Bonneville County Community Wildfire Protection Plan (CWPP)

2015 Revision

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Bonneville County
Community Wildfire Protection Plan

PROMULGATION OF ADOPTION

Be it known that the Bonneville County Idaho Board of County Commissioners do hereby approve the adoption of the Bonneville County, Idaho, Community Wildfire Protection Plan and direct its implementation through the creation of a Bonneville County Community Wildfire Protection Plan Advisory Committee.

Be it also known that the Board of County Commissioners hereby appoints Commissioner David Radford, in his role as County Commissioner, as the Bonneville County Community Wildfire Protection Plan Committee Chair.

This plan has been developed in the interest of providing fire mitigation protection to populations living in the wildland/urban interface. Through adoption of this Plan, all county and private agencies are requested to develop directives, Standard Operating Procedures, checklists or other supplemental guidance to insure its maximum effectiveness.

Bonneville County Commissioner — MAR 4 2016 Date

Bonneville County Commissioner — MAR 4 2016 Date

Bonneville County Commissioner — Date

PLAN REVIEWERS

The mission of the Bonneville County Community Wildfire Protection Plan is to promote public policy designed to protect citizens, critical facilities, infrastructure, private property from wildfires, and preserve the environment. The following individuals and/or organizations are represented in this plan. Many of the individuals listed below were involved in this plan review and revision. We extend our thanks to those who were involved in this process, both named and unnamed.

Tyre Holfeltz – Idaho Department of Lands — 2-29-16 Date

Spencer Johnston – United States Forest Service — 01/21/16 Date

Kevin Conran – BLM — 1/29/2016 Date

Dean Philbrick – Swan Valley Fire District — 1-29-16 Date

Bryan Grover – Central Fire District — 1-26-2016 Date

Stacy Hyde – Ammon Fire Department — 01/27/16 Date

Dave Coffey – Idaho Falls Fire Department — 2/29/16 Date

Scott Norman – Ucon Fire Department — 01/27/16 Date

Shane Roberts – Idaho Fish and Game — 03/04/16 Date

Kelly Chulick – Alpine Fire District — 2-29-16 Date

Brad Hemmert - Caribou County Fire Department — 3-1-16 Date

Tom Lenderink - Bonneville County Emergency Management — 01-27-16 Date

Executive Summary

The mission of the Bonneville County Community Wildfire Protection Plan (hereafter referred to as the Plan) is to promote public policy designed to protect citizens, critical facilities, infrastructure, private property, and the environment from wildfires. The Bonneville County CWPP, developed as a foundational element of the Program, addresses privately held unincorporated urban and rural areas of the county as wildland urban interface or intermix and establishes the relationship with Federal or State Lands such as the Caribou Targhee National Forest or the Idaho National Laboratory.

This Plan establishes an action plan for mitigating the impacts associated with wildfires. If implemented over the next several years, the actions identified in this plan will help reduce the risk of wildfires negatively affecting values at risk within the wildland/urban interface (hereafter, WUI).

However, it is up to the community to ensure that these actions are taken. All mitigation is local, and the primary responsibility for development and implementation of risk reduction strategies and policies lies with the identified local and federal jurisdictions. No plan is complete until it is implemented.

The county WUI areas were all assessed during the summer of 2004, and again in 2014. Based on the findings of the assessment, the assessment team geographically organized six (6) areas of risk or vulnerability zones; then ranked them according to four criteria: Life Safety, Property Damage, Environmental Damage, and Economic Impact. The listing of the respective zones, and the identified mitigation actions are presented in Section 3 of the Bonneville County CWPP.

Section 1: Introduction and Planning Process

The Plan addresses privately held unincorporated urban and rural areas of the county to include their interface points with Federal or State Lands such as the Caribou Targhee National Forest, Idaho National Laboratory (INL), and Bureau of Land Management, Idaho Falls District, Upper Snake Field Office. While this Plan does not establish requirements for the city, county, state, or federally held lands, it does provide a framework for the identification of mitigating actions for the common impacts associated with wildfires. The resources and background information in the Plan are applicable countywide, as the goals and recommendations lay groundwork for local mitigation plans and partnerships.

All mitigation is local, and the primary responsibility for development and implementation of risk reduction strategies and policies lies with local jurisdictions. Local jurisdictions, however, are not alone. Partners and resources exist at the state and federal levels. No plan is complete until it is implemented. This Plan describes prescriptive programmatic actions that will bring about mitigation. These mitigation actions, if implemented over the next several years, will help reduce the damages caused by wildfire in the WUI. However, it is up to the community to ensure that these actions are taken.

The Plan and Appendices that follow are the culmination of work conducted by the Bonneville County CWPP Planning Group and include a variety of measures designed to reduce the impact of wildfires. The Plan provides documentation of implementing actions designed to reduce the risk from wildfires through education and outreach programs, the development of partnerships, and implementation of preventative activities such as development of defensive space and mechanical fuel treatments. The resources and information within the Plan:

1. Establish a foundation for coordination and collaboration among agencies and the public in Bonneville County,
2. Identify and prioritize mitigation projects and implementing actions;
3. Assist in meeting the requirements of federal assistance programs.

Background

In 2004, Bonneville County received a grant through the Idaho Falls Office of the Bureau of Land Management (BLM) to prepare a Wildland/Urban Interface Fire Mitigation Plan. That plan documented programmatic goals, identified implementing actions, and set priorities for reducing wildfire risk. Beginning in 2014, efforts were undertaken to update the existing plan. As work progressed, the plan underwent major revisions and the plan should be finished by early 2016.

Wildfire hazard mitigation is the development and implementation of activities designed to reduce or eliminate losses resulting from wildfires. Wildfire mitigation can be used in conjunction with other county plans, including the County Comprehensive Land Use and Emergency Operations Plans. Each county within the state has received a request to write a simple WUI Fire Mitigation Plan. These plans are to contain at least the following five elements:

1) Documentation of the process used to develop the mitigation plan. This includes 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 WUI. (see Section 3)

3) A prioritized mitigation strategy that addresses each of the risks (see Section 3). 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 that includes monitoring and evaluation of mitigation activities.

5) Documentation that the plan has been formally adopted by the involved agencies.

To develop wildfire mitigation plans it is suggested that each county bring together the following individuals, as appropriate for each county, to make up the CWPP Planning Group. This group should contain the following representatives.

- 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
- Idaho Bureau of Homeland Security representative
- Local Emergency Planning Committee (LEPC) Chairperson
- Resource Conservation and Development representative
- Idaho Department of Fish and Game representative
- Interested citizens and community leaders as appropriate
- Other officials as appropriate

The planning group, with critical input from homeowners and the general public, will determine where the risks and vulnerabilities to WUI are within the county and what mitigation actions are required. County organizations that include most of the identified representatives are already in place in Bonneville County.

In Bonneville County, existing assessments and planning documentation have fulfilled many of the requirements made above, however, the purpose of this planning activity is to integrate existing relevant information into a single place and develop a strategic pathway to fire mitigation implementation.

Program Mission

The mission of the Plan is to promote public strategies and awareness designed to protect citizens, critical facilities, infrastructure, and private property from wildfires.

Program Goals

The Plan has established goals that describe the overall direction that county agencies, organizations, cooperators and citizens should take toward analyzing and mitigating WUI risks from wildfires.

1) Protect Life and Property

- Implement activities that assist in protecting lives by making homes, businesses, infrastructure, critical facilities, and other property more resistant to wildfire hazards.
- Improve hazard assessment information and reduce losses and repetitive damages from hazard events.
- Improve countywide zoning, building codes, standards for new development, and encouragement of preventative measures for existing development in areas vulnerable to wildfire hazards, to include development and implementation of WUI codes and public awareness.
- Develop and implement educational outreach programs
- Provide information on tools, partnership opportunities, and funding resources to assist in implementation of mitigation actions.
- Develop a system to quickly and effectively communicate impending emergencies to residents of summer home areas.

2) Natural Systems

- Balance watershed planning, natural resource management, and land use planning with wildfire mitigation to protect life, property, and the environment.
- Preserve, rehabilitate, and enhance natural systems to serve wildfire mitigation functions.

3) Partnerships and Implementation

- Strengthen communication, and coordinate participation, among and within public agencies, citizens, non-profit organizations, business, and industry to gain a vested interest in implementation.
- Encourage leadership within public and private sector organizations to prioritize and implement local, county, and regional hazard mitigation actions.

4) Emergency Services

- Establish policy to ensure mitigation projects for critical facilities, services, and infrastructure.
- Strengthen emergency operations by increasing collaboration and coordination.
- Coordinate and integrate wildfire mitigation activities, where appropriate, with emergency operations plans and procedures.
- Reduce response time to minimum access areas through improvement/addition of roads and bridges.

Project Requirements

The Plan is being written to establish the jurisdiction's commitment to reduce risks from disasters and technological hazards, and to serve as a guide for decision makers as they commit resources to reduce the effects of wildfires upon private property within the designated WUI areas.

The project has been outlined and conducted in accordance with the following requirements set forth by the Federal Emergency Management Agency (FEMA).

1. Develop and Document the Planning Process
2. Assess the Risk
3. Develop Mitigation Strategies
4. Develop a Maintenance Process for the Plan

Planning Methodology

Information contained in the Plan is based on research and information taken from a variety of sources. The intention of the planning team is not to duplicate existing information, but rather to integrate resources provided by members of the planning committee.

The CWPP Planning Group is comprised of the following.

Name	Representing
Dave Radford	Bonneville County Commissioner
Tom Lenderink	Bonneville County Emergency Management
Kellie Farrar	Bonneville County Emergency Management
Kevin Eckersell	Bonneville County Public Works
Dawn Leatham	Bonneville County GIS
Spencer Johnston	United States Forest Service
Scott Norman	Ucon Fire Department
Stacy Hyde	Ammon Fire Department
Dave Coffey	Idaho Falls Fire Department
Dean Philbrick	Greater Swan Valley Fire District #2
Bryan Grover	Central Fire District
Corey Child	Madison Fire Department
Eric Gosswiller	INL Fire Department
Kally Barker	INL Liaison Officer
Tyre Holfeltz	Idaho Department of Lands
Keith Birch	Idaho Department of Lands (resigned)
Terry Thomas	Idaho Department of Fish and Game
Kevin Conran	Bureau of Land Management
Ben Dyer	Bureau of Land Management

Meetings

Planning meetings have been held to gather information and reassess the content of the plan and update as necessary. Additional meetings will be held with the County Commission, homeowners, and the general public.

Date	Group	Purpose
January 8, 2014	CWPP Planning Group	Planning Meeting
February 12, 2014	CWPP Planning Group	Planning Meeting
April 9, 2014	CWPP Planning Group	Planning Meeting
May 7, 2014	CWPP Planning Group	Planning Meeting
June 18, 2014	Swan Valley Fire Station	Public Meeting
July 16, 2014	CWPP Planning Group	Planning Meeting
October 22, 2014	CWPP Planning Group	Planning Meeting
December 10, 2014	CWPP Planning Group	Planning Meeting
February 18, 2015	CWPP Planning Group	Planning Meeting
April 9, 2015	CWPP Planning Group	Planning Meeting
June 10, 2015	CWPP Planning Group	Planning Meeting
June 23, 2015	Idaho Falls Public Library	Public Meeting
June 24, 2015	Swan Valley Fire Station	Public Meeting

Public Participation

Public participation is being assured in four specific ways:

1) Ensure ongoing involvement of private homeowners and or representatives from the communities served by this process on the planning committees.
2) Provide access to the Plan and associated information on the Internet.
3) Notify by mail the property owners who live outside of the county, announcing the development of a plan, the opportunity to review the plan online, inviting them to make comments on the plan, and requesting them to complete a brief questionnaire.
4) Facilitate scheduled public meetings for residents living in the WUI areas.

Mitigation Alternatives

Mitigation alternatives and resulting implementation actions are being developed to address the vulnerabilities identified in Section 3. All mitigation alternatives will be analyzed for cost benefit where possible. The resulting benefits will be summarized and provided as part of the final alternative descriptions.

The Wildland/Urban Interface Mitigation (*implementation)* Action Plan is the most important product that will be developed by this process. The Action Plan contained in Section 3 identifies who is responsible for implementation of the action, what resources are required for implementation, and when the implementation is to be completed.

Plan Contents

Each section of the Plan provides important information and resources to assist in understanding the issues facing the county, its citizens, businesses, and emergency responders. The sections of the Plan work together to create a document that guides the mitigation mission to reduce risk and prevent loss from future wildfires.

The Plan is structured for ease of use and updating. Individuals interested in specific sections of the Plan will find the tabular format easy to negotiate and reference. The ability to update individual sections of the Plan places less financial burden on the county. Decision makers can allocate funding and staff resources to review and update selected sections, thereby avoiding a full update, which can be costly and time-consuming. New data can be easily incorporated, resulting in an evolving mitigation plan that remains current and relevant to Bonneville County.

The Plan is organized as follows:

- **Executive Summary -** Provide an overview of the mitigation plan and a succinct listing of all implementing actions.
- **Section 1: Introduction and Planning Process -** Describes mitigation planning requirements and the current planning methodology.
- **Section 2: Bonneville County Idaho -** Present a brief overview of Bonneville County.
- **Section 3: Bonneville County Assessments and Action Plan -** Provides fire behavior and vulnerability assessments for the WUI zones identified within Bonneville County and a risk assessment for each zone. This section also provides the action plan for mitigation activities.
- **Section 4: Public Participation** – Provides an overview of public involvement, and documents public input into the planning process.
- **Section 5: Toolbox -** Provides managers with basic fuel treatment options and associated costs, informational sources for grant opportunities, and educational tools and programs.

The Plan is organized as follows: (cont'd)

- **Section 6: Treatment of Structural Ignitability -** Provides recommendations for reducing structural ignitability and guidelines for defensible space.
- **Section 7: Accomplishments** - Outline the accomplishments to date under the original plan completed in 2004.
- **Section 8: Plan Maintenance -** Provides guidance on plan implementation, evaluation and maintenance

Plan Adoption

The Bonneville County Board of County Commissioners is responsible for adopting the Plan. Once the Plan has been adopted, copies of the plan will be distributed to all the agencies which participated in the planning effort.

To date, the Federal Emergency Management Agency (FEMA) has not reviewed, approved or disapproved of any plans in the State of Idaho.

Coordinating Body

The Bonneville County Wildland/Urban Interagency Planning Group is responsible for coordination, development and implementation of the Action Plan. This group will undertake the formal review process. The Planning Group will implement, evaluate and conduct an annual review of the plan and meet as needed.

Implementation through Existing Programs

The Plan will provide a series of recommendations, which Bonneville County will have the opportunity to implement through existing programs and procedures. Upon adoption of this CWPP revision, the county will continue developing their natural hazard mitigation goals and actions using this document as a baseline of information for the risks associated with wildfires within the county. The Planning Group or appointed subcommittee will be formed either from members of the planning group and/or other volunteers (3-5 total), tasked with the duty to evaluate and review projects identified in the plan, the level of progress in completing and/or addressing those projects, and any successes, changes, or additions that should be included in the next plan revision.

Section 2: Bonneville County, Idaho

Profile of Bonneville County

Bonneville County, located in Southeastern Idaho, is part of the Upper Snake River Valley. It shares the eastern border with the of Wyoming. Geographically, Bonneville County is the fifteenth largest county in the state and covers 1,869 square miles. Topography varies from broken lava beds and sagebrush covered desert on the west to agricultural lands and forest in the central and eastern areas of the county. Elevations range from 4,625 to 10,025 feet above sea level. The population is just over 107,000 (USB, 2013), with a majority of the population living in and around the Idaho Falls / Ammon area. Bonneville County is the fourth highest populated county in Idaho.

Bonneville County has four fire districts/departments within its boundaries. These include the Ammon Fire Department, Swan Valley Fire District, Idaho Falls Fire Department/Bonneville District #1, and Ucon Fire Department. (See Appendix 1 for a complete profile of each fire district.) Additionally, three other fire districts/departments, which are located in neighboring counties, provide services within Bonneville County: Central Fire District, Alpine Fire District, and Caribou County Fire Department. Caribou County Fire Department is in the process of establishing a formal memorandum of understanding to provide services in Bonneville County. All fire department/district boundaries are represented on maps in Appendix 2.

There are approximately 623,145 acres of Federal and 53,694 acres of State land within the boundaries of Bonneville County. Fire protection for Federal and State Lands is the responsibility of the Caribou-Targhee National Forest and the Upper Snake River District of the Bureau of Land Management. For more information regarding fire protection on federal lands see the Caribou-Targhee Fire Management Plan and the Upper Snake River District Fire Operations Plan.

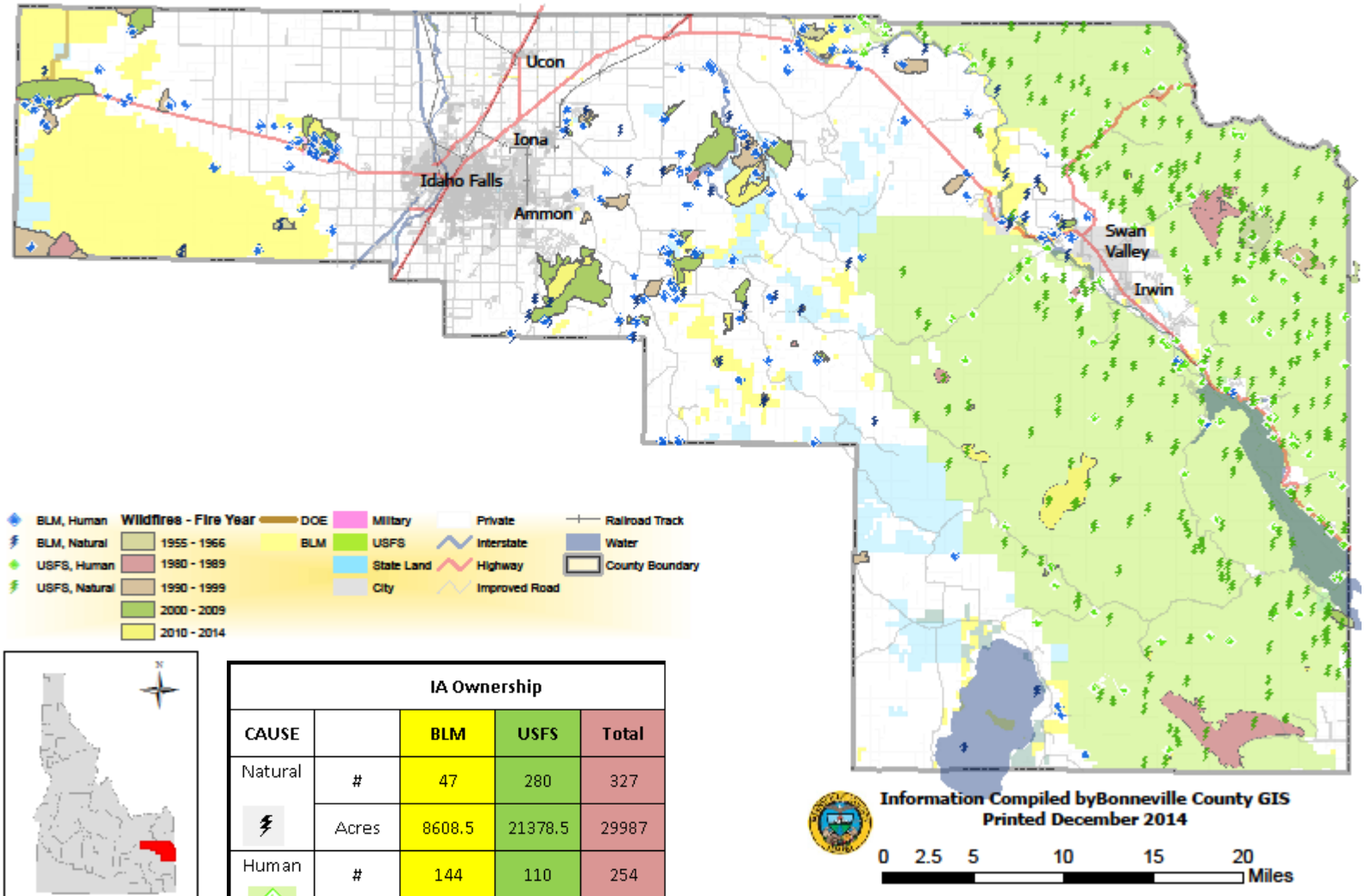
Fire History

According to the BLM and the Forest Service, between 1980 and 2014 there were 581 fire starts resulting in approximately 49,982 acres of land burned by wildfires in Bonneville County; however, the actual number may be far greater. A large portion of Bonneville County has no fire protection, so wildfires in these areas are not reported by the BLM, Forest Service, or the local fire districts. According to the BLM there have been several wildfires, particularly on the eastern foothills, that have been reported to the East Idaho Interagency Fire Center and have not been responded to. These fires are typically on privately owned lands and fire response is usually initiated by landowners until the fire threatens structures within fire districts or federal lands.

Of the reported 581 fire starts, 327 were naturally ignited through lightning strikes, and 254 were human caused. The naturally ignited wildfires are typically located in the forested backcountry areas while the human caused fires are generally in the high desert areas of the county, near Palisades Reservoir, and dispersed sites on National Forest Lands. The BLM reports that they annually have a human caused wildfire in the area of the gun range, located off of Highway 20 on the west end of the county. A fire history map is located below and in Appendix 2.

Bonneville County Wildfire Mitigation

Fire History Map



IA Ownership				
CAUSE		BLM	USFS	Total
Natural	#	47	280	327
	Acres	8608.5	21378.5	29987
Human	#	144	110	254
	Acres	19358.8	636.8	19995.6
Total	#	191	390	581
	Acres	27967.3	22015.3	49982.6

Transportation Routes

Bonneville County is intersected by Interstate 15, which runs north and south. Highway 20/26 traverses the county east and west with Highway 20 turning northward towards Rigby at the intersection of the Lewisville Highway. Highway 26 continues eastward to the Wyoming state line. Highway 31 intersects with Highway 26 in Swan Valley and proceeds north to Victor, Idaho over the Pine Creek Pass.

From a WUI perspective, Highway 20 from Idaho Falls to the INL boundary and Highway 26 from Idaho Falls to the Wyoming border are both vulnerable to wildfire. Highway 20 across the INL has been closed on several occasions due to wildfires and resulting blowing dust from previous wildfires. Highway 26 from Idaho Falls to the Wyoming border could potentially be closed due to wildfires as well.

Recreation Sites

There are multiple recreation sites in the WUI areas of Bonneville County. The most significant and high use sites are in the Ririe Reservoir, Swan Valley, and Palisades areas. Campgrounds, Recreational Vehicle (RV) parks, and boat launches are found at either end of the Ririe Reservoir and along the Snake River and Palisades Reservoir. Additionally, there are Organization Camps, campgrounds, trailheads and outfitter base camps in the Big Hole Mountains, Caribou Basin and Jack Knife areas.

Summer Home Subdivisions

A number of subdivisions are located in the WUI within Swan Valley Fire District protection boundaries. Additional subdivisions are found near the Palisades Dam and along Highway 26 extending south to the Stateline in non-protected areas of Bonneville County. These subdivisions are within the defined WUI areas.

Conservation Reserve Program Lands

The Conservation Reserve Program encourages farmers to convert highly erodible cropland or other environmentally sensitive acreage to vegetative cover, such as domestic or native grasses, wildlife plantings, trees, filter strips, or riparian buffers. Farmers receive an annual rental payment for the term of the multi-year contract. Cost sharing is provided to establish the vegetative cover practices.

