Shoshone County

Multi-Jurisdictional Hazard Mitigation Plan

Update 2018

U.S. Department of Homeland Security
FEMA Region 10
130 – 228th Street, SW
Bothell, Washington 98021

FEMA

July 3, 2018

The Honorable Mike Fitzgerald
Chair, Shoshone County Commissioners
700 Bank Street, Suite 120
Wallace, Idaho 83873

Dear Chair Fitzgerald:

On July 3, 2018, the U.S. Department of Homeland Security's Federal Emergency Management Agency (FEMA) Region 10, approved the Shoshone County Hazard Mitigation Plan as a multi-jurisdictional local plan as outlined in the Code of Federal Regulations Title 44 Part 201. This approval provides the below jurisdictions eligibility to apply for the Robert T. Stafford Disaster Relief and Emergency Assistance Act's, Hazard Mitigation Assistance (HMA) grants projects through July 2, 2023, through your state:

Shoshone County

FEMA individually evaluates all application requests for funding according to the specific eligibility requirements of the applicable program. Though a specific mitigation activity or project identified in the plan may meet the eligibility requirements, it may not automatically receive approval for FEMA funding under any of the aforementioned programs.

Approved mitigation plans may be eligible for points under the National Flood Insurance Program's Community Rating System (CRS). For additional information regarding the CRS, please visit: www.fema.gov/national-flood-insurance-program-community-rating-system or contact your local floodplain manager.

Over the next five years, we encourage your communities to follow the plan's schedule for monitoring and updating, and to develop further mitigation actions. To continue eligibility, jurisdictions must review, revise as appropriate, and resubmit the plan within five years of the original approval date.

If you have questions regarding your plan's approval or FEMA's mitigation grant programs, please contact Lorrie Pahl, Senior Mitigation Planner with Idaho Office of Emergency Management, at (208) 258-6508, who coordinates and administers these efforts for local entities.

Sincerely,

For Mark Carey, Director
Mitigation Division

cc: Susan Cleverley, Idaho Office of Emergency Management

Enclosure

AS:vl

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RESOLUTION 2018-20

A RESOLUTION OF THE BOARD OF SHOSHONE COUNTY DECLARING COUNTY SUPPORT AND ADOPTION OF THE SHOSHONE COUNTY MULTI-JURISDICTIONAL HAZARDS MITIGATION PLAN DATED JUNE 1, 2018

WHEREAS, the Shoshone County Board of Commissioners supports the contents of the Shoshone County Multi-Jurisdictional Hazards Mitigation Plan; and

WHEREAS, the Shoshone County Multi-Jurisdictional Hazards Mitigation Plan will be utilized as a guide for planning as related to FEMA Pre-Disaster Mitigation, and other purposes as deemed appropriate by the Shoshone County Board of Commissioners.

NOW THEREFORE BE IT RESOLVED, that the Shoshone County Board of Commissioners do hereby adopt, support, and will facilitate the Shoshone County Multi-Jurisdictional Hazards Mitigation Plan's implementation.

DATED this 27th day of June 2018.

BOARD OF COUNTY COMMISSIONERS

Mike Fitzgerald, Chairman

John Hansen, Commissioner

Jay Huber, Commissioner

ATTEST:

Susan K. Hendrixson
Deputy Clerk

The Multi-Jurisdictional Hazard Mitigation Plan

of

Shoshone County, Idaho

and the Communities of

Kellogg, Mullan, Pinehurst, Smelterville, & Wallace

Prepared for:

Shoshone County Department of Emergency Management
(208) 556-1114

Winter 2018

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Cover Material

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EXECUTIVE SUMMARY

The Shoshone County Hazard Multi-Jurisdictional Mitigation Plan (HMP) is an update to the August 2009 Shoshone County Multi-Jurisdictional Hazard Mitigation Plan. The Shoshone County HMP 2017 update was guided by Dr. Frazier of the Hazards & Climate Impacts Research Center (HazCIRC), Cory Foster of the Shoshone County Department of Emergency Management, and the Planning Committee. The Planning Committee was composed of members from the Department of Emergency Management and representatives from the communities, State and Federal agencies, and other organizations and stakeholders active within the county.

Major changes to the HMP include an updated and rewritten county profile, the inclusion of additional hazards, much more detailed and comprehensive risk and vulnerability assessments for the hazards of focus, and the addition of new mitigation actions. Additionally, the 2017 update builds a strong foundation for annual review and update, allowing Shoshone County to maintain the HMP through the plan's five-year lifecycle.

The revised risk analysis assessment resulted in changes in hazard past occurrence rates, probability, vulnerability, spatial extent, magnitude, and prioritization. The update process employed additional datasets and modeling, and included the use of the Spatially Explicit Resilience-Vulnerability model developed by Dr. Tim Frazier, the director of the update project. This socioeconomic vulnerability model helps inform where susceptible populations are located across the county, and is important in efficiently allocating resource pre- and post-disaster.

Table 1. Summary of hazard occurrences and risk prioritization

Hazard	2009-2017 Occurrences	Casualties	Property & Crop Damage	Risk Prioritization
Avalanche	1	-	-	8
Civil Disturbance	-	-	-	-
Communicable Disease	521	-	-	1
Cyber Disturbance	-	-	-	-
Drought	-	-	-	-
Earthquake	32	-	-	3
Flood	6	-	$1.075 million property	4
Hazardous Material	5	-	-	7
Landslide	2	-	-	6
Impoundment Structure Failure	-	-	-	-
Severe Weather	77	1	$14,500 property	2

Volcanic Eruption	-	-	-	-
Wildfire*	9	-	35,070 acres burned	5

*Wildfires larger than 1,000 acres

Mitigation actions were reviewed and updated per feedback from the Planning Committee and responsible agencies and departments. Additional mitigation actions were included based on Committee and public input. These actions were scored and ranked to better prioritize efforts and resources towards the completion of listed mitigation actions.

Finally, this document collects both the Shoshone County HMP and the Shoshone County Community Wildfire Protection Plan (CWPP). The most recent CWPP is located in Appendix G.

I. INTRODUCTION

1.1 Overview

The term 'hazard' defines any event with the potential to cause loss of life or property. Hazards affecting Shoshone County include flood, earthquake, landslides, severe weather, wildfires, hazardous material spills, communicable diseases, and more. Hazards become disasters when individual and communities are negatively impacted by such events. This plan identifies the county's hazards, assesses the county's vulnerability to those hazards, and details proposed actions to reduce the loss of life and property from disasters. These actions are defined as mitigation.

Hazard mitigation consists of cost-effective actions that reduce, limit, or prevent individual or community loss from damaging, harmful, or costly hazards. Mitigation consists of many types of actions, including local planning and regulations, capital improvement projects, natural systems protections, education and awareness programs, and preparedness and response actions. Together, these types of actions form a mitigation strategy, which is detailed in this Hazard Mitigation Plan (HMP).

Mitigation is one of the four emergency phases. The other phases are preparedness, response, and recovery. Where mitigation includes activities designed to prevent an emergency, reduce the probability of emergencies happening, or reduce the losses of unavoidable emergencies, preparedness includes plans and preparations to save lives and help response and rescue operations. Response occurs immediately after an emergency, and includes actions taken to save lives and prevent further damage or loss of life. The last phase is recovery, which are those actions taken to return to a state of normalcy.

Figure 1. Emergency and disaster management cycle

Although often viewed as distinct and separate, the four emergency phases are a continuum across time and space undertaken by numerous agencies, organizations, and individuals. Mitigation can occur before and after an emergency or disaster, and mitigation actions can be built into both preparedness and recovery in order to address vulnerabilities and weaknesses that arise during and post-emergency. It is important to distinguish between the HMP and other emergency response or emergency management plans. Where emergency response and management plans direct and detail the county's strategy of allocating resources and efforts to respond to and recover from a disaster, mitigation plans identify past occurrences of hazards and associated losses, possible future occurrences and losses, and help guide and implement actions and projects to reduce or eliminate current and future losses. These plans are interrelated, however, and should be employed as a cohesive planning framework to reduce vulnerability and enhance resilience against hazards.

Often, hazard mitigation is divided into three categories:

- Policies and actions that keep the hazard away from people, property, and structures.
- Policies and actions that keep people, property, and structures away from hazards.
- Policies and actions that reduce the hazard impacts on people, property, and structures.

However, there are many types of hazard mitigation. Table 2 provides an overview and examples of mitigation types.

Table 2. Mitigation types, definitions, and examples

Type of Action	Explanation	Examples
Local Planning and Regulations	These actions include government authorities, policies, or codes that influence the way land and buildings are developed and built (FEMA, 2013).	• Comprehensive plans • Land use ordinances • Subdivision regulations • Development review • Cyber security plans
Structure and Infrastructure Projects	These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures as well as critical facilities and infrastructure. This type of action also involves projects to construct manmade structures to reduce the impact of hazards (FEMA, 2013).	• Utility undergrounding • Structural retrofit • Floodwalls • Culverts • Safe Rooms • Acquisitions and elevation of structures in flood prone areas • Off-site record backups
Natural Systems Protection	These are actions that minimize damage and losses and also preserve or restore the functions of natural systems (FEMA, 2013).	• Sediment and erosion control • Stream corridor restoration
Education and Awareness Programs	These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs, such as *StormReady* or *Firewise* Communities. Although this type of mitigation reduces risk less directly than structural projects or regulation, it is an important foundation. A greater understanding and awareness of hazards and risk among local officials, stakeholders, and the public is more likely to lead to direct actions (FEMA, 2013).	• Radio or television spots • Websites with maps and information • Real estate disclosure • Mailings to neighborhoods • Firewise • Stormready • Disease awareness • Cyber security training

Preparedness and Response Actions	Mitigation actions reduce or eliminate long-term risk and are different from actions taken to prepare for or respond to hazard events. Mitigation activities lessen or eliminate the need for preparedness or response resources in the future. When analyzing risks and identifying mitigation actions, the planning team may also identify emergency response or operational preparedness actions (FEMA, 2013).	• Creating mutual aid agreements with neighboring communities • Purchasing radio communications equipment • Developing procedures for notifying citizens of available shelter locations during and following an event

1.2 Plan Purpose & Benefits

Shoshone County's HMP identifies both short- and long-term local policies and actions that help reduce risk and future losses from hazards. These policies and actions are practical, cost effective, and politically, culturally, and environmentally acceptable. Local stakeholders and the public are engaged throughout the planning process, and feedback and perceptions are vital to a sound and comprehensive HMP. These policies and actions help to more efficiently and effectively focus resources on hazards that present the greatest risks to the county's populations and resources, while also aligning with other community objectives. The HMP focuses on land use and capital investment, given the effect capital investments and land use have on modulating community and individual vulnerability.

Other benefits of undergoing the planning process and creating and maintaining an HMP include:

- Selection of Risk Reduction Actions – Hazard mitigation is a systematic process of identifying and analyzing the county's risks. By setting clear goals and identifying and implementing mitigation strategies, the county can reduce losses from disasters.
- Builds Local, State, & Federal Partnerships – The hazard mitigation plan builds partnerships through two-way communication and collaboration by involving various stakeholders at the local, State, and Federal levels.
- Facilitates Sustainability – Risk from hazards and sustainability of the county and its communities are linked. Without identifying and mitigation risks, the livelihood and continuance of the county and its communities is threatened. Enhancing resilience to hazards enhances sustainability.

- Establishes Funding & Resource Priorities – By coordinating and consolidating mitigation actions undertaken in the county into a unified strategy, the plan helps prioritize and articulate the county's and its communities' needs to the public, organizations and enterprise, and agencies with stakes in the county.
- Increase Hazard Awareness & Education – The hazard mitigation planning process increases education and awareness of hazards and risks in the county and its communities. This awareness helps individuals understand their risk, self-mitigate, and enhance their resilience. This can translate to support of mitigation actions in the county.

1.3 Legal Authority & Requirements

The legal basis of the HMP is the Stafford Act, as amended by the Disaster Mitigation Act (DMA) of 2000. The DMA emphasized pre-disaster planning, and Section 322 of the Act specifically addressed mitigation planning. The DMA requires state and local governments to prepare and maintain hazard mitigation plans in order to receive FEMA hazard mitigation project grants. This financial assistance can be sought pre- and post-disaster, and is therefore vital in all phases of emergency management.

The requirements for an HMP are located in 44 CFR §201.6 and include criteria for five elements:

- Planning Process
- Hazard Identification and Risk Assessment
- Mitigation Strategy
- Plan Review
- Evaluation
- Implementation and Plan Adoption

Detailed criteria for each of the requirements can be found in Appendix B.

1.4 Hazard Mitigation Plan Update

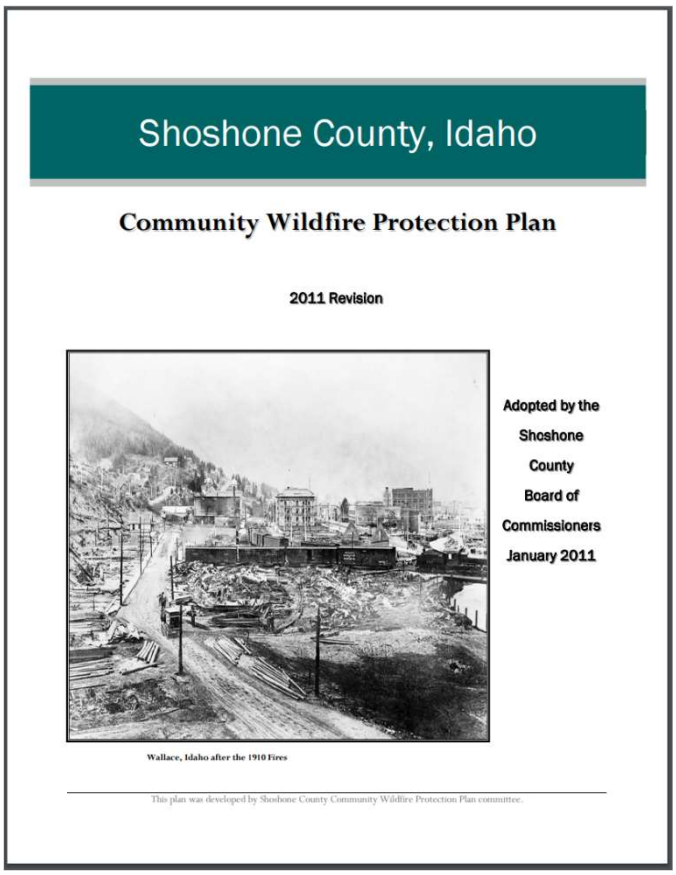
A community must review and revise their existing HMP, as required by 44 CFR§201.6(c)(v). The revision must reflect changes in development, progress made in local mitigation efforts, and changes in hazard and mitigation priorities. The update then must be resubmitted for approval within five years in order to maintain eligibility for FEMA mitigation grant funding. The county's previous HMP was originally completed and adopted in 2005, and expired in 2009. The plan was updated in 2017 through a collaborative effort between Shoshone County and participating communities, the Hazards

& Climate Impacts Research Center (HazCIRC), IOEM, and various agencies and organizations working within the county.

The update process built on the former plan but comprehensively updated the plan's various components. The planning process was rewritten to reflect the update process, and the risk assessment incorporated new hazard data and modeling to provide more comprehensive analysis of the county's risks. The plan update considered population and development changes over the past seven years, and future development and population growth over the next five years. Likewise, updates were made to include historical hazard occurrences and associated losses after 2009 were included, local regulatory and planning capabilities, the progress of mitigation actions in the county, and new mitigation actions to be implemented in the county over the plan's five-year lifecycle.

1.5 Community Wildfire Protection Plan

A Community Wildfire Protection Plans (CWPP) is similar in nature to the HMP, though primarily focuses on wildfire. Following the enactment of the Healthy Forests Restoration Act (HFRA) in 2003, communities can engage in comprehensive forest planning with federal partners through the creation of a CWPP, which identifies and prioritizes hazards and needs associated with wildfire. In the State of Idaho, the CWPP is under the purview of the Department of Lands (IDL), and county CWPPs tier to the Idaho State Implementation Strategy for the National Fire Plan.


Shoshone County, Idaho

Community Wildfire Protection Plan

2011 Revision

Adopted by the Shoshone County Board of Commissioners January 2011

Wallace, Idaho after the 1910 Fires

This plan was developed by Shoshone County Community Wildfire Protection Plan committee.

Figure 2. Shoshone County Wildfire Protection Plan

Similar to the HMP, the Shoshone County CWPP identifies and documents areas at risk to wildfire, details strategies and actions to decrease wildfire risk and losses, and provides assistance to residents, organizations, and agencies within the county.

Due to similar plan format and requirements, the 2017 plan update incorporated the Shoshone County Community Wildfire Protection Plan (CWPP) by attaching it in the appendices. In the future,

the county hopes to fully integrate an updated CWPP in the HMP. Advantages of integrating both plans include a more comprehensive overview of all hazards and mitigation strategies in the county, opens funding avenues not previously available, and allows for the maintenance of one consolidated document.

1.6 Plan Organization

This plan is organized into the following sections:

- Introduction – Provides an overview of mitigation, hazards, and the basis of HMPs.
- Prerequisites & Promulgations – Provides an overview of the jurisdictions that adopted the HMP.
- Planning Process – Details the process undertaken for the 2017 plan update. This section identifies and details the planning committee, participating jurisdictions, and stakeholders.
- County Profile – Provides an overview of Shoshone County and the many factors considered throughout the plan update.
- Risk Assessment – Details identified hazards and risks facing the county. Hazard profiles include hazard descriptions; hazard extents, magnitudes, and past occurrences; population, structure, and structure value exposure; socioeconomic vulnerability assessments; loss estimates; and land use and future developments in relation to hazards.
- Mitigation Strategy – Details the county's commitment and strategy to reduce loss of life and property from hazards and risks identified in the Risk Assessment. Includes goals, objectives, and specific actions. This section also includes funding avenues, detailed National Flood Insurance Program (NFIP) information, and more.
- Plan Maintenance – Details the county's commitment to maintaining the 2017 plan through the five-year lifecycle. The county will monitor, evaluate, and update the plan on a bi-annual basis, and engage the public throughout the process. This section also includes recommended updates for the 2021 plan update.
- Community Wildfire Protection Plan – The Shoshone County CWPP is collected in a stand-alone chapter to allow land managers and incident management teams for use in their decision processes.

1.7 Mitigation Goals & Objectives

Mitigation goals and objectives frame the mitigation strategy, and provide the framework in which mitigation actions are situated. Mitigation goals are general statements of desired outcomes for the community, and provide direction for decisions within the strategy. Mitigation objectives are specific statements that are measurable and help fulfill the mitigation goals. In general, there were no major changes in the 2017 update to the plan's overarching goals and objectives that were listed in the former plan. Those goals and objects that pertained to mitigation actions completed and not carried forward were removed. New goals were added for new mitigation actions.

Table 3. Mitigation Goals

Goal 1. Promote and implement disaster-resistant development policies.
Goal 2. Build and support local capacity to enable the local government and the community to prepare for, respond to, and recover from disasters.
Goal 3. Reduce the possibility of damages and losses due to Floods.
Goal 4. Reduce the possibility of damages and losses due to Wildfire.
Goal 5. Reduce the possibility of damages and losses due to Landslides.
Goal 6. Reduce the possibility of damages and losses due to Earthquakes.
Goal 7. Reduce the possibility of damages and losses due to Severe Weather.

Table 4. Parallel Mitigation Goals

Goal 1. Reduce the threats to public health and safety posed by natural hazards.
Goal 2. Reduce the threat and negative impacts of past soil contamination in Shoshone County as released and redistributed by natural disasters, especially flooding.
Goal 3. Prioritize the protection of people, structures, and infrastructure that contribute to our way of life and the sustainability of the local and regional economy.
Goal 4. Educate people and communities about the unique challenges of hazard mitigation in their daily lives.
Goal 5. Establish mitigation priorities and develop mitigation strategies.
Goal 6. Reduce the negative environmental impacts of natural hazards.
Goal 7. Reduce the long-term costs of disaster recovery and disaster mitigation through intelligent and strategic mitigation policies and practices.
Goal 8. Identify and facilitate the management for sustainable land use in light of natural hazards and our management of the land resources.

Table 5. Mitigation Objectives

Objective 1. Improve hazard area identification and emergency warnings to citizens and visitors.
Objective 2. Increase public awareness of natural hazards and improve appropriate preparation for and response to such hazards.
Objective 3. Prevent new development in areas that are vulnerable to hazards or ensure that development occurs in such a way as to mitigate risks to the new development without putting others at increased risk.
Objective 4. Assess, protect, alter, and/or relocate existing developments in those areas where developments are at current risk to natural hazards, to make them less susceptible to catastrophic loss.
Objective 5. Ensure that the implementation plan developed to protect existing developments is the most cost-effective alternative, given considerations for: a. Personal and business investments b. Natural resources c. Existing land use plans d. Economy of Shoshone County
Objective 6. Utilize the cost / benefit analysis criteria when evaluating implementation plans for mitigation measures (during implementation) to ensure that the benefits of the plan outweigh the costs of implementation – both short-term and long-term.
Objective 7. Maintain, improve and where appropriate formalize, coordination and consistency between the Shoshone County government the policies and actions with other neighboring jurisdictions and governmental activities, as appropriate, including: a. State of Idaho i. Kootenai County ii. Benewah County iii. Latah County iv. Clearwater County b. State of Montana c. Idaho State Agencies i. Idaho Department of Lands ii. Idaho Department of Environmental Quality iii. Idaho Transportation Department d. Federal Governmental Organizations i. Environmental Protection Agency ii. USDA: Forest Service iii. USDI: Bureau of Land Management iv. Homeland Security: Federal Emergency Management Agency

II. PREREQUISITES & PROMULGATIONS

2.1 Overview

Governing bodies have the authority to promote sound public policy regarding hazards. Copies of the signed resolutions and promulgations are included in Appendix A. Upon approval by IOEM and FEMA and adoption by the local jurisdictions, Shoshone County and the other plan signatories gain eligibility for pre- and post-disaster federal funding assistance, such as grants from the Pre-Disaster Mitigation Grant Program and the Hazard Mitigation Grant Program.

2.2 Jurisdictional Adoption

The following jurisdictions have the authority to adopt the plan:

- City of Kellogg
- City of Mullan
- City of Pinehurst
- City of Smelterville
- City of Wallace

The City of Warder and the City of Osburn are not seeking plan approval as the cities did not participate in the 2017 plan. The two cities plan to adopt the plan as soon as possible once each jurisdiction has met the necessary requirements for adoption. This will be done by developing an appendix to the plan showing how they met all planning requirements. (jurisdictional public outreach, jurisdictional vulnerability assessment, etc.). Once this appendix is approved, the cities will be on the same plan lifecycle as the Shoshone County Hazard Mitigation Plan. However, hazard risk assessments and mitigation actions were included in this plan update for the City of Wardner and the City of Osburn to enable a more streamlined adoption process.

III. PLANNING PROCESS

3.1 Overview

The planning process is vital to the development and completion of a comprehensive HMP that best fits a county and its communities. As with almost all planning efforts, the plan is only as good as the process itself. A major component of the planning process is involvement and participation from representatives and stakeholders from the county, local communities, State and Federal agencies, and other organizations. Through the process, perspectives on hazards and risks, community assets, and mitigation needs are discussed and incorporated into the plan. The planning process consisted of the following phases:

- Plan Update Kick-Off – The planning process for the 2017 plan update began in August of 2015 with a kick-off meeting between Cory Foster (Shoshone County Emergency Manager), Dr. Tim Frazier (HazCIRC), and Mark Stephensen (IOEM State Hazard Mitigation Officer). A work plan was proposed and agreed on, including hazards of focus, timelines, mitigation and adaption planning and stakeholder engagement, and more.
- Plan Review & Evaluation – The former plan was reviewed and evaluated according to the FEMA Local Mitigation Review Tool (2011) and a more stringent and comprehensive evaluation matrix developed by Frazier et al. (2013). The review and evaluation results guided the risk assessment and mitigation strategy for the 2017 plan update by identifying the strengths and weaknesses of the former plan.
- Risk Assessment – Hazard occurrences, damage assessments and estimations, and hazard impacts were collected for the county. Additional hazards were included in the 2017 plan update, and all hazard profiles updated to reflect current science and risk. Various probabilistic models; scenario-based loss estimates; population, structure, and critical facility exposure; and a comprehensive socioeconomic vulnerability analysis were employed to provide a more holistic and comprehensive assessment of the county's risks.
- Mitigation Strategy Review – The mitigation actions listed in the former plan were reviewed and their status determined by the responsible agencies and departments. This involved reaching out to numerous individuals, agencies, and departments in the county in order to collect information on the progress, completion percent, timeline, and challenges of the mitigation actions. Overall mitigation goals and objectives were likewise visited and updated as necessary.
- Mitigation Strategy Update – New and additional mitigation actions were detailed and scored by the planning committee for inclusion into the 2017 plan update. Each jurisdiction was provided the opportunity to put forth mitigation actions for discussion and approval.
- Public Involvement & Outreach – The public was invited to attend a meeting to review the risk assessment, proposed mitigation actions, and provide comments and feedback. Large format

maps provided a place for public participants to locate and draw areas of concern. A hazard survey provided opportunities for both the public and planning committee to provide local risk perceptions for inclusion into the 2017 plan update. Finally, a webpage provided an online presence, and provided links to the draft plan, opportunity to comment and provide feedback, and links to the survey and CityEngine scene developed for Pinehurst.

- Plan Completion & Adoption – HazCIRC compiled all planning documentation, completed the risk assessment, and collected new mitigation actions to produce the first version Shoshone County Hazard Mitigation Plan 2017 Update. The draft was distributed to the planning committee, IOEM, and the public for review and comment. Feedback and comments were incorporated into the second draft. Additional hazard profiles, modeling, and mitigation actions were also incorporated into the second draft. After the review and edit period, the plan was formally submitted to IEOM and FEMA for approval.

3.1.1 FEMA Requirements

This section was developed consistent with the process and requirements detailed by FEMA. This section satisfies the following FEMA requirements:

- FEMA 44 CFR §201.6(b) – An open public involvement process is essential to the development of an effective plan. In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process shall include:
- FEMA 44 CFR §201.6(b)(i) – An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval;
- FEMA 44 CFR §201.6(b)(ii) – An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia and other private and non-profit interests to be involved in the planning process; and
- FEMA 44 CFR §201.6(b)(iii) – Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.
- FEMA 44 CFR §201.6(c)(i) – [The plan shall document] the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved.

3.2 Jurisdiction Participation

The hazard mitigation planning process is built on the participation of the county and the incorporated places within its boundaries. All jurisdictions were invited to participate in the 2017 plan update process either by attending planning meetings or by providing input and feedback regarding the risk assessment and mitigation strategy. Table 6 details the participation of jurisdictions in Shoshone County for both the 2009 and 2017 planning process.

Due to the rural nature of Shoshone County, coordination of participation within each individual jurisdiction was limited due to time, geographic, and personnel constraints. Jurisdictional participation was achieved through the attendance by representatives at planning meetings, who provided input and feedback regarding the risk assessment and mitigation strategy. Individual meetings were also held as needed between the emergency manager and the jurisdictions. These individual meetings also included receiving valuable input and feedback regarding the risk assessment and mitigation strategy. Although the City of Osburn and the City of Wardner did not participate in the planning process for this update, the cities will be adopting the plan at a later time once they have met all the necessary requirements.

Table 6. Jurisdictional participation

Name	2008 Participation	2017 Participation
Shoshone County	Yes	Yes
City of Kellogg	Yes	Yes
City of Mullan	Yes	Yes
City of Osburn	Yes	No
City of Pinehurst	Yes	Yes
City of Smelterville	Yes	Yes
City of Wallace	Yes	Yes
City of Wardner	Yes	No

3.3 Planning Committee

The planning committee helped steer the 2017 plan update and played a key role in the development and completion of the update. The planning committee was headed by Cory Foster and included representatives from various county and city departments and agencies. Members of the planning committee participated in meetings, provided input on the risk assessment and past hazard occurrences, discussed current issues and potential problems facing the county, reviewed the status of mitigation actions listed in the former HMP, and put forward new mitigation actions for inclusion

in the 2017 plan update. Table 7 details the planning committee, their titles and representing jurisdictions or agencies, and their participation history.

Table 7. Planning committee members

Name	Title	Jurisdiction or Agency	2009 Participation	2017 Participation
Cory Foster	Emergency Manager	Shoshone County	-	Yes
Mark Aamodt	Fire Chief	Fire District #2	-	Yes
David Wuolle	Chief of Police	Kellogg	-	Yes
David Olson	Street Overseer	Pinehurst	-	Yes
Rick Smith	City Council Member	Mullan	-	Yes
Jay Huber	Commissioner	Shoshone County	-	Yes
Kjell Truesdell	Fire Warden	Cataldo Fire Department	-	Yes
Aaron Cagle	Fire Chief	Shoshone County District Fire #1	-	Yes
Greg Zupah	Transportation Director	Wallace School District	-	Yes
Terry Harwood	Executive Director	BEIPC	Yes	Yes
Dan Martinsen	Director	Shoshone County Planning & Zoning	-	Yes
Forrest Greenfield	Public Works	Shoshone County Public Works	-	Yes
Sam Gibbons	Fire Management Officer	USFS & Smelterville	-	Yes

3.4 Stakeholder Participation

Stakeholders are those individuals, businesses, utilities, State and Federal agencies, and any other entity with an interest in hazard mitigation in Shoshone County. Stakeholders provide information, perspectives, and input on all aspects of the planning process. Table 8 details stakeholders engaged throughout the 2017 plan update, their role and representation, and their contribution.

Table 8. Participating stakeholders

Name	Title	Jurisdiction or Agency	Participation
Susan Cleverly	State Hazard Mitigation Officer	IOEM	Planning Meeting
Ben Roeber	State Hazard Mitigation Planner	IOEM	Planning Meeting
Mark Magnus	Building Official	Kellogg	Planning Meeting
Henry Nipp	Fire Mitigation Project Manager	Shoshone County office of Fire Mitigation	Planning Meeting
Jay Baker	Area Field Officer	IOEM	Planning Meeting

3.5 Planning Meetings

Meetings attended by the planning committee and other stakeholders were held to review the former HMP, propose updates and the update process, review the mitigation actions listed in the former HMP, discuss the risk assessment, and solicit new and additional mitigation actions. The following summaries provide an overview of the meetings held throughout the planning process, and Appendix C contains the presentations used in the meetings.

3.5.1 August 2015 Kick-Off Meeting

The kick-off meeting signified the beginning of the 2017 plan update, and was held in August 2015. The meeting was attended by Cory Foster, Shoshone County Emergency Manager, and Dr. Tim Frazier, Director of HazCIRC. The meeting provided an overview of the grant, some of the hazards to be addressed, the work plan for the update process, mitigation and adaptation plan analysis criteria and metrics, and introduced socioeconomic vulnerability.

Hazards to be addressed included those specific to the county, included severe storms, windstorms, dam and levee breaks, earthquake, mud and landslide, fire, and drought. The need to incorporate climate impacts and climate vulnerability was discussed, as was multi-modal evacuation modeling. Multi-model evacuation modeling employing a HazCIRC-developed MATSim custom travel demand model was presented, which identified evacuees based on a variety of data and modifiable to match county needs and assumptions.

The first step of the work plan discussed was an evaluation of the former HMP. Evaluations using both FEMA requirements and a more comprehensive HazCIRC-developed HMP evaluation matrix was discussed and approved. The HazCIRC-developed evaluation matrix was constructed to better assess the quality of HMPs, and incorporated much more stringent criteria that judged plans on their ability to minimize or prevent losses, their consideration of physical exposure, inclusion of probabilistic

mapping and socioeconomic analyses, data quality, the localization of the plan to the county, and more. The Spatially Explicit Resilience-Vulnerability (SERV) model was then detailed, followed by examples of previous application and usability.

Additional aspects of the proposed planning process were discussed, including the need to better integrate the HMP with community planning (e.g., the Shoshone County Comprehensive Plan), the need for better coordination across the county, its communities, and stakeholders, and the need for more extensive public participation throughout the planning process. The difficulty in linking hazard mitigation policy and practice was then discussed, focusing on competing interests, uncertainty in modeling, political environments, and measures to overcome these difficulties.

A skeleton structure of the 2017 plan update was proposed. Specifics included a probabilistic-based risk assessment, vulnerability assessment, hazard mitigation summaries and strategies, and benefit-cost analysis. The proposed end product of the process was a FEMA-certified HMP adopted and effective for five years. Figure 3 shows the proposed timeline that concluded the kick-off meeting.

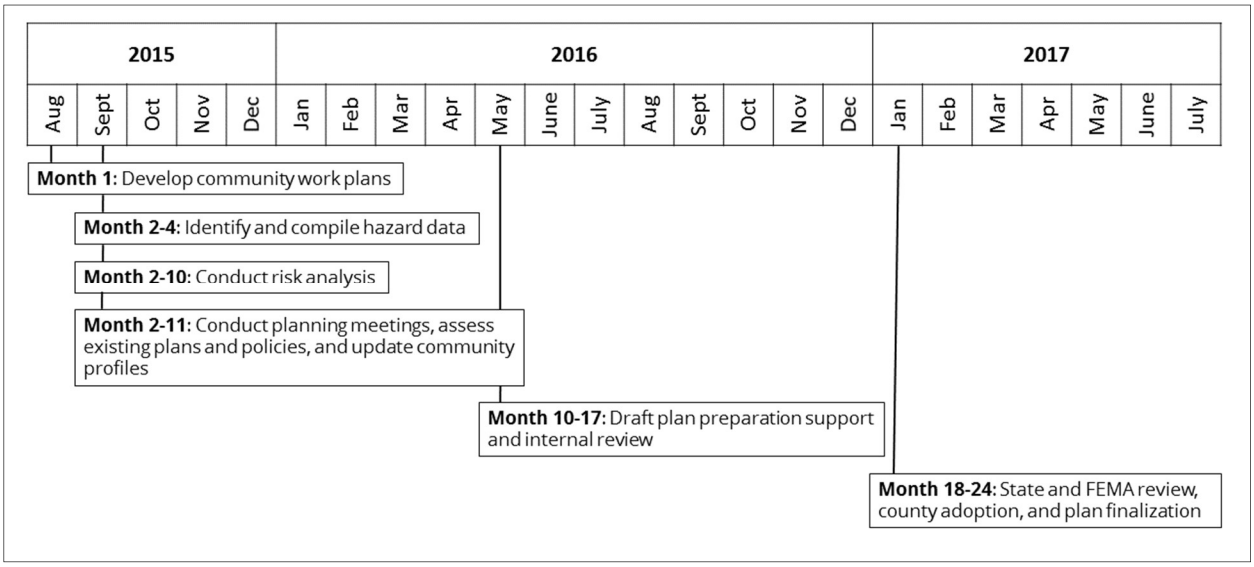


Figure 3. Planning timeline

3.5.2 October 23, 2015 Planning Meeting

Members of the planning committee met on Friday, October 23, 2015 to discuss the evaluation of the former HMP. The meeting was held from 11:00am to 1:00pm at the Shoshone County Sheriff's Office in Wallace, ID. The meeting was attended by the Shoshone County Emergency Manager, the State Hazard Mitigation Officer from IOEM, the county planner, and members of HazCIRC.

The meeting was facilitated by Dr. Tim Frazier, Alexander Peterson, and Michelle Ritchie of HazCIRC. The meeting commenced with a grant overview, progress made to date, and next steps in the planning process. An overview of the former HMP evaluation was discussed, beginning with the rationale for the evaluation matrix used. The matrix was developed by Dr. Tim Frazier and graduate students, and built on FEMA requirements by incorporating additional criteria based on pre- and post-disaster experiences and knowledge, interviews with local experts from across the US, and scientific and academic literature.

An overview of various models to be employed throughout the 2017 plan update were then presented. These models included the SERV model and MATSim, a first-in, first-out evacuation model. Both models had been employed successfully across the country in both planning and scientific research. Also presented were ESRI's CityEngine, which visualizes hazard risk in 3D; a mitigation mapping model to highlight the potential area of effect of various mitigation measures; and the Idaho Department of Health & Welfare's (IDHW) Public Health Jurisdictional Risk Assessment (JRA) which assessed public health systems across Idaho from a hazards perspective.

Following this, a data inventory and web portal was presented. Also presented were 2017 plan updates specifically concerning mitigation, including the need for the incorporation of monitoring and evaluation metrics, a mitigation ranking method and feedback form, and future planning meetings to discuss these metrics.

3.5.3 February 18, 2016 Planning Meeting

The February planning meeting focused on reviewing the mitigation strategies listed in the former plan. The meeting was held at 1:00pm on Thursday, February 18, 2016 at the Shoshone County Sheriff's Office in Wallace, ID. The meeting was attended by 14 planning committee members, the State Hazard Mitigation Officer, the IOEM Area Field Officer for the north region, and the cities of Pinehurst, Mullan, Smelterville, and Kellogg.

