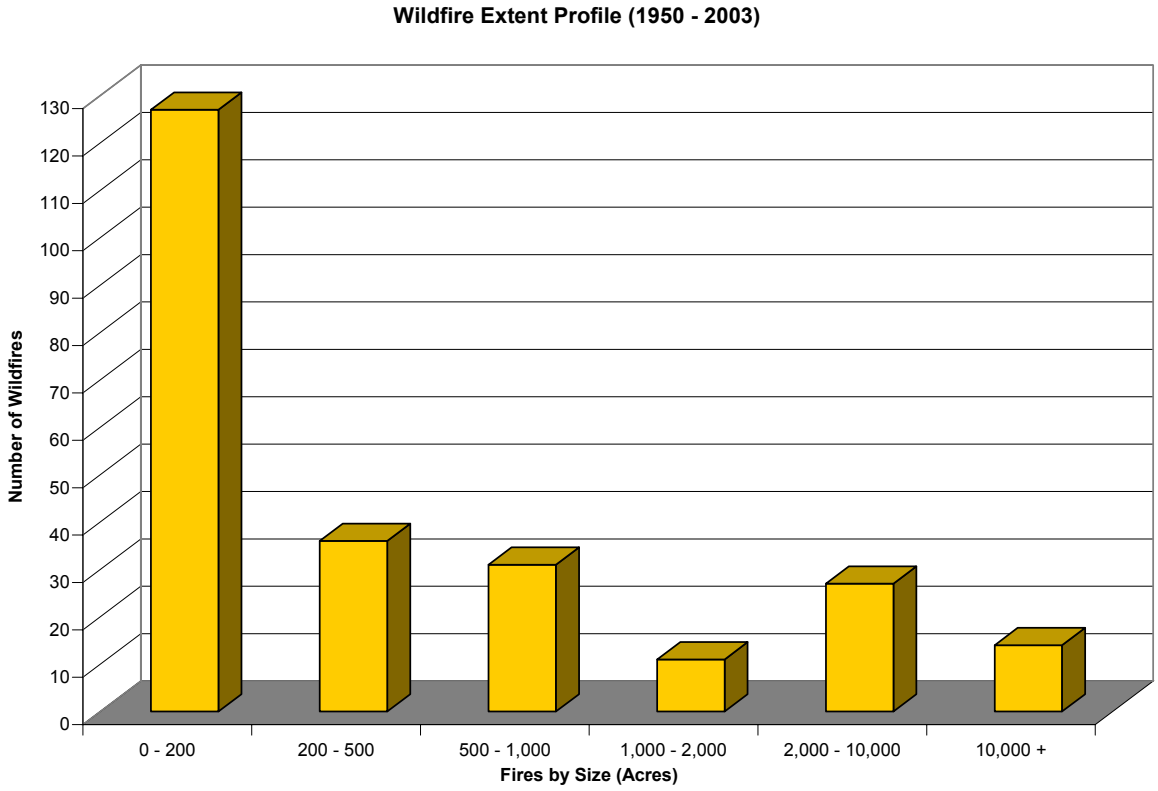
Although the data collected by the BLM and the US Forest Service cover different periods, a comparison of the data would indicate that the BLM administered lands witness substantially

more ignitions annually than the US Forest Service lands. The available data would indicate that lightning caused ignitions accounted for between 30% and 40% of total ignitions in the two datasets. The remaining 60%-70% of ignitions have been human caused.

3.8.2 Wildfire Extent Profile

Data on wildfire extent has been collected by the Sawtooth National Forest Service and the Bureau of Land Management since 1950. Within Twin Falls County, the data indicates that approximately 663,000 acres have burned within this period during large fire events. Figure 3.3 summarizes the number of large fires according to the number of acres burned in that event. Over half (53%) of the large fires in the county have been contained under 200 acres. Approximately 15% have grown to 500 acres, 13% to 1,000 acres, 4% to 2,000 acres, and 11% have grown to 10,000 acres. The remaining 6% of all large fires have grown to over 10,000 acres with the Browns Creek Fire (1976) the largest at 146,980 acres, Grass Fire (2000) at 36,383 acres, Indian Springs Fire (1990) at 15,577 acres, plus unnamed fires in 1999 (35,042 acres), 1996 (24,527 acres), and three in 1995 (30,797 acres, 19,264 acres, and 15,759 acres) topping the list of largest fires in Twin Falls County.

Figure 3.3. Wildfire Extent Profile in Twin Falls County, 1953-2003.



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 3.16). By most informed accounts, the 2003 totals will be significantly higher in terms of acres burned and cost.

Table 3.16. 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 3.17 and 3.18 summarize some of the relevant wildland fire data for the nation. A review of the data indicates that while the number of fires ignited nationally each year since 1960 has been on the decrease, the number of acres burned has increased over the same period. The average fire size has increased from 1960 – 2002 and the cost of fighting these fires has skyrocketed since 1994 (based on available data – see Tables 3.17 and 3.18).

Table 3.17. 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 3.18. 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 throughout southern Idaho, the vast majority of fires in Twin Falls 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 rural fire districts, including Salmon Tract, Castleford, Filer, Buhl, Twin Falls Rural, and Rock Creek Fire Protections Districts provide primary wildland fire suppression throughout their district boundaries. Rural districts work in close collaboration with the Upper Snake River BLM. The BLM maintains mutual aid agreements with all rural districts, with the notable exception of Filer Fire Department. Quick initial attack by rural district resources coupled with the sizable capabilities of the BLM help to reduce the occurrence of large wildland fires in the county.

3.9 *Analysis Tools and Techniques to Assess Fire Risk*

Twin Falls County and the adjacent counties of Jerome and Minidoka Counties, 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 by specialists from Northwest Management, Inc. were assisted by fire suppression personnel from rural districts and the BLM. The incorporation of local knowledge into the assessment process provided insight in identifying risk factors and developing treatment options.

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

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

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

Digital Elevation: Digital elevation models (DEM) for 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.

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).

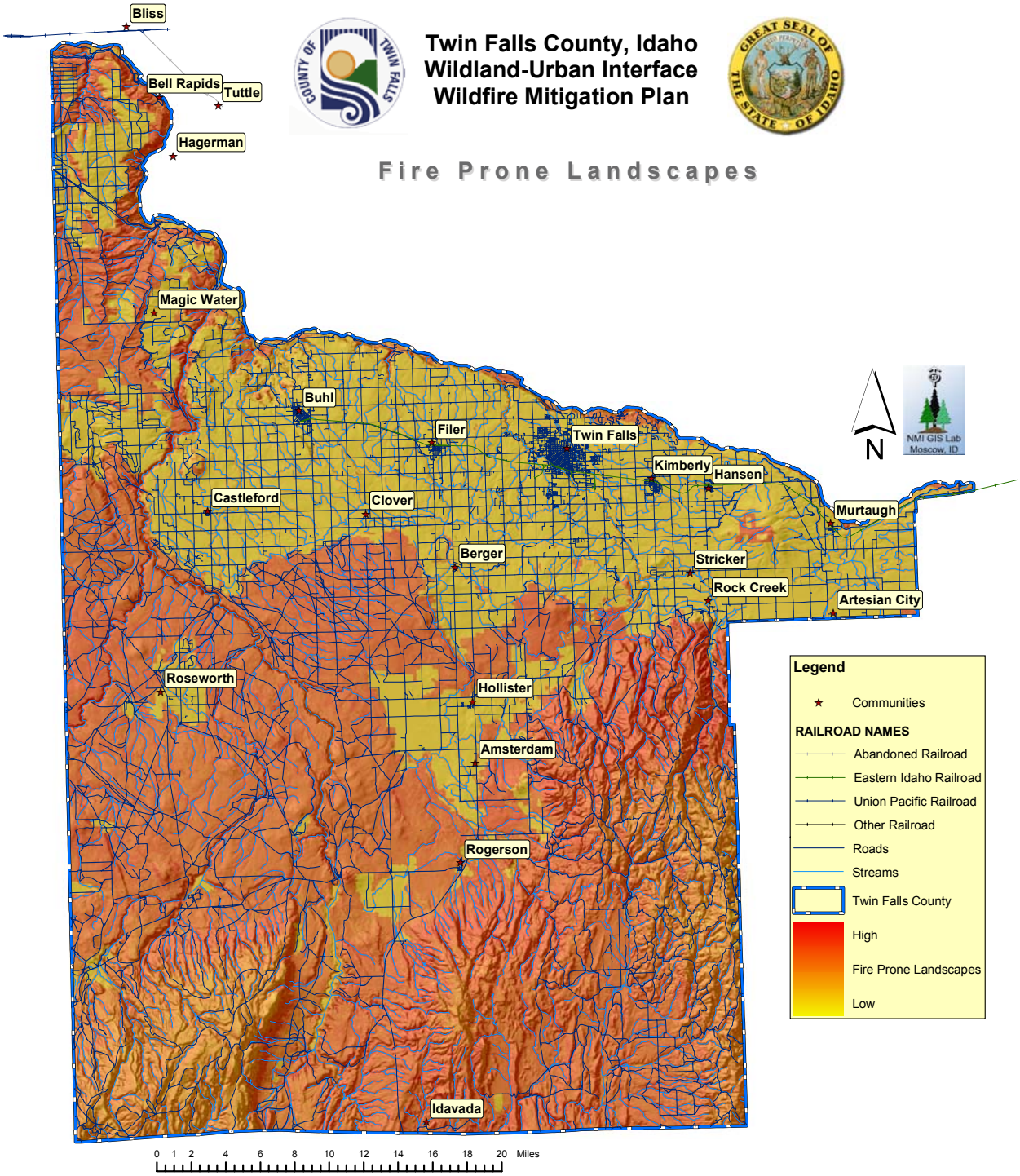
Riparian Zones: Riparian zones were derived from stream layers created during the Interior Columbia Basin Ecosystem Management Project (Quigley *et al.* 2001).

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 Sawtooth National Forest and the Bureau of Land Management.

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 screen represented a 10 meter square on the ground) to determine the propensity for a particular area (pixel) to burn in the case of a wildfire. The analysis involved creating a linear regression analysis within the GIS program structure to assign a value to each significant variable, pixel-by-pixel. The analysis ranked factors from 0 (little to no risk) to 100 (extremely high risk) based on past fire occurrence. In fact, the maximum rating score for Twin Falls County was 94 with a low of 8.

Figure 3.4. Fire Prone Landscapes of Twin Falls County.



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

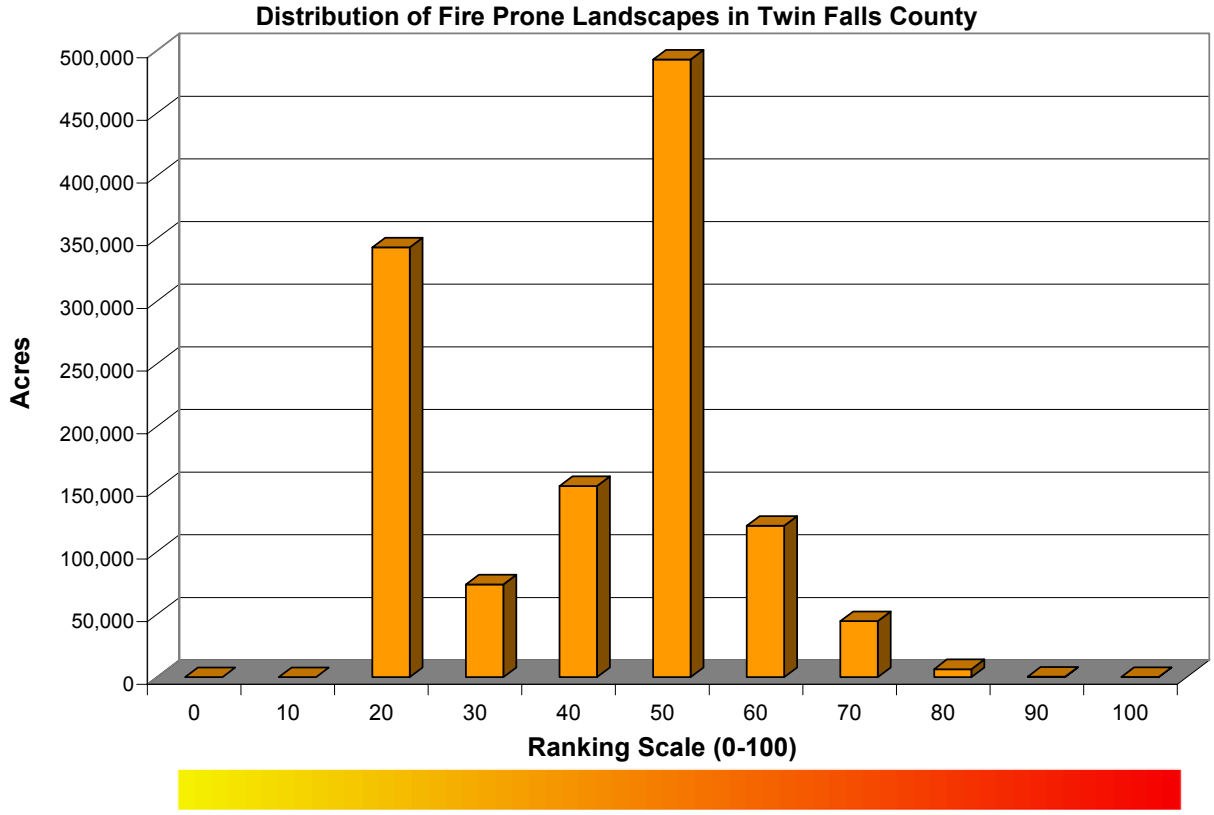
The maps depicting these risk categories display yellow as the lowest risk and red as the highest with values between a constant gradient from yellow to orange to red (Table 3.19).

While large maps (16 square feet) have been provided as part of this analysis, smaller size maps are presented in Appendix I.

Table 3.19. Fire Prone Landscape rankings and associated acres in each category for Twin Falls County.

Color Code	Value	Total Acres	Percent of Total Area
	0	0	0%
	10	8	0%
	20	342,801	28%
	30	73,915	6%
	40	152,528	12%
	50	492,755	40%
	60	120,652	10%
	70	44,650	4%
	80	6,317	1%
	90	355	0%
	100	99	0%

Figure 3.5: Distribution of area by Fire Prone Landscape Class.



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.

3.9.2 Fire Regime Condition Class

The US Forest Service has provided their assessment of Fire Regime Condition Class for the forest and rangeland areas of Twin Falls County to this WUI Fire Mitigation Plan analysis. These measures of vegetative 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 reduce 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 3.20. Maps depicting Fire Regime and Condition Class are presented in Appendix I.

Table 3.20. Fire Regime Condition Class Definitions.

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

An analysis of Fire Regime Condition Class in Twin Falls County shows that approximately 4% of the County is in Condition Class 1 (low departure), just about 55% is in Condition Class 2 (moderate departure), with an additional 10% of the area in Condition Class 3 (Table 3.21).

Table 3.21. FRCC by area in Twin Falls County.

	Condition Class	Acres	Percent of Area
1	Low departure	53,724	4.4%
2	Moderate departure	684,824	55.5%
3	High departure	121,234	9.8%
4	Agriculture	351,735	28.5%
5	Rock/barren	691	0.1%
7	Urban	11,109	0.9%
8	Water	4,974	0.4%
9	No info	5,358	0.4%

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

3.9.3 Predicted Fire Severity

Current fire severity (CFS) is an estimate of the relative fire severity if a fire were to burn a site under its current state of vegetation. In other words, how much of the overstory would be removed if a fire were to burn today. The US Forest Service (Flathead National Forest) did not attempt to model absolute values of fire severity, as there are too many variables that influence fire effects at any given time (for example, temperature, humidity, fuel moisture, slope, wind speed, wind direction).

The characterization of likely fire severity was based upon historic fire regimes, potential natural vegetation, cover type, size class, and canopy cover with respect to slope and aspect. Each cover type was assigned a qualitative rating of fire tolerance based upon likely species composition and the relative resistance of each species to fire. The US Forest Service researchers defined 3 broad classes of fire tolerance: high tolerance (<20 percent post-fire mortality); moderate tolerance (20 to 80 percent mortality); and low tolerance (>80 percent mortality). We would expect that fires would be less severe within cover types comprised by species that have a high tolerance to fire (for example, western larch and ponderosa pine). Conversely, fires would likely burn more severely within cover types comprised by species having a low tolerance to fire (for example grand fir, subalpine fir). Data assignments were based upon our collective experience in the field, as well as stand structure characteristics reported in the fire-history literature. For example, if they estimated that a fire would remove less than 20 percent of the overstory, the current fire severity would be assigned to the non-lethal class (that is, NL). However, if they expected fire to remove more than 80 percent of the overstory, the current fire severity was assigned to a stand replacement class (that is, SR or SR3).

3.9.3.1 Purpose

Fire is a dominant disturbance process in the Snake River Plain. The likely effect of fire upon vegetation (i.e., current fire severity) is critical information for understanding the subsequent fire effects upon wildlife habitats, water quality, and the timing of runoff. There have been many reports of how fire suppression and range management activities have affected vegetation patterns, fuels, and fire behavior. The US Forest Service researchers from the Flathead National Forest, derived the current fire severity theme explicitly to compare with the historical

fire regime theme to evaluate how fire severity has changed since Euro-American settlement (that is, to derive fire-regime condition class).

3.9.3.2 General Limitations

These data were designed to characterize broad scale patterns of estimated fire severity for use in regional and subregional assessments. Any decisions based on these data should be supported with field verification, especially at scales finer than 1:100,000. Although the resolution of the CFS theme is 90 meter cell size, the expected accuracy does not warrant their use for analyses of areas smaller than about 10,000 acres (for example, assessments that typically require 1:24,000 data).

Current fire severity rule-set was developed for an "average burn day" for the specific vegetation types in our area. Any user of these data should familiarize themselves with the rule sets to better understand our estimate of current fire severity.

Table 3.22. Predicted Fire Severity by area in Twin Falls County.

	Predicted Fire Severity	Acres	Percent of Area
1	non-lethal	80	0.0%
2	mixed severity, short	7,610	0.6%
3	mixed severity, long	6,221	0.5%
5	stand replacement	23,766	1.9%
6	non-forest std replc, shr	237,114	19.2%
7	non-forest mx svrty, mod	51,916	4.2%
8	non-forest std replc, mod	430,548	34.9%
9	non-forest std replc, lng	102,526	8.3%
10	agriculture	351,735	28.5%
11	rock/barren	691	0.1%
13	urban	11,109	0.9%
14	water	4,974	0.4%
15	no information	5,358	0.4%

See Appendix I for a map of Predicted Fire Severity.

3.9.4 On-Site Evaluations

County fire suppression personnel and specialists from NMI evaluated the communities of Twin Falls 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. These evaluations included the estimation of fuel models as established by Anderson (1982). These fuel models are described in the following section of this document.

In addition, field personnel completed FEMA's Fire Hazard Severity Forms and Fire Hazard Rating Criteria Worksheets. 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.

3.9.5 Fuel Model Descriptions

Anderson (1982) developed a categorical guide for determining fuel models to facilitate the linkage between fuels and fire behavior. These 13 fuel models, grouped into 4 basic groups: grass, chaparral and shrub, timber, and slash, provide the basis for communicating fuel conditions and evaluating fire risk. There are a number of ways to estimate fuel models in forest and rangeland conditions. The field personnel from Northwest Management, Inc., that evaluated communities and other areas of Twin Falls County have all been intricately involved in wildland fire fighting and the incident command system. They made ocular estimates of fuel models they observed. In an intense evaluation, actual sampling would have been employed to determine fuel models and fuel loading. The estimations presented in this document (Chapter 3) are estimates based on observations to better understand the conditions observed.

Fuel Model 0- This type consists of non-flammable sites, such as exposed mineral soil and rock outcrops. Other lands are also identified in this type.

3.9.5.1 Grass Group

3.9.5.1.1 Fire Behavior Fuel Model 1

Fire spread is governed by the fine, very porous, and continuous herbaceous fuels that have cured or are nearly cured. Fires are surface fires that move rapidly through the cured grass and associated material. Very little shrub or timber is present, generally less than one-third of the area.

Grasslands and savanna are represented along with stubble, grass-tundra, and grass-shrub combinations that met the above area constraint. Annual and perennial grasses are included in this fuel model.

This fuel model correlates to 1978 NFDRS fuel models A, L, and S.

Fuel model values for estimating fire behavior

Total fuel load, < 3-inch dead and alive, tons/acre 0.74
Dead fuel load, ¼-inch, tons/acre 0.74
Live fuel load, foliage, tons/acre 0
Fuel bed depth, feet 1.0

3.9.5.1.2 Fire Behavior Fuel Model 2

Fire is spread primarily through the fine herbaceous fuels, either curing or dead. These are surface fires where the herbaceous material, in addition to litter and dead-down stemwood from the open shrub or timber overstory, contribute to the fire intensity. Open shrub lands and pine stands or scrub oak stands that cover one-third to two-thirds of the area may generally fit this model; such stands may include clumps of fuels that generate higher intensities an that may produce firebrands. Some pinyon-juniper may be in this model.

This fuel model correlates to 1978 NFDRS fuel models C and T.

Fuel model values for estimating fire behavior

Total fuel load, < 3-inch dead and alive, tons/acre 4.0
Dead fuel load, ¼-inch, tons/acre 2.0
Live fuel load, foliage, tons/acre 0.5
Fuel bed depth, feet 1.0

3.9.5.1.3 Fire Behavior Fuel Model 3

Fires in this fuel are the most intense of the grass group and display high rates of spread under the influence of wind. Wind may drive fire into the upper heights of the grass and across standing water. Stands are tall, averaging about 3 feet (1 m), but considerable variation may occur. Approximately one-third or more of the stand is considered dead or cured and maintains the fire. Wild or cultivated grains that have not been harvested can be considered similar to tall prairie and marshland grasses.

This fuel correlates to 1978 NFDRS fuel model N.

Fuel model values for estimating fire behavior

Total fuel load, < 3-inch dead and live, tons/acre 3.0
Dead fuel load, ¼-inch, tons/acre 3.0
Live fuel load, foliage tons/acre 0
Fuel bed depth, feet 2.5

3.9.5.2 Shrub Group

3.9.5.2.1 Fire Behavior Fuel Model 4

Fire intensity and fast-spreading fires involve the foliage and live and dead fine woody material in the crowns of a nearly continuous secondary overstory. Stands of mature shrubs, 6 or more feet tall, such as California mixed chaparral, the high pocosin along the east coast, the pinebarrens of New Jersey, or the closed jack pine stands of the north-central States are typical candidates. Besides flammable foliage, dead woody material in the stands significantly contributes to the fire intensity. Height of stand qualifying for this model depends on local conditions. A deep litter layer may also hamper suppression efforts.

This fuel model represents 1978 NFDRS fuel models B and O; fire behavior estimates are more severe than obtained by Models B or O.

Fuel model values for estimating fire behavior

Total fuel load, <3-inch dead and live, tons/acre 13.0
Dead fuel load, ¼-inch, tons/acre 5.0
Live fuel load, foliage, tons/acre 5.0
Fuel bed depth, feet 6.0

3.9.5.2.2 Fire Behavior Fuel Model 5

Fire is generally carried in the surface fuels that are made up of litter cast by the shrubs and the grasses or forbs in the understory. The fires are generally not very intense because surface fuel loads are light, the shrubs are young with little dead material, and the foliage contains little volatile material. Usually shrubs are short and almost totally cover the area. Young, green stands with no dead wood would qualify: laurel, vine maple, alder, or even chaparral, manzanita, or chamise.

No 1978 NFDRS fuel model is represented, but model 5 can be considered as second choice for NFDRS model D or as third choice for NFDRS model T. Young green stands may be up to 6 feet (2m) high but have poor burning properties because of live vegetation.

Fuel model values for estimating fire behavior

Total fuel load, <3-inch dead and live, tons/acre 3.5
Dead fuel load, ¼-inch, tons/acre 1.0
Live fuel load, foliage, tons/acre 2.0
Fuel bed depth, feet 2.0

3.9.5.2.3 Fire Behavior Fuel Model 6

Fires carry through the shrub layer where the foliage is more flammable than fuel model 5, but this requires moderate winds, greater than 8 mi/h (13 km/h) at mid-flame height. Fire will drop to the ground at low wind speeds or at openings in the stand. The shrubs are older, but not as tall as shrub types of model 4, nor do they contain as much fuel as model 4. A broad range of shrub conditions is covered by this model. Fuel situations to be considered include intermediate stands of chamise, chaparral, oak brush, low pocosin, Alaskan spruce taiga, and shrub tundra. Even hardwood slash that has cured can be considered. Pinyon-juniper shrublands may be represented but may over-predict rate of spread except at high winds, like 20 mi/h (32 km/h) at the 20-foot level.