Palisades Dam/Electrical Power Generation

Located on the Snake River about 55 miles southeast of Idaho Falls, Idaho, the Palisades Dam, operated by the Bureau of Reclamation, is a large zoned earth filled structure 270 feet high. The dam has a crest length of 2,100 feet, and contains 13,571,000 cubic yards of material. It creates a reservoir of 1,401,000 acre-feet capacity (active 1,200,000 acre-feet). Electrical power transmission lines leaving the Palisades Power Plant cross national forest and private lands within the WUI areas. The electrical power generated at the Palisades Dam is a significant portion of the electrical power distributed in the northwest United States.

Section 3: Bonneville County Assessments and Action Plan

Bonneville County WUI

The expansion of the WUI in Bonneville County in recent decades has significant implications for wildfire management. The WUI creates an environment in which fire can move readily between structural and wildland fuels. These types of incidents are complex and costly to manage; public and emergency responder safety is top priority at all times while attempting to minimize property loss. This assessment examines specific areas in Bonneville County that have been defined as part of the WUI.

The Bonneville County WUI boundary is used to help define areas of concern and values at risk in order to complete the risk assessment for those values and developing mitigation actions. It is not intended to be all inclusive or exclusive. The mapped WUI is based on the WUI definition found below and provides a general starting point for identifying the majority of the WUI concerns for the County.

The WUI is defined as the line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuel (NWCG and NFPA Glossaries). The intent of a WUI boundary is to "define an area within or adjacent to private and public property where mitigation actions should occur to prevent damage and loss" (NWCG Memorandum # 024-2010; Terminology Updates Resulting from Release of the Guidance for the Implementation of Federal Wildland Fire Management Policy, 2009). Capital improvements, houses, private land, major utility corridors, and communication sites, are examples of structures and human developments the planning group is collectively concerned about in the event of a wildfire. The existence and vulnerability of these values relative to the surrounding landscape shape the WUI boundary. The vulnerability of identified lands within the WUI boundary is based on fuels, topography, weather patterns, professional evaluation and input, and Idaho State University Fire Susceptibility Modeling. Defining the WUI boundary in this manner helps identify areas of concern to prioritize fuels reduction projects, community outreach and education efforts, and help managers develop the appropriate response to an emerging fire incident. Bonneville County has identified six WUI zones throughout the county. Within each zone, specific areas of concern have been identified as at risk to a potential wildfire incident.

Bonneville County CWPP Planning Group recognizes that proper defensible space is the highest priority for protecting structures but also notes that work beyond needs to occur to protect ingress and egress routes, other critical infrastructure and resource values. Federal land management agencies have the responsibility to minimize the potential of unwanted wildland fires impacting other jurisdictions. The vegetation and landscape contained within Bonneville County has been shaped by the influences of wildland fire and all land management agencies represented within the County recognize that this ecosystem is dependent on wildland fires. The CWPP does not aim to stop fire but rather mitigate fuels where necessary to protect those identified values which will facilitate allowing fire to play its natural role when possible within our backcountry and proposed wilderness areas as directed by land management plans and other applicable legislation. We recognize that all of our tools (mechanical treatments, prescribed fire and wildland fire) must be put to work to reach our goals identified in this Plan. This recognition brings Bonneville County closer to becoming a truly "fire adapted community".

Fire Behavior Assessment

The fire behavior assessment completed for Bonneville County used a variety of resources available including Remote Automated Weather Stations (RAWS), FireFamily Plus software, LANDFIRE and FlamMap programs to further understand and illustrate the potential wildfire hazard for the County. Brief descriptions of the resources are provided below.

RAWS record and transmit daily weather and fuel observations to a database where the data can be used with several different fire behavior modeling tools or analysis programs.

FireFamily Plus is a software system for summarizing and analyzing historical daily fire weather observations and computing fire danger indices based on the National Fire Danger Rating System. Fire occurrence data can also be analyzed and cross referenced with the weather data to help determine the critical levels for staffing and fire danger for an area. For more information on FireFamily Plus go to http://firelab.org/applications.

LANDFIRE is a program that provides over 20 national geo-spatial layers (e.g. vegetation, fuel, disturbance, etc.) used for landscape assessment, analysis, and management. For more information on LANDFIRE go to http://www.landfire.gov/.

FlamMap is a fire behavior mapping and analysis program that computes potential fire behavior characteristics (spread rate, flame length, fireline intensity, etc.). For more information on FlamMap go to http://firelab.org/applications.

LANDFIRE 2010 (v1.2.0) data is national-level, landscape-scale, cross-boundary fuels data that exists for the conterminous United States and contains information representing topography (slope, elevation, aspect) fire behavior fuel model and canopy characteristics (canopy cover, canopy base height, canopy height, canopy bulk density) which serve to simulate crown fire activity. LANDFIRE data was imported into the fire behavior modeling software FlamMap to predict the potential fire behavior under serve fire weather conditions (97th percentile).

Severe weather conditions were determined through historic weather data from local Remote Automated Weather Stations (RAWS). Two RAWS stations were selected across Bonneville County that fire managers believe represent the average weather conditions experienced throughout a fire season. The two RAWS stations selected are listed below with the weather conditions utilized for the fire behavior modeling process.

97th Percentile Weather and Fuel Conditions July – September, 2004 – 2013 Pine Creek RAWS	
Dry Bulb Temperature	85
Wind Speed – 20 foot Wind	25 at 225 degrees
1-Hour Fuel Moisture	2
10-Hour Fuel Moisture	3
100-Hour Fuel Moisture	5
1000- Hour Fuel Moisture	8
Duff	15
Herbaceous Fuel Moisture	30
Wood Fuel Moisture	76

Table 1: The Pine Creek RAWS best represents the weather conditions in the timbered portions of Bonneville County.

Fire Behavior Assessment (cont'd)

97th Percentile Weather and Fuel Conditions July – September, 1999 – 2013 Moody RAWS	
Dry Bulb Temperature	85
Wind Speed – 20 foot Wind	25 at 225 degrees
1-Hour Fuel Moisture	2
10-Hour Fuel Moisture	3
100-Hour Fuel Moisture	5
1000- Hour Fuel Moisture	8
Duff	15
Herbaceous Fuel Moisture	30
Wood Fuel Moisture	74

Table 2: The Moody RAWS best represents the weather conditions in the western portions of Bonneville County.

The fire behavior assessment focused on rate of spread, flame length, and crown fire activity. Those three fire behavior characteristics are the most important considerations for determining the potential fire hazard and the effectiveness of suppression resources. See Appendix 2 for Bonneville County Fire Behavior Assessment Maps.

Vulnerability Assessment

The following general categories were examined in detail to determine specific vulnerable areas at risk within Bonneville County:

- Summer home sites, subdivisions and number of structures
- Developed recreation sites
- Number of calls experienced in the area by the fire district
- Communication sites
- Private property with structures
- Above ground utility corridors
- High use travel corridors
- Seasonal use patterns
- Historic areas
- Environmental impacts (wildlife habitat, soils, municipal watersheds, timber, and rangeland areas)

Risk Assessment

For the purpose of quantifying the risk in each of the areas examined WUI zones have been developed. Map and descriptions of each WUI Zone with associated hazards are listed in detail below. An expanded view of each WUI zone is located in Appendix 2. To further illustrate the potential risk of wildfire affecting values at risk, the Plan references the project work Idaho State University completed developing a WUI fire susceptibility risk model for Bonneville County. The executive summary of the report and Bonneville County WUI fire susceptibility map is located in Appendix 3. The map depicts fire susceptibility for areas throughout the County ranked from high to low.

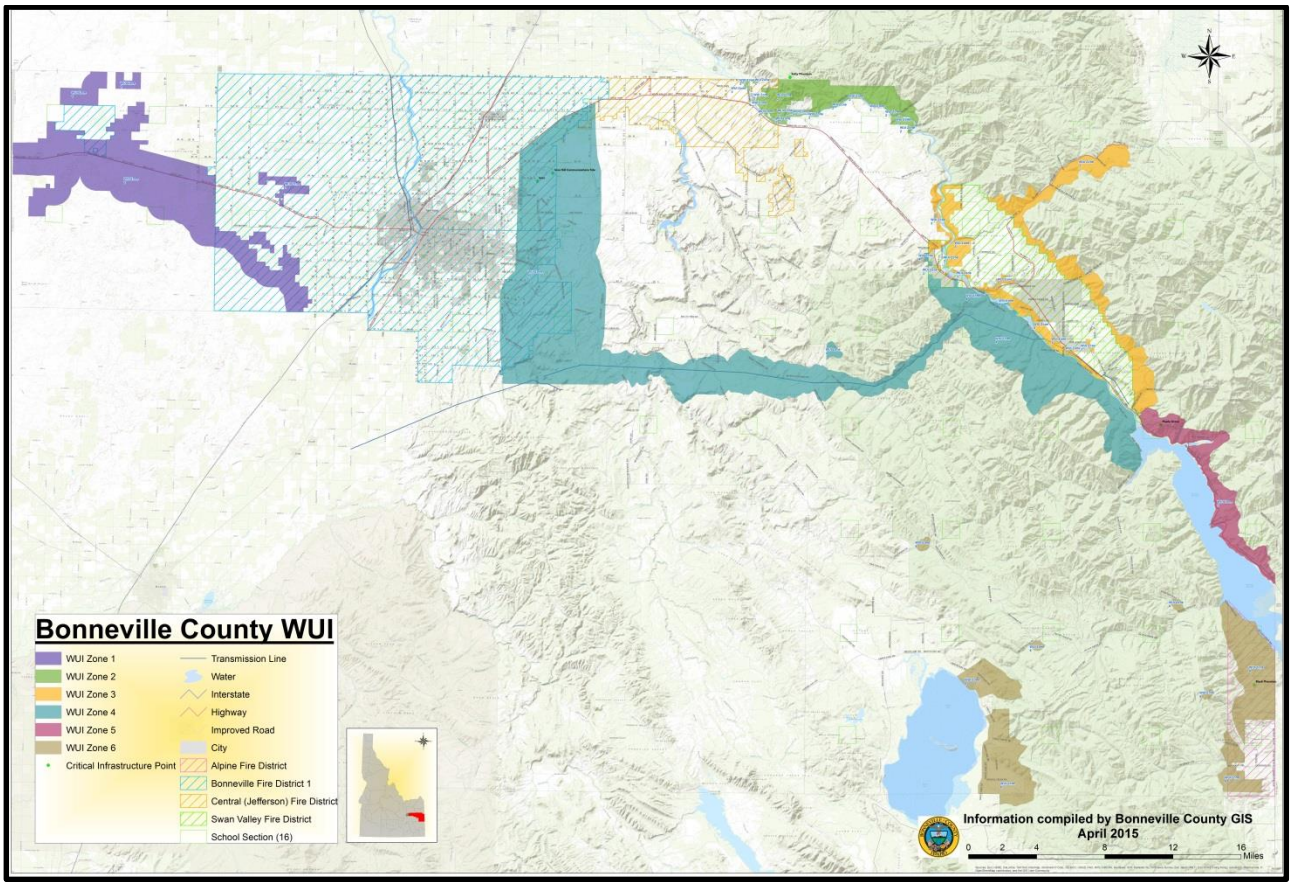


Figure 1: Bonneville County WUI Zone Map

Wildland Urban Interface (WUI) Zones

WUI Zone 1 - Western Portion of Bonneville County

The western portion of Bonneville County has a mixture of agricultural and high desert lands. The extreme western end of the county covers a small portion of the Idaho National Laboratory. Terrain in this area is gentle with the exception of where past lava flows are present. The vegetation is mostly comprised of annual grasses and sagebrush that can contribute to a high rate of fire spread. Much of this area is critical Sage Grouse habitat which is a high priority for fire suppression efforts to protect further habitat loss and fragmentation. Human caused fires near Highway 20 and the gun range is of high concern. Numerous structures and improvements exist on private property intermixed with public lands. Per the Bonneville County Assessor's Office evaluation dated April, 2015, the approximate total assessed value of parcels, including improvements on the parcels, within WUI Zone 1 is: $3,751,706.00.

Specific Areas at Risk

- Intermix areas with structures and improvements
- Sage Grouse Habitat
- No established fire protection for some areas within the zone

Hazards

- Light, flashy fuels conducive for large fire growth
- No static water supply and limited water sources

WUI Zone 2 - Kelly Island/Snake River Area

The Kelly Island/Snake River area encompasses the riparian area along the river corridor and south facing slopes leading up to forested lands in the higher elevation. The area is diverse in vegetation with primarily Cottonwoods and abundant undergrowth present in the riparian area, the south facing slopes have annual grasses, sagebrush and Juniper present with primarily Douglas fir and Mountain Maple in the higher elevations. Terrain in this area is moderate to steep with limited access. This zone is a high use recreational area which can cause a concern for human caused wildfires. There are limited roads leading in and out of this area which is a concern from an evacuation and public safety perspective. Structures and improvements exist on private property intermixed with public lands. Kelly Mountain Communication site located in Madison County is in close proximity to this zone which is a critical communication site for the BLM, Idaho State Police, Department of Transportation, Department of Reclamation, and many other private cooperators. The area extending up to this site on Kelly Mountain is within this zone. The terrain and predominate weather patterns align very well for wildfires negatively affecting the infrastructure at this site. Per the Bonneville County Assessor's Office evaluation dated April, 2015, the approximate total assessed value of parcels, including improvements on the parcels, within WUI Zone 2 is: $459,292.00.

Specific Areas at Risk

- Kelly Island Recreation Area
- Private property with improvements
- Kelly Mountain Communication Site

Hazards

- Light, flashy fuels conducive for large fire growth
- No static water supply
- No defensible space
- No evacuation pre-planning
- Limited roads for ingress/egress
- No identified safety zones
- Limited fire protection

WUI Zone 3 - East side of Swan Valley

The east side of Swan Valley includes the BPA powerline extending through Pine Creek drainage, Pine Creek bench, developments along the Snake River, Rainey Creek, Palisades Creek and Sheep Creek areas. The vegetation near the valley bottom is a mix of CRP and agricultural lands which transitions to primarily south facing slopes with mountain brush, juniper, and mixed conifer on the north and east aspects. Terrain is steep and rugged with access limited to areas where developments are present. Access roads into summer home areas are narrow and steep with one way in and out which is a concern from an evacuation and public safety perspective. Evacuation pre-planning and exploring opportunities to create escape routes and safety zones in coordination with local, state and federal entities is a desired goal. Per the Bonneville County Assessor's Office evaluation dated April, 2015, the approximate total assessed value of parcels, including improvements on the parcels, within WUI Zone 3 is: $50,347,686.00.

Specific Areas at Risk

- Pine Creek area including Pine Basin Lodge, West Pine Girls Camp, private property, high use travel corridor along Highway 31
- BPA powerline corridor
- Developments near Rainey Creek
- Palisades Creek area including subdivisions, private property with improvements, Palisades Creek National Recreation Trail day use and campground areas (high recreational use)
- Sheep Creek summer homes on private and public lands
- Sheep Creek Mennonite Camp

Hazards

- Moderate-heavy fuel loadings
- No defensible space
- No static water supply and limited water sources
- Narrow roads with one way in/out or inaccessible due to grade
- No evacuation pre-planning
- Values located in narrow canyon bottoms or mid-slope
- No escape routes or safety zones
- Wooden siding and/or wooden roof materials present on some structures.
- Open vents, eaves, decks, and other ember traps.
- Fuel tanks and hazardous materials.

WUI Zone 4 – West side of Swan Valley

WUI Zone 4 includes the BPA powerline corridor, developments and Organization Camps along the Snake River, summer home areas near Palisades Reservoir and the area east of Idaho Falls outside of any fire protection boundaries. The terrain and vegetation in this area varies significantly from the lower elevations to the mountainous area west of Swan Valley. In the lower elevations, the terrain is moderate with vegetation a mix of CRP, agricultural lands, annual grasses, sagebrush and juniper on state, BLM, and private lands. In the higher elevations, the terrain is rugged with vegetation varying from mountain brush, juniper, aspen and mixed conifer with changes in aspect and elevation. Access is limited to where improvements exist in the higher elevations with more opportunity for access in the lower elevations due to more roads present and gentler terrain. During the summer months, the visitor use in the areas identified above is high, which presents a concern from a public safety and evacuation standpoint. Evacuation pre-planning and exploring opportunities to create escape routes and safety zones in coordination with local, state and federal entities is a desired goal. Per the Bonneville County Assessor's Office evaluation dated April, 2015, the approximate total assessed value of parcels, including improvements on the parcels, within WUI Zone 4 is: $414,009,366.00.

WUI Zone 4 – West side of Swan Valley (cont'd)

Specific Areas at Risk

- BPA powerline
- Calamity and Palisades summer home areas
- Developments along the Snake River road
- Little Lemhi Boy Scout Camp
- Ta-Man-A-Wis Girls Scout Camp
- Calamity campground and day use area (high recreational use area)
- Camora Loma, Blackhawk and Panorama subdivisions

Hazards

- Heavy fuel loading
- No defensible space
- No static water supply and limited water sources
- No evacuation pre-planning
- Limited fire protection
- Long response time
- Narrow one way in/out roads or inaccessible due to grade
- No escape routes or safety zones
- Wooden siding and/or wooden roof materials present on some structures.
- Open vents, eaves, decks, and other ember traps.
- Fuel tanks and hazardous materials.

WUI Zone 5 - Palisades Reservoir

WUI Zone 5 includes the area extending from the Palisades Dam to the Wyoming Border. There are numerous values at risk in this area on the east side of Highway 20. The terrain is mostly steep and rugged with limited access where values are present. The vegetation is a mix of annual grasses, mountain brush, aspen and mixed conifer with a significant dead and down fuel loading. The area south of the Palisades Dam to Indian Creek is not within any fire district protection boundaries. The area from Indian Creek extending south to the State line is within Alpine Fire District's fire protection boundary. Most of the roads in this area are gated, narrow, steep and poorly maintained. Evacuation pre-planning and exploring opportunities to create escape routes and safety zones in coordination with local, state and federal entities is a desired goal. Per the Bonneville County Assessor's Office evaluation dated April, 2015, the approximate total assessed value of parcels, including improvements on the parcels, within WUI Zone 5 is: $28,882,010.00.

Specific Areas at Risk

- Maple Grove, Bill's Road, Lakeview and Royal summer home areas
- Transmission line
- Highway 26 (high use travel corridor)
- Pine Basin Boat Club
- Blowout Campground
- Big Elk Creek Campground and day use area
- Big Elk YMCA Camp
- Maple Grove Communications Site

Hazards

- Heavy fuel loading
- No defensible space
- No static water supply and limited water sources
- No evacuation pre-planning

WUI Zone 5 - Palisades Reservoir (cont'd)

- Limited fire protection
- Long response time
- Narrow one way in/out roads or inaccessible due to grade
- No escape routes or safety zones
- Wooden siding and/or wooden roof materials present on some structures.
- Open vents, eaves, decks, and other ember traps.
- Fuel tanks and hazardous materials.

WUI Zone 6 – Southeast Portion of Bonneville County

In the southeast portion of Bonneville County, the area can be characterized by an intermix of values at risk within and surrounding public lands. Portions of this zone are within Alpine or Lincoln County, Wyoming fire protection boundaries. The terrain is moderate to steep with access limited to where developments and existing Forest Service Roads are present. The vegetation is a mix of annual grasses, mountain brush, aspen and mixed conifer with a significant dead and down fuel loading. Per the Bonneville County Assessor's Office evaluation dated April, 2015, the approximate total assessed value of parcels, including improvements on the parcels, within WUI Zone 6 is: $3,074,314.00.

Specific Areas at Risk

- Hoffman Estates, Bridge Creek and Grays Lake summer home areas
- Intermix areas with private homes extending south from McCoy Creek to Tin Cup Creek
- Black Mountain Repeater Site
- McCoy Creek USFS Administrative Site
- McCoy Creek Campground
- Brockman, Bald Mountain, and Caribou Guard Stations

Hazards

- Heavy fuel loading
- No defensible space
- No static water supply and limited water sources
- No evacuation pre-planning
- Limited fire protection
- Long response time
- Narrow one way in/out roads or inaccessible due to grade
- No escape routes or safety zones
- Wooden siding and/or wooden roof materials present on some structures.
- Open vents, eaves, decks, and other ember traps.
- Fuel tanks and hazardous materials.

Additional Values at Risk within the County Not Identified in a WUI Zone

Additional values within the county are not mapped within a WUI zone due to how they are dispersed throughout the county. These areas can be defined as *intermix* and located adjacent to public lands. In most cases there is no established fire protection. The CWPP Planning Group recognizes these areas are vulnerable to wildland fire and present a concern from a life, property and resource protection perspective. Numerous developments and improvements are located in the areas listed below.

- Antelope Flats along Highway 26 including the Birch Creek area
- Bone area
- Ririe Reservoir recreation area
- Tex Creek Wildlife Management Area

Risk Assessment Ranking

Table 1 is the evaluation of risk probability versus consequence for each of the WUI Zones identified above. The table compares the identified hazard with the potential threat to life, property, and the environment. The ranking criteria are presented in Table 2.

Table 1: Ranking

Risk Analysis				
Identified Hazards	**Life Safety**	**Property Damage**	**Environmental Damage**	**Economic Impact**
WUI Zone 1	Medium	Medium	Medium	Medium
WUI Zone 2	Medium	Medium	Medium	Medium
WUI Zone 3	High	High	High	High
WUI Zone 4	High	High	High	High
WUI Zone 5	High	High	High	High
WUI Zone 6	High	High	High	High

Table 2: Criteria

Consequence Criteria		
Life Safety	Low	Injuries limited to the area of effect. <10
	Medium	Serious injuries >10
	High	Multiple fatalities, critical and serious injuries
Property Damage	Low	Minimal damages
	Medium	Structural damages evident
	High	Loss of structure
Environmental Damage	Low	Minimal impact at area of effect
	Medium	Regional damage
	High	Long-term recovery. Requires significant after action.
Economic Impact	Low	Economic impact minimal
	Medium	Loss of business
	High	Regional long-term loss

Action Plan

The action plan encompasses mitigation action items that the county agencies and citizens have proposed and agreed upon as those if implemented will reduce the risk of wildfire negatively affecting values at risk in the WUI. The action item status is categorized by the criteria below and prioritized (high, medium, low). The assigned responsible party(s) to accomplish each item is also provided in the following tables. The estimated costs are based on 2015 costs of various fuel treatment options outlined in Section 5.

- **New actions -** Proposed new activities
- **Existing actions -** Activities that are currently in progress.
- **Short-term actions -** Activities that county agencies may implement with existing resources and authorities within one to two years.
- **Long-term actions –** Activities that may require new or additional resources or authorities, and may take between three to five years to implement.

WUI Zone 1 – Western Portion of Bonneville County

Action Item	Priority	Responsible Party	Status (New, on-going, short or long term action)	Comments
Develop a WUI public education program	High	BLM Bonneville Fire District #1 Home owners	On-going	Develop program, obtain Firewise resources and personnel needed to meet and inform public. Estimated costs $30,000.
Develop a fuels reduction program	High	BLM Bonneville Fire District #1 Home owners	On-going	Develop projects within and adjacent to private property to protect values at risk. Projects may include protection of Sage Grouse habitat. Projects may range from a few acres to several thousand acres. Estimated costs may range from $10,000-$200,000. See fuel treatment options in Section 5.
Expand Bonneville Fire District #1 boundary to include unprotected areas west of Idaho Falls to the INL boundary.	Medium	Bonneville Fire District #1 Home owners	On-going	Annexation of the individual subdivisions into the Bonneville County Fire District #1. Homeowners will be contacted and made aware of the opportunity to join the fire district by petition. Estimated costs $10,000-$30,000.