The planning meeting commenced with a presentation by Alexander Peterson of HazCIRC. The presentation consisted of an overview of the community work plan approved in the kick-off meeting held in August 2015 and the evaluation and update meeting held in November 2015. Progress made to date on all targeted areas of the 2017 plan update was detailed, including the risk assessment, the mitigation strategies, and the plan writing. Progress on the risk assessment was discussed with the planning committee, with each component and its associated timeline addressed. These components included the socioeconomic vulnerability assessment utilizing the SERV model, the biophysical exposure assessment, CityEngine, the MATSim evacuation model, HazMat plume modeling, the landslide assessment, and the Level II Hazus-MH runs for earthquake and floods. Draft figures of the CityEngine scene of Pinehurst and the exposure components of the SERV model were shown to the committee.

Following discussion of the risk assessment, the work plan for the mitigation strategy review and update was presented. The work plan included the mitigation strategy review, a targeted comprehensive plan evaluation and summary to identify possible convergence areas between the plans, mapping current and possible mitigation actions areas-of-effect, and prioritizing and ranking the mitigation actions. Discussion on developing the plan structure and the writing and updating of the 2017 plan update followed, and the incorporation of the planning committee perspectives, the risk assessment results, and public comments from slated public meetings discussed.

The presentation then covered the primary purpose of the planning committee meeting, which was to review and begin evaluating the mitigation strategies listed in the former plan. The review examined the progress made towards implementing the mitigation actions throughout the county during the previous plan's lifecycle. Mandated in the update process by FEMA, the review and input from the planning committee provided a strong foundation for updating the mitigation strategies by revising, removing, carrying forward, or adding mitigation goals, objectives, and actions.

Copies of the Shoshone County Mitigation Review form was passed out to all participants, with a digital version projected to better facilitate group discussion. This form was generated by extracting all mitigation goals, objectives, and actions from the former plan, and provided space to mark the status (ongoing, complete, incomplete, etc.), if the planning committee desired to carry the action forward in the update process, the percent complete if progress had been made, an estimated timeline for completion, the responsible agency, challenges to implementation, an assigned priority, and notes for any other relevant information.

Following the mitigation strategy review, feedback was solicited on the Capabilities Assessment template and the Mitigation Actions Monitoring template. The Stakeholder Involvement form and the FEMA Capabilities Assessment form were discussed, with an April 2016 target to have completed by the planning committee.

3.5.4 April 14, 2016 Planning Meeting

The planning committee met on Tuesday, April 14, 2016 to discuss progress made to date, new and revised mitigation actions, and preliminary risk assessment results. The planning meeting was held from 9:00am to 12:00pm at the Shoshone County Sheriff's Office in Wallace, ID. The meeting was attended by six members of the planning committee, including representatives from the fire districts, City of Kellogg, Shoshone County Planning and Zoning, the Idaho Department of Environmental Quality (DEQ), and IOEM.

The meeting was facilitated by Alexander Peterson and Elizabeth Boyden of HazCIRC, and commenced with a narrative on progress made to date on the 2017 plan update. Progress included reviewing all mitigation actions listed in the former plan and a concerted effort by HazCIRC to reach out to county and community officials for feedback on mitigation actions with unknown status. A risk perception

survey to be distributed to Shoshone County residents was discussed and approved by the planning committee.

After discussing progress made to date, the committee members participated in a mapping exercise to be digitized and incorporated into the HMP. Committee members worked cooperatively to list and map the everyday community assets that are meaningful and contribute to Shoshone County's quality of life. Of note, mitigation and remediation actions were listed as important to the planning committee. The committee likewise discussed asset changes through time. The committee members then mapped future development areas across the county with a focus on the next five to ten years.

The preliminary risk assessment figures and results were then presented. Shoshone County experienced losses totaling more than $1.7 million since the HMP adoption in 2009, with one federal disaster declaration. The preliminary socioeconomic vulnerability assessment employing the SERV model was detailed, and sensitivity and adaptive capacity figures were shown. Hazard-specific results were presented for flood, earthquake, wildfire, hazardous materials, pandemic influenza, landslide, and severe weather.

Flood losses for five recorded events totaled $1,476,897 during the 2009-2014 period, making it the primary loss-inducing hazard in Shoshone County. Loss estimations were presented for 100-year and 500-year floods. These loss estimation scenarios were modeled in Hazus, FEMA's loss estimation software. Three scenarios employing different flood depth grids were run for the 100-year flood loss estimation, including an interpolated depth grid created by HazCIRC, a non-regulatory depth grid provided by FEMA, and depth grids generated in Hazus. One scenario employing FEMA-provided non-regulatory depth grids was run for the 500-year flood loss estimation. Results in tabular and map forms were presented, with the planning committee providing feedback on the loss estimations. Concerns regarding the inability of Hazus to capture remediation costs and efforts were discussed, with the committee concluding the scenarios inadequately captured the reality of floods in the county.

Earthquake figures and loss estimation results were presented next. Two earthquake scenarios were run in Hazus, including a probabilistic 7.0 magnitude earthquake with a 1,000-year return interval and a historical 1926 5.0 magnitude earthquake. Results and maps were shown, after which wildfire was discussed.

The requirements of updating and incorporating the Shoshone County Community Wildfire Protection Plan (CWPP) was discussed with the committee, with a preliminary wildfire risk assessment shown after discussions. The preliminary wildfire risk assessment showed historical ignition points and burn perimeters in the county over the period 2008 to 2013, with the model outputs from the Fire Risk Index providing context of potential ignition and impacts in the future.

The location, responsible parties, dates, and chemicals of hazardous material incidents over the 2009 to 2015 period were then listed, and a hazardous materials map showing exposure buffers around Tier II chemical facilities presented. Pandemic influenza model results showing the hospital admissions and deaths of the 1918 and 1968 pandemic influenza strains was also presented and discussed. Landslide and severe weather incidents and figures were presented next, with a

preliminary landslide index incorporating landslide-susceptible slopes, aspects, canopy cover, and geologic types providing the landslide risk assessment, and data provided by the National Weather Service showing wind and hail incidents across the county providing the severe weather risk assessment.

A secondary mapping exercise was completed, with committee members listing and mapping the facilities and places in the county vital to disaster response and post-disaster recovery. Repeatedly-damaged areas and infrastructure focused mainly on transportation-related losses, with critical facilities such as hospitals and medical centers, schools, fire stations, and police stations listed as vital.

Potential mitigation actions to be included in the HMP were discussed, with the committee concluding to focus resources and efforts on the actions carried forward from the outdated plan. A third mapping exercise to map the mitigation areas of effects was planned but cancelled due to time constraints.

3.6 Review of Existing Plans

Planning mechanisms were reviewed in both the former plan and 2017 plan update. In addition to re-reviewing those in the 2009 plan, the 2017 update focused more on in-depth evaluations and targeted integrations. The following documents were evaluated in-depth in the 2017 update:

- Shoshone County All-Hazard Mitigation Plan (2009) – This plan was evaluated on both its fulfillment of the FEMA Local Mitigation Review Tool (2011) and a comprehensive evaluation matrix developed by Frazier et al (2013). The FEMA Local Mitigation Review Tool lists and describes the requirements the HMP must fulfill according to the Code of Federal Regulation. The comprehensive HMP evaluation matrix provides more stringent and in-depth criteria on which to evaluate HMPs. These criteria are an expansion of the FEMA requirements and included evaluations of internal and external plan characteristics, issue identification and vision, fact-based hazard assessments, mitigation strategies, policy frameworks, monitoring and implementation, planning processes, coordination of local hazard mitigation planning, and organization and presentation. Results of these evaluations (collected in Appendix B) provided guidance throughout the 2017 plan update process.
- Shoshone County Comprehensive Plan (1996) – The comprehensive plan is the document with the most regulatory power, although the document is not regulatory in itself. According to Idaho's Local Land Use and Policy Act (LLUPA), the comprehensive plan needs to consider previous and existing conditions, trends, compatibility of land uses, desirable goals and objectives, or desirable future situations for 17 required components. The comprehensive plan guides the growth of the county and its communities. Often, the majority of the policies are carried out through zoning and subdivision ordinances, and policies within the plan are more likely to be implemented than if they were stated within a separate document, such as the HMP. Many comprehensive plans do not explicitly consider hazards, in spite of the

potential for loss of life and property due to hazards and risks present within the county. The comprehensive plan was assessed to ascertain the current status and future potential of HMP integration. Results of this evaluation are collected in Appendix B.

Other plans were reviewed and considered in the 2017 plan update. These plans were used to inform the County Profile and Land Use and Future Development Sections. They include the following:

- Shoshone County Airport System Plan (2009)
- Trail of the Coeur d'Alene's Response Action Maintenance Plan (2008)
- Bunker Hill Mining & Metallurgical Complex Superfund Site: Superfund Cleanup Implementation Plan (2012)

3.7 Google Drive Folder

To help facilitate collaboration, cooperation, and access to plan documents and data, HazCIRC established a Google Drive folder. Planning committee members and stakeholders were granted access to the Google Drive folder and invited to comment and contribute to the data inventory, figures and maps, and meeting notes and summaries stored online. The folder was routinely updated as progress was made on the 2017 plan update. Drafts of the updated plan were likewise stored in the Google Drive folder, allowing committee members and stakeholders to review and provide feedback and comments.

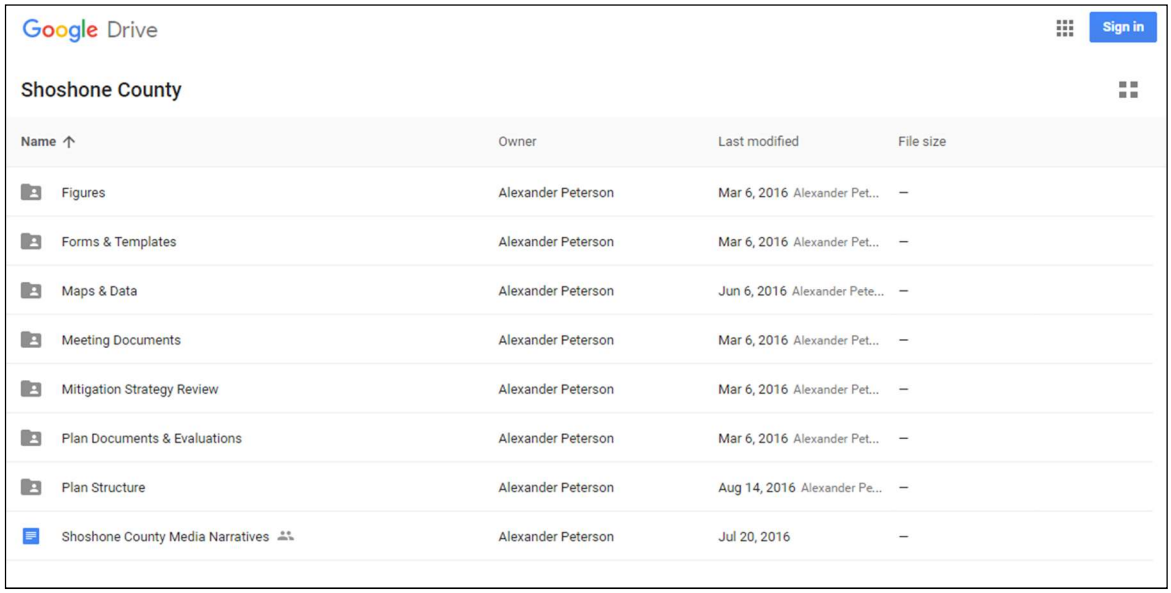


Figure 4. Screenshot of the Google Drive folder

3.8 Public Involvement

3.8.1 Risk Perception Survey

A survey to assess risk perceptions of various hazards across Shoshone County was created and distributed to the planning committee and the public in March 2016 and was left open online until March 2017. The survey focused on events occurring after 2009, and solicited feedback on individual levels of concern, dissemination of safety and preparedness information, the vulnerability of community assets to hazards, and mitigation actions. The survey and survey responses are found in Appendix E.

Fourteen members of the public responded to the survey. Of these fourteen responses, twelve individuals have directly experienced a hazard in the last five years. Fifty percent or more of these twelve respondents have experienced Severe Wind and Wildfire.

In terms of concern, fifty percent or more respondents marked that they were very concerned with Wildfire and somewhat concerned with Drought, Erosion, Extreme Temperatures, Flood, Severe Wind, Severe Winter Weather, and Hazardous Material Incidents. On the other end of the spectrum, fifty percent of more respondents marked that they were not very concerned or not concerned with Tornadoes.

Approximately eighty percent of the respondents marked that they have received information on household mitigation and risk reduction measures.

Approximately seventy percent of the respondents marked that they were aware of Shoshone County's HMP. Only about fifty percent of the respondents were award that the HMP was being updated prior to receiving the survey.

Of the community assets listed on the survey (human, economic, infrastructure, cultural/historic, environmental, and governance), human was ranked the highest followed by infrastructure.

These survey results informed the plan including corroborating the counties highest risk hazards. These include: Flood, Wildland Fire, Earthquakes/Seismic, Landslides, and Severe Winter Weather. As mentioned above, the respondents of this survey were very and somewhat concerned with Wildfire, Erosion, and Severe Winter Weather. This shows that this plan update also reflects public opinion. This helped inform this plan update in terms of keeping the priority hazards from the former plan the same going into the HMP's next plan lifecycle.

3.8.2 Webpage

A webpage hosted on the HazCIRC website was developed to provide a central online presence throughout the update process. The webpage housed the first version draft of the 2017 plan update

and subsequent revisions as edits, additional modeling and hazard profiles, and mitigation actions were completed. The website also housed preparedness information, the risk perception survey developed for the 2017 plan, and a web-based CityEngine scene of Pinehurst. Visitors were able to leave comments or email HazCIRC with feedback.

3.8.3 August 1, 2016 Public Meeting

A public meeting was held on Monday, August 1, 2016 at 6:00pm at the Shoshone County Sheriff's Office in Wallace, ID. The meeting was facilitated by Alexander Peterson of HazCIRC, and commenced with an overview of recent disasters in Shoshone County, the need for hazard mitigation, and the benefits of mitigation and maintaining a FEMA-approved HMP. An overview of the plan update detailed the grant through which the county's plan was updated, the goals of the update process, and the timeline of the work plan. An overview of the risk assessment was then presented and was followed by discussion of proposed mitigation actions in the county. Attendees were then invited to provide feedback on the first draft of the plan update, areas of high risk across the county, and where they perceive needed mitigation. Feedback from this public meeting was used to inform the county profile, risk assessment, and mitigation strategy.

3.9 Plan Review & Approval

Following the completion of the draft, the plan was submitted to IOEM for state review prior to submission to FEMA Region X. Once FEMA Region X completes its review and approves pending adoption, the county will formally adopt the plan. The communities then have up to one year to also adopt the plan.

IV. COUNTY PROFILE

4.1 Overview

Hazard mitigation within Shoshone County should be localized in order to maximize the reduction of losses to both life and property; therefore, it is pertinent to understand the county's characteristics, including current, past, and future trends. The county profile provides a comprehensive description of the county and its characteristics, which are further contextualized with regards to hazards in the Risk Assessment. The county is profiled in the following sections:

- Geographic Setting
- Demographics
- Resource Economics
- Climate
- Water Use
- Landcover
- Land Ownership and Management
- Summary of Superfund Status in the Silver Valley
- Valuation of Real Property

The county profile section was pulled from the former Shoshone County AHMP and was updated and reorganized in order to fit current county conditions. Some sections, including the property and structural assessments have not been updated as discussions with local county officials indicated that the values would still reflect current conditions of Shoshone County. However, these valuations of real property are not the exact valuations used in the risk assessment and should only be used to provide background context.

4.2 Geographic Setting

Shoshone County is located in the Idaho Panhandle and is bounded by the Rocky Mountain western crest on the east side of the county, coinciding with the Idaho/Montana state line. Moving from the southern Shoshone County boundary clockwise, Shoshone County borders the Idaho Counties of Clearwater County, Latah County, Benewah County, Kootenai County, and Bonner County.

The total area of Shoshone County is 1,682,327 acres (2,628.6 square miles), making it the eighth largest land area county in Idaho. This also makes Shoshone County slightly larger than the entire State of Delaware (2,489 square miles), and 70% larger than the State of Rhode Island (1,545 square miles).

The lowest elevation in Shoshone County is located along the St. Joe River as it enters Benewah County to the west at 2,132 feet (650 meters). The Coeur d'Alene River exit point from Shoshone County into Kootenai County is 2,145 feet (654 meters), just 12 feet higher in elevation than the exit point of the St. Joe River into Benewah County. The highest summit in Shoshone County rests at 7,700 feet (2,346 meters) at Illinois Peak, the very highest headwater contribution point to the St. Joe River. This high point is also along the political boundary between Shoshone County, Idaho, and Mineral County, Montana. The average elevation in Shoshone County is 4,255 feet (1,297 meters).

Shoshone County was established in 1864 and named after the Shoshone Indian Tribe. The county seat is Wallace. Shoshone County is widely known for the "Silver Valley" due to its mining history. The Silver Valley is famous nationwide for the vast amounts of silver produced from its mines. Wallace is known as the "Center of the Universe" and a manhole cover in Wallace even monuments its exact location as the "Center of the Universe".

Other incorporated cities include: Kellogg, Mullan, Osburn, Pinehurst, Smelterville, Wallace, and Wardner and unincorporated communities include: Adair, Avery, Big Creek, Calder, Cataldo, Clarkia, Enaville, Gold Creek, Kingston, Murray, Pine Creek, and Silverton.

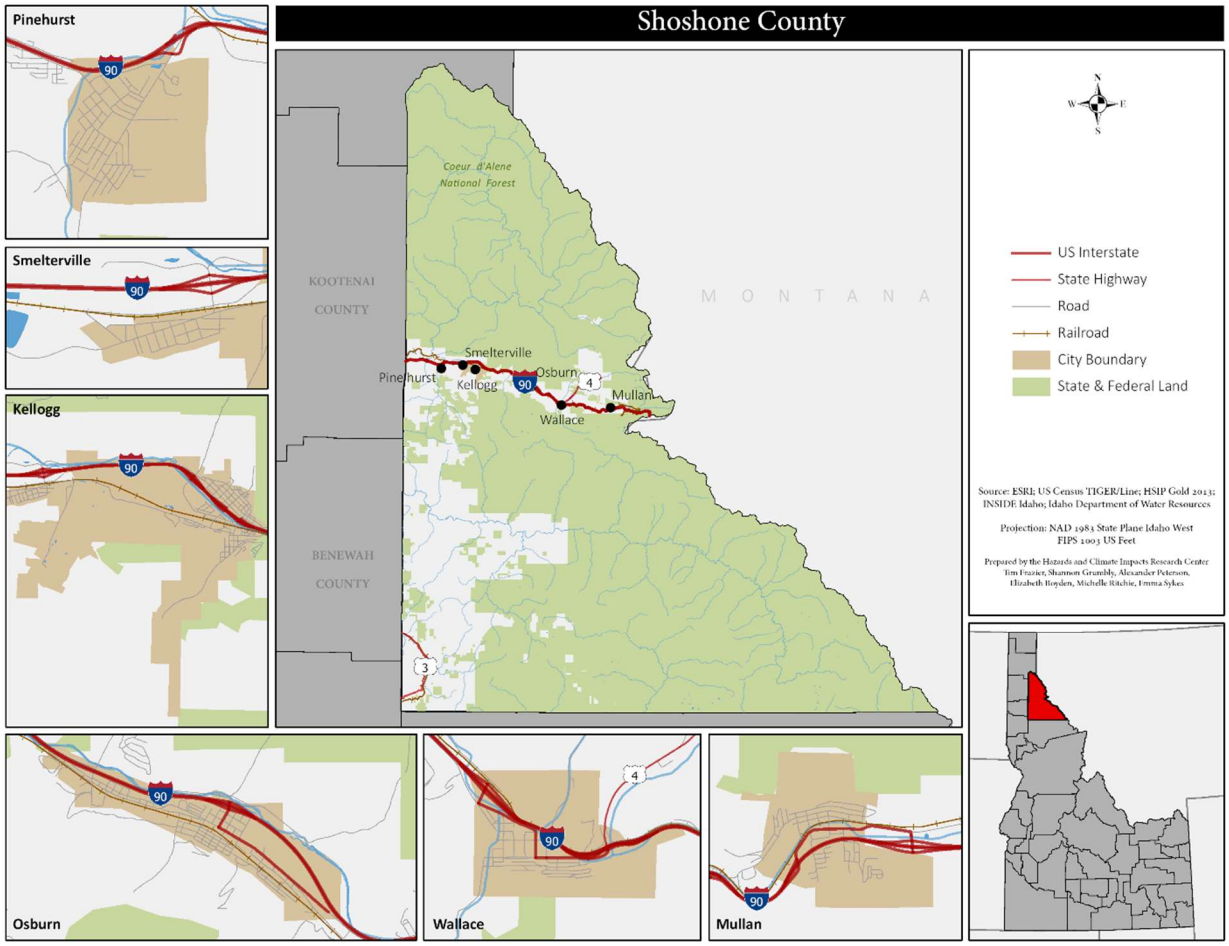


Figure 5. Location Map

4.3 Demographics

Shoshone County is located in the Idaho Panhandle and is bounded by the Rocky Mountain western crest on the east side of the county, coinciding with the Idaho/Montana state line. Moving from the southern Shoshone County boundary clockwise, Shoshone County borders the Idaho Counties of Clearwater County, Latah County, Benewah County, Kootenai County, and Bonner County. The population of Shoshone County in 2010 was estimated at 12,765 and is estimated to be at 12,432 in 2015 according to the American Community Survey.

As of the 2010 census, 5,605 households, and 3,511 families residing in the county. The racial makeup of the county was 95.4% White, 0.2% Black or African American, 1.4% Native American, 0.4% Asian, 0.1 Pacific Islander, 0.5% from other races, and 2% from two or more races. Approximately 3% of the population were Hispanic or Latino of any race.

In 2010, the median income for a household in the county was $38,006 and the mean income for a family was $49,564. The per capita income for the county was $20,803. Approximately 17.8% of the population were below the poverty level.

4.4 Resource Economics

Over the past century, employment through mining, farming, timber harvesting and livestock ranching has been significant in north Idaho. Forestry, logging, trucking, and related support industries have relied on timber harvests from this region. The communities of Shoshone County have been evaluated by the University of Idaho College of Natural Resources Policy Analysis Group for the degree of natural resource dependency each community experiences. Idaho communities with more than 10% employment in resource-based sectors (wood products, travel & tourism, agriculture, and mining) were evaluated by Harris et al. (2003). Their findings indicate the following (Harris et al. 2003):

- Kellogg: Travel, Tourism & Mining
- Mullan: Mining Only
- Osburn: Travel & Tourism Only
- Pinehurst: Wood Products, Travel & Tourism
- Smelterville: Travel, Tourism & Mining
- Wallace: Travel, Tourism & Mining
- Wardner: Agriculture Only

4.5 Climate

The Rocky Mountain western foothills continental climatic conditions prevail in much of Shoshone County. This weather pattern carries storm systems from the Pacific Ocean onto the continent, crossing the high Rocky Mountain crest along the eastern edge of Shoshone County. Because of this pattern, precipitation can be heavy at times and is frequently accompanied by high winds and extreme temperature variations.

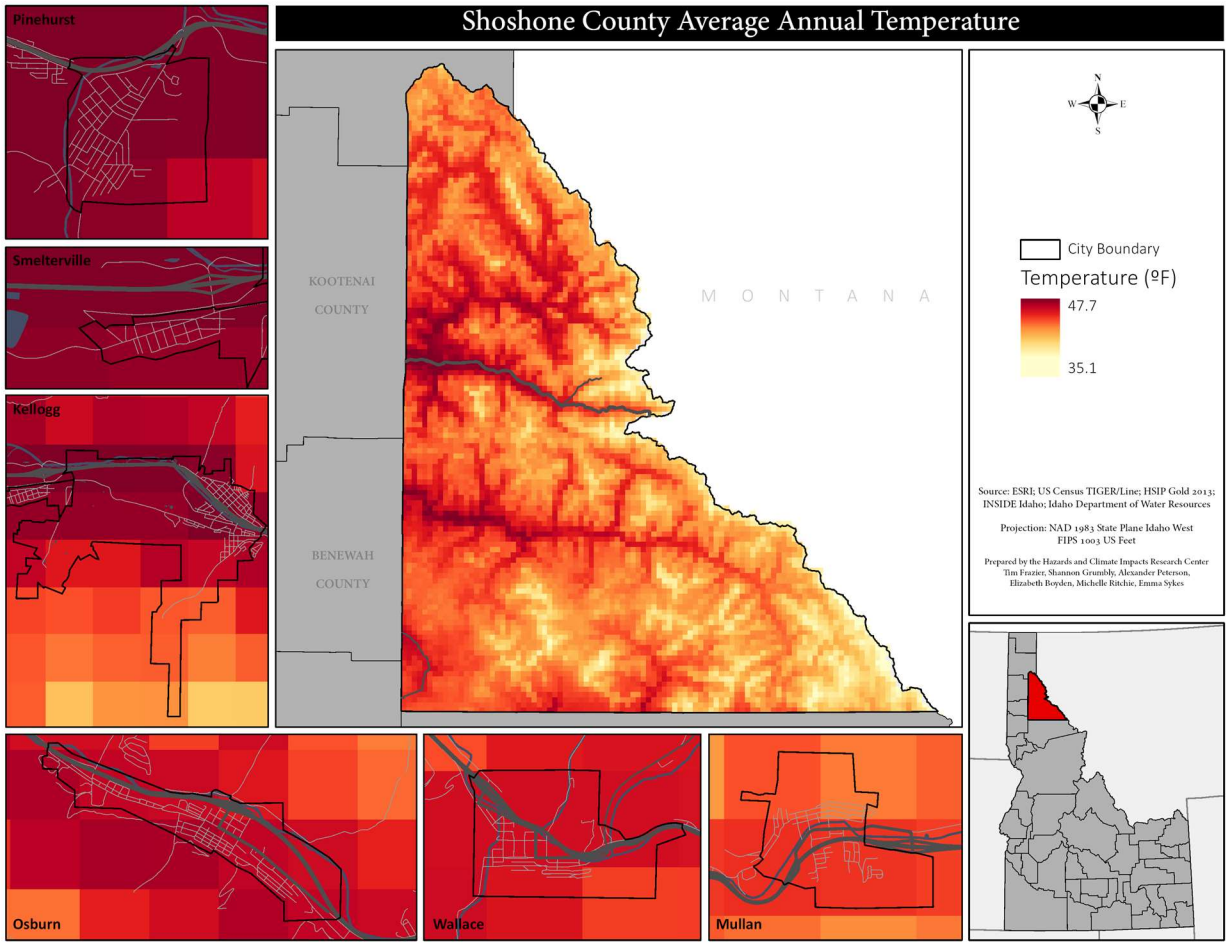


Figure 6. Average annual temperature

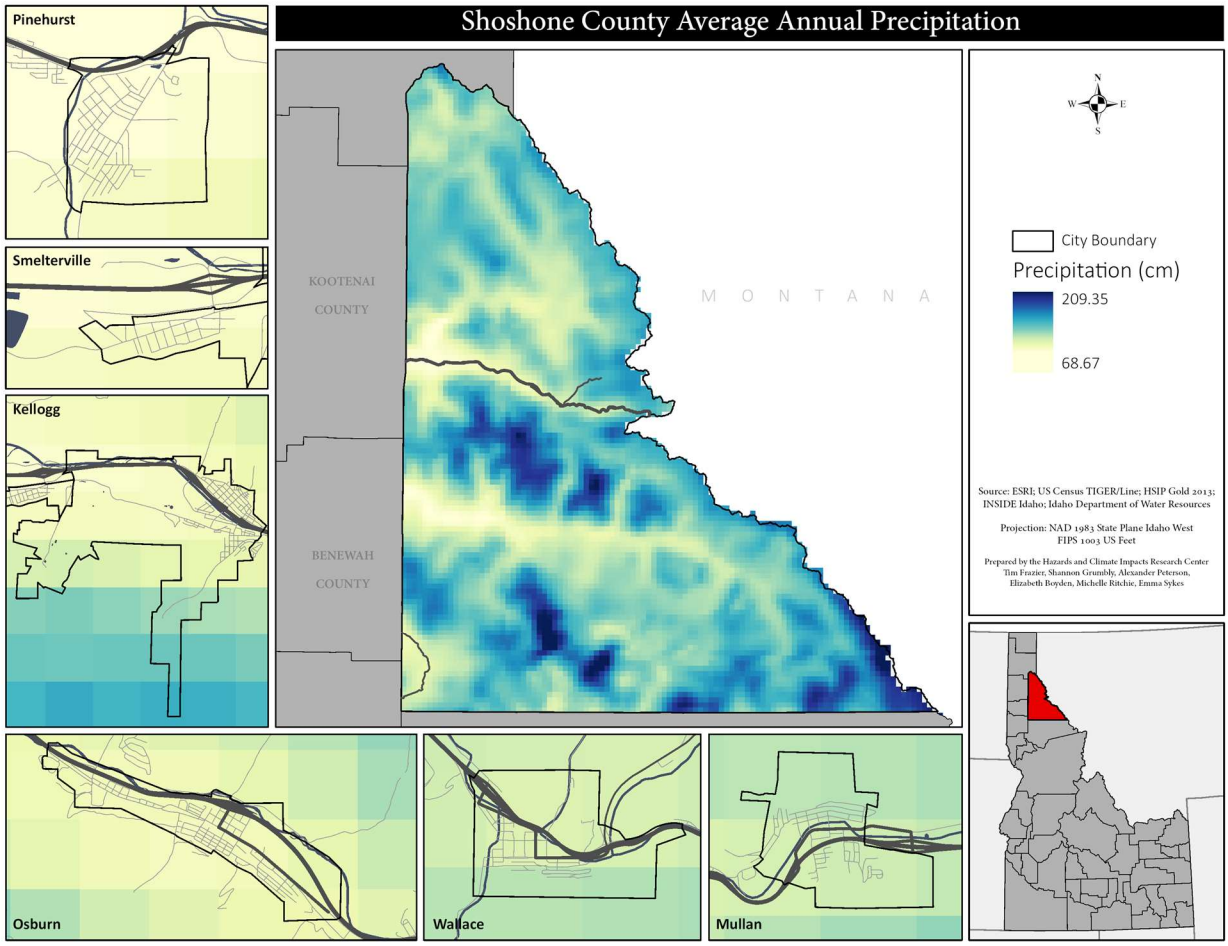


Figure 7. Average Annual Precipitation

4.6 Water Use

The Idaho Department of Water Resources maintains data on the public and municipal water supplies in geospatial and tabular format (IDWR 2009). Within Shoshone County there are six sub basins including: 1. The Upper Coeur d' Alene 2. Coeur d' Alene Lake 3. South Fork Coeur d' Alene 4. St. Joe 5. Lower North Fork Clearwater and 6. Upper Lower North Fork. These sub basins are mapped below along with the locations and recharge times for municipal wells in the county.

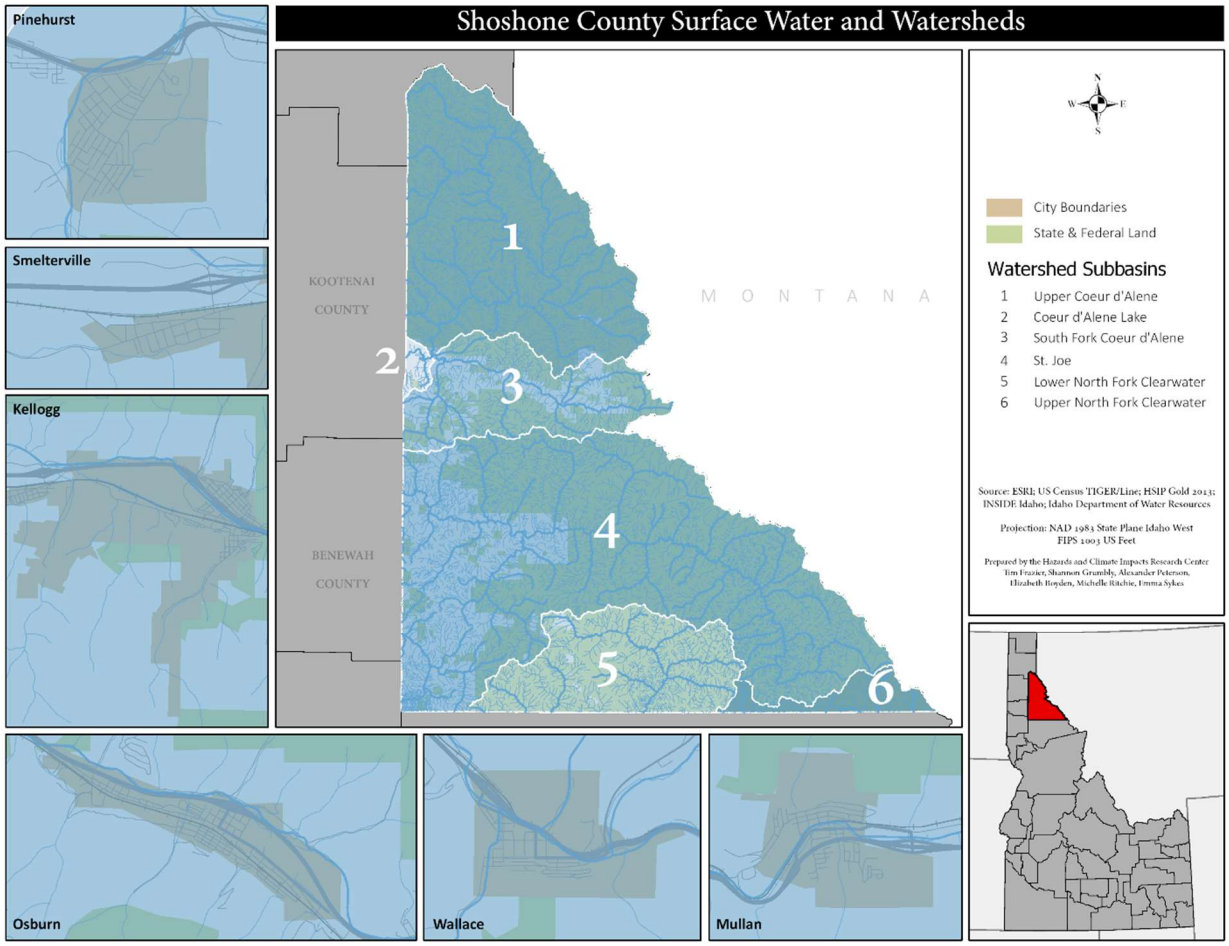


Figure 8. Surface Water and Watersheds

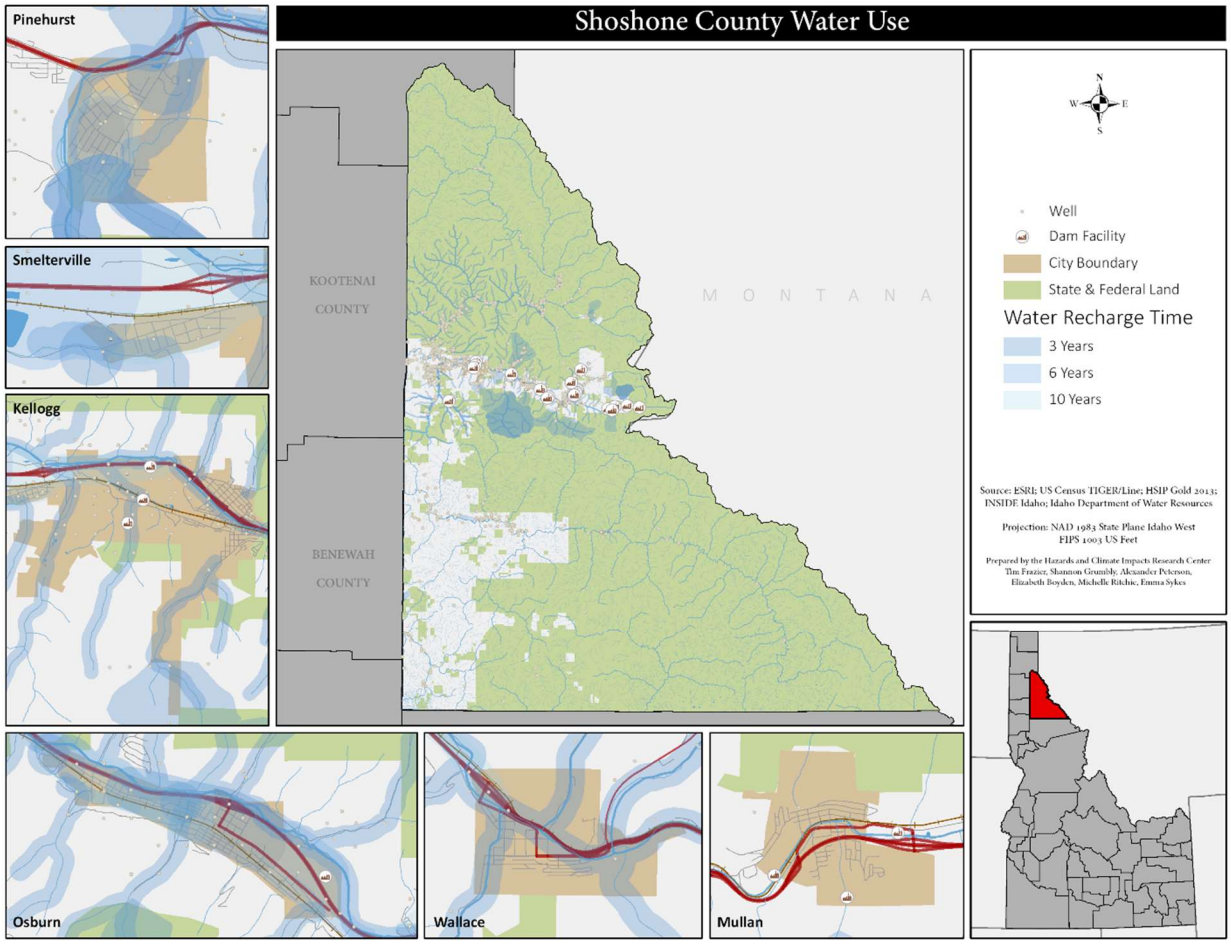


Figure 9. Surface and Ground Water Features and Dam Facilities

4.7 Land Cover

Shoshone County contains 15 classified land cover types according to the 2006 National Land Cover Database (NLCD). The classification of evergreen forest and scrub/shrub lands comprise an overwhelming 99% of the county (MRLC 2001). Only a small trace of land area in Shoshone County is agricultural land and much of this is located along the river systems of the Coeur d'Alene River, St. Joe River, and St. Maries River. Most of this agricultural land is used for pasture and hay to feed livestock and horses. Populated places in Shoshone County occupy a small percent of the total area, but sum to approximately 7,900 acres (including the high, medium, and low intensity developed areas in combination with developed open space). Much of these populated areas are located in the valleys of the major river systems including the Coeur d'Alene River (especially the South Fork), the St. Joe River, and to a lesser extent, the St. Maries River system. Figure 10 shows the geographical distribution of these land cover types and Table 9 provides each land cover type along with a description.