The 1978 NFDRS fuel models F and Q are represented by this fuel model. It can be considered a second choice for models T and D and a third choice for model S.

Fuel model values for estimating fire behavior

Total fuel load, <3-inch dead and live, tons/acres..... 6.0
Dead fuel load, 1/4 –inch, tons/acre 1.5
Live fuel load, foliage, tons/acre 0
Fuel bed depth, feet 2.5

3.9.5.2.4 Fire Behavior Fuel Model 7

Fires burn through the surface and shrub strata with equal ease and can occur at higher dead fuel moisture contents because of the flammability of live foliage and other live material. Stands of shrubs are generally between 2 and 6 feet (0.6 and 1.8 m(high. Palmetto-gallberry understory-pine overstory sites are typical and low pocosins may be represented. Black spruce-shrub combinations in Alaska may also be represented.

This fuel model correlates with 1978 NFDRS model D and can be a second choice for model Q.

Fuel model values for estimating fire behavior

Total fuel load, <3-inch dead and live, tons/acre 4.9
Dead fuel load, ¼-inch, tons/acre 1.1
Live fuel load, foliage, tons/acre 0.4
Fuel bed depth, feet 2.5

3.9.5.3 Timber Group

3.9.5.3.1 Fire Behavior Fuel Model 8

Slow-burning ground fires with low flame lengths are generally the case, although the fire may encounter an occasional “jackpot” or heavy fuel concentration that can flare up. Only under severe weather conditions involving high temperatures, low humilities, and high winds do the fuels pose fire hazards. Closed canopy stands of short-needle conifers or hardwoods that have

leafed out support fire in the compact litter layer. This layer is mainly needles, leaves, and occasionally twigs because little undergrowth is present in the stand. Representative conifer types are white pine, and lodgepole pine, spruce, fire and larch

This model can be used for 1978 NFDRS fuel models H and R.

Fuel model values for estimating fire behavior

Total fuel load, <3-inch, dead and live, tons/acre 5.0
Dead fuel load, ¼-inch, tons/acre 1.5
Live fuel load, foliage, tons/acre 0
Fuel bed depth, feet 0.2

3.9.5.3.2 Fire Behavior Fuel Model 9

Fires run through the surface litter faster than model 8 and have longer flame height. Both long-needle conifer stands and hardwood stands, especially the oak-hickory types, are typical. Fall fires in hardwoods are predictable, but high winds will actually cause higher rates of spread than predicted because of spotting caused by rolling and blowing leaves. Closed stands of long-needled pine like ponderosa, Jeffrey, and red pines, or southern pine plantations are grouped in this model. Concentrations of dead-down woody material will contribute to possible torching out of trees, spotting, and crowning.

NFDRS fuel models E, P, and U are represented by this model. It is also a second choice for models C and S.

Fuel model values for estimating fire behavior

Total fuel load, <3-inch dead and live, tons/acre 3.5
Dead fuel load, ¼-inch, tons/acre 2.9
Live fuel load, foliage, tons/acre 0
Fuel bed depth, feet 0.2

3.9.5.3.3 Fire Behavior Fuel Model 10

The fires burn in the surface and ground fuels with greater fire intensity than the other timber little models. Dead-down fuels include greater quantities of 3-inch (7.6 cm) or larger limbwood, resulting from overmaturity or natural events that create a large load of dead material on the forest floor. Crowning out, spotting, and torching of individual trees are more frequent in this fuel situation, leading to potential fire control difficulties. Any forest type may be considered if heavy down material is present; examples are insect- or disease-ridden stands, wind-thrown stands, overmature situations with dead fall, and aged light thinning or partial-cut slash.

The 1978 NFDRS fuel model G is represented.

Fuel model values for estimating fire behavior

Total fuel load, < 3-inch dead and live, tons/acre 12.0
Dead fuel load, ¼-inch, tons/acre 3.0
Live fuel load, foliage, tons/acre 2.0
Fuel bed depth, feet 1.0

The fire intensities and spread rates of these timber litter fuel models are indicated by the following values when the dead fuel moisture content is 8 percent, live fuel moisture is 100 percent, and the effective windspeed at mid-flame height is 5 mi/h (8 km/h):

Table 3.23 Comparative Fire Intensities and Rates of Spread in Timber Fuel Models.

Fuel Model	Rate of Spread Chains/hour	Flame length Feet
8	1.6	1.0
9	7.5	2.6
10	7.9	4.8

Fires such as above in model 10 are at the upper limit of control by direct attack. More wind or drier conditions could lead to an escaped fire.

3.9.5.4 Logging Slash Group

3.9.5.4.1 Fire Behavior Fuel Model 11

Fires are fairly active in the slash and herbaceous material intermixed with the slash. The spacing of the rather light fuel load, shading from overstory, or the aging of the fine fuels can contribute to limiting the fire potential. Light partial cuts or thinning operations in mixed conifer stands, hardwood stands, and southern pine harvests are considered. Clearcut operations generally produce more slash than represented here. The less-than-3-inch (7.6-cm) material load is less than 12 tons per acre (5.4 t/ha). The greater-than-3-inch (7.6-cm) is represented by not more than 10 pieces, 4 inches (10.2 cm) in diameter, along a 50-foot (15 m) transect.

The 1978 NFDRS fuel model K is represented by this model.

Fuel model values for estimating fire behavior

Total fuel load, < 3-inch, dead and live, tons/acre 11.5
Dead fuel load, ¼-inch, tons/acre 1.5
Live fuel load, foliage, tons/acre 0
Fuel bed depth, feet 1.0

3.9.5.4.2 Fire Behavior Fuel Model 12

Rapidly spreading fires with high intensities capable of generating firebrands can occur. When fire starts, it is generally sustained until a fuel break or change in fuels is encountered. The visual impression is dominated by slash and much of it is less than 3 inches (7.6 cm) in diameter. The fuels total less than 35 tons per acres (15.6 t/ha) and seem well distributed. Heavily thinned conifer stands, clearcuts, and medium or heavy partial cuts are represented. The material larger than 3 inches (7.6 cm) is represented by encountering 11 pieces, 6 inches (15.3 cm) in diameter, along a 50-foot (15-m) transect.

This model depicts 1978 NFDRS model J and may overrate slash areas when the needles have dropped and the limbwood has settled. However, in areas where limbwood breakup and general weathering have started, the fire potential can increase.

Fuel model values fore estimating fire behavior

Total fuel load, < 3-inch, dead and live, tons/acre 34.6
Dead fuel load, ¼-inch, tons/acre 4.0
Live fuel load, foliage, tons/acre 0
Fuel bed depth, feet 2.3

3.9.5.4.3 Fire Behavior Fuel Model 13

Fire is generally carried across the area by a continuous layer of slash. Large quantities of material larger than 3 inches (7.6 cm) are present. Fires spread quickly through the fine fuels and intensity builds up more slowly as the large fuels start burning. Active flaming is sustained for long periods and a wide variety of firebrands can be generated. These contribute to spotting problems as the weather conditions become more severe. Clearcuts and heavy partial-cuts in mature and overmature stands are depicted where the slash load is dominated by the greater-tayhn-3-inch (7.6-cm) diameter material. The total load may exceed 200 tons per acre (89.2 t/ha) but fuel less than 3 inches (7.6 cm_ is generally only 10 percent of the total load. Situations where the slash still has "red' needles attached but the total load is lighter, more like model 12, can be represented because of the earlier high intensity and quicker area involvement.

The 1978 NFDRS fuel model I is represented. Areas most commonly fitting his model are old-growth stands west of the Cascade and Sierra Nevada Mountains. More efficient utilization standards are decreasing the amount of large material left in the field.

Fuel model values for estimating fire behavior

Total fuel load, < 3-inch dead and live, tons/acre 58.1
Dead fuel load, ¼-inch, tons/acre 7.0
Live fuel load, foliage, tons/acre 0
Fuel bed depth, feet 3.0

For other slash situations:

Hardwood slash .....Model 6
Heavy "red" slash.....Model 4
Overgrown slash .....Model 10
Southern pine clearcut slash.....Model 12

The comparative rates of spread and flame lengths for the slash models at 8 percent dead fuel moisture content and a 5 mi/h (8 km/h) mid-flame wind are presented in Table 3.24.

Table 3.24. Comparative Fire Intensities and Rates of Spread in Slash Fuel Models.

Fuel Model	Rate of Spread Chains/hour	Flame length Feet
11	6.0	3.5
12	13.0	8.0
13	13.5	10.5

3.10 *Wildland-Urban Interface*

3.10.1 People and Structures

The wildland-urban interface refers to areas where wildland vegetation meets urban developments, or where rangeland fuels meet urban fuels such as houses. These areas encompass not only the interface (areas immediately adjacent to urban development), but also the continuous slopes that lead directly to a risk to urban developments be it from wildfire, landslides, or floods. Reducing the hazard in the wildland urban interface requires the efforts of

federal, state, local agencies, and private individuals (Norton 2002). “The role of [most] federal agencies in the wildland-urban interface includes wildland fire fighting, hazard fuels reduction, cooperative prevention and education and technical experience. Structural fire protection [during a wildfire] in the wildland urban interface is [largely] the responsibility of Tribal, state, and local governments” (USFS 2001). Property owners share a responsibility to protect their residences and businesses and minimize danger by creating defensible areas around them and taking other measures to minimize the risks to their structures (USFS 2001). With treatment, a wildland-urban interface can provide firefighters a defensible area from which to suppress wildland fires or defend communities against other hazard risks. (Norton 2002).

By reducing hazardous fuel loads, brush densities and fine fuels and creating or maintaining 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 range or agricultural 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 interface conditions have been identified for use in wildfire control efforts (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.

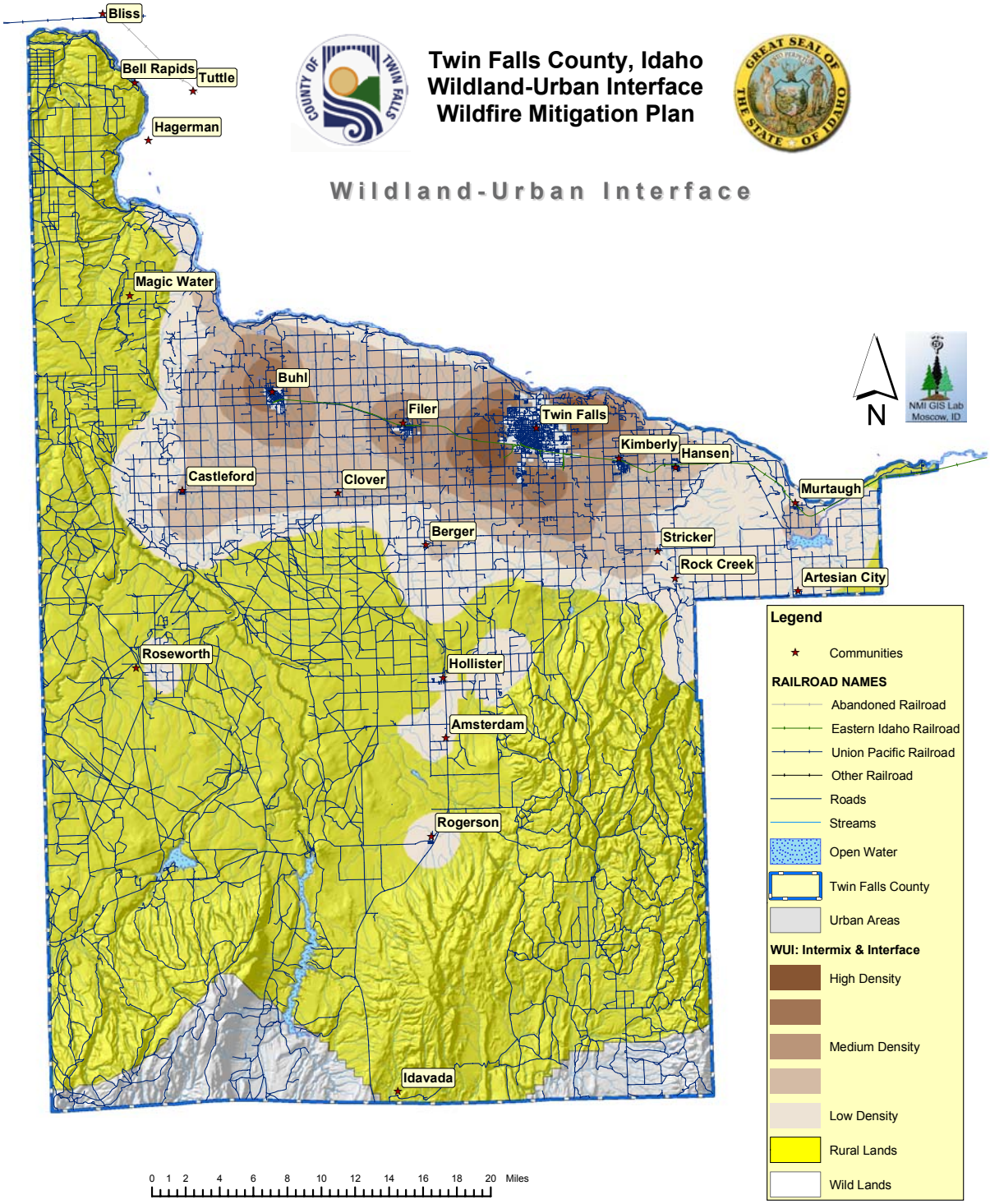
The location of structures in Twin Falls County have been mapped and are presented on a variety of maps in this analysis document; specifically in Appendix I. The location of all structures was determined by examining two sets of remotely sensed images. The more detailed information was garnered from 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 information provided by fire district and other county personnel in rapidly developing areas.

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

By evaluating this structure density, we can define WUI areas on maps by using mathematical formulae and population density indexes to define the WUI based on where structures are located. The resulting population density indexes create concentric circles showing high density areas of Interface and Intermix WUI, as well as Rural WUI (as defined 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.

Figure 3.6. Wildland-Urban Interface of Twin Falls County.



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

3.10.2 Infrastructure

Twin Falls County has both significant infrastructure and unique ecosystems within its boundaries. Of note for this Hazard Mitigation Plan is the existence of the only highway route connecting Twin Falls County to Nevada (US 93) and the presence of high tension power lines supplying electricity to surrounding counties and to markets throughout the region. Two high pressure gas lines also pass through the county, with a pumping station located in the northwest corner of the county. There is currently one active railway, belonging to Eastern Idaho Railroad, paralleling US 30 and ending in Buhl. These lines are used to transport agricultural products, chemicals, fertilizer, and other goods to and from markets outside Twin Falls County. These infrastructure elements will be re-visited in the Community Assessments portion of this document.

Seasonal runoff and the Snake River Plain aquifer supply the water used for irrigation in the area. Irrigation water is available from reservoirs and small stream storage areas and is pumped from creeks, rivers, and wells. Milner Dam on the Snake River serves as a diversion dam for the Twin Falls Canal Company which supplies water to approximately 200,000 acres of farmland in southern Idaho. Salmon Falls Dam on Salmon Falls Creek, and Cedar Creek Dam on Cedar Creek also serve as irrigation sources as well as recreation sites. Water provided by the canals and reservoirs irrigates about 85 percent of the cropland in the survey area. The remaining cropland is irrigated by water pumped from the Snake River, Salmon Falls Creek, and the Snake River aquifer. Stockwater for the rangeland in the area is obtained from streams, springs, and wells.

Wells, which are supplied by the Snake River aquifer, provide the water for domestic, municipal, and industrial use. Average well depth is about 200 to 320 feet, but depth ranges from artesian to more than 600 feet. Hot water wells are used for heat and recreation.

These resources will be considered in the protection of infrastructural resources for Twin Falls County and to the larger extent of this region, and the rest of Idaho.

3.10.3 Ecosystems

Historically, rangeland consisted of a mixed stand of bunchgrasses, forbs, and shrubs. Climatic factors dictated the diversity of the plant community, with lower lying terraces supporting Thurber needlegrass and Wyoming big sagebrush and higher lying uplands supporting mainly bluebunch wheatgrass, Idaho fescue, and mountain big sagebrush. Overgrazing reduced or eliminated many of the perennial plants, and annuals and shrubs increased. Because forage production was reduced, rangeland seeding became an economic necessity. Presently, native vegetation exists only in isolated areas protected from grazing. Suitable management practices for specific range sites can be used to increase rangeland productivity.

Twin Falls 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. Introduction of non-native plant species, a century of wildland fire suppression coupled with past land-use practices has altered plant community succession and has resulted in dramatic shifts in the fire regimes and species composition (USDA 1999). As a result, rangelands in Twin Falls 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 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 and rangelands has resulted in significant safety risks to firefighters and higher costs for fire suppression (House of Representatives, Committee on Agriculture, Washington, DC, 1997).

Recently, there has been considerable concern regarding the plight of the Sage Grouse. The sage-grouse is one of North America's most spectacular birds. As its name suggests, sage grouse a sage brush obligate species, solely dependant on healthy sage grasslands habitat, which was once abundant throughout the West. Sagebrush provides the birds' primary source of food and shelter, and offers a setting for the birds' traditional courting ritual. In 2000 the U.S. Fish and Wildlife Service designated the Gunnison sage-grouse a "candidate" for the Endangered Species list, having disappeared from most of its historic habitat. The greater sage-grouse has also experienced significant range and population reductions in many areas. These concerns necessitate consideration prior to the implementation of any projects that may further reduce sage grouse habitat.

3.11 *Soils*

There are various soil types in the Twin Falls County area. Four major soil divisions are found:

1. Forty-four percent of the land area is nearly level to moderately sloping, mesic soils that are shallow to very deep over a duripan and are suitable for cultivated crops.
2. Thirty-four percent of the land area is rock outcrop and nearly level to moderately sloping, mesic soils that are shallow, moderately deep, and very deep over a duripan on terraces, dip slopes, and ridges. These soils are mostly rangeland and irrigated cropland.
3. Eighteen percent of the land area is gently sloping to steep, frigid and cryic soils that are shallow to very deep over bedrock, shallow and moderately deep over a duripan, and formed in alluvium, colluvium, and residuum on breaks, dip slopes, hill slopes, ridges, summits, and terraces. These soils are primarily rangelands**.**
4. Four percent of the land area is rock outcrop or steep to very steep, mesic soils that are shallow to very deep over bedrock and formed in colluvium on breaks. These areas are primarily rangelands.

Our soil resource is an extremely important component for maintaining a healthy ecosystem and economy. Fire can play an intricate role in this process, if it occurs under normal conditions of light fuels associated with low intensity underburns. However, the buildup of fuels and consequent high severity fires can cause soils to become water repellent (hydrophobic), and thus greatly increases the potential for overland flow during intense rains. Soil in degraded conditions does not function normally, and will not be able to sustain water quality, water yield, or plant communities that have normal structure, composition, and function. Fire is also strongly correlated with the carbon-nutrient cycles and the hydrologic cycle. Fire frequency, extent, and severity are controlled to a large degree by the availability of carbon, as well as the moisture regime (Quigley & Arbelbide 1997).

Soils were evaluated for their propensity to become hydrophobic during and after a fire as evidenced by the presence of clay and clay derivatives (e.g., clay loam, cobbly clay) in the upper soil layers. In addition, their permeability and tendency to allow runoff to infiltrate the soil rapidly was evaluated. In general, with notable exceptions, the majority of the area within Twin Falls County has highly variable clay content in the A and Bt horizons. Textures range from gravely or silty clay loams, which have a relatively high concentration of clay to sandy loam with very little clay content. On average these soils are well drained with moderate to very slow 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 have the

potential to create hydrophobic characteristics in that layer. This can result in increased overland flow during heavy rains, following wildfire events, potentially leading to mass wasting. Rocky and gravelly characteristics in the A horizon layer would be expected to be displaced, while the silty and loamy fines in these soils may experience an erosion and displacement potential. These soils will experience the greatest potential impacts resulting from hot fires that burn for prolonged periods (especially on steep slopes).

The National Resource Conservation Service (NRCS) has mapped a large portion of Twin Falls County in detail. A complete soil survey for Twin Falls County was distributed in 2003. Please refer to the Jerome and parts of Twin Falls County NRCS Soil Survey Report to view each soil unit in the County and the associated characteristics relating to the effects of wildland fire.

3.11.1 Physiography

Geologically, the survey area is part of the Snake River Plain. During the Mesozoic era, the area uplifted and low hills formed. Events of the Cenozoic era dictated the present geology. Faults and fissures released molten lava from low profile shield volcanoes. There are about 40 shield volcanoes and basalt vents in the survey area. The bedrock in the area consists of shallow basalt lava flows underlain by ryholite. These lava flows intermittently blocked watercourses and created pluvial lakes that filled with sediment. The basalt flows and volcanic material along with glacial debris and lacustrine deposits influenced the many soils that developed.

The survey area is characterized by terraces, dip slopes, hill slopes, breaks, ridges, and summits. These surfaces formed as a result of geologic action. Relief influences soil formation by its effect on erosion, effective precipitation, soil drainage, air drainage, and exposure to sun and wind. Relief over the entire area is about 5,000 feet. Soils on stable terraces generally exhibit the most development because of the reduced risk of erosion and runoff. On steep slopes, parent material is unstable and the risk of runoff and erosion is higher.

3.11.2 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. Burning of fuel concentrations (referred to as “jackpot” burning) and, to a greater extent, pile burning would result in greater soil heating and localized impacts. Loss of soil carbon, nitrogen, sulphur, phosphorus, potassium, and soil organisms would be high in the soil surface layer. Soil physical structure could be altered thereby creating hydrophobic soils, especially where clay content is moderate or high.

Indirect effects of prescribed burning to slope stability are highly variable in the soil types found in Twin Falls County. Vegetation structure, including root strength after over burning, is maintained from three to fifteen years following low to moderate intensity burns and therefore soil saturation potential is not greatly altered. Re-vegetation of burned areas within this time frame will be a critical component to maintaining soil resources and pre-empting noxious weeds and invasive species from occupying the site. Locale experiencing high intensity burns will need to be evaluated immediately for mechanical erosion control followed by re-vegetation efforts. Holding soils in place will be a difficult challenge in many locations, especially on moderate to steep slopes.

Where heavy grazing has occurred in the past, there is also a possibility that soil productivity has been reduced. This is especially true in riparian areas where animal concentrations have historically been the greatest. These areas generally have easily compacted soils, and are

where cattle tend to linger if not managed well. Mining also has significant effects on soil quality through soil compaction and mass displacement.

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.

3.12 *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 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).

A correlation to mass wasting due to the removal of vegetation caused by farming, grazing, and 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%. Disrupted vegetation patterns from farming (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. The greatest watershed impacts from increased sediment will be in the lower gradient, depositional stream reaches. 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.

3.12.1 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, given project targets. In rangeland ecosystems, prescribed fire will have variable impacts dependant on burn intensity and proximity to streams. Stream buffering (low

intensity to no burn around streams) has been shown to preserve most if not all normal sediment filtering functions.

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 species and ground level natural fuels. Some patches of shade-tolerant, fire intolerant species may also be consumed. Prescribed burning is not designed to consume all vegetation within project areas. Each treatment will leave a mosaic of burned and unburned areas. Once the target fuels and the risk of fire carrying from one tributary to another have been reduced, hand ignition may be considered on a site-specific basis.

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 increases 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 can greatly increase surface erosion by temporarily creating a hydrophobic soil layer. 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. The design criteria described above minimizes the risk that landslides, mass movement, significant increases in surface sediment yield, and significant changes in water yield will occur.

Reduction of vegetation will mostly be limited to creeping ground fires, which will reduce understory vegetation, but will not affect mature trees or result in significant mortality to the overstory. Spring burning often results in minimal riparian vegetation burned because streamside areas have higher humidity and live plant moisture. Fall burning will more likely result in understory vegetation removal, with a possibility of some tree and large shrub mortality, especially outside of riparian zones where live plant moisture is less.

Riparian buffer strips will be maintained, thereby preserving canopy cover for shading, sediment filtering, and streambank and floodplain stability (PACFISH guidelines). 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 are unlikely. The area has been roaded from past management activities. Therefore, increased road densities from road construction are not expected to be of a magnitude to increase sedimentation to affected drainages, provided adequate planning for new road construction is implemented. Forest practices in the area will be conducted to meet the standards of the Idaho Forest Practices Act. 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.

3.13 *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 southern 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 Twin Falls 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.

Twin Falls County is in South Idaho Airshed Units 22 and 25: 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. The Sawtooth and Craters of the Moon Class I Areas are located north of Twin Falls County and would be affected by burning activities.

All of the communities within Twin Falls 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).