WUI Zone 2 – Kelly Island/Snake River Area

Action Item	Priority	Responsible Party	Status (New, on-going, short or long term action)	Comments
Develop a WUI public education program	High	BLM USFS Home Owners	On-going	Develop program, obtain Firewise resources and personnel needed to meet and inform public. Estimated costs $30,000.
Improve roadways and develop evacuation procedures	High	BLM USFS Home Owners	On-going	Improve the Snake River Road, access roads leading into Kelly Island recreation area and home sites. Conduct engineering studies. Improving roads may include recontour, resurface and removing vegetation. Develop evacuation plan with escape routes and safety zones and appropriate signage for developed recreation sites and individual home sites. Estimated costs for evacuation planning $30,000 and improving road costs vary between $100,000-$500,000/road.
Develop a fuels reduction program	High	BLM USFS Home owners	On-going	Develop projects within and adjacent to private property to protect values at risk. Projects may range from a few acres to several thousand acres. Estimated costs may range from $10,000-$200,000. See fuel treatment options in Section 5.
Apply for grants to procure equipment used for mechanical treatment projects.	Medium	County Fire Districts	On-going	Estimated costs $50,000-$100,000. Outyear budgeting needed for maintenance and repairs. Plan for operator costs, vehicle, transport and general tools and equipment supplies with grant submittals.
Develop a static water source	Medium	County Fire Districts	On-going	Apply for grant funding to install two 10,000-gallon underground static water tanks. Estimated costs $20,000/tank.
Kelly Canyon Hazardous Fuels Reduction Project	High	USFS	New action/ Long term	Project is within Madison County. However, project is designed to complete fuels reduction around the Kelly Mountain Communications Site which is beneficial for Bonneville County's assets at this site. Project is approximately 1,500 acres with estimated costs at $250,000. Project encompasses both mechanical and prescribed fire treatments.
BLM Projects/Others (Heise Project)				

WUI Zone 3 – East Side Swan Valley

Action Item	Priority	Responsible Party	Status (New, on-going, short or long term action)	Comments
Develop a WUI public education program	High	USFS BLM Swan Valley Fire District #2 Home owners	On-going	Develop program, obtain Firewise resources and personnel needed to meet and inform public. Estimated costs $30,000.
Improve roadways and develop evacuation procedures	High	County Swan Valley Fire District #2 USFS Home owners	On-going	Improve roads in the Sheep Creek and Palisades Creek areas, and access roads leading into home sites. Conduct engineering studies. Improving roads may include re-contour, resurface and removing vegetation. Develop evacuation plan with escape routes and safety zones and appropriate signage for developed recreation sites, individual home sites and summer home areas. Estimated costs for evacuation planning $30,000 and improving road costs vary between $100,000-$500,000/road.
Develop a fuels reduction program	High	USFS BLM Swan Valley Fire District #2 Home owners	On-going	Develop projects within and adjacent to private property to protect values at risk. Projects may range from a few acres to several thousand acres. Estimated costs may range from $10,000-$200,000. See fuel treatment options in Section 5.
Apply for grants to procure equipment used for mechanical treatment projects	Medium	County Swan Valley Fire District #2	On-going	Estimated costs $50,000-$100,000. Future budgeting needed for maintenance and repairs. Plan for operator costs, vehicle, transport and general tools and equipment supplies with grant submittals.
Develop a static water source	Medium	Swan Valley Fire District #2 Home owners County	On-going	Apply for grant funding to install four 10,000-gallon underground static water tanks in the four major subdivisions in this zone. Estimated costs $20,000/tank.

WUI Zone 3 – East Side Swan Valley

Action Item	Priority	Responsible Party	Status (New, on-going, short or long term action)	Comments
Salisbury Estates Escape Route	High	Swan Valley Fire District #2 USFS County	New	Establish escape route onto National Forest Lands utilizing old road/trail. Conduct engineering study. Coordinate with USFS. Escape route may include construction, re-contour, surfacing and removal of vegetation. Need environmental study completed (NEPA). Total length of escape route is approximately ½ mile. Approximate costs $100,000.
Expand the Swan Valley Fire District	Medium	Swan Valley Fire District #2 County Home Owners	On-going	Annexation of the individual subdivisions into the Swan Valley Fire District. Estimated costs $10,000-$30,000.
Rainey Creek Vegetation Restoration Project	High	USFS	New/Long term	Hazardous fuels reduction and habitat improvement project including both mechanical and prescribed fire treatments. Approximately 7,000 acres in size with project costs estimated at $350,000.
Sheep Creek Hazardous Fuels Reduction Project	High	USFS	On-going	Hazardous fuels reduction project including both mechanical and prescribed fire treatments. Approximately 350 acres in size with project costs estimated at $30,000.
Sheep Creek Fuels Reduction Project	High	County, Swan Valley Fire District #2 USFS	New	Fuels reduction project designed to create a shaded fuel break along the Forest boundary on the north end of the Sheep Creek Summer Homes located on private property. Project would include mechanical and possible pile burning treatments. Project size is approximately 50 acres with costs estimated at $42,000.

WUI Zone 4 – West Side of Swan Valley

Action Item	Priority	Responsible Party	Status (New, on-going, short or long term action)	Comments
Develop a WUI public education program	High	USFS Swan Valley Fire District #2 Home owners	On-going	Develop program, obtain Firewise resources and personnel needed to meet and inform public. Estimated costs $30,000.
Improve roadways and develop evacuation procedures	High	County Swan Valley Fire District #2 USFS Home owners DHS	On-going	Improve roads (Forest Service Roads 058, 076 and 277) in the Calamity and Palisades summer home areas and access roads leading into home sites and organization camps. Conduct engineering studies. Improving roads may include re-contour, resurface and removing vegetation. Develop evacuation plan with escape routes and safety zones and appropriate signage for developed recreation sites, individual home sites and summer home areas. Estimated costs for evacuation planning $30,000 and improving road costs vary between $100,000-$900,000/road.
Develop a fuels reduction program	High	USFS BLM Fire Districts County State Home owners	On-going	Develop projects within and adjacent to private property to protect values at risk. Projects may range from a few acres to several thousand acres. Estimated costs may range from $10,000-$200,000. See fuel treatment options in Section 5.
Apply for grants to procure equipment used for mechanical treatment projects	Medium	County Fire Districts	On-going	Estimated costs $50,000-$100,000. Outyear budgeting needed for maintenance and repairs. Plan for operator costs, vehicle, transport and general tools and equipment supplies with grant submittals.
Expand Fire District boundaries to include unprotected areas within the zone.	Medium	Fire Districts Home owners	On-going	Annexation of the individual subdivisions into Fire District boundaries. Homeowners will be contacted and made aware of the opportunity to join the fire district by petition. Estimated costs $10,000-$30,000.
Develop a static water source	Medium	Swan Valley Fire District #2 Home owners County	On-going	Apply for grant funding to install 10,000-gallon underground static water tanks in the major subdivisions in this zone. Estimated costs $20,000/tank.

WUI Zone 4 – West Side of Swan Valley

Action Item	Priority	Responsible Party	Status (New, on-going, short or long term action)	Comments
Build a substation for the Swan Valley Fire District to cover areas on the south side of the Snake River	Medium	Swan Valley Fire District #2	On-going	Construction of a two-bay metal structure to be used as a Swan Valley Fire District substation. Estimated costs $200,000.
Echo Canyon WUI Hazardous Fuels Reduction Project	Medium	USFS	New action/Long term	Fuels reduction project designed to protect values in the area. Project is approximately 1,000 acres with a combination of mechanical and prescribed fire treatments. Estimated cost are $250,000.
Calamity Hazardous Fuels Reduction Project	High	USFS	On-going	On-going fuels reduction project with multiple phases completed. Approximately 300 acres completed with clean up and pile burning remaining. Estimated project completion in 2016. Estimated remaining costs $15,000.
Flatiron Aspen Improvement Project	High	USFS	Ongoing	Fuels reduction project designed to protect values in the area. Project is approximately 1,000 acres with a combination of mechanical and prescribed fire treatments. Estimated cost are $250,000.

WUI Zone 5 – Palisades Reservoir

Action Item	Priority	Responsible Party	Status (New, on-going, short or long term action)	Comments
Develop a WUI public education program	High	USFS Fire Districts Home owners	On-going	Develop program, obtain Firewise resources and personnel needed to meet and inform public. Estimated costs $30,000.
Improve roadways and develop evacuation procedures	High	County Fire Districts USFS Home owners	On-going	Improve roads along the Palisades Reservoir including Maple Grove, Bill's Road, Lakeview and Royal summer home areas as well as organization camps and single home sites. Conduct engineering studies. Improving roads may include re-contour, resurface and removing vegetation. Develop evacuation plan with escape routes and safety zones and appropriate signage for developed recreation sites, individual home sites and summer home areas. Estimated costs for evacuation planning $30,000 and improving road costs vary between 100,000-$500,000/road.
Develop a fuels reduction program	High	USFS Fire Districts County State Home owners	On-going	Develop projects within and adjacent to private property to protect values at risk. Projects may range from a few acres to several thousand acres. Estimated costs may range from $10,000-$200,000. See fuel treatment options in Section 5.
Apply for grants to procure equipment used for mechanical treatment projects	Medium	County Fire Districts	On-going	Estimated costs $50,000-$100,000. Future budgeting needed for maintenance and repairs. Plan for operator costs, vehicle, transport and general tools and equipment supplies with grant submittals.
Develop a static water source	Medium	Fire Districts Home owners County	On-going	Apply for grant funding to install 10,000-gallon underground static water tanks in the major subdivisions in this zone. Estimated costs $20,000/tank.
Booth Canyon Fuels Reduction Project	High	USFS	New action /Long term	Fuels reduction project designed to protect values in the area. Project is approximately 1,000 acres with a combination of mechanical and prescribed fire treatments. Estimated cost are $250,000.
Driveway Canyon Fuels Reduction Project	High	USFS	New action /Long term	Fuels reduction project designed to protect values in the area. Project is approximately 1,000 acres with a combination of mechanical and prescribed fire treatments. Estimated cost are $250,000.
Jack Branch Fuels Reduction Project	High	USFS	New action /Long term	Fuels reduction project designed to protect values in the area. Project is approximately 1,000 acres with a combination of mechanical and prescribed fire treatments. Estimated cost are $250,000.

WUI Zone 5 – Palisades Reservoir

Action Item	Priority	Responsible Party	Status (New, on-going, short or long term action)	Comments
Maple Grove Fuels Reduction Project	High	USFS	New action /Long term	Fuels reduction project designed to protect values in the area. Project is approximately 1,000 acres with a combination of mechanical and prescribed fire treatments. Estimated cost are $250,000.
Jack Branch/Booth Canyon Area - Private Property Fuels Reduction Project	High	County Swan Valley Fire District #2 USFS	New	Fuels reduction project designed to create a shaded fuel break along the Forest boundary adjacent to homes located on private property. Project would include mechanical and possible pile burning treatments. Project size is approximately 250 acres with costs estimated at $300,000.

WUI Zone 6 – Southeast Portion of Bonneville County

Action Item	Priority	Responsible Party	Status (New, on-going, short or long term action)	Comments
Develop a WUI public education program	High	USFS Fire Districts Home owners	On-going	Develop program, obtain Firewise resources and personnel needed to meet and inform public. Estimated costs $30,000.
Develop a fuels reduction program	High	USFS Fire Districts County State Home owners	On-going	Develop projects within and adjacent to private property to protect values at risk. Projects may range from a few acres to several thousand acres. Estimated costs may range from $10,000-$200,000. See fuel treatment options in Section 5.
Apply for grants to procure equipment used for mechanical treatment projects	Medium	County Fire Districts	On-going	Estimated costs $50,000-$100,000. Future budgeting needed for maintenance and repairs. Plan for operator costs, vehicle, transport and general tools and equipment supplies with grant submittals.
Develop a static water source	Medium	Fire Districts Home owners County	On-going	Apply for grant funding to install 10,000-gallon underground static water tanks in the major subdivisions in this zone. Estimated costs $20,000/tank.
Improve roadways and develop evacuation procedures	High	County Fire Districts USFS Home owners	On-going	Improve roads in the Hoffman Estates, Bridge Creek and Grays Lake summer home areas as well as intermix areas with private homes extending south from McCoy Creek to Tin Cup Creek. Conduct engineering studies. Improving roads may include re-contour, resurface and removing vegetation. Develop evacuation plan with escape routes and safety zones and appropriate signage for developed recreation sites, individual home sites and summer home areas. Estimated costs for evacuation planning $30,000 and improving road costs vary between $100,000-$500,000/road.
Hoffman Summer Homes Fuels Reduction	High	USFS	On-going	Mechanical, pile burn, and hazard tree removal project. Approximately 50 acres with costs estimated at $30,000.

WUI Zone 6 – Southeast Portion of Bonneville County

Action Item	Priority	Responsible Party	Status (New, on-going, short or long term action)	Comments
Alpine West Hazardous Fuels Reduction Project	High	USFS	New action/Long term	Fuels reduction project designed to protect values in the area. Project is approximately 6,000 acres with a combination of mechanical and prescribed fire treatments. Estimated cost are $250,000.
McCoy Creek Road Fuels Reduction	High	USFS	On-going	Mechanical, pile burn, and hazard tree removal project. Approximately 50 acres with costs estimated at $30,000.
Homestead WUI	High	USFS	On-going	Mechanical, broadcast burning hazardous fuels reduction project. Approximately 800 acres with costs estimated at $100,000.
Bridge Creek WUI	High	USFS	On-going	Mechanical, pile burn, and hazardous fuels removal project. Approximately 500 acres with costs estimated at $80,000.
Black Mountain Hazardous Fuels Reduction	High	USFS	On-going	Mechanical, pile burn, and hazard tree removal project. Approximately 200 acres with cost estimated at $100,000.

Section 4: Public Participation

Throughout our plan revision process, we (CWPP Planning Group) extended invitations to the general public to participate by way of public meetings and/or participating in an on-line survey hosted by Survey Monkey.

Our first public meeting was held in the Swan Valley community on June 18, 2014, from 7 – 9 pm at the Swan Valley Fire Department. That meeting was advertised primarily by word-of-mouth and by posting of public notices at various locations in the Swan Valley area. The meeting was hosted by Chief Dean Philbrick, SVFD, and various members of the USFS and Bonneville County Emergency Management (BCEM). We had no (0) attendees from the general public at that meeting.

In July of 2014 we posted an ad in the Post Register from July 22-27, 2014, advertising the revision of the 2004 CWPP. The ad included information about where the plan could be viewed (BCEM website), including a link to the site, and also invitation to participate in a public survey at SurveyMonkey.com, also with the link provided. All SurveyMonkey results will be indicated below.

The planning committee continued to meet at various times throughout the remainder of the year and into 2015, beginning the revision process and making numerous changes throughout that time. By June of 2015, a majority of the changes that had taken place had brought the committee to a point of feeling the project was near completion and it was time for another request for public input. The updated version of the plan was again made available on the BCEM website by way of an ad in the Post Register, posted from June 19-24, 2015. Another invitation was included asking the public to participate in the survey posted at SurveyMonkey.com, which was also included in the ad. In addition, the public was invited to participate in either or both of two public meetings as follows: June 23, 2015, 7-8 pm at the Idaho Falls Public Library, and June 24, 2015, 7-8 pm at the Swan Valley Fire Department.

On June 18, 2015, the public meetings and the SurveyMonkey were also advertised on the Bonneville County Emergency Management Facebook page, and by emails shared with the Local Emergency Planning Committee (LEPC), area Public Information Officers (PIOs), the CWPP planning group, and US Forest Service personnel. All groups were encouraged to share the news about the meetings and surveys. We had no (0) public attendees at the Idaho Falls meeting; we had one (1) public attendee at the Swan Valley meeting. Both meetings were hosted by representatives from the USFS and BCEM; the Swan Valley meeting included a host from the Swan Valley FD. SurveyMonkey results will be indicated below. Records of all meetings and postings are maintained at the BCEM office.

The link to the Survey Monkey questionnaire has been posted on the Bonneville County Emergency Management website since July of 2014. As of December 3, 2015, the survey site has received six (6) responses. Each of the nine (9) questions is listed below, to include the responses:

Q 1. Which Fire District do you live in?

- Idaho Falls/Bonneville County Fire District #1 (4); Ammon (1); unprotected (1)

Q 2. What specific locations within your community do you think are currently being exposed to extreme fire hazards and pose a wildfire risk to homes or property?

- Swan Valley (1); east bench/Ammon foothills (2); west of town (1); not aware of any (1); skipped (1)

Q 3. Would wildland fire education programs be beneficial?

- Yes (5); No (1)

Q 4. Do you know what to do if a wildland fire affects your community?

- Yes (4); No (2)

Q 5. Are you willing to support/participate in wildland/urban risk mitigation activities such as fuels reduction, code enforcement, road and bridge improvement, and/or education?

- Yes (5); No (1)
- With comments as follows:
    - No – "Better left to younger participants"

- Yes – "I will continue to do fuels reduction around my home and property"
- Yes – "Site education"
- Yes – "All of the above"

Q 6. ***If you are currently in an unprotected area would you be willing to be included in a current or new fire protection district?***

- Yes (2); skipped response (4)

Q 7. ***If you are currently in an unprotected area would you be willing to improve your fire protection response level through increased property taxes if that taxation resulted in improved property protection and potential savings on homeowners' insurance?***

- Yes (2); No (1); skipped response (3)

Q 8. ***Would a web page with wildland/urban interface fire mitigation information help keep the community informed?***

- Yes (6); No (0)

Q 9. ***9. Additional questions or comments you may have:***

- "Some positive fire agency cooperative plans have been implemented in the Idaho Falls area since the first WUI agreement. That should continue."
- "No comment"
- "Please let me know if this survey is working and if you've received my feedback."
- Skipped response (3)

That concludes the survey response information. Based on the response to question #8, the Bonneville County Office of Emergency Management will add the Firewise link to their website.

Section 5: Toolbox

Fuels Treatment Options and Estimated Costs

Wildland fire can be good for people and the land. There is a need for periodic fire to create disturbances which in turn create healthier more resilient and diverse ecosystems. Removing fire from the landscape will eventually create unhealthy ecosystems: trees are stressed by overcrowding, fire-dependent species disappear, and flammable fuels build up and become hazardous. Land management agencies often utilize prescribed fire to benefit natural resources and protect communities and values at risk. However, in some places and under some conditions it may be too difficult to safely use prescribed fire with acceptable risk. This is where the mechanical treatment of hazardous fuels can be a valuable tool. Hazardous fuels treatments can benefit ecosystems and people by:

- Reducing the probability of catastrophic fires;
- Helping maintain and restore healthy and resilient ecosystems;
- Protecting human communities and values at risk.

Mechanical treatment of hazardous fuels means reducing the amount of vegetation which has built up to dangerous levels, or changing the arrangement of these fuels in the environment. Mechanical treatment can also provide opportunities for woody biomass utilization by providing a renewable source of energy and wood products for local communities. Examples of mechanical treatment include the thinning of dense stands of trees, or other fuel treatments that make an area better able to withstand fire. Such treatments might be piling brush, pruning lower branches of trees, or creating fuel breaks to reduce fire intensity and severity. Tools that are used to carry out the mechanical treatment of hazardous fuels range from the use of hand tools such as chainsaws, to large machines like masticators and wood chippers.

Mechanical treatment can be used on its own or together with prescribed fire to change how wildfire behaves, so that when a fire does burn through a treated area, it is less destructive, less costly, and easier to control with less risk to public and emergency responders. Often, mechanical fuels treatments are followed by prescribed fire to create effective hazard reduction.

The costs associated with the different types of fuels treatment varies dramatically and is influenced by many factors including: fuel type, fuel density, fuel loading (tons per acre), location of the treatment, and availability of resources to perform the work. The following treatment types and estimated costs have been derived from past projects on private lands.

- Thinning and hand pile – $400-$800 per acre
- Limbing and hand pile – $300-$600 per acre
- Chipping – $300-$600 per acre
- Mastication – $200-$800 per acre
- Pile Burning – $90-$150 per acre

The project work completed on private lands has a rolling average across the state which usually includes the follow practices as a single cost: Cut/Pile/Chip for $1200-$1800 per acre.

For comparison purposes, the average wildfire suppression costs for all land management agencies within the Great Basin Geographical Area (Southern Idaho, Western Wyoming, Nevada and Utah):

- Average wildfire suppression costs - $27,600 per acre.

Grant Opportunities

Government agencies, non-government organizations, and cooperators have come together to offer various programs to assist property owners and communities in obtaining financial assistance for fuels reduction projects that reduce the likelihood of catastrophic wildfire, by creating a higher degree of defensibility in the Wildland-Urban Interface, and ultimately offering firefighters a higher probability of success.

Idaho Department of Lands (IDL)

IDL offers two (2) grant opportunities in cooperation with the USFS for projects specifically identified in County Wildfire Protection Plans. First, the Western State Fire Managers (WSFM) grant supports hazardous fuels reduction on private and state lands, education of landowners and general public, and planning efforts related to the completion of a CWPP or implementation of project work. Second, the Hazardous Fuel Reduction (HFR) grant supports the reduction of hazardous fuels on private and state lands that are adjacent to USFS lands that has a project in the planning process or currently implementing a vegetative project.

Contact Information: Tyre Holfeltz

Office: 208-666-8653 Cell: 208-819-9340 Email: tholfeltz@idl.idaho.gov

Or visit Idaho Department of Lands webpage at: http://www.idl.idaho.gov/

BLM Community at Risk Program

Reduce the Risk and Impact of Wildfire on Communities through Protection Planning, Hazardous Fuels Reduction, Maintenance and Monitoring, Mitigation and Education Activities.

http://www.federalgrants.com/BLM-Idaho-Communities-at-Risk-Assistance-Program-47352.html

High Country Resource Conservation and Development Council

High Country RC&D has partnered with several Southeastern Idaho districts, the BLM, Caribou-Targhee National Forest, Teton Soil Conservation District, local fire departments, and many others to help procure funding and facilitate projects that assist property owners in the implementation of Firewise practices that include thinning trees and brush, creating defensible space around their homes.

http://highcountryrcd.weebly.com/

Idaho Bureau of Homeland Security (BHS)

Idaho BHS Grant Management Branch conducts grant management activities and coordinates resources before, during, and after a disaster. As the State Administrative Agency for Emergency Management and Homeland Security, BHS administers grant funding and passes much of the funding to local jurisdictions throughout Idaho. The BHS Logistics Section is responsible for coordinating the purchase of Homeland Security Grant equipment, the Homeland Defense Equipment Reuse (HDER) program and disaster logistics needs.

http://www.bhs.idaho.gov/

Educational Tools and Programs

Scientific research has shown the effectiveness and benefits of implementing wildfire mitigation concepts across individual property boundaries and throughout communities. To save lives and property from wildfire, we the people need to learn to adapt to living with wildfire and encourage our neighbors to work together and take action now to prevent losses in the future. We all have a role to play in protecting ourselves and each other from the risk of wildfire.