Table 9. Land Cover Types

Land Cover Type	Description
Open Water	Areas of open water, generally with less than 25% cover of vegetation or soil.
Developed, Open Space	Areas with a mixture of some constructed materials, but mostly vegetation in the form of lawn grasses. Impervious surfaces account for less than 20% of total cover. These areas most commonly include large-lot single-family housing units, parks, golf courses, and vegetation planted in developed settings for recreation, erosion control, or aesthetic purposes.
Developed, Low Intensity	Areas with a mixture of constructed materials and vegetation. Impervious surfaces account for 20% to 49% percent of total cover. These areas most commonly include single-family housing units.
Developed, Medium Intensity	Areas with a mixture of constructed materials and vegetation. Impervious surfaces account for 50% to 79% of the total cover. These areas most commonly include single-family housing units.
Developed, High Intensity	Highly developed areas where people reside or work in high numbers. Examples include apartment complexes, row houses and commercial/industrial. Impervious surfaces account for 80% to 100% of the total cover.
Barren Land (Rock/Sand/Clay)	Areas of bedrock, desert pavement, scarps, talus, slides, volcanic material, glacial debris, sand dunes, strip mines, gravel pits and other accumulations of earthen material. Generally, vegetation accounts for less than 15% of total cover.
Deciduous Forest	Areas dominated by trees generally greater than 5 meters tall, and greater than 20% of total vegetation cover. More than 75% of the tree species shed foliage simultaneously in response to seasonal change.
Evergreen Forest	Areas dominated by trees generally greater than 5 meters tall, and greater than 20% of total vegetation cover. More than 75% of the tree species maintain their leaves all year. Canopy is never without green foliage.
Mixed Forest	Areas dominated by trees generally greater than 5 meters tall, and greater than 20% of total vegetation cover. Neither deciduous nor evergreen species are greater than 75% of total tree cover.
Shrub/Scrub	Areas dominated by shrubs; less than 5 meters tall with shrub canopy typically greater than 20% of total vegetation. This class includes true shrubs, young trees in an early successional stage or trees stunted from environmental conditions.
Grassland/Herbaceous	Areas dominated by gramanoid or herbaceous vegetation, generally greater than 80% of total vegetation. These areas are not subject to intensive management such as tilling, but can be utilized for grazing.
Pasture/Hay	Areas of grasses, legumes, or grass-legume mixtures planted for livestock grazing or the production of seed or hay crops, typically on a perennial cycle. Pasture/hay vegetation accounts for greater than 20% of total vegetation.
Cultivated Crops	Areas used for the production of annual crops, such as corn, soybeans, vegetables, tobacco, and cotton, and also perennial woody crops such as orchards and vineyards. Crop vegetation accounts for greater than 20% of total vegetation. This class also includes all land being actively tilled.

Woody Wetlands	Areas where forest or shrubland vegetation accounts for greater than 20% of vegetative cover and the soil or substrate is periodically saturated with or covered with water.
Emergent Herbaceous Wetlands	Areas where perennial herbaceous vegetation accounts for greater than 80% of vegetative cover and the soil or substrate is periodically saturated with or covered with water.

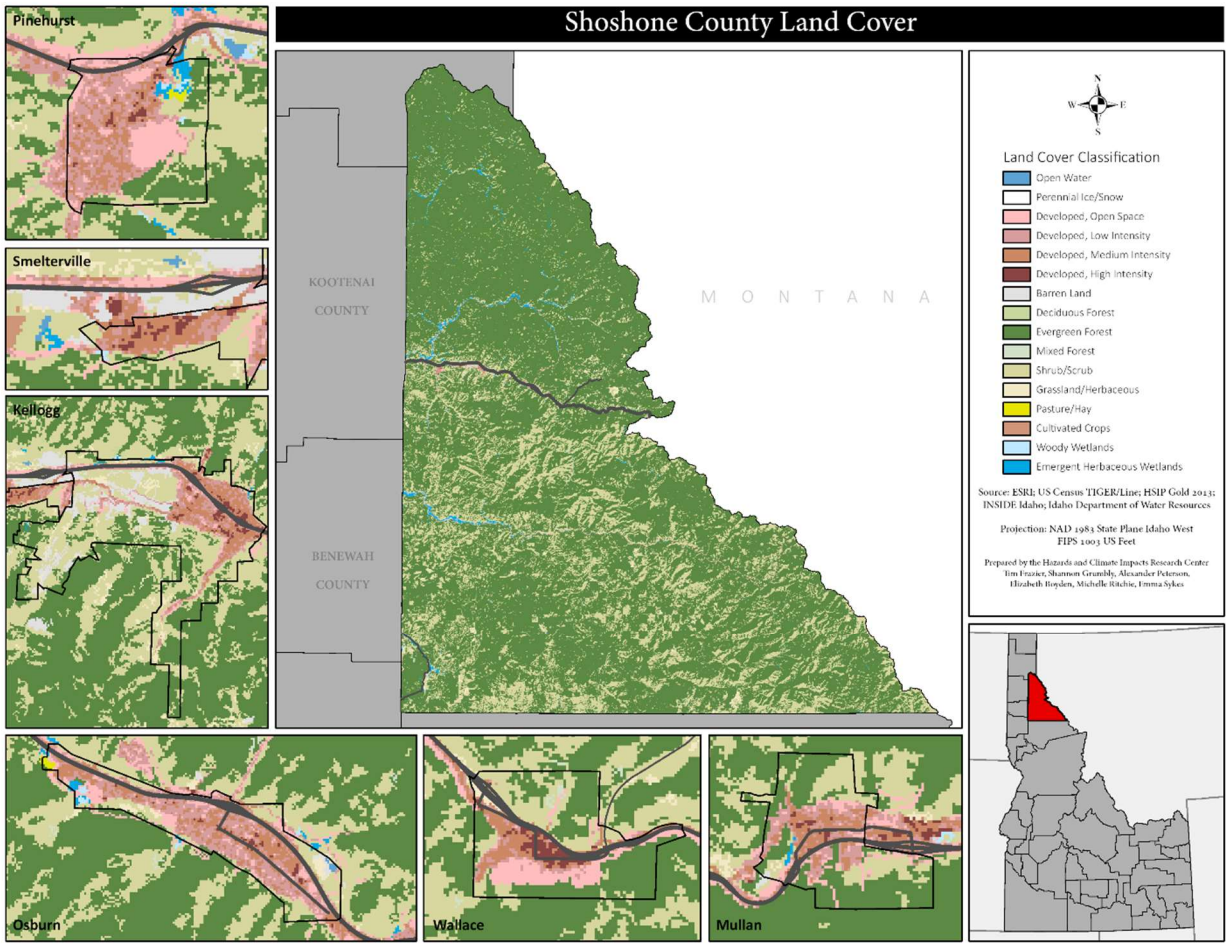


Figure 10. Land Cover Types Map

4.8 Land Ownership & Management

Land ownership in Shoshone County is dominated by federal ownership, mainly by the USFS and the BLM, who together manage approximately 76% of the land area in Shoshone County. Private land

holdings (66,272 acres) occupy slightly more than State of Idaho Department of Lands managed forests (61,680 acres) at about 4% of the total land area each. Significant land holdings are managed by forest industry in Shoshone County with 263,220 acres (16%). Although this latter category is considered a form of private lands, they have been evaluated separately. Table 10 summarizes the land ownership in Shoshone County by acres and percent of total area.

Table 10. Land Ownership

Land Ownership Category	Acres	Percent of Total
City	1	0.00%
City/County	1,604	0.01%
Coeur d' Alene Tribe	402	0.02%
Environmental Protection Agency (EPA)	258	0.02%
Fish and Game	12,578	0.75%
Forest Industry	263,220	15.65%
Private	66,272	3.94%
State	61,680	3.67%
USDA Forest Service (USFS)	1,204,823	71.62%
USDI Bureau of Land Management (BLM)	71,490	4.25%
Total Acres	**1,682,328**	

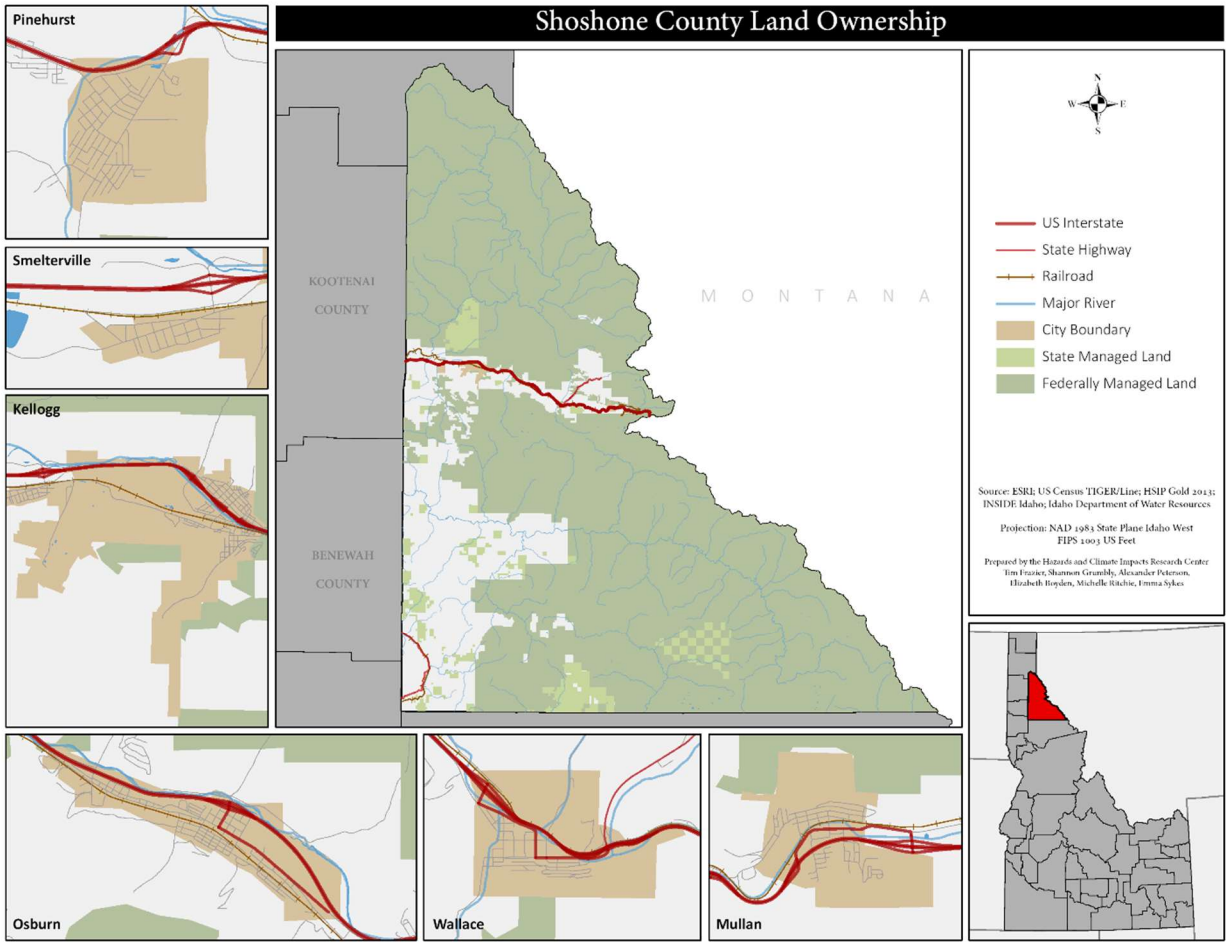


Figure 11. Land Ownership and Management

4.9 Summary of Superfund Status in the Silver Valley

The Bunker Hill Mining and Metallurgical Complex is a Superfund Site located in the Coeur d'Alene River Basin situated in approximately the center of Shoshone County and includes three Operable Units (OU). A century of releases from mining and smelting activities left several thousand acres contaminated with heavy metals. The most significant contaminants are antimony, arsenic, cadmium, copper, lead, mercury, and zinc. The principal sources of unconfined metal contamination were emissions from smelting operations and discharge of mine/mill tailings and waste rock to the South Fork Coeur d'Alene River and its tributaries. Several million tons of tailings were confined in large waste piles on-site or used as aggregate and fill in widespread construction activities. Tailings discharged to local streams have heavily contaminated approximately 1,100 acres of the floodplain. These wastes were subsequently transported throughout the area by flooding, erosion, wind, and anthropogenic activities. Decades of sulfur oxide emissions from smelter operations and extensive logging denuded the adjacent hillsides resulting in severe erosion.

This site was added to the National Priority List in 1983 due to the widespread heavy metal contamination and consequent excess blood lead levels identified in area children. An approximate 21 square mile area, commonly referred to as the Bunker Hill Box (the Box), contains the original OUs 1 and 2. The greater Coeur d'Alene River Basin surrounding the Box is OU3. The Populated Areas (i.e., OU1) Record of Decision (ROD) was adopted in 1991 and the Non-Populated Areas ROD (OU2) was adopted in 1992 (USEPA 1991 and 1992). The Basin (OU3) ROD was signed a decade later in 2002 (USEPA 2002).

The risk management strategy adopted in the RODs was to achieve exposure reductions through replacement and/or cover of contaminated soil, dust, and waste piles with clean soils. In residential and common use areas such as parks and schools, this meant 6 to 12 inches of contaminated soils were removed, placed in repositories on-site, and capped with clean soils. The Institutional Controls Program (ICP) was adopted to ensure the long-term integrity of these clean material barriers, and the Lead Health Intervention Program (LHIP) was implemented to minimize exposure through targeted intervention efforts in the interim (PHD 1999). The Panhandle Health District (PHD) adopted the ICP in 1995 and currently administers the ICP for the Bunker Hill Superfund site. The ICP was expanded into the Basin in July 2007. Under ICP rules, PHD is directed to require homeowners to repair their own barrier, once established, in order to control contaminant migration and exposure. Numerous documents have been prepared that describe the Bunker Hill Superfund site in more detail, particularly related to its location, background and history: the Five Year Reviews (USEPA 2000 and 2005), the RODs (USEPA 1991, 1992, and 2002), and the NAS review of mining megasites (NAS 2005) only name a few.

4.10 Valuation of Real Property

The total valuation of assessed property and improvements on private property in Shoshone County, as of 2008, and determined by the Shoshone County Assessor, was approximately $1.1 billion. The value of the improvements is approximately $642.7 million in Shoshone County. According to local officials during the 2017 update, these numbers still represent the approximate valuation of real property in 2017 as little development has occurred across the county. Table 11 summarizes these assessment values by community and incorporated city.

Table 11. Total Valuation of Assessed Property and Improvements (2008)

Community	Assessed Value Total	Improvement Value
Avery	$2,741,212	$1,947,219
Bear Creek	$2,369,350	$686,550
Big Creek – SF CdA River	$9,810,734	$6,880,771
Big Creek – St. Joe River	$5,161,467	$1,869,047

Burke Canyon	$15,849,076	$11,812,193
Calder	$6,270,850	$1,857,259
Cataldo	$7,565,344	$4,222,514
Clarkia	$6,100,797	$1,741,920
Eagle	$1,703,850	$732,390
Emerald Creek	$2,030,937	$537,738
Enaville	$11,838,051	$3,844,733
Hoyt	$980,950	$74,660
Kellogg - City	$223,276,633	$156,142,150
Kellogg - Rural	$18,473,030	$13,389,260
Kingston	$58,767,536	$35,112,556
Larson	$1,866,031	$1,086,311
Lower CdA River Rural Area	$32,976,113	$9,494,092
Marble Creek	$4,332,378	$2,128,459
Montgomery Gulch	$8,126,721	$5,824,281
Moon Creek Gulch	$8,710,922	$5,950,151
Mountain Meadows	$5,343,617	$2,929,865
Mullan - City	$36,203,184	$30,811,844
Mullan - Rural	$3,336,323	$1,615,963
Murray	$3,000,364	$1,962,880
Nine Mile Gulch	$6,073,666	$4,353,866
Osburn - City	$92,034,461	$71,267,743
Osburn - Rural	$21,867,179	$13,829,549
Page	$21,999,303	$7,331,110
Pine Creek & Pinehurst Rural	$39,504,469	$25,183,502
Pinehurst - City	$101,062,311	$73,284,691
Prichard	$30,089,646	$10,199,782
Silverton	$36,053,422	$28,530,275
Smelterville - City	$26,666,269	$19,511,917
Smelterville - Rural	$14,526,942	$8,525,564
Trout Creek	$2,549,210	$1,003,310
Wallace - City	$59,654,088	$51,387,467
Wallace - Placer Creek	$2,315,898	$1,797,418
Wallace - Rural	$1,414,980	$809,441
Wardner - City	$23,829,900	$12,601,454
Other Rural	$138,534,719	$10,392,147
All Shoshone County	**$1,095,011,933**	**$642,664,042**

While the Shoshone County Assessor's Office conducts property valuations for private and commercial property, the office does not complete this assessment on public property or structures. These public structures include county or municipality owned properties (City Halls, County Courthouse), state or federal properties, fire protection property, public works property, public health property (hospitals, clinics), non-profit organizations (churches), or public schools.

While some of the public agencies and organizations operate from a rented or leased property, others own the buildings where they conduct business. The former category of property is included on the Assessor's valuation if the property is owned privately and rented to the public entity. In the latter case, the Assessor's valuation does not include these property improvement values.

In order to collect valuation information on these public properties, the Multi-Jurisdictional Hazards Mitigation Plan committee members from the former Shoshone County AHMP, representing virtually all of the public service entities in Shoshone County, provided detailed insurance valuations for the properties where they conduct business. In general, the County Assessor's assessed value is not generally considered equal to an insurance policy valuation. However, these insured values were used as a representation of the relative value of improvements on publicly owned properties.

A total of $129.2 million of property improvements were reported by public entities in Shoshone County. These structure values were generated by the owner representatives. All of these are 2008 values.

Table 12. Public Structure Values (2008)

Community	Structure Function	Owner	Insured Value
AVERY	AVERY SCHOOL	SCHOOOL DISTRICT #394	$1,120,118
AVERY	USFS AVERY RANGER STATION	USFS	$2,454,531
CALDER	CALDER SCHOOL	SCHOOL DISTRICT #394	$403,559
CALDER	COUNTY SHOP ROAD DISTRICT 4	SHOSHONE COUNTY	$222,916
CALDER	FIRE AND EMS BUILDING	SHOSHONE COUNTY	$164,419
CALDER	FIRE DIST 4 BUILDING ONE	FIRE DISTRICT #4	$30,000
CATALDO	IDL CATALDO SUPERVISORY AREA	STATE OF IDAHO	$1,047,538
CLARKIA	CLARKIA FREE LIBRARY	CLARKIA FREE LIBRARY DISTRICT	$120,000
CLARKIA	CLARKIA WORK CENTER	USFS	$5,159,941
CLARKIA	WATER & SEWER TREATMENT	CLARKIA WATER & SEWER DISTRICT	$198,000
HOYT	HOYT FLAT	USFS	$4,999,808
KELLOGG	CITY HALL / FIRE DIST #2	CITY OF KELLOGG	$2,071,750
KELLOGG	COMMUNITY WELLNESS CENTER	WEST SHOSHONE HOSPITAL DISTRICT	$1,177,190
KELLOGG	COUNTY WASTE TRANSFER STATION	SHOSHONE COUNTY	$171,446
KELLOGG	KELLOGG GRADE SCHOOL	SCHOOL DISTRICT #391	$5,200,000
KELLOGG	KELLOGG HIGH SCHOOL	SCHOOL DISTRICT #391	$15,224,463
KELLOGG	KELLOGG MIDDLE SCHOOL	SCHOOL DISTRICT #391	$11,244,297

Community	Structure Function	Owner	Insured Value
KELLOGG	PANHANDLE HEALTH DISTRICT	HEALTH DISTRICT	$931,000
KELLOGG	SHOSHONE MEDICAL CENTER	WEST SHOSHONE HOSPITAL DISTRICT	$20,477,000
KELLOGG	SUNNYSIDE FIRE STATION	FIRE DISTRICT #2	$96,000
MARBLE CREEK	FIRE DIST 4 BUILDING TWO AT MARBLE CREEK	FIRE DISTRICT #4	$15,000
MULLAN	ATHLETIC PAVILION	MULLAN SCHOOL DISTRICT #392	$4,274,091
MULLAN	CITY HALL & MULLAN VOLUNTEER FIRE	CITY OF MULLAN	$538,700
MULLAN	FIRE DISTRICT 3 FACILITY	FIRE DISTRICT #3	$255,286
MULLAN	MAINTENANCE SHED	CITY OF MULLAN	$250,000
MULLAN	MULLAN ELEMENTARY SCHOOL	MULLAN SCHOOL DISTRICT #392	$2,115,710
MULLAN	MULLAN HIGH SCHOOL	MULLAN SCHOOL DISTRICT #392	$4,699,848
MULLAN	MULLAN TREATMENT PLANT	SFCDAR SEWER DISTRICT	$4,468,495
MULLAN	MULLAN VOLUNTEER FIRE	CITY OF MULLAN	$1,500,000
MULLAN	SAND SHED	STATE OF IDAHO	$405,100
MURRAY	COUNTY SHOP ROAD DISTRICT 1	SHOSHONE COUNTY	$291,435
OSBURN	COUNTY SHOP ROAD DISTRICT 3	SHOSHONE COUNTY	$886,389
OSBURN	DOG POUND	CITY OF OSBURN	$13,700
OSBURN	OFFICE/SHOP	SFCDAR SEWER DISTRICT	$317,329
OSBURN	OSBURN CITY HALL / FIRE STATION DIST #1	CITY OF OSBURN	$865,461
OSBURN	OSBURN POLICE GARAGE	CITY OF OSBURN	$33,966
OSBURN	OSBURN STREET GARAGE & SHOP	CITY OF OSBURN	$123,582
OSBURN	SILVER HILLS MIDDLE SCHOOL	SCHOOL DISTRICT #393	$6,983,671
OTHER	DUNN PEAK REPEATER SITE	USFS	$60,000
OTHER	GOOSE HUMP REPEATER SITE	USFS	$66,000
OTHER	KELLOGG PEAK REPEATER SITE	USFS	$28,000
OTHER	LITTLE GUARD LOOKOUT	USFS	$65,000

Community	Structure Function	Owner	Insured Value
OTHER	MAGEE REMOTE AUTOMATED WEATHER STATION	USFS	$30,000
OTHER	MAGEE WORK CENTER AND CABIN	USFS	$40,000
OTHER	NUCKOLS REMOTE AUTOMATED WEATHER STATION	USFS	$30,000
OTHER	SHOSHONE PARK	USFS	$30,000
PAGE	PAGE TREATMENT PLANT CONTROLS	SFCDAR SEWER DISTRICT	$750,000
PAGE	PAGE TREATMENT PLANT PUMPS	SFCDAR SEWER DISTRICT	$750,000
PINEHURST	PINEHURST CITY HALL	CITY OF PINEHURST	$160,801
PINEHURST	PINEHURST CLINIC	WEST SHOSHONE HOSPITAL DISTRICT	$427,551
PINEHURST	PINEHURST ELEMENTARY SCHOOL	SCHOOL DISTRICT 391	$6,344,297
PINEHURST	PINEHURST FIRE STATION	FIRE DISTRICT #2	$105,000
PINEHURST	PINEHURST LIFT STATION	SFCDAR SEWER DISTRICT	$300,642
PRICHARD	PRICHARD VOLUNTEER FIRE BUILDING	PRICHARD VOLUNTEER FIRE DIST	$90,760
SMELTERVILLE	CITY HALL	CITY OF SMELTERVILLE	$250,000
SMELTERVILLE	COUNTY SHOP ROAD DISTRICT 2	SHOSHONE COUNTY	$833,470
SMELTERVILLE	FOREST SERVICE OFFICE	USFS	$620,050
SMELTERVILLE	SHOSHONE COUNTY AIRPORT	SHOSHONE COUNTY	$190,761
WALLACE	CHAMBER OF COMMERCE	CITY OF WALLACE	$530,675
WALLACE	CITY HALL/ FIRE STATION	CITY OF WALLACE	$662,410
WALLACE	CIVIC AUDITORIUM	SCHOOL DISTRICT #393	$551,000
WALLACE	COUNTY PUBLIC SAFETY BUILDING	SHOSHONE COUNTY	$2,835,000
WALLACE	GARAGE / SHOP	CITY OF WALLACE	$67,147
WALLACE	LIBRARY	CITY OF WALLACE	$602,869
WALLACE	NP DEPOT MUSEUM	CITY OF WALLACE	$366,062
WALLACE	SHOSHONE COUNTY COURTHOUSE	SHOSHONE COUNTY	$4,502,389
WALLACE	SWIMMING POOL	CITY OF WALLACE	$123,961

Community	Structure Function	Owner	Insured Value
WALLACE	WALKING BRIDGE	CITY OF WALLACE	$24,595
WALLACE	WALLACE HIGH SCHOOL/JR HIGH	SCHOOL DISTRICT #393	$7,047,635
WARDNER	CITY GARAGE	CITY OF WARDNER	$79,883
WARDNER	CITY HALL	CITY OF WARDNER	$49,107

V. RISK ASSESSMENT

5.1 Overview

Risk assessments are key in aiding mitigation. A risk assessment identifies and characterizes hazards and potential socioeconomic impacts to the county and its citizens should a disaster occur. By undertaking a comprehensive risk assessment, the emergency manager and decision makers are able to compare, evaluate, and prioritize mitigation actions in the county and its communities in order to most effectively and efficiently reduce loss of life and property. The risk assessment also provides for more effective land use through zoning and planning, ultimately allowing for resilient growth in Shoshone County.

Risk is a statement of probability that a hazard will cause a certain number of casualties and economic losses. The general method of the risk assessment is as follows:

- Assess the hazard (including the location, extent, magnitude, and frequency of hazard occurrence both in the past and the probability of future occurrence).
- Assess the number of individuals and property exposed to the hazard.
- Assess critical and essential facilities exposed to the hazard.
- Assess the socioeconomic vulnerability of the community to the hazard.
- Assess land use and future development in the county with regards to the hazard extent.
- Assess potential climate change impacts on the hazard.

The 2017 update significantly reworked the risk assessment in the former plan, with focus on ease of use, consistency, and flow. Changes included restructuring the risk assessment and hazard profiles, incorporating new and additional hazard occurrence data, incorporating more advanced modeling, and analyzing potential climate change impacts.

5.1.1 FEMA Requirements

The 2017 plan update developed the risk assessment consistent with the process and requirements detailed by FEMA. This section satisfies the following FEMA requirements:

- FEMA 44 CFR §201.6(c)(2)(i) – [The risk assessment shall include a] description of the type, location, and extent of all natural hazards that can affect the jurisdiction. The plan shall include information on previous occurrences of hazard events and on the probability of future hazard events.
- FEMA 44 CFR §201.6(c)(ii) – [The risk assessment shall include a] description of the jurisdiction's vulnerability to the hazards described in paragraph (c)(2)(i) of this section. This description shall include an overall summary of each hazard and its impact on the community. All plans

approved after October 1, 2008 must also address NFIP insured structures that have been repetitively damaged by floods. The plan should describe vulnerability in terms of:

  - (A) The types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard areas;
  - (B) An estimate of the potential dollar losses to vulnerable structures identified in … this section and a description of the methodology used to prepare the estimate.
  - (C) Providing a general description of land uses and development trends within the community so that mitigation options can be considered in future land use decisions.]

- FEMA 44 CFR §201.6(c)(iii) – For multi-jurisdictional plans, the risk assessment section must assess each jurisdiction's risks where they vary from the risks facing the entire planning area.

5.2 Hazard Identification & Profiling

The 2009 plan iteration identified hazards through discussions with the former steering committee, past hazard events and declared disasters, interviews with local experts, and public outreach. The 2017 plan iteration carried forward all considered hazards from the former plan, incorporated additional hazards that pose a risk to the county, and restructured the hazard profiles. Table 13 details the hazards profiled in the 2017 plan update as well as the former plan. For those hazards that were not a concern for the county hazard profiles have been moved to Appendix I for future consideration.

Table 13. Hazard profile inclusion and comparison

Hazard	2009 Profile	2017 Profile
Avalanche	-	Yes
Civil Disturbance	-	Appendix
Communicable Disease	-	Appendix
Cyber Disturbance	-	Appendix
Drought	-	Appendix
Earthquake	Yes	Yes
Flood	Yes	Yes
Hazardous Material	-	Yes
Impoundment Structure Failure	-	Yes
Landslide	Yes	Yes
Severe Weather	Yes	Yes

Volcanic Eruption	-	Appendix
Wildfire	Yes	Yes

The method to profile each hazard varies, though a general framework was employed to standardize the profiles. Each hazard profile contains a detailed description of the hazard, including the geophysical, biophysical, or human causes, different types of the hazard, and potential impacts. Where applicable, previous occurrences are listed for the period of record. Narratives from local media provide context to some of these events. Likewise, probabilistic modeling was incorporated where applicable. Models employed in the risk assessment vary between the hazards, as no single model captures future hazard probability or impact. Similarly, population, improved structure values, and critical infrastructure exposure is detailed, followed by a socioeconomic vulnerability assessment. Land use and future development is then considered, detailing what land use types fall within hazard-prone areas and where development is located in relation to the hazard. Finally, each hazard is scored according to its risk.

5.3 Socioeconomic Vulnerability Assessment

Risk assessments often focus solely on the physical extent of hazards and the relative location of populations. Although exposure is highly influential in the impacts of hazards, additional factors amplify or dampen an individual's or community's susceptibility to loss. Susceptibility to loss is termed 'vulnerability', and understanding the many socioeconomic factors that influence vulnerability can help allocate resources and efforts to protect those most in harm's way. For example, elderly populations are often more vulnerable due to challenged mobility, which can increase evacuation time and require special care. Female populations are more vulnerable than male populations due to family responsibilities and lower average incomes.

This risk assessment employed the Spatially Explicit Resilience-Vulnerability (SERV) model (Frazier et al. 2013). The SERV model is an advanced socioeconomic vulnerability model designed to overcome the limitations of traditional vulnerability models. Traditional models lack the sophistication to produce sub-county results, account for the local characteristics of communities, or correctly apply spatial analyses and statistics; in contrast, the SERV model measures socioeconomic vulnerability at the sub-county level and takes into account different statistical considerations and methods. The SERV model analyzes multiple indicators (such as age, race and ethnicity, gender, and income) and their positive or negative effects on the population to determine census block-level sensitivity and adaptive capacity (Table 14). Adaptive capacity is the ability of an individual or community to cope and adapt to a hazard. For example, people can use their savings to overcome property damage resulting from a flood. Sensitivity describes how an individual or community is affected by the hazard. An example of

sensitivity is the lack of savings to overcome property damage resulting from a flood. The SERV model also takes into account exposure, or the proximity of an individual or community to a hazard. Finally, a measure of socioeconomic vulnerability is derived. This measure is hazard-specific, given differing vulnerability across the county. Note that census blocks with no population are not considered in the SERV model. Figure 12 shows the adaptive capacity distribution and Figure 13 shows the sensitivity distribution in the county.

Table 14. Socioeconomic indicators used in the SERV model

Adaptive Capacity		Sensitivity	
Indicator	**Directionality**	**Indicator**	**Directionality**
No High School Diploma	-	Pop Female	+
College	+	Pop Below Poverty	+
Age Dependent	-	Race White	-
Owner Occupied Households	+	Race Minority	+
Female Head of Households	-	Disability	+
Not Single Sector Employment	+	Age Dependent	+
Sales Volume	+	Renter Occupied Households	+
Employee Number	+	Female Head of Households	+
Pop Below Poverty	-	Critical Facilities	-
Health Insurance	+	Essential Facilities	-
Labor Force	+	Dependent Population Locations	+
Female Employees	+	Public Venues	+
Critical Facilities	+	Overnight Venues	+
Essential Facilities	+	Sales Volume	-
		Employee Number	-

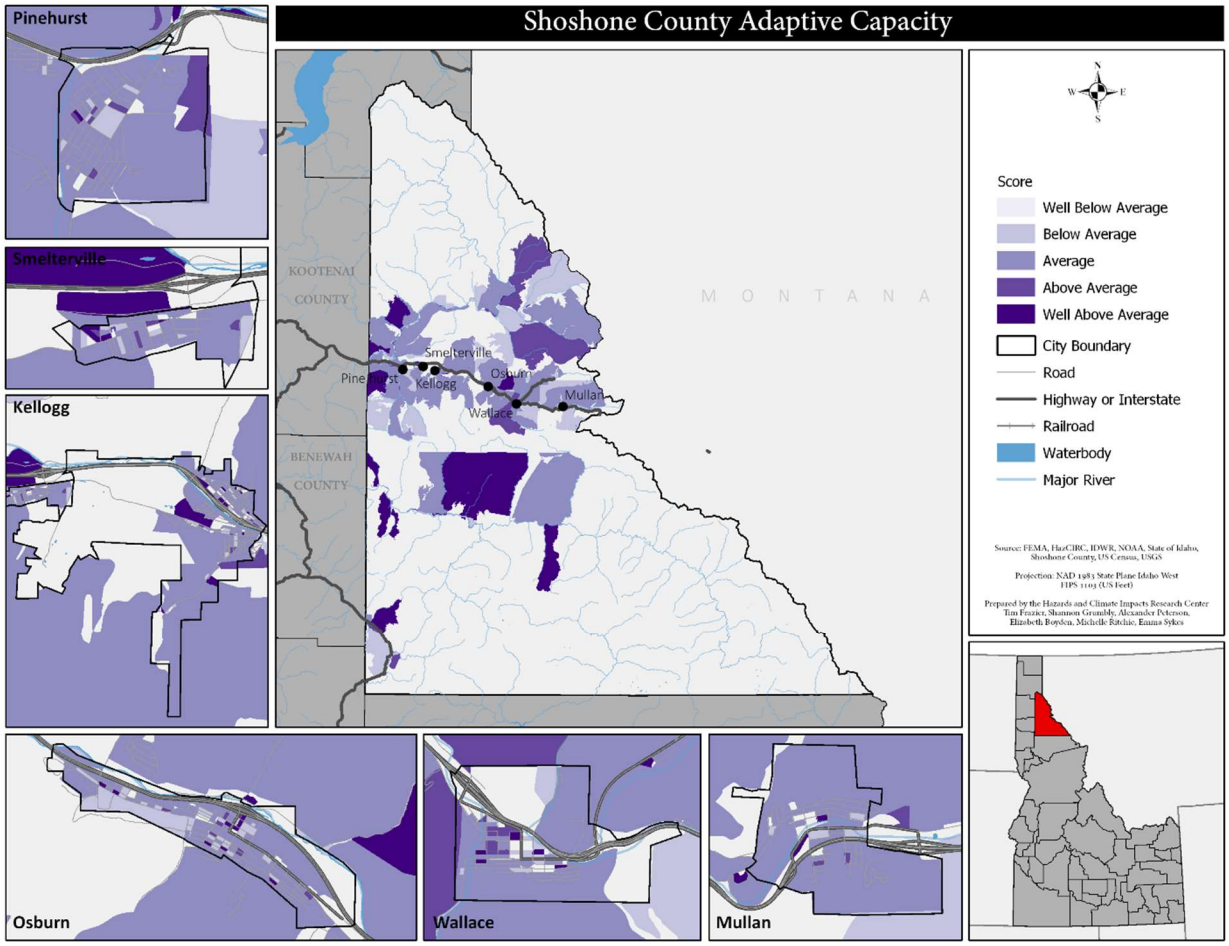


Figure 12. Adaptive capacity map

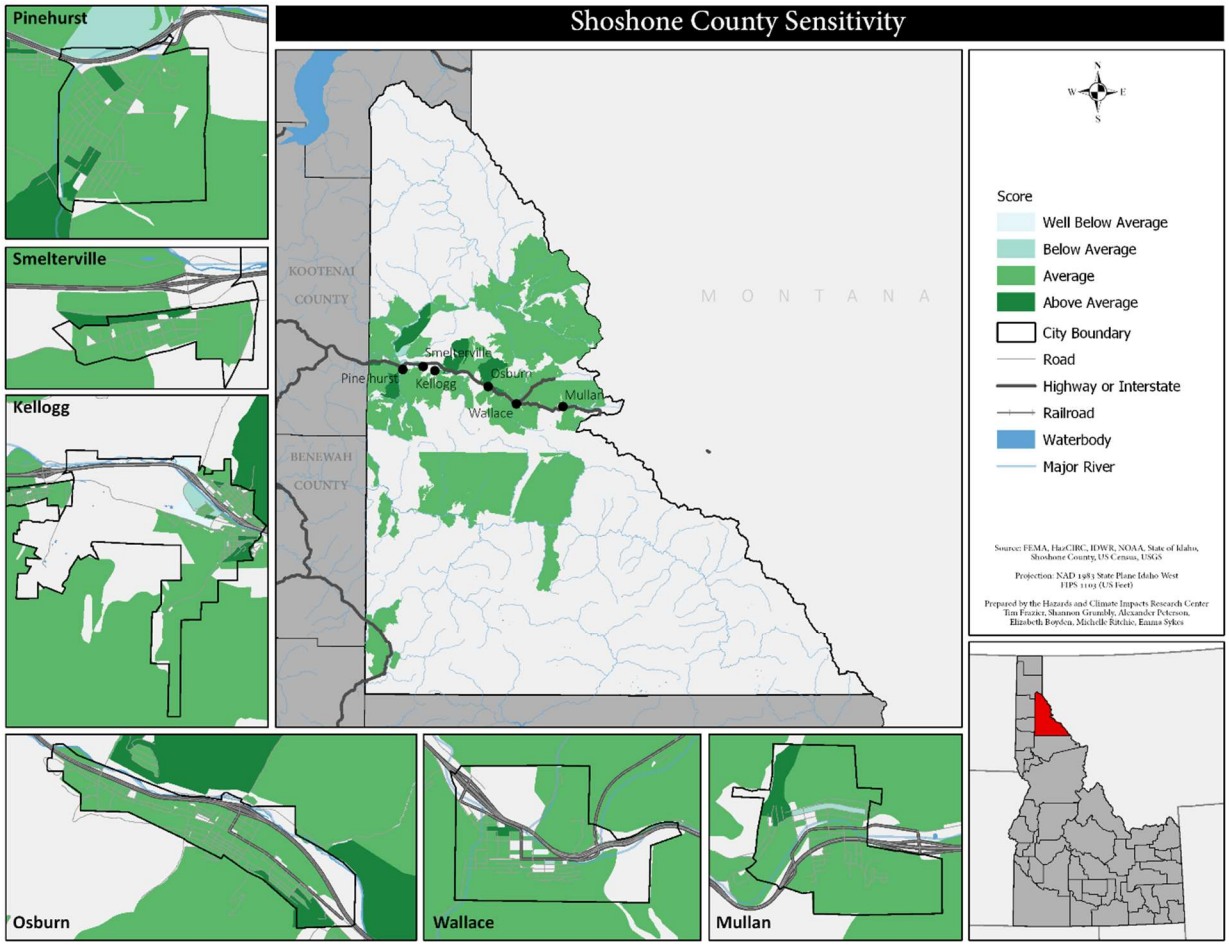


Figure 13. Sensitivity map

5.4 Population, Building Inventory, & Critical Facilities Inventory

Inventorying the county's building and facilities values is vital to assessing a hazard's potential impact. Hazus-MH General Building Stock (GBS) data was used to assess the structural values in Shoshone County and the communities with GIS-ready boundary data. The GBS inventory includes residential, commercial, industrial, agricultural, religious, government, and educational buildings and was developed by FEMA using information from the Bureau of Census, Dun & Bradstreet, and the Department of Energy (DOE). US Census data and Dun & Bradstreet data was used to develop the building inventory, and reports from the DOE helped define regional variations in characteristics including number and size of garages, type of foundation, and the number of stories. Baseline floor areas was based on a distribution from the DOE's Energy Consumption Report. The same report was then used to determine the valuation of single-family residential homes by accounting for income as

a factor on the cost of housing. For all other building types, Dun & Bradstreet used in-house proprietary data to build structure valuations. The building counts by type and jurisdiction are listed in in Table 15, with total building inventory listed in Table 16.