3.13.1 Fire Mitigation Practices to Maintain Air Quality

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 relative 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 would 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 4: Summaries of Risk and Preparedness

4 Overview

4.1 *Wildland Fire Characteristics*

An informed discussion of fire mitigation is not complete until basic concepts that govern fire behavior are understood. In the broadest sense, wildland fire behavior describes how fires burn; the manner in which fuels ignite, how flames develop and how fire spreads across the landscape. The three major physical components that determine fire behavior are the fuels supporting the fire, 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.

4.1.1 Weather

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

4.1.2 Topography

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

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

4.1.3 Fuels

Fuel is any material that can ignite and burn. Fuels describe any organic material, dead or alive, found in the fire environment. Grasses, brush, branches, logs, forest floor litter, conifer needles, and home sites (the structures) 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, and burn with much greater intensity. This increased energy release, or intensity, makes these fires more difficult to control. Thus, it is much easier to control a fire burning in grass than to control a fire burning in timber.

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.

4.2 *Twin Falls County Conditions*

Twin Falls County is characterized by a persistently warm and arid environment, that limits non-cultivated vegetative communities to grass and brush rangelands. Dry vegetation and hot, dry and windy conditions has resulted in a rich fire history, with relatively frequent fires. The last decade has seen the proliferation of Cheatgrass, an exotic grass species that is able to out-compete native bunchgrasses. Cheatgrass responds well to soil disturbance and is found in abundance along roadsides, driveways, new construction areas, and in recently burned areas. Over time, vegetative species composition in unmanaged or non-irrigated land has shifted toward fire prone species, particularly in high use areas where disturbance is common.

Twin Falls County has been experiencing growth, particularly in and around Twin Falls and all along the rim of the Snake River. The number and value of resources at risk is on the increase, as more and more homes are built in the midst of cured, fire-ready fuels. Human use is strongly correlated with fire frequency, with increasing numbers of fires as use increases. The combination of frequent ignitions and flammable vegetation has greatly increased the probability that incendiary devices will find a receptive fuel bed, resulting in increased fire frequency. Discarded cigarettes, tire fires, and hot catalytic converters have increased the number of fires experienced along roadways. Careless and unsupervised use of fireworks also contributes their fair share to unwanted and unexpected wildland fires. Further contributing to ignition sources are the debris burners and "sport burners" who use fire to rid ditches of weeds and other burnable materials.

Fire departments within Twin Falls County have reported a general increase in the number of fires within the county. Although there have been few homes lost to wildland fires in the recent past, the potential is growing. Fire departments feel as though pure luck has been on the side of

many homeowners, as more and more fires seem to be controlled at the doorstep of residents' homes. It is quite probable that the number of homes lost to interface fires will increase over time. However, there are a number of actions that can be taken now that can decrease the probability that these events will occur.

4.2.1 County Wide Potential Mitigation Activities

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

- Prevention
- Education/ Mitigation
- Readiness
- Building Codes

4.2.1.1 Prevention

The safest, easiest, and most economical way to mitigate unwanted fires is to stop them before they start. Generally, prevention actions attempt to prevent human-caused fires. Campaigns designed to reduce the number and sources of ignitions can be quite effective. Prevention campaigns can take many forms. Traditional "Smokey Bear" type campaigns that spread the message passively through signage can be quite effective. Signs that remind folks of the dangers of careless use of fireworks, burning when windy, and leaving unattended campfires can be quite effective. It's impossible to say just how effective such efforts actually are, however the low costs associated with posting of a few signs is inconsequential compared to the potential cost of fighting a fire.

The Upper Snake River BLM, the Sawtooth National Forest and local fire departments have been very active over the years in the prevention campaign in southern Idaho. The prevision campaigns have often taken creative and very active forms. Frequent contact with recreational users and homeowners seem to have been very successful. Over time there has been a reduction in the number of human-caused fires within the Upper Snake District. Much of this can be directly attributed to the continuing efforts of local and BLM fire prevention campaigns.

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

Fire Reporting: Fires cannot be suppressed until they are detected and reported. As the number and popularity of cellular phones has increased, expansion of the #FIRE program throughout Idaho may provide an effective means for turning the passing motorist into a detection resource. The Upper Snake River BLM has been expanding this program along interstates and highways throughout southern Idaho. Further expansion of the program should be encouraged.

Burn Permits: The issues associated with debris burning and agricultural burning during certain times of the year are difficult to negotiate and enforce. However, there are significant risks

associated with the use of fire adjacent to expanses of flammable vegetation under certain scenarios.

Issues associated with agricultural burning have continued to increase as populations increase and the local economy diversifies. For many growers, the practice of burning crop residues is not only practicle but necessary for the control of certain diseases, insects and weeds. In 2003, the Idaho State Department of Agriculture enacted rules specifically designed to lower the impacts of crop residue burning. The department established a set of rules for Idaho growers. However, these rules are voluntary. There is no means of enforcement if growers are found to burn outside these rules.

Rural fire departments typically observe the State of Idaho Closed fire season between May 10 to October 20. During this time, an individual seeking to conduct an open burn of any type shall obtain a permit to prescribe the conditions under which the burn can be conducted and the resources that need to be on hand to suppress the fire, from a State of Idaho fire warden. Although this is a state-wide regulation, agricultural burning has largely been exempt from these provisions. Tackling this issue is difficult. Typically, the duty falls to the chief of whichever fire protection district the burning is planned for. However, this leads to an increased burden on the fire chiefs, who are already juggling other department obligations with obligations to work and to home. There is also considerable confusion on the part of the public as to when a permit is necessary and the procedure for which to obtain the permit. The best-intentioned citizen may unknowingly break this law for a lack of understanding.

There is no uniform burn permit system in place throughout the county. Currently, burn permits are issued by the Buhl Fire Department for planned burns within their protection boundary. However, no other rural district has a burn permit system. The BLM does ask that those intending to burn apply for a burn permit through the BLM office. Approved permits are then forwarded to the corresponding rural fire departments for their information. However, there are frequently many more burn conducted than permits issued. Addressing agricultural and debris burning issues will take considerable effort and discussion between all involved parties.

4.2.1.2 Education

Once a fire has started and is moving toward home or other valued resources, the probability of that structure surviving is largely dependent on the structural and landscaping characteristics of the home. Also of vital importance is the accessibility of the home to emergency apparatus. If the home cannot be protected safely, firefighting resources will not jeopardize lives to protect a structure. Thus, the fate of the home will largely be determined by homeowner actions prior to the event.

The majority of the uncultivated vegetation in Twin Falls County is comprised of rangelands. These fuels tend to be very flammable and can support very fast moving and intense fires. In many cases, homes can easily be protected by following a few simple guidelines that reduce the ignitability of the home. There are multiple programs such as FIREWISE that detail precautions that should be taken in order to reduce the threat to homes, such as clearing sagebrush or cured grass and weeds away from structures and establishing a green zone around the home.

However, knowledge is no good unless acted upon. Education needs to be followed up by action. Any education programs should include an implementation plan. Ideally, funds would be made available to financially assist the landowner making the necessary changes to the home. Demonstration projects such as the Banbury-Hidden Landing Communities-at-risk Project has been met with great success. The cooperative project between the Buhl Fire Department and the BLM has created a community defensible space around multiple homes in an area of the

Snake River Canyon with high fuel loads and very little defensible space. The program is planned to continue in other areas of the county. Identification and prioritization of such projects should continue. The survey of the public conducted during the preparation of this WUI Fire Mitigation Plan indicated that approximately 46% of the respondents are interested in participating in this type of an activity.

4.2.1.3 Readiness- Fire Suppression in Twin Falls County- A Cooperative Effort

Once a fire has started, how much and how large it burns is often dependent on the availability of suppression resources. Wildland fire suppression throughout Twin Falls County can best be described as a cooperative effort between rural fire departments throughout the county and the Upper Snake River District of the BLM, and the Sawtooth National Forest. The abundance of both ignition sources and flashy fuels results in an abundance of fire starts each year. Wildland fire resource dispatching is conducted out of the Interagency Dispatch Center in Shoshone. Resource dispatching is based on a closest force philosophy, with the closest resources directed to the incident regardless of whether they are rural fire, Forest Service or BLM. This assures the most rapid response to wildland incidents. Rapid and aggressive initial attack is the key to keeping economic loss to a minimum. Local fire departments and the BLM have developed a dependence on one another in the ongoing attempt to control wildland fires before they become a large incident. The scattering of rural resources throughout the county allows for rapid initial attack of most wildland fires regardless of land ownership or fire protection jurisdiction. Quick response by rural forces allows for initial size-up and engagement while BLM forces respond from districts or staging areas. Between 60 to 80% of BLM fires are initially attacked by rural fire districts. If fires grow beyond the capabilities of the rural initial attack ground forces, BLM aerial resources including helicopters and retardant tankers are utilized in containment efforts. The close working relationship between the BLM and the rural departments is mutually beneficial and essential for reducing wildfire losses.

Recognizing the beneficial relationship between the federal land management and the local fire departments, the BLM has been very pro-active in assisting rural fire departments in purchasing of equipment and training material through the Rural Fire Assistance program. The BLM administers funding appropriated through The Department of the Interior to enhance the fire protection capabilities of rural and volunteer fire departments. This occurs through training, equipment purchases, and fire prevention work on a cost-shared basis. The DOI assistance program targets rural and volunteer fire departments that routinely help fight fire on or near BLM lands. Grants range from a thousand dollars to a maximum of $20,000 on a 10% cost share payable through in kind services. Fire departments that have entered into mutual aid agreements with the BLM are eligible for the program. Nearly all departments within the BLM Upper Snake River District have mutual aid agreements with the BLM, with the notable exception of Filer Fire Department. This will be further discussed later in the document, as well as the lack of formal cooperative agreements between the Sawtooth National Forest and Twin Falls rural departments.

4.2.1.4 Building Codes

The most effective, albeit contentious, solution to some fire problems is the adoption of building codes in order to assure emergency vehicle access and home construction that does not “invite” a fast and intense house fire. Codes that establish minimum road construction standards and access standards for emergency vehicles are an effective means of assuring public and firefighter safety, as well as increasing the potential for home survivability. The Twin Falls County Planning and Zoning Board should look to the fire departments in order to assure

adequate minimum standards. Once standards are adopted, enforcement must take place through the Building Department. Codes that address the minimum water requirements for firefighting resources should be considered as well. Establishment of charged hydrants, dry hydrants or cisterns in developing areas will increase overall fire safety in developing areas.

Coupled with this need is the potential to implement a set of requirements or recommendations to specify construction materials allowed for use in high risk areas of the county. While a resident of downtown Twin Falls may not put his or her structure at undue risk by the use of wooden decking materials, a shake roof, or wooden siding, the same structure in Rock Creek Canyon or along the Snake River would be at significant risk through this practice. The Twin Falls County Commissioners may want to consider a policy for dealing with this situation into the future as more and more homes are located in the wildland-urban interface.

Twin Falls County may also want to consider adopting into its Zoning and Building Codes wildfire prevention provisions. Ada County has recently adopted such codes that require fire-safe landscaping of new construction in areas that have been delineated as wildland-urban interface.

4.3 *Twin Falls County's Wildland-Urban Interface*

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

Table 4.1. Twin Falls County Communities

Community Name	Planning Description	Vegetative Community	National Register Community At Risk?[1]
Buhl	Community	Rangeland	Yes
Castleford	Community	Rangeland	Yes
Filer	Community	Rangeland	Yes
Hansen	Community	Rangeland	Yes
Hollister	Community	Rangeland	Yes
Kimberly	Community	Rangeland	Yes
Murtaugh	Community	Rangeland	Yes
Rock Creek	Community	Rangeland	Yes
Rogerson	Community	Rangeland	Yes
Roseworth	Community	Rangeland	No
Twin Falls	City	Rangeland	Yes

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

Site evaluations on these communities are included in subsequent sections. The results of FEMA Hazard Severity Forms for each community are presented in Appendix II.

4.3.1 Mitigation Activities Applicable to all Communities

4.3.1.1 Homesite Evaluations and Creation of Defensible Space

Individual home site evaluations can increase homeowners' awareness and improve the survivability of structures in the event of a wildfire. Maintaining a lean, clean, green zone within

at least 100 feet of structures to reduce the potential loss of life and property is highly recommended. Assessing individual homes in the outlying areas can address the issue of escape routes and home defensibility characteristics. Educating the homeowners in techniques for protecting their homes is critical in these environments.

4.3.1.2 Travel Corridor Fire Breaks

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

4.3.1.3 Power Line and Pipeline Corridor Fire Breaks

The treatment opportunities specified for travel corridor fire breaks apply equally for power line corridors. The obvious difference between the two is that the focus area is not an area parallel to and adjacent to the road, but instead focuses on the area immediately below the infrastructure element.

4.4 *Rangeland Communities in Twin Falls County*

4.4.1 Vegetative Associations

These communities lie in the vegetative ecosystem known as the “sagebrush steppe” community. The Sagebrush Steppe Ecosystem is widespread over much of southern Idaho, eastern Oregon and Washington, and portions of northern Nevada, California and Utah. The southern Idaho portion of this ecosystem occurs over a variety of land forms and vegetation types. Native vegetative communities range from vast expanses of grasslands resulting from recent fires, to old-growth sagebrush communities.

The steppe is characterized by a persistently warm and arid environment, that limits non-cultivated vegetative communities to grass and brush rangelands. Dry vegetation and hot, dry and windy conditions has resulted in a rich fire history, with relatively frequent fires. The last decade has seen the proliferation of Cheatgrass (*Bromus tectorum L.*), an exotic grass species that is able to out-compete native bunchgrasses. Cheatgrass responds well to soil disturbance and is found in abundance along roadsides, driveways, new construction areas, and in recently burned areas. Over time, vegetative species composition in unmanaged or non-irrigated land has shifted toward fire prone species, particularly in high use areas where disturbance is common.

Irrigation has led to the conversion of the sage-grass ecosystem to productive agricultural lands in many areas of Twin Falls County. This has created an agricultural patchwork across the landscape. Depending on crop rotation, farm lands may be irrigated, green and lush, or cured small grain crops. Dry fuels become continuous outside the irrigated zone throughout the county, providing a consistent fuel bed for fire spread. The majority of land outside towns and communities is dominated by dry vegetation type, with few breaks in continuity. Under dry and windy conditions, fires in these vegetative types can burn thousands of acres in a single burning period.

4.4.2 Overall Fuels Assessment

The land ownership pattern in the non-farmed portions of Twin Falls County is mix of state, private, federal lands. The majority of the expansive sage and grass rangelands in the southern portion of the county are owned and administered by the BLM. Two sections per township are state owned in this area, adding to the patchwork of land ownership throughout the southern portion of the County. These lands are primarily utilized for their forage value in support of the local livestock industry. Species composition is generally a mix of sage species, with components of rabbitbrush, and short grasses, as well as a variety of other forbs and dry grass species.

Northern portions of Twin Falls County have been developed for both agricultural and residential use. Roads, irrigated fields and lawns, canals and other man-made features break up fuel continuity in many areas at a landscape scale. However, there are still large expanses of wildlands in this portion of the county as well. Many of these areas are under BLM ownership, with others under private ownership. Additionally, the BLM owns most land within the Snake River Canyon and the lands on the periphery of the canyon rim. In many areas homes and housing developments have been perched on the canyon rim, intermixing with wildland fuels under both federal and private ownership.

The majority of rangeland fuel within Twin Falls County is comprised of sage and grass of varying densities and heights. Perennial and annual grasses are present in most areas and form an understory fuel layer. Areas dominated primarily by grass with scattered sage can be described as Fuel Models 1 or 2 (FM1 and FM2). Fires in these fuel types tend to spread very rapidly, especially when pushed by wind. Sage-dominated fuel complexes can be described as FM5 (for a complete discussion of fuel models, turn to 3.9.5). Fires in all fuel types found throughout the county can spread rapidly, especially when driven by the wind or when burning in areas with steep slopes. Thousands of acres can burn after only a single hour in grass and brush fuels. In heavy brush fires can travel at over eight miles and hour with flame lengths in excess of 50 feet. Fires of this intensity are nearly impossible to control with suppression resources, requiring a change in weather in order to allow crews and support equipment to gain the upper hand.

Agricultural areas in grain crops can be described as either FM 1, 2 or 3 , depending on stage in agricultural production. During the period while grain crops are cured prior to harvest, the mature crops are similar to tall grass (FM 3, greater than 2.5 feet in height). Fires in this fuel type tend to spread very rapidly with large flame lengths. Post harvest fuels are more typical of FM1, as residual harvest stubble is typically less than 1 foot in height. Flame lengths are rates of spread are reduced in the post-harvest condition. However, fires in these fuels can still spread quite rapidly and generate moderate flame lengths. Fuels between 1 foot and 2.5 feet can be described as FM2. However, the large flame lengths and high intensities these fires generate can be very threatening to homes and safety. Fires prior to harvest can also result in significant economic loss.

In many areas throughout the Great Basin fire behavior and fire regimes have been altered do to the proliferation of cheatgrass. Cheatgrass is prolific in many areas of Twin Falls County, particularly in the northern portion of the county and along the rim of the Snake River Canyon. It is very common in the vicinity of homes and structures and along roadways. The introduced grass dries early in the year well in advance of native species. The fine structure and its ability to completely dominate disturbed sites provide a dry, consistent fuel bed for fire. Because of these characteristics, cheatgrass will support fire during times of the year and under conditions which native vegetation would not sustain a wildland fire. Where cheatgrass has encroached in sagebrush stands, it now provides a consistent bed of fine fuels that actively carry fire without

the effect of wind. After fire disturbance, native species are often out competed by cheatgrass, resulting in monocultures of fire prone fuel. Because of the grasses ability to dominate disturbed sites and its propensity to burn, cheatgrass has the ability to remain dominant once a site is disturbed.

The lands administered by the Sawtooth National Forest in the Southeastern portion of the county represent a transitional community between rangelands and coniferous forest. This area contains two individual inventories roadless areas, and is known for the rim rock canyon of Rock Creek. Sage and grass communities similar to those found at lower elevations are common throughout the canyon. Juniper becomes common in many areas as well. Brush communities dominated by non-sage species become increasingly common at higher elevations in neighboring Cassia County. Aspen, subalpine fir, spruce and lodgepole pine occurring in frost pockets and cold air drainages at high elevations. Forest health is declining in many areas, as conifer trees of all species succumb to drought, insects and disease, as evidenced by the abundance of red-needled trees in the area.

The steep topography of the canyon walls accelerates fire spread and further hampers control efforts throughout the area. The abundance of large rock outcrops serve as natural fuel breaks in some areas. However, during dry summertime weather conditions fires in any of the fuels within the canyon can present significant control problems. Individual and group tree torching, large flame lengths, development of crown fire, and long-range spotting can easily overwhelm suppression forces, posing significant threat to homes, infrastructure and watersheds in the area.

4.4.3 Individual Community Assessments

The objective of the community assessments is to determine the extent to which wildland fire threatens the safety of people, homes, infrastructure, and other important resources throughout Twin Falls County. Assessing fire risk can be a challenging, as there are numerous individual factors that individually or cumulatively define the overall risk to a community or area. Fuel characteristics, ignition sources, topography, proximity of fire protection resources, emergency vehicle access and egress, home construction, presence or absence of defensible space, and water availability are just some of the factors that determine risk.

The community assessments summarize the factors that have been identified as contributing to risk in a given area. Assessments are based on field observation as well as on discussion with local fire department representatives. Other information such as recent fire events that help to illustrate fire risk, as well as steps that have previously been taken to mitigate risk are highlighted as well. Fire district jurisdictional boundaries define assessment areas. Areas that remain unprotected by a rural fire district will be addressed, as will critical infrastructure at risk within the county.

By necessity, generalizations need to be made in efforts to assess risk. Each and every homesite is unique, as are the characteristics of the home that contribute to its vulnerability to wildland fire. Thus the assessments attempt to capture the “average” condition, while noting attributes that significantly increase wildland fire risk in specific areas.

The assessments are followed by specific recommendations to address high hazard areas. The recommendations outlined in the Community Assessments generally focus on homesite or community defensible space. Recommendations targeted at addressing county level policy or increasing fire resource capabilities will be addressed in Chapter 5- Mitigation Recommendations.

Elimination of all risk is not possible, or is it desirable. Attempts at eliminating all risk would compromise the quality of life that Twin Falls County residents enjoy. Open space, native vegetation, recreation, and biological diversity would be adversely impacted if complete elimination of fire risk were to be the ultimate objective. The mitigation recommendations attempt to reduce risk to people, firefighters, homes and economically important assets at an acceptable level while not compromising the qualities that help define Twin Falls County.

4.4.4 Buhl Fire District and the Community of Buhl and the Snake River Canyon

The Buhl Fire District provides structural and wildland fire protection throughout its 101 square mile district. The protection area extends from the Snake River, to 1800 east, south to roughly 3400 North, then stair-stepping from 1500 east to Salmon Falls Creek. The community of Buhl is located approximately 4 miles south of the Snake River on Highway 30 between the Salmon Falls Creek canyon and the city of Filer. The district maintains two stations that provide quick response times to most areas within the district.

4.4.4.1 Community Assessment

The district is characterized by a mix of wildlands, agriculture, and residential areas. Recently, residential development has been occurring in many areas north and east of Highway 30, particularly within the Snake River Canyon, along the canyon rim, and in other small sub drainages. Many homes have been built in former wildland areas with grand views of the Snake River. Although these areas are prime building sites, the steep roads and driveways frequently challenge fire equipment capabilities. Furthermore, many homes have maintained the wildland characteristic around the home, increasing fire risk. Dry grass and weeds have been allowed to accumulate around the base of many structures throughout the district, with flammable vegetation continuing into rangelands. The lack of a firebreak or defensible space significantly increases the potential for a fire to transition from dry fuels to the structure or vise-vera.

The greatest factor that contributes to fire risk in the greater Buhl area comes from the increase in person-caused ignitions associated with travel corridors and other miscellaneous human activities. The dry nature of the surrounding vegetation and abundance of hot, dry and windy weather greatly increases the probability of an ignition source finding a receptive fuel bed, resulting in fast moving, rangeland fires. The speed at which fire can travel through these flashy fuels and cured agricultural fields leaves very little time to prepare a home to withstand a wildfire event. Thus it is critical that all precautionary measures take place prior to the fire season. Individual high risk areas will be addressed individually below.

The homes and structures that have been built on the flat upland areas outside the Snake River canyon are at a reduced risk of loss to wildland fire. This is due to the predominantly agricultural use of the surrounding land and the presence of green lawns around many homes. Many of the small patches of light grass and rangeland fuels pose a reduced threat to homes, as these patches tend to be isolated by roads and irrigated crop or pasturelands.

4.4.4.2 Other High Risk Areas

4.4.4.2.1 Melon Valley- Carter Pack Road

A number of homes accessed from Carter Pack Road have been identified as being at increased risk to wildland fire. The area is defined by a sub drainage that runs north to the Snake River. The topography in the area is broken with a number of steep slopes. Fuels are a

mix of dry grass and debris in the immediate vicinity of the homes, with sage and grass in the wildland areas beyond individual home sites.

Access to home sites in this area is of primary concern. Many homes are accessed via narrow unimproved dirt drives that follow small creek drainages. The small bridges that cross the creeks in the area are narrow and would not be capable of supporting the width or weight of large fire apparatus. Access is further hampered by overhanging branches from the Russian olive trees along the drives. The overhanging branches and limbs would slow response time and may completely preclude access to some home sites.

Quick response to fires this area is essential, as the steep slopes beyond the homes lead to continuous wildland areas with very little access. Ignitions originating from the homes or roads in the area could quickly enter the wildland area if response time is delayed.

4.4.4.2.2 River Road, East River Road, Kanaka Rapids, and Boulder Ridge

There are a number of risk contributing factors that are common throughout the residential areas located within the Snake River Canyon. Primary concerns include the rapid residential development in the area, the abundance of flashy fuels, human use contributing to fire starts, and access to individual homes and groups of homes throughout the area.

Access to River Road can be made by a number of routes, including the Clear Lakes Road to the east or by Highway 30 or North 1280 to the west. The eastern access to River Road, from East 2000, is quite steep, with a number of tight corners. Large emergency vehicles may not be able to negotiate the steep and winding road. Thus response times would likely be delayed in the event that access from Clear Lakes Road was compromised.

Planned development on the upper slopes in the Kanaka Rapids development illustrates the growing interface issue. Lots are located on steep slopes with dry native fuels below. The steep access will challenge large fire apparatus. At this point, there is no plan for a pressurized hydrant system in the upper reaches of the development, reducing water availability. This development trend will likely continue in the canyon area as demand for home sites pushes development further upslope into wildland areas. Planning and zoning codes that address these issues are the best means by which to assure emergency response is considered prior to development.