The following organizations help to serve as resources for agencies, tribes, organizations, fire departments, communities and residents across the United States who are working toward a common goal: reduce the loss of lives, properties, and resources to wildland fire by building and maintaining communities in a way that is compatible with our natural surroundings.

Firewise Communities Program: Encouraging Solutions

http://www.firewise.org/

The National Fire Protection Association's Firewise Communities Program focuses on what residents can do around their homes to reduce potential loss of life and property to wildfire, and plays an important role in the Fire Adapted Communities approach to wildfire preparedness.

The Firewise program educates homeowners about wildfire risk and advocates principles designed to reduce that risk, including: the creation of defensible space around the home, the utilization and maintenance of fire resistant landscaping, the use of fire resistant building materials, the creation of an evacuation plans, and encourages neighbors to work together to help prepare for and reduce the risk of home destruction due to wildfires.

Situational awareness and action – Ready, Set, Go!

http://www.wildlandfirersg.org/

The national Ready, Set, GO! (RSG) Program, managed by the International Association of Fire Chiefs (IAFC), works to develop and improve dialogue about wildland fire awareness and action between local fire departments and the residents they serve.

The program works in complementary and collaborative fashion with the Firewise Communities Program and other existing wildland fire public education efforts. It calls on residents to be Ready with preparedness understanding, to be Set with situational awareness when fire threatens, and to Go, by acting early when a fire starts.

The big picture: Fire Adapted Communities

http://www.fireadapted.org/

Whether it's working around your home and implementing steps provided in the Firewise Communities Program, creating and implementing a Community Wildfire Protection Plan, encouraging your local fire department's participation in the Ready, Set, Go! Program, supporting land management practices in the forest, or other important mitigation activities, the Fire Adapted Communities approach helps connect people to resources to help them reduce their wildfire risk. Fire Adapted Communities is supported by a coalition of national wildfire safety organizations, and information and resources to help communities get started.

USDA Forest Service - State and Private Forestry

http://www.fs.fed.us/spf/

The State and Private Forestry (S&PF) organization of the USDA Forest Service reaches across the boundaries of National Forests to States, Tribes, communities and non-industrial private landowners. S&PF is the federal leader in providing technical and financial assistance to landowners and resource managers to help sustain the Nation's forests and protect communities and the environment from wildland fires.

National Interagency Fire Coordination Center (NICC)

Prevention and Education

http://www.nifc.gov/

Every year many families unnecessarily lose their homes and possessions to wildland fire. These losses can be minimized if homeowners take the time to become aware of safety measures to help protect their homes and complete some effective actions. The NICC has some excellent suggests under the Prevention and Education link, such as "Maintain a Survivable Space – 'Things You Can Do Today'."

Bonneville County: Office of Emergency Management

http://www.co.bonneville.id.us/

Manmade or natural, emergencies or disasters can strike at any time. The Office of Emergency Management provides leadership, planning, education and resources to protect lives, property, and the environment in the event an emergency or disaster was to strike Bonneville County.

Swan Valley: Volunteer Fire & EMS Department

http://www.swanvalleyfire.org/community/

Greater Swan Valley Fire Protection District is proud to be a volunteer fire and EMS organization which provides fire, rescue, and emergency medical services to the two incorporated cities of Swan Valley and Irwin, Idaho, as well as the Caribou-Targhee National Forest and associated recreational areas.

Wildland Urban Interface Wildfire Mitigation

Desk Reference Guide (PMS 051)

www.nwcg.gov/pms/pubs/pms051.pdf

The *Wildland Urban Interface Wildfire Mitigation Desk Reference Guide* is designed to provide basic background information on relevant programs and terminology for those, whether community members or agency personnel, who are seeking to enhance their community's wildfire mitigation efforts.

Insurance Institute for Business and Home Safety

https://www.disastersafety.org/research-center/2011-wildfire-demonstration/

As part of its research effort to study and understand the vulnerabilities of buildings subjected to wildfire exposures, the Insurance Institute for Business & Home Safety (IBHS) developed the capability of simulating ember and radiant heat exposures on building components and assemblies at their Research Center in Richburg, South Carolina. The primary objective of this research is to reduce the likelihood of wildfire-caused building ignitions in communities located in wildfire-prone areas.

Ready - Prepare, Plan, Stay Informed

http://www.ready.gov/

Launched in February 2003, *Ready* is a national public service advertising (PSA) campaign designed to educate and empower Americans to prepare for and respond to emergencies including natural and man-made disasters. The goal of the campaign is to get the public involved and ultimately to increase the level of basic preparedness across the nation.

Idaho Bureau of Homeland Security

http://www.bhs.idaho.gov/

Idaho Bureau of Homeland Security is a Division of the Idaho Military Division. The services we provide are to facilitate emergency management in Idaho, and to assist neighboring states. The men and women of this Division are dedicated to their mission of protecting the lives and property of the people of Idaho, as well as preserving the environmental and the economic health of Idaho.

Idaho Bureau of Homeland Security Mission:

Guide the State of Idaho in effectively preparing for, protecting against, mitigating the effects of, responding to, and recovering from all hazards.

Section 6: Treatment of Structural Ignitability

Treatment of Structural Ignitability

A CWPP must recommend measures that homeowners and communities can take to reduce the ignitability of structures throughout the area addressed by the Plan.

Recommendations for Reducing Structural Ignitability - Home Ignition Zone

Reducing structural ignitability and preventing the loss of property in the event of a wildland fire is a high priority in Bonneville County. Efforts to reduce structural ignitability can be separated into building materials and vegetation management (defensible space around structures and large scale fuels reduction projects). In order to identify and understand methods for increasing a structure's ability to survive a wildfire it is important to first understand how structures burn during a wildland fire. Homes ignite and burn by meeting the parameters for ignition and combustion (Cohen 2008).

Structures may be ignited by firebrands, which are embers that are lofted through the air from a moving flame front or by radiant or convection heating. Firebrands can ignite structures by landing on flammable materials either on or surrounding a structure. Firebrands are particularly detrimental to structures with flammable building materials including wood shake roofs. Accumulations of flammable materials in roof valleys, in gutters, or directly adjacent to the structure can significantly increase a structure's vulnerability.

The two main factors affecting a structures ability to survive a wildfire are the exterior building materials and the amount of defensible space surrounding the structure within 100 feet to 200 feet of the structure, known as the Home Ignition Zone (Cohen 2008). The home ignition zone typically is located on private property, which requires property owners to recognize the hazards, take ownership and responsibility of the hazards, and mitigate the hazardous fuels to a level that will increase the survivability of the structure.

Building Materials

- Replace older shake roofs with those of a higher fire resistive rating including asphalt composition, tile or metal roof assembly
- Replace wood siding with a more fire resistive cement product including cement, stucco, cement plank siding, stone or masonry.
- Screen attic, roof, foundation and eave vents openings with 1/8" metal screens.
- Enclose areas under decks completely.

- Windows should be double-paned or tempered glass.
- Follow all regulation found in the Bonneville County's Fire Code Resolution and any other law/regulations.

For more information visit http://www.firewise.org

Defensible Space

Educational campaigns are encouraged to be in place to raise awareness and encourage homeowners to implement defensible or survivable space. Defensible space should be encouraged around all structures in Bonneville County on all ownerships.

Defensible space is the area around a structure where the vegetative fuels have been modified to reduce intensity and behavior of a wildfire towards the structure, and away from the structure if the structure is on fire. The primary purpose of defensible space is to improve the structure's ability to survive a wildfire in the absence of firefighter intervention. Firefighters may use defensible space to work to protect a structure during a wildland fire event. Defensible space is an effort to reduce structural ignitability but is not a guarantee a structure will survive during a wildfire.

Minimum defensible space recommended is 100 feet from a structure on a flat property. A greater distance may be required on steep slopes. Defensible space should increase with increasing topography as fire moves easily uphill preheating vegetative fuels. Defensible space consists of three zones: Zone 1 is closest to the structure and is the most heavily modified zone, usually 0 to 30 feet from the structure. Zone 1 recommendations include but are not limited to:

- Remove all flammable vegetation within 3 to 5 feet of the structure.
- Remove any tree branches hanging over structures that will drop needles or other debris onto roofs, gutters, or decks.
- Do not plant vegetation underneath eaves or roof lines.
- Move firewood piles further than 30 feet from the structure during wildfire season.
- Plant fire resistant vegetation and maintain during fire season

Zone 2 is where the vegetation is modified to reduce the intensity of an oncoming fire, or create speed bumps through the vegetation approaching the structure. Recommendations in this zone include but are not limited to:

- Remove all ladder fuels
- Provide a minimum crown spacing between trees of 10 feet between crowns on a flat property, greater distance on a slope
- Prune trees to a height approximately 8 to 10 feet above the ground
- Provide a minimum shrub spacing of 2 ½ times the height of the shrub between shrubs
- Prune shrubs to remove contact with ground fuels
- Keep grasses mowed
- Remove all dead material

Zone 3 is a transition zone toward a more traditional vegetation management style to meet landowner objectives while working with principles of stewardship. Recommendations include but are not limited to:

- Thinning to remove suppressed and overstocked trees while promoting and maintaining healthy vigorous trees
- Limit vegetation combinations that contain ladder fuels to isolated clumps.
- Reduce shrub densities to promote healthy growth and reduce density and continuity through the zone.
- Snags (dead standing trees) should only remain if they do not pose a safety hazard.

Firewood should be stacked along the contour or above the structure, but not below. Firewood should be stacked a minimum of 30 feet from the structure and should be separated from other flammable vegetation. Flammable vegetation and other materials should not be stored under decks. It is also important to reduce hazardous fuels and create defensible space along driveways to improve firefighter access to homes and to maintain escape routes.

Section 7: Accomplishments

The following accomplishments have been completed since the adoption of the 2004 Plan.

Entity	Project	Accomplishment	Date	Remarks
Bonneville County and Swan Valley FD	Snake River Bridge	Bridge constructed with improved access to values at risk on west side of the Snake River	2012	Improved response time to the west side of the Snake River
Swan Valley Fire District #2	Sheep Creek Stevens Grant	Fuel breaks along subdivision roads; approximately 50 acres completed	2008	$50,000 Grant Funding
County Fire Districts USFS BLM	Public Education	Increased collaboration efforts and communication between federal agencies, state and county entities and public.	2004-Present	Ongoing continual efforts
USFS	Calamity Hazardous Fuels Reduction Project	Approximately 300 acres completed	2008-Present	Mechanical, pile burn and selective timber harvest project
USFS	Sheep Creek Hazardous Fuels Reduction Project	Approximately 500 acres completed	2008-Present	Mechanical, pile burn and prescribed fire project. One unit remaining to be completed.
USFS	Hoffman Estates Hazardous Fuels Reduction Project	Approximately 50 acres completed	2013-Present	Mechanical, pile burn, and hazard tree removal project. Additional work still to be completed.
USFS	McCoy Creek Roadside	Approximately 50 acres completed	2013-Present	Mechanical, pile burn and hazard tree removal project. Ongoing project.
USFS	Fall Creek Aspen Improvement Project	Approximately 4,000 acres completed 2,000 acres planned for treatment	2008-Present	Mechanical and prescribed fire project
USFS	Red Creek	Approximately 1,500 acres completed 2,000 acres planned for treatment	2010-Present	Mechanical and Prescribed Fire Project
USFS	Wildfires managed for resource objectives Caribou	Approximately 6,330 acres managed for resource objectives	2005-Present	Resource objectives include fuels reduction, habitat improvement, restoring fire in the ecosystem as a natural ecological process to minimize potential of large catastrophic wildfires.

Entity	Project	Accomplishment	Date	Remarks
USFS	Caribou and Bald Mountain Guard Stations Fuel Reduction Projects	Approximately 100 acres completed	2003	Mechanical and pile burning project.
Fire Districts	Procurement of various equipment etc. through the usage of the Plan	Since the adoption of the 2004 Plan, Fire Districts have successfully obtained various equipment such as fire engines, water tenders and infrastructure to support District needs and goals outlined in the Plan	2004-2014	Ongoing continual efforts
County Fire Districts USFS BLM BHS IDL	Interagency Training Exercises & Public Outreach	Since the creation of the Upper Snake Interagency Wildfire Group in 2009, there has been multiple interagency training exercises completed focused on a coordinated response, incident management and communications between Fire Districts and Agencies with public outreach a component of each exercise.	2009-Present	Ongoing continual efforts

Section 8: Plan Maintenance

The Plan maintenance process includes a schedule for monitoring and evaluating the programmatic outcomes established in the Plan annually, and producing a Plan revision every five years. This section describes how the county will integrate public participation throughout the Plan maintenance process.

Formal Review Process

The Plan will be evaluated on an annual basis to determine the effectiveness of programs, and to reflect changes that may affect mitigation priorities. The evaluation process includes an annual schedule and timeline and identifies the local agencies and organizations participating in Plan evaluation. The project facilitator or designee will be responsible for contacting the CWPP Mitigation Group members and organizing the annual review. Group members will be responsible for monitoring and evaluating the progress of the mitigation strategies in the Plan.

The Committee will review the goals and action items to determine their relevance to changing situations in the county, as well as changes in State or Federal policy, and to ensure that they are addressing current and expected conditions. The Committee will also review the risk assessment portion of the Plan to determine if this information should be updated or modified, given any new available data. The coordinating organizations responsible for the various action items will report on the status of their projects, the success of various implementation processes, difficulties encountered, success of coordination efforts, and which strategies should be revised or removed.

The facilitator will assign the duty of updating the Plan to one or more of the committee members. The designated members will have three months to make appropriate changes to the Plan before submitting it to the Committee members. The Committee will also notify all holders of the county plan and private property owners when changes have been made. Every five years, the updated plan will be submitted to the State Wildfire Mitigation Officer and the Federal Emergency Management Agency for review.

Continued Public Involvement

Bonneville County is dedicated to involving the public directly in review and updates of the Plan. The Committee is responsible for the annual review and update of the plan. The public also will have the opportunity to provide input into Plan revisions and updates. Copies of the Plan will be catalogued and kept at all of the appropriate agencies in the county. The existence and location of these copies will be publicized in the local newspaper following each annual review and update.

A public meeting will be held after each annual evaluation, or when deemed necessary by the Committee. The meetings will provide the public a forum where they can express concerns, opinions, or new alternatives that can then be included in the Plan. The County Commission will be responsible for using county resources to publicize the annual public meetings and maintain public involvement.

Bonneville County - Idaho

Community Wildfire Protection Plan

Appendices

2015

Appendix 1
High Country RC&D
Composite Report
Bonneville County Fire Departments & Districts
High Country Resource Conservation & Development
June 2015

Bonneville County, located in Southeastern Idaho, is part of the Upper Snake River Valley. Its eastern border also is the state border of Idaho and Wyoming. Bonneville is the fourth largest county in the state. The present population is over 107,000, with most of the people living in and around the Idaho Falls area.
The land area totals 1,897 square miles. It is part of the District 7 Health District and the High Country Resource Conservation and Development Area. Bonneville County includes four fire districts/departments within its boundaries. These include Ammon Fire Department, Greater Swan Valley Fire District, Idaho Falls Fire Department/District, and Ucon Fire Department.

Following is a composite of the needs identified for each of the Bonneville County Fire Districts. These are organized according to the major topics covered in the Fire Assessment including: Firefighting Program, Hazardous Materials Program, EMS Program, Training and Certification, Communication, Prevention and Inspection, and Public Education. Details of this needs list can be found in the respective Assessment Overview Reports for each District.

Local Fire Response:
The following concerns were expressed and documented in the Fire Department Assessment conducted in 2003 by the High Country RC&D and validated during Interagency Group meetings by the District Fire Chiefs.

- Lack of adequate water supplies, water distribution systems, etc.
- Inaccessible structures
- Narrow roads and bridges
- Inadequate Protection Codes and Code Enforcement
- Lack of integrated communications, planning, preparedness, and response protocols
- Inadequate training of personnel
- Inadequate staffing and retention of volunteers
- Inadequate public education
- Problematic Fire District coverage and response times
- Need for additional response vehicles and equipment
- Need for maintenance and testing procedures
- Lack of Resources, assistance in obtaining grants and other funding

Swan Valley Fire District

The Greater Swan Valley Fire Protection District is a municipal fire protection district comprised of agricultural, range, and heavily forested land. The population swells from about 900 year-round residents to a summer population of 1,800 because of the area's many recreational opportunities. The population is anticipated to increase slightly. Most of the new residential development consists of expensive year-round and summer homes in the WUI. A major hydroelectric dam is located about 10 miles upstream of Swan Valley and is considered a possible terrorist target.

Firefighting Program:

The Firefighting program area includes agricultural, rangeland, forest, wildland/urban interface, residential, business, high tech, and high risk. The area is considered high risk for urban interface fires and for terrorism. There are twenty-two firefighters, of which fourteen are trained in wildland/urban suppression. The District plans to add eight new firefighters this year. In addition, there are ten EMS personnel. The District responds to approximately thirteen calls annually. It is capable of a ten-minute response time for scene size up, personnel safety, initial attack, and water supply set up (e.g., port-a-tank tender operations and begin external attack with hand lines). There are neither reliable nor adequate water sources available to the area. The District relies solely on bodies of water in the area. The Fire Chief works full time while all other personnel are volunteers.

Firefighting Program

Existing Resources/Assets	Needs
• Paid (1) and volunteer personnel • 2 Stations, 6 bays each • 3,500 Structural/900 wildland total GPM capacity • 2 pumper tender (structure/wildland) • 2 structural vehicles/1 structure/wildland utility/3 wildland/1 utility/rescue lighting • 3,500 Gallon Water Tender utility/rescue lighting	• Manuals on apparatus maintenance, testing, requirements, and pump operations • Current set of NFPA vehicle and equipment standards • More maneuverable response vehicles Low cost on-site HazMat training; proper equipment to handle HazMat incidents • More dry hydrants • Reserve fire pumps incorporated into the existing water system • Portable positive displacement pumps • Increased revenues through increased taxes, mill levies, and taxing districts • computer software • Courses on records maintenance • 3,500 Gallon Water Tender • Rescue Truck • 1 Wildland Engine

Hazardous Material

Existing Resources/Assets	Needs
• The District does not have a HazMat team. However, several members of the program are HazMat trained and are utilized until the appropriate systems arrive to handle the scene	• Need more training and equipment for HazMat

Training and Certification

Existing Resources/Assets	Needs
• Some NFPA, NWCG Standards • IFSTA Training Program • Written Standard Operating Procedures	• Low-cost on-site training with certified instructors for all personnel • Computerized Training Modules • Low cost on-site refresher and firefighting training courses with certified instructors for all personnel

Communication

Existing Resources/Assets	Needs
• All vehicles radio-equipped • Have sufficient portable radios (multi-frequency adequate) • Respond to remote calls	• Improved cellular telephones and radios • Consistent and accurate communications with surrounding departments

Prevention and Inspection

Existing Resources/Assets	Needs
• Open burning inspections • Investigates fire causes and origins	• Low-cost on-site training by certified instructors

Public Education

Existing Resources/Assets	Needs
• Conducts public education programs • Participates in public outreach	• Identify sources of outside assistance to improve public awareness • Prepackaged presentations

Idaho Falls Fire Department/Bonneville Fire District #1

The Idaho Falls Fire Department and District is one of the larger fire departments in Idaho; it is comprised of a municipal fire protection district, HazMat team, high-angle rescue, confined space, and swift water rescue capabilities. The community is experiencing some population growth and the business sector has grown with the addition of strip malls, super stores and professional buildings. Through the last census, Idaho Falls was ranked as the f largest city in Idaho. Idaho Falls straddles the Snake River and is surrounded by agricultural, rangeland, and rolling hills leading to the Snake River Plain.

Firefighting Program:

There are ninety-two personnel within the firefighting program, all of which are paid staff. Fire response includes structural protection, wildland fire suppression, EMS, HazMat, rescue, terrorist threat, and other special circumstances. The risk for WUI fires are low, but there is a risk of terrorist attack. Wildland firefighting training has been completed by six firefighters. The Department responds to approximately 6,178 calls for service annually. Some adequate and reliable water sources are available through water mains, hydrants, and area bodies of water. In the District, the primary water sources are ditches and canals, which are only usable during the growing season. Tender operations are the only primary water source the remainder of the year. The organization has the capability of a ten-minute response time for scene size up, search and rescue, utilities, initial attack, command establishment, RIC team, water supply and firefighter safety.

Firefighting Program

Existing Resources/Assets	Needs
• 5 Stations, 4 bays per station on average • Paid personnel • 8,750 structural/ 2,000 wildland total GPM capacity • Grid access address system • Computerized record-keeping system • Fire response: structural, wildlands, HazMat, high risk, search & rescue, high tech, special circumstances • 7 structural vehicles;2 structural/wildland vehicles • Meets ISO water flow requirements • Meets all national fire protection association standards	• Add several light and 1 heavy brush unit • Extend city water distribution system into strategic areas within the district • Underground water tanks, wells, & pumps in strategic areas • Increase grants for one-time purchases, building and materials • Assistance with the grant writing process • A dedicated grant library • Current manuals for testing • Testing equipment • Grants for purchase of new testing equipment • On-site training for entire staff (refresher training & to bring all staff to same level; update training)

Hazardous Materials

Existing Resources/Assets	Needs
• Trained personnel • 2 Rescue vehicles • 1 HazMat vehicle • 1 lighting and generator vehicle	• Latest and current training and equipment

EMS

Existing Resources/Assets	Needs
• Trained personnel • 7 ambulance vehicles	• Grants for equipment purchases, training and vehicle replacement

Training and Certification

Existing Resources/Assets	Needs
• Firefighter structural protection • EMS basic • HazMat • IFSTA student manuals, videos, slides& CD programs • Some programs meet NFPA, NWCG • Utilizes IFSTA training program • Written standard operating procedures • Videos and materials	• Subsidized training (Grants) • Training and instructional materials • Training materials • Certified instructor training

Communication

Existing Resources/Assets	Needs
• Responds to remote alarm calls • Portable radios • All vehicles radio equipped	• Repeaters

Prevention and Inspection

Existing Resources/Assets	Needs
• Fire prevention division • Fire code enforcement • Fire cause and origin investigations conducted	• None

Public Education

Existing Resources/Assets	Needs
• Public education programs • Outreach education and inspections • Specialty presentations	• None

Ammon Fire Department

The Ammon Fire Department is comprised of a municipal and mutual aid fire program. The community is experiencing rapid growth as its location bumps up against the eastern city limits of Idaho Falls. The business district has become an extension of the Idaho Falls business area at 17th Street. The City of Ammon plans to annex both to the east and to the south within the next several years.

There are thirty-four personnel within the firefighting program who are volunteer staff. Fire response includes protection for structures, terrorist threat, wildfires, and HazMat scene stabilization. The risk for WUI fires is low, and the Department is unsure of its risk related to terrorist attacks. Wildland firefighting training has been completed by twenty-five firefighters. The Department reports that it responds annually to approximately 117 fire-related incidents. Adequate and reliable water sources are available through water mains, hydrants, and area bodies of water. It has the capability of a ten minute response time including scene size-up, initial attack, water supply, search and rescue. The Department is starting an ICS system.