Table 15. Building inventory from Hazus-MH

	Kellogg	Mullan	Osburn	Pinehurst	Smelterville	Unincorp.	Wallace
Residential	1,017	227	644	710	180	2,276	399
Commercial	115	6	37	43	1	80	70
Industry	21	-	14	12	-	37	8
Agriculture	4	-	-	1	-	6	2
Religion	9	-	12	7	-	11	6
Government	5	-	4	2	-	5	2
Education	3	1	2	2	-	7	1

Table 16. Building values from Hazus-MH (thousands of USD)

	Kellogg	Mullan	Osburn	Pinehurst	Smelterville	Unincorp.	Wallace
Residential	$199,262	$35,821	$99,655	$96,278	$19,277	$352,707	$82,193
Commercial	$64,197	$1,484	$21,664	$20,276	$728	$25,332	$35,745
Industry	$12,964	-	$3,534	$19,686	-	$10,477	$2,177
Agriculture	$1,149	-	$84	$516	-	$1,074	$251
Religion	$5,658	$79	$4,587	$3,847	-	$5,100	$3,057
Government	$2,789	$87	$1,802	$965	-	$3,745	$2,006
Education	$4,999	$3,223	$433	$2,616	-	$4,585	$2,171

Critical facilities are vital to the continuance of the county, with emphasis placed on those facilities important in disaster response and recovery or those with the potential to amplify life and property losses. Critical facilities are classified into four categories:

- Essential Facilities – Those facilities that are vital to response and recovery from a disaster, including emergency operation centers, police stations, fire stations, schools, and medical care facilities. Most of the county's essential facilities are located in and around the populated areas, such as Kellogg, Mullan, Pinehurst and Wallace (Figure 14).

- Transportation Facilities – Transportation is vital in all phases of disaster management, as moving people out of hazardous areas, moving supplies into staging or other areas, and response depends on well-connected and sound transportation infrastructure. This includes airports and runways, railroads, highways, and bridges. The transportation network in the county runs in an east-west direction in the northern portion of the county (Figure 15).

- Utility Facilities – Often termed 'lifelines' due to their importance in community continuity and in the post-disaster recovery phases. This include wastewater facilities, electric power facilities, and communication locations. Most of the county's utilities are located in and around Kellogg, Mullan, Pinehurst and Wallace (Figure 16).

- High-Potential Loss Facilities – Facilities, staging areas, and other locations with the potential to cause significant life and economic losses are classified as high-potential loss facilities. This includes dams and hazardous materials sites. Many of the county's hazardous materials sites are located along the major higway corridor running in an east-west direction (Figure 17).

An inventory of these facilities was created using various sources in order to attain the highest quality data possible. The sources included the Homeland Security Infrastructure Program (HSIP) Gold 2013 dataset, data from the State of Idaho Hazard Mitigation Plan (SHMP) 2013 update, and Infogroup business 2014 data.

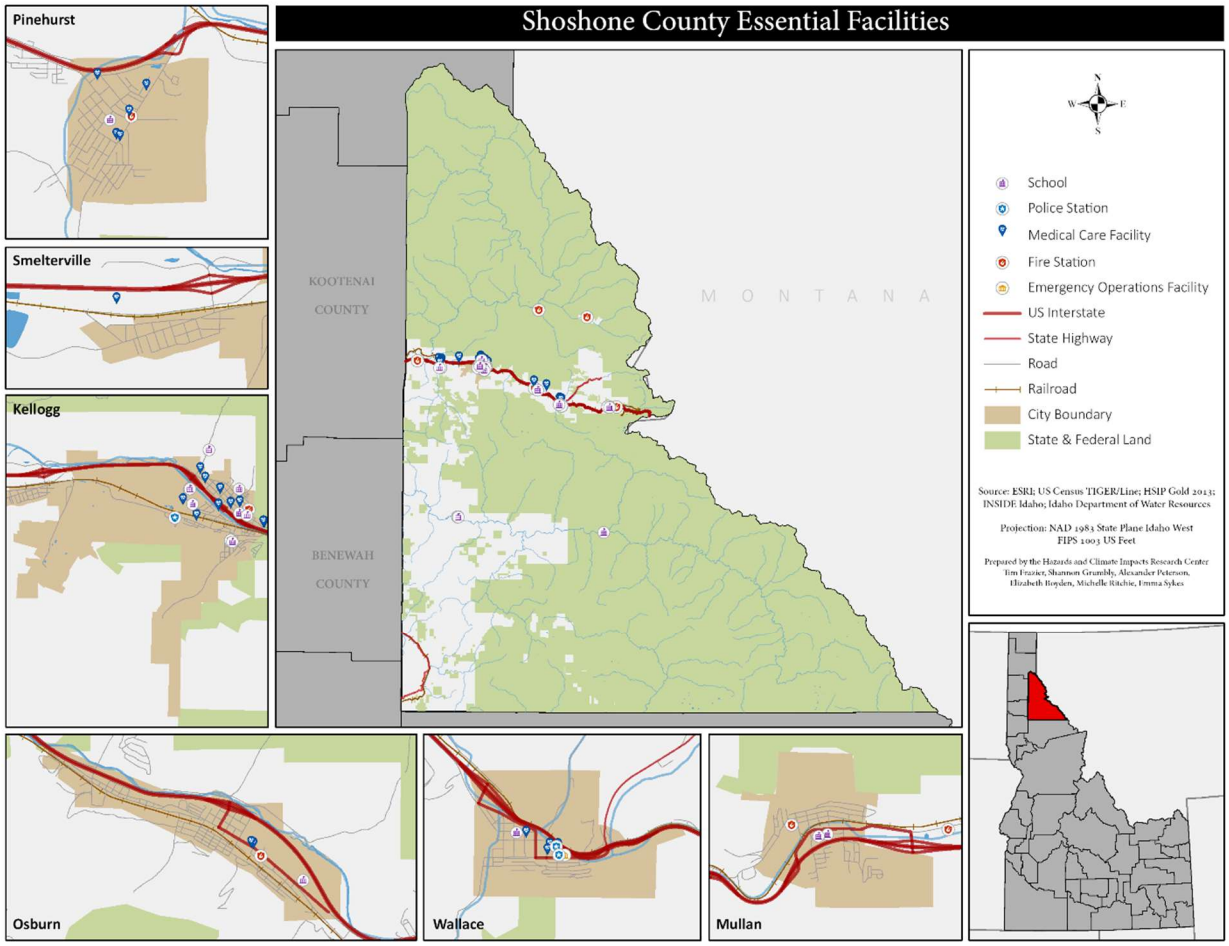


Figure 14. Essential facilities

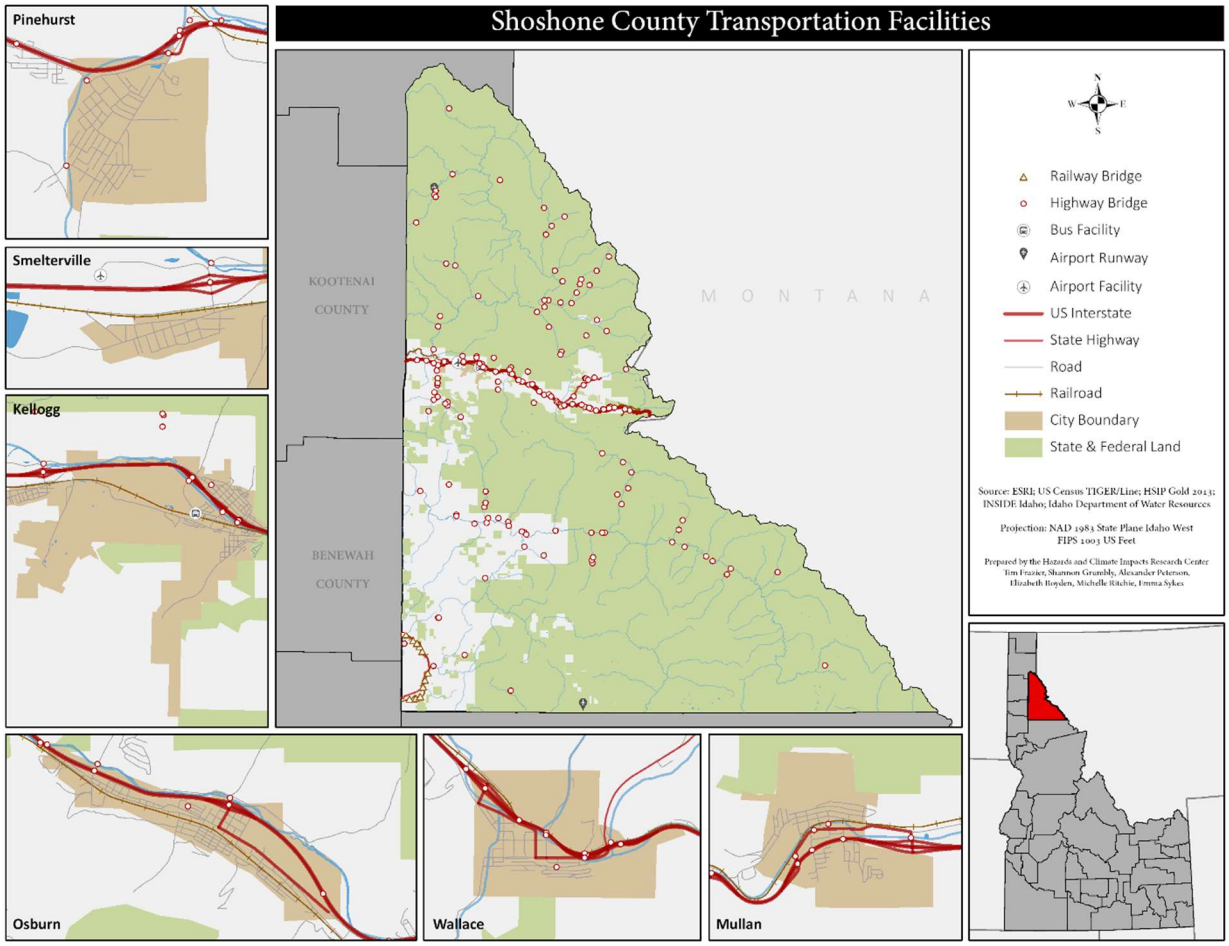


Figure 15. Transportation

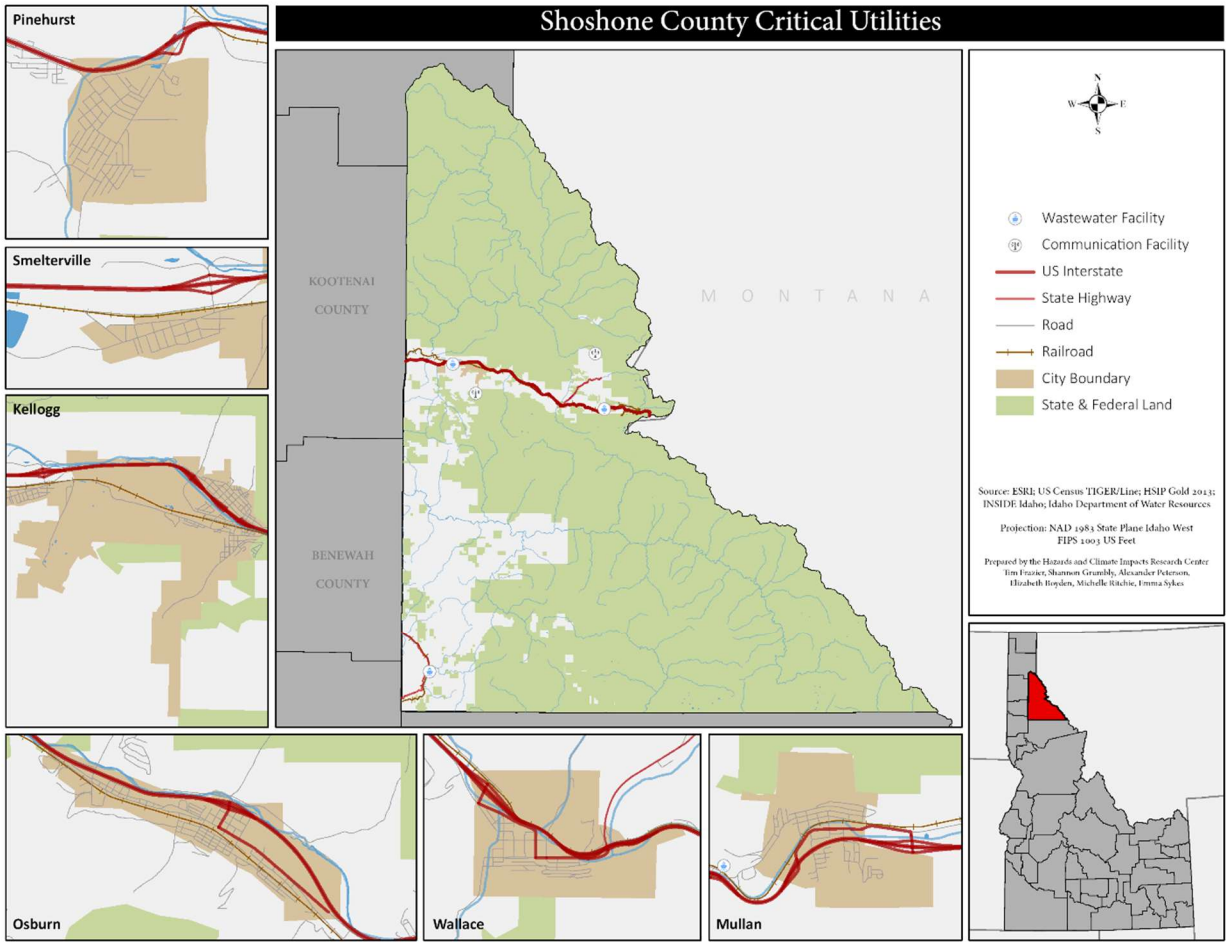


Figure 16. Utilities

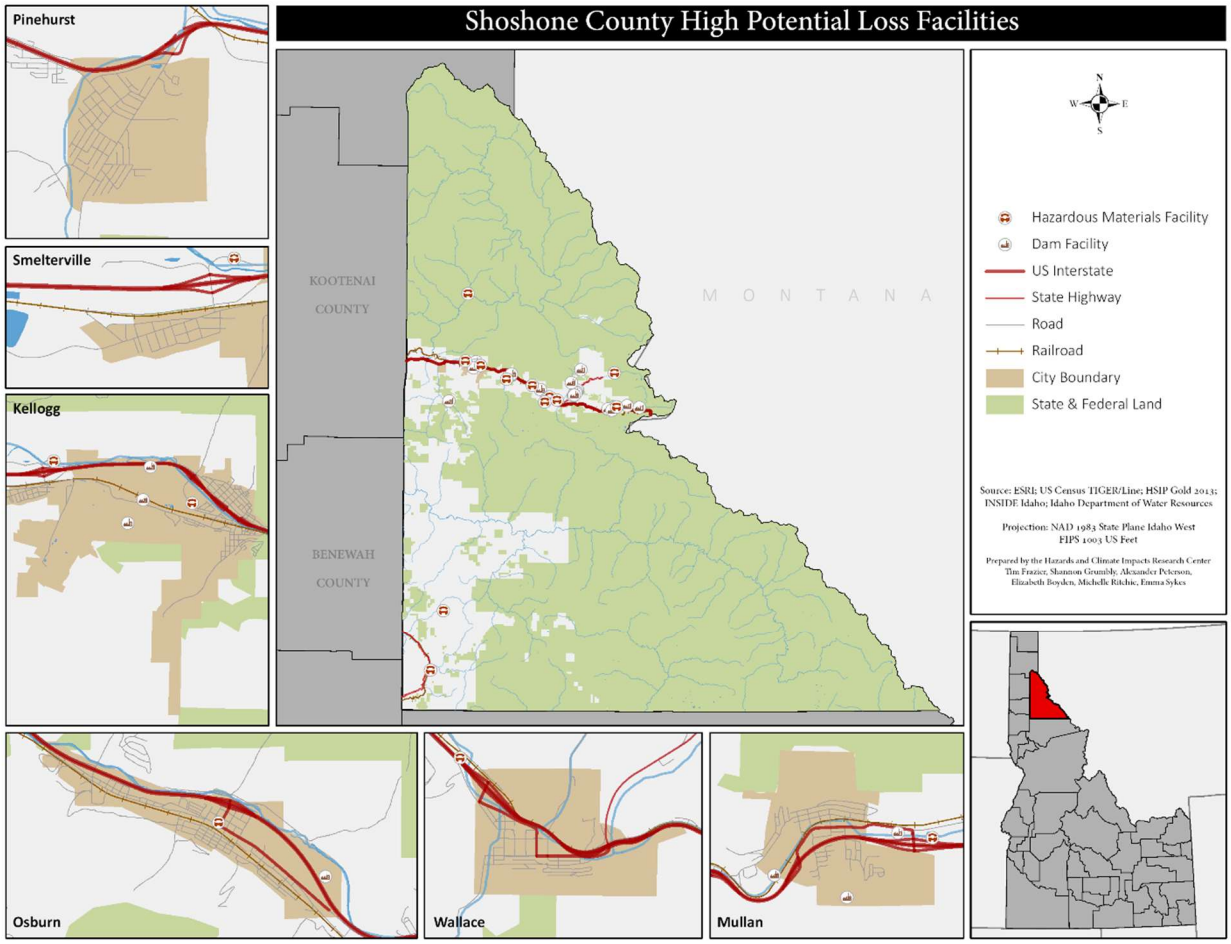


Figure 17. High-potential loss facilities

5.5 Land Use & Future Development

The vast majority of homes in Shoshone County are located along the South Fork Coeur d'Alene River from the county line in the west, to the scattered rural properties of Larson to the east. These areas are characterized by urban and sub-urban conditions connected by rural areas.

The homes and businesses located in the St. Joe River Valley are tightly concentrated along the river in a mosaic of rural homes punctuated by small clusters of communities such as Calder, Big Creek, Marble Creek, Hoyt, and Avery. In the St. Joe River valley, there is little in the way of established commerce except a persistent forest industry and livestock management efforts.

In the furthest southwestern extent of Shoshone County, Clarkia is found to possess a small rural community held together by the economic forces of the forest industry, livestock husbandry, and

tourism. The people of this area have a high degree of economic and social ties to nearby Clearwater, Latah, and Benewah Counties.

The Main and North Forks of the Coeur d'Alene River also support a scattered rural population centered on Prichard. The one-lane community of Murray is entrenched in a high-country setting where all forms of natural forces from flooding to wildfire, severe weather storms to landslides can be witnessed.

According to local county officials during the 2017 plan update, development has maintained relatively steady throughout the county in recent years. For the purposes of this plan, future land use development will follow the abovementioned patterns with the majority of populations residing along the South Fork Coeur d'Alene River from the county line in the west, to the scattered rural properties of Larson to the east. Additionally, scattered rural development is also expected to continue throughout Shoshone County. This is consistent across all jurisdictions in the county (Shoshone County Unincorporated Areas, Cities of Kellogg, Mullan, Osburn, Pinehurst, Smelterville, Wallace, and Wardner).

5.6 Avalanche

5.6.1 Overview

Although avalanches do not often cause widespread structural damages, there is an increasing trend in avalanche-caused casualties across the western US. In the former HMP, debris avalanches were briefly analyzed, but there was no mention and analysis of snow avalanches. The avalanche hazard profile was updated in the 2017 plan update to include snow avalanches. This profile undertook additional avalanche data collection and modeling in order to provide a more comprehensive analysis of avalanche risk.

Table 17. Avalanche summary

	1980-2008	2009-2017	Total
Occurrences	-	1	1
Disaster Declarations	-	-	-
Casualties	-	-	-
Property Damage	-	-	-
Repetitive Losses	-	-	-

5.6.2 Hazard Description

An avalanche is a mass of snow (often mixed with other debris such as ice, water, soil, rock, and trees) in motion down a slope. Avalanches occur rapidly, are difficult to predict with certainty, and are sometimes initiated by their victims.

The complex interaction of weather and terrain factors contribute to the location, size, and timing of avalanches. Avalanche danger increases with major snowstorms and periods of thaw. Most avalanches occur during or just after large snowstorms. About 90 percent of all avalanches start on slopes of 30-45 degrees, with slopes 25-50 degrees susceptible to the hazard. Avalanches occur most often on slopes above timberline that face away from prevailing winds. Avalanches can also occur on small slopes well below timberline, such as in gullies, road cuts, and small openings in the trees. Very dense trees can anchor the snow to slopes and prevent avalanches from starting, though avalanches can release and travel through a moderately dense forest.

There are two types of avalanches: loose snow avalanches and slab avalanches. Loose snow avalanches originate from a single point and do not often cause damage, and are composed of dry, fresh snow deposits that accumulate atop a sub-layer composed of stable snow and ice. In contrast, slab avalanches are characterized by a simultaneous release of a cohesive snow layer (otherwise known as a 'slab') and can cause damage and loss of life. Slab avalanches are usually triggered by turbulence or when the internal cohesive strength of the slab layer is greater than the banding at the base and lateral slab boundaries. As the slab moves down the avalanche path it accelerates and gains mass. The avalanche path is determined by the physical characteristics of the terrain over which the avalanche moves, with three zones. The starting zone is located near the top of the ridge, bowl, or canyon usually with steep slopes between 25 and 50 degrees. The track zone has slopes between 15 and 30 degrees, and is where the avalanche normally reaches its greatest velocity and mass. Finally, the runout zone has slopes between 5 and 15 degrees and is located at the base of the path. Avalanches decelerate and deposit the snow and debris in the runout zone.

Of the major avalanche impacts, the interruption of communications lines occurs most frequently. Places of highest concern include ski areas, mountain passes, and other areas where transmission lines cross avalanche paths. Avalanches can also damage or interrupt transportation networks such as highways, railroads, and bridges. Road closures are not uncommon and vehicles are lost on occasion. The economic costs of these disruptions can be significant, especially in areas with limited access options. Forest resources, such as timber and wildlife habitat, may also be impacted by significant slides (IBHS, 2007).

Climate change might alter the frequency and magnitude of avalanches coincident with changes in precipitation. Increased snow loads, frost-thaw cycles, and the amount and pattern of precipitation can increase avalanche occurrence. The Intergovernmental Panel on Climate Change (IPCC) rates more intense precipitation events as an extremely likely occurrence, resulting in increased avalanches. However, increased temperatures can reduce avalanche occurrence, as warmer temperatures can

reduce avalanche starting zones and dampen peak runoff. More comprehensive research should be undertaken to assess the potential impacts of climate change on avalanche occurrence.

5.6.3 Hazard Extent, Magnitude, & Probability

Avalanches occur in the mountainous portions of the State of Idaho. For the period 1950-2017, 71 avalanche-related fatalities were reported in Idaho, placing the state seventh in the nation (Colorado Avalanche Information Center, 2016). Snowmobiling was the leading cause of these fatalities, with climbing and backcountry skiing as secondary causes. However, the geophysical processes that contribute to avalanche occurrence are statistically independent of past events, and avalanche occurrence is not directly attributable to any one single factor. Often, it is a combination of factors that result in an avalanche (such as snow depth, meteorological events, vegetative cover, and human disturbance). Given these limitations and the lack of reported events, it is difficult to develop return periods for avalanches; however, regional avalanche forecast centers employ the North American Avalanche Danger Scale (2010) to determine a qualitative probability of avalanche activity and recommended travel precautions based on observations (Table 18).

Table 18. North American Avalanche Danger System

Danger Level	Avalanche Probability/Triggers	Degree & Distribution of Avalanche Danger	Recommended Action in the Backcountry
Low (Green)	Natural avalanches very unlikely. Human triggered avalanches unlikely.	Generally stable snow. Isolated areas of instability.	Travel is generally safe. Normal caution is advised.
Moderate (Yellow)	Natural avalanches unlikely. Human triggered avalanches possible.	Unstable slabs possible on steep terrain.	Use caution in steeper terrain on certain aspects (defined in accompanying statement).
Considerable (Orange)	Natural avalanches possible. Human triggered avalanches probable.	Unstable slabs probable on steep terrain.	Be increasingly cautious in steeper terrain.
High (Red)	Natural and human triggered avalanches likely.	Widespread natural or human-triggered avalanches certain.	Unstable slabs likely on a variety of aspects and slope angles.
Extreme (Black)	Travel in avalanche terrain is not recommended. Safest travel on windward ridges of lower angle slopes without steeper terrain above.	Extremely unstable slabs certain on most aspects and slope angles. Large, destructive avalanches possible.	Travel in avalanche terrain should be avoided and travel confined to low-angle terrain well away from avalanche path runouts.

To overcome the difficulty of mapping avalanches and to derive avalanche extent within the county, avalanche zones were classified based on the topographic slope across the county above treeline (Figure 18). It is important to note that this is not a technical nor comprehensive assessment of avalanche probability across the county. These zones were created by classifying slopes into the following zones:

- Starting Zones: 25-50 degrees
- Track Zones: 15-30 degrees
- Runout Zones: 5-15 degrees

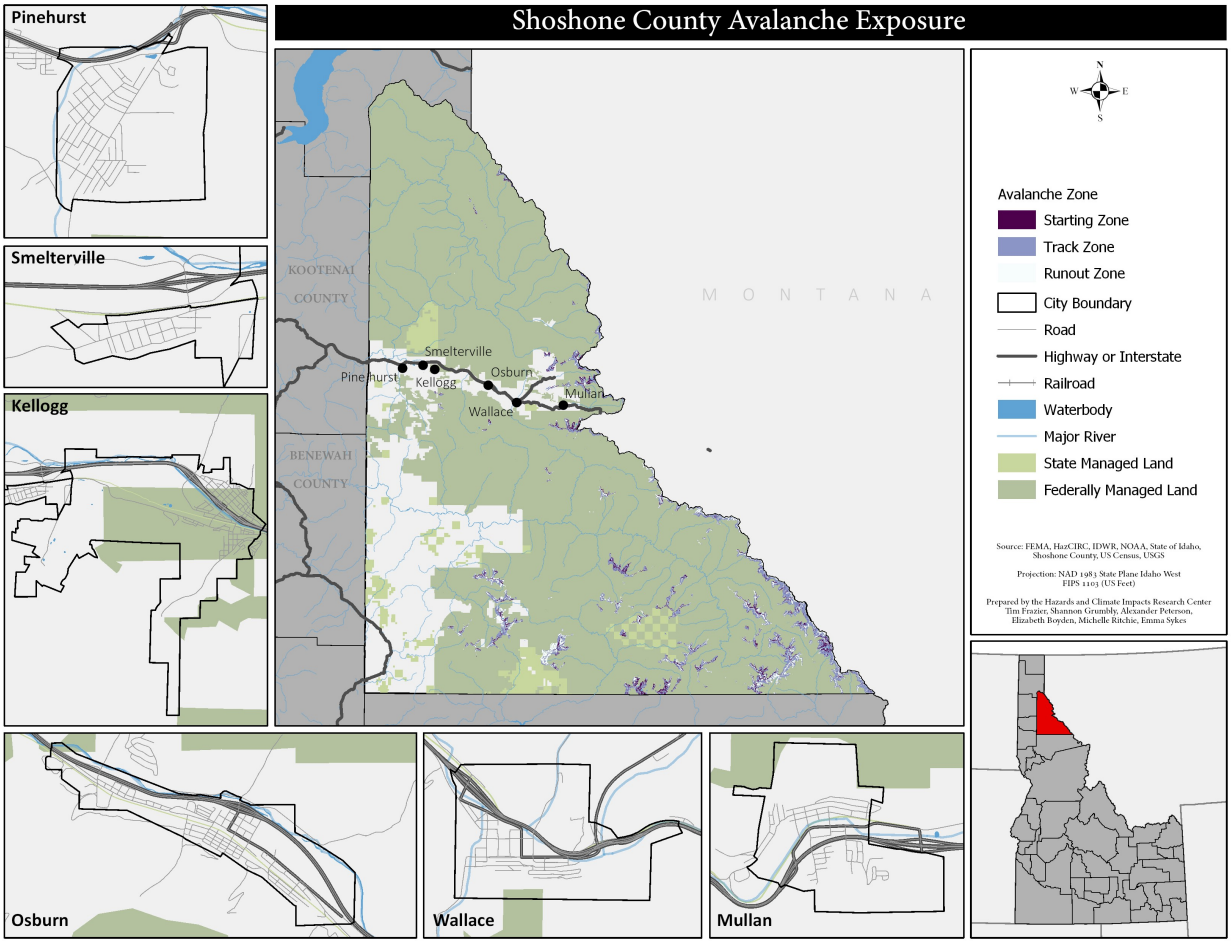


Figure 18. Avalanche zones map

Avalanche magnitude varies from low impact avalanches with minimal damage, to avalanches with the power to move large debris such as boulders. Table 19 shows the magnitude of estimated potential for a given range of impact pressure from an avalanche.

Table 19. Avalanche impacts pressure and damages

Impact Pressure		Potential Damages
kPa	lbs/ft^2	
2-4	40-80	Break windows
4-6	60-100	Push in doors, damage walls, roofs
10	200	Severely damage wood frame structures
20-30	400-600	Destroy wood frame structures, break trees
50-100	1,000-2,000	Destroy mature forests
>300	>6,000	Move large boulders

5.6.4 Hazard Occurrences

It is important to note that avalanches can occur throughout the winter and spring seasons in the backcountry. These avalanches are often not reported due to no losses of life or property, making it difficult to determine the precise number of actual occurrences. One avalanche has been reported in Shoshone County (Table 20).

Table 20. Avalanche occurrences

Date	Casualties	Damage	Trigger	Area
1/16/2015	-	-	Snowbike	Burke Power Station

Source: Idaho Panhandle Avalanche Center

5.6.5 Hazard Exposure & Vulnerability

As most recorded avalanches are human-caused, exposure is usually limited to individuals and parties in the backcountry. It is also possible that segments of the transportation network are exposed, notably those in high-elevation areas near steep slopes. A GIS analysis of the relative location of the county's population and structures in relation to avalanche zones indicated though there are both population and structures exposed, exposure is relatively minimal across the county.

5.6.6 Land Use & Future Development

Development in the mountainous areas of Shoshone County can increase the risk of avalanches. Although avalanches are often naturally-sourced, human activity can cause avalanches, and the development and habitation of avalanche-prone areas increases both the probability and impact of avalanches. Although avalanches often start in areas with slopes usually too steep for moderate- to high-intensity development, development in the runout zone (between 5 to 30 degrees) directly beneath starting zones can be vulnerable to avalanche impacts. Development of new or expansion of existing ski resorts can also increase vulnerability to avalanches. It is important to note that although structural damages resulting from avalanches are minimal, there is an increasing trend in casualties due to increased recreational activities in backcountry areas.

Current and future land use and development within and around the community centers are minimally impacted by avalanche risk. The majority of avalanche zones (starting zones, track zones, and runout zones) are located on Conservation Areas (federal lands) or Natural Resource Areas where residential development is minimal; however, it is important to note that agricultural, mining, grazing, timber, and residential uses are allowed on Natural Resource Areas, which might at some point be adversely impacted by avalanches. Albeit future residential development is considered minimal, critical infrastructure (e.g. Communication towers, etc.) may be at risk if located in the east-central and southeastern portions of Shoshone County where avalanche risk is the highest.

5.7 Earthquake

5.7.1 Overview

The 2017 update reorganized the earthquake hazard profile, incorporated additional data and modeling, and presented a more comprehensive and cohesive analysis of Shoshone County's earthquake risk.

Table 21. Earthquake summary

	Before 2008	2009-2017	Total
Occurrences	37	32	69
Disaster Declarations	-	-	-
Casualties	-	-	-
Property Damage	-	-	-
Repetitive Losses	-	-	-

5.7.2 Hazard Description

An earthquake is a trembling of the ground resulting from the sudden shifting of rock beneath the earth's crust. Such events cause waves of energy to radiate from the point of release, causing the movement, shaking, and rolling felt during an earthquake event. The durations of earthquakes are normally limited to a few seconds (, but the resultant waves can travel hundreds to thousands of miles and can cause damage to locations far from the fault. Faults are the breaks, fractures, or fracture zones in the earth associated with seismic activity. These faults are classified as either active or inactive given any associated known geological activity, and can be sharp cliffs or scarps or buried below the earth's surface.

Movements associated with earthquakes are classified as a foreshock, main shock, or aftershock. Foreshocks occur before the actual onset of the earthquake (main shock), while aftershocks occur after the onset of the earthquake. Both can range between minutes and months, and can be large, damaging events that further impact an area.