Furthermore, a number of homes in this area have been constructed with highly ignitable cedar-shake roofing material. Choice of this roofing material greatly predisposes the probability of home ignition from firebrands originating from the wildland.

There have been a number of recent fire events that have occurred with the Buhl Fire Protection District that demonstrate the challenges routinely faced by the department. In June of 2004 a house fire off River Road quickly transitioned to a wildland fire, burning 25 acres of before being caught. The structure was a complete loss. Fortunately, no other homes were located upslope or losses may have been even greater. The home was accessed via a narrow driveway with numerous overhanging branches from landscaping trees and shrubs. The drive dead ended at the home, with marginal turn around space for suppression resources. This incident illustrates the access issues common throughout the area.

A number of other grass and range fires occurred early in the 2004 fire season. One arson fire east of Clear Lakes Road above River Road nearly resulted in the loss of a home, burning to within feet of the structure. Evidence of a fire sparked by a vehicle backfire last year is still apparent in the yet to be built Boulder Ridge area. These events illustrate the high fire occurrence in the area and the threat these events pose to homes in the area.

4.4.4.3 Mitigation Efforts

4.4.4.3.1 Banbury Hidden Landing Wildland Urban Interface Fuels Treatment

The community of Banbury Hidden Landing in the far north west corner of the fire district was identified by the South Central Idaho BLM as a community at risk due to the wildland urban interface condition in the area. The area was thick with vegetation and subject to natural and human caused fires. The flashy fuels subject to rapid rates of spread threatened 11 homes in the area. The area was bordered by BLM public lands. Through a cooperative effort with the BLM, the landowners, and the Buhl Fire Department the community was the recipient of a community protection treatment through the BLM Communities-At-Risk, Wildland-urban Interface Program.

The thick sage and brush the abutted the homes in the area was cut and piled, creating a buffer strip around the community to reduce fire intensities and the subsequent threat to the homes. Through the cooperative work of all involved parties, the project has been completed, resulting in a much safer environment for homeowners and suppression personnel. The project has achieved its primary goal of risk reduction while promoting fire-wise practices and risk reduction activities to the people of Banbury Hidden Landing and to the community at large.

4.4.4.4 Mitigation Activities and Recommendations

The following is a short list of activities that can help reduce the risk associated with wildland fire in the Buhl area. A comprehensive list of recommendations will be presented in Tables 5.1 and 5.2 in Chapter 5: Mitigation Recommendations.

- **Public education** will continue to be a cornerstone of mitigation programs throughout the district and county. Individual home site evaluations can increase homeowners' awareness and provide the impetus to take measures to improve the survivability of structures in the event of a fire. "Living with Fire, A Guide for the Homeowner" or other literature distributed through the national Firewise program is an excellent tool for educating homeowners as to the steps to take in order to create an effective defensible space.
- **Access improvements:** Improving access in many areas can be accomplished through trimming of overhanging limbs and branches that impede movement of large emergency vehicles. Replacement of substandard access bridges to bridges that are capable of supporting emergency equipment as per NFPA standards. Where possible, road improvement should occur with creation of turn outs and turn arounds adequate for suppression resources. Specifically in the Melon Valley and Carter Pack area.
- **Maintenance of community defensible space in Banbury-Hidden Landing area.** Risk-reduction activities will need to be maintained into the future.
- **Improved and updated apparatus:** The Buhl district will need an additional Type I structure engine as well as an updated large capacity water tender to improve water supply availability.

4.4.5 Castleford Fire District and the Community of Castleford

The Castleford Fire District provides structural and wildland fire protection throughout its protection area, including the community of Castleford. The district is staffed by an all-volunteer staff, with a strong base.

The community of Castleford is located approximately 6 miles southwest of Buhl just east of the Salmon Falls Creek canyon. Although the rock walls leading into the creek bed are very steep, the land surrounding the community is relatively flat. The vast majority of the privately owned parcels in this area have been extensively developed for agricultural purposes. Except for a few islands of privately owned or state ground, most of the area west of the Salmon Falls Creek canyon is managed by the BLM.

The district has not experienced residential growth at the rate seen in other portions of Twin Falls County. What growth has occurred has been limited to a few dairy farms that are at high risk from wildland fires

The district is bordered by large expanses of unprotected wildland, to the north and south, including the community of Roseworth. No structural protection is available to homes in the area. The BLM provides wildland fire suppression in these areas. However Castleford Fire responds to fires in these areas as well.

4.4.5.1 Community Assessment

The majority of homes and structures within and surrounding Castleford are at moderate risk of loss to wildland fire due to the profusion of agricultural fields and the gentle topography of the area. Most residents in the area maintain satisfactory defensible spaces around structures sufficient to protect against ignition by radiant heat of direct flame contact, dramatically increase the probability of home survivability.

The primary access into Castleford is via Castleford Road from Buhl. There are several other primary routes including Lily Grade Road and Balanced Rock Road that are adequate for emergency vehicle travel. Secondary roads have been built on a grid around the community providing for a road at 1 mile intervals running north to south and east to west. Most of these roads are located in areas considered to be at probability of fire; however, the potential for accidental ignition by vehicle use or cigarettes is increased by the presence of dry grasses in ditches along roadways.

Road names and house numbers are generally present throughout the area; however, numbers on rural homes may be difficult to see due to homes being built at the end of long, single-lane dead end driveways. One-way in, one-way out access roads are unsafe for both residents and firefighters due to the potential for egress to be compromised.

The Balanced Rock County Park is located at the bottom of the Salmon Falls Creek canyon on the south side of Balanced Rock Road. This area attraction is maintained by Twin Falls County. The park is equipped with picnic tables, restrooms, and outdoor water faucets. The road leading into the park dead ends increasing patron's risk of entrapment; nevertheless, the park area is well-maintained and the solid rock walls of the canyon rise sharply on both sides. There is only one road accessing this site. The Balanced Rock Road is one of only a few that pass through the Salmon Falls Creek canyon, thus it is well used by truckers and other vehicles traveling to neighboring Owyhee County. The increase of potential ignition sources amplifies the risk of fire to neighboring farms and ranches.

The factor contributing most to fire potential near Castleford comes from the increased probability of human ignitions associated with recreational opportunities at Balanced Rock. Although much of the canyon is solid rock, the dry nature of the surrounding vegetation and abundance of hot, dry and windy weather increases the probability of an ignition source finding a receptive fuel bed, resulting in fast moving, rangeland fires. Depending on the season and status of crop land surrounding homes, there are a number of farm and ranch structures that could be at risk in the event of an ignition, especially on the east side of the canyon. The speed

at which fire can travel through these fuel types leaves very little time to prepare a home to withstand a wildfire event. Thus it is critical that all precautionary measures take place prior to the fire season.

4.4.5.2 Mitigation Activities and Recommendations

The following is a short list of activities that can help reduce the risk associated with wildland fire in the Castleford area. A comprehensive list of recommendations will be presented in Tables 5.1 and 5.3 in Chapter 5: Mitigation Recommendations.

- **Public education** will continue to be a cornerstone of mitigation programs throughout the district and county. Individual home site evaluations can increase homeowners' awareness and provide the impetus to take measures to improve the survivability of structures in the event of a fire. "Living with Fire, A Guide for the Homeowner" or other literature distributed through the national Firewise program is an excellent tool for educating homeowners as to the steps to take in order to create an effective defensible space.
- **Updated and improved Resources** including a high capacity water tender and an additional heavy brush unit to supplement firefighting capacities district-wide.

4.4.6 Filer Fire District and the Community of Filer

Filer Fire District provides both structural and wildland fire protection throughout its protection boundaries. The districts are actually split between Filer City and Filer Rural Fire Departments. However, all apparatus is stationed at one location and available for fire assignment regardless of location. The District also provides a Quick Response Unit for medical emergencies within the district, with members trained from the first responder to paramedic level.

The community of Filer lies to the south of the Snake River Canyon along State Highway 30. This is the only defined community within the district. The majority of the district is rural agricultural. Although growth is occurring throughout the district, it is most pronounced in the eastern portion of the district. High density developments in this area are increasingly common. The increase in district population within the Filer Fire District will begin to strain the capabilities of the department in the future. Anticipating the needs of the growing community, a new substation is in the district's growth plan in the vicinity of 2400E and 3700N. With economic growth in the City of Twin Falls to continue, the growth trend is likely to continue into the future.

4.4.6.1 Community Assessment

The majority of the homes in the Filer Fire District are at low risk to wildland fire. The flammable vegetation that does exist is limited to cured grass and weeds in small, isolated patches along ditches, roadways and in some cases around homes. These flashy fuels can pose a threat where they directly abut structures.

Most of the new, planned development is at low risk from wildland fire. Structures around the community of Filer are generally constructed with fire resistant building materials, and have been landscaped utilizing "firesafe" techniques that provide low combustibility, defensible spaces around the perimeter of the home. Access in subdivided areas tends to be adequate for emergency vehicles. However, access to new individual homes that are not included in a planned subdivision is often quite poor. Narrow, unimproved dirt access roads and drives without turn-outs limit suppression apparatus access, slowing emergency response times.

Road names and house numbers are generally present throughout the area, providing good emergency vehicle access throughout the area. This further reduces fire risk by allowing for rapid access to the home, reducing response time. House numbers on some homes are difficult to see from the road, due to homes being built at the end of long drives.

4.4.6.2 High Risk Areas

4.4.6.2.1 Southwest corner

The southwest corner of the district is characterized by continuous sage and grass wildland with poor access and no water availability. This fuel complex continues well to the south, outside the Filer District.

4.4.6.2.2 Snake River Rim

Homes perched on the rim of the Snake River Canyon are at increased risk of wildland fire due to the presence of native fuels on the steep slopes and canyon walls. Homeowners have inadvertently increased risk to their homes by dumping grass clippings, branches and other yard waste over the rim of the canyon. This debris has accumulated on many of the shelves in the canyon, increasing fuel loads. Homeowners in the area have maintaining green lawns thereby providing defensible space around many homes. However, there are instances where homes lack defensible space and are at an increased risk to fires originating in the canyon.

4.4.6.3 Mitigation Activities and Recommendations

The following is a short list of activities that can help reduce the risk associated with wildland fire in the Filer area. A comprehensive list of recommendations will be presented in Tables 5.1 and 5.4 in Chapter 5: Mitigation Recommendations.

- **Public education** will continue to be a cornerstone of mitigation programs throughout the district and county. Individual home site evaluations can increase homeowners' awareness and provide the impetus to take measures to improve the survivability of structures in the event of a fire. "Living with Fire, A Guide for the Homeowner" or other literature distributed through the national Firewise program is an excellent tool for educating homeowners as to the steps to take in order to create an effective defensible space.
- **Access improvements:** Improving access along narrow, single lane driveways is a priority throughout the district. Replacement of substandard access bridges to bridges that are capable of supporting emergency equipment as per NFPA standards. Where possible, road improvement should occur with creation of turn outs and turn arounds adequate for suppression resources.
- **Improved and updated apparatus and new station:** The Filer district is currently working to build a new fire station within a mile or two of Filer. Additional apparatus, including a Type 3 or 4 wildland engine, structure engine and large capacity tender are needed.

4.4.7 Twin Falls Fire District and the City of Twin Falls

The Twin Falls Fire Department provides fire protection for the City of Twin Falls and the surrounding Fire District from a main fire station and two sub-stations. This coverage encompasses approximately 75 square miles. This includes city and urban/rural areas with a

combination of privately and publicly owned properties. The Rural Fire District contracts with the City of Twin Falls for fire protection. The departments function jointly as a single unit.

The Department has 38 regular employees consisting of a fire chief, administrative assistant, three battalion chiefs, nine captains, nine driver/operators and 15 fire fighters. Twin Falls and the surrounding area enjoys excellent fire protection from the Twin Falls City and Rural Fire Districts. Since the departments are staffed with full-time, paid employees, staffing is not as significant an issue as in rural areas. Also, the wide tax base provides adequate revenue to assure equipment is updated and well-maintained.

The city of Twin Falls and the surrounding rural areas have experienced considerable population growth in the last decade. This has fueled a housing boom that has resulted in increases in subdivision, with more subdivisions planned in the future.

4.4.7.1 Community Assessment

The vast majority of homes in the city limits of Twin Falls are at very low risk to wildland fire. This is due to the urban landscape of green grass lawns and paved streets and roads. Development has been prolific both within and outside the city limits, with numerous subdivisions and developments sprouting up in all directions. Homes in these new developments are generally at very low risk due to suburban character in the new developments. Road access and water resources tend to be adequate in most areas.

There are areas of pasture land within the district that could easily catch fire, particularly with the high traffic volume associated with roadways in the area. Fires in these flashy fuels move quickly and could pose a threat where dead vegetation has been allowed to accumulate around the immediate vicinity of homes and outbuildings. Fortunately, most homes have adequate defensible space and well-maintained green lawns to serve as a fire break, lessening the threat from such an event.

4.4.7.2 Other High Risk Areas

There are areas at an elevated wildland fire risk within the district along the Snake River and Rock Creek Canyons. Areas east of city of Twin Falls along the canyon rim can be described as true urban interface, with high housing density immediately adjacent to dry, cured fuels. Fuels in the canyon and along the canyon rim are comprised of a mix of dry upland grass and sage vegetation. Wind is of primary concern in this area of the district. The frequent, sustained winds associated with the Snake River can rapidly push fire through cured vegetation and brush at very high rates of spread.

The homes along Rock Creek Canyon can best be described as fitting the occluded interface condition, with homes and structures associated with urban areas abutting the wildland fuels associated with the green corridors.

4.4.7.2.1 West of Twin Falls, including Rock Creek Estates, Rock Creek Point, Village at Canyon Gate and Canyon Trails

There are a number of homes that overlook Rock Creek Canyon. The canyon walls are steep, dropping over 100 feet to the drainage bottom below. The canyon is vegetated by native fuels that are capable of supporting wildland fire. Most of the homes overlooking Rock Creek have green, well-maintained lawns that provide adequate defensible space in the event of fire emerging from the canyon. However, some homes do lack defensible space, increasing the potential for fire to threaten the homes on the canyon rim.

4.4.7.2.2 East of Twin Falls, including East Poleline Road and Canyon Ridge and Meadow Ridge

Native vegetative communities are common around many of the homes along the canyon rim east of Twin Falls. Typically, these are patches of native sage and grass or associated with xeroscaping of residential areas. Fuels continuity is somewhat broken by the the prevalence of roads, irrigated pastures and green lawns. However, under windy conditions, a fire start in these fuels could easily be pushed across these fire breaks, developing into a threatening wildland fire.

Many of the homes in the area are constructed with fire-resistant materials and maintain some degree of defensible space around the home, reducing the potential for home loss. However, a number of homes lack defensible space or have characteristics that predispose a home to ignition from wildland fire or firebrands, such as cedar-shake roofing material and wood porches that extend into the dry fuels.

Access and egress for emergency vehicles is of primary concern in many areas. Roads tend to be quite narrow and adequate turn around space is generally lacking. Furthermore, many roads do not connect through and dead end. This condition adds to confusion during emergency response. Lack of alternate escape routs is dangerous for both firefighters as well as citizens.

4.4.7.2.3 Dierkes Lake and Hidden Lake

The Dierkes-Hidden Lake area is a popular recreational spot within the district. The lakes are surrounded by native vegetation, with an increased ignition potential due to the concentration of use in the area. There is no vehicle access to the lakes beyond the parking area. Upslope to the east of the lakes are numerous interface homes with dry fuels know as the China Ridge area protected by the Rock Creek Fire Department. The primary concern in this area is the potential for fires to spread from the lake area, threatening the homes above.

4.4.7.2.4 Rock Creek Park and Rock Creek Parkway

The Rock Creek corridor is a popular recreation area running through the periphery of Twin Falls. The park and parkway offer paved trails for walking or bicycle riding along the banks of Rock Creek, with many benches and seating areas for users to enjoy the park surroundings. Many of the areas along the trail and around parking areas are kept green and well groomed. However, the trail also passes through a number of areas of cured vegetation. Human use and wildland fires occurrence are highly coordinated. In recreation areas this is often times due to carelessness with discarded cigarettes, fireworks, campfires or and other incendiary devices during dry periods of the year. Thus, the potential for human-caused fires cannot be ruled out. Upslope from the trail are dry grass and sage fuel types capable of supporting fire. In some areas these fuels lead directly to homes and other improvements have been built overlooking the park. Where defensible space is lacking, fire could spread from the flashy fuels within the park to the homes above.

4.4.7.2.5 Centennial Park and Snake River Canyon Trail

As with the Rock Creek Park area, steep canyon walls and flammable native vegetation characterize portions of Centennial Park and the Snake River Trail areas. The high degree of human use increases the potential for human caused fires in these recreation areas. Although there is little risk to the homes above the canyon walls, a fire in the park area would temporarily diminish the park quality and potentially threaten the well-being of park users.

To the west of the park, the sewage treatment facility, and the power company is a large piece of land recently purchased by the city at the junction of Rock Creek and the Snake River. The flashy grass fuels in the area have supported multiple fires throughout the years. Poor access to the area do to gates at both the treatment facility and power company increases initial attack time in the area.

4.4.7.3 Mitigation Activities and Recommendations

The following is a short list of activities that can help reduce the risk associated with wildland fire in the Twin Falls area. A comprehensive list of recommendations will be presented in Tables 5.1 and 5.7 in Chapter 5: Mitigation Recommendations.

Past mitigation has centered on rapid response from the well equipped, well staffed Twin Falls fire department. Maintaining the capabilities of the department will help to reduce fire threat into the future. There are some activities that could help to further reduce the wildfire risk within the district.

- **Public education** will continue to be a cornerstone of mitigation programs throughout the district and county. Individual home site evaluations can increase homeowners' awareness and provide the impetus to take measures to improve the survivability of structures in the event of a fire. "Living with Fire, A Guide for the Homeowner" or other literature distributed through the national Firewise program is an excellent tool for educating homeowners as to the steps to take in order to create an effective defensible space.
- **Reduce the potential for human carelessness to result in a wildland fire in Rock Creek Park, Rock Creek Parkway, and Centennial Park**. This can be done through public education and a few simple preventative measures, including maintain a twenty-foot buffer of non-flammable vegetation around park benches and other rest areas throughout the park system. This will reduce the potential for discarded cigarettes or other incendiaries from finding a receptive fuel bed and igniting a fire.
- **Posting fire prevention and restriction signs at trailheads during summer months**. Prohibit the use of fireworks within parks and post signage accordingly.
- **Initiate defensible space demonstration program in the Meadow Ridge and Canyon Ridge area of the district.** The high housing density and interface characteristics of this area lend itself well to a demonstration project. Coordination between the Twin Falls Rural Fire Department, the BLM and interested citizens will be necessary to initiate the program in the area. Hopefully such a program will be "contagious" and spread throughout the area.

Activities and recommendations associated specifically with increasing department capabilities are addressed Chapter 5- Treatment Recommendations.

4.4.8 Rock Creek Rural Fire Protection District and the Communities of Kimberly, Hanson, Murtaugh and Rock Creek

The Rock Creek Fire Department provides both wildland and structural fire protection for approximately 190 square miles in eastern Twin Falls County. The fire protection area includes the cities of Kimberly, Hansen, and Murtaugh. The district also provides protection to residents in the Rock Creek Canyon up to the Sawtooth National Forest boundary as well as for eight square miles of Cassia County. Rock Creek has agreements with the City of Hansen and City of Kimberly to operate as a single entity.

The department is staffed with 42 volunteers and one paid chief. Rock Creek maintains four stations, one each in Kimberly, Hansen, Murtaugh and just north of the foothills at the Rock Creek Store. Much of the land within the district is utilized for agriculture. Wildland fuel hazards are primarily concentrated along the Snake River Canyon as well as within the Rock Creek Canyon just south of the National Forest boundary. Both actively cultivated and abandoned agricultural fields also pose risk in areas of the district.

Community assessments will be presented for Kimberly, Hansen, Murtaugh and Rock Creek followed by assessments and discussions of other high risk areas.

4.4.8.1 Community Assessments

4.4.8.1.1 Kimberly and Hansen

The communities of Kimberly and Hansen are located within three miles of one another. Because of the similarities in the conditions within this area and the close proximity of the two communities, the assessment discussion will apply to both communities.

A tight cluster of buildings and homes, with a clear line of demarcation between town and the surrounding farms, define the city centers of both communities. The areas surrounding both communities are relatively flat and well irrigated, making it ideal for agricultural development. The vegetation surrounding the communities is a mosaic of crop and pastureland, extending for several miles in all directions. The few areas that have been left uncultivated are vegetated with remnants of native sage rangeland species. Generally, these remnant patches are small and isolated by roads and irrigated crop fields, with few areas of continuous wildland fuels in the area.

The primary access into Hansen is via U.S. Highway 30 and 3800 East (County Road G3). Access to Kimberly is via US Highway 30. There are several other primary routes including Sugar Factory Road (3700 North) and South Main Street (3500 East) that are adequate for emergency vehicle travel. Road names and house numbers are generally present throughout the area, with some exceptions. The abundance of good quality access routes and rural house numbering reduces response time for emergency services.

The greatest fire risk to Hansen and Kimberly comes from debris burning and roadside ignitions. The dry nature of the surrounding vegetation and abundance of hot, dry and windy weather greatly increases the possibility of a fires igniting neighboring fields and potentially resulting in a fast moving fire. Depending on the season and status of croplands, there are a number of farm and ranch structures that could be at risk in the event of an ignition. Furthermore, a fire event would result in considerable economic loss to the farmer. The speed at which fire can travel through these fuel types leaves very little time to prepare a home to withstand a wildfire event. Thus it is critical that all precautionary measures take place prior to the fire season.

4.4.8.1.2 Murtaugh

The community of Murtaugh is located along the Snake River about 2 miles north of Murtaugh Lake. The vast majority of land surrounding the City of Murtaugh is privately owned and utilized for agriculture.

The primary access into Murtaugh is via 4525 East Road from U.S. Highway 30. There are a couple other primary routes including 4500 East Road and 3425 North Road that are adequate for emergency vehicle travel. Road names and house numbers are generally present

throughout the area; however, numbers on rural homes may be difficult to see due to homes being built at the end of long, single-lane dead end driveways.

The majority of homes and structures within the immediate vicinity of Murtaugh are at low risk of loss to wildland fire. However, there is some risk associated with the prevalence of flashy grass and rangeland fuels within and along the rim of the Snake River Canyon. The walls of the Snake River canyon are very steep and rocky with wildland fuels primarily consisting of mixed sagebrush and dry site grasses. Increasing the probability of ignitions within the canyon is 3425 North and 4625 East roads which provides access to the Snake River for kayaking and other recreational activities. To the east, grain and other crops abut sage fuels along the rim of the canyon. There is only a single access point across the irrigation canal for six miles along the rim, reducing response times to fires along the rim considerably.

Also contributing to ignition potential within the Snake River Canyon is the Milner Dam and Historical Site. Although the access roads and picnic area are kept reasonably clear of fuels, much of the park is covered with native sagebrush and dry grasses. The proximity of dry sage and grass to recreation facilities increases the probability of a wildland ignition. Furthermore, the roads leading to the picnic area and the boat ramp are one-way in, one-way out, increasing the already high potential fire hazard. Depending on the season and status of cropland surrounding nearby homes, there are a number of farm and ranch structures that could be at risk in the event of an ignition.

4.4.8.1.3 Rock Creek

The community of Rock Creek lies south of Hansen, near the intersection of 2950 North Road and County Route G3 or 3800 East. The drainage for which the area is named flows into the Magic Valley from the south. Vegetative above the irrigated zone in the area is dominated by tall, mature sagebrush and grass, particularly within the Rock Creek Canyon.

The majority of homes in the area are to the south of the Rock Creek Store, just below the confluence of the Fourth and Fifth Forks of Rock Creek. The road becomes known as the Rock Creek Canyon Road (3800 East), or Forest Road 515 south of the community center. Homes are concentrated in the narrow strip of private land along the bottom of Rock Creek, surrounded primarily to by BLM lands. Private lands at the far south end of the residential area of Rock Creek are bordered by the Sawtooth National Forest. Homes throughout this area are at elevated risk for loss to wildland fire due to the close proximity of wildland fuels as well as a number of additional factors.

Further increasing risk is the lack of access to homes. The vast majority of homes have been built on the east side of Rock Creek, along the steep, fuel laden slopes under BLM ownership. The primary access road, the Rock Creek Canyon Road, runs primarily on the west side of Rock Creek. A majority of the homes on the east side of the creek are accessed via individual, private bridges, the majority of which are un-rated. Many would not support the weight or width of structural or large wildland engines. This drastically reduces firefighting effectiveness in the event of a wildland or structural fire. This increases the probability of both home loss due to wildland fire, as well as structural fires transitioning to the wildland.