Firefighting Program

Existing Resources/Assets	Needs
• 1 station, 7 bays • Five full-time and thirty-five paid-call personnel • Total of 5000 structural and 350 wildland GPM capacity • Grid access address system • Fire Response: structural, wildland, HazMat, high risk & search & rescue • Two structural vehicles; one 100' quint; two wildland vehicles; one water tender • Written standard operating procedures • Computerized record keeping system • Mutual Aid contracts with sixteen area fire agencies • Meets ISO water flow requirements • Follows NFPA standards	• Two additional stations with four bays each • One Type VI brush truck • One rescue truck • Wildland personal protective equipment including fire shelters • Structural personal protective equipment • Grants for the purchase of vehicles and equipment

Training and Certification

Existing Resources/Assets	Needs
• Department is NIMS compliant • IFSAC Firefighter I & II Certified • IFSAC Driver/Operator Certified • S-130/S-190 Wildland Fire Certified • Some programs meet NFPA, NWCG • Utilizes IFSTA training program • Videos and text books • Full Time Training Officer	• Grants for equipment and training material

Communication

Existing Resources/Assets	Needs
• Responds to remote alarm calls • Portable radios • Pagers • All vehicles radio equipped • Interoperable Radio Communications • Two Multiband link kits • Two portable repeaters	• Pagers • Grants for equipment

Prevention and Inspection

Existing Resources/Assets	Needs
• Fire prevention division • Fire code enforcement • Fire cause and origin investigations • Six certified inspectors • Firehouse software for record keeping • Full time Fire Marshal	• Grants for program equipment and literature

Hazardous Materials

Existing Resources/Assets	Needs
• IFSAC Operations Level • Basic clean-up equipment • Radiological detection equipment	• Grants for equipment

Public Education	
Existing Resources/Assets	Needs
• Public education programs • Outreach education and inspections • Specialized community presentations	• Grants for program materials and literature

Ucon Fire Department:
The Ucon Fire Department is a municipal program. Ucon is located on Highway 20 North of Idaho Falls. It is a slow-growing community comprised mostly of residential and small business areas. There are a few potato warehouses in the community with surrounding agricultural land.

Firefighting Program:
There are eighteen personnel within the firefighting program who are volunteer staff. Fire response includes protection for structures, HazMat, grass and car fires. The risk for WUI fires and terrorism is minimal. The Department responds to approximately seven fire-related incidents annually. Adequate and reliable sources of water are available through water mains and hydrants. It has the capability of a ten-minute response time including tow pumpers, personnel, scene size-up and water supply. The Department's system requires one member to respond with apparatus, and the remainder to respond to the scene.

Firefighting Program

Existing Resources/Assets	Needs
• 1 station, 3 bays • Volunteer personnel • 3000 structural/0 Wildland total GPM capacity • Grid access address system • Computerized record-keeping system • Fire response: structural (residential and business), Wildland, • 2 structural vehicles, 1 (one) 4500 gallon tender • Meets ISO water flow requirements	• Structural personal protective equipment • Hydrant testing system • Library of fire-related grants • Grant writer/source of information • Grants to bring apparatus up to NFPA standards • Manuals of NFPA standards • Wildland personal protective equipment • Wildland firefighting equipment • Brush truck

Training and Certification

Existing Resources/Assets	Needs
• Firefighter structural protection • Wildland training—Red cards • Flashover trailer and natural gas emergencies	• IFSTA training program • Wildland firefighter training • HazMat Operations Level • Fire Inspector Training

Communication

Existing Resources/Assets	Needs
• Responds to remote alarm calls • Some portable radios • All vehicles radio equipped • Interoperable Radio Communications	• Pagers

Prevention and Inspection

Existing Resources/Assets	Needs
• Fire prevention division • Fire code enforcement • Fire cause and origin investigations conducted • 1 certified inspector • NFIRS software for record keeping	• Grants for purchase of equipment and literature for programs

Public Education

Existing Resources/Assets	Needs
• Public education programs • Outreach education and inspections	• Grants for handouts and pamphlets

Central Fire District

The Central Fire District is a combined municipal and fire protection district serving Rigby, Ririe, Menan and Lewisville in Jefferson County. These communities have experienced some growth, and are located North of Idaho Falls near Highway 20. Most of the Fire District's topography is rolling hills suitable for farming and ranching.

Firefighting Program

The Central Fire District has 75 paid personnel within the firefighting program. Fire response includes protection for structures, wildland suppression, EMS extrication, HazMat, and terrorist threat. The District responds to approximately 551 fire-related incidents annually. It has the capability of a 10 minute response time including scene size-up, ICS system, rapid entry team, water supply and initial attack. The District does not see itself at risk due to WUI or terrorist attacks. There are 62 firefighters trained in wildland suppression. It was reported that the District has some adequate and reliable water sources. The primary water supply sources include water mains, hydrants, bodies of water, and a District water tender system.

Firefighting Program

Existing Resources/Assets	Needs
• 4 Station, 18 Bays • Paid personnel • 7,000 Structural/1,500 Wildland Total GPM Capacity • Computerized record keeping system • Fire Response: structural, agricultural, residential & business • 7 structural; 2 structural/wildland & 4 wildland vehicles	• Add 3 Bays in Rigby; 2 Offices in Rigby; 1 HazMat Office and 1 Central Office • Dry hydrants • Grants for one-time purchases • Library of EMS/Fire related grants • Computer and software Courses • Procedural plan for testing/recording information for equipment

Hazardous Materials Program

The District does have a HazMat Team. This team works in conjunction with the Idaho Falls Fire Department. Mutual aid agreements are in place with the Forest Service, BLM, INEEL, Idaho Department of Lands, City of Roberts, and Madison County.

EMS Program

Existing Resources/Assets	Needs
• EMT Basic, Non-Transport	• Grants for training and materials • Improved EMS materials library

Training and Certification

Existing Resources/Assets	Needs
• Structural Protection, Wildland Fire Suppression, EMS, HazMat and Rescue (Revis Training, Swift Water, High Angle) • Some NFPA, NWCG Standards • Standard Operating Procedures • Limited Power Point presentations	• Wildlands Fire Training – all personnel trained to same level • On-site training by certified instructors • Trained instructors • Refresher courses • Current NFPA student manuals & workbooks • Video's (or ability to borrow or rent) • Power Point presentations

	• Training on presentation of courses

Communications

Existing Resources/Assets	Needs
• Responds to remote alarm calls • Portable radios • All vehicles radio equipped	• Programming so that all radios have same capabilities • Unified frequencies in all radios • Upgrade older hand-held radios

Prevention and Inspection

Existing Resources/Assets	Needs
• Fire Cause & Origin Investigations	• County to adopt code enforcement • Implement county Building Inspector position

Public Education

Existing Resources/Assets	Needs
• Outreach Education • Public Education Programs	• Grants to purchase handout literature

Caribou County Fire Department

Caribou County is located in Southeastern Idaho. The population has experienced virtually no growth with census population estimates of 7,397 as of July 1, 2001. The land area totals 1,799 square miles and is part of the District 6 Health District and the Bear River Resource Conservation and Development Area.

Caribou County includes six fire districts/departments within its boundaries. These include Bancroft Fire Department, Caribou County Fire Department, Soda Springs Fire Department, Grace Fire Department, Baily Creek Fire District and Freedom Fire District.

Firefighting Program

Existing Resources/Assets	Needs
• 1 station, 4 bays for county fire and 1 for BLM • Volunteer personnel • Fire response; structural, Wildland, HazMat and High Angle	

Training and Certification

Existing Resources/Assets	Needs
• Firefighter structural protection • HazMat • Programs meet NFPA and NWCG standards • Utilizes IFSTA training program • Written standard operating procedures • Videos, books, overheads and other materials	• Wildlands Response Training • Training Aids; Videos, Slides, Table Top Simulators • Established Training Program • In-house Instructors • IFSTA Training Manuals & Workbooks • Computer-based Training

Communication

Existing Resources/Assets	Needs
• Responds to remote alarm calls • All vehicles radio equipped	• Need additional hand-held radios • New Base Station Radio

Prevention and Inspection

Existing Resources/Assets	Needs
• Investigate fire cause and origin	• Fire Code Enforcement Training • Fire Cause & Origin Investigations Training • County Adoption of Fire Codes • Fire Inspector

Public Education

Existing Resources/Assets	Needs
• Public education programs • Outreach education	• Pre-packaged Presentation/Instructional Materials • Handout Materials

Alpine Fire Department

Alpine Fire Department is located in northwest Wyoming in the northern end of Lincoln County. Idaho borders the service area on the west and north. The department covers areas located in Bonneville County from the state line on Highway 26 to Indian Creek (this is approximately 5 miles into Idaho). It provides emergency services to the homes in that area including Royal Vacation Homes. Also included in the service area are homes and private property that are located in Bonneville County from the state line north of Alpine running south to the Bonneville/Caribou County Line. The population on both sides of the state line has experienced steady growth for the last five years and is expected to continue. The population is estimated at around 3,000. The land area totals 481 square miles.

Firefighting Program

Existing Resources/Assets	Needs
• 1 Station, 8 bays/training-meeting room / admin offices • 2 Class A Pumpers • 1 Rescue Truck • 1 Brush Trucks (Type 6) • 1 Water Tender (53 Tender) • 2 ALS Ambulance • 2 acres in south end of the service area for future substation • Fire response: structural, wildland, extrication, EMS, ropes	• Replace 1 pumper • Replace 1 rescue truck • Paid personnel • Training materials • Training burn building substation

Training and Certification

Existing Resources/Assets	Needs
• Fire members are required to be state certified • EMS members are required to be state certified • CPR/First Aid instructors • State certified EMS instructor • Adopted NFPA standards in 1989 • Utilize IFSTA training program • Written suggested operating procedures • Some videos, books and other material	• FF 1 and 2 training materials • Burn building

Communications

Existing Resources/Assets	Needs
• Base station • All vehicles radio equipped • All personnel radio and pager equipped	• Update existing equipment

Prevention and Inspection:

The Department does not administer Fire Code regulations or conduct fire cause/origin investigations. The State Fire Marshal's Office is called in to respond and assist with such investigations.

Public Education

Existing Resources/Assets	Needs
• Public education • Outreach programs	• None identified • Education material for handout

Appendix 2 Maps

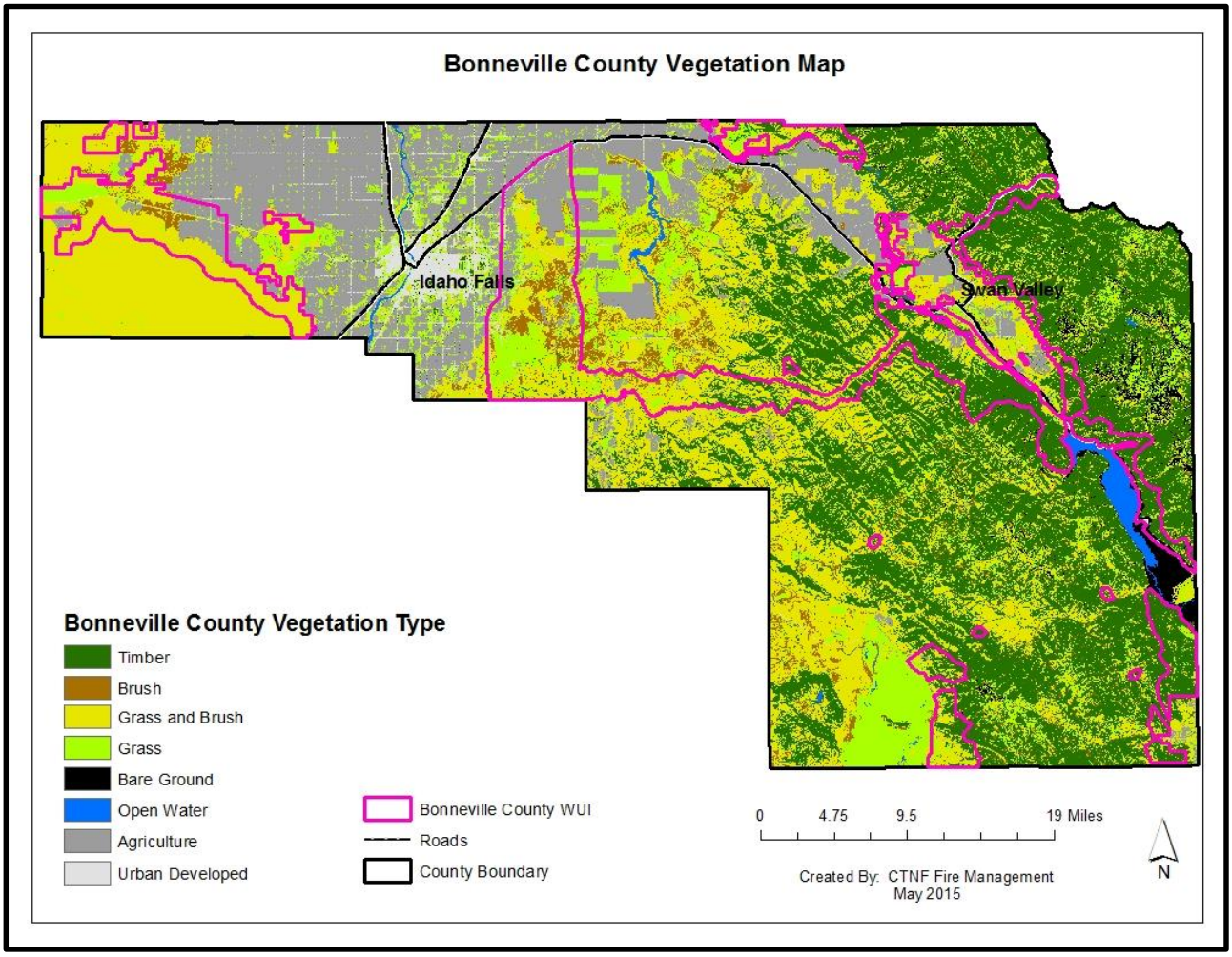


Figure 2: Bonneville County Vegetation Map

Flame Length

Fire suppression strategies and tactics are dictated by fire behavior (flame length) and intensity. Table XX, portrays an interpretation of what resources will be effective suppressing a fire based on flame lengths and fireline intensity. Referring to Table 3, the flame lengths in the "High" to "Very High" range will cause control or suppression efforts to be ineffective. This anticipated fire behavior provides a situation where firefighters will not engage the fire due to safety concerns associated with extreme fire behavior. Under this type of fire behavior the risk is high for the public and safe protection of values at risk.

- Grasses, forbs and cropland will have "Low" to "Medium" Flame Length Classes.
- Sagebrush will have flame lengths within the "High" to "Very High" Flame Length Classes.
- Timbered areas across the county will be reflected within the "High" to "Very High" Flame Length Classes.

Flame Length Class	Flame Length	Fireline Intensity	Fire Suppression Interpretations
Low	< 4 feet	< 100 Btu/ft/s	Fires can generally be attacked at the head or flanks by persons using hand tools. Handline should hold fire.
Medium	4 to 8 feet	100-500 Btu/ft/s	Fires are too intense for direct attack on the head by persons using hand tools. Handline cannot be relied on to hold the fire. Bulldozers, engines, and retardant drops can be effective.
High	8 to 11 feet	500-1000 Btu/ft/s	Fires may present serious control problems: torching, crowning, and spotting. Control efforts at the head will probably be ineffective.
Very High	> 11 feet	> 1000 Btu/ft/s	Crowning, spotting, and major fire runs are probable. Control efforts at the head of the fire are ineffective.

Table 3. Fire Suppression Interpretation of flame length and fireline intensity (Fireline Handbook, Appendix B: Fire Behavior, pg. B-59).