Damages associated with earthquakes are influenced by the following:

- Seismic Activity – Varying between earthquake events, seismic activity ranges from localized, small points of energy release to widespread, large and destructive releases. The length of earthquakes ranges from brief (a few seconds) to more than a minute. Earthquake epicenters can be shallow or deep, with depth influencing the type of seismic waves felt and their destructive potential.
- Geology & Soil Types – The underlying geology and soil type of an area influences the propagation of the seismic waves and their impact. Stable geologic types (such as solid bedrock) are less prone to destructive shaking than more unstable geologic types, such as fill soils. The siting of structures and communities as a whole strongly influences the nature and extent of earthquake damages.
- Development & Development Quality – The type and quality of development is vital in considering earthquake damages to a county or community. Isolated, small earthquakes in densely-populated areas or areas with unreinforced masonry can be more devastating than a high-magnitude earthquake in a remote location or in an area with earthquake-appropriate building codes.
- Time of Day – Time of day determines the distribution of the population, and therefore the distribution of injuries and fatalities. Residences house more people in the evening and night, whereas business centers, schools, and other day-use locations house more people in the morning and afternoon. Day of the week is also important to consider, as people's work, travel, and activities vary between weekdays and weekends.

Damages from earthquakes varies, with most damages stemming from shaking. Secondary impacts, such as landslides, are often a result of shaking. The following describes some of the types of damage stemming from an earthquake:

- Shaking – Ranging from minor to severe, minor shaking can cause objects to fall and other minimal damage, while severe shaking causing large structures to collapse and extensive damages. Unreinforced masonry and wood frame structures are most prone to earthquake damage. Non-structural falling hazards include loose or poorly secured objects, and include objects such as bookcases, wall hangings, and building facades. These objects can cause additional structural damage, and injury or fatality. Shaking can also rupture dams, destroy power and telephone lines, gas, sewer, or water mains, and can cause fires or other hazards that impair response and recovery efforts.
- Ground Displacement – The most dramatic visual evidence of an earthquake, ground displacement often occurs along a fault line. Ground can be thrust upward, subside, or move laterally given a severe enough earthquake. Damages from ground displacement is normally limited to utility lines and transportation infrastructure, though structures situated on fault lines can also be impacted.
- Landslides & Avalanches – Earthquakes often cause cascading hazards. If meteorological conditions are right, such as in-place snowpack or recent rain events, even small earthquakes can cause rock falls, landslides, or debris flows.
- Liquefaction & Subsidence – Liquefaction occurs when the energy released from an earthquake weakens the strength and stiffness of a soil, while subsidence is the caving in or sinking of an area. Fill and saturated soils are notably at risk of liquefaction, which can result in widespread structural damage. Liquefaction and subsidence can also impact surface and subsurface water flow, which can impair individual or community wells as well as flash flood-like water flow. These impacts can likewise impact septic systems, which create additional health risks.
- Seiches – Oscillating waves in an enclosed body of water caused by an earthquake are termed seiches. Although not commonly damaging given their rarity, seiches can resemble tsunami characteristics and destructive potential. Shoreline development along a lake in earthquake-prone areas are then at risk of damage, as well as dams or flood mitigation structures such as levees. Seiches can also cause hydrothermal explosions.

5.7.3 Hazard Extent, Magnitude, & Probability

Earthquakes are measured in both magnitude and intensity. Earthquake magnitude refers to the energy released at the source of the earthquake, while intensity refers to the strength of shaking produced by the earthquake at a discrete location. Where magnitude is derived from seismograph measurements, intensity is determined by the effects on people, structure, and the environment. The most common measure of intensity is the Modified Mercalli scale:

Table 22. Modified Mercalli scale intensities and descriptions

Modified Mercalli Intensity	Description
I	Not felt except by a very few under especially favorable conditions.
II	Felt only by a few persons at rest, especially on upper floors of buildings.
III	Felt quite noticeably by persons indoors, especially on upper floors of buildings. Many people do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibrations similar to the passing of a truck. Duration estimated.
IV	Felt indoors by many, outdoors by few during the day. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably.
V	Felt by nearly everyone; many awakened. Some dishes, windows broken. Unstable objects overturned. Pendulum clocks may stop.
VI	Felt by all, many frightened. Some heavy furniture moved; a few instances of fallen plaster. Damage slight.
VII	Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable damage in poorly built or badly designed structures; some chimneys broken.
VIII	Damage slight in specially designed structures; considerable damage in ordinary substantial buildings with partial collapse. Damage great in poorly built structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned.
IX	Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb. Damage great in substantial buildings, with partial collapse. Buildings shifted off foundations.
X	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations. Rails bent.
XI	Few, if any (masonry) structures remain standing. Bridges destroyed. Rails bent greatly.
XII	Damage total. Lines of sight and level are distorted. Objects thrown into the air.

Source: USGS

The most common measure of magnitude is the Richter scale. The Richter scale measures magnitude as a function of the amplitude of waves recorded by seismographs, with adjustments to account for variations in distances between recording stations and the epicenter. Magnitude is expressed in whole numbers and decimals, and is measured logarithmically – that is, each whole number step corresponds to the release of about 31 times more energy than the preceding whole number.

The St. Joe Valley and the Coeur d'Alene River Valley share geologic histories, although some differences between the two are seen, especially in terms of the age of exposed geologic formations.

With the exception of the small, granitic stock in the southwest corner of the county (around Clarkia) called the Herrick Stock, the area is underlain by pre-Cambrian sediments generally known as the Belt Series. Near the Herrick Stock, however, they are so metamorphosed that positive correlation is impossible (Wagner 1949).

Igneous activity is represented by rocks of four different ages. The oldest are dioritic sills and dikes of a probable pre-Cambrian age. Next younger is the St. Joe Stock considered late Cretaceous in age, which is closely followed by aplite and lamprophyre dikes. The youngest igneous rocks are small, unconnected remnants of basalt flows found near the west margin of the region. These are considered to be part of the Columbia River basalts of Miocene age (Wagner 1949).

In general terms, the entire county is characterized by parallel and occasionally crossing fault lines. The area possesses a fault structure consisting of northwest-southeast-trending, multiple- faulted anticlines and synclines (Wagner 1949).

The Coeur d'Alene River system's mountains are underlain by a Mesoproterozoic Belt Supergroup, with the metamorphic rocks of the middle-Belt Wallace Formation. Sedimentary rocks of the county are mainly from the Belt Series of pre-Cambrian age. They are a group of shales, sandstones, impure limestones, and impure quartzites with abundant shallow water markings such as mud cracks and ripple marks. In several locations where metamorphism has been intense, some of the rocks have changed to slates, phylite, or schists.

In addition to these consolidated sediments, there are a few terrace gravels of Tertiary age and the larger stream valleys contain some recent alluvium (Wagner 1949). Miocene Columbia River basalts cover the low valley bottoms and up the St. Maries River near Clarkia. Lacustrine and river sediments were deposited in valleys that had been dammed up by basalt lava flows. The world-famous Clarkia fossil locality formed this way. The St. Joe fault, an Eocene feature related to continental extension and development of metamorphic core complexes, runs eastward through the southwest corner of the county.

The USGS creates earthquake ground motion data for various probability levels across the US. These data are widely accepted and applied in risk assessments, insurance rate studies, building codes provisions, and other public policy. These data incorporate the best available scientific knowledge in earthquake hazards, and include findings in ground shaking, faults, seismicity, and geodesy.

When there is an earthquake, the forces caused by the shaking are measured as a percentage of gravity, or percent g (%g). The USGS's National Seismic Hazards Map describes the annual frequency of exceeding a set of ground motions. Figure 19 shows the probabilistic ground motions with a two percent probability of exceedance over the next 50 years for Shoshone County.

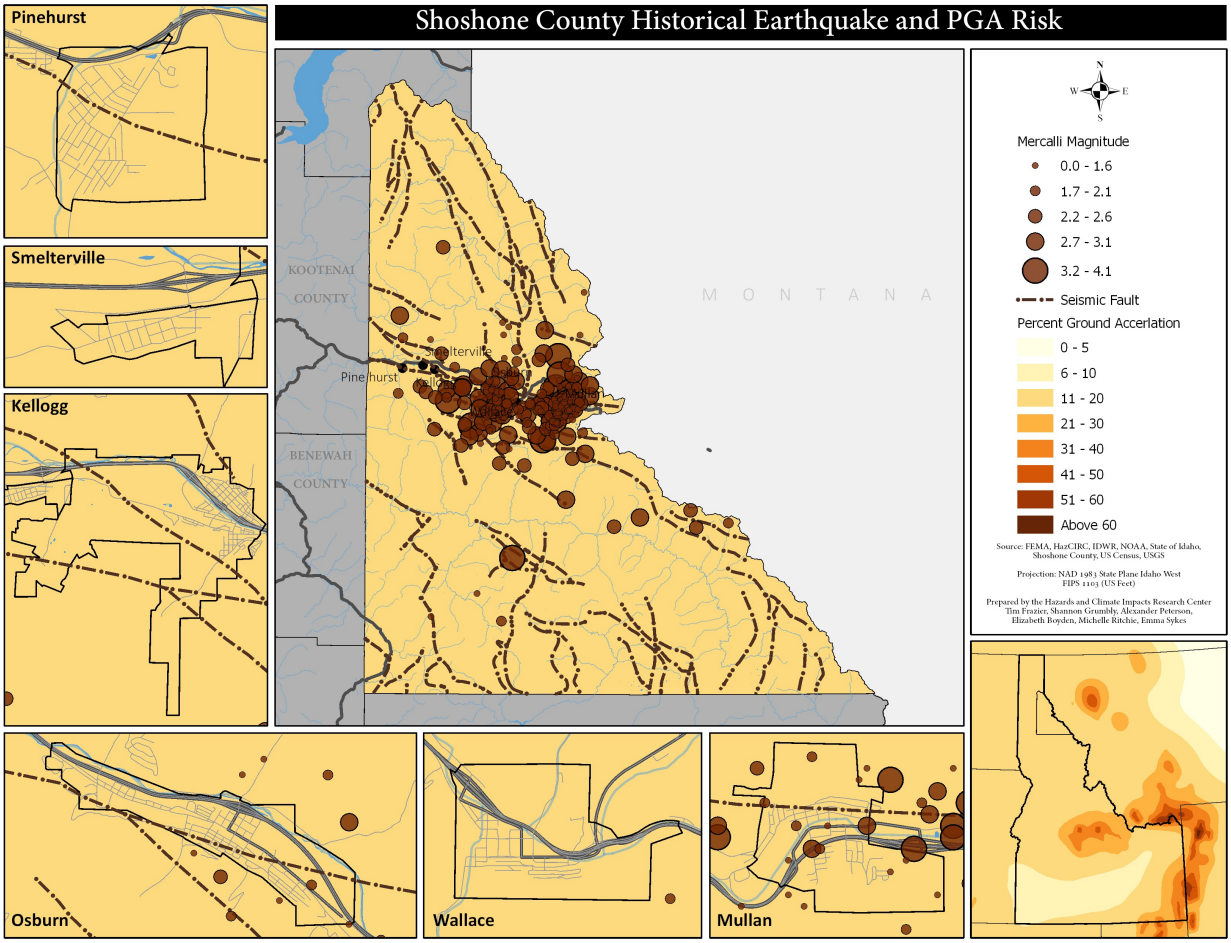


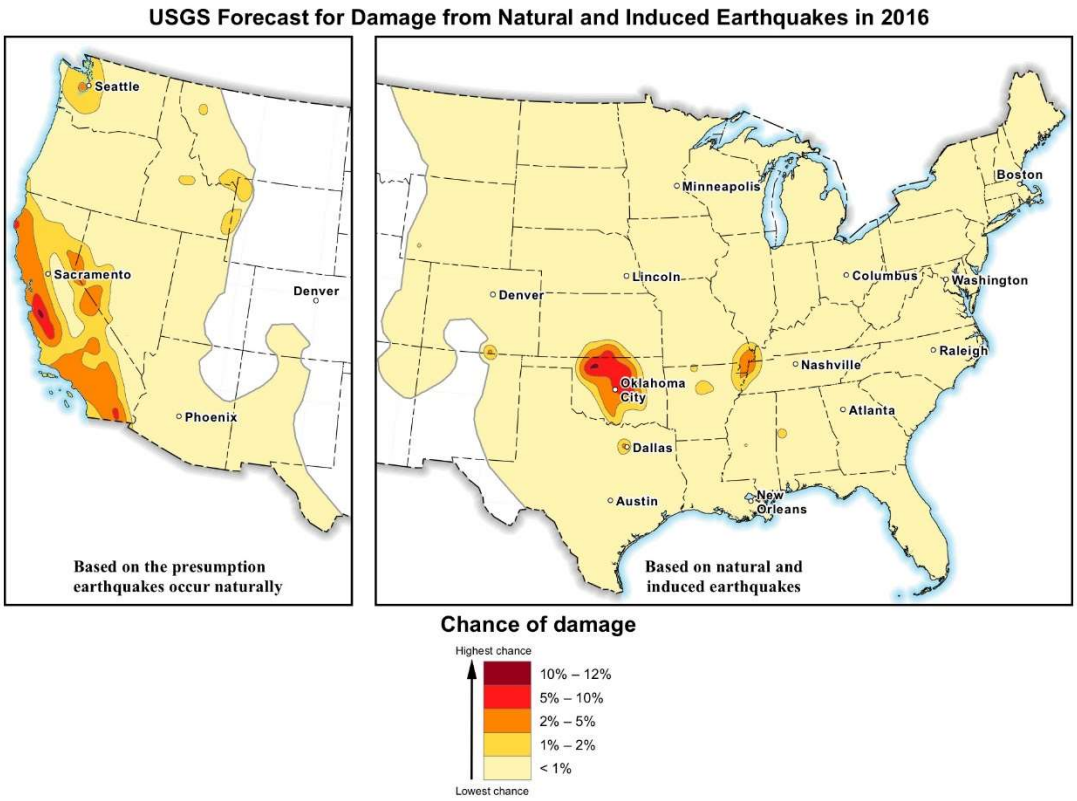
Figure 19. Earthquake occurrences and PGA

The danger in Shoshone County is really two-fold because cities often contain structures built near rivers below the foothills and mountains, and then cities were expanded into the foothills with new structures. Mountain foothills contain erosional remnants called alluvial fans. The alluvial fans may either slide down into the valley or simply shake about creating new topography due to internal settling. Additionally, the overwhelming majority of structures in Shoshone County are located on unconsolidated sediments which respond poorly to seismic shaking. For this reason, Shoshone County's earthquake hazards are more pronounced. Large structures such as office buildings, dams, and bridges may collapse. Broken gas lines and fallen electrical wires may cause fires, while broken water lines can hinder the capability of controlling fires. Landslides are commonly caused by earthquakes.

Geological and seismological studies in combination with local fault lines indicate that earthquakes are likely to happen in Shoshone County.

The 1991 Uniform Building Code (UBC), a nationwide industry standard, sets construction standards for different seismic zones in the nation. UBC seismic zone rankings for Idaho are among the highest in the nation. When buildings are built to these standards they have a better chance to withstand earthquakes. In 2002 the International Building Code (IBC) adopted the 1991 UBC earthquake standards. Shoshone County and all of the cities within the county operate under the UBC and IBC and have since adopted the most recent codes. Given the county's risk level, this is adequate protection for all new construction.

Although predicting future occurrences of earthquakes is nearly impossible, the USGS now produces a one-year seismic hazard forecasts (Figure 20). Figure 20 shows the USGS forecast for damage from earthquakes in 2016. Shoshone County exhibits both low shaking intensities and less than one percent change of damage from earthquakes in 2016.



USGS map displaying potential to experience damage from natural or human-induced earthquakes in 2016. Chances range from less than 1 percent to 12 percent.

Figure 20. Earthquake probability for 2016

5.7.4 Hazard Occurrences

Table 23 details the recorded earthquakes within Shoshone County after 1980. Note that Shoshone County is also at risk to regional earthquakes.

Table 23. Earthquake occurrences felt

Date	Magnitude	Depth (km)	Casualties	Property Damage	Crop Damage
1/25/1984	2.3	1	-	-	-
9/15/1984	2.8	1	-	-	-
3/12/1986	2	1	-	-	-
11/19/1987	2.7	0	-	-	-
10/18/1988	3.9	0	-	-	-
2/24/1989	2.8	0	-	-	-
3/2/1989	3.2	0	-	-	-
7/6/1989	3.4	5	-	-	-
1/4/1990	2.7	0	-	-	-
2/7/1990	2.9	0	-	-	-
2/14/1991	2.5	1	-	-	-
2/23/1991	2.4	1	-	-	-
5/7/1991	2.9	1	-	-	-
5/17/1991	2.7	1	-	-	-
9/19/1991	3	1	-	-	-
12/9/1991	2.4	1	-	-	-
12/11/1991	3	1	-	-	-
3/18/1993	3.1	9.6	-	-	-
7/1/1993	3.2	1	-	-	-
10/14/1993	2.9	1	-	-	-
3/8/1994	3.4	5	-	-	-
8/17/1994	4.1	1.6	-	-	-
6/23/1995	2.9	2	-	-	-
2/9/1996	3.2	0.6	-	-	-
4/25/1996	3	1	-	-	-
5/30/1996	3.6	1	-	-	-
3/14/1997	3.6	2	-	-	-

Date	Magnitude	Depth (km)	Casualties	Property Damage	Crop Damage
6/28/1997	3.4	2	-	-	-
8/29/1998	2.9	2	-	-	-
6/12/1999	3.1	5	-	-	-
9/1/1999	3	2	-	-	-
10/28/1999	3	2	-	-	-
12/17/1999	2.8	2	-	-	-
5/10/2000	3.3	2	-	-	-
5/8/2001	3	0.3	-	-	-
5/6/2004	3.1	2	-	-	-
4/29/2007	2.9	5	-	-	-
8/14/2009	2.9	2	-	-	-
4/23/2010	2.5	1	-	-	-
11/16/2011	2.8	2.9	-	-	-
12/15/2011	2.2	3	-	-	-
2/12/2013	1.6	2	-	-	-
2/17/2013	1.9	2	-	-	-
2/21/2013	1.7	2	-	-	-
2/21/2013	1.6	2	-	-	-
2/23/2013	2.3	2	-	-	-
3/12/2014	2.1	0	-	-	-
5/22/2014	2.4	0	-	-	-
8/4/2014	2.2	2	-	-	-
8/31/2014	2.5	2	-	-	-
9/8/2014	2.3	2	-	-	-
10/10/2014	2.3	2	-	-	-
1/15/2015	2.7	2	-	-	-
2/26/2015	2.5	0	-	-	-
2/27/2015	2.7	2	-	-	-
3/17/2015	2.5	0	-	-	-
4/28/2015	2	0	-	-	-
5/29/2015	2.1	0	-	-	-
6/27/2015	2.1	2	-	-	-
6/27/2015	2.2	2	-	-	-

Date	Magnitude	Depth (km)	Casualties	Property Damage	Crop Damage
7/14/2015	2	0	-	-	-
10/21/2015	2.01	0	-	-	-
11/23/2015	3.7	5	-	-	-
12/2/2015	2.9	0	-	-	-
1/12/2016	2.7	0	-	-	-
4/12/2016	2.11	0	-	-	-
5/23/2016	2.17	5	-	-	-
6/30/2016	2.31	0	-	-	-
7/1/2016	2.02	2	-	-	-

Source: USGS

Below are accounts of recorded earthquake events:

- *5.10.4.1 Hoyt Mountain Earthquakes (March 7 & June 3, 1994) -* On March 7, 1994, an earthquake, M3.5, occurred along the St. Joe River Valley, near Hoyt Mountain, and the community of Avery. On June 3, a M2.9 aftershock occurred at the same location. The main shock, centered very close to Hoyt Mountain about 6 miles southwest of Avery, was the largest earthquake in the northern Idaho region since a 1988 M4.1 Copper Pass event, and one of only a few natural earthquakes in the region since a 1942 M4.6 Sandpoint event. The Hoyt Mountain shock reached a "V" intensity and was felt locally at Marble Creek and Avery and as far north as Wallace. There were no aftershocks until the M2.9 event almost three months later. Except for a lower magnitude, the aftershock was identical to the main shock in location and focal mechanism. The fault-plane solution indicates either (1) reverse slip, or (2) a low-angle thrust faulting on a plane striking north-northwest and dipping gently northeast. The faults in the area are part of the Lewis and Clark line of fractures that extends from near Coeur d'Alene over 240 miles eastward to Helena, Montana (Sprenke et al. 1994).

  The Hoyt Mountain earthquake was felt strongly in Hoyt, Marble Creek, and Avery where houses shook, dishes rattled, a lamp "walked on a table", and an outside basketball upright swayed. In Shoshone County, the event was felt as far north as Osburn, Silverton, and Wallace, and as far west as Big Creek (on the St. Joe River). There were no reports from Calder. There were no reported structures damaged or lives lost from this event (Sprenke et al. 1994).

  The M3.5 main shock, though small by most seismology standards, is certainly significant in the historic seismicity of northern Idaho and Shoshone County in particular.

- *5.10.4.2 Cooper Pass Earthquake (1988) -* No more than four documented natural earthquakes in northern Idaho have exceeded the Hoyt Mountain Earthquake magnitude in historic time. The most recent one was a M4.1 earthquake in 1988 on the Montana-Idaho border at Cooper Pass, seven miles northeast of Mullan. The largestone was the M4.6 Sandpoint event in 1942. The 1988 event was felt over 3,000 square miles with an intensity of IV at Trout Creek, Montana, and Mullan.

Other natural seismicity in north Idaho includes a cluster of small events in the Priest Lake, Sandpoint, and Coeur d'Alene areas. The seismicity in the Kellogg-Wallace area, with the exception of the Cooper Pass event, does not represent natural earthquakes, but rather rockbursts related to deep mining in the Silver Valley (IGS 2008).

5.7.5 Hazard Exposure & Vulnerability

Shoshone County's population is mainly located in low PGA zones (Table 24). Approximately 66 individuals living in incorporated places live in areas with a PGA of 12 percent g. Pinehurst and Smelterville, and an additional 1,511 individuals living in incorporated places are located in areas with a PGA of 14 percent g. The Cities of Kellog, Mullan, and Osburn are located in areas with a PGA of 16 percent g. The building inventory and values show similar exposure (Table 25 and Table 26).

Table 24. Population exposure to earthquakes

PGA	Kellogg	Mullan	Osburn	Pinehurst	Smelterville	Unincorp.	Wallace
12	-	-	-	-	-	66	-
14	3	-	-	1,523	372	1,511	-
16	2,004	321	1,248	-	-	2,307	749

Table 25. Structure number and type exposure to earthquakes

	%g	Res	Com	Ind	Agr	Rel	Gov	Edu
Kellogg	**12**	-	-	-	-	-	-	-
	14	2	-	-	-	-	-	-
	16	956	109	18	4	9	5	3
Mullan	**12**	-	-	-	-	-	-	-
	14	-	-	-	-	-	-	-
	16	227	6	-	-	-	-	1
Osburn	**12**	-	-	-	-	-	-	-

	14	-	-	-	-	-	-	-
	16	644	37	14	-	12	4	2
Pinehurst	**12**	-	-	-	-	-	-	-
	14	710	43	12	1	7	2	2
	16	-	-	-	-	-	-	-
Smelterville	**12**	-	-	-	-	-	-	-
	14	180	1	-	-	-	-	-
	16	-	-	-	-	-	-	-
Unincorporated	**12**	64	3	1	-	1	-	1
	14	887	44	21	2	5	2	1
	16	1,225	30	14	3	4	3	4
Wallace	**12**	-	-	-	-	-	-	-
	14	-	-	-	-	-	-	-
	16	399	70	8	2	6	2	1

Table 26. Structure value and type exposure to earthquakes (thousands of USD)

	%g	Res	Com	Ind	Agr	Rel	Gov	Edu
Kellogg	**12**	-	-	-	-	-	-	-
	14	$318	-	-	-	-	-	-
	16	$184,594	$59,216	$8,445	$1,149	$5,658	$2,789	$4,999
Mullan	**12**	-	-	-	-	-	-	-
	14	-	-	-	-	-	-	-
	16	$35,821	$1,484	-	-	$79	$87	$3,223
Osburn	**12**	-	-	-	-	-	-	-
	14	-	-	-	-	-	-	-
	16	$99,655	$21,664	$3,534	$84	$4,587	$1,802	$433
Pinehurst	**12**	-	-	-	-	-	-	-
	14	$96,278	$20,276	$19,686	$516	$3,847	$965	$2,616
	16	-	-	-	-	-	-	-
Smelterville	**12**	-	-	-	-	-	-	-
	14	$19,277	$728	-	-	-	-	-
	16	-	-	-	-	-	-	-
Unincorporated	**12**	$9,628	$449	$332	-	$707	$87	$253

	14	$124,991	$16,651	$5,493	$496	$1,666	$1,746	$571
	16	$204,188	$7,199	$4,433	$441	$2,262	$1,825	$3,165
Wallace	**12**	-	-	-	-	-	-	-
	14	-	-	-	-	-	-	-
	16	$82,193	$35,745	$2,177	$251	$3,057	$2,006	$2,171

In addition to the populations and structures exposed, Shoshone County has many buildings constructed from masonry materials that may or may not have been reinforced during or after initial construction. Many of the structures in Wallace, for example, were built early in the 20th century after wildfires burned the city to the ground in 1890 and again in 1910. Today many of these structures in Wallace, declared Historic Sites (on the National Register), are from an era that used materials and construction techniques which place them at extremely high risk to seismic shaking hazard destruction

Hundreds of homes in Shoshone County are built with wood frame construction techniques. These are typically considered resistant to seismic shaking hazards. However, many of these homes have incorporated a brick chimney appendage. Chimneys placed internally to the frame of the home (such as the blue house on the left side of Figure 21), are considered more resistant to loss from shaking hazards. Those that append the chimney to the side of the home (the red roof home in the center of Figure 21) are more at risk to falling bricks from earthquake induced shaking.

Figure 21. Example of brick and masonry chimney structures in Wallace

Figure 22. Example of at-risk structure in Wallace

When coupled with fault lines of the region, the rockbursts that Silver Valley area is prone to, and the periodic earthquakes of north Idaho and the region, much of the county is at risk to shaking losses. These losses could be greatly mitigated by reinforcing buildings that lack this reinforcement. The goal of reinforcement is not to save the buildings, but to reduce the risk of damaging people in the structure and next to it when a shaking disaster strikes (ABAG 2003).

Earthquake damage to unreinforced masonry structures can be severe and hazardous. The lack of reinforcement coupled with poor mortar and inadequate roof-to-wall ties can result in substantial damage to the building as a whole as well as to specific sections of it. Severely cracked or leaning walls are some of the most common earthquake damages. Also hazardous, but slightly less noticeable, is the damage that may occur between the walls, and roof and floor diaphragms. Separation between the framing and the walls can jeopardize the vertical support of roof and floor systems that could lead to the collapse of the structure (ABAG 2003).

The SERV model was employed to assess socioeconomic vulnerability to earthquakes in Shoshone County (Figure 23). Earthquake exposure was quantified using the peak ground acceleration values as seen in Figure 19. The SERV model shows a concentration of above average vulnerable census blocks located within each city and adjacent to its boundaries. Above average vulnerable census blocks also occur near the community of Clarkia, as well as in the northern portions of Shoshone County in rural unincorporated areas.

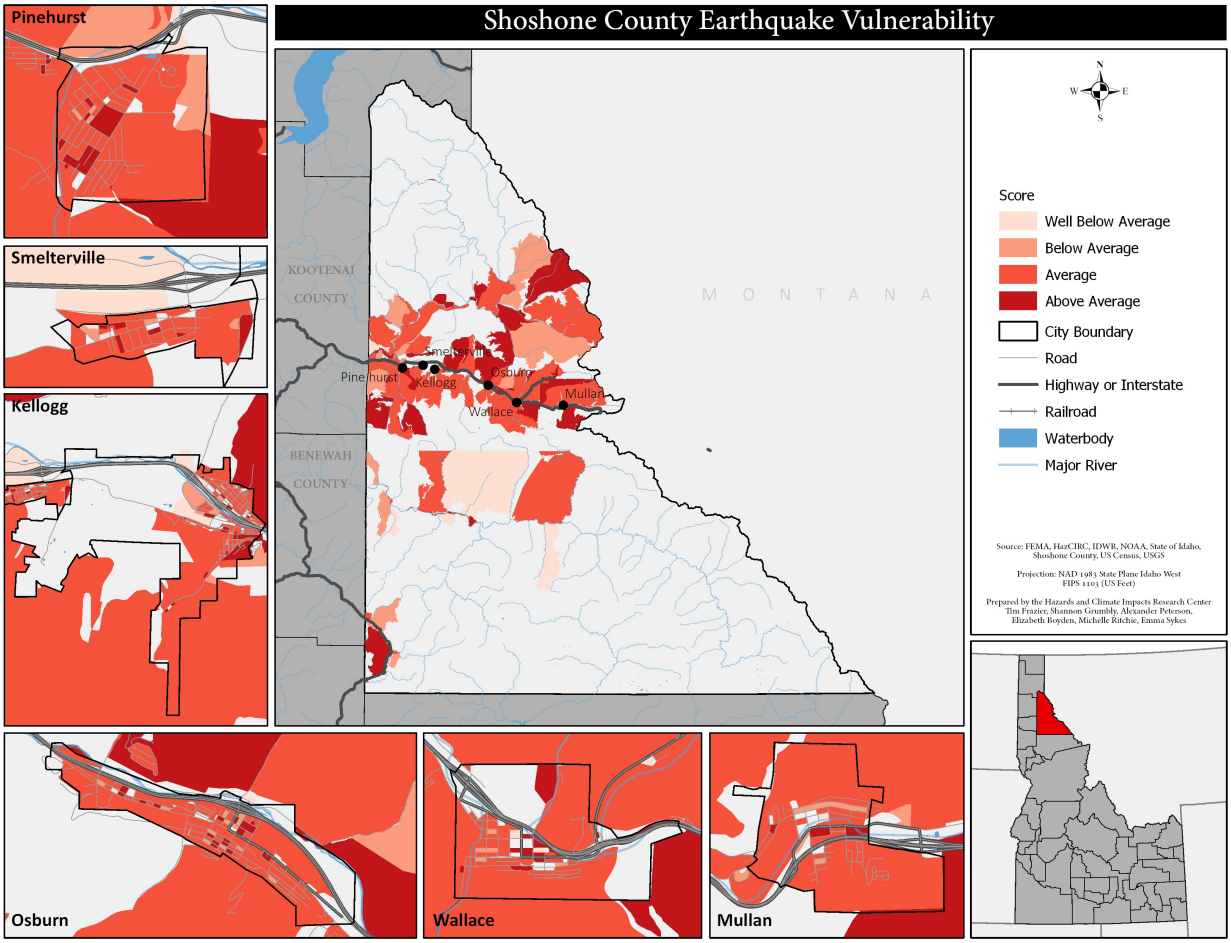


Figure 23. Socioeconomic vulnerability to earthquakes

5.7.6 Land Use & Future Development

Additional development in Shoshone County may increase earthquake risk through increased exposure of populations, structures, and critical infrastructure. The highest seismic risk is along the central highway corridor within Shoshone County where the majority of the development has occurred and will likely occur in the near future. These communities have exposed structures and other assets, which are likely to be more adversely impacted by an earthquake event than in other parts of the county that have either a decreased earthquake risk or have fewer exposed structures and other societal assets. These areas of decreased risk are most prevalent on federal lands in the northern and southern portions of Shoshone County.

5.7.7 Loss Estimations

Hazus-MH was employed to estimate losses resulting from multiple earthquake scenarios in Shoshone County. A Level II Hazus-MH analysis was performed for the county's earthquake loss estimation. Critical facilities were updated using various data sources including the HSIP Gold data, the SHMP data, and Infogroup economic data. These facilities were further validated and corrected using satellite imagery to ensure accurate positionality, as well as an estimated square footage to derive loss and replacement costs. National Earthquake Hazard Reduction Program (NEHRP) Soil Maps were produced in order to capture more accurate soil measure. It is important to note that Hazus-MH is an empirical model that attempts to best capture the reality of losses stemming from hazard events, but the results are dependent on the data inputted into the model and the quality of its damage functions. These results may not be a true reflection of reality and results should only be used to guide the planning process.

Two scenarios were run for Shoshone County's Earthquake Risk Assessment:

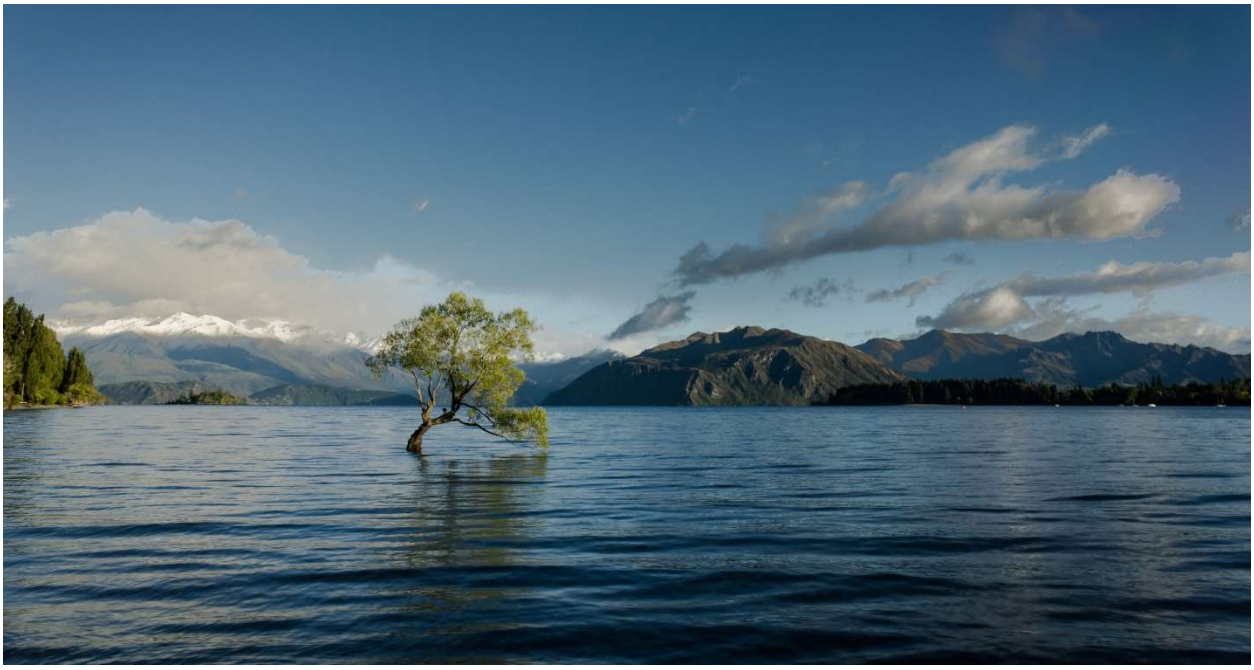
- Probabilistic 1,000-year recurrent 7.0 Mercalli Scale magnitude earthquake
- Historical 1926 5.0 Mercalli Scale magnitude earthquake

Provided below is a table that briefly summarizes some of the outputs from Hazus-MH:

Table 27. Hazus-MH loss estimates (earthquake)

	Historical 5.0	Probabilistic 7.0
Casualties	0	2 at 2pm 2 at 2am 1 at 5pm
Displaced Households & Sheltered Individuals	0 households displaced 0 individuals sheltered	2 households displaced 1 individual sheltered
Debris (tons)	0	0
Damage to Essential Facilities	0	0
Building-Related Losses	$0.70 million	$9.2 million
Income Losses	$0.10 million	$1.7 million
Transportation Losses	$4 million	$16 million
Utility Losses	$0.45 million	$8.2 million

5.8 Flood



5.8.1 Overview

Floods are one of the most common hazards across the US, and FEMA's administration of the National Flood Insurance Program (NFIP) makes it one of the highest profile hazards. The 2017 update reorganized the flood hazard profile, incorporated additional data and modeling, and presented a more comprehensive and cohesive analysis of the county's flood risk.

Table 28. Flood summary

	Before 2009	2009-2017	Total
Occurrences	16	6	22
Disaster Declarations	3 Presidential	1 Presidential	4 Presidential
Casualties	11 Fatalities	-	11 Fatalities
Property Damage	$72.387 million	$1.075 million	$73.462 million

5.8.2 Hazard Description

Thousands of floods occur each year, making it one of the most common hazards in all 50 states. Flooding is a natural process where excess water overflows a waterway and inundates adjacent land. Flooding results from a number of different causes, including riverine flooding, flash flooding, ice or debris jam flooding, structural failures or breakages, precipitation or snowmelt, and mudflows. Floodplains are those areas the excess water inundates, and range from narrow and confined channels to wide and flat areas depending on the topographical features near the waterway. Floodplain characteristics contribute to the speed and characteristics of flooding. In narrow and confined channels, flooding is normally rapid but short duration, with deep and rapid floodwaters. In contrast, flooding can be relatively slow and shallow and last for long periods of time in flat floodplains. The size of a flood is influenced by many factors, such as the size of the catchment area or watershed, topographic characteristics such as mountainous slopes and elevation changes, land-use characteristics or structural modifications, and the characteristics of meteorological events.