The choice of building materials and the lack of defensible space around many homes also contributes to risk. Dry sage and grass fuels on the BLM ownership abut many homes on the east side. Indeed, sage and grass fuels dominate the landscape in all directions, with few breaks in rangeland fuel continuity. Fuel continuity throughout the area increases the potential for wind-driven fires from any direction to threaten Rock Creek homes. Use of highly flammable ornamental and landscaping species such as sage, juniper and pine surround many homes,

dramatically increasing fire risk. Home construction methods and materials also increase the probability of home ignition, with exposed wood and overhanging porches quite common.

Homes within Rock Creek Canyon are also at risk from wildland fire moving down canyon from lands administered by the Sawtooth National Forest. Multiple picnicking, hiking and camping opportunities exist within the Rock Creek Canyon. Increases in human use increase the probability of human-caused wildland fires, especially around campgrounds and picnic areas where fires rings and barbeque pits are established. In some cases, vegetation has been allowed to grow within a few feet of fire rings and cooking areas, increasing the probability of an accidental ignition.

Homes and businesses to the west of the junction of the Rock Creek Canyon Road (3800 East) and Foothills Road (2900 North south of Kimberly and 2950 south of Hansen) are at elevated risk to wildland fire due to the neighboring expanses of dry rangeland fuels as well. Rangeland fuels are consistent to the south, east, and west of the area, allowing for the potential of wind-driven rangeland fires from the south, east or west to threaten the structures. Furthermore, there is an abundance of highly flammable debris around the homes, including an abundance of logs and scrap wood from the small post and pole mill. Defensible space is marginal if not completely lacking in the vicinity of many homes, and home construction materials are generally flammable, with exposed wood common.

The majority of homes to the north of Rock Creek Canyon are at a reduced risk to wildland fire due to the agricultural use of much of the surrounding land. The large irrigated fields and roads within the area provide effective firebreaks, reducing the potential for fire spreading too many homes. However, in areas where dry grain, hay, or abandon agricultural fields abut homes, the fire threat is significantly higher.

There is also the potential for loss to the agricultural economy of the area. Fires moving from the BLM administered rangelands south of the 2900 North Road and east of 3800 East road into cured fields could result in loss of grain crops. This small area of Rock Creek protection is documented in the Cassia County Fire Mitigation Plan.

4.4.8.2 Other High Risk Areas

4.4.8.2.1 China Ridge-Hidden Lakes

The China Ridge-Hidden Lakes area is located in the north west corner of the Rock Creek District along the Snake River Canyon. The area includes the area east of 3300 E, north of 4000 N, and west of 3600 East. There are a number of factors that contribute to the interface risk in this area, including fuel conditions, ignition sources, access, and home construction materials and techniques.

Fuels in this area are comprised primarily of a sage overstory with an abundant dry grass understory. Cheatgrass is prolific in the area, providing a highly ignitable, flashy fuel that supports fire spread at very rapid rates. Native sage is common in the area as well, with mature sage five to six feet in height quite common. Although there are a number of road, yards and other man-made features to break fuel continuity, the prevalence of warm, dry, windy weather associated with the canyon could easily push fire across these fire breaks and through the homesites, potentially resulting in loss of property and jeopardizing public and firefighter safety.

Activities associated with the homesites and travel on roads in the area contributes significantly to ignition sources in the area. Debris burning, fire works, discarded cigarettes, etc. could easily ignite the dry, cured fuels in China Ridge area. Also of concern are fires associated with recreational activities in the Dierkes Lake area west of Hidden Lakes subdivision, just beyond

the Rock Creek Fire protection boundary. Fires in the lake area are very difficult to access due to the steep, rocky slopes and the lack of motorized access. Homes in the Hidden Lakes Subdivision overlook the lakes and would be at the greatest risk from fires originating in the lake areas. Fire could also threaten homes to the east of the Hidden Lakes Subdivision when pushed by the dry, west wind typical in the Snake River.

Of primary concern is emergency vehicle access. Many roads in the area are unimproved, narrow dirt drives with no buffer between the road and the dry grass and sage fuels. Turn-outs and turn around locations are absent in many areas, with the exception being in the new Hidden Lakes Subdivision. Some roads do not connect through and dead-ending without any turn around areas. This adds to confusion during emergency responses, slowing response times and compromising safety.

Some homes have created adequate defensible space and created buffers along driveways. However, this is the exception rather than the norm. There is an abundance of dry native vegetation, weeds and other flammable debris in many areas. In some cases, accumulations of driftwood and other highly flammable materials have been used as landscaping. Many homes have been constructed with highly flammable wood siding and roofing material. The combination of flammable building materials and lack of defensible space dramatically increases the probability of fire moving between structures and the wildlands.

Water availability is generally quite limited in the area, with no hydrant system within the immediate vicinity. The Hidden Lakes subdivision has installed a dry hydrant system. However, there is no direct road access to Hidden Lakes from development to the east.

4.4.8.2.2 Pleasant Valley, Cottonwood Heights, and Parrot Crossing

These areas to the south of Kimberly are areas of development along Rock Creek in what have historically been cultivated agricultural areas. Risk in these areas is associated with fuel accumulations associated within the Rock Creek drainage or with former agricultural fields that have been allowed to grow into thick weeds and grass. Continued development in the area will increase exposure of homes and people to fire hazards. Water availability in the area is also an issue, as static water supplies are not present throughout the area. This portion of the district is likely to continue to develop as more and more people move outside the urban areas. Many potential problems could be addressed through zoning and planning as well as through homeowner education to address issues of access, water supply, and maintaining defensible space.

4.4.8.3 Mitigation Activities and Recommendations

The following is a short list of activities that can help reduce the risk associated with wildland fire in the Rock Creek fire district. A comprehensive list of recommendations will be presented in Tables 5.1 and 5.5 in Chapter 5: Mitigation Recommendations.

- **Public education** will continue to be a cornerstone of mitigation programs throughout the district and county. Individual home site evaluations can increase homeowners' awareness and provide the impetus to take measures to improve the survivability of structures in the event of a fire. "Living with Fire, A Guide for the Homeowner" or other literature distributed through the national Firewise program is an excellent tool for educating homeowners as to the steps to take in order to create an effective defensible space.

- **Initiate defensible space demonstration in the China Ridge area.** Defensible space demonstrations in the area can set the example and provoke interest in surrounding home owners in how to create defensible space and reduce fire hazards.
- **Vegetation treatment along access roads in the China Ridge area.** Currently, dry, cured vegetation and large sage brush is immediately adjacent to the roads within the area. Reducing vegetation through removing brush adjacent to the roadway and mowing of grass and weeds along the road right of way can help reduce the potential for roadway ignitions.
- **Improve road construction in the China Ridge area to Twin Falls Highway Department standard.** Currently, roads in the area are of poor construction. Improving road surface would ease emergency access.
- **Create through roads in the China Ridge area to improve access and reduce the number of dead-end roads.**
- **Develop Mitigation Plan and Demonstration Project for the Rock Creek Canyon in the southern portion of the district.** Homes in the Rock Creek area are at high risk to wildland fire for a number of reasons. Hazardous fuel reduction and creation of buffer strips in conjunction with the BLM and private homeowners can help reduce the fuel loads in the vicinity of homes.
- **Improve bridge access into Rock Creek homes.**
- **Treat vegetation along Rock Creek Canyon Road to reduce the potential for roadside ignitions.** Such treatment may include mowing, herbicide use or some other alternative means to reduce fuels adjacent to the road.
- **Augment emergency water supplies through installation of dry hydrants and other means throughout the district.**

Activities and recommendations associated specifically with increasing department capabilities are addressed Chapter 5- Treatment Recommendations.

4.4.9 Salmon Tract Rural Fire Protection District, including the Communities of Hollister and Rogerson

The Salmon Tract Rural Fire Protection District is responsible for structural and wildland fire suppression across 593 square miles of south-central Twin Falls County. This includes the communities of Holliser and Rogerson as well as approximately 1500 residents, 500 homes and 180 farmsteads. Salmon Tract is primarily a wildland district, with protection over large expanses of BLM, state and private rangelands extending to the Nevada boarder. Hollister and Rogerson are primary interface concern areas. The abundance of dry, flashy fuels increases the probability of ignitions and the potential for fire to infringe on residential areas.

4.4.9.1 Community Assessments

4.4.9.1.1 Hollister

The community of Hollister is located along U.S. Highway 93 between Twin Falls and Jackpot, Nevada. Most of the area surrounding the community is managed by the BLM. Further to the east are rangelands managed by the Sawtooth National Forest. Vast expanses of flashy grass and shrub fuels surround the community, with few breaks in fuel continuity. Fast moving, grass and range fires are common in the area. Because of these fire and fuel characteristics, Hollister is at an elevated risk to wildland fire.

The primary access into Hollister is via U.S. Highway 93 from Jackpot, Nevada or Twin Falls. There are several other primary routes including 2400 North Road and 2300 East Road that are adequate for emergency vehicle travel. There are also numerous secondary roads leading into and out of the area for good access and egress to most residential areas in the district. However, access in rangeland areas is often quite limited.

Ignitions originating within the community can rapidly spread outside the community under the influence of the hot, dry, windy weather typical of the area. Such fire occurred in the recent past when lightning struck a telephone pole in town, sparking a grass fire. The fire was fanned by strong winds, spotting across roads and burning through vacant lots into the wildlands. The fire was contained relatively quickly, and no structures where lost. However, the incident demonstrates the fire risk in the area.

The burned area is now revegetated with a consistent bed of flashy fuels. The abundance of fine, easily ignitable fuels increases the risk of grass fires in the immediate vicinity of the community. Creation of a buffer strip around the community would help to reduce the threat of fire moving either into or out of the community.

4.4.9.1.2 Rogerson

The community of Rogerson is located along U.S. Highway 93 approximately 17 miles north of Jackpot, Nevada. Like Hollister, Rogerson is surrounded large expanses of flashy grass and range fuels. Rogerson is serviced by a municipal water system that provides ample water for most emergency scenarios. Furthermore, the BLM maintains a staffed guard station with a strike team of wildland engines on seven day coverage throughout the fire season. Although these features mitigate the risk to Rogerson somewhat, the abundance of uninterrupted grass and range fuels increase the probability of fires infringing on the community from the rangelands or moving from the community to the rangelands. Considering the high spread rates typical in these fuel types, homes need to be protected prior to fire ignitions, as there is little time to defend a home in advance of a grass and range fire.

Rogerson has been identified by the BLM as a community at risk. A wildland fire mitigation plan for fuels treatment in the vicinity of the community has been completed. Fuels treatments will consist of creating a green strip along the periphery of town. The project will first reduce the sage component, then planting less flammable grass species that remain green longer into the fire season. Once completed, this project will help to reduce the probability of fire moving between the rangelands and the community area.

Fire risk in the vicinity of Rogerson is increased by recreation use associated with Salmon Falls Creek Reservoir. The Salmon Falls Creek Reservoir is located approximately 7 miles west of the community. The majority of land surrounding the reservoir is managed by the Bureau of Land Management. Several small parks have been established along its eastern shore that attract hundreds of outdoor recreators each year. The Lud Drexler Park, located nearest the Salmon Falls Creek Dam, offers a large boat ramp, restroom facilities, and several picnic areas. Wildland fuels are present throughout the area including around the picnic tables and along the one-way in, one-way out access road. The probability of an ignition within the park traveling upslope through these dry fuels is high.

Grey's Landing, Norton Bay, Big Sand Bay, and Whiskey Slough are smaller recreation areas along the eastern shore, some of which have a restroom facility and/or a picnic area. These areas receive a high volume of visitors. Access is limited to long, single-lane, dead end roads that are not adequately signed or maintained. Additionally, some users drive off-road directly through fuels to access the lake, particularly along the western shore where maintained access

is limited increasing the probability of vehicle-related fires. The majority of the ground on the western shore and between U.S. Highway 93 and the reservoir is managed by the BLM.

The primary access into Rogerson is via U.S. Highway 93 from Jackpot, Nevada or Twin Falls. There are several other primary routes including Three Creek Road and Shoshone Basin Road that are adequate for emergency vehicle travel. The Three Creek Road does; however, travel across the Salmon Falls Creek Dam. This is a very narrow, single lane bridge that may limit access to large vehicles.

Vehicle traffic associated with Salmon falls Creek Reservoirs has been a major contributor to roadway ignitions along Highway 93. High volumes of commercial truck traffic on Highway 93 and passenger vehicle traffic from Jackpot, Nevada contributes significantly to roadside ignitions. The potential for accidental ignition by vehicle use or cigarettes is increased by the presence of dry grasses in ditches along roadways.

4.4.9.2 High Risk Areas

Rogerson and Hollister

Both Rogerson and Hollister are at elevated risk to wildland fire due to the vast expanses of dry, un-interrupted rangeland fuels that extend for from each community. Fires originating far outside the communities can threaten safety and property when pushed by strong winds. Fire histories in the area suggest that fires of this extent and magnitude are not uncommon in these fuel types.

Hannahs Fork of Big Creek

The private inholding up the Hannis Fork of Big Creek is just to the east of the current Salmon Tract protection boundary and thus does not have any structure protection. Expanding protection to this area would do little to reduce risk, as response time for Salmon Tract resources would be an hour or more. The slope, fuels conditions and prevailing wind dramatically increases the threat for fire to threaten property in the area. To help mitigate these risks, home defensibility measures should be encouraged.

4.4.9.3 Mitigation Activities and Recommendations

The following is a short list of activities that can help reduce the risk associated with wildland fire in the Salmon Tract area. A comprehensive list of recommendations will be presented in Tables 5.1 and 5.6 in Chapter 5: Mitigation Recommendations.

- **Public education** will continue to be a cornerstone of mitigation programs throughout the district and county. Individual home site evaluations can increase homeowners' awareness and provide the impetus to take measures to improve the survivability of structures in the event of a fire. "Living with Fire, A Guide for the Homeowner" or other literature distributed through the national Firewise program is an excellent tool for educating homeowners as to the steps to take in order to create an effective defensible space.
- **Implement the Communities at risk project around Rogerson.**
- **Establishment of a fuel break around Hollister**.
- **Work with interested homeowners** in conducting individual home assessments and creation of defensible space where needed.
- **Enhance home defensibility awareness in the Hannahs Fork area** considering the lack of fire protection in the area.
- **Development of dependable, year round water sources** through the fire district.

- **Increase department capabilities** through acquisition of a Type 4 wildland engine and a Type 1 or 2 structure engine to replace existing, outdated pumper

4.4.10 Communities outside Rural Fire Protection Districts- Roseworth, Bell Rapids, Three Creek, Magic Water and Hannahs Fork

Roseworth, Bell Rapids, Three Creek and Magic Water areas are populated areas that are not currently protected by rural fire protection. All these areas are quite rural. Homes and outbuildings are generally associated with the large farms in the area. The lack of structural fire protection in these areas increases risk associated with both structural and wildland fire. The Lower Snake River District of the BLM does provide wildland fire protection. However, there is no protection for fires originating on private lands that threaten homes and property. Considering the distance from existing districts, there areas would be best served by chartering new fire districts for their protection. There are abundant technical resources to aid in creating new fire districts as well as considerable funding opportunities for new departments. Additional fire districts would provide the opportunity for mutual aid agreements with surrounding districts and contribute to the overall capabilities of the county and Magic Valley

Interest in creating a new department needs to come from within the community. This issue should be revisited in order to further increase the safety of Twin Falls County residents and reduce the potential for loss of private resources.

Multiple infrastructure systems pass through the Bell Rapids and Magic Water area. The lack of fire protection in this area may increase the potential for damage due to wildland fire. This will be further addressed below.

As mentioned previously, the private inholding along the Hannahs Fork of Big Creek is unprotected as well. Incorporation of the residence into a rural district is rather impractical, as travel time from Salomon Tract stations would likely be close to one hour. The best means for reducing fire risk to the residence is through aggressive defensible space and home protection measures that increase the survivability of the home and associated buildings in the event of a wildland fire.

4.4.11 Critical Infrastructure in Twin Falls County

There are multiple infrastructure resources that are potentially at risk to wildland fire in Twin Falls County. Damage of infrastructure may be temporary and isolated, only impacting small areas for short periods of time. However, in many cases, the consequence of damage or destruction of major resources would impact the safety, economy and way of life for tens of thousands of people, from Salt Lake City to Portland and Seattle.

4.4.11.1 Power Transmission Lines

Primary, secondary, and feeder power lines are criss-cross the county and residential areas throughout the county. Those at greatest risk to direct impact from fire are those that are supported by wooden poles that can easily catch fire in the event of a fire. In many cases, the wooden telephone or power poles can be extinguished before the integrity of the pole is significantly compromised. However, damage to transformers and other power components may result. During large wildland incidents when hundreds or thousands of poles may catch fire, significant numbers of poles may fail, leading to downed lines and significant safety risks. Repair times would be proportional to the scale of the event. Likewise power outages are proportional as well.

There are a number of high tension power lines that cross the county in the far north-western portion of the county, in the Bell Rapids and Magic Water area. These lines provide power throughout the region and destruction of damage of these lines would significantly interrupt day-to-day life for thousands. As mentioned previously, these areas are currently without structural fire protection, relying on BLM firefighting resources for wildland fire suppression. The lack of structural protection may increase the risk to loss of this infrastructure, as well as increase risk to public and firefighter safety. The specialized training structural firefighters receive in addressing electrical incidents may assist in responding to such incidents.

4.4.11.2 Petroleum and Natural Gas Pipelines

A pair of Williams Company natural gas pipelines and a pair of Chevron Oil petroleum gas pipelines pass through a large section of Twin Falls County. These pipelines supply natural gas and petroleum throughout the northwest. The lines link the oil and gas fields in Wyoming to refineries and markets in Salt Lake City, Spokane, Portland and numerous other high-demand markets throughout the region. A high pressure compression pumping station off 4900 North near Magic Water boosts pressure to hundreds of psi for product transport. Loss of the station or any segment of the pipeline would disrupt gas supply, as well as endanger the safety of firefighters and thousands of residents of Twin Falls County.

4.4.11.3 Railroads

The Eastern Idaho Railroad maintains a line through Twin Falls County. The rail lines are generally not at great threat to the effects of wildland fire due to the gravel right-of-way associated with the tracks. There is a potential for disruption of rail service where wooden bridges and support structures are adjacent to wildland fuels. The creosote treatment of these support structures is highly flammable and quite prone. Thus it is possible for rail transport to be disrupted due to wildland fire.

Rail lines often contribute to wildland fire occurrence along their right-of-way. Although new technologies have significantly reduced the occurrence of railroad fires over time, malfunctioning brakes and other components are frequently responsible for fire ignitions. When vegetation is allowed to accumulate along the right-of-way, the probability of fires associated with the railroad increases dramatically. Frequently, multiple fires over miles of railroad result from a component malfunction. Unaware of the component failure, engineers continue along, unaware of the trail of fires left behind.

4.4.11.4 Primary and Secondary Roads

Primary and secondary roads are generally not at risk of damage by wildland fire. However, fires frequently disrupt travel and commerce due to impaired visibility and suppression activities. Large fires can cause prolonged road closures with a notable impact to inter-county and interstate travel.

Smoke from any type of fire, wildland or agricultural, can pose significant risks public safety. Obscured vision can lead to collisions that can result in accidents with significant economic cost and a possible loss of life. Smoke from an agricultural burn was a cited as a contributing factor in a twenty-one car pile up east of Twin Falls on Interstate 84. Amazingly, no serious injuries occurred. However, caused major delay and resulted in a tremendous financial and emotional cost.

As discussed previously, numerous fires are sparked along roads throughout the county. The frequency of roadway fires demonstrates the need for roadway treatments to reduce the flammability of vegetation immediately adjacent to the road right-of-way.

4.5 *Issues Facing Twin Falls County Fire Protection*

There are dozens, if not hundreds of issues that contribute to fire occurrence, strain department resources, and otherwise complicate fire suppression throughout Twin Falls County. A very short list of some issues that are pervasive throughout the county are presented here.

4.5.1 Recruitment and Retention, Funding, Equipment Needs, Etc.

There are a number of pervasive issues that challenge rural districts within Twin Falls County. A short list of such issues include recruitment and retention of volunteers, lack of funding for equipment needs, keeping pace increases in training requirements, as well as numerous other factors that test district's abilities. The members of all fire protection districts should be recognized for the dedication they have shown and the excellent level of protection they provide for residents throughout the county. Volunteers take time out of their lives every day in order to assure the safety of the community.

The demands on volunteer departments are considerable. Keeping pace with ever-increasing training requirements can lead to burn-out of volunteers who are scantly compensated for their time and efforts. Keeping pace with the growing needs of the communities the districts serve is a constant challenge as well. Although there are many potential funding sources available for rural districts to acquire equipment and other needs, grant writing and chasing of funding sources takes considerable time and effort. Recommendations that can help to reduce these challenges will be presented in the Chapter 5: Mitigation Recommendations to follow.

4.5.2 Road Signage and Rural Addressing

The ability to quickly locate a physical address is critical in providing services in any type of emergency response. Minutes can make the difference in home survival during fire events or life and death during medical emergencies. Accurate road signage and rural addressing is fundamental to assure the safety and security of Twin Falls County residents. Currently, there are numerous areas throughout the county that are lacking road signs, rural addresses or both. Signing and addressing throughout the county needs to be brought up to NFPA code in order to assure visibility and quick location. New subdivisions should be posted with both road names as well as grid addresses to assure consistency throughout the county.

4.5.3 Augmentation of Emergency Water Supplies

In many areas of Twin Falls County, there are no readily accessible, year-round water resources available for use by local fire districts. Thus, it is necessary for firefighters to keep large amounts of water loaded on trucks at all times. In the event of a larger fire situation, additional water supplies must be transported to the site. The Twin Falls County fire districts feel that establishing permanent augmentations to emergency water supplies is necessary throughout the County. This includes establishment of pressurized water delivery systems in subdivisions as well as establishment dry hydrants and drafting sites where immediate access to water is limited. Retrofitting dependable, year-round irrigation water sources with necessary fittings for use by emergency response equipment would also be highly beneficial. Once developed, these water sources need to be mapped and use agreements need to be made between landowners, rural departments, and the Bureau of Land Management.

4.5.4 Dispatching and Radio Communications

Emergency calls in Jerome County are dispatched through the Southern Idaho Regional Communications Center (SIRCOMM) in Jerome, Idaho. This centralized dispatch system has been adequate, although there are perceptions of limitations to the system. However, there are sufficient tactical channels for the present time if users (Agencies) employ the Incident Command System to minimize radio usage. When this is done, the 4 tactical channels that cover Jerome County are adequate. It is necessary to address this issue in order to assure clear lines of communication are available to the maximum extent possible. As communities extend further into the wildland urban interface, traffic on the SIRCOMM systems will inevitably increase.

4.5.5 Upcoming Radio Frequency Conversion

All federal agencies are scheduled to convert to narrow-band radios in the coming years, with county and rural conversion slated to follow later. The incompatibility between UHF and VHF radios necessitates use of multiple radios, adding to the potential for confusion, missed communication and maintenance of multiple systems. Establishment and maintenance of clear lines of communication is the cornerstone of wildland fire safety. This issue will need to be addressed over the long term.

4.5.6 Development of County-wide Burn Permit Policy

Currently, there is no county-wide burn permit system. Agricultural field burning adds to call volume each year, with costs transferred to the tax paying public. Some landowners feel that a burn permit policy is unnecessarily restrictive; however, permits issued through the appropriate fire districts would aid firefighter response in the event of an escaped stubble fire or other agriculturally related fire situation. Faster and more efficient emergency response dramatically reduces the potential damage caused and increases firefighter as well as residents' safety. In order to insure landowner's adhere to the burn permit policy, strict enforcement would be necessary.

4.6 *Current Wildfire Mitigation Activities in Twin Falls County*

4.6.1 Bureau of Land Management Communities-at-Risk Program

The Bureau of Land Management has identified communities that are at risk of wildland fire throughout Twin Falls County. As funding becomes available, fuels reduction projects are proposed and implemented around these at-risk communities. The Banbury Hidden Landing fuels reduction project has already been completed with positive results. Other communities with proposed projects include Rogerson and Hollister. BLM communities-at-risk fuels reduction projects typically include creating a fire resistant buffer around communities and access routes by cutting and removing vegetation. Other areas that may be good candidates for at-risk communities include Canyon Ridge and Meadow Ridge along the rim of the Snake River Canyon and Rock Creek Canyon and the China Ridge/Hidden Lakes area in the Rock Creek Protection District. BLM sponsored defensible space demonstration projects may also be feasible on private lands in these areas.