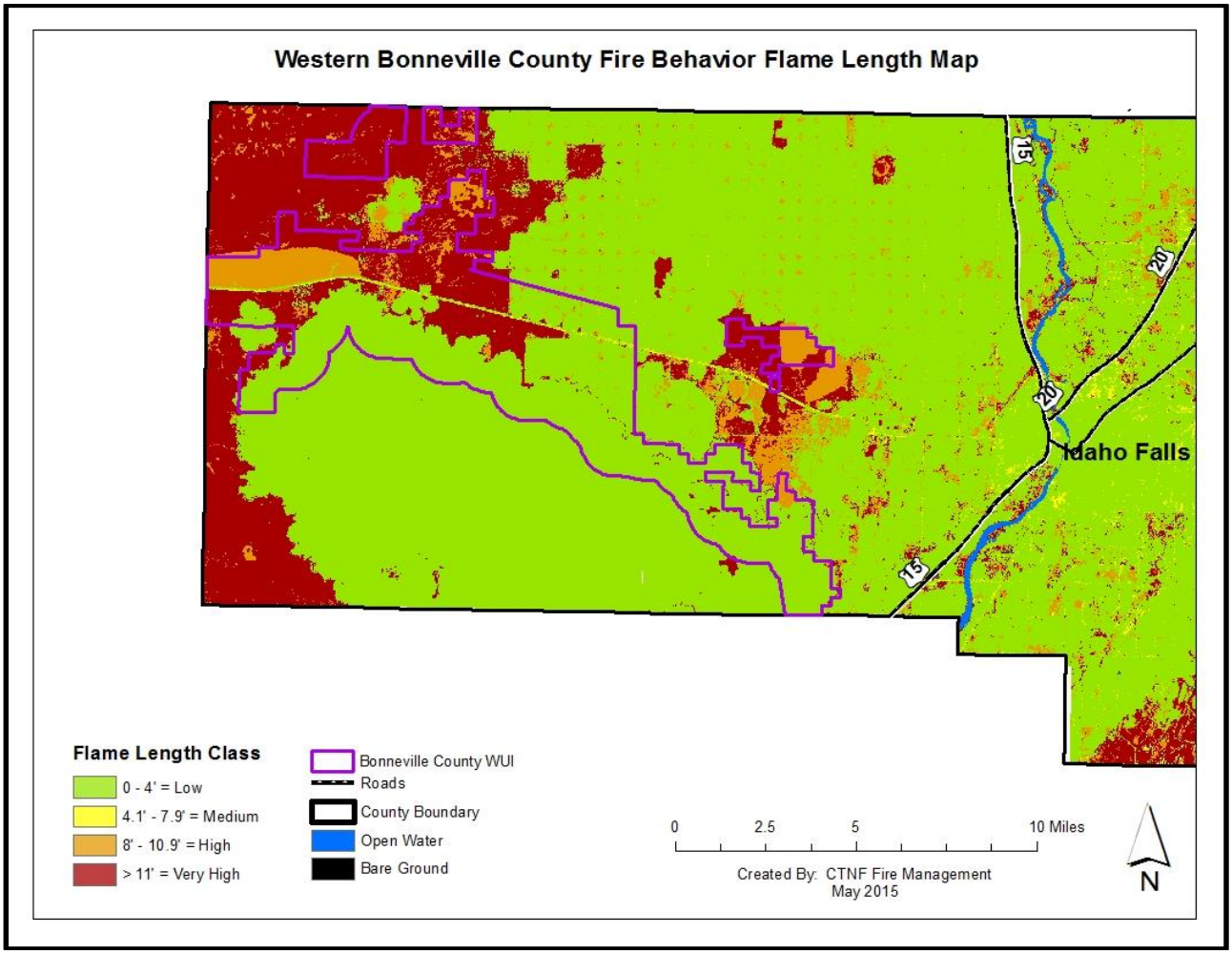


Figure 3: Western Bonneville County Fire Behavior Flame Length Map

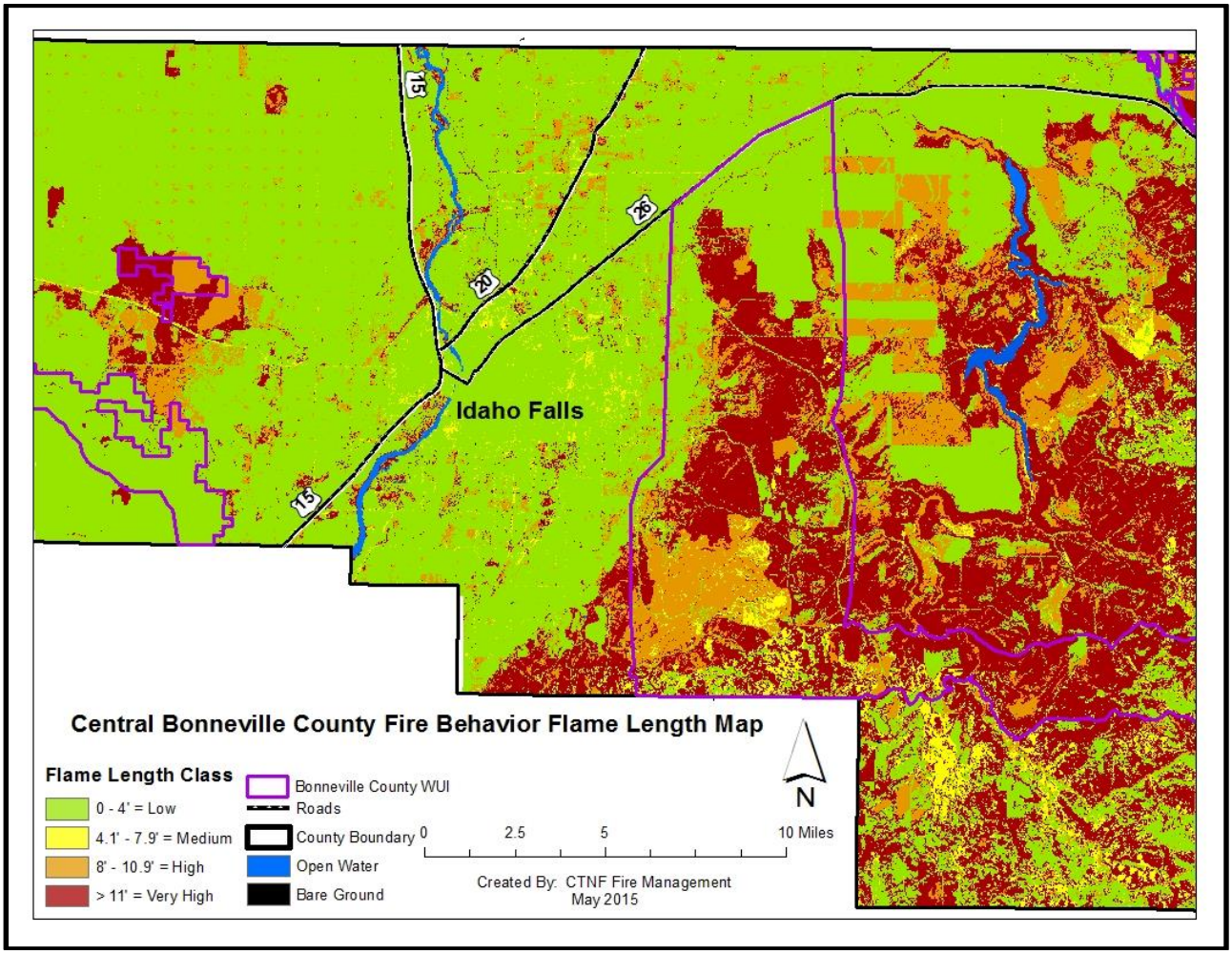


Figure 4: Central Bonneville County Fire Behavior Flame Length Map

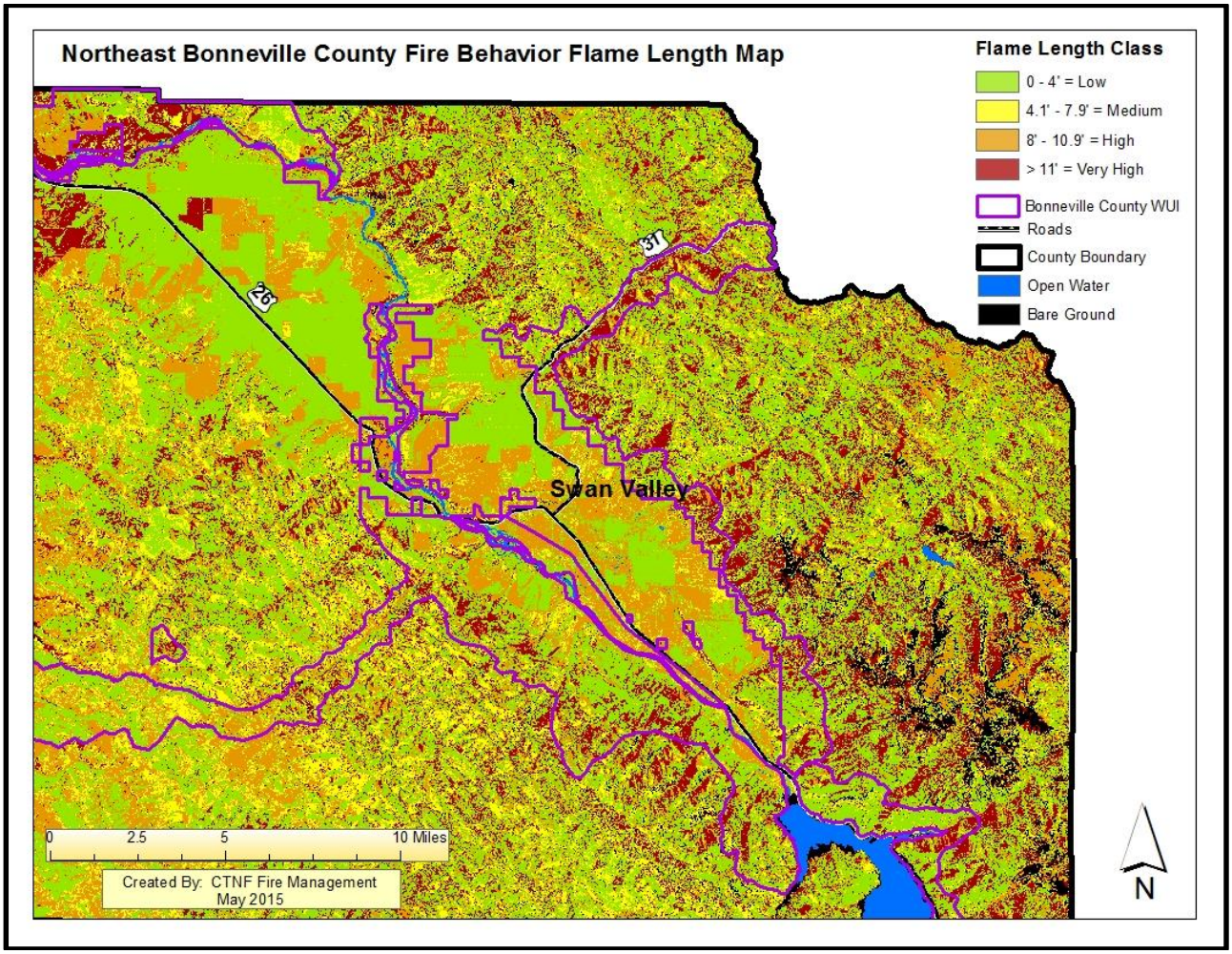


Figure 5: Northeast Bonneville County Fire Behavior Flame Length Map

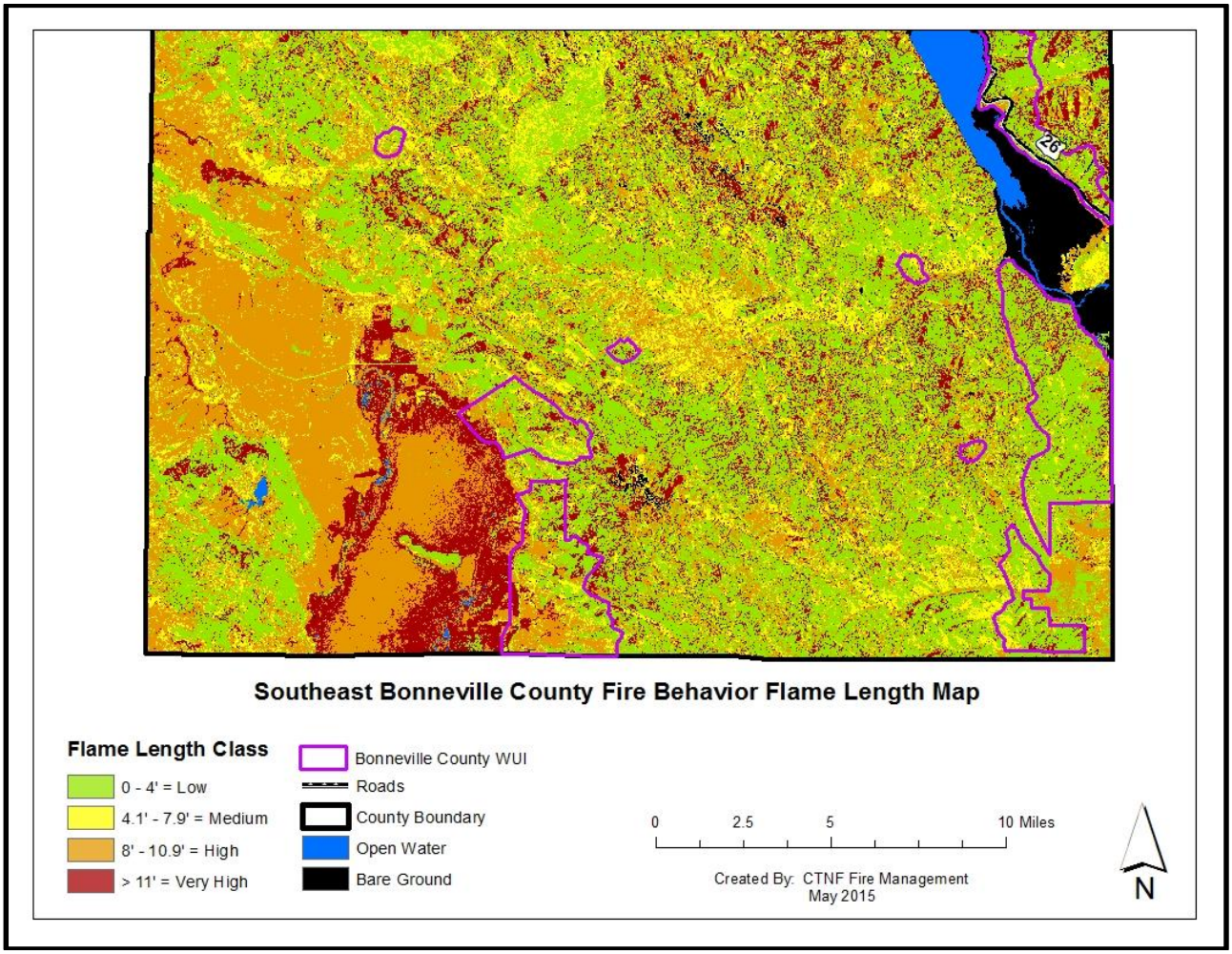


Figure 6: Southeast Bonneville County Fire Behavior Flame Length Map

Rate of Spread (ROS)

The rate of spread of a fire is defined as the forward rate of spread of a surface fire. The higher the ROS the harder the fire is to control. The majority of the county shows the ROS to be within the "Low" to "Medium" range with limited ROS at the "High" to "Very High" end. Model limitations at times can affect an accurate charaterization of ROS. It is also important to cross reference ROS with potential flame lengths and crown fire activity and the affect these variables have upon the effectiveness of suppression resources as a whole. "High" to "Very High" ROS with contribute to limited suppression success.

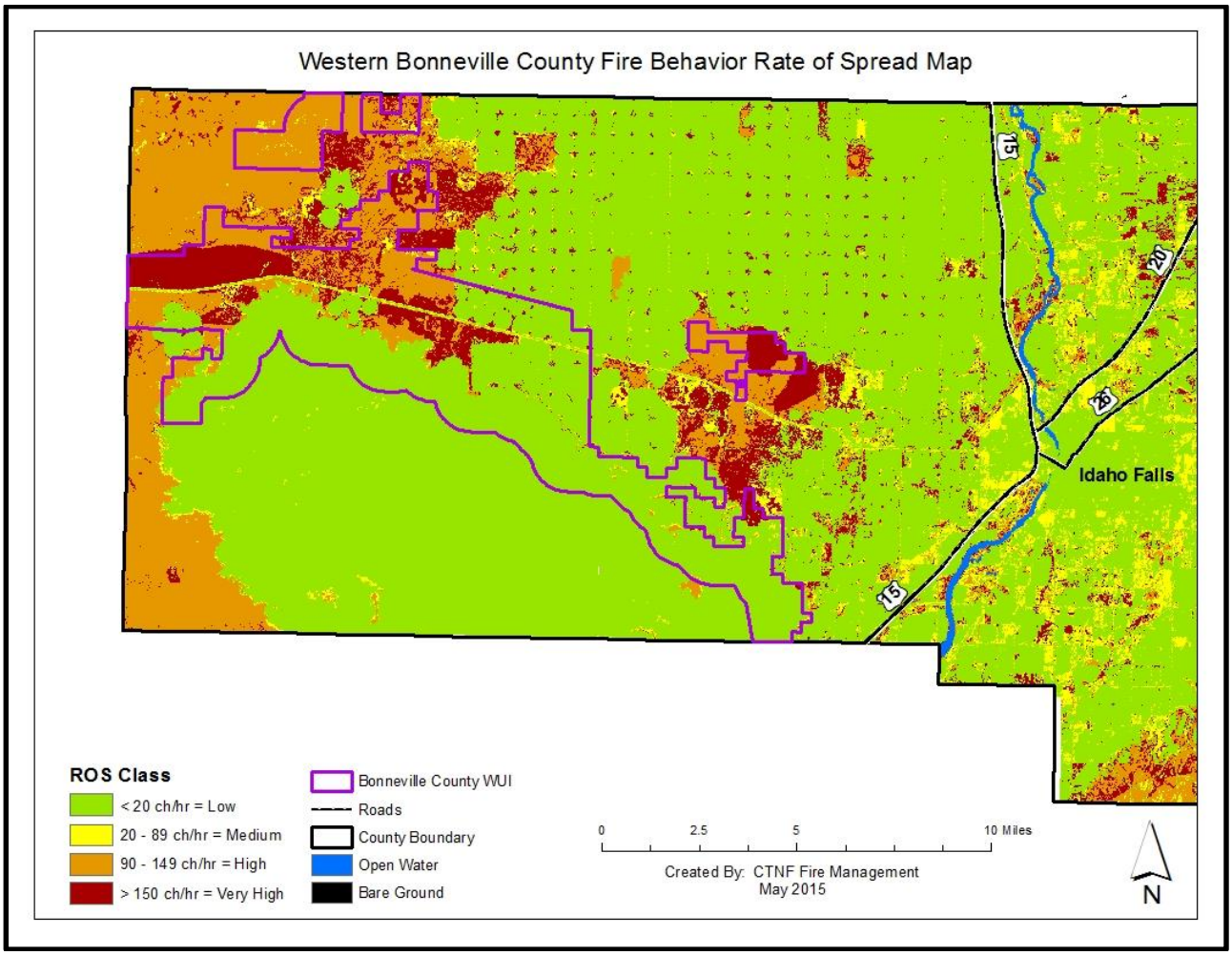


Figure 7: Western Bonneville County Fire Behavior Rate of Spread Map (Chain=66')

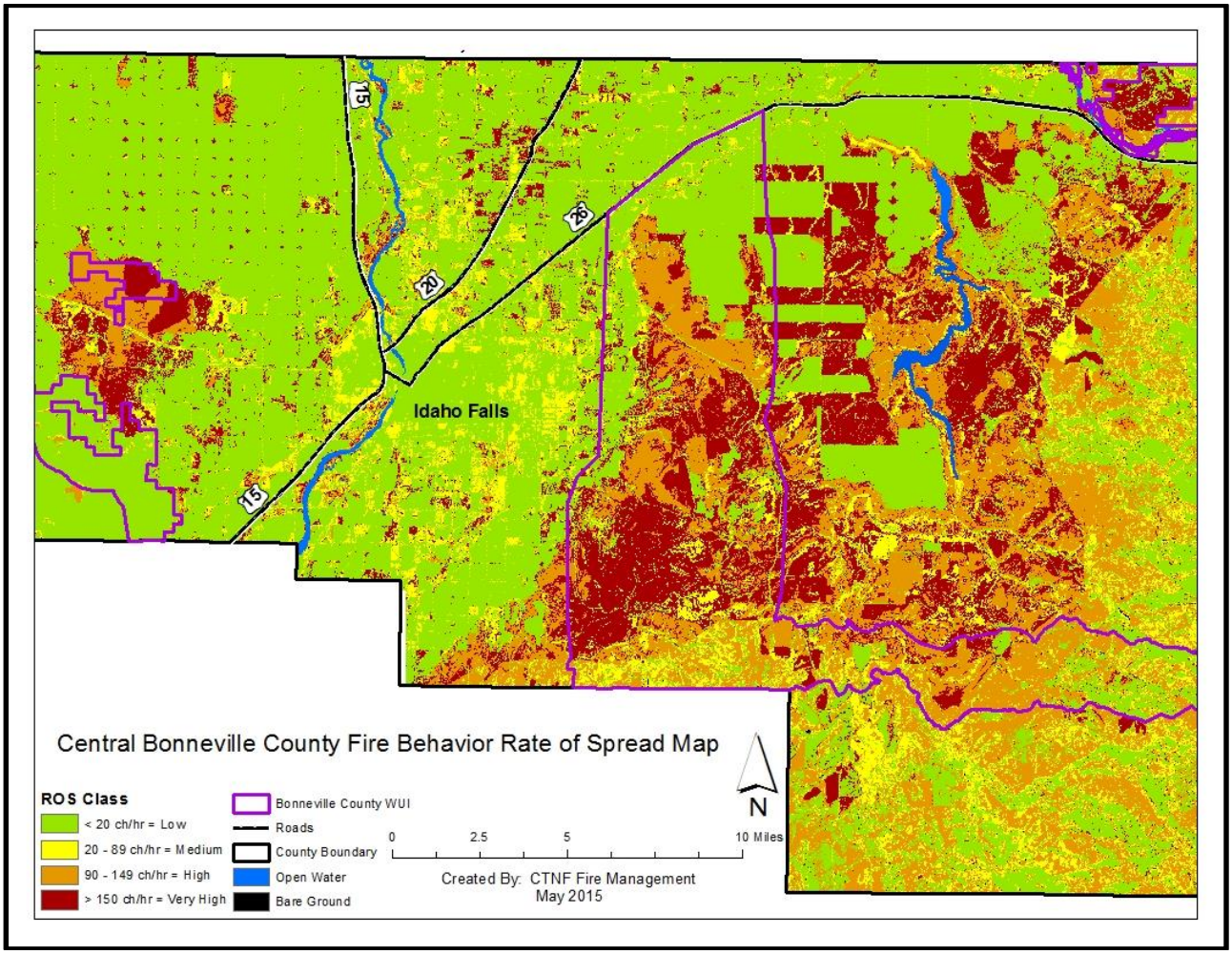


Figure 8: Central Bonneville County Fire Behavior Rate of Spread Map (Chain=66')

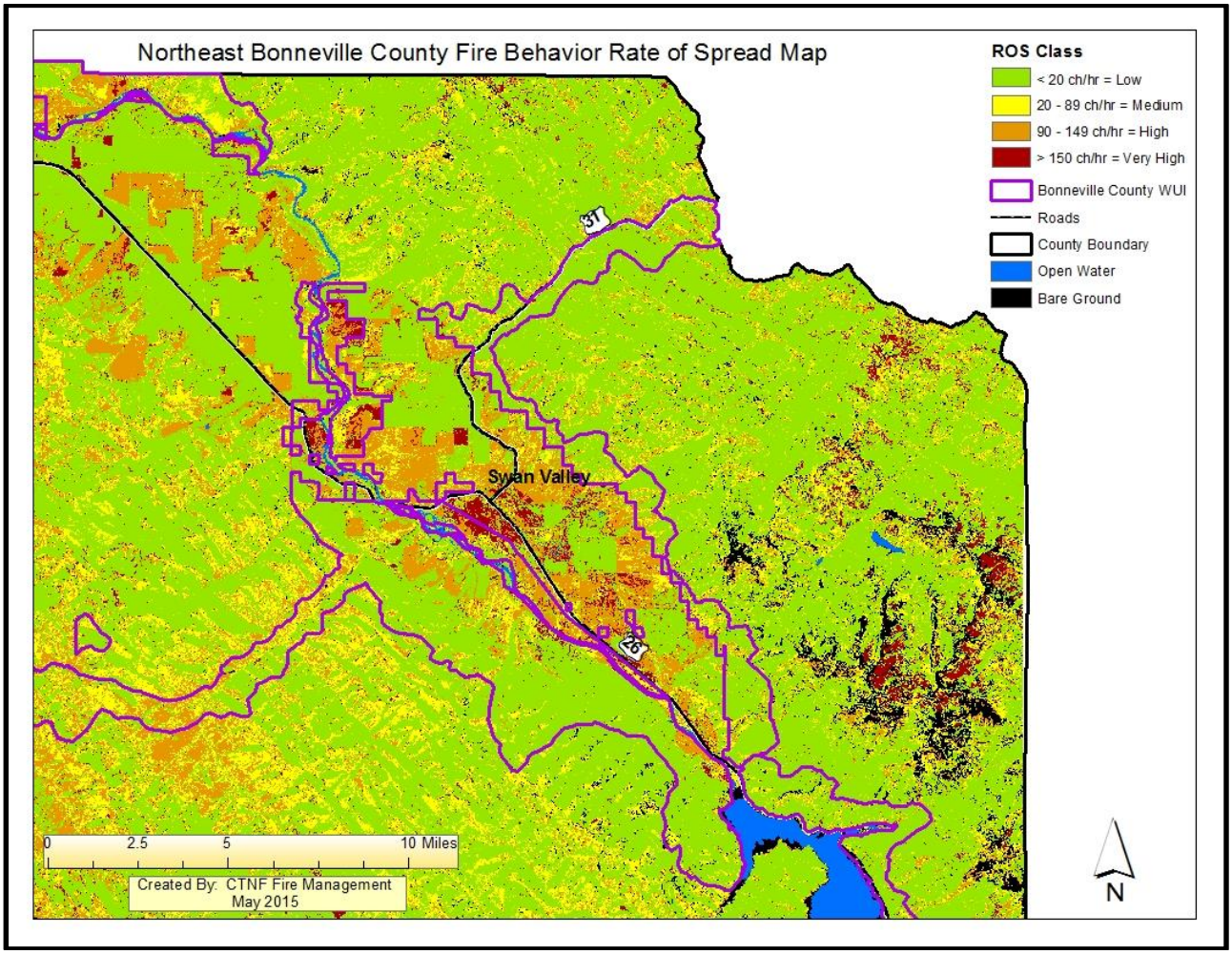


Figure 9: Northeast Bonneville County Fire Behavior Rate of Spread Map (Chain=66')

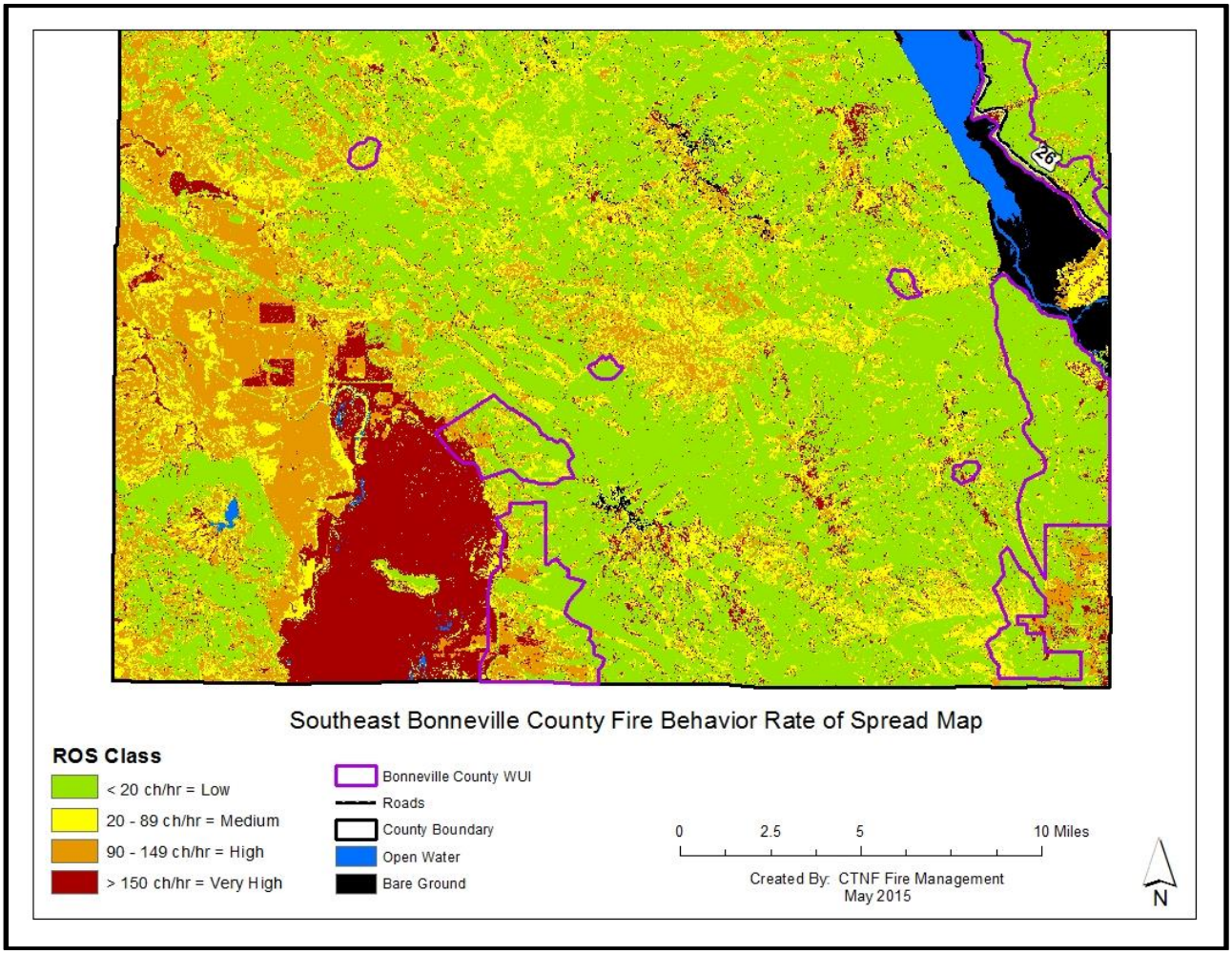


Figure 10: Southeast Bonneville County Fire Behavior Rate of Spread Map (Chain=66')

Crown Fire Activity

Canopy base height is defined as the lowest point in a stand where there is fuel available to propagate fire vertically through the canopy, meaning the closer the tree canopy is to the ground surface the greater the chance of a fire transitioning into the tree canopies. Crown fire activity appears to be almost evenly split between surface and passive crown fire with some active crown fire on steeper slopes. Passive and active crown fire will occur within the timbered fuel models. It is within these timbered areas that the surface fuels, small diameter logs and regeneration that facilitates fire spread and the canopy base height is in direct correlation to the ability of the fire to get into the canopy of the trees to initiate a passive or active crown fire.