The following are short descriptions of flood types:

- Riverine Flood – Most commonly thought of as a 'flood' given its commonality and dangers. Riverine flooding occurs when the floodplain (the lowland areas adjacent to rivers and lakes) is inundated with water, usually caused by a weather system with prolonged or intense rainfall. Large-scale weather systems can cause both large and small rivers and streams to flood, notably if prolonged or intense rainfall is distributed over a wide area. Localized weather systems can also produce flooding, though normally such systems impact smaller rivers and streams. Riverine flooding can result from snowmelt, which in turn can be caused by above-freezing temperatures and rain-on-snow events.
- Flash Flood – This type of flooding is characterized by a rapid rise in surface water levels, and normally characterized by high water flow velocity. Flash floods are capable of carrying large amounts of debris, such as trees and boulders, and are capable of extensive damage. Flash floods are often driven by intense rainfall events in areas with steep watershed or stream gradients. Dam or levee failure, wildfire, debris or ice jam breakage, and rapid snowmelt can cause flash floods as all can release large volumes of stored water in a short period of time. Urban development also drives flash floods due to an increase of impervious surfaces, inadequate or failing drainage systems, and channelization of rivers and streams.
- Alluvial Fan Flood – This type of flood occurs most commonly in the alluvial fans created by the meandering of streams and rivers, and are the most prevalent flood type in arid regions. Alluvial fans pose a significant flood risk due to active erosion, sedimentation, deposition, and unpredictability of flow paths. As the floodway fills with deposited sediment, the river or stream can quickly reach overbank flood stages and channelize a new floodway. Human activities often exacerbate flooding and erosion on alluvial fans by altering flow patterns and constructing impervious surfaces with the potential to carry high-velocity flows to lower portions of the fan.

- Ice & Debris Jam Flood – Similar in characteristics to riverine floods and flash floods, ice jams or debris can accumulate at obstruction points on a stream or river and restrict water flow upstream, causing the banks behind the obstruction to inundate. These jams can also break, resulting in a sudden large discharge of stored water to the downstream reaches. The formation of these jams is dependent on meteorological and other physical conditions, often occurring at natural channel constrictions or where the channel is shallow enough to allow waters to freeze. Human-built structures such as bridges can also act as obstruction points. Ice and debris jam flooding most often occurs in the fall, winter, and spring due to the formation and loss of ice. Flood damages from ice and debris jam breakages often exceed that caused by riverine flooding, as flood elevations are higher and more unpredictable and flood waters can also carry debris.

Floods kill an average of 150 people per year nationwide. Most injuries and deaths occur when people are swept away by flood currents and most property damage results from inundation by sediment-laden water. Faster moving floodwater can wash buildings off their foundations and sweep vehicles downstream. Pipelines, bridges, and other infrastructure can be damaged when high water combines with flood debris. Effects from flooding can also include floating fuel tanks, inundation of subdivisions, road washouts, and basement flooding all of which can result in extensive damage.

5.8.3 Hazard Extent, Magnitude, & Probability

Although all types of flood events occur in Shoshone County, most commonly observed flood type is a riverine flood. Riverine flooding occurs along all tributaries and in the main channels to the Coeur d'Alene River System and the St. Joe River. Lands proximate to a river that is identified as susceptible to flooding is termed the floodplain. Oftentimes, floodplains are delineated for the 100-year flood, otherwise known as the one percent annual chance floodplain. The 100-year flood designation corresponds to a statistically-independent one percent chance every year of water levels exceeding a set magnitude. It is important to note that this base flood level can occur every year, and can occur consecutively. Similarly, a 500-year flood corresponds to a 0.2 percent annual chance of water levels exceeding a set magnitude. Flood damage is influenced by the speed and volume of water flow, the inundation level and length of time, and the amount of sediment and debris carried and deposited by the floodwaters.

The mountainous terrain of the region creates a flood-prone environment. Winter weather conditions are the main driving force in determining where and when riverine floods and base floods will occur. The type of precipitation that a winter storm produces is dependent on the vertical temperature profile of the atmosphere over a given area. Shoshone County experiences riverine flooding from spring runoff and winter rain, rain-on-snow, and snowmelt events. Rain-on-snow events can and do occur at almost all elevations across the county. These events often contain enough moisture to cause flooding on the Coeur d'Alene River System and the St. Joe River and most of their tributaries. The same holds true for the St. Maries River, although most of this damage is seen further downstream in

neighboring Benewah County. In general, these flood events can be predicted 24 to 72 hours in advance of the rising waters. Emergency plans that are in place can be executed before floodwaters overtop the river banks, minimizing loss of life and business disruption. Plans for reducing structural damage need to be put into place and executed long before the rain begins to fall and the snow begins to melt.

Summer thunderstorms can result in flash flooding of specific smaller drainages. Often there is little time to react to the quickly rising waters. Due to the nature of the terrain, localized flooding from thunderstorms tend to be more of a storm water drainage problem for many smaller communities. Short-term blockage of roads is usually the biggest impact as drainage structures are overwhelmed by the amount of water.

Ice and debris flows can occur as part of riverine and flash flooding events, usually exacerbating the effects of those types of floods. In the case of a fire or heavy logging activity, flash flooding can result because of the loss of vegetation that would otherwise intercept some of the surface water flow velocity. Details on reducing the effects of these types of debris flows can be found in the Landslide section (4.4.).

Of course, the critical complication of flooding in Shoshone County is seen acutely along the South Fork Coeur d'Alene River system where soil contamination from a century of mining activities and mining related pollution opens the door to recontamination of previously mitigated properties and new contamination from floodwater dispersal. Flood mitigation and flood preparedness cannot be seriously considered without taking these conditions into account.

The major source of floodwaters in Shoshone County is normal spring snowmelt with rain. As spring melt is a "natural" condition, the stream channel is defined by the features established during the average spring high flow (bank-full width). Section 3.6 summarizes the monthly temperature and precipitation regimes in Shoshone County and confirms the increased levels of cool to cold and moist weather systems that arrive in November and persist through March. Snowfall accumulations are warmed and rain-on-snow events can happen at any time of the winter, but are more disastrous in March, April, and May.

Unusually heavy snow packs or unusual spring temperature regimes (e.g., prolonged warmth) may result in the generation of runoff volumes significantly greater than can be conveyed by the confines of the stream and river channels. Such floods are often the ones that lead to widespread damage and disasters. Floods caused by spring snowmelt tend to last for a period of several days to several weeks, longer than the floods caused by other meteorological sources.

Floods that result from rainfall on frozen ground in the winter, or rainfall associated with a warm, regional frontal system that rapidly melts snow at low and intermediate altitudes, or flows over a frozen snow pack (rain-on-snow), can be the most severe. These situations quickly introduce large quantities of water into the stream channel network, easily overloading its bank-full width capacity.

In small drainages, the most severe floods are usually a result of rainfall on frozen ground but moderate quantities of warm rainfall on a snow pack, especially for one or more days, can also result in rapid runoff and flooding. Although meteorological conditions favorable for short- duration warm rainfall are common, conditions for long-duration warm rainfall in the winter are relatively rare. Occasionally, however, the polar front becomes situated along a line from Hawaii through Oregon, and warm, moist, unstable air moves into the region. Most winter floods develop under these conditions, as was the case with the northern Idaho floods of 1996 (IBHS 2008a).

Figure 24 shows the 100-year FEMA-mapped floodplain. This floodplain includes two corresponding regulatory flood zones. These zones are described below:

- Zone A – Areas subject to inundation by the one percent annual chance flood event. Because detailed hydraulic analyses have not been performed, no BFEs or flood depths are shown. Mandatory flood insurance purchase requirements apply.
- Zone AE – Areas subject to inundation by the one percent annual chance flood event determined by detailed methods. BFEs are shown within these zones. Mandatory flood insurance purchase requirements apply.

FEMA also maps the 500-year FEMA regulatory floodplain. However, this plan update does not include a map representing its boundaries. In its place is a description of its represented regulatory flood zone:

- Zone X – Areas identified in a community's FIS as areas of moderate or minimal hazard from the principal source of flood in the area. However, buildings in these zones could be flooded be severe, concentrated rainfall couple with inadequate local drainage systems. Local stormwater drainage systems are not normally considered in a community's FIS. The failure of a local drainage creates areas of high flood risk within these rate zones. Flood insurance is available in participating communities but is not required by regulation in these zones.

It is important to note the difference between the regulatory floodplain and the physical floodplain. The regulatory floodplain corresponds to an area delineated by FEMA where specific regulations (e.g., the National Flood Insurance Program) apply. The regulatory floodplain mapped in Figure 24 was not used to estimate losses in Hazus-MH for this risk assessment.

This risk assessment utilized non-regulatory depth grids provided by FEMA for 100-year and 500-year flood events for use in the 'Hazard Exposure & Vulnerability' and 'Loss Estimations' section of this risk assessment. These depth grids were used in order to try to account for more waterways and waterbodies in the county. It is important to note that these depth grids are incomplete, and flooding can occur on any waterway in the county. For example, spring snow melt in the mountains can cause streams to exceed the stream channel capacity, inundating adjacent banks and lands.

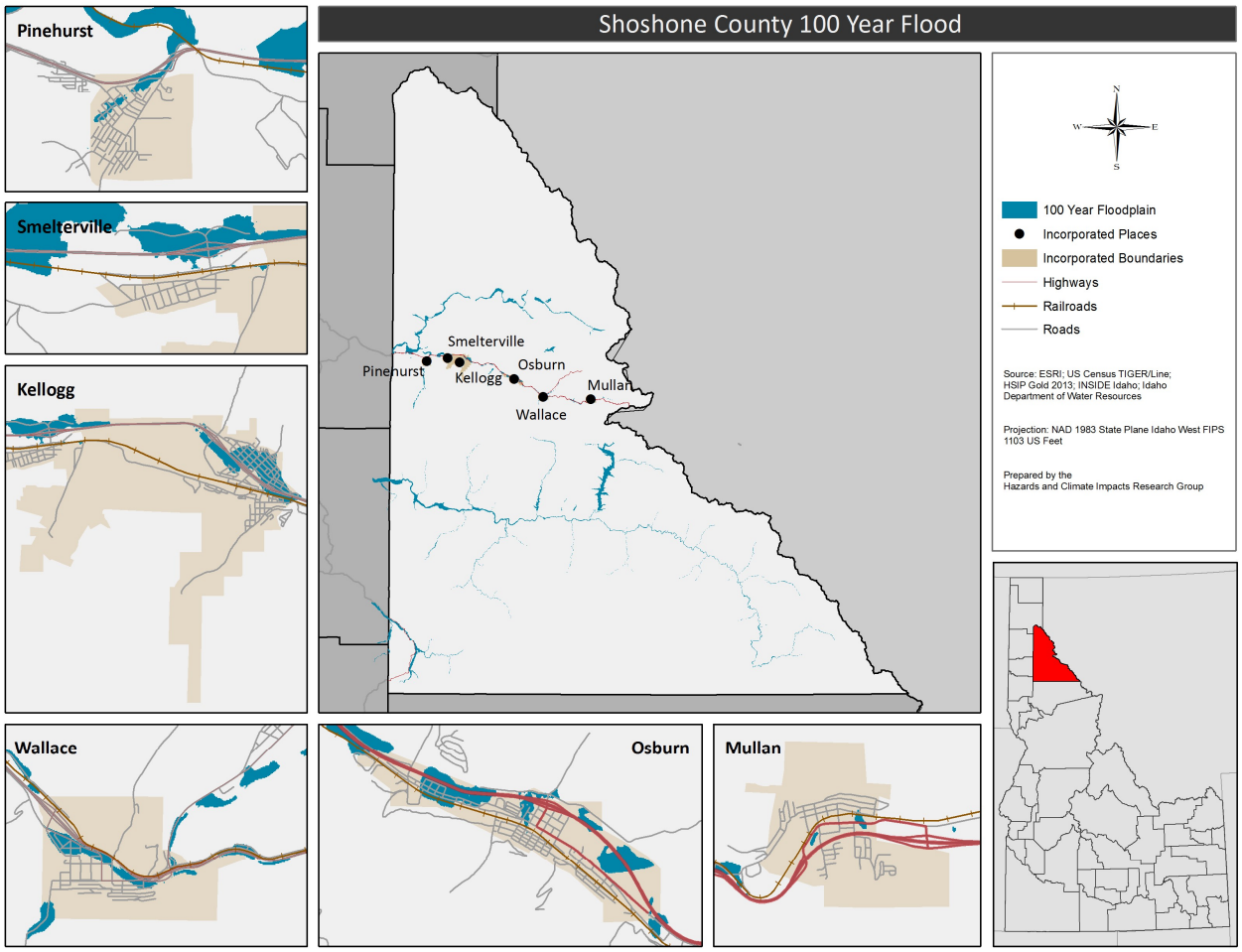


Figure 24. FEMA 100 Year Digital Flood Insurance Rate Map

5.8.4 Hazard Occurrences

Shoshone County has experienced a long history of high magnitude floods since first recorded in 1897, typically by 50-year and 100-year flood events. The diverse landscape and weather patterns within Shoshone County are the triggers for those high-magnitude floods. Rain-on-snow events and quickly rising, above normal high spring temperatures are typical antecedents to spring floods in Shoshone County. The combination of the above two events can be devastating and can cause extraordinary flooding events.

In 1894, records indicate the first serious recorded flooding of the Coeur d'Alene River system, leading to a rise in Lake Coeur d'Alene's elevation to approximately 12 feet above "full pool". On May 18, 1917, spring floods matched the 1894 levels, leading to a multiple day suspension of rail and highway transportation in the region. On December 18, 1917, flood waters again matched record levels, causing thousands of dollars in property damage (UI Libraries 1980).

In 1933, flood waters crested the previously set records of 1894 and 1917. Three days of torrential spring rains in early June sent the Coeur d'Alene River system and its tributaries over their banks. Later that same year, on December 21, an unseasonably warm weather system moved into the Idaho Panhandle causing a snow pack thaw and was again accompanied by heavy rains. This catastrophic combination caused landslides and flooding across the Coeur d'Alene River system. Coeur d'Alene Lake reached an all-time-high level of 14 feet above normal elevation (UI Libraries 1980).

In December 1933, both the South Fork of the Coeur d'Alene River and Placer Creek went over their banks, inundating the eastern and western sections of Wallace. On December 22, 1933, Nine Mile Creek (creating a confluence with the South Fork Coeur d'Alene River at Wallace) overflowed its banks, adding to the already extensive destruction. On December 23 the storm stopped, the weather turned cold and by the 26th the rivers were back in their confines, leaving behind nearly one million dollars (1933 dollars) worth of property damage in Wallace alone. It was estimated that property damage in Shoshone County reached three and a half million dollars (UI Libraries 1980).

During the same winter, during March 27-29, 1934, more heavy rains occurred, and consequently more flooding. The communities of Mullan, Wallace, and Kellogg sustained approximately $100,000 damage from the flooding (UI Libraries 1980).

Over the decades following these records of historic flood events, several weather patterns brought repeated flood waters to Shoshone County. Significant flood events occurred in 1938, 1948, 1963, 1964, 1974, 1982, 1996, and 1997. Flooding along Milo Creek in 1997 impacted Wardner and Kellogg and has been previously summarized.

May of 2008 marked one of the major flood events in Shoshone County. The flood was triggered by warm weather and moderate rainfall causing rapid melting of an unusually high snowpack. News reports, state records and FEMA press releases document the progression of events that started as a sustained rainfall event and led to the region being declared a National Disaster Area by President Bush.

The flood potential was high in the spring of 2008 as the Silver Valley received more winter snow than in the winter of 1997 - the time of the previous big flood. Residents were encouraged through press releases to stock extra food, bottled water and medications in advance of a local emergency situation being declared.

By May 7, 2008, water a few inches deep started accumulating across Riverview Drive in Cataldo as a flood watch for the Coeur d'Alene River was issued by the National Weather Service in Spokane. According to the National Weather Service, water levels for the Coeur d'Alene River at Cataldo were 42.3 feet at the time of observation with expectations of rising to feet before cresting mid-morning on May 8. Shoshone County Emergency Services personnel were prepared to deal with the situation as it unfolded.

A week later, on May 14, Idaho State Governor, Butch Otter declared a disaster emergency for Shoshone County, paving the way for Idaho Office of Emergency Management assistance to aid in an

anticipated flood situation. The declaration from the Governor's Office came on the coattails of similar declarations made by county commissioners and county disaster services on May 13, forecasting upcoming temperatures in the 80s that would cause unprecedented amounts of seasonal runoff to quickly escalate flood measures.

"This declaration allows for state assets, personnel and equipment to rapidly be deployed to areas of concern within Shoshone County," Governor Otter said. "We will help the citizens of Shoshone County help themselves in dealing with this challenge."

The National Weather Service predicted that Coeur d'Alene River water levels at Cataldo would reach the flood stage marker of 43 feet on May 17, while continuing to raise another foot before cresting late May 18. For context, the National Weather Service predicted that at 43 feet minor flooding of farmland from Cataldo to Harrison would be likely along with the Cataldo campground beginning to flood. At 44 feet, homes near the river may experience flooding in basements.

A Federal Disaster Declaration was approved for flood emergencies in Kootenai and Shoshone Counties on August 1, 2008 (IBHS 2008a). The following is an excerpt from the Disaster Declaration press release.

Governor C.L. "Butch" Otter announced that his request for a Presidential Disaster Declaration was approved by President George W. Bush. Governor Otter made the request due to the extraordinary costs incurred by the State of Idaho as a result of this spring's major flooding in Kootenai and Shoshone counties. Damages are estimated at more than $1.84 million.

Under the Robert T. Stafford Disaster Relief and Emergency Assistance Act, the State of Idaho is considered eligible for federal assistance because this year's springtime flooding was of such severity and magnitude that the affected counties and the State of Idaho could not cover all the costs without depleting disaster funds needed for other emergencies this fiscal year.

"Our own Bureau of Homeland Security joined county emergency folks and did a great job of initial response. But I asked for federal assistance because of the serious damage done to local roads, water control systems, parks and recreational facilities," Governor Otter said. "I am pleased and grateful the President agrees with me that federal aid is warranted and necessary. The people of Kootenai and Shoshone counties are counting on this help."

Federal aid will be administered by the Federal Emergency Management Agency's Region 10, working alongside personnel from the Idaho Bureau of Homeland Security. "Our men and women have worked closely with all seven of the Idaho counties that declared flooding emergencies earlier this year," said Idaho Homeland Security Chief Maj. Gen. Larry Lafrenz, who also serves as the State of Idaho adjutant general. "We now look forward to working with our federal partners to fully repair infrastructure damage that was beyond the state's financial means, and I've asked Idaho BHS Director Col. Bill Shawver to manage this important state/federal partnership on behalf of Idaho."

Col. Shawver and his staff at Idaho BHS will now work with FEMA officials to determine the best place to set up the joint state/federal field office for this federally declared disaster. "Idaho BHS personnel

will continue to work closely with government officials in the affected counties, just as we've done every day throughout this flooding emergency," said Col. Shawver. "With the additional federal assistance coming as a result of this presidential emergency declaration, I'm confident we will now have the resources to make the needed repairs to damaged and destroyed infrastructure."

The Coeur d'Alene River stage at the Cataldo USGS station crested at approximately 3 feet above the designated flood stage, officially classifying it as only a "moderate" flood by the National Weather Service. However, the impacts of that event on communities throughout the county were significant. The drinking water source at Enaville, which supplies water to over half of the county's residents, was inundated by flood waters. The Central Shoshone County Water District was forced to issue a boil-order throughout its service area because of potential bacteria from the floodwaters influencing the water source. Several local roads were inundated and had to be closed, including Interstate-90 exits at Cataldo, CCC Road, and the Old River Road. In addition, many of the Coeur d'Alene River tributary streams also experienced high water. Sand bags were placed by Mullan High School students in areas along Canyon Creek near Gem Hill Road and upper Burke Canyon (both near Wallace) to help protect residences from flooding. The lower portion of Meyer Creek in Osburn overflowed the existing conveyance system and flowed across portions of North 6th Street near the Zanetti Gravel Yard. Maintenance personnel worked around the clock to remove debris from the overflow structure on Mill Creek in Mullan to prevent flooding along 2nd Street.

Table 29 details flood events in Shoshone County through 2016.

Table 29. Flood occurrences

Date	Location	Type	Casualties	Property Damage	Crop Damage	Source
12/21/1933 – 12/23/1933	Wallace & Kellogg	Flood	11 fatalities	$3.5 million	-	Former Plan
3/27/1934 – 3/29/1934	Northern Idaho	Flood	-	-	-	Former Plan
4/18/1938	Mullan, Wallace, & Kellogg	Flood	-	$100,000	-	Former Plan
5/23/1948 – 6/5/1948	Shoshone County	Flood	-	$3.7 million	$30 million	Former Plan
2/14/1963	Prichard	Ice Jam	-	-	-	Former Plan
12/21/1964 – 12/23/1964	Wallace-Kellogg area	Flood	-	-	-	Former Plan
1/15/1974	Coeur 'Alene mining district	Flood	-	$65 million	-	Former Plan
2/15/1982	Maries Creek	Flood	-	-	-	Former Plan

Date	Location	Type	Casualties	Property Damage	Crop Damage	Source
Spring 1996	Northern Idaho	Flood	-	-	-	Former Plan
3/20/1997	Shoshone County	Flood	-	-	-	Former Plan
Spring 1997	Northern Idaho	Flood	-	-	-	Former Plan
7/30/1998	Kellogg	Flash Flood	-	$12,000	-	NWS
4/14/2000	Shoshone County	Flood	-	$40,000	-	NWS
8/21/2002	Wallace	Flood	-	$15,000	-	NWS
2/1/2003	Shoshone County	Flood	-	$20,000	-	NWS
May 2008	Shoshone County	Flood	-	-	-	Former Plan
1/16/2011	Kingston	Flood	-	$1,000,000	-	NWS
1/17/2011	Stetson	Flood	-	$30,000	-	NWS
3/30/2011	Enaville	Flood	-	$15,000	-	NWS
5/15/2011	Enaville	Flood	-	$25,000	-	NWS
2/8/2015	Kingston	Flood	-	-	-	NWS
2/10/2017	Calder	Ice Jam	-	$5,000	-	NWS

5.8.5 Hazard Exposure & Vulnerability

The results of the GIS overlay analysis are shown in Table 30 and Table 31. Both population exposure and structure count and value showed an increase between the 100-year and 500-year floodplains. The municipalities of Kellogg and Pinehurst showed similar levels of exposure, with the highest exposure found in the unincorporated areas of the county.

Table 30. Population exposure to floods

Event	Kellogg	Mullan	Osburn	Pinehurst	Smelterville	Unincorp.	Wallace
100Yr	1,255	135	311	1,044	0	2,507	554
500Yr	1,265	145	453	1,230	18	2,530	562

Table 31. Structure count and type exposure to floods

	Event	Res	Com	Ind	Agr	Rel	Gov	Edu
Kellogg	**100Yr**	566	71	11	3	6	2	2
	500Yr	573	74	11	3	6	2	2
Mullan	**100Yr**	83	4	0	0	0	0	1
	500Yr	103	4	0	0	0	0	1
Osburn	**100Yr**	165	11	4	0	4	1	0
	500Yr	219	13	5	0	5	1	0
Pinehurst	**100Yr**	476	26	4	1	5	1	1
	500Yr	554	30	4	1	5	1	1
Smelterville	**100Yr**	0	0	0	0	0	0	0
	500Yr	11	0	0	0	0	0	0
Unincorporated	**100Yr**	1,436	60	23	4	9	4	6
	500Yr	1,444	60	23	4	9	4	6
Wallace	**100Yr**	282	42	5	2	3	2	1
	500Yr	289	47	5	2	3	2	1

Table 32. Flood building values

	Event	Res	Com	Ind	Agr	Rel	Gov	Edu
Kellogg	**100Yr**	$112,305	$40,114	$8,594	$1,050	$3,524	$873	$4,386
	500Yr	$113,657	$40,936	$8,594	$1,050	$3,554	$873	$4,386
Mullan	**100Yr**	$12,757	$885	-	-	-	-	$3,122
	500Yr	$15,827	$885	-	-	-	$87	$3,122
Osburn	**100Yr**	$24,970	$8,157	$1,397	-	$1,769	$1,286	-
	500Yr	$32,256	$8,518	$1,583	-	$2,309	$1,286	-
Pinehurst	**100Yr**	$59,392	$12,083	$4,257	$516	$2,082	$528	$2,111
	500Yr	$71,543	$12,935	$4,257	$516	$2,082	$528	$2,111
Smelterville	**100Yr**	-	-	-	-	-	-	-

	500Yr	$1,205	-	-	-	-	-	-
Unincorporated	**100Yr**	$216,690	$19,860	$6,139	$739	$4,244	$3,372	$3,522
	500Yr	$219,624	$19,860	$6,219	$739	$4,244	$3,372	$3,522
Wallace	**100Yr**	$62,911	$18,579	$1,285	$251	$1,773	$2,006	$2,171
	500Yr	$64,296	$22,434	$1,408	$251	$1,773	$2,006	$2,171

The SERV model was employed to assess socioeconomic vulnerability to floods in Shoshone County (Figure 25). High levels of vulnerability are notable though dispersed across the county.

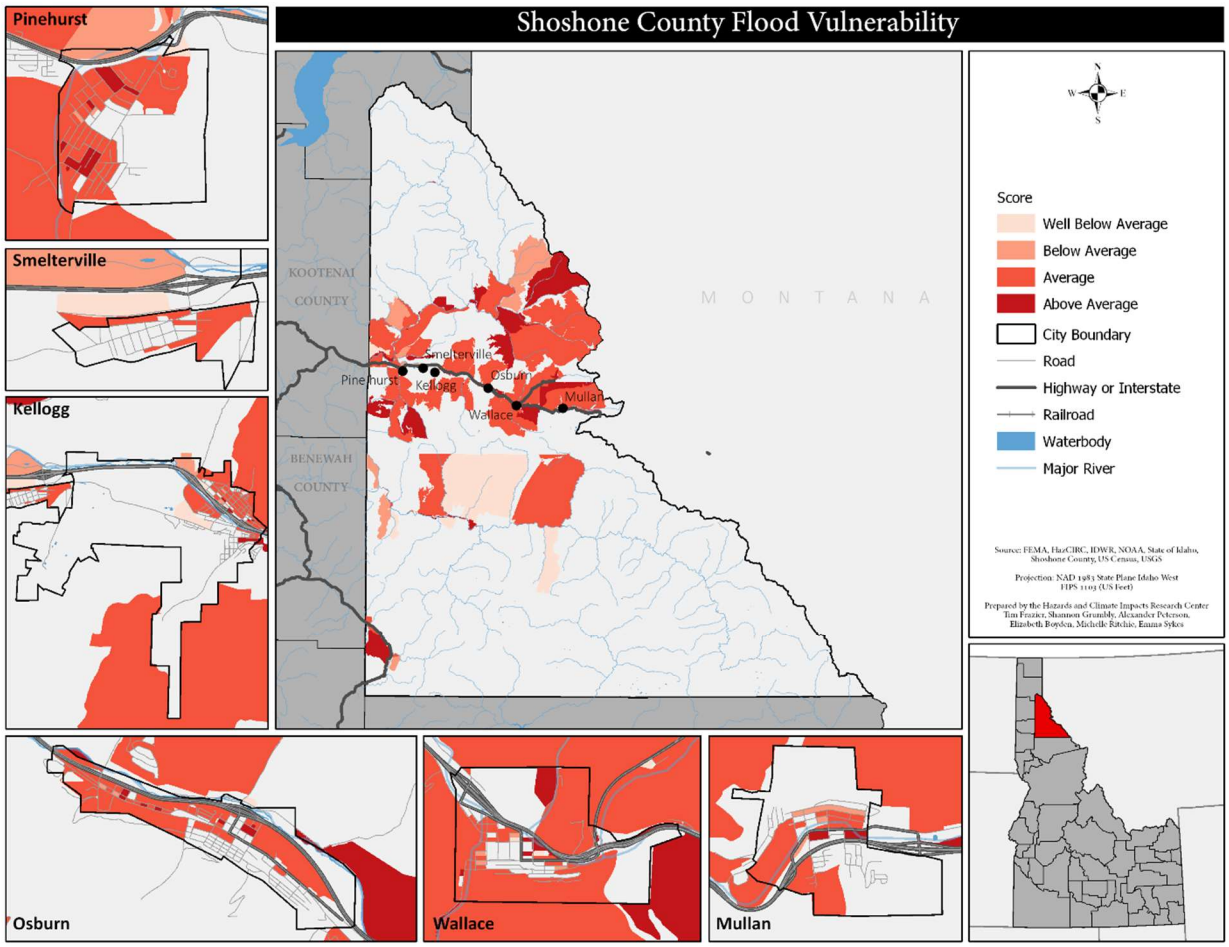


Figure 25. Socioeconomic vulnerability to floods

5.8.6 Land Use & Future Development

Floods generally come with warnings, and floodwaters rarely go where they are totally unexpected by experts. Those warnings are not always heeded though, and despite the predictability, flood damage continues.

The failure to recognize or acknowledge the extent of the natural hydrologic forces in an area has led to development and occupation of areas that can clearly be expected to flood on a periodic basis. Despite this, communities are often surprised when the stream leaves its channel to occupy its ancestral floodplain. A past reliance on structural means to control floodwaters and "reclaim" portions of the floodplain has also contributed to risk-prone development and continued flood-related damages.

Unlike the weather and the landscape, this flood-contributing factor can be controlled. Development and occupation of the floodplain places individuals and property at risk. Such use can also increase the probability and severity of flood events (and consequent damage) downstream by reducing the water storage capacity of the floodplain, or by pushing the water further from the channel or in larger quantities downstream.

5.8.7 Loss Estimations

Hazus-MH was employed to estimate losses resulting from multiple flood scenarios in Shoshone County. A Level II analysis was performed for the county's flood loss estimation, and critical facilities were updated using various data sources including the HSIP Gold data, the SHMP data, and Infogroup economic data. These facilities were further validated and corrected using satellite imagery to ensure accurate positionality in the county, as well as an estimated square footage to derive loss and replacement costs. It is important to note that Hazus-MH is an empirical model that attempts to best capture the reality of losses stemming from hazard events, but the results are dependent on the data inputted into the model and the quality of its damage functions. These results may not be a true reflection of reality and results should only be used to guide the planning process.

The following Hazus-MH scenarios were performed for Shoshone County's Flood Risk Assessment:

- 100-year flood event using non-regulatory depth grid provided by FEMA.
- 500-year flood event using non-regulatory depth grid provided by FEMA.

The two Hazus-MH runs returned loss estimates similar in magnitude. Loss estimates for the 100-year flood event showed more than 880 displaced households and 1,400 individuals seeking shelter, whereas the 500-year flood event showed 1,000 displaced households and 1,600 individuals seeking shelter. The 500-year flood event returned higher magnitudes of debris (19,000 tons versus 15,700 tons) and corresponding truckloads (760 truckloads versus 630 truckloads) to clear the debris. At least moderate damage was projected for multiple essential facilities, including structures listed as fire

stations, medical centers, police stations, and schools. Notably, one fire station was listed as substantially damaged in the 500-year flood loss estimate. Finally, economic losses were estimated at $170 million and $205 million for the 100-year and 500-year events, respectively. Table 33 briefly summarizes some of the outputs from Hazus-MH:

Table 33. Hazus-MH loss estimates (flood)

	100-year (FEMA non-regulatory)	500-year (FEMA non-regulatory)
Displaced Households & Sheltered Individuals	880 households displaced 1,400 individuals sheltered	1,000 households displaced 1,600 individuals sheltered
Debris (tons)	15,700 tons 630 truckloads	19,000 tons 760 truckloads
At Least Moderate Damage to Essential Facilities	2 fire stations 3 hospitals 2 police stations 3 schools	1 fire stations (substantial) 5 hospitals 1 police stations 1 schools
Economic Losses	$170 million structural $0.7 million business interruption	$205 million structural $0.8 business interruption

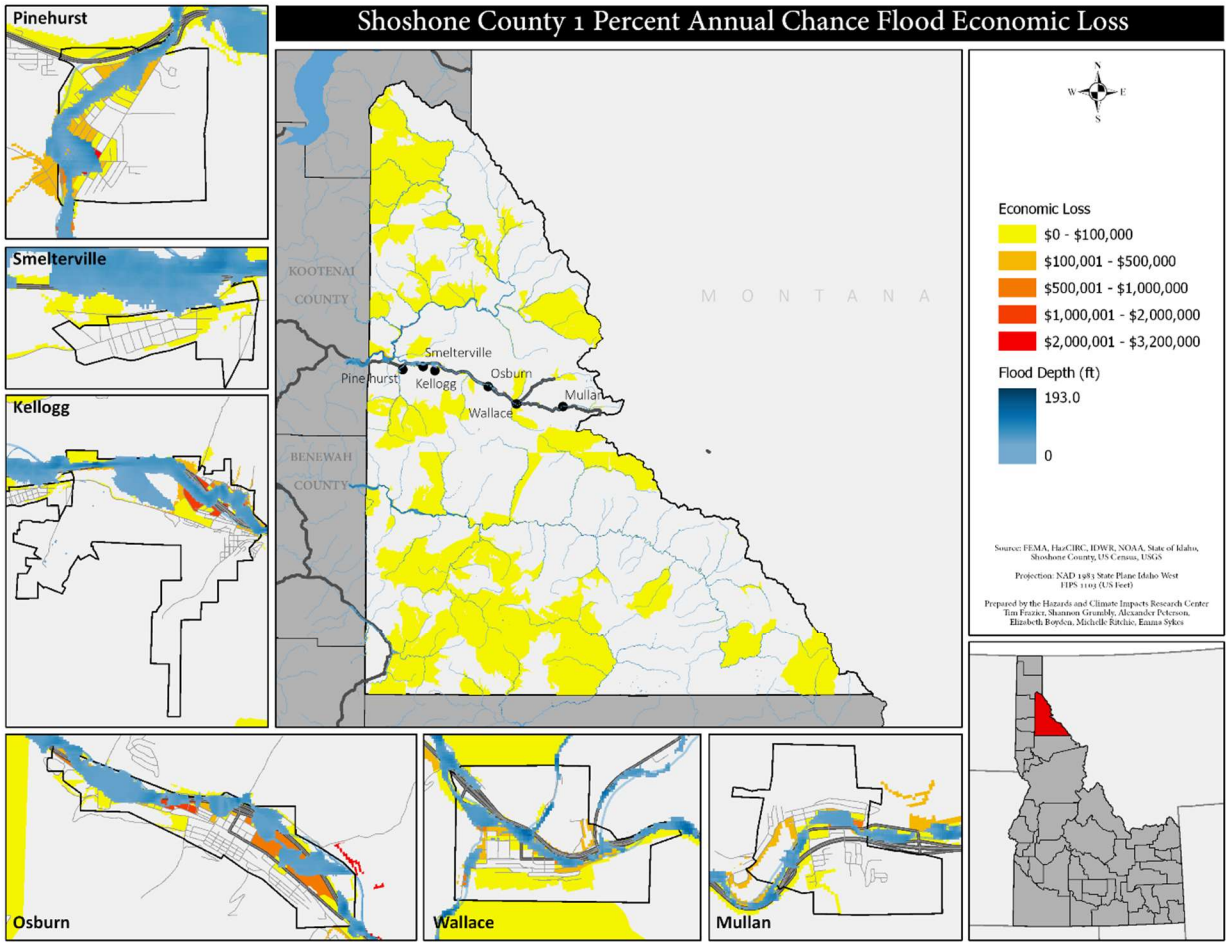


Figure 26. Loss estimates for the 1 percent annual chance flood event

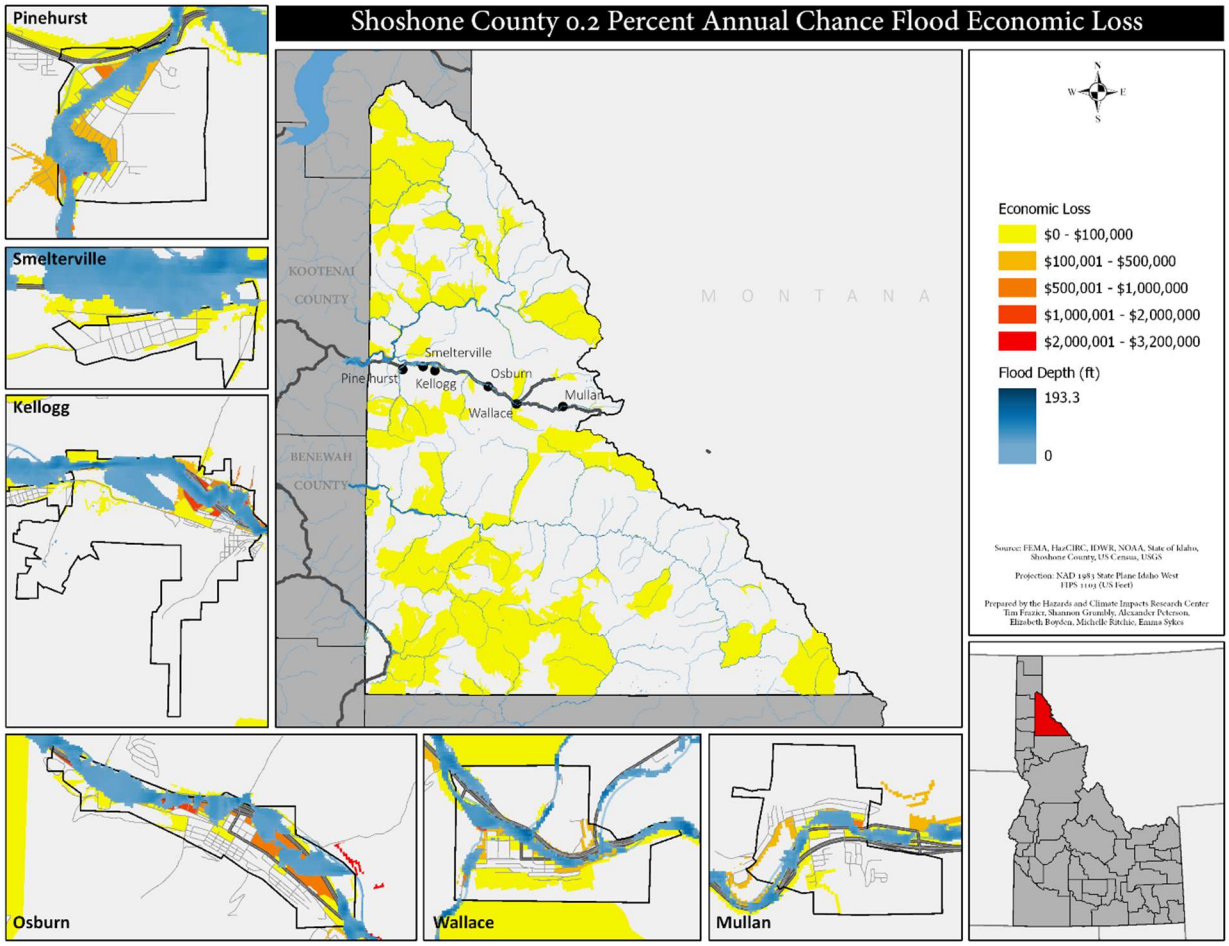


Figure 27. Loss Estimates for the 0.2 percent annual chance flood event

5.8.8 CERCLA Remedies in the Context of Flooding

This section has been directly taken from the former HMP. According to local officials, the following information still reflects local conditions and therefore did not need to be updated.