4.6.2 Banbury Hidden Landing Communities-at-Risk Project

The community of Banbury Hidden Landing lies east of Highway 30 in the west portion of the Magic Valley in Twin Falls County. It is in an area thick with vegetation and subject to natural

and human caused fires. There is direct threat from wildfires due to the 400 acres of wildland adjacent to the community as well as two miles of public and private land bordering 11 homes. In 2003, the Bureau of Land Management developed a project focusing on creating a buffer strip around the community that reduced hazardous fuel levels and fire behavior intensities and promoted firewise practices; thus, reducing the fire risk to the community of Banbury Hidden Landing. As a result of this planning, buffers strips were created by cutting, piling, and burning vegetation around the community, individual homes, and access routes.

4.6.3 Rogerson Communities-at-Risk Project

The City of Rogerson is located in Twin Falls County 26 miles south of Twin Falls, Idaho and is provided fire protection by the Salmon Track Rural Fire Protection District (RFD). The City of Rogerson has many individual homes that could be impacted by fire from either the BLM lands or City property itself. The dominant fuels in and around the City of Rogerson are annual grass and forbs. The occurrence of wildland fire around the City of Rogerson has been dramatically shortened because of the early flammability and rapid rate of spread of Cheatgrass. Fire occurrence is primarily from lightning however, the community contains a heavily traveled north-southwest corridor so roadside fire starts are common. The Salmon Tact RFD has been working in conjunction with the BLM and local residents to reduce the threat to Rogerson through a communities-at-risk project. The goals and objectives of the Rogerson wildfire mitigation effort are to: (1) evaluate the hazards of wildland fire within the assessment area and identify specific actions that could reduce the risk through vegetative manipulation projects, (2) Provide coordination and funding support to improve upon community service infrastructure to gain compliance with NFPA and NWCG standards, (3) Promote fire wise practices through the development and promotion of a community-wide outreach program and (4) implementation of a community-wide wildfire training program for increased public and firefighter safety.

4.6.4 Red Zone Program

Multiple fire districts in Twin Falls County are currently involved in the Red Zone Program, which is a software program designed to help the communities compile fire risk related information and identify high risk areas. This work typically includes conducting home site evaluations and depicting fuel characteristics as well as other potentially hazardous factors. This information is collected on palm pilots and then downloaded into the main program, which interprets the results. This information assists responding departments in locating the incident while alerting emergency services of characteristics that increase risk to the home.

4.6.5 Rock Creek Hazard Fuel Reduction Project

The USDA Forest Service Sawtooth National Forest is initiating the public involvement process regarding the proposed Rock Creek Hazard Fuel Reduction Project. The purpose of this project is to reduce the risk of wildland fire to communities, and the environment, by effecting change in fire behavior to reduce potential for crown fire and maintain conditions that support desirable fire behavior. The proposed project area is approximately 2,500 acres on the Cassia Division within the Fourth Fork of Rock Creek and Goose Creek drainage. Both mechanical and prescribed fire methods to modify fire behavior by providing defensible space, enhancing natural fuel breaks, reducing overall fuel loadings, and modifying fuel profile within the project area. If the proposed project were to be approved it would begin in 2004 or 2005 and reach completion in 2006 or 2007.

4.7 *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.

4.7.1 Wildland Fire Districts

4.7.1.1 Upper Snake River BLM, Twin Falls District

Shoshone	Duty Location	400 West F Street	83352
Bellevue	Duty Location	11053 Highway 75	83313
Carey	Duty Location	20548 North Main	83320

Boundary Description of Twin Falls District:

The east boundary of the District starts at the Utah border and goes north along the Range/Township line dividing Range 28 and Range 29; stair steps around the Sublett Division of the Sawtooth Forest and the Sublett Range to the boundary of Cassia and Power County; goes due west for approximately 8 miles along the county line; turns due north to the Snake River; follows the Snake River to approximately one mile southwest of the city of American Falls; turns due north for three miles along the Township/Range line dividing Range 30 and 31; turns due west on the southern border of Sections 24, 23, 22, 21, 20 and 19 of Township 8S, Range 30E; the southern border of Sections 24, 23, 22, and 21 of Township 8S, Range 29E; where the line, meeting BLM administered ground turns north and stair steps to Highway 93, approximately 7 miles northeast of the Craters of the Moon National Monument and Preserve.

The north boundary starts at this point and stair steps in a southwest direction to the northwest corner of the Craters of the Moon National Monument and Preserve; turns to a westerly direction and ties to the Blaine County boundary line just east of Blizzard Mountain; follows the Blaine County line north and then west to where the Blaine County line meets the Elmore County line.

The west boundary starts at this point and continues to follow the Elmore County line in a southern direction to the southwest corner of Section 31 of Township 2N, Range 12E; turns east for five miles; stair steps in south west direction to southwest corner of Section 6 of Township 1S, Range 10E; follows the Township/Range line due south to King Hill Creek; follows King Hill Creek to it's confluence with the Snake River; follows the Snake River to the west until it meets the Township/Range line between Range 8E and Range 7E: turns south along the Township/Range line to the border of the Saylor Creek Air Force Range; turns west following the boundary of the Saylor Creek Air Force Range; turns south for two miles along the boundary; turns to the west and ties into the Bruneau River; follows the Bruneau River south across the Nevada border to the boundary of Humboldt National Forest.

The south boundary starts at this point and continues to the east along the Forest boundary until it meets the Idaho state line; follows the Idaho/Nevada and Idaho/Utah state lines until it meets the east boundary of the District.

There is approximately 3.9 million acres of ground administered by the BLM within the defined boundary of the District. Sage grouse and sage grouse habitat is a primary issue for the District. Lepidium is also a major issue but is concentrated in a small area of the Jarbidge resource area.

Personnel: The fire program staff totals 212 individuals, including 29 permanent employees, 35 career-seasonal employees who work up to nine months each year, and 148 seasonal employees on staff from roughly June to September. These are all paid staff members trained in wildland fire, but not in structure protection.

Apparatus List:

Shoshone

Table 4.2. Upper Snake River BLM Equipment List: Shoshone.

Identifier	Description	Make	Water Capacity	Pump GPM
E403	Type 4 Engine	International 4070	900	100
E405	Type 4 Engine	International 4070	875	90
E408	Type 4 Engine	International 4070	875	90
E411	Type 4 Engine	Freightliner FL70	875	160
E420	Type 4 Engine	International 4070	850	160
E421	Type 4 Engine	International 4070	850	100
E422	Type 4 Engine	International 4070	850	145
E423	Type 4 Engine	Freightliner FL70	900	100
E682	Type 6 Engine	Ford F-550	290	80
E685	Type 6 Engine	Ford F-550	290	85
E690	Type 6 Engine	Ford F-550	280	80
E692	Type 6 Engine	Ford F-550	290	80
E694	Type 6 Engine	Ford-450 SD	295	80
E695	Type 6 Engine	Ford-450 SD	295	90
W24	Type 2 Tender	Freightliner F9000	3500	750
Contract Dozer	Type 2 Dozer	Varies	N/A	N/A

Bellevue

Table 4.3. Upper Snake River BLM Equipment List: Bellevue.

Identifier	Description	Make	Water Capacity	Pump GPM
E415	Type 4 Engine	Freightliner Fl70	875	90
E418	Type 4 Engine	International 4070	875	100
E684	Type 6 Engine	Ford F-550	290	85
W21	Type 2 Tender	Ford F9000	3000	450

Carey

Table 4.4. Upper Snake River BLM Equipment List: Carey.

Identifier	Description	Make	Water Capacity	Pump GPM
E402	Type 4 Engine	International 4070	900	95
E414	Type 4 Engine	Freightliner FL70	875	90
E683	Type 6 Engine	Ford F550	290	85
Contract Dozer	Type 2 Dozer	Varies	N/A	N/A

Burley

Table 4.5. Upper Snake River BLM Equipment List: Burley.

Identifier	Description	Make	Water Capacity	Pump GPM
E419	Type 4 Engine	International 4070	900	95
E416	Type 4 Engine	Freightliner FL70	875	90
E678	Type 6 Engine	Ford F550	290	85
W22	Type 2 Tender	Ford F9000	3000	450
E404	Type 4 Engine	International 4070	900	95
E410	Type 4 Engine	Freightliner FL70	875	90
E681	Type 6 Engine	Ford F550	290	85

Malta/Almo

Table 4.6. Upper Snake River BLM Equipment List: Alomo.

Identifier	Description	Make	Water Capacity	Pump GPM
E417	Type 4 Engine	International 4070	900	95
E412	Type 4 Engine	Freightliner FL70	875	90

Kimama

Table 4.7. Upper Snake River BLM Equipment List: Kimima.

Identifier	Description	Make	Water Capacity	Pump GPM
E406	Type 4 Engine	International 4070	900	95
E413	Type 4 Engine	Freightliner FL70	875	90
E688	Type 6 Engine	Ford F550	290	85

Rogerson

Table 4.8. Upper Snake River BLM Equipment List: Rogerson.

Identifier	Description	Make	Water Capacity	Pump GPM
E424	Type 4 Engine	International 4070	900	95
E407	Type 4 Engine	Freightliner FL70	875	90
E693	Type 6 Engine	Ford F550	290	85
W23	Water Tender	Ford F9000	3000	450

Air Resources:

Helicopter: The district has an A-Star medium helicopter capable of carrying 130 gallons of water on contract from June to October with a 10 member helitack crew. U.S. Forest Service Helitack crews are stationed at Hailey and are available for assistance if needed. Additionally, there are other helicopter resources equipped for fire missions that are available on a aircraft-rental-agreement (ARA) basis.

Fixed-Wing: The district has an 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.

Tanker Base: The district's Tanker Base consists of 4 contract personnel, 1 Aviation Manager, 1 Tanker Manager, 2 Single Engine Air tanker (SEATS) managers. This base is located in Twin

Falls but has the capability of setting up 5 remote bases throughout the district at any time. This base is also capable of serving Type 1 heavy air takers when needed.

Air Tankers: There are typically 2 SEATS (Air Tracker 802F) on contract in Twin Falls capable of carrying 800 gallons of retardant during the fire season. There are also 2 SEATS (Air Tracker 802) located in Boise and Pocatello.

4.7.1.2 USDA Forest Service

Minidoka Ranger District
3650 S. Overland Avenue
Burley ID 83318
208-678-0403

The Minidoka Ranger District is responsible for wildland fire protection throughout the ranger district. Equipment is housed in three locations: The Burley office, the Rock Creek Work Center, or the Malta Work Center.

Personnel:

The Minidoka district is staffed by six permanent personnel (a Fire Mangement Officer (FMO), an Assistant FMO, a Fire Prevention Technician, and two Supervisory Fire Engine Operators). In addition, eight seasonal Engine Operators and two seasonal Prevention Technicians staff the district.

Mutual Aid Agreements*:*

The Minidoka District maintains a mutual aid agreement with the South Central Idaho BLM, Twin Falls District.

Top Resource Priorities:

Training is a continuing priority.

Equipment:

Table 4.9. USDA Forest Service Equipment List: Rock Creek Work Center

Truck #	Model	Tank Capacity	Pump Capacity
1412	2002 International Type 4	750	150 gpm
1414	2003 International Type 4	750	150 gpm

Table 4.10. USDA Forest Service Equipment List: Malta Work Center

Truck #	Model	Tank Capacity	Pump Capacity
1411	1997 Ford, Type 4	750	150 gpm
1413	2002 International, Type 4	750	150 gpm

Table 4.11. USDA Forest Service Equipment List: Burley

Truck #	Model	Tank Capacity	Pump Capacity
606	1996 Ford, Type 6	250	125 gpm

4.7.2 Rural Fire Districts

4.7.2.1 Buhl Fire Department

Mark P. Grimes, Chief
201 North Broadway
Buhl, ID 83316
208-543-5664
208-543-8670 fax
markgrimes@cableone.net

District Commissioners: Ben Ekrut, Stan Miller and Rocky Finney

District Summary:

Buhl Fire Department is responsible for both city and rural fire protection for the community of Buhl and the surrounding area. The district encompasses 101 square miles, with a population of 9,000 residents. The department will initial attack all wildland fire within the district. Rapid initial attack is imperative considering the dry, windy weather typical of the Snake River Canyon and the abundance of dry vegetation. Ignitions can rapidly develop into large wildland fires, threatening multiple homes if initial attack is not successful. As development continues in the Canyon, interface concerns will continue to mount.

Staffing*:*

The district is staffed with a total of 52 personnel. This includes three full-time employees. Many department members are cross-trained in fire suppression and emergency medical service (EMS), thereby reducing staffing for fire suppression on a daily basis and during major Wildland/Urban Interface (WUI) events, due to EMS needs

Priority Areas*:*

Canyon areas exposed to the prevailing winds are primary concern areas. In particular, East and West River Road as well as all areas within the Snake River Canyon where dry fuels abut homes and urban areas are primary areas of concern.

Melon Valley, being zoned rural residential, has a high population density among dense and diverse vegetation, narrow, sub standard roadways, confusing addressing system, and mixed use of residential and small agricultural combine to make a serious WUI risk.

Effective Fire Risk Mitigation Strategies*:*

- Firewise recommended Fuel Reductions and formal adoption of NFPA Code 1144, Standard for Protection of Life and Property from Wildfire in order to reduce threat to existing homes and to establish standards for new home construction.
- Continued public education and prevention campaigns.
- Clean up campaigns.
- Proper addressing for visibility to responding units.

Cooperative Agreements:

Haz-Mat and Disaster MAA's with eight Magic Valley Counties through Magic Valley Emergency Response Team (MVERT) as well as mutual aid agreements with Hagerman, Castleford, Filer Wendell, and BLM. The Buhl Fire Department is considering signing onto the Interstate All **Hazard Mutual Aid Agreement.**

Current Resources:

Station 1

- *201 North Broadway, Buhl*
- 1984 Mack Type 1 Structural Engine
- 1996 Pierce Type 1 Structural Engine
- 1966 LaFrance Type 2 Structural Engine
- 3000 gal Tender w/ 1500 gpm pump
- 1999 Ford 3/4-ton Type 6 Wildland Engine
- 1988 HMMWVE Type 6 Wildland Engine
- (2) Resue/Medical Vehicles

Station 2

- *19266 US Highway 30, Buhl*
- 1970 Mack Type 2 Structural Engine
- 1973 GMC 2500 gal Nurse Tender
- 1993 Ford 1-ton Type 6 Wildland Engine

Future Considerations and Needs*:*

- Increase in communication abilities, including installation of repeaters with designated tactical frequencies. Will need to addresses problems with conversion from wideband and narrowband radio frequencies. Also, issues associated with use of UHF radio frequencies by rural fire districts and VHF frequencies by Forest Service and BLM. This necessitates use to two different radios during mutual response incidents.
- Establishment of 3rd Station. This is in the long-range plan for the district and is population and density dependent.
- Development of Water Supply system. This includes establishment of pressurized water delivery systems in subdivisions (formal adoption of NFPA 1144 by county) as well as establishment of dry hydrants and drafting sites where ready access to water is limited.
- Recruitment and retention of volunteers- establishment of incentives program and retirement system for volunteers, increase in full time staff over time to 3 24 hour shifts.
- Updated-acquisition of equipment- The department is currently attempting to replace an aging Type 2 structural engine with a new Type 1 engine.

Unprotected Areas:

- Bell Rapids and Magic Water Areas: Currently these large, agricultural areas have no structural fire protection.
- Establishment of small, start-up fire districts in the Bell Rapids, Magic Water would provide the opportunity for mutual aid agreements with surrounding districts and would provide protection while contributing to the overall capabilities of the county and Magic Valley.

4.7.2.2 Castleford Fire District

Brigg Vulgamore, Chief
PO Box 673
Castleford, ID
208-537-6618
Cfd28@hotmail.com

District Commissioners: Scott Blick, Tony Ajuirre, Bod Bulkey

District Summary:

Castleford Fire District provides wildland and structural protection throughout its district as well as a Quick Response Unit for medical emergencies. The district is primarily rural and agricultural and has not experienced the residential growth typical of other areas of Twin Falls County.

Staffing:

The district is staffed with a fully volunteer base of 24 firefighters. Volunteerism is good within the district, with an average of 12 to 15 firefighters responding to a given call.

Mutual Aid Agreements:

Castleford maintains mutual aid agreements with the surrounding rural fire departments including Buhl, Filer, Salmon Tract, as well as with the BLM. Working relationships between all cooperators is excellent. The BLM has been very helpful in assisting providing surplus suppression apparatus and communication equipment to the district.

Priority Areas:

There is generally very little wildland fire risk within the district. Most homes are well protected by green buffers created by agricultural practices in the area. When fires do occur in the wildland portions of the district, Castleford generally initially attacks the fire and turn the fire over to the BLM once they are on scene.

Current Resources:

Station 1

- *3675N 900E, Castleford*
- 1999 Ford Pumper Tanker 2000 gal, 500 gpm
- 1984 Ford Pumper 1500 gal, 500gpm
- 1974 GMC Tender 3200 gal
- 1990 Dodge 1-Ton Brush Engine 200 gal, 84 gpm

Station 2

- *1200 Main, Castleford*
- 1971 Ford Pumper 1500 gal, 500 gpm. Converted to brush truck

Future Considerations:

The district will need to keep pace with any communication changes that take place within the BLM. The heavy reliance on mutual aid between the BLM and the district necessitates effective communications in order to assure safe engagement.

4.7.2.3 Filer Fire District

Bud Compher, Chief
PO Box 140
Filer, ID
326-5001
Bud@filerfire.com

District Commissioners: Fred Decker, Twain Buhler, and Dennis Lutz

District Summary:

Filer Fire District provides both structural and wildland fire protection throughout it's protection boundaries. Technically, the districts are split between Filer City and Filer Rural Fire Departments. However, all apparatus is stationed at one location and available for fire assignment regardless of location. The District also provides a Quick Response Unit for medical emergencies within the district, with members trained from the first responder to paramedic level.

Filer Fire will initial attack all fires within its district boundaries regardless of ownership. Once the BLM arrives on wildland incidents, command is turned over to the BLM.

Staffing*:*

The district is staffed by 27 volunteer members. Most are quite active and engaged in both training as well as in call response.

Priority Areas:

- Five miles south of Filer, toward the southern end of the district. This area is characterized by continuous sage and grass rangeland with poor access and no water availability.
- Snake River Canyon. Homes perched on the rim of the canyon are at risk if homeowners have not put in green lawns or defensible space.

Effective Mitigation Strategies:

- Controlled burning for removal of accumulations of dry grass and weeds.
- Johnny Horizon Day- May 1 each year. This is a community-wide clean up day that involves the city and the entire fire district. Residents are encouraged to pick up debris from around the homes to be hauled away by the city at no expense. This helps to reduce accumulations of debris around homes and promotes a clean, healthy community.
- Fire Safety House. The Fire Safety House is an educational tool for teaching young children about fire safety in the home. Although it focuses on structural fire safety, it could also serve as an educational tool for wildland fire safety as well.
- Education of firewise building and landscaping practices.

Mutual Aid Agreements:

Filer maintains mutual aid agreements with Buhl, Castleford, and Salmon Tract. Filer does not currently have an agreement with the BLM.

Current Resources:

All resources are housed at the main station in town.

- 1996 Freightliner Type 1 structural engine. 5-man cab, 1200 gallon tank, 1500 gpm, Class A and B foam capabilities.

- 2001 Freightliner Type 1 structural engine. 5-man cab, 1200 gallon tank, 1500 gpm, Class A and B foam capabilities.
- 1998 Freightliner pumper-tanker, 3500 gallon tank, 1500 gpm.
- 2002 Wildland Pumper-tanker, 1000 gallon, 1200 gpm with CAF (compressed air foam) system.
- 1972 Brodman Type 2 pumper, 500 gallon tank, 750gpm.
- 1977 Ward LaFrance, 1500 gpm pumper.
- 1968 Mack, 1250 gpm pumper.
    - 500 gallon engines
- 750 gpm pumper
- 1200 gpm pumper
- 1500 gpm pumper

Future Considerations and Needs:

- Brush Truck- currently the district only has one brush truck and would benefit from increasing its wildland fire capabilities
- Communications- Currently Filer does not any communication ability with BLM. The transition from low band to high band radio frequencies will challenge the department in the future.
- Money for paid chiefs. The administration and grant writing process is becoming increasingly burdensome for a volunteer organization. A full-time chief is necessary in order to coordinate training for the department and to ensure the district remains well equipped.
- County wide training center. The department is currently in the process of buying land to establish a new station within a mile or two of Filer, with long range goals of developing a training tower. This facility could potentially serve as a county-wide training center for fire departments throughout the valley.
- County wide grant writer and administrator. This position could be beneficial to the entire county by coordinating resource needs between districts in order to assure maximum efficiency for fire suppression county-wide.
- Adoption of building standards to meet emergency needs. Currently the county planning and zoning board has not passed any ordinances that specify access and water supply requirements for unplanned development.
- Training with BLM in order to familiarize both departments with operational procedure. This may require entering into a mutual aid with the BLM, which would be beneficial to both departments.

4.7.2.4 Rock Creek Rural Fire Protection District

P.O. Box 365
242 Hwy 30
Kimberly, Idaho 83341
208-423-4336
208-423-9752
Chief: Burl Duncan chief@rcfd.id.gov
Drillmaster: Bill Robison training@rcfd.id.gov

Commissioners- Jack Clairborn Jr., Clarence Hollifield and Rufus Turner.

Protection Responsibilities:

The Rock Creek Fire Department provides fire protection for approximately 190 square miles, including the following entities (areas):

1. City of Kimberly -- within the city limits

2. City of Hansen -- within the city limits

3. Rock Creek Rural Fire Protection District --Twin Falls County east of 3300 East Road from the foothills north to the Snake River, including the City of Murtaugh and Rock Creek Canyon up to the forest boundary.

4. Eight square miles of Cassia County south of 2900 North Road consistent with the county line.

Staff:

The department is staffed with 42 volunteers and one paid chief.

Education and Training:

Each member of the department is expected to attend fifty percent of the drills on an annual basis. The department holds 2-hour drills on a weekly basis with special drills/classes through out the year. Each volunteer is expected to complete a computer based essentials of fire fighting course and hazardous materials within the first six months of joining the department. Selected volunteers are sent to regional and state classes depending on content, interest, and needs.

Cooperative Agreements:

The district has formal agreements with the City of Hansen and City of Kimberly to operate as a single entity. Additionally, the district has mutual aid agreements with North Cassia County Fire District and Salmon Tract Rural Fire District. The district has joined in an agreement with other Magic Valley agencies focused on hazardous materials. Additionally, the district has a cooperative agreement with the US BLM.

Current Resources:

Station 1

242 Hwy 30; Kimberly, ID; 208-423-4336

- CofK 101 1977 Ford F750 Am.LaFrance- 500 gal.,1000 gpm Class-A Pumper
- CofK 102 1990 Ford F800 Pierce- 500 gal., 1250 gpm Class-A Pumper
- RCFD 113 2002 KW T300 Pierce- 1000 gal., 1250 gpm Class-A Pumper
- RCFD 304 1964 Ford F750- 1500 gal., 250 gpm Tanker
- RCFD 407 1985 IH F2574- 3000 gal., 300 gpm Tanker with Dump Tank
- RCFD 606 1991 Chevrolet 1500 Suburban 4WD- Command Unit/Crew Transport
- RCFD 649 1998 Ford F150 Pickup 4WD- Command Unit
- RCFD 812 1991 Simon/Duplex 4WD Heavy- 750 gal., 150 gpm Wildland/ QA/ Foam / Extrication
- RCFD S-1 1996 Trailer Cargo Van- Rehab/HazMat/CP

Station 2

- 648 Boyd Street, Murtaugh, ID
- RCFD 110 1981 Chev C70 Am.LaFrance- 1000 gal., 1000 gpm Class-A Pumper

- RCFD 405 2000 Ford F650- 2000 gal., 250 gpm Tanker with Dump Tank
- RCFD 811 1996 IH EZ-10 4WD Heavy- 750 gal., 150 gpm Wildland QA/ Foam/ Extrication

Station 3

300 Block, Hansen, ID

- CofH 103 1976 IH VS478- 1000 gal., 1000 gpm Class-A Pumper
- CofH 104 1979 Ford F700 Am.LaFrance- 500 gal., 1000 gpm Class-A Pumper
- CofH 802 1980 Ford F350 1-Ton- 200 gal., 60 gpm Equipment/Command

Station 4

3046 North 3800 East, Hansen ID (Rock Creek)

- RCFD 108 1970 Ford F750 Am.LaFrance- 1000 gal., 750 gpm Class-A Pumper
- RCFD 303 1965 Ford F750- 1500 gal., 250 gpm Tanker

Priority Areas: (1) Hidden Lakes/China Ridge/Twin Falls Grade, (2) Rock Creek Canyon south of Foothills Road and lands along Foothills Road, and (3) subdivisions throughout the district.