Much of Swan Valley and valley locations throughout the county are depicting "No Fire". This is based on the LANDFIRE data interpreting these cropland areas as bare mineral soil or minimal ground cover. At any time throughout the summer these cropland areas can carry fire dependent upon the crop planted and whether irrigation is occurring within these areas.

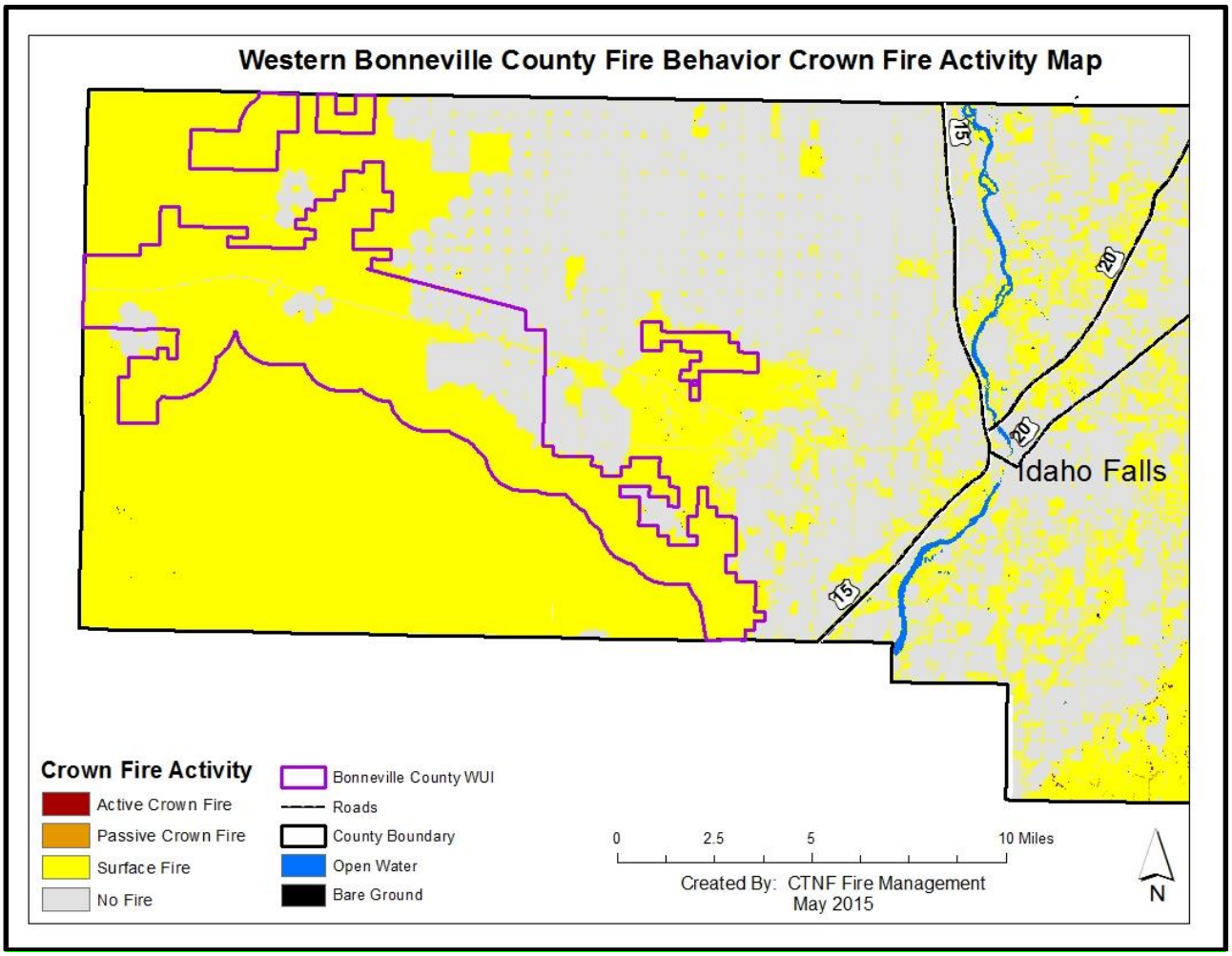


Figure 11: Western Bonneville County Fire Behavior Crown Fire Activity Map

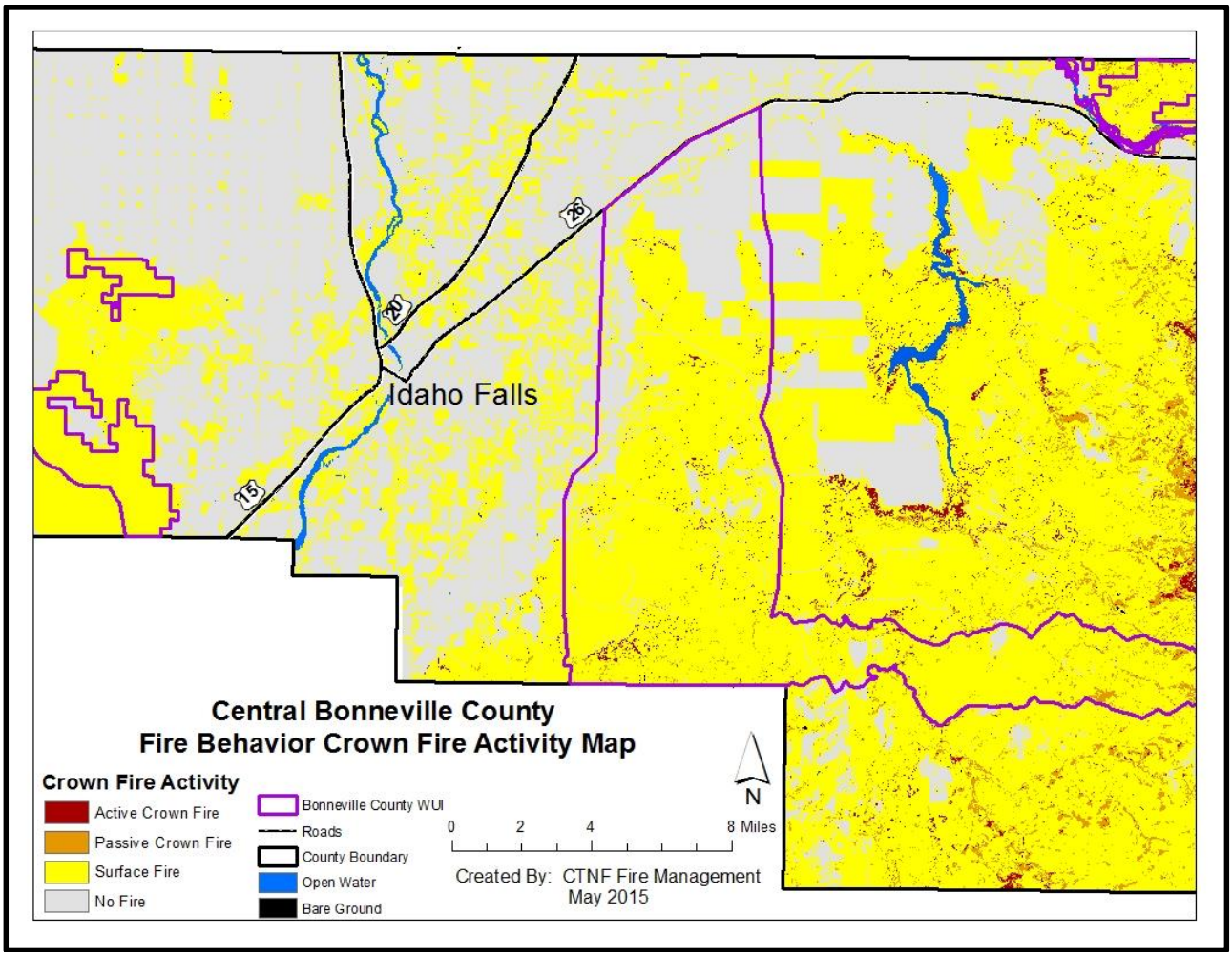


Figure 12: Central Bonneville County Fire Behavior Crown Fire Activity Map

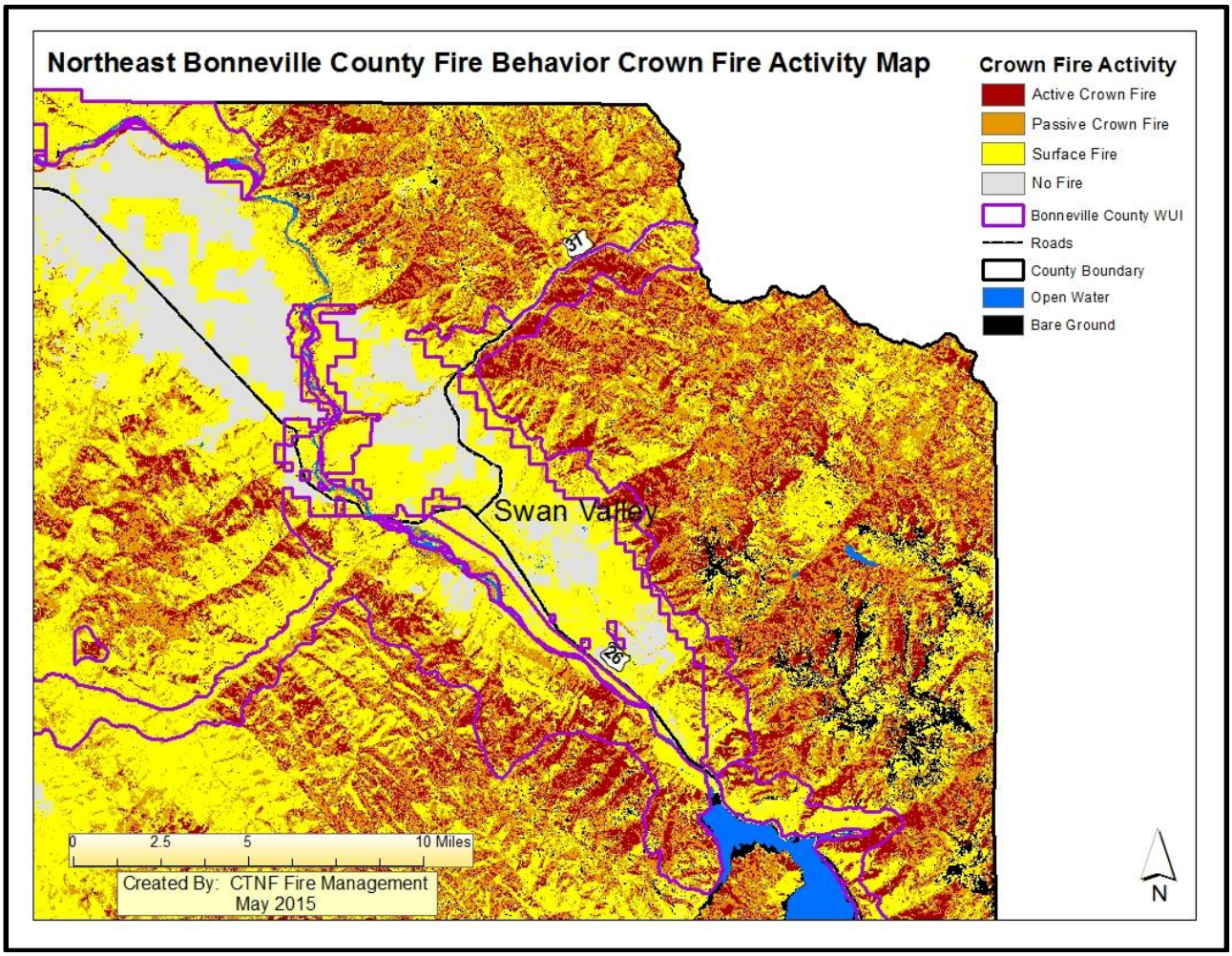


Figure 13: Northeast Bonneville County Fire Behavior Crown Fire Activity Map

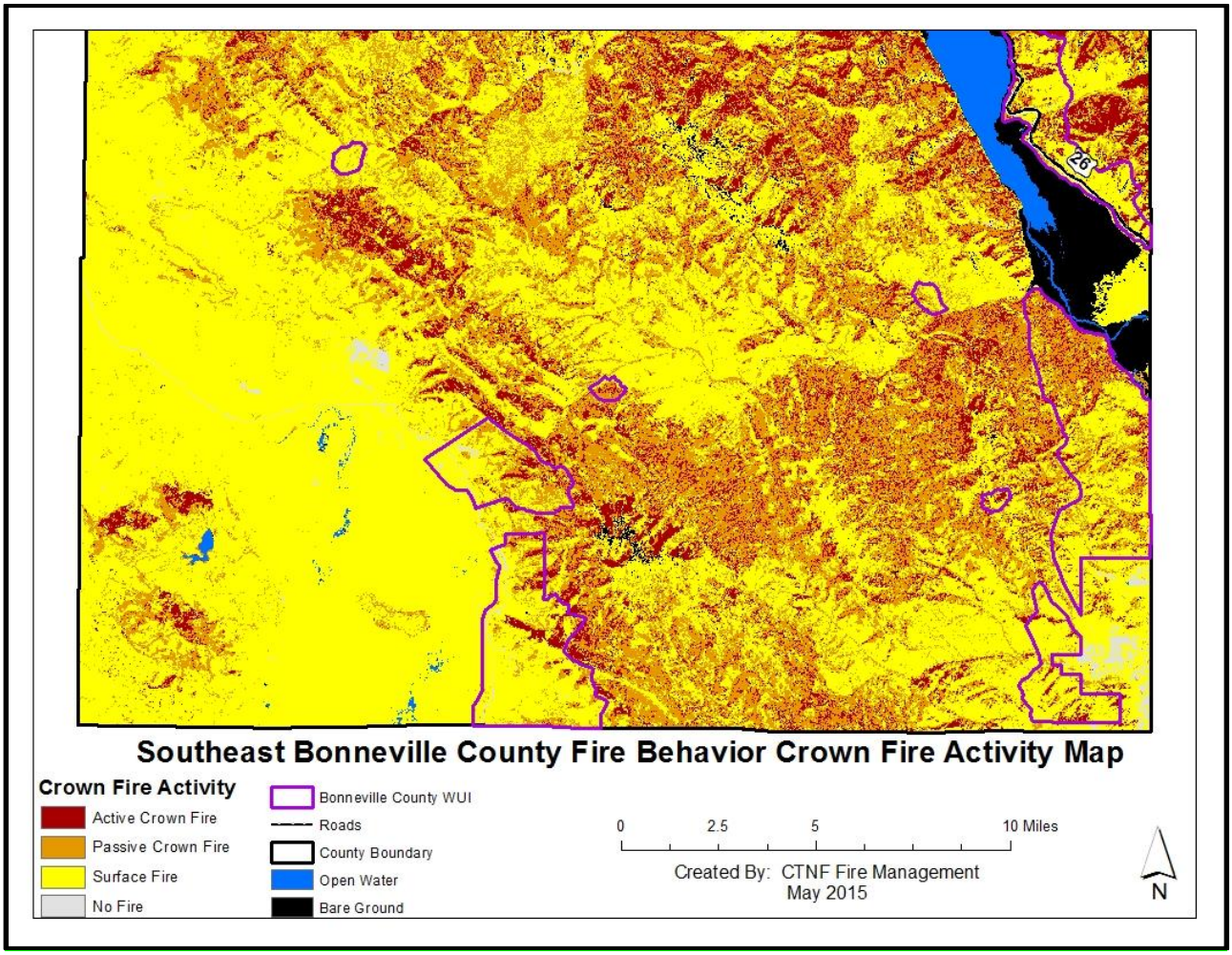


Figure 14: Southeast Bonneville County Fire Behavior Crown Fire Activity Map

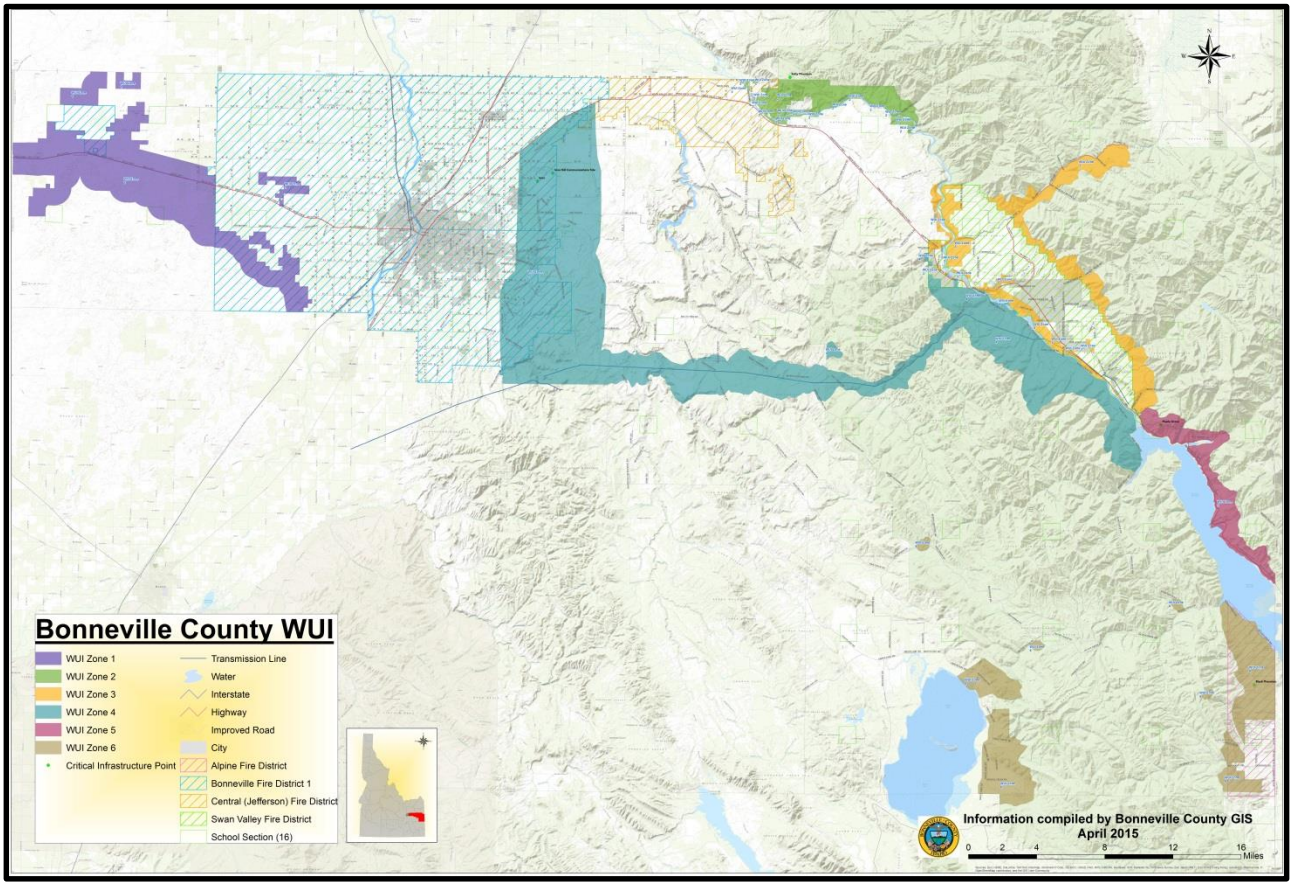


Figure 15: Bonneville County WUI Zone Map

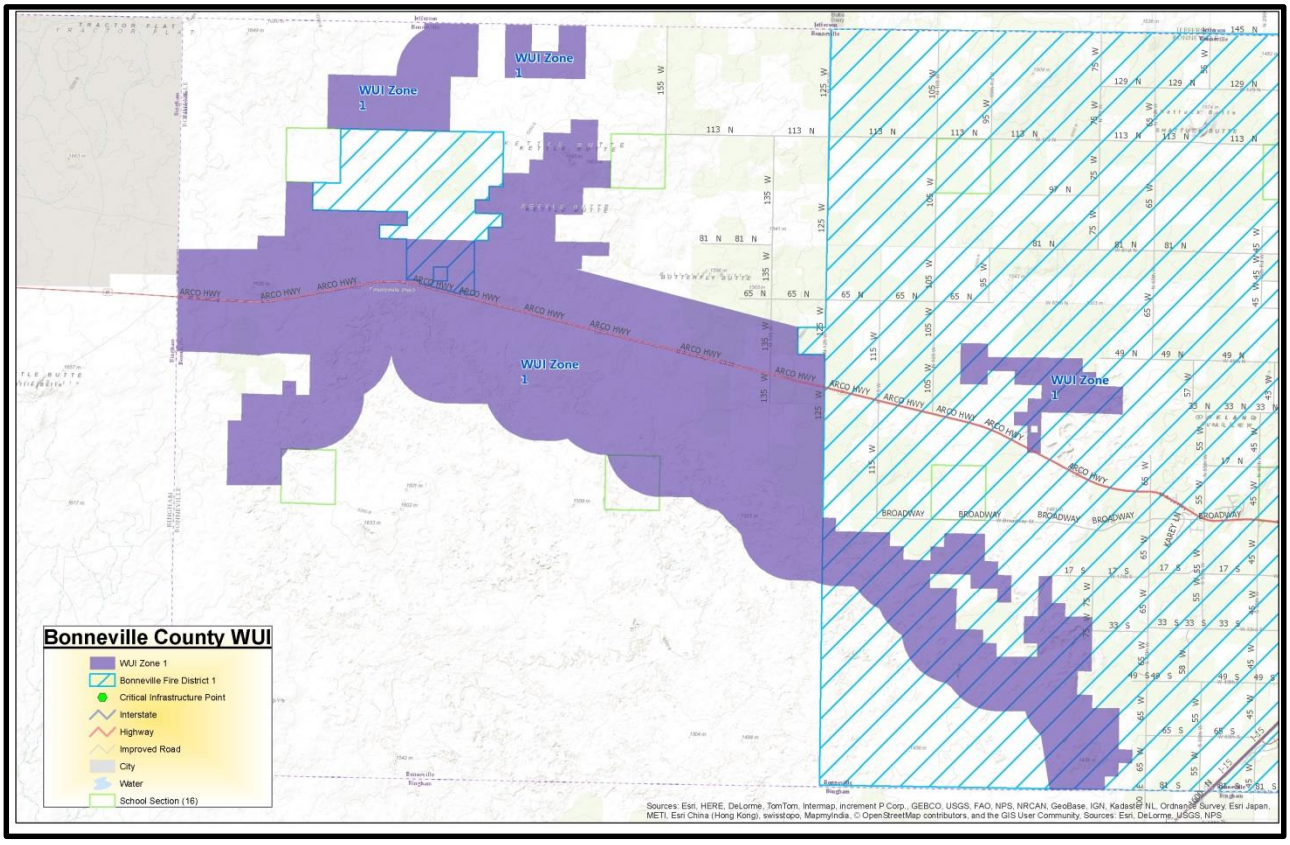


Figure 16: Bonneville County WUI Zone 1

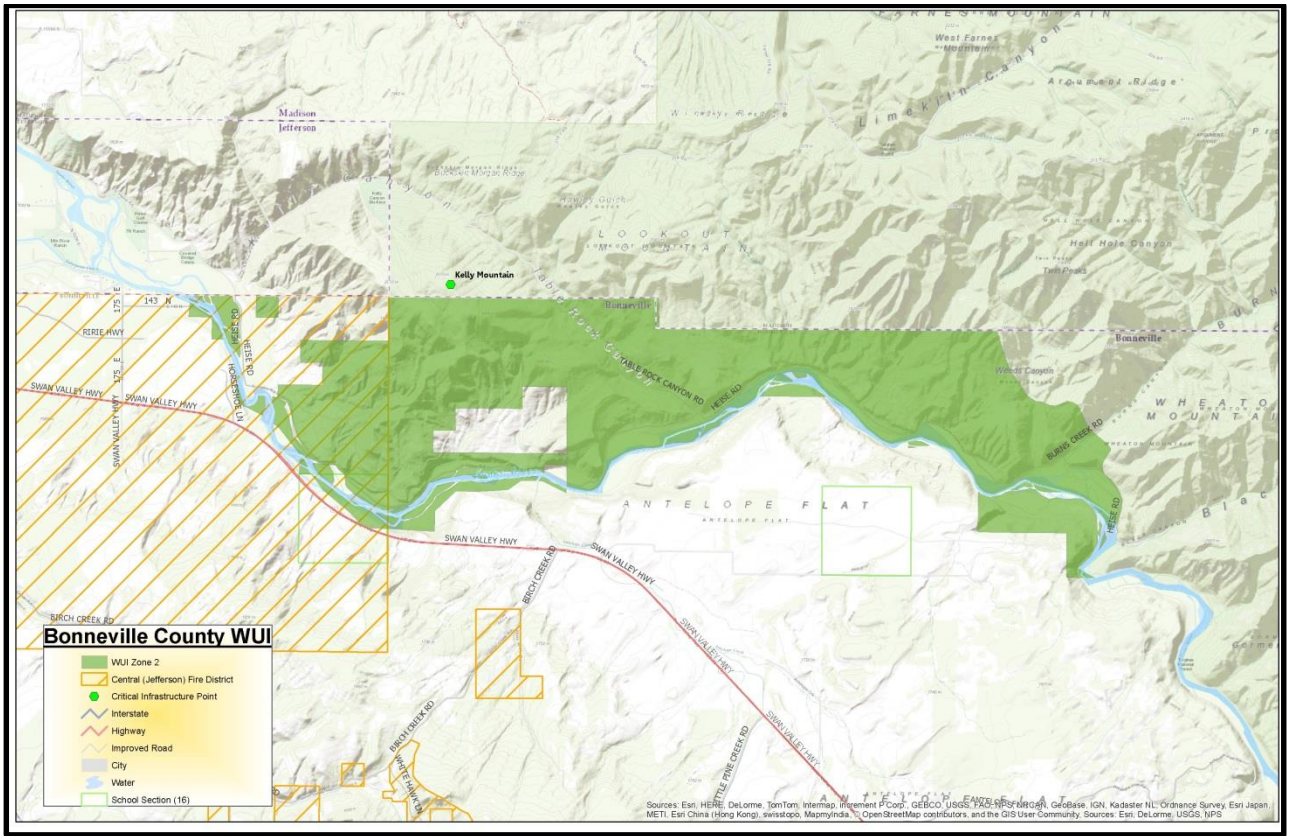


Figure 17: Bonneville County WUI Zone 2

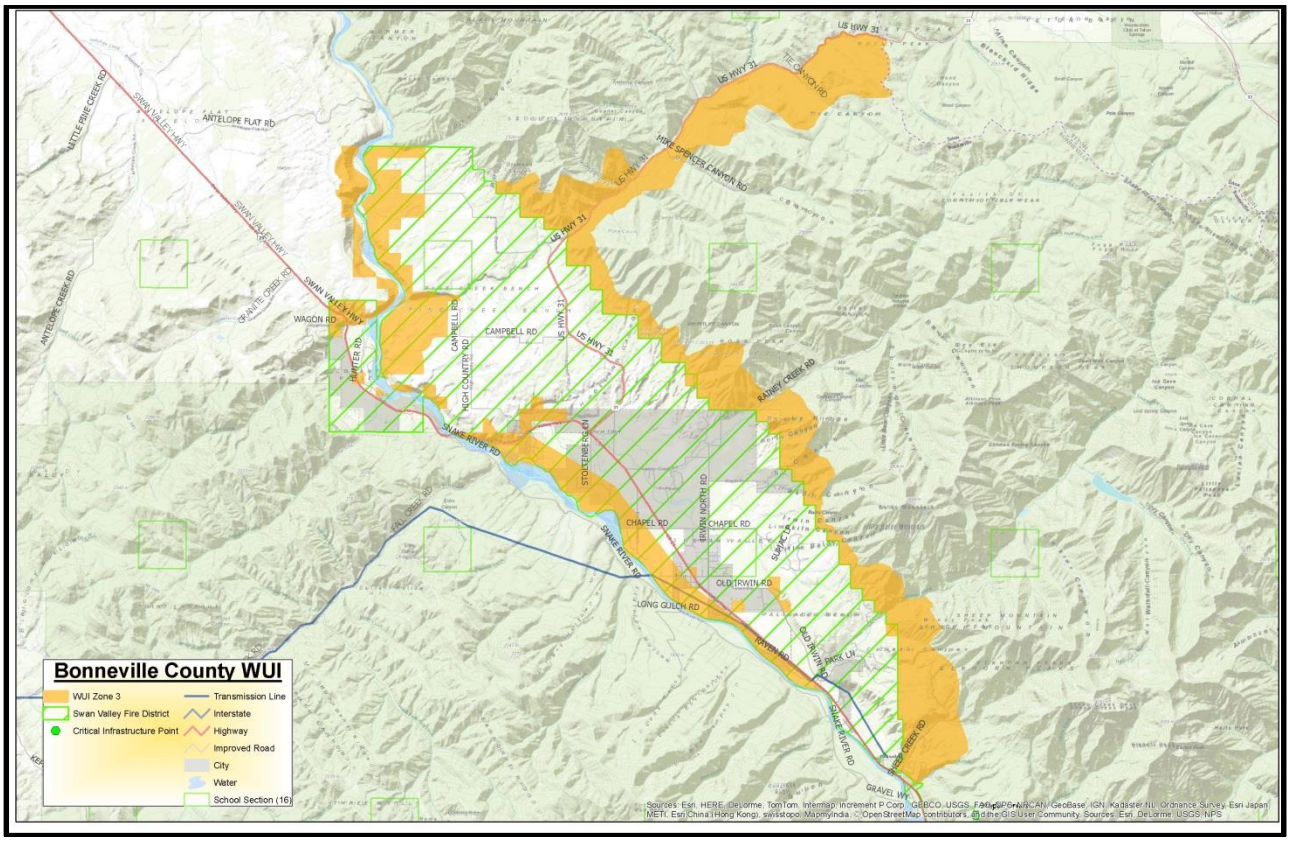


Figure 18: Bonneville County WUI Zone 3

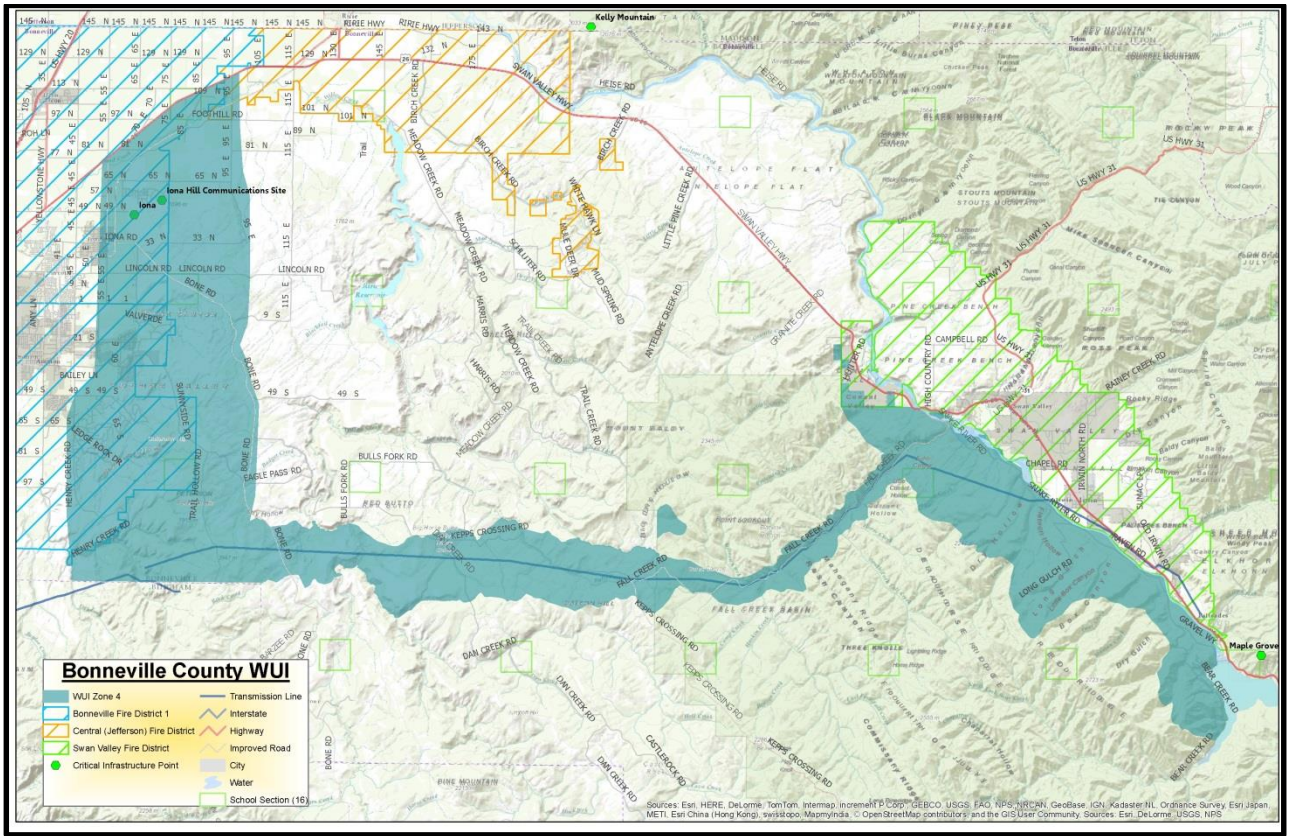


Figure 19: Bonneville County WUI Zone 4

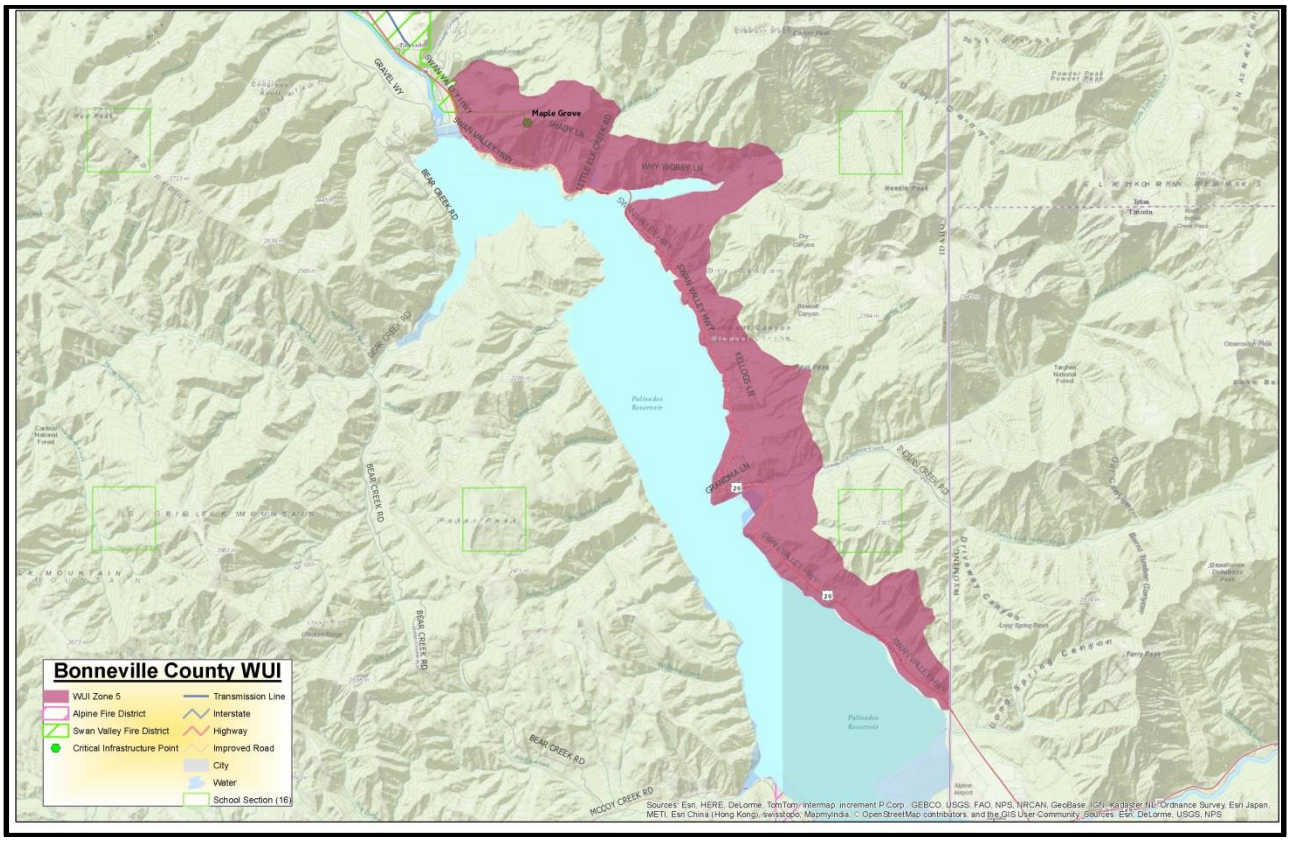


Figure 20: Bonneville County WUI Zone 5

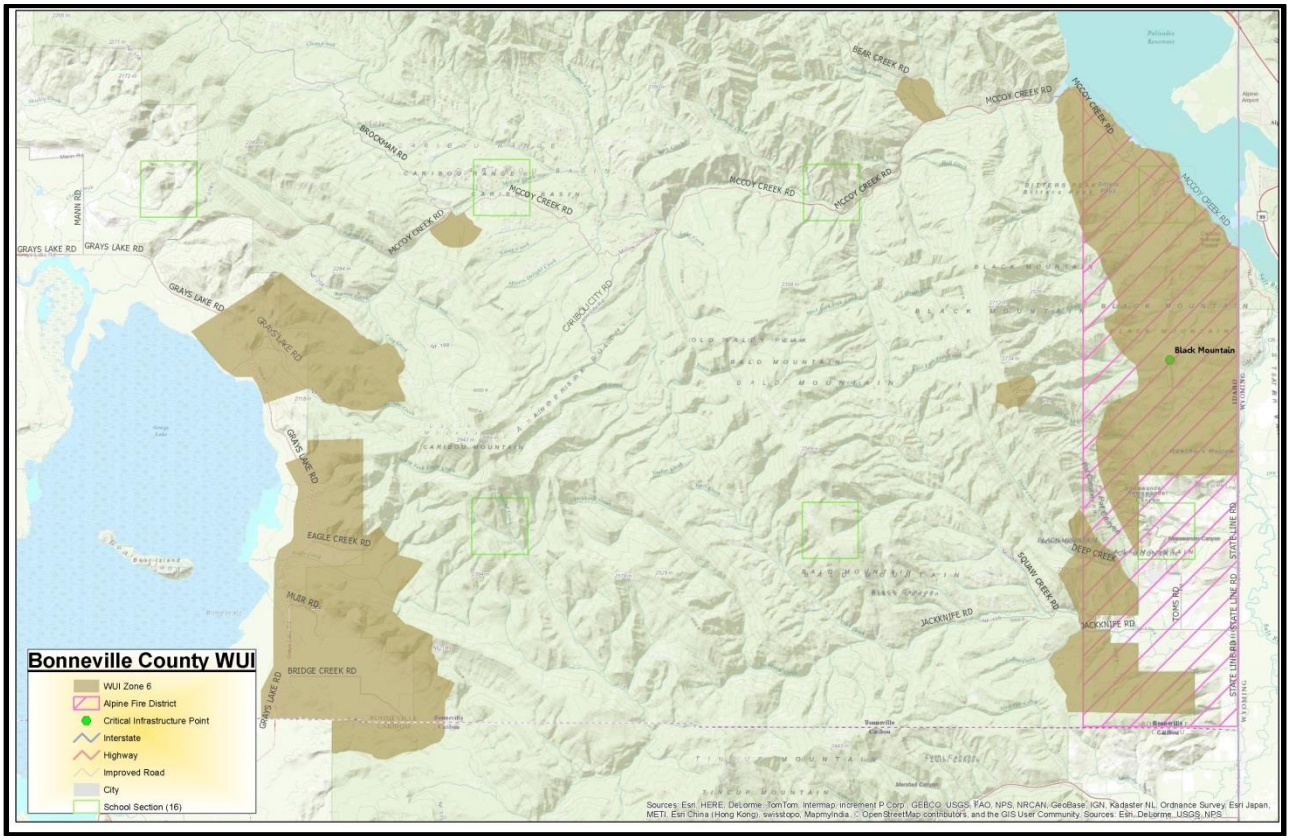


Figure 21: Bonneville County WUI Zone 6

Appendix 3
ISU Fire Susceptibility Modeling and Map

Wildland/Urban Interface Fire Susceptibility and Communities at Risk:

A Joint Fire Modeling Project for Bonneville County, Idaho, Bureau of Land Management, Upper Snake River District GIS and Idaho State University GIS Training and Research Center

December 10, 2007
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Keith Weber, webekeit@isu.edu

Abstract:
Wildland/Urban Interface (WUI) fires and Communities at Risk (CAR) projects are high priorities to federal land management agencies. It is important that the federal government help educate homeowners, firefighters, local officials, and land managers regarding susceptibility to wildland fire. The Bureau of Land Management's (BLM) Upper Snake River District (USRD) Geographic Information Systems (GIS) team and the GIS Training and Research Center (GIS TReC) at Idaho State University (ISU), have created a model to predict potential wildfire susceptibility areas for Bonneville County, Idaho. During this project models were created of specific individual susceptibility components associated with wildfire: topography, fuel load, and the number of vulnerable structures. These models were evaluated together to create a final fire susceptibility model for Bonneville County, Idaho. This report describes each of the WUI fire susceptibility components