The environmental cleanup dictated by the CERCLA actions in the upper Basin (or eastern half of the site) relies to a great extent on in-situ control and containment of contaminated soils within the communities, gulches, hillsides, and river floodplain. Clean soil barriers have been and are being constructed over contaminated materials throughout the area. This work has been done without much regard to floodplain location or risk of flood damage resulting from recontamination due to deposition of contaminated sediments from receding floods or erosion of the barriers. An ICP has been implemented to ensure that soil excavation activities associated with normal community property activities and infrastructure development and management are regulated in a manner to protect the remedies and control contaminant release.

The long-term success of the ICP and CERCLA cleanup approach is dependent upon protecting these barriers and other remedies that are at risk from flood damage and recontamination. The BEIPC prepared a cursory estimate of roughly $80,000,000 to re-remediate this area. This number is expected to increase several-fold as i) the area of remediated property within the floodplain increases as construction progresses, and ii) the reevaluation of the floodplain (released with the September 2008 FEMA maps) has increased the projected flood inundation areas.

The impact of a catastrophic flooding event to the remedies was illustrated by the 1997 event in Milo Creek (flowing from Wardner to Kellogg), a tributary to the South Fork Coeur d'Alene River. The flooding and failure of the drainage control system directly caused recontamination of 50 remediated properties and road shoulders, incremental elevation of blood lead levels in children, and initiated a $16,000,000 project that required the complete reconstruction of infrastructure, flood control facilities, and community reconfiguration to implement additional remedial actions.

The focus of CERCLA actions is to implement remedies to protect human health and the environment. Funds allocated for this purpose are not available for the construction or rehabilitation of flood control facilities. Some consideration for storm water drainage can be made during remedial actions, but major construction of flood control facilities during remedial activities is currently not funded. To a great extent, the storm water drainage and flooding problems in the upper Basin exist in spite of the Superfund actions, but these actions have influenced the overall development of the area. As some contaminated areas are remediated, they become available for development and new land uses. But more importantly, the difficult aspects of surface water connectivity are influencing both individual remedies and whole segments of the Superfund site.

An illustration is Grouse Creek, a tributary to the South Fork Coeur d'Alene River with a confluence near Smelterville. During primary remediation activities, this drainage was considered minor with only a small mine site and hillside cleanup. Yet, there was flooding in this minor drainage in 1986 resulted in significant damage and deposition of contaminated materials in Smelterville.

Another example is Bunker Creek, a conveyance channel through a major portion of the industrial and community cleanup area in the Superfund site. During site remediation, this channel was designed for a condition that is no longer valid. Hillside development was always anticipated in the distant future, but never included in the analysis because remedial design did not recognize infrastructure or development components. Two massive hillside resort developments are now scheduled and in progress in the area that drains to Bunker Creek. The City of Kellogg is working towards improved storm water collection, both to manage storm water and to protect remediated properties. Runoff from this improved storm water collection system will be conveyed to Bunker Creek. Another critical issue is FEMA's recent determination that the South Fork levee system through Kellogg is insufficient and would result in a failure during a 100-year flood event. If this occurs, the river will split and travel down the Bunker Creek channel. This would completely eclipse any capacity to convey drainage from the remediated industrial areas in Kellogg and its storm water drainage system, and would threaten the Superfund remedies along Bunker Creek including the Trail of the

Coeur d'Alenes, the Central Impoundment Area (the largest contaminated waste repository in the upper Basin), lower Government Gulch, the City of Smelterville, remediated property south of Interstate 90, the Page Waste Repository, and the West Page Swamp.

Storm water management and flood control are inseparable in terms of their management and relationship to the CERCLA remedies. The planning and implementation of a flood control program is necessary to protect these remedies. A National Academy of Sciences report bluntly states "…the long-term effectiveness of the selected remedy in the Coeur d'Alene River basin is questionable because of the possibility, even likelihood, of recontamination from floods and damage to protective barriers used in residential remediation." It continues with "Every flood distributes these wastes further, and the contaminants undergo chemical changes- which can increase or decrease the risk they pose – as they travel through the river basin" (NAS 2005).

Local drainage problems within the communities pose a second, chronic type of risk for recontamination. Municipal drainage issues threaten the integrity of the barriers every time it rains and with every snowmelt. In 2006-2007, the BEIPC conducted drainage assessments for the cities of Mullan, Wallace, Silverton and Osburn. The assessments describe the infrastructure that is in place to manage local drainage as either old or nonexistent in many cases. Side drainages from hillsides are a flood risk to all populated areas. The flood control program does not have to solve community drainage issues, but it must recognize the connection between managing storm water in the communities and larger flood control efforts.

- Milo Creek Flooding in May 1997 – On May 15, 1997, the cities of Wardner and Kellogg experienced a severe flood event when Milo Creek (a tributary to the South Fork Coeur d'Alene River), overran its banks and destroyed existing infrastructure at several aboveground and underground locations within both cities. Cool overnight temperatures had kept the snow accumulation in the area persistent into May. A warm-weather system moved into the region on the evening of May 14, 1997, triggering snowpack melt in combination with a rain-on-snow event. In response, Milo Creek's velocity increased and streamside debris was transported downstream in a sustained debris flow. The in-stream structures used to filter debris from the channel were overtopped when they clogged, sending Milo Creek out of its channel and down city streets. Eventually, underground stream conveyance structures were also clogged and the stream continued its exodus from its channel.

  Over 50 homes and approximately 5 miles of public rights-of-way were damaged from the flood waters. In addition to common problems associated with flooding, such as sinkhole formation, washouts, and the destruction of personal property, the May flood deposited lead contaminated sediments along its path. Sample results from these sediments ranged from 1,668 to 14,113 ppm of lead. The Superfund action level for lead contamination is triggered at 1,000 ppm lead.

Shortly after that flood event, Kellogg and Wardner were designated as a "Disaster Site" by both the State of Idaho and the Federal Government. Emergency assistance and funding to repair damages were supplied through FEMA with assistance from the State of Idaho Bureau of Disaster Services (now Idaho Office and Emergency Management).

Kellogg and Wardner residents were faced with the need to repair sediment contaminated barriers and clean up the re-deposited contaminated soils. The spread of the lead contaminated soils throughout the communities represented a very real public health hazard to local residents, especially young children. The 1997 Blood Lead Screening Program identified lead exposure in young children associated with the flood. Initial results indicated that as many as 50% of the children who tested high in blood lead levels during these the 1997 tests lived in close proximity to Milo Creek.

There were approximately 142 properties, rights-of-way, and streets affected by the Milo Creek flooding of 1997. The response to this series of events was an integrated effort to clean up the contaminated soils exposed and moved by the flood waters, re-create contaminated soil barriers, and to rebuild the infrastructure of Milo Creek to confine the stream to an underground impoundment on its course through Wardner and Kellogg to its confluence with the South Fork Coeur d'Alene River.

- Sediment Deposition in spring 2008 – The higher than normal snow pack and subsequent spring and early summer runoff in the Coeur d'Alene Basin during the spring of 2008, resulted in the migration of bed-load and stream-bank sediments containing heavy metal mine wastes. The remobilization of these contaminants is a normal spring runoff event each year in the Basin, but the 2008 recontamination resulted in a significant sediment deposition event. The beds and banks of the South Fork Coeur d'Alene River contain millions of cubic yards of mine and mining related wastes that were deposited for over a century in the River and its tributaries by mining activities. The sediments containing these contaminants continue to wash downstream to Coeur d'Alene Lake especially during high flow events. This process is expected to continue for many years to come. Some remedies for this situation are noted in the ROD for OU3 of the Superfund Site (USEPA 2002), but most of these remedies have not been implemented as yet because of the emphasis on cleanup of populated areas for human health reasons.

  The impact of recontamination from flood re-deposition of contaminated soils during the 2008 flood event is seen in the sample of sediment testing presented in Table 34. All test results exceed action levels for Superfund cleanup of 1,000 ppm lead at residential and commercial sites.

  IDEQ submitted the samples to the SVL Analytical for lead and arsenic analysis. The samples were not sieved prior to analysis in order to represent the total sediment deposition, not the finer fractions typically analyzed as part of the residential cleanup.

Table 34. Sediment deposition samples

Sample Number	Arsenic mg/kg	Lead mg/kg	Sample Location
SED052308-001	48.5	2800	Sediments deposited upriver of the bicycle trailhead for the Trail of the Coeur d'Alenes, upriver of the confluence of the South Fork Coeur d'Alene River with Pine Creek. Upstream of East Mission Flats Repository on the South Fork Coeur d'Alene River.
SED052308-002	52.3	1630	Sediments deposited on Riverview Road west of State Highway 9. The road had been covered with flood waters that subsequently receded. The sediments had just been washed to the shoulder, with the water truck still working. Location is upstream of East Mission Flats Repository.
SED0523081-003	44.1	1650	Sediments collected off the road east of the Cataldo Campground and south of I-90. Located along the river downstream of the East Mission Flats Repository.
SED052308-004	44.1	1650	Sediments taken from the upper portion of the paved parking area at the Rose Lake boat ramp, downstream of the East Mission Flats Repository.

Shoshone County and all of the Silver Valley located municipalities (includes all municipalities in Shoshone County), will continue to work with PHD and its Contaminant Management Rule within the Bunker Hill Superfund Site. Action items include: storm water management, site disturbance, excavation, grading and certain interior projects that may disturb protective barriers placed over contamination remaining site wide. These activities will also include disposal of ICP waste and response to catastrophic events such as flooding.

5.8.9 Replacement Cost of Superfund Site Remediation

This section has been directly taken from the former HMP. According to local officials, the following information still reflects local conditions and therefore did not need to be updated.

The Superfund Site located within the South Fork Coeur d'Alene River valley has received a tremendous effort from the EPA, the IDEQ, Shoshone County, local municipalities, private companies, organizations, and individuals to identify contaminated soils, develop and implement site remediation efforts, and dispose of contaminated soil in repositories. These efforts have been continuous for more than two decades.

The cost of designing, remediating, and managing this effort includes human resources and technology by all of the above listed organizations. The cost of replacing the remediation if recontamination occurred was projected for this effort. This estimate is useful for a valuation of

what it would potentially cost to re-remediate those properties that have already been treated if the treatment were to be destroyed from a series of flood events. This comparison is useful in the context of structure values already conveyed in the previous section.

The location of properties receiving sampling and remediation efforts, within the Superfund Site and also within Shoshone County, has been evaluated against the September 2008 FEMA flood zones. The remedial status for all properties in each of several communities is summarized in Table 34.

The estimated cost of re-remediating what has been done was based on the current average cost per square foot to complete the process, with the exception of EPA costs (Stromberg pers comm. 2009). Four remedial statuses are summarized: 1) not yet sampled, 2) sampled and needs remediation, 3) sampled but does not need remediation, and 4) sampling and remediation work completed. The average cost per property per remedial status is based on a number of estimates: 1) not yet sampled is based on some effort of mapping the Basin to identify properties in the Superfund Site and collecting related data, 2) sampled and needs remediation is based on the rounded average cost per property to map, gain consent, sample, and report results, 3) sampled but does not need remediation is based on the same rounded average cost as 2, and 4) is based on the rounded average cost per square foot remediated and the average square feet remediated per property. This last remedial status includes all State, contractor, sampling, and waste disposal costs with the exception of EPA oversight costs. Note the values in Table 34 are rough estimates based on a number of available parameters and should not be used to represent the costs actually spent-to-date.

The values in Table 35 represent an estimate of what could be lost if floods were to disturb sites that are currently sampled or sampled and remediated. This is not an estimate of what it would cost to re-remediate in a flood zone because not only would re-remediation potentially occur on the properties currently remediated or sampled, but a flood may affect properties (or additional square footage on properties) previously considered as not contaminated. Additionally, the estimated costs for properties not yet sampled would likely remain unchanged.

Approximately 60% of the properties within the 100-year flood zone, 81% of the properties in the 500-year flood zone, and 38% of the properties outside the flood zone have been sampled and remediated or have been sampled but do not require remediation efforts. About 12% of the properties in the 100-year flood zone, 11% of the properties in the 500-year flood zone, and 12% of the properties outside the flood zone have been sampled and require remediation that has not yet been completed. These properties are in process for the final stages of remediation work. The remaining 28% of properties in the 100-year flood zone, 8% of the properties in the 500-year flood zone, and 50% of the properties outside the flood zone have not yet been sampled and their potential need for further treatment is undetermined, but may not need to be sampled under the Superfund Site criteria.

This estimated $129.8 million value fails to quantify the human health exposure linked to the mobilization of the remedy, deposition of contaminated soils downstream, or the exposure of

contaminated soils currently overtopped by clean soils. Floodwaters in the Silver Valley of Shoshone County have the potential to damage human health, especially in children, from the mobilization of these contaminated soils.

Table 35. Estimated cost of re-establishing flood-damaged Superfund Site cleanup efforts to existing condition

Area	Not Sampled	100-Year Flood Zone		Sampled & Remediation Completed	Not Sampled	500-Year Flood Zone		Sampled & Remediation Completed	Not Sampled	Outside Flood Zone		Sampled & Remediation Completed	Total Remediation Value by Community
		Sampled, Needs Action	Sampled, No Action Required			Sampled, Needs Action	Sampled, No Action Required			Sampled, Needs Action	Sampled, No Action Required		
Big Creek – River	$300	$30,000	$12,000	$445,200	$20	$15,000	$-	$540,600	$2,020	$6,000	$-	$699,600	$1,750,740
Burke	$1,820	$123,000	$-	$1,494,600	$-	$-	$-	$254,400	$3,300	$165,000	$-	$5,374,200	$7,416,320
Cataldo	$540	$81,000	$3,000	$-	$-	$-	$-	$-	$6,120	$156,000	$42,000	$318,000	$606,660
Enaville	$460	$3,000	$-	$-	$-	$-	$-	$-	$340	$3,000	$-	$31,800	$38,600
Kellogg - City	$2,340	$9,000	$18,000	$19,175,400	$360	$-	$33,000	$15,295,800	$5,320	$18,000	$99,000	$14,946,000	$49,602,220
Kellogg -	$340	$3,000	$45,000	$572,400	$-	$-	$-	$127,200	$260	$3,000	$57,000	$1,049,400	$1,857,600
Kingston	$3,240	$246,000	$33,000	$1,431,000	$20	$9,000	$-	$95,400	$6,960	$516,000	$198,000	$5,851,200	$8,389,820
Larson	$100	$3,000	$-	$63,600	$-	$-	$-	$-	$480	$-	$3,000	$127,200	$197,380
Montgomery	$1,080	$6,000	$-	$127,200	$20	$3,000	$-	$-	$920	$27,000	$-	$31,800	$197,020
Moon Creek	$680	$39,000	$-	$1,939,800	$-	$-	$-	$-	$360	$21,000	$6,000	$604,200	$2,611,040
Mullan - City	$220	$15,000	$3,000	$2,862,000	$400	$27,000	$6,000	$3,720,600	$1,520	$195,000	$42,000	$10,557,600	$17,430,340
Mullan -	$600	$6,000	$-	$254,400	$-	$-	$-	$31,800	$1,940	$15,000	$-	$349,800	$659,540
Nine Mile	$100	$3,000	$-	$31,800	$-	$-	$-	$-	$1,680	$90,000	$6,000	$222,600	$355,180
Osburn - City	$720	$81,000	$39,000	$4,738,200	$840	$513,000	$192,000	$15,073,200	$100	$-	$-	$-	$20,638,060
Osburn -	$680	$111,000	$6,000	$540,600	$100	$12,000	$3,000	$-	$3,380	$147,000	$66,000	$1,780,800	$2,670,560
Page	$140	$3,000	$12,000	$1,017,600	$20	$-	$-	$-	$2,980	$3,000	$54,000	$1,272,000	$2,364,740
Pine Creek & Pinehurst	$1,400	$219,000	$27,000	$190,800	$300	$96,000	$21,000	$349,800	$3,280	$57,000	$33,000	$-	$998,580
Pinehurst -	$1,560	$21,000	$318,000	$11,225,400	$960	$9,000	$447,000	$10,589,400	$820	$6,000	$123,000	$985,800	$23,727,940
Silverton	$300	$27,000	$-	$1,844,400	$300	$30,000	$3,000	$3,434,400	$620	$147,000	$21,000	$1,749,000	$7,257,020
Smelterville -	$880	$-	$3,000	$12,561,000	$20	$-	$-	$63,600	$440	$-	$3,000	$1,017,600	$13,649,540
Smelterville -	$40	$-	$-	$63,600	$-	$-	$-	$-	$400	$-	$-	$-	$64,040
Wallace -	$2,860	$237,000	$36,000	$2,893,800	$500	$135,000	$-	$7,886,400	$2,520	$216,000	$6,000	$795,000	$12,211,080
Wallace - Creek	$80	$12,000	$-	$-	$140	$12,000	$3,000	$254,400	$360	$3,000	$-	$-	$284,980
Wallace -	$80	$6,000	$-	$-	$100	$57,000	$-	$636,000	$480	$9,000	$-	$31,800	$740,460
Wardner	$-	$-	$-	$-	$420	$3,000	$30,000	$4,452,000	$1,520	$6,000	$54,000	$2,194,200	$6,741,140
Total	$20,560	$1,284,000	$555,000	$63,472,800	$4,520	$921,000	$738,000	$62,805,000	$48,120	$1,809,000	$813,000	$49,989,600	$182,460,600

5.9 Hazardous Materials

5.9.1 Overview

Hazardous materials (hazmat) are often an unknown factor in mitigation planning. Transported chemicals pose a risk to individuals and areas adjacent to transportation corridors, and industry and manufacturing plant hazmat accidents can necessitate evacuation of large areas and require significant resources to contain and manage. The 2017 update added a hazardous materials profile that presents a more comprehensive and cohesive analysis of Shoshone County's hazardous materials risk.

Table 36. Hazardous materials summary

	Before 2009	2009-2017	Total
Occurrences	7	5	12
Disaster Declarations	-	-	-
Casualties	-	-	-
Property Damage	-	-	-
Repetitive Losses	-	-	-

5.9.2 Hazard Description

A hazardous material is a substance known to harm humans and other living organisms and damage property. A release of a hazardous material can contaminate the environment and produce a health hazard to the immediate area, downwind, and/or downstream of the release location. Hazardous materials are regulated by the U.S. Environmental Protection Agency (EPA), which lists substances as either hazardous or extremely hazardous. Hazardous substances are those substances that tend to persist for long periods of time and pose long-term health hazards for living organisms, whereas extremely hazardous substances pose acute health hazards and immediate dangers to the lives of living organisms and can cause significant environmental damage. Hazardous materials include wastes, pollutants, and elevated-temperature materials.

A hazardous material can be released from a fixed facility (such as a manufacturing plant) or via transportation through the area. The most likely locations for transportation-related hazardous material release are highways and active railways. Given the non-static nature of transportation and

lack of disclosure by transportation companies, transportation-related releases pose a significant risk to populated areas and water resources.

The following are brief descriptions of common hazardous materials:

- Gasoline – Highly flammable, this substance has a high rate of exposure given its use in vehicles.
- Chlorine – An important and common industrial chemical, chlorine is volatile and highly reactive (especially in the proximity to a heat source). Chlorine can severely damage lungs and can kill people.
- Diesel Fuel – Similar to gasoline, diesel fuel has a high rate of exposure. This substance can irritate the eyes, skin, and respiratory systems, and can cause dizziness, headaches, and nausea.
- Propylene – Crucial in the petrochemical industry, propylene is used in the production of films, packaging, and more. This substance poses a fire hazard when handled due to its volatility and flammability.
- Sulfuric Acid – High corrosive, yet common in cleaning agents, fertilizer manufacturing, oil refining, and wastewater processing. If sulfuric acid comes into contact with human skin, it will cause severe burns. Inhaling sulfuric acid can result in serious lung damage.

5.9.3 Hazard Extent, Magnitude, & Probability

The Areal Locations of Hazardous Atmospheres (ALOHA) model developed by the EPA and National Oceanic and Atmospheric Administration (NOAA) was employed to assess the county's risk to hazardous materials incidents. ALOHA models chemical releases and the dispersion of toxic clouds and their areas-of-effect, and is widely used for planning and response to chemical emergencies. The software generates the plume dispersion and threat zone of a chemical based on its properties, amount, storage and containment, and the atmospheric conditions at time of release, and models toxic gas clouds, flammable gas clouds, BLEVEs (Boiling Liquid Expanding Vapor Explosions), jet fires, pool fires, and vapor cloud explosions.

Chemical type, amounts, and locations were collected from the 2015 Tier II reports provided by IOEM. Tier II reports are required to be submitted by facilities storing hazardous materials at or above the threshold planning quantity defined by the EPA, and are designed to facilitate emergency planning. Figure 28 shows the location and exposure of hazardous materials based on Table 37.

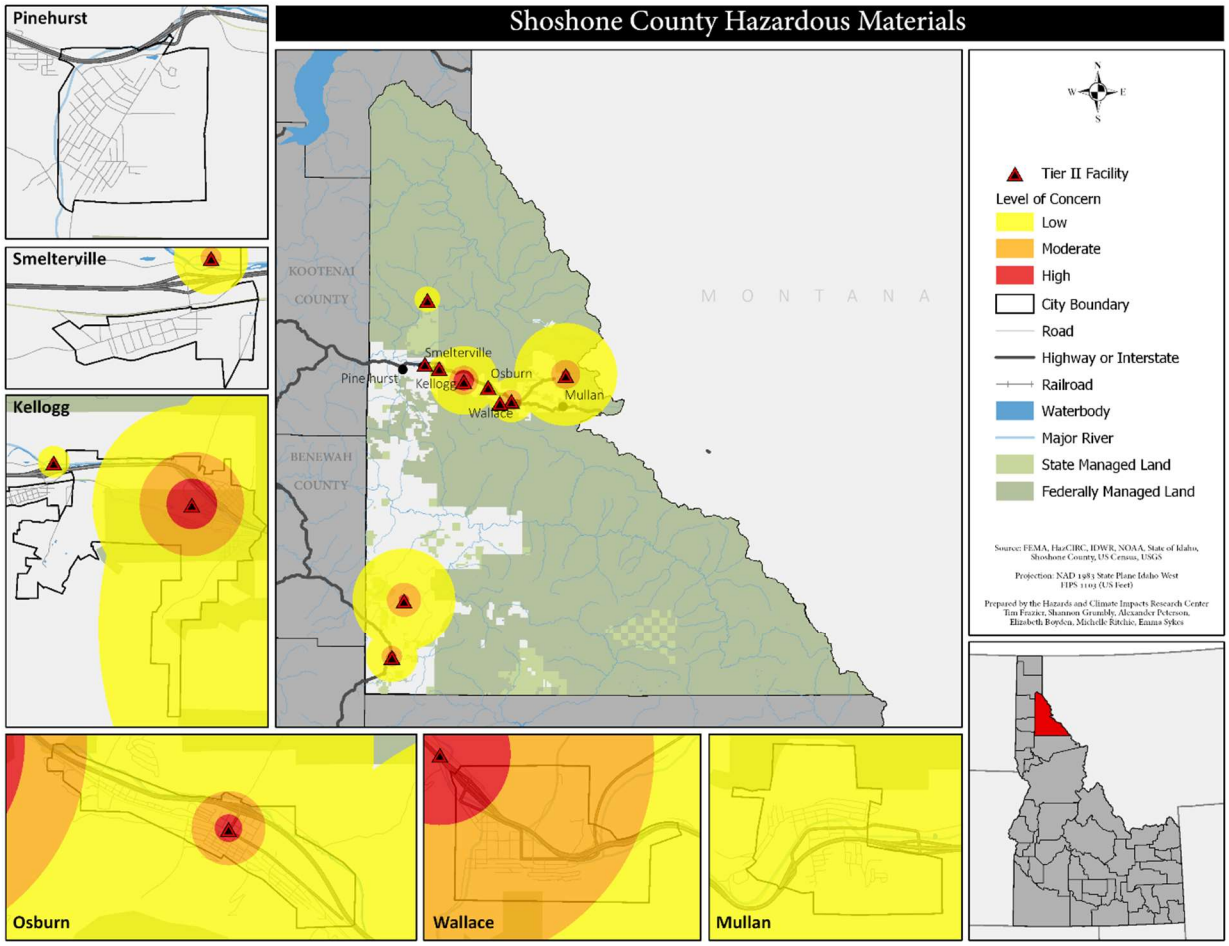


Figure 28. Tier II chemical facilities and levels of concern

Table 37. Tier II chemical facility data

Chemical	Amount	Unit	LOC Type
Sulfuric Acid	12	Pounds	AEGL
Sulfuric Acid	762	Pounds	AEGL
Asphalt Oil	26000	Pounds	PAC
Sulfuric Acid	1132	Pounds	AEGL
Diesel Fuel	6000	Gallons	PAC
Diesel Fuel	105730	Pounds	PAC
Gasoline	35750	Pounds	ERPG
Styrene Monomer	12704	Pounds	AEGL
Ammonium Hydroxide	350	Pounds	PAC
Diesel Fuel	8500	Pounds	PAC

5.9.4 Hazard Occurrences

Although there are no repetitive losses associated with hazmat, Shoshone County has experienced a number of hazmat incidents (Table 38).

Table 38. Hazmat incident occurrences

Date	Location	Cause	Casualties	Damage	Material	Amount
9/11/2006	Avery	Other	-	-	Other Oil	-
5/31/2007	Mullan	Equipment Failure	-	-	Seepage Water	-
6/5/2007	Mullan	Natural Phenomenon	-	-	Wastewater	150 Gallons
7/27/2007	Mullan	Equipment Failure	-	-	Tailings	-
7/30/2007	Mullan	Other	-	-	Lead Sulfide	-
3/11/2008	Osburn	Equipment Failure	-	-	Metal Compounds	-
10/9/2008	Kellogg	Equipment Failure	-	-	Backfill Sand	-
6/18/2010	Osburn	Other	-	-	Concentrated Ore	15 Tons
10/4/2011	Pinehurst	-	-	-	Automotive Gasoline	-
10/28/2011	Shoshone	-	-	-	Hydraulic Oil	100 Gallons
4/27/2014	-	-	-	-	Sodium Cyanide	-
11/25/2014	Mullan	Equipment Failure	-	-	Lead Sulfide	93 Pounds

Source: NRS

5.9.5 Hazard Exposure & Vulnerability

As the Tier II facilities with the greatest threat zones are located proximate to the county's populated areas, the population exposed to hazmat is high relative to the total county population. Table 39 details the population exposure for the county and its communities. In general, exposure to low LOCs is higher than exposure to moderate or high, though the entire populations of Kellogg, Osburn, and

Shoshone County unincorporated areas are located within low, moderate, and high LOCs. Structures and structure value exposure analysis returned similar results (Table 40 and Table 41).

Table 39. Population exposure to hazmat

LOC	Kellogg	Mullan	Osburn	Pinehurst	Smelterville	Unincorp.	Wallace
Low	2,013	321	1,248	0	0	1,907	749
Moderate	1,018	0	387	0	0	329	694
High	115	0	31	0	0	96	0

Table 40. Structures and structure type exposure to hazmat

	LOC	Res	Com	Ind	Agr	Rel	Gov	Edu
Kellogg	**Low**	1,016	110	18	4	9	5	3
	Mod	469	67	6	1	4	1	2
	High	38	1	0	0	0	0	0
Mullan	**Low**	227	6	0	0	0	0	1
	Mod	0	0	0	0	0	0	0
	High	0	0	0	0	0	0	0
Osburn	**Low**	644	37	14	0	12	4	2
	Mod	176	22	10	0	10	3	2
	High	17	16	8	0	2	2	2
Pinehurst	**Low**	0	0	0	0	0	0	0
	Mod	0	0	0	0	0	0	0
	High	0	0	0	0	0	0	0
Smelterville	**Low**	0	0	0	0	0	0	0
	Mod	0	0	0	0	0	0	0
	High	0	0	0	0	0	0	0
Unincorporated	**Low**	944	23	12	2	4	2	4
	Mod	256	5	4	0	1	0	1
	High	70	3	3	0	1	0	0

Wallace	**Low**	399	70	8	2	6	2	1
	Mod	399	70	8	2	6	2	1
	High	0	0	0	0	0	0	0

Table 41. Structure values and structure type exposure to hazmat

	LOC	Res	Com	Ind	Agr	Rel	Gov	Edu
Kellogg	**Low**	$197,237	$59,389	$8,445	$1,149	$5,658	$2,789	$4,999
	Mod	$96,415	$43,771	$2,367	$256	$2,584	$514	$4,386
	High	$5,498	$164	-	-	-	-	-
Mullan	**Low**	$35,821	$1,484	-	-	$79	$87	$3,223
	Mod	-	-	-	-	-	-	-
	High	-	-	-	-	-	-	-
Osburn	**Low**	$99,655	$21,664	$3,534	$84	$4,587	$1,802	$433
	Mod	$25,923	$12,181	$2,098	$84	$3,347	$516	$433
	High	$2,270	$10,522	$1,805	$84	$900	$385	$433
Pinehurst	**Low**	-	-	-	-	-	-	-
	Mod	-	-	-	-	-	-	-
	High	-	-	-	-	-	-	-
Smelterville	**Low**	-	-	-	-	-	-	-
	Mod	-	-	-	-	-	-	-
	High	-	-	-	-	-	-	-
Unincorporated	**Low**	$168,085	$5,062	$3,298	$329	$2,582	$1,448	$1,811
	Mod	$41,543	$1,021	$1,214	-	$708	$175	$257
	High	$12,712	$783	$877	-	$707	-	-
Wallace	**Low**	$82,193	$35,745	$2,177	$251	$3,057	$2,006	$2,171
	Mod	$82,193	$35,745	$2,177	$251	$3,057	$2,006	$2,171
	High	-	$2	-	$1	-	-	-

Vulnerability to hazmat is concentrated around the Tier II Chemical Facilities (Figure 29). Wallace, Osburn, and Mullan show primarily average societal vulnerability to hazmat relative to the county, while unincorporated areas proximate to these city boundaries exhibit above average vulnerability.

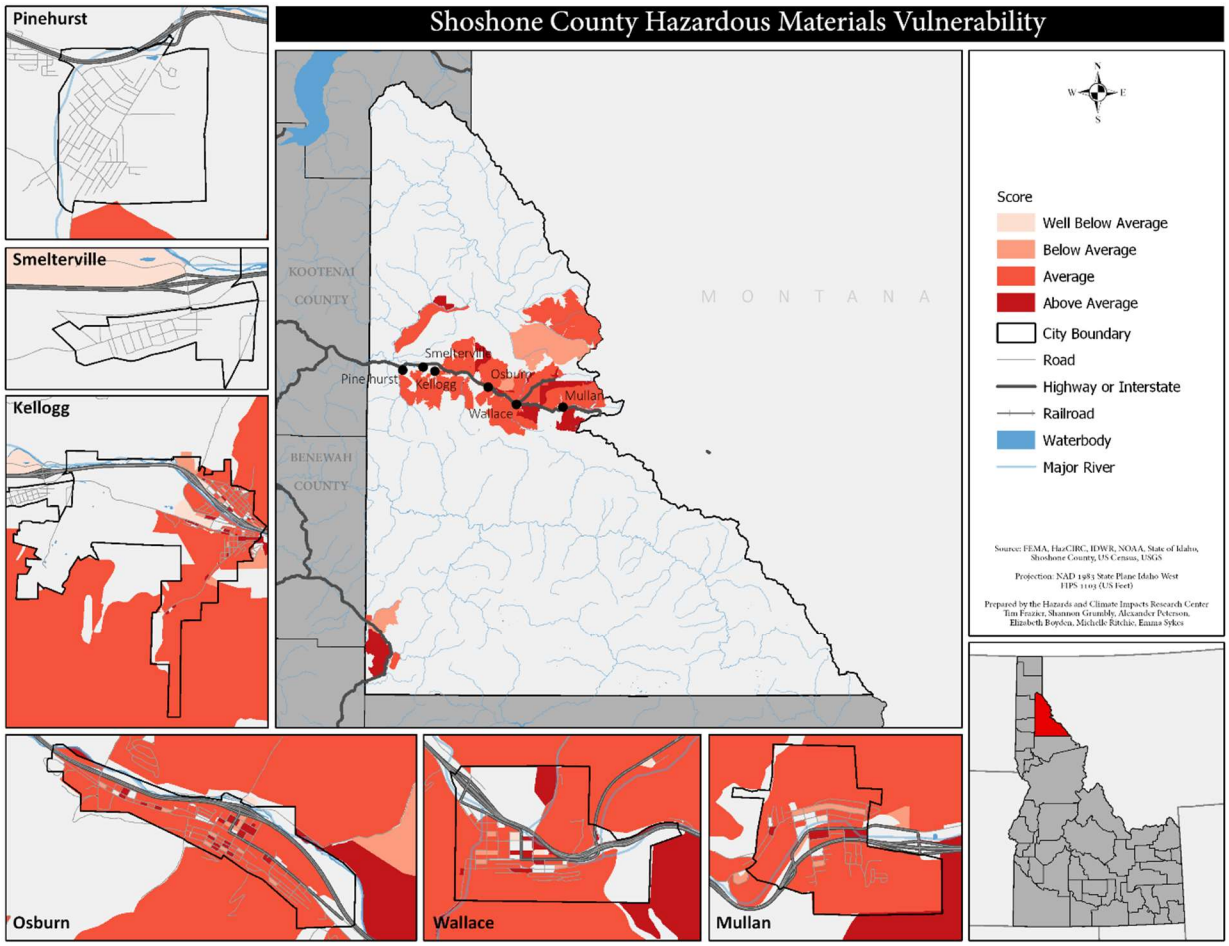


Figure 29. Socioeconomic vulnerability to hazmat

5.9.6 Land Use & Future Development

As population and development increase, hazmat exposure and vulnerability will increase, especially in the most exposed areas including in and around the communities of Kellogg, Osburn, Wallace, Mullan, and Clarkia. Similarly, increased development both in and around the county can result in increased flow of hazmat on the county's transportation network.

5.10 Landslide

5.10.1 Overview

The hazard profile for landslides was significantly reworked in the 2017 update. Changes include a more detailed hazard description, the use of a landslide index developed by HazCIRC to better assess the landslide susceptibility, and a vulnerability assessment of landslides across the county.

Table 42. Landslide summary

	Before 2009	2009-2017	Total
Occurrences	> 2	-	> 2
Disaster Declarations	-	-	-
Casualties	-	-	-
Property Damage	-	-	-
Repetitive Losses	-	-	-

5.10.2 Hazard Description

Landslides are the movement of a mass of soil and rock down a slope, and can occur on any area composed of weak or fractured materials resting at an angle. Materials and movement together produce landslides, and are important in producing composite classification schemes. Landslide materials include rock (e.g., bedrock), debris (e.g., coarse material), and earth (e.g., fine material), and landslide movement types include falls (characterized by the free movement and rolling, bouncing, or sliding of soil and rock), slides (the lateral and downslope movement of partially-intact masses), and flows (viscous fluid-like movement of completely fragmented material saturated with water). Together, materials and movement produce landslides.