Future Considerations and Needs:

- **Updating of equipment**- Updating and replacing of aging equipment is necessary to keep pace with district needs as well as to allow aging structural equipment to be converted to wildland apparatus. In particular, the 1964 Class A pumper is in need of replacement.
- **Improved communications**- Rock Creek could benefit from updated pagers, handitalkies and mobile radios for inter-district communication.
- **Personal Protective Equipment (PPE)**- The department is in need of PPE for both structure and wildland fire.
- **Improved computer-based training-** Rock Creek is in need of updated computer hardware and software to better accommodate the computer-based training needs of the district.
- **Develop and improve water supply system and water sources:** including (1) Dry Hydrants, (2) pump at Station 4, and (3) Improved water supply in Murtaugh.
- **Development and Implementation of Red Zone Program:** Needs include hardware (gps, laptops, camera and software) as well as training of staff.

4.7.2.5 Salmon Tract Rural Fire Protection District

Rod Davis, Chief
2411 East 2450 North St.
Twin Falls, ID 83301
208-655-4222
208-731-3829

District Commissioners: Maurice Fuller, Walt Hamby, Charles Boss

District Summary:

The Salmon Tract Rural Fire Protection District is responsible for structural and wildland fire suppression across 593 square miles of south-central Twin Falls County. This includes the communities of Holliser, Berger, and Amsterdam, as well as approximately 1500 residents, 500 homes and 180 farmsteads.

Priority Areas:

Hollister and Rogerson are primary interface concern areas. The abundance of dry, flashy fuels increases the potential for fire to infringe on the community. Hollister is of primary concern because there are few fuel breaks to break the continuity at a landscape level.

Cooperative Agreements:

Salmon Tract maintains cooperative agreements with Jackpot NV, Rock Creek Fire District, the Upper Snake River District of the BLM, and the Magic Valley Emergency Response Team.

Resources and Locations:

Rogerson Station

1520N 2290E, Rogerson, ID 83302

- 1977 F-700 Type 2 Structure Engine. 1500 gal tank, 750 gpm
- 1968 Kenworth Type 2 Water Tender. 4300 gal tank.

Hollister

2411 East 2450 North St., Twin Falls, ID 83301

- 1985 GMC Type 2 Structure Engine. 1000 gal, 1000gpm
- 1963 Ford F-750 Type 2 Structure Engine. 1250 gal, 250gpm
- 1990 Dodge 350 Type 6 Brush Engine. 250 gal, 68 gpm

South of Twin Falls

3175 E 3100 N, Twin Falls, ID 83301

- 1995 F350 Type 6 Brush Engine. 250 gal, 68 gpm

Future Considerations and Needs:

- New Fire Station at Hollister. This is the districts primary need. The current facility is extremely cramped. The facility does not have ample room for training or for an office.
- Better Communications- Establishment of repeater at Salmon Butte for better communication throughout the district. Need to address issues of interference with dispatch during tactical operations.
- Update and replace engines. In particular, replacement of the 1963 Structural engine with a 3000 gallon pumper-tanker.
- New two-bay truck storage at north end of district. Currently, apparatus is unprotected and subject to premature weathering.

4.7.2.6 Twin Falls Fire Department

Ron Clark, Chief
735-7231
rclark@tfid.org

District Commissioners: Les Poe, Jim Bieri, and Jim Olson

Station 1

345 2nd Ave. East
Twin Falls, ID

Station 2

635 Falls Ave.
Twin Falls, ID

Station 3

939 Washington Street South
Twin Falls, ID

District Summary:

The Twin Falls Fire Department provides fire protection for the City of Twin Falls and the surrounding Fire District from a main fire station and two sub-stations. This coverage encompasses approximately 75 square miles. This includes city and urban/rural areas with a combination of privately and publicly owned properties. The Rural Fire District contracts with the City of Twin Falls for fire protection.

The Department has 38 regular employees consisting of a fire chief, administrative assistant, three battalion chiefs, nine captains, nine driver/operators and 15 fire fighters.

The primary focus of the Department is public fire/safety education, fire prevention, fire inspection and fire suppression. In 2002 the Department responded to 1,497 incidents within the City and 190 incidents in the District. The Department does not provide emergency medical services. These services are provided through Magic Valley Regional Medical Center.

Major equipment includes a 102' aerial platform pumper, three Mainline pumpers and one reserve pumper, a Brush truck, an Oshkosh ARFF truck, and two 3,000-gallon water tenders. In October of 1999, the City was awarded an I.S.O. fire rating of 3.

Equipment:

Pumpers

- 2000 Emergency One. 1000 gallon tank, 1500 gpm pump, 40 gallon A Foam Tank, 40 gallon B Foam Tank
- 1992 Emergency One. 1000 gallon tank, 1500 gpm pump, 40 gallon A Foam Tank, 40 gallon B Foam Tank
- 1996 Emergency One. 1000 gallon tank, 1500 gpm pump, 40 gallon A Foam Tank, 40 gallon B Foam Tank
- 1976 American LaFrance. 500 gallon tank, 1500 gpm pump, 40 gallon A Foam Tank

Tenders

- 1992 Ford L900. 3000 gallon tank, 500 gpm pump
- 1996 International. 3000 gallon tank, 750 gpm pump

Brush Truck

- 1998 Ford 350. 300 gallon water tank and two 10 gallon Class A and B foam tanks. An unrated auxiliary pump.
- 1998 Suburban Incident Command Vehicle

Priority Areas:

The Snake River Canyon to the north, the Rock Creek Canyon that runs through the city and District, and the southern boundary typically poses the greatest Wildland fire threat to the district.

Effective Mitigation Strategies:

The department does not have specific strategies for mitigating Wildland fire risk. Staffing by full time, career employees allows for rapid and aggressive attack of wildland fires helps to mitigate the overall risk.

Future Considerations:

The department is considering purchasing an addition brush truck to further strengthen wildland capabilities.

Chapter 5: Treatment Recommendations

5 Overview

Critical to the implementation of this Wildland-Urban Interface Wildfire Mitigation Plan will be the identification and implementation of an integrated schedule of treatments designed to reduce the potential for wildland fire loss throughout Twin Falls County. The treatments that are outlined in the following text are designed to address wildfire vulnerabilities that have been identified throughout all stages of the planning process. Local knowledge of current conditions fire risks provides the basis for the proposed recommendations. Representatives from rural fire chiefs, federal land managers, county representative, the general public and provided necessary insight to develop treatments and strategies to best address the unique challenges of fire management in Twin Falls County.

Treatments have been divided between those that should be targeted at county level and those that are specific to individual fire districts. The mitigations recommendations are based on the findings discussed in detail in Chapter 4: Summaries of Risks and Preparedness.

Considering the differing land management philosophies of land management agencies, the county, and private landowners, it is reasonable to expect that consensus building will be necessary before some projects are fully implemented. Combined with other factors such as budget shortages, policies, and interest in participation, it is quite likely that implementation will occur at differing degrees timeframes over the long-term.

The following Mitigation Recommendations follow a format that identifies a specific **Action Item**, followed by a **Treatment Category** that is tiered to both the National Fire Plan and FEMA. The **Goals and Objectives** of each Action Item are then identified, followed by the **Responsible Organization** for coordinating and implementing the proposed Action Item. Finally, the **Planning Horizon** identifies time frames and estimated costs of implementation, when applicable.

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

As part of the Policy of Twin Falls 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 Twin Falls 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 Twin Falls County Commissioners consistent with the recommendations made in Chapter 1 of this document. During the annual review of this plan, reprioritization can be justified in response to changing conditions and funding opportunities.

5.1 *Treatment Categories*

5.1.1 WUI Safety and Policy

Wildfire mitigation efforts must be supported by county policies and regulations that maintain a solid foundation for safety and consistency. Because these items are regulatory in nature, they will not necessarily be accompanied by cost estimates. These recommendations are policy related in nature. It is likely that debate and formulation of alternatives will serve to make these recommendations suitable and appropriate for Twin Falls County.

5.2 *People and Structures*

Many of the recommendations in this category involve education and increasing awareness of the residents of Twin Falls County. Continuing public education is essential to increase the awareness of the factors that contribute to the wildland fire hazard in Twin Falls County. Although prevention campaigns and public education efforts have been quite successful in many areas, there is still much that residents can do to protection themselves and their property from wildland fire.

In addition to those items enumerated in Table 5.1, residents and policy makers of Twin Falls 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 Twin Falls 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 Twin Falls County has led to a reduction of many of the fine fuels in rangelands throughout Twin Falls County. Domestic livestock not only eat these grasses, forbs, and shrubs, but also trample certain fuels to the ground where decomposition rates may increase. There are ample opportunities throughout the county to continue grazing. This will continue to contribute to the economic output of the county as well as reduce fine fuel loading. 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.

5.3 *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. Protection of these elements is critical in protecting the health, safety and economy of Twin Falls County.

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 local networks directly, little needs done to insure the system's viability.

Transportation Infrastructure (road and rail networks): This component if the WUI has some potential limitations in Twin Falls County. The hub of Twin Falls County's transportation network is located in Twin Falls (as is the County Seat). Specific infrastructure components have been discussed in this plan.

Potential treatments in reference to the rail lines crossing Twin Falls County will be discussed in a subsequent section.

Ignitions along highways are significant and should be address as part of the implementation of this plan. Various alternatives from herbicides to intensive livestock grazing coupled with mechanical treatments, have been suggested. As part of the multi-agency team WUI team proposed in the previous section, these corridors should be further evaluated with alternatives implemented. A variety of approaches will be appropriate depending on the landowner, fuels present, and other factors. These ignitions are substantial and the potential risk of lives to residents in the area is significant.

Many 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 some roads. 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 5.2.

Energy Transport Supply Systems (gas and power lines): (Twin Falls County - Appendix I) A number of power and gas lines pass through Twin Falls County. Many of these pass through undeveloped, rangeland areas that are subject to wildland fire events. In cases where non-flammable steel support structures are used, there is little direct threat of power supply damage. However, where wooden power poles have been used, there is some risk of failure. Since retrofitting of these infrastructure components is not practical, no such recommendations will be made. It is the recommendation of this Wildfire Mitigation Plan that this situation be evaluated annually and monitored but that treatments not be specifically targeted at this time.

Water Supply: In some areas of Twin Falls County, irrigation water is derived from surface flows that feed larger irrigation network that sustain the county's agricultural economy. High intensity wildfires threaten quality of these surface water sources by removing the organic material and vegetation that keeps sediments from entering streams. Protection of watersheds such as Rock Creek is important in maintaining high quality surface water for Twin Falls County.

5.4 *Resource and Capability Enhancements*

There are a number of enhancements that could increase the capabilities of rural fire districts county-wide. Satisfying these needs will assist in increasing the ability of rural departments to suppress fires quickly, reducing the potential for loss of valued resources. As mentioned previously, the cooperative effort between the BLM and the rural fire districts dramatically increases fire suppression effectiveness county-wide.

5.5 *Regional Land Management Recommendations*

In section 5.3 of this plan, reference was given to the role that forestry, grazing and agriculture have in promoting wildfire mitigation services through active management. Twin Falls County is dominated by wide expanses of 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 land owners, private land owners, and all other landowners in the region to actively administer their Wildland-Urban Interface lands in a manner consistent with the management of reducing fuels and risks in this zone.

5.5.1 Railroad Right-of-Way

There is one active railways belonging to Eastern Idaho Railroad. The track parallels US 30 ending in Buhl. This routes generally traverse relatively level rangelands with few curves, grades, or sidings; however, the potential for an ignition due to sparks, hot stack carbon, or blown brake shoes emitted by a train is significant. Care should be taken to keep the railroad corridor clear of wildland fuels by mowing, grazing, harvesting, or other means.

5.6 *Existing Practices That Should Continue*

Twin Falls County currently is implementing many projects and activities that have been successful in the potential for mitigating wildland fire risk within the county. By enumerating some of them here, it is the desire of the authors to point out successful activities.

- The dedication of Fire District Volunteers has contributes tremendously to the safety and well-being of residents of Twin Falls County. Volunteer should be commended and recognized for the sacrifices they make in order to provide the excellent level of community protection afforded to residents throughout Twin Falls County.
- The aggressive Fire Prevention campaign by local fire departments, the Sawtooth National Forest and the Upper Snake River District of the BLM has contributed to a reduction in the number of human caused fires over time in Twin Fall County. The prevention program should receive necessary support over the long term.
- The BLM Communities-at-Risk program had a very positive impact on the community of Banbury Hidden Landing. The BLM has identified Rogerson as a Community-at-Risk and is in the process of finalizing treatment regiment.
- The BLM Rural Fire Assistance has made significant contributions to the capabilities of the rural fire districts throughout Twin Falls County.
- Current implementation of the Red Zone Program helps local authorities identify areas of high concern by gathering information on characteristics that result in high wildland fire hazard and nearby structure locations. Home site evaluations associated with this program not only help firefighters, they also facilitate education of homeowners on home protection and defensible space practices.

5.7 *County-Wide Recommendations and Activities*

Table 5.1. WUI Action Items Applicable at the County Level

Action Item	Treatment Category	Goals and Objectives	Responsible Organization	Action Items & Planning Horizon
5.1.a: Develop a formal WUI Advisory Committee comprised of representatives from all fire and emergency service entities to coordinate and develop strategies to advance fire mitigation activities county-wide.	**Protection of people and structures, infrastructure, and ecosystems**	**Protection of people and structures, infrastructure, public and firefighter safety and ecosystems** by coordinating efforts and improving communication avenues between all parties to make informed decisions about wildfire issues.	**County Commissioners, Rural Fire Districts, Mid-Snake RC&D, Emergency Services, BLM, Forest Service, and all departments and entities** responsible for safety of Twin Falls County Residents.	• Year 1 (2004) activity: Develop committee, to prioritize and implement the recommended treatments and to build upon the momentum generated during the Twin Falls County Fire Mitigation planning process. • The committee will serve to bring all involved parties together to further build and discuss issues pertinent to providing safety to residents county-wide. • Members potentially to include land management organizations and companies, private landowners, and fire protection personnel.
5.1.b: Continued public education campaigns through targeted media campaigns, brochure and leaflet distribution, mailings, billboards, door-to-door visits, and any other means by which to communicate the need for fire safety throughout Twin Falls County.	**People and Structures**	**Protection of people and structures** by informing the general public of the wildland fire issue and providing the information and resources they need to act accordingly.	**County Commissioners, Rural Fire Districts, Mid-Snake RC&D, Emergency Services, BLM, Forest Service, and all departments and entities** responsible for safety of Twin Falls County Residents.	• Work together to form a county-wide public education working group to strategize on methods and tactics to maximize outreach effectiveness. • Identify and coordinate mitigation opportunities and work as a single cohesive unit to see projects through. • Determine needs for educational material and advertising budgets.
5.1.c: Adopt and enforce applicable components of NFPA code 1144 that address the unique needs of Twin Falls County. Ensure policy addresses the specific needs of fire suppression	**WUI Safety and Policy**	**Protection of people and structures** by applying a standard of road widths, access, water supply, and building	**County Commissioners** in cooperation with Rural Fire Districts Planning and Zoning and Building Department.	• Year 1 debate and adoption of revised code (2004). • Adopt recommended codes. • Ensure enforcement of codes by building department. • Integrate into county Comprehensive Plan

Table 5.1. WUI Action Items Applicable at the County Level

Action Item	Treatment Category	Goals and Objectives	Responsible Organization	Action Items & Planning Horizon
resources, building materials and applies to subdivisions as well as new single home construction.		regulations suitable to insure new homes can be protected while minimizing risks to firefighters.		
5.1.d: Develop comprehensive fire district growth plans that address issues associated with growing populations and integrate into county Comprehensive Plan**.**	**Resources and Capabilities and WUI Safety and Policy**	**Protection of people and structures** by incorporating new developments and structures into fire protection districts.	**Rural Fire District** in cooperation with County Commissioners and Planning and Zoning	• **Year 1 (2004):** Establish community growth benchmarks for the expansion of district resources. • Expand fire districts' planning horizon beyond five-years. • **Ongoing Activity:** Evaluate need to expand district resources as set benchmarks are reached. • Integrate plan into county Comprehensive Plan
5.1.e: Investigate funding opportunities for paid, full time rural fire chief positions county wide. Also, investigate potential for full or part time assistant positions.	**People and Structures, Resources and Capabilities**	**Enhance fire protection capabilities** by providing opportunities for rural chiefs to seek opportunities to advance the department	**Rural Fire District** in cooperation with County Commissioners	• Determine district needs and seek all available funding sources.
5.1.f: Purchase of Fire Works Trunk to assist with Youth and Adult Wildfire Educational Programs	**People and Structures**	**Protect people and structures** by increasing awareness of WUI risks, how to recognize risk factors, and how to modify those factors to reduce risk	**Mid Snake RC&D, Idaho Department of Lands, USFS Sawtooth NF, BLM, Local School Districts and Local Fire Departments**	• To start immediately using existing educational program materials and staffing. 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. • Education will be on-going over the long term
5.1.g: Continuation and Expansion of the Red Zone Program county-wide.	**People and Structures, Resources and Capabilities**	**Protect people, structures, and increase fire fighter safety** by identifying factors that contribute to	To be implemented by **Rural Fire Departments, Mid-Snake RC&D and the BLM**.	• **Cost:** Training, software and hardware purchases. • **Needs**: Determine needs by district, but will include laptops, GPS, digital camera, palm pilot, software.

Table 5.1. WUI Action Items Applicable at the County Level

Action Item	Treatment Category	Goals and Objectives	Responsible Organization	Action Items & Planning Horizon
		interface risk prior to a fire event to assure public and firefighter safety		
5.1.h: Enhance regional communications plan to address issues associated with lack of tactical channels and repeater placement.	**People and Structures, Resources and Capabilities**	**Protection of people and structures and firefighter safety** by establishing and maintaining clear lines of communication.	**SIRCOMM, Emergency Services, Rural Districts, BLM and Forest Service.**	• **Year 1 (2004):** Summarize communications system. 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.
5.1.i: Addition of mobile repeaters.	**People and Structures, Resources and Capabilities**	**Protection of people and structures and firefighter safety** by establishing and maintaining clear lines of communication.	**Rural and Wildland Fire Districts, SIRCOMM** in cooperation with the **Mid-Snake RC&D**.	• Determine districts that would benefit most from mobile repeaters. • Look to Homeland Security grants.
5.1.j: Develop strategy to assure radio frequency compatibility between Rural Fire Districts, dispatch, the BLM, US Forest Service and other emergency services during wide band to narrow band conversion	**People and Structures, Resources and Capabilities**	**Protect people, structures, and increase fire fighter safety** by assuring good lines of communication during emergency response.	**Rural districts, the BLM, SIRCOMM and Emergency Services.**	• **Year 1 (2004):** Engage SIRCOMM, Emergency Services, Federal Agencies, Rural Fire Departments in developing strategy for conversion. • Discuss timelines for implementation between committee members.
5.1.k: Consider establishment of start-up districts to provide coverage to the **Bell Rapids, Magic Water, and Three Creeks areas.**	**WUI Safety and Policy**	**Protection of people and structures** by direct fire fighting capability enhancements.	**Local residents** in cooperation with the County Commissioners and rural and wildland fire districts.	• Engage community members as soon as possible to determine interest among community members. • Provide materials, resources and assistance for those community members interested in chartering new districts.
5.1.l: Establish mutual aid agreement with Minidoka District of the Sawtooth National Forest and rural fire	**People and Structures, Resources and Capabilities**	**Protection of people and structures by** enhancing fire	**USDA Forest Service and Rural Fire Districts.**	• Begin discussions and between districts and Forest Service as soon as possible.

Table 5.1. WUI Action Items Applicable at the County Level

Action Item	Treatment Category	Goals and Objectives	Responsible Organization	Action Items & Planning Horizon
districts.		suppression capabilities and developing working relationships between districts.		
5.1.m: Hire Technical Assistance Coordinator/Special Project Leader to aid in grant writing, coordination of training and equipment needs, and administration of funds county-wide.	**People and Structures, Resources and Capabilities**	**Protection of people and structures** by coordinating county needs and by facilitating writing of district and county grants for fire and other special projects.	**Rural Fire Districts in cooperation with Emergency Services Office and County Commissioners.**	• Begin discussion between county commissioners and Emergency Services to determine position location and essential functions.
5.1.n: Establish programs to assist in the **Retention and Recruitment** of Volunteer Fire Fighters	**People and Structures**	**Protection of people and structures** by increasing recruitment and retention of qualified, skilled firefighters.	**Rural and Wildland Fire Districts** working with state legislature and a broad base of county citizenry to identify options, determine plan of action, and implement it.	• 5 Year Planning Horizon, extended planning time frame • Target an increased recruitment (+10%) and retention (+20% longevity) of volunteers • **Year 1 (2004):** Develop incentives program, which may include health insurance, supplemental insurance, and other incentives.
5.1.o: Develop agreement with private landowners for access and use of water sources during fire emergencies.	**People and Structures, Infrastructure**	**Protection of people** and structures by enhancement of **infrastructure**	**Rural Fire Districts** in cooperation **BLM** and **local landowners**	• Develop agreement and compensation mechanism for access and use of private water supplies during emergency responses. • Will occur concurrently with **Augmentation of Water Resources** action item identifies by district in the tables to follow.
5.1.p: Identify and post FEMA "Emergency Evacuation Route" signs along the identified Primary and secondary access routes in the county.	**People and Structures, Infrastructure**	**Protection of people and structures** by informing residents and visitors of **significant infrastructure** in	**County Commissioners** in cooperation with Rural Fire Districts and Roads Department.	• Purchase of signs (2004). • Posting roads and make information available to residents of the importance of Emergency Routes

Table 5.1. WUI Action Items Applicable at the County Level

Action Item	Treatment Category	Goals and Objectives	Responsible Organization	Action Items & Planning Horizon
		the county that will be maintained in the case of an emergency.		
5.1.q: Fuels mitigation of the FEMA "Emergency Evacuation Routes" in the county to insure these routes can be maintained in the case of an emergency.	**People and Structures, Infrastructure**	**Protection of people and structures** by providing residents and visitors with ingress and egress that can be maintained during an emergency.	**County Commissioners** in cooperation with Rural Fire Districts and Roads Department.	• Full assessment of road defensibility and ownership participation (2004). • Implementation of projects
5.1.r: Evacuation Planning and Education to inform public of evacuation routes and evacuation procedure.	**People and Structures**	**Protection of people and structures** by providing residents and visitors with the information they need for an orderly and safe evacuation.	**County Commissioners** in cooperation with Rural Fire Districts and Roads Department.	• Develop outreach campaign between all involved parties to educate public on evacuation routes and procedure and implement (2004-2005).
5.1.s: Update and improve Road Signing and Rural Addressing compliant with NFPA standards for visibility throughout Twin Falls County	**People and Structures, Infrastructure**	**Protection of people and structures** by reducing emergency response time.	**County Commissioners in cooperation with Planning and Zoning and landowners.**	• Update rural addressing and assure that SIRCOMM, rural fire departments, sheriff, and all emergency services are aware of new addresses • New subdivisions should be signed with names as well as county grid addresses to assure consistency in addressing throughout the county
5.1.t: Roadside vegetation treatments to reduce flammability of fuels immediately adjacent to roads at high risk of ignitions.	**People and Structures, Infrastructure**	**Protection of people and structures** by reducing probability of ignitions along travel corridors.	**County highway department, BLM, Forest Service and other responsible agencies**	• Treatments may include mowing, spring application herbicide treatments or other treatments to reduce flammability. • This item is applicable to county and state roads not specifically identified by fire district.
5.1.u: Identification of Resource Staging Areas throughout the county for coordination during major	**People and Structures, Infrastructure**	**Protection of people and structures** by improving tactical	**All emergency service organizations throughout the**	• Identify areas throughout the county and share information between all entities. • Post staging area signing at appropriate locations.