and what effect each has on the final fire susceptibility model. The final model is an accurate depiction of the spatial distribution of wildfire susceptibility in Bonneville County and can be used by regional fire managers to manage wildfire susceptibility.

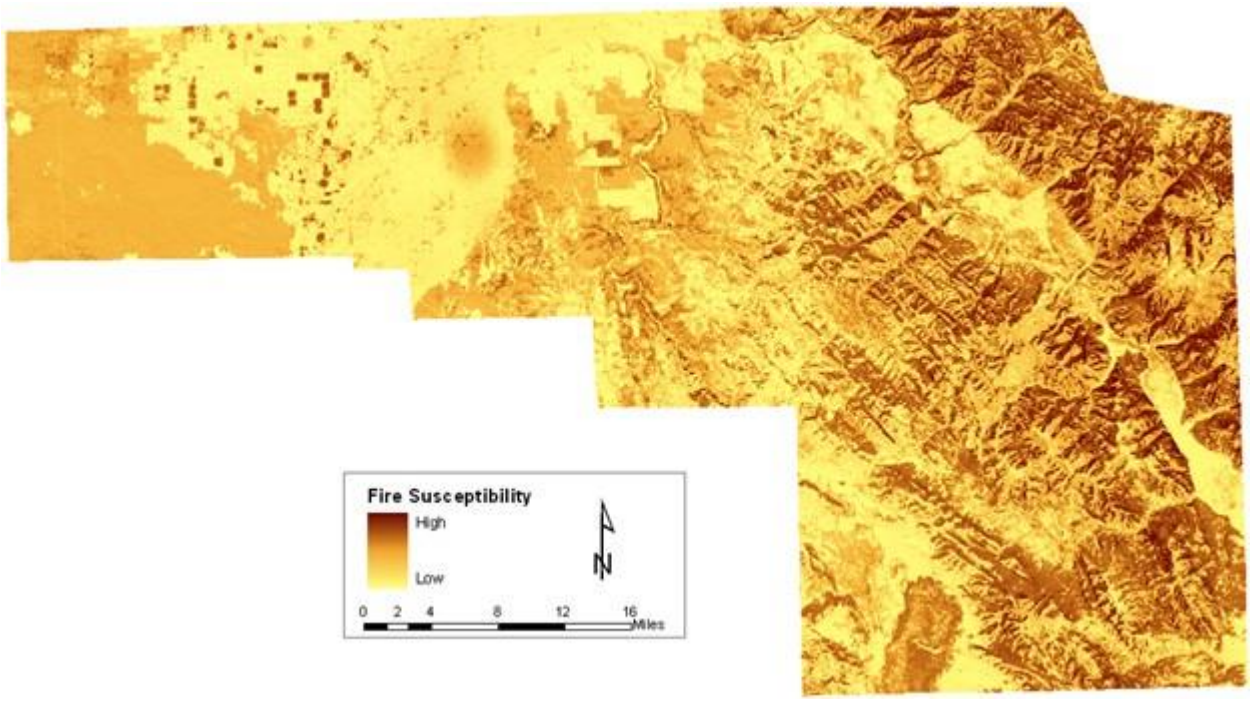
Introduction:
The Wildland/Urban Interface (WUI) is more than a geographic area. It is anywhere homes and other anthropogenic structures exist among flammable vegetative fuels (Owens and Durland, 2002).
Because wildland fire is an essential component of healthy ecosystems, people need to live compatibility with wildland fire (Owens and Durland, 2002). As people move into the Wildland/Urban Interface zones, planners and agencies responsible for fire management and protection are in need of tools to help them assess fire susceptibility and make decisions regarding funding, development, and deployment of suppression resources. One valuable tool used by fire managers is Geographic Information Systems (GIS). GIS allows for spatial analysis of large geographic areas and is easily integrated with remote sensing (satellite imagery). Using both GIS and remote sensing, a Wildland/Urban Interface (WUI) Fire Susceptibility model was created. It is comprised of seven component models that describe various aspects of fire susceptibility. These component models are generally organized as topography, fuel load, and structure density models.

- **Aspect: Sun Position** – takes into account varying fire susceptibility associated with aspect, especially as it relates to desiccation effects.
- **Slope: Rate of Spread** – translates how the steepness of a surface affects the rate of spread of a fire.

- **Slope: Suppression Difficulty** – takes into account how varying slope influences suppression efforts by firefighters and their equipment.
- **Fuel Load: Intensity** – describes how different fuel load classes release heat energy during a fire and thereby affect their environment.
- **Fuel Load: Rate of Spread** – describes how different fuel types spread and affect fire susceptibility.
- **Fuel Load: Vegetation Moisture** – takes into account how different levels of vegetation moisture affect fire susceptibility.
- **Structure Vulnerability** – includes the density of man-made structures.

Each of the component models were weighted and summed to produce the Final Fire Susceptibility Model. The Bonneville County, Idaho WUI fire susceptibility model is a continuation of WUI projects that have been completed and validated.

http://giscenter.isu.edu/research/Techpg/blm_fire/index.htm



Bonneville County WUI Fire Susceptibility Map