Table 5.1. WUI Action Items Applicable at the County Level

Action Item	Treatment Category	Goals and Objectives	Responsible Organization	Action Items & Planning Horizon
incidents.		planning efficiency.	**county**	
5.1.v: Vegetation manipulation and creation of fuel breaks in strategic locations to maximize suppression opportunities and effectiveness throughout Twin Falls County.	**People and Structures, Regional Land Management Recommendations, Infrastructure.**	**Protection of people and structures and infrastructure, protect ecosystem health and increase public and firefighter safety**	**County Commissioners, Rural Fire Districts, Mid-Snake RC&D, Emergency Services, BLM, Forest Service, Idaho Department of Lands and private landowners** throughout Twin Falls County.	• Identify opportunities throughout the county and work with involved parties for coordination across ownership boundaries. • Periodically review needs and progress and develop budgets accordingly.
5.1.w: Establishment of a regional training center within the county to meet expanding training needs.	**People and Structures**	**Protection of people and structures** by enhancing firefighting training opportunities county-wide	**Rural Districts, county commissioners, Idaho Fire Chiefs Association, Emergency Services.**	• Engage all involved parties and form working group to develop strategy for planning and funding. • Investigate funding opportunities
5.1.x: Progress with proposed Forest Service vegetation treatments in Rock Creek drainage as per the Rock Creek Hazard Fuels Reduction Project	**Regional Land Management Recommendations**	**Protect ecosystem health and increase public and firefighter safety**	**USDA Forest Service, Minidoka Ranger District of the Sawtooth NF**	• Follow adhere to implementation schedule developed during planning process**.**

Table 5.1. WUI Action Items Applicable at the County Level

Action Item	Treatment Category	Goals and Objectives	Responsible Organization	Action Items & Planning Horizon
5.1.y: Access Improvements of bridges, cattle guards, and limiting road surfaces	**People and Structures, Infrastructure.**	**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 forestland or rangeland owners.	• **Year 1 (2004):** Update existing assessment of travel surfaces, bridges, and cattle guards in Twin Falls 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 $150,000 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 crossings, copy information to rural fire districts and wildland fire protection agencies in affected areas. Estimate cost at roughly $25-$30,000 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

5.8 *Buhl Fire Department- Mitigation Activities and Recommendations*

Table 5.2. WUI Action Items identified for the Buhl Fire District.

Action Item	Treatment Category	Goals and Objectives	Responsible Organization	Action Items & Planning Horizon
5.2.a: Acquisition of an additional Type 3 or 4 heavy wildland engine	**Resources and Capabilities**	**Protection of people and structures** by direct fire fighting capability enhancements.	**Buhl FD** in conjunction with the BLM's Rural Fire Assistance program	• Work in conjunction with BLM Rural Fire Assistance program
5.2.b: Improved Large Capacity Water Tender and future acquisition of a Type I structural engine.	**Resources and Capabilities**	**Protection of people and structures** by direct fire fighting capability enhancements.	**Buhl Fire District**	• Determine funding opportunities and develop grant proposals.

Table 5.2. WUI Action Items identified for the Buhl Fire District.

Action Item	Treatment Category	Goals and Objectives	Responsible Organization	Action Items & Planning Horizon
5.2.c: Augment emergency water supply through establishment of dry hydrants and cisterns at designated locations	**Resources and Capabilities, People and Structures, Infrastructure**	**Protection of people and structures** by improving water accessibility.	**Rural Fire Districts and BLM**	• Areas in need of water source development include Hidden Landing, Clear Lakes Estates, Valley Steppe, Melon Valley (several), Cater Pack (several), and portable bridge dry hydrants.
5.2.d: Wildfire risk assessments of homes in **Carter Pack- Melon Valley area, River Road, East River Road and Kanaka Rapids.**	**People and Structures**	**Protect people and structures** by increasing awareness of specific risk factors of individual home sites in the at-risk landscapes. Only after these are completed can home site treatments follow.	To be implemented by **County Commissioners Office** in cooperation with the **Rural Fire Departments, Mid Snake RC&D and the BLM**. Actual work may be completed by Wildfire Mitigation Consultants or trained volunteers.	• Approximately 1,000 homes in the area need assessments. • **Cost:** Approximately $100 per home site for inspection, written report, and discussions with the homeowners for cost of $20,000. Benefit/cost ratio for this assessment is approximately 855:1. • **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.
5.2.e: Improve access through trimming of low branches, replacement of sub-standard bridges, and creation of a turn-outs adequate for emergency apparatus in **Melon Valley and Carter Pack Road area.**	**People and Structures, Infrastructure**	**Protection of people and structures** by improving access to homes.	**Buhl Rural Fire District and area homeowners.**	• Proceed with findings of risk assessments • Approximately 10 homes need modifications at $7,500/modification for total cost of $75,000 and a Benefit Cost ratio of 11:1.
5.2.f: Home Site WUI Treatments for homes identified as having significant risk as per 5.2.d above.	**People and Structures**	**Protect people, structures, and increase fire fighter safety** by reducing the risk factors surrounding homes in the WUI of Twin Falls County	**County Commissioners** in cooperation with Rural Fire Districts	• **Estimate** 200 homes estimated need treatments estimated at $1,000 per home for a total cost of $170,000 and a benefit cost ratio (including assessment and treatment) of 317:1. • Actual funding level will be based on the outcomes of the home site assessments and cost estimates • Home site treatments can begin after the securing of funding for the treatments and immediate implementation in 2004 and will continue from year 1 through 5 (2008).
5.2.g: Roadway Fire Treatments along	**People and Structures,**	**Protection of people and**	**County Roads Department and**	• Estimated cost of $285 per mile, treating 15 miles of roadway for a total cost of $4,275.

Table 5.2. WUI Action Items identified for the Buhl Fire District.

Action Item	Treatment Category	Goals and Objectives	Responsible Organization	Action Items & Planning Horizon
River Road, East River Road; mowing.	**Infrastructure**	**structures** by reducing flammability of roadside vegetation.	**Buhl Fire Department.**	• Benefit of treatment will impact approximately 250 homes for a benefit cost ratio of 5,000:1.
5.2.h: Establishment of third fire station	**People and Structures, Resource and Capabilities**	**Protection of people and structures** by reducing response times.	**Buhl Fire Department and County Commissioners.**	• Assess needs through comprehensive growth plan identified in County-wide recommendations.
5.2.i: Maintenance of Home Site WUI Treatments in Banbury-Hidden Landing	**People and Structures**	**Protect people, structures, and increase fire fighter safety** by reducing the risk factors surrounding homes in the WUI of Twin Falls County	**Buhl Fire Department and BLM**	• 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 ($60,000) Follow-up inspection reports with treatments as recommended years 5 through 10
5.2.j: Extend County Road 1200E from Highway 30 to River Road	**Infrastructure**	**Protection of People and Structures through enhanced road infrastructure**	**County Roads Department and Buhl Fire Department**	• Coordinate with departments and landowners for initial planning road building schedule (2004) • Proceed with proposed activity as soon as possible.

5.9 *Castleford Fire Protection District- Mitigation Activities and Recommendations*

Table 5.3. WUI Action Items identified for the Castleford Fire District.

Action Item	Treatment Category	Goals and Objectives	Responsible Organization	Action Items & Planning Horizon
5.3.a: Augment wildland capabilities of rural districts through acquisition of additional apparatus	**Resources and Capabilities**	**Protection of people and structures** by direct fire fighting capability enhancements.	**Rural Districts in conjunction with the BLM's Rural Fire Assistance program**	• Needs include large capacity water tender and an additional Type 3 or 4 wildland engine.
5.3.b: Augment emergency water supply through establishment of dry	**Resources and Capabilities, People and**	**Protection of people and structures** by improving water accessibility	**Rural Fire Districts in cooperation with BLM**	• Reference appendix for proposed locations. • Acquisition of portable dry hydrants as well.

Table 5.3. WUI Action Items identified for the Castleford Fire District.

Action Item	Treatment Category	Goals and Objectives	Responsible Organization	Action Items & Planning Horizon
hydrants and cisterns at designated locations	**Structures, Infrastructure**			
5.3.c: Improve communications between BLM and Castleford Rural Fire District	**Resources and Capabilities**	**Enhance firefighter safety** by improving communications between fire district and BLM resources	**Castleford Fire District and BLM**	• Assess needs work with BLM for to address shortcomings.
5.2.d: Wildfire risk assessments of homes throughout district	**People and Structures**	Protect people and structures by increasing awareness of specific risk factors of individual home sites in the at-risk landscapes. Only after these are completed can home site treatments follow.	To be implemented by County Commissioners Office in cooperation with the Rural Fire Departments, Mid Snake RC&D and the BLM. Actual work may be completed by Wildfire Mitigation Consultants or trained volunteers.	• Approximately 1,000 homes in the area need assessments. • **Cost:** Approximately $100 per home site for inspection, written report, and discussions with the homeowners for cost of $20,000. Benefit/cost ratio for this assessment is approximately 855:1. • **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.
5.2.e: Home Site WUI Treatments for homes identified as having significant risk as per 5.2.d above.	**People and Structures**	**Protect people, structures, and increase fire fighter safety** by reducing the risk factors surrounding homes in the WUI of Twin Falls County	**County Commissioners** in cooperation with Rural Fire Districts	• **Estimate** 200 homes estimated need treatments estimated at $1,000 per home for a total cost of $170,000 and a benefit cost ratio (including assessment and treatment) of 317:1. • Actual funding level will be based on the outcomes of the home site assessments and cost estimates • Home site treatments can begin after the securing of funding for the treatments and immediate implementation in 2004 and will continue from year 1 through 5 (2008).

5.10 *Filer Fire District- Mitigation Activities and Recommendations*

Table 5.4. WUI Action Items identified for the Filer Fire District.

Action Item	Treatment Category	Goals and Objectives	Responsible Organization	Action Items & Planning Horizon
5.4.a: Augment emergency water	**Resources and**	**Protection of people and structures** by	**Rural Fire Districts in cooperation with**	• Reference appendix for locations. • Acquisition of portable dry hydrants.

Table 5.4. WUI Action Items identified for the Filer Fire District.

Action Item	Treatment Category	Goals and Objectives	Responsible Organization	Action Items & Planning Horizon
supply through establishment of dry hydrants and cisterns at designated locations	**Capabilities, People and Structures, Infrastructure**	improving water accessibility.	**BLM.**	
5.4.b: Pursue planned construction of new fire station.	**Resources and Capabilities, People and Structures**	**Protection of people and structures** by increasing district capabilities by providing facilities for training and housing of additional equipment	**Filer Rural Fire District and County Commissioners**	• Need to develop planning horizon and other outfitting needs for incorporation into this plan.
5.4.c: Establish Mutual Aid Agreement with Upper Snake River BLM	**Resources and Capabilities, People and Structures**	**Protection of people and structures** by improving department resources through eligibility for BLM Rural Fire Assistance Program.	**Filer Rural Fire District and the BLM**	• Finalize agreement in near future.
5.4.d: Acquisition of an additional type 3 or 4 Wildland engine, Type 1 Structure Engine and a Tanker-Tender.	**Resources and Capabilities**	**Protection of people and structures** by direct fire fighting capability enhancements.	Rural Districts in conjunction with the BLM's Rural Fire Assistance program	• Determine funding opportunities through grants. • Develop and submit applications as needed.
5.4.e: Acquisition of necessary radio equipment for communication with BLM	**Resources and Capabilities**	**Increase firefighter safety** by improving tactical operations during mutual aid responses.	**Filer Rural Fire District and BLM**	• Assess needs and acquire equipment**.**
5.4.f: Wildfire risk assessments of homes in on the Snake River Canyon Rim and other high-risk areas within the district.	**People and Structures**	**Protect people and structures** by increasing awareness of specific risk factors of individual home sites in the at-risk landscapes. Only after these are	To be implemented by **County Commissioners Office** in cooperation with the **Rural Fire Departments, Mid Snake RC&D and the BLM**. Actual work	• Approximately 300 homes in the area need assessments. • **Cost:** Approximately $100 per home site for inspection, written report, and discussions with the homeowners for cost of $30,000. Benefit/cost ratio for this assessment is approximately 855:1. • **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

Table 5.4. WUI Action Items identified for the Filer Fire District.

Action Item	Treatment Category	Goals and Objectives	Responsible Organization	Action Items & Planning Horizon
		completed can home site treatments follow.	may be completed by Wildfire Mitigation Consultants or trained volunteers.	site's treatments will be a requirement to receive funding for treatments through grants.
5.4.g: Home Site WUI Treatments for at risk homes identified as per 5.4.f above**.**	**People and Structures**	**Protect people, structures, and increase fire fighter safety** by reducing the risk factors surrounding homes in the WUI of Twin Falls County	**County Commissioners** in cooperation with Fire Mitigation Consulting company and Rural Fire Districts *Complete concurrently with 5.2.b.*	• **Estimate** 300 homes estimated need treatments estimated at $1,000 per home for a total cost of $300,000 and a benefit cost ratio (including assessment and treatment) of 78:1. • Actual funding level will be based on the outcomes of the home site assessments and cost estimates • Home site treatments can begin after the securing of funding for the treatments and immediate implementation in 2004 and will continue from year 1 through 5 (2008).300 homes.
5.2.h: Improve access through trimming of low branches, replacement of sub-standard bridges, and creation of a turn-outs adequate for emergency apparatus throughout district where needed.	**People and Structures, Infrastructure**	**Protection of people and structures** by improving access to homes.	**Filer Rural Fire** District and area homeowners.	• Proceed with findings of risk assessments • Approximately 20 homes need modifications at $7,500/modification for total cost of $150,000 and a Benefit Cost ratio of 11:1.

5.11 *Rock Creek Fire District- Mitigation Activities and Recommendations*

Table 5.5. WUI Action Items identified for the Rock Creek Fire District.

Action Item	Treatment Category	Goals and Objectives	Responsible Organization	Action Items & Planning Horizon
5.5.a: Acquisition of an additional wildland engine	**Resources and Capabilities**	**Protection of people and structures** by direct fire fighting capability enhancements.	Rural Districts in conjunction with the BLM's Rural Fire Assistance program	• Work in conjunction with BLM Rural Fire Assistance program

Table 5.5. WUI Action Items identified for the Rock Creek Fire District.

Action Item	Treatment Category	Goals and Objectives	Responsible Organization	Action Items & Planning Horizon
5.5.b: Augment emergency water supply through establishment of dry hydrants and cisterns at designated locations	**Resources and Capabilities, People and Structures, Infrastructure**	**Protection of people and structures** by improving water accessibility.	**Rural Fire Districts in cooperation with BLM.**	• Reference appendix for locations. • Acquisition of portable dry hydrants.
5.5.c: Wildfire risk assessments of homes in China Ridge-Hidden Lakes area, Rock Creek Canyon, and Pleasant Valley-Cottonwood Heights and Parrot Crossing areas.	**People and Structures**	**Protect people and structures** by increasing awareness of specific risk factors of individual home sites in the at-risk landscapes. Only after these are completed can home site treatments follow.	To be implemented by **County Commissioners Office** in cooperation with the **Rural Fire Departments, Mid Snake RC&D and the BLM**. Actual work may be completed by Wildfire Mitigation Consultants or trained volunteers.	• Approximately 300 homes in the area need assessments. • **Cost:** Approximately $100 per home site for inspection, written report, and discussions with the homeowners for cost of $30,000. Benefit/cost ratio for this assessment is approximately 855:1. • **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.
5.5.d: Home Site WUI Treatments for high risk homes as identified in 5.5.c above**.**	**People and Structures**	**Protect people, structures, and increase fire fighter safety** by reducing the risk factors surrounding homes in the WUI of Twin Falls County	**County Commissioners** in cooperation with Fire Mitigation Consulting company and Rural Fire Districts *Complete concurrently with 5.2.c.*	• **Estimate** 300 homes estimated need treatments estimated at $1,000 per home for a total cost of $300,000 and a benefit cost ratio (including assessment and treatment) of 78:1. • Actual funding level will be based on the outcomes of the home site assessments and cost estimates • Home site treatments can begin after the securing of funding for the treatments and immediate implementation in 2004 and will continue from year 1 through 5 (2008).300 homes.
5.5.e: Improve access in China Ridge-Hidden Lakes area by improving road construction, development of thru roads and creation of turn-outs.	**People and Structures**	**Protection of people, structures, infrastructure** by improving access for residents and fire fighting personnel in the event of a wildfire.	**County Roads Department, County Commissioners and Rock Creek Fire District.**	• Develop strategy for improvement between involved parties. • Develop cost estimates and implement when funding is available. • Estimated three miles of road reconstruction at $200,000/mile for a total of $600,000. (100 homes serviced by roads).
5.5.f: Work with Rock Creek Canyon	**People and Structures,**	**Protection of people, structures**	**Rock Creek Fire Department and**	• Evaluate willingness of residents to participate in access enhancement program

Table 5.5. WUI Action Items identified for the Rock Creek Fire District.

Action Item	Treatment Category	Goals and Objectives	Responsible Organization	Action Items & Planning Horizon
Residents in improving bridge access to homes**.**	**Infrastructure.**	**and enhanced firefighter safety.**	**homeowners**	• Estimate a benefit to 20 homes in the region at a cost of approximately $7,000 per home site for a total cost of $140,000 and a benefit cost ration of 12:1.
5.5.g: Road-side fuels treatments along Rock Creek Canyon Road and China Ridge.	**People and Structures, Infrastructure**	**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.	**County Roads and Bridges Department** in cooperation with USFS Forest Service, BLM, State of Idaho (Lands and Transportation), Rural Fire Districts and landowners.	• **Year 1 (2004):** Update existing assessment of roads in Twin Falls County as to location. Secure funding for implementation of this project (grants). • **Year 2 (2005):** Specifically address access issues listed in column one, plus recreation areas, and others identified in assessment. • **Year 3 (2006):** Secure funding and implement projects to treat road-side fuels.

5.12 *Salmon Tract Fire Protection District- Mitigation Activities and Recommendations*

Table 5.6. WUI Action Items identified for the Salmon Tract Fire District.

Action Item	Treatment Category	Goals and Objectives	Responsible Organization	Action Items & Planning Horizon
5.6.a: Augment emergency water supply through establishment of dry hydrants and cisterns at designated locations	**Resources and Capabilities,** **People and Structures, Infrastructure**	**Protection of people and structures** by improving water accessibility.	**Rural Fire Districts in cooperation with BLM.**	• Reference appendix for locations. • Acquisition of portable dry hydrants.
5.6.b: Wildfire risk assessments of at risk homes in Hollister, Rogerson and Berger and throughout district**.**	**People and Structures**	**Protect people and structures** by increasing awareness of specific risk factors of individual home sites in the at-risk	To be implemented by **County Commissioners Office** in cooperation with the **Rural Fire Departments, Mid Snake RC&D and**	• Approximately 300 homes in the area need assessments. • **Cost:** Approximately $100 per home site for inspection, written report, and discussions with the homeowners for cost of $30,000. Benefit/cost ratio for this assessment is approximately 855:1. • **Action Item:** Secure funding and contract to complete the inspections during years 1 & 2 (2004-05)

Table 5.6. WUI Action Items identified for the Salmon Tract Fire District.

Action Item	Treatment Category	Goals and Objectives	Responsible Organization	Action Items & Planning Horizon
		landscapes. Only after these are completed can home site treatments follow.	**the BLM**. Actual work may be completed by Wildfire Mitigation Consultants or trained volunteers.	• Home site inspection reports and estimated budget for each home site's treatments will be a requirement to receive funding for treatments through grants.
5.6.c: Home Site WUI Treatments for high risk homes as identified in 5.6.b above**.**	**People and Structures**	**Protect people, structures, and increase fire fighter safety** by reducing the risk factors surrounding homes in the WUI of Twin Falls County	**County Commissioners** in cooperation with Fire Mitigation Consulting company and Rural Fire Districts *Complete concurrently with 5.2.b.*	• **Estimate** 300 homes estimated need treatments estimated at $1,000 per home for a total cost of $300,000 and a benefit cost ratio (including assessment and treatment) of 78:1. • Actual funding level will be based on the outcomes of the home site assessments and cost estimates • Home site treatments can begin after the securing of funding for the treatments and immediate implementation in 2004 and will continue from year 1 through 5 (2008).300 homes.
5.6.d: Pursue planning and construction of new fire station at Hollister.	**Resources and Capabilities**	**Protection of people and structures** by increasing district capabilities by providing facilities for training and housing of additional equipment	**Salmon Tract Rural Fire District and County Commissioners**	• Determine costs and timelines
5.6.e: Pursue planning and construction of two-bay garage at north end of district to house equipment.	**Resources and Capabilities**	**Protection of people and structures** by increasing district capabilities by maintaining equipment in good working order	**Salmon Tract Rural Fire District and County Commissioners**	• Determine costs and timelines
5.6.f: Acquisition of a large capacity pumper-tender.	**Resources and Capabilities**	**Protection of people and structures** by direct fire fighting capability enhancements.	Rural Districts in conjunction with the BLM's Rural Fire Assistance program	• Work in conjunction with BLM Rural Fire Assistance program

Table 5.6. WUI Action Items identified for the Salmon Tract Fire District.

Action Item	Treatment Category	Goals and Objectives	Responsible Organization	Action Items & Planning Horizon
5.6.g: Implement BLM Communities-at-Risk project at Rogerson	**People and Structures, Regional Land Management Recommendations**	**Protection of community** by reducing potential for fire to infringe on population center	**Salmon Tract Rural Fire in cooperation with BLM and local landowners**	• Proceed with planned implementation schedule as defined in the Rogerson Communities at risk mitigation plan.

5.13 *Twin Falls City and Rural Fire Department- Mitigation Activities and Recommendations*

Table 5.7. WUI Action Items identified for the Twin Falls Fire District.

Action Item	Resource Category	Goals and Objectives	Responsible Organization	Action Items & Planning Horizon
5.7.a: Wildfire risk assessments of homes in the Meadow Ridge and Canyon Ridge areas	**People and Structures**	**Protect people and structures** by increasing awareness of specific risk factors of individual home sites in the at-risk landscapes. Only after these are completed can home site treatments follow.	To be implemented by **County Commissioners Office** in cooperation with the **Rural Fire Departments, Mid Snake RC&D and the BLM**. Actual work may be completed by Wildfire Mitigation Consultants or trained volunteers.	• Approximately 100 homes in the area need assessments. • **Cost:** Approximately $100 per home site for inspection, written report, and discussions with the homeowners for cost of $10,000. Benefit/cost ratio for this assessment is approximately 855:1. • **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.
5.7.b: Home Site WUI Treatments for homes identified in 5.7.a above.	**People and Structures**	**Protect people, structures, and increase fire fighter safety** by reducing the risk factors surrounding homes in the WUI of Twin Falls County	**County Commissioners** in cooperation with Fire Mitigation Consulting company and Rural Fire Districts	• **Estimate** 100 homes estimated need treatments estimated at $1,000 per home for a total cost of $100,000 and a benefit cost ratio (including assessment and treatment) of 78:1. • Actual funding level will be based on the outcomes of the home site assessments and cost estimates • Home site treatments can begin after the securing of funding for the treatments and immediate implementation in 2004 and will continue from year 1 through 5 (2008).300 homes.
5.7.c: Wildfire hazard treatments along	**People and Structures**	**Protect people, structures and**	**County Parks Department**	• Determine timelines and feasibility

Table 5.7. WUI Action Items identified for the Twin Falls Fire District.

Action Item	Resource Category	Goals and Objectives	Responsible Organization	Action Items & Planning Horizon
recreational trails in Rock Creek Park and Centennial Park		**quality of life by reducing the potential for wildfire ignitions.**		
5.7.d: Post fire prevention and restriction signs at trailheads in Rock Creek Park and Centennial Park	**People and Structures**	**Protect people, structures and quality of life by reducing the potential for wildfire ignitions.**	**County Parks Department and Twin Falls Fire Department**	• Determine timelines and feasibility

Chapter 6: Supporting Information

6

6.1 *List of Tables*

6.2 *List of Figures*

6.3 *List of Preparers*

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

Table 6.1. List of Preparers

Name	Affiliation	Role
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6.4 *Signature Pages*

This **Twin Falls 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: Gary Grindstaff, Chairman Twin Falls County Commissioner	Date
By: William Brockman, Vice-Chairman Twin Falls County Commissioner	Date
By: Tom Mikesell Twin Falls County Commissioner	Date
By: Glenda Thompson Mayor–City of Twin Falls	Date
By: Barbara Geitzen Mayor–City of Buhl	Date
By: Jay Fort Mayor–City of Filer	Date
By: Jim Sorenson Mayor–City of Kimberly	Date
By: George Urie Mayor–City of Hansen	Date

By: Carl Melugin
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By: Ruth Monahan, Forest Supervisor
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By: Travis Rothweiler Chairman, Mid Snake RC&D	Date
By: Jackie Frey Twin Falls County Emergency Management	Date
By: William E. Schlosser, Ph.D. Project Manager–Twin Falls County WUI Wildfire Mitigation Plan, Lead Author Northwest Management, Inc.	Date

6.5 *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).

Sagebrush steppe - Sagebrush steppe is a broad category encompassing many diverse arid and semi-arid grass and shrub plant communities. In this broad community type, a healthy resource is characterized by the presence of native vegetation and the absence of exotic invaders; sufficient ground cover to prevent accelerated soil erosion; and the presence of periodic fire events on some plant communities.

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 prestated 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.

Wildland-Urban Interface – The description of areas where human habitation to juxtaposed within or near wildland areas. The four wildland-urban interface conditions include intermix, interface, occluded, and rural.

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