Types of landslides include rock falls, earth flows, and debris flows (often known as mud flows). Landslides such as debris flows can be difficult to distinguish from flash floods given their similar characteristics – debris flows often occur suddenly with significant destructive potential during or immediately after a period of intense rainfall and/or rapid snowmelt. The consistency of debris flows ranges from watery mud to thick, rocky mud with the capacity to carry large items such as boulders, trees, and cars. When the flow reaches flatter ground, the debris can spread over a broad area and accumulate in thick deposits. These types of meteorological-related landslides are most common in Idaho, although the state does not maintain a landslide inventory.

Many different physical and meteorological factors contribute to landslides. The physical morphology of the landscape can increase the susceptibility of failure, as generally the steeper the slope the more prone it is to landslide. Slope aspect captures rain shadow, wind, and solar radiation factors. In Idaho, west-facing aspects and slopes between 30 and 41 degrees were found to be most landslide-susceptible. Slope shape also influence landslides, as concave slopes (e.g., hollow, swale, gully) allow water and debris to accumulate, increasing landslide probability. Convex slopes (e.g., ridge, nose) do not allow such accumulation, and are less prone to landslide.

Surface materials and the underlying geology of slopes are also influential in landslide occurrence. In general, landslides occur where surface materials are weak. Surface materials that are impermeable are problematic as they allow subsurface water accumulation, while the geology underlying a slope controls the movement of subsurface water and can either reduce or amplify slope weaknesses. Vegetation can stabilize slopes, however, by increasing slope shear strength and removing water from the soil. The removal of vegetation (such as through wildfire and human disruption) can significantly increase the probability of landslides. Human activities such as road construction, timber harvesting, grazing, mining, and fire suppression all modify slope stability and contribute to landslides.

It is important to note that climate is a deterministic factor of landslides, and the size and timing of precipitation is influential in landslides. Depending on the soil saturation level prior to an event, a slide can follow days or even weeks after above-normal precipitation. Landslides most often occur in late spring and early summer, coincident with the seasonality of rainfall events.

Omitting weather-caused landslides, landslide occurrence is often coincident with other natural hazards, such as earthquakes, floods, and volcanic eruptions. Consequences of landslide in Idaho generally occur directly at the site and downslope of the slide area, as well as in adjacent waterways. Temporary road closures and lengthy detours during debris removal and infrastructure repair are the most probable impacts. Landslides can also destroy structures, fuel and energy lines, and communication infrastructure.

5.10.3 Hazard Extent, Magnitude, & Probability

To-date, no statewide landslide assessment or inventory exists, and occurrence and risk data is difficult to obtain. To overcome this limitation, a proxy index incorporating the biophysical factors known to contribute to landslide susceptibility were aggregated and mapped. The analyzed biophysical factors included slope, aspect, canopy cover, and geologic type. Previous research found high slide occurrence on southeast-to-west facing aspects, and the least number of slides on north-facing aspects. Slopes between 31 and 40 degrees were likewise susceptible, with most landslides occurring in brush- and grass-covered landscapes. Finally, certain geologic classes are known to contribute to instability (Table 43).

Table 43. Geologic types known to cause slope instability

Type	Description
Kg	Granodiorite and two-mica granite (Cretaceous)—Granodiorite and granite containing biotite, commonly with muscovite.
Qs	Fluvial and lake sediment (Quaternary)—Largely fine-grained sediment, in part playa deposits of evaporative lakes.
Qg	Glacial deposits (Pleistocene)—Till and outwash consisting of gravel, sand, silt, and clay. Formed by valley glaciers at higher elevations and by the Cordilleran ice sheet in northern Idaho.
Tes	Sedimentary rocks (Eocene)—Fluvial, lacustrine, and air-fall deposits of conglomerate, volcanic sandstone, mudstone, and tuff near Challis, conglomerate north of Sandpoint, and conglomerate and sandstone of the Wasatch Formation in extreme southeastern Idaho.
Tcr	Columbia River Basalt Group (Miocene)—Large-volume lava flows of tholeiitic basalt, basaltic andesite, and subordinate andesite in western Idaho.
Qls	Landslide deposits (Quaternary)—Unsorted gravel, sand, and clay of landslide origin; includes rotational and translational blocks and earth flows.
Tcv	Challis Volcanic Group (Eocene)—Dacite, andesite, and rhyolite tuffs and flows and subordinate basalt and latite flows; covers large area in south-central Idaho.
Kpro	Riggins Group, Orofino series, and related rocks (Cretaceous to Permian)—Metasedimentary and metavolcanic schist, gneiss, amphibolite, and marble, all of uncertain age, along eastern margin of island-arc complex; typically hornblende-rich.

QTb	Basalt (Pleistocene and Pliocene)—Flows and cinder cones of olivine tholeiite basalt in and near Snake River Plain. Largely Pleistocene (<2.6 Ma) but includes flows as old as 3 Ma. Covered with 1-3 m (3-10 ft) of loess.

Slope and aspect were calculated from 10m digital elevation models (DEMs). Canopy cover was obtained from the 2011 National Land Cover Database (NLCD), while geologic types were obtained from the Idaho Geological Survey (IGS). Each factor was assigned a binary classification, with 0 indicating lack of susceptibility and 1 indicating susceptibility. The binary classifications were then summed to produce the Landslide Index (LI) shown in Figure 30. It is important to note that the LI is not a deterministic or probabilistic risk model, but a proxy index identifying the number of biophysical factors that contribute to landslides.

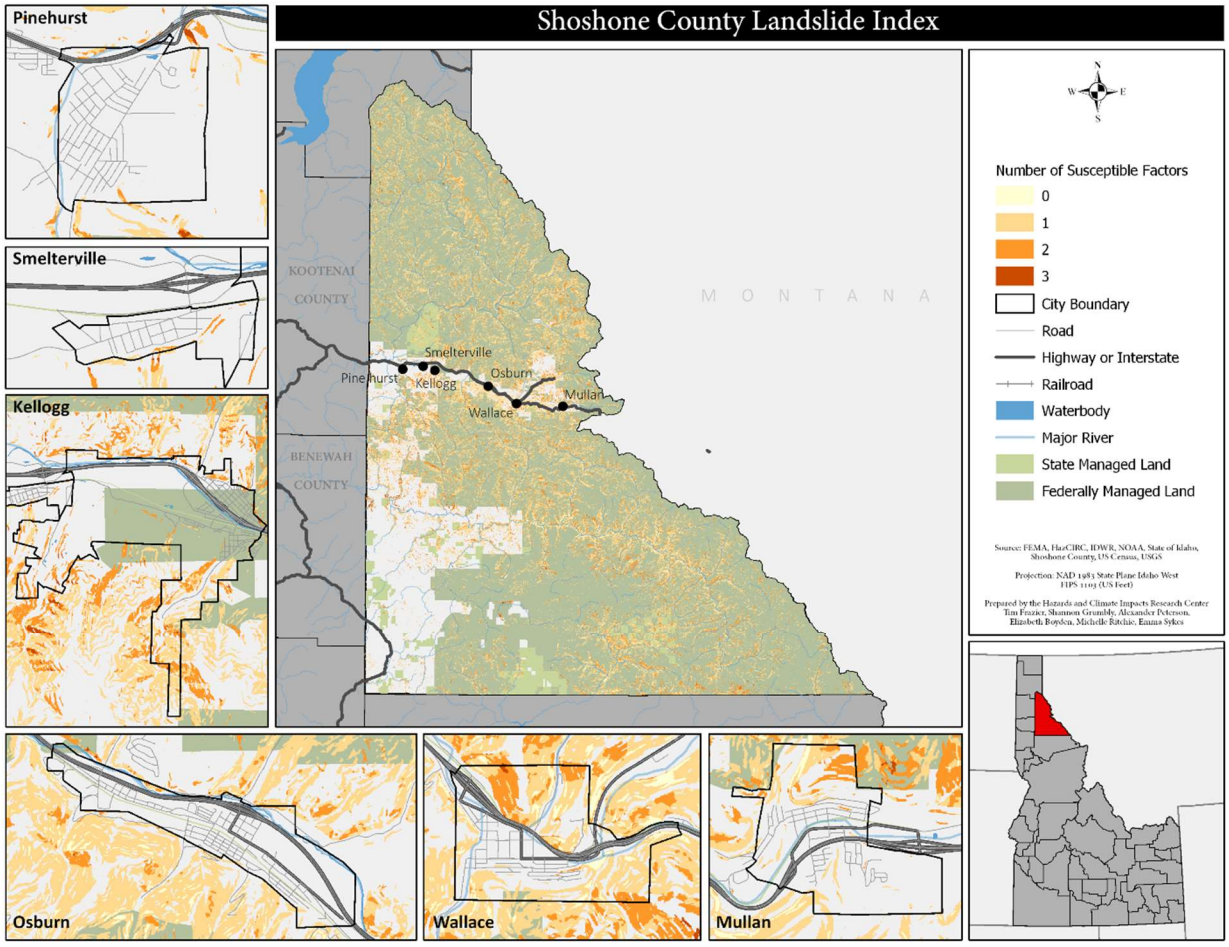


Figure 30. Landslide Index map

5.10.4 Hazard Occurrences

No past occurrences of landslides resulting in casualties or property damage have been reported in Shoshone County between 2009 and 2017.

Additionally, a detailed and comprehensive record of landslides in Shoshone County is not available. Most of the landslides recalled in memory by local government officials and planning committee members have occurred along County or Forest Service roads and may in some cases be a result of road construction or maintenance activities. There are a few re-occurring slide areas that cause damage to the paved road surface and require cleanup of slide debris on a fairly regular basis – even annually or twice every three years.

The first location is about 3 miles upstream form Prichard, Idaho, along Forest Road 208. It is referred to locally as the Miller Way Slide and Shoshone County and the US Forest Service are working toward implementing a long-term mitigation solution. The last major slide at that site was May 2008, as a result of heavy rain and water runoff that also caused extensive flooding in the Silver Valley during the same storm system. Estimated cleanup of that site was in excess of $10,000.

Another area of continuing landslides is at Falls Creek along Forest Highway 50 between St. Maries and Calder, Idaho. That slide initiates about 150 feet in elevation above the highway and frequently sloughs debris onto the road following rain and snowmelt events. Shoshone County and the Federal Highways Administration are working on long term mitigation solution for that area.

The largest landslide event that local inhabitants can recall happened in the mid-1990s along Forest Highway 50 near Bullet Creek about 20 miles upstream (easterly) from Avery. That slide event caused a swath of debris approximately 300 feet long with an initiation point approximately 200 feet above the road. The event sent debris across Highway 50, completely blocking it and depositing vegetation, debris, and mud into the St. Joe River. This event was caused by a rain-on-snow event and caused the highway to be closed for several months. The total clean-up costs are indeterminate.

5.10.5 Hazard Exposure & Vulnerability

The GIS overlay analysis showed most population exposed to landslides are located in the unincorporated areas of the county, though both Kellogg and Wallace show landslide exposure. Much of the exposed population are also located in the low-risk areas (LI between 1 and 2), though according to the 2010 US Census, 6 individuals are located in higher risk areas. Similarly, Kellogg, Wallace, and the unincorporated areas have exposed structures. Table 44, Table 45, and Table 46 detail the population, structure, and structural values exposed.

Table 44. Landslide population exposure

Mag	Kellogg	Mullan	Osburn	Pinehurst	Smelterville	Unincorp.	Wallace
1	-	-	-	-	-	251	60
2	24	-	-	-	-	115	-
3	-	-	-	-	-	6	-
4	-	-	-	-	-	-	-

Table 45. Landslide building counts

	Mag	Res	Com	Ind	Agr	Rel	Gov	Edu
Kellogg	**1**	23	-	-	-	-	-	-
	2	62	4	-	-	-	1	-
	3	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-
Mullan	**1**	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-
Osburn	**1**	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-
Pinehurst	**1**	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-
Smelterville	**1**	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-

	4	-	-	-	-	-	-	-
Unincorporated	**1**	86	2	1	1	-	-	-
	2	58	8	2	-	1	1	1
	3	14	-	-	-	-	-	-
	4	-	-	-	-	-	-	-
Wallace	**1**	2	-	-	-	-	-	-
	2	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-

Table 46. Landslide building values

	Mag	Res	Com	Ind	Agr	Rel	Gov	Edu
Kellogg	**1**	$4,408	-	-	-	-	-	-
	2	$15,982	$1,744	-	-	-	$1,483	-
	3	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-
Mullan	**1**	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-
Osburn	**1**	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-
Pinehurst	**1**	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-

	4	-	-	-	-	-	-	-
Smelterville	**1**	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-
Unincorporated	**1**	$14,036	$283	$382	$116	-	-	-
	2	$9,447	$2,048	$1,385	-	$387	$464	$1,607
	3	$1,793	-	-	-	-	-	-
	4	-	-	-	-	-	-	-
Wallace	**1**	$318	-	-	-	-	-	-
	2	-	$3	$4	-	$1	$1	$5
	3	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-

Societal vulnerability to landslides is shown in Figure 31. The unincorporated areas of the county show the highest levels of vulnerability to landslides, with census blocks with above average SERV scores proximate to the community boundaries.

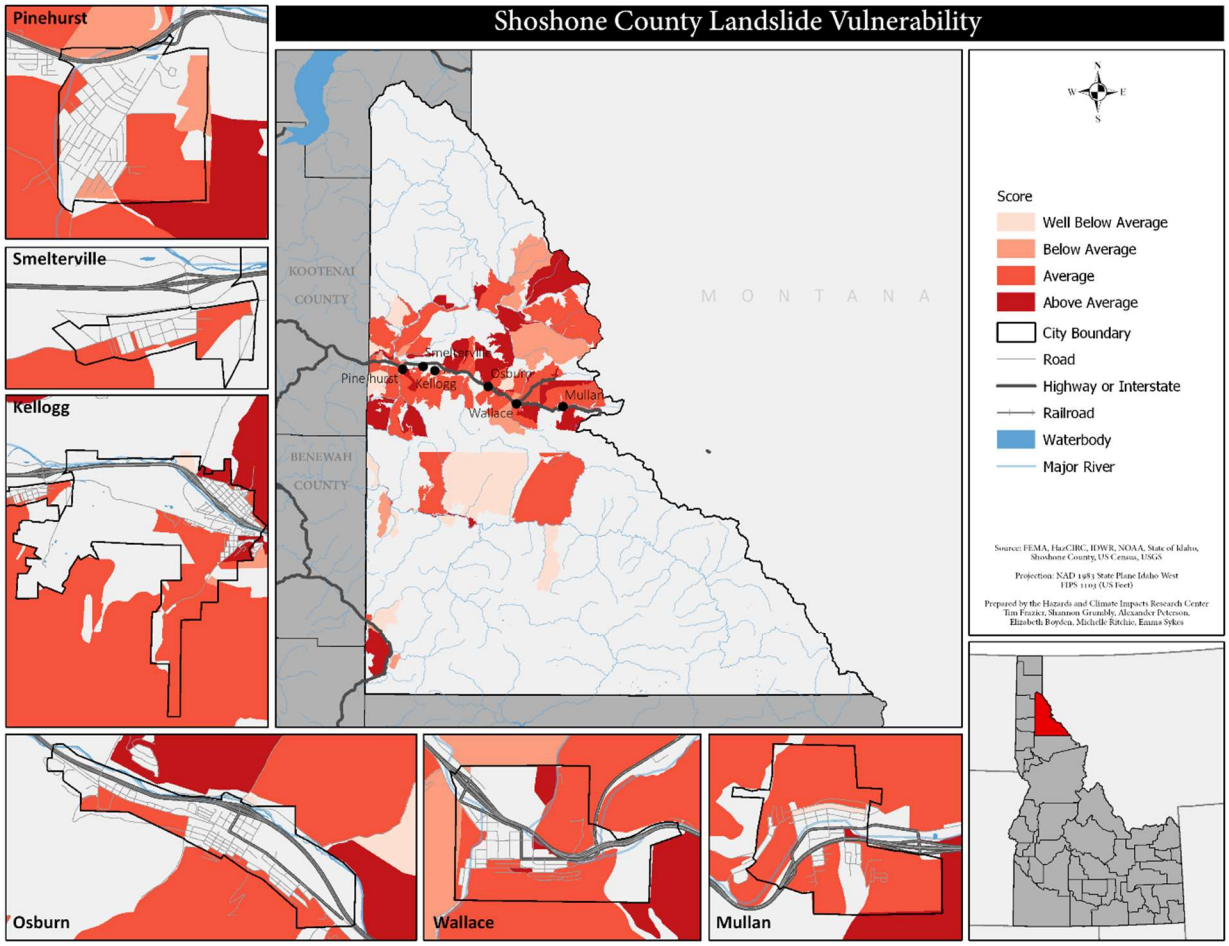


Figure 31. Socioeconomic vulnerability to landslides

5.10.6 Land Use & Future Development

Each community within the county has some level of landslide susceptibility. However, Mullan sees more susceptible factors within city boundaries compared to the rest of the county. Without landslide-related ordinances, it is possible that future development will increase the exposure and vulnerability of individuals to landslides. Development in the unincorporated areas of the county can likewise increase exposure and vulnerability, if the geophysical factors that cause landslides are not taken into consideration.

5.11 Severe Weather

5.11.1 Overview

Although the term 'severe weather' is nebulous, the plan defines severe weather as any destructive meteorological phenomenon. Such phenomena include (but are not limited to) winter storms, extreme heat and cold temperatures, hydrometeorological events (e.g., hail and heavy rain), thunderstorms, and wind. Often these events are coincident, making delineation difficult. The 2017 update consolidated severe weather-related hazard profile sections under one hazard profile, incorporated additional datasets in the risk assessment, and provided a more comprehensive and cohesive hazard profile on severe weather risk in Shoshone County.

Table 47. Severe weather summary

	1950-2008	2009-2017	Total
Occurrences	186	77	263
Disaster Declarations	-	-	-
Casualties	4 Fatalities; 23 Injuries	1 Fatality	5 Fatalities; 23 Injuries
Property Damage	$338,000 Property	$14,500 Property	$352,500
Repetitive Losses	-	-	-

5.11.2 Hazard Description

Extreme temperatures pose risk to both humans and the environment. The following are brief descriptions of extreme temperatures:

- Extreme Heat – Also known as a heat wave, extreme heat is a period of significant above-normal temperatures in a locality. Urban development amplifies extreme heat effects due the heat island effect. Extreme heat impacts human health through heat exhaustion, sunstroke, and heat cramps. Most susceptible are age-dependent populations, including the elderly and small children, and those with other and chronic illness. Environmental impacts include loss of wildlife and increased wildfire probability. Extreme heat can stress power grids due to an increase in energy demand for cooling.
- Extreme Cold – A period of significant below-normal temperatures in a locality is defined as extreme cold. Winds of 10 mph or greater can amplify extreme cold impacts. Advisories are issued when wind chill temperatures reach -20 degrees F or lower with winds of 10 mph or higher for one hour or more. Similar to extreme heat, extreme cold is of greatest concern under persistence over an extended period of time, and like extreme heat, the most susceptible are the age-dependent and those with chronic illness. The environmental and other impacts are similar, though extreme cold can be associated with the formation of ice and freezing which can result in flooding.

Severe storms are the most nebulous of severe weather. The term 'severe storm' is a general categorization of any atmospheric disturbance resulting in one or more meteorological phenomena with the potential to cause losses, such as thunderstorms, hail, lightning, and wind. Severe storms often produce cascading hazards, including floods and landslides.

- Hail – A product of thunderstorms and is defined as precipitation in the form of irregular pellets or balls of ice more than 5 mm in diameter falling from a cumulonimbus cloud. Created by the vertical cycle of a wind and water in a storm mass (or cell), the ice accumulation that forms hail can reach sizes up to four inches, though hail of three-fourths of an inch or greater is sufficient to classify a thunderstorm as severe. Nationally, hail causes nearly $1 billion in property and crop damage annually, as peak activity coincides with peak agricultural seasons. Severe hailstorms also cause considerable damage to buildings and automobiles, but rarely result in loss of life.
- Lightning – A product of the violent movement of air within a thunderstorm, and defined by the NWS as "visible electrical discharge produced by a thunderstorm." The discharge can occur within or between clouds, between clouds and air, between clouds and the earth's surface, and between the earth's surface and clouds. Lightning can be over 5 miles in length, generate temperatures above 50,000 degrees F, and carry 50,000 volts of electrical potential. Lightning strikes can be deadly, notably direct strikes where the person or structure is the direct path for lightning conduction to the ground. Side strikes are similar to a direct strike, but diverts to an alternate path from the initial grounding point. Conducted strikes occur when the electrical

current is carried from the initial grounding point through a conductive material (such as electrical and electronic equipment). Lightning can also induce secondary discharges by altering the electrical potential between adjacent structures, through the earth's surface, and in electrical equipment.

- Straight-Line Wind – A term used to distinguish between non-rotating and rotating winds, the latter often sourced from tornados. Straight-line winds are generated by thunderstorms and can reach speeds in excess of 100 miles per hour (mph). The National Weather Service (NWS) defines 'high winds' as sustained wind speeds of 40 mph or greater over a one-hour period or longer, or winds of 58 mph or greater over any period. Windstorms affect areas with significant tree stands, as well as areas with exposed property, major infrastructure, and aboveground utility lines. Of particular note are downbursts (also known as microbursts), which are a particular type of straight-line wind and are small areas of rapidly descending rain and rain-cooled air beneath a thunderstorm with potential wind velocities equal to that of a strong tornado.
- Thunderstorms – Produced when unstable atmospheric conditions exist and warm, moist air is forced upward and condenses to form cumulonimbus clouds. Most common in the spring and summer months during the afternoon and evening hours, thunderstorms persist an average of 10 to 20 minutes (though can persist much longer), during which they can produce heavy rain, hail, lightning, strong winds, and tornadoes. Thunderstorm types include dry thunderstorms, pulse severe thunderstorms, severe thunderstorms, and supercell thunderstorms. Dry thunderstorms are characterized by 'dry lightning', where lightning is observed but little to no precipitation reaches the earth's surface due to evaporation into the dry air beneath the storm cell. Pulse severe thunderstorms are single-cell thunderstorms that produce brief periods of severe weather, such as a tornado, winds of at least 58 mph, and/or at least three-fourths of an inch hail size. A severe thunderstorm is one in which winds reach at least 40 mph and/or hail of at least one-half inch in size. Finally, a supercell thunderstorm is the most dangerous. These storms produce downbursts, large hail, and long-lived violent tornados.
- Tornadoes – The most concentrated and violent storms produced by the atmosphere. A tornado is a column (also known as a vortex) of air composed of rotating wind and strong vertical motion. Wind speeds within the vortex range between 40 and 300 mph, and the vortex itself can travel at speeds up to 70 mph over a distance between10 and 200 miles (although shorter distances have been reported). Though damages are generally confined to a narrow path, tornadoes can devastate a large distance, and a single storm can produce multiple tornados.
- Winter Storms – Characterized by low/freezing temperatures, blowing snow, and ice. Like all severe storms, winter storms range in size, duration, and intensity, with potential to impact both large and localized areas. Severe winter storms deposit four or more inches of snow during a 12-hour period, or six inches during a 24-hour period. To be classified as a blizzard,

winds must exceed 35 mph with temperatures below 20 degrees F. Particularly damaging are ice storms, characterized by cold rain freezing immediately on contact with a surface. In general, the principal hazards associated with severe winter storms are snow/ice accumulation, extreme cold, and reduction of visibility. Such storms can also disrupt transportation, power and communication lines, and halt everyday activities.

5.11.3 Hazard Extent, Magnitude, & Probability

To quantify extreme heat and cold, the NWS employs a Heat Index and a Wind Chill Temperature index, respectively. The Heat Index accounts for both air temperature and relative humidity, and categorizes heat into likelihood of heat disorders due to exposure (Figure 32). Similarly, the Wind Chill Temperature index calculates the dangers from winter winds and freezing temperatures (Figure 33). The Wind Chill Temperature index accounts for air temperature, wind speed, and incorporates heat transfer theory (heat loss from the body).

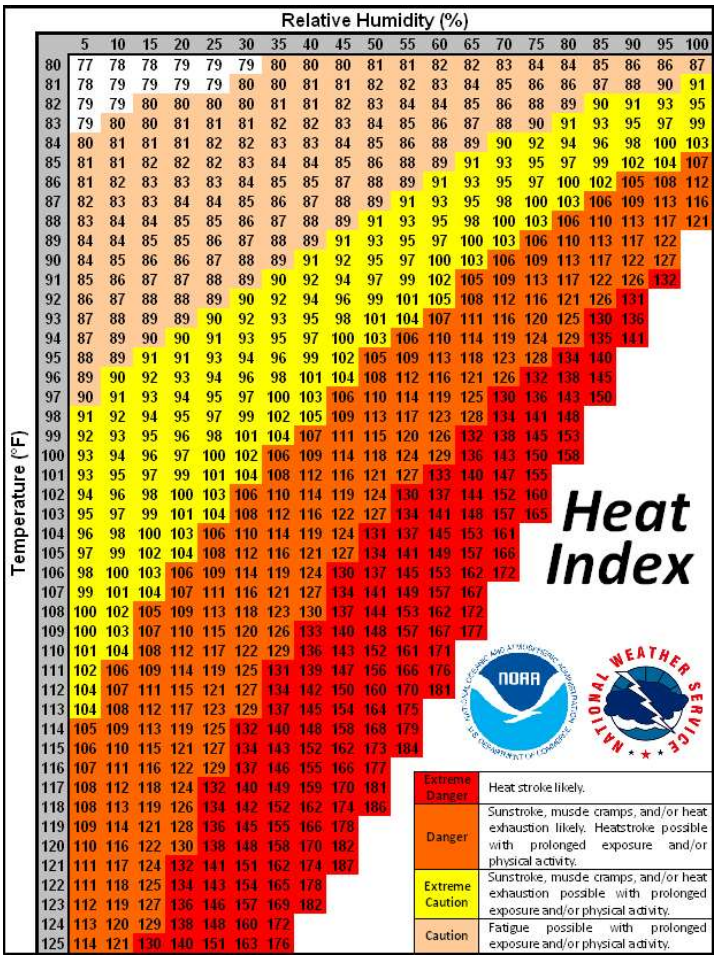


Figure 32. Heat Index chart

Wind (mph)	Temperature (°F)																	
Calm	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
5	36	31	25	19	13	7	1	-5	-11	-16	-22	-28	-34	-40	-46	-52	-57	-63
10	34	27	21	15	9	3	-4	-10	-16	-22	-28	-35	-41	-47	-53	-59	-66	-72
15	32	25	19	13	6	0	-7	-13	-19	-26	-32	-39	-45	-51	-58	-64	-71	-77
20	30	24	17	11	4	-2	-9	-15	-22	-29	-35	-42	-48	-55	-61	-68	-74	-81
25	29	23	16	9	3	-4	-11	-17	-24	-31	-37	-44	-51	-58	-64	-71	-78	-84
30	28	22	15	8	1	-5	-12	-19	-26	-33	-39	-46	-53	-60	-67	-73	-80	-87
35	28	21	14	7	0	-7	-14	-21	-27	-34	-41	-48	-55	-62	-69	-76	-82	-89
40	27	20	13	6	-1	-8	-15	-22	-29	-36	-43	-50	-57	-64	-71	-78	-84	-91
45	26	19	12	5	-2	-9	-16	-23	-30	-37	-44	-51	-58	-65	-72	-79	-86	-93
50	26	19	12	4	-3	-10	-17	-24	-31	-38	-45	-52	-60	-67	-74	-81	-88	-95
55	25	18	11	4	-3	-11	-18	-25	-32	-39	-46	-54	-61	-68	-75	-82	-89	-97
60	25	17	10	3	-4	-11	-19	-26	-33	-40	-48	-55	-62	-69	-76	-84	-91	-98

Frostbite Times: 30 minutes, 10 minutes, 5 minutes

$$\text{Wind Chill (°F)} = 35.74 + 0.6215T - 35.75(V^{0.16}) + 0.4275T(V^{0.16})$$

Where, T= Air Temperature (°F) V= Wind Speed (mph)

Effective 11/01/01

Figure 33. Wind Chill Index chart

Extreme heat does not normally affect Shoshone County, though a number of temperatures above 105F have been recorded. The county has not experienced above 105F temperatures after the lasts plan adoption. The recorded 3-day minimum temperatures show Shoshone County can experience lows 20F below. Similar to the maximums, the county has not experienced such low temperatures since the 1990s.

Hail size comparisons are shown in Figure 34. In general, hail does not become severe until it reaches one inch in diameter (roughly the size of a quarter). Hail can affect the entirety of the county, with likely yearly occurrences.

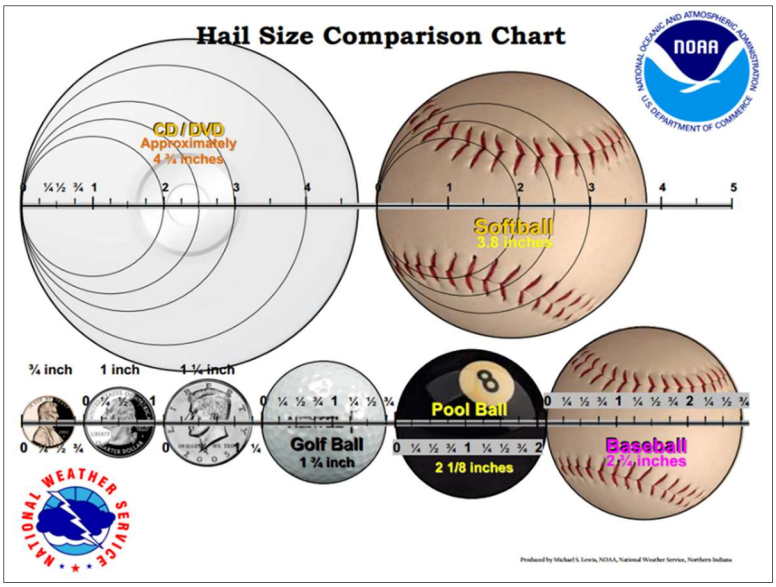


Figure 34. Hail size comparison chart

Table 48 shows general damage from wind speeds. Windstorms can affect the entirety of the county, with high probabilities of occurring in any given year.

Table 48. Wind speeds and damage estimates

Wind Speed Estimate	Description
25-31 mph	Large branches in motion; whistling heard in telephone wires
32-38 mph	Whole trees in motion; inconvenience felt walking against the wind
39-54 mph	Twigs break off trees; wind generally impedes progress
55-72 mph	Damage to chimneys and TV antennas; pushes over shallow rooted trees
73-112 mph	Peels surfaces off roofs; windows broken; light mobile homes pushed or overturned; moving cars pushed off road
113-157 mph	Roofs torn off houses; cars lifted off ground

The Enhanced Fujita (EF) tornado scale is used by the NWS to estimate wind speeds within tornados based on damage to buildings and structures. The EF scale has six categories from zero to five representing increasing degrees of damage (Table 49).

Table 49. Enhanced Fujita tornado scale and damage estimates

Category	3 Second Gust	Typical Damage

0	65-85 mph	Light damage. Causes some damage to siding and shingles.
1	86-109 mph	Moderate damage. Considerable roof damage. Winds can uproot tees and overturn single-wide mobile homes. Flagpoles bend.
2	110-137 mph	Considerable damage. Most single-wide mobile homes destroyed. Permanent homes can shift off foundations. Flagpoles collapse. Softwood trees debarked.
3	138-167 mph	Severe damage. Hardwood trees debarked. All but small portions of houses destroyed.
4	168-199 mph	Devastating damage. Complete destruction of well- built residences, and large sections of school buildings.
5	200-234 mph	Incredible damage. Significant structural deformation of mid and high-rise buildings.

Table 50 shows the warning and advisory criteria used by the NWS for winter weather. Winter weather occurs in Shoshone County on an annual basis, though they do not always cause damage. However, winter weather can affect the entirety of the county, and has high probability of occurrence in the future.

Table 50. Winter weather warning and advisory criteria

Winter Weather Event	Winter Weather Advisory	Winter Storm/Blizzard Warning
Snow	2-5 inches of snow in 12 hours	6 inches or more in 12 hours, or 8 inches in 24 hours
Blizzard	(see blowing snow)	Sustained winds or frequent gusts to 35 mph with visibility below a ¼ mile for three hours or more
Blowing Snow	Visibility at or less than a ½ mile.	Visibility at or less than a ½ mile in combination with snowfall at or greater than 6 inches and/or freezing precipitation
Ice/Sleet	(see freezing rain/drizzle)	Accumulations of ¼ inch or more of ice.
Freezing Rain/Drizzle	Light precipitation and ice forming on exposed surfaces.	None
Wind Chill	Wind chills of 20 to 39 degrees below zero with a 10-mph wind in combination with precipitation.	Wind chills 40 degrees below zero or colder with a 10-mph wind in combination with precipitation.

5.11.4 Hazard Occurrences

The NWS lists more than 330 events from 1950 to 2017 in the Storm Events Database for Shoshone County. Table 51 details those events with casualties or losses, while Table 52 consolidates the recorded events by type, number of occurrences between 1950-2008 and 2009-2017, total casualties, and total property and crop damage.

Idaho has not had a significant number of severe storm-related Presidential Disaster Declarations in the past 30 years. The majority of the storms that affect Idaho are on a lower scale that is not recognized as a "Disaster" due to the number of less intense storms that occur every year. Idaho, due to its complex landscape, will always have to deal with winter conditions that occur every year. People and communities have learned to adapt to the winter storms and deal with them as they come.

Damages experienced in Shoshone County in recent history include the floods discussed in another section of this document, heavy snow accumulations, high winds, and the wildfires ignited by thunderstorms. The following sub-sections detail recent and some current severe weather events.

Table 51. Severe weather occurrences

Date	Type	Magnitude	Location	Casualties	Property Damage	Crop Damage
6/5/1987	Tornado	F0	-	3 Injuries	$2,500	-
8/12/1989	Thunderstorm Wind	65 knots	-	1 Fatality	-	-
7/6/1995	Thunderstorm Wind	60 knots	Silver Valley	-	$500,000	-
9/14/1998	Wildfire	-	Kingston	-	$20,000	-
2/2/1999	High Wind	-	-	-	$500,000	-
2/25/1999	Avalanche	-	-	-	$20,000	-
3/13/2001	High Wind	-	-	-	$2,000	-
6/1/2001	Thunderstorm Wind	-	Calder	-	$5,000	-
6/1/2001	Thunderstorm Wind	-	Osburn	-	$5,000	-
10/22/2001	High Wind	50 knots	-	-	$15,000	-
5/19/2002	Thunderstorm Wind	-	Osburn	-	$10,000	-
2/17/2003	Thunderstorm Wind	50 knots	Pinehurst	-	$100,000	-
1/15/2005	Heavy Snow	-	-	2 Fatalities	-	-
1/15/2006	Debris Flow	-	-	-	$30,000	-
5/22/2006	Thunderstorm Wind	65 knots	Pinehurst	-	$20,000	-
5/22/2006	Thunderstorm Wind	50 knots	Wallace	-	$2,000	-

Date	Type	Magnitude	Location	Casualties	Property Damage	Crop Damage
12/15/2006	High Wind	61 knots	-	-	$60,000	-
1/6/2007	Strong Wind	45 knots	-	-	$1,000	-
1/11/2008	Winter Weather	-	-	2 Injuries	-	-
8/18/2008	Lightning	-	Pinehurst	-	$2,000	-
4/8/2010	Strong Wind	45 knots	-	-	$10,000	-
5/3/2010	High Wind	52 knots	-	-	$5,000	-
4/1/2011	Landslide	-	-	-	$75,000	-
12/29/2011	Thunderstorm Wind	60 knots	Osburn	-	$198,000	-
3/30/2012	Landslide	-	-	-	$773,000	-
7/20/2012	Thunderstorm Wind	56 knots	Bradley	-	$6,000	-
7/20/2012	Thunderstorm Wind	52 knots	Polaris	-	$2,000	-
7/20/2012	Thunderstorm Wind	55 knots	Prichard	-	$1,000	-
7/20/2012	Thunderstorm Wind	55 knots	Kingston	-	$1,000	-
7/20/2012	Thunderstorm Wind	55 knots	Falcon	-	$1,000	-
12/17/2012	Strong Wind	44 knots	-	-	$1,000	-
4/29/2013	Strong Wind	43 knots	-	-	$200	-
10/27/2013	Strong Wind	43 knots	-	-	$1,000	-
7/23/2014	Hail	1 inch	Calder	-	$10,000	-
8/2/2014	Thunderstorm Wind	52 knots	Kingston	-	$5,000	-

Source: NWS, SHELDUS

Table 52. Severe weather occurrences by type

Type	Number of Events		Total Casualties		Total Property Damage		Total Crop Damage	
	1950-2008	2009-2016	1950-2008	2009-2016	1950-2008	2009-2016	1950-2008	2009-2016
Avalanche	1	-	-	-	$20,000	-	-	-
Debris Flow	1	-	-	-	$30,000	-	-	-
Extreme Cold/Wind Chill	-	3	-	-	-	-	-	-
Hail	12	3	-	-	-	$10,000	-	-

Type	Number of Events		Total Casualties		Total Property Damage		Total Crop Damage	
	1950-2008	2009-2016	1950-2008	2009-2016	1950-2008	2009-2016	1950-2008	2009-2016
Heavy Snow	119	87	2	-	-	-	-	-
High Wind	7	4	-	-	$577,000	$5,000	-	-
Landslide	-	5	-	-	-	$848,000	-	-
Lightning	1	-	-	-	$2,000	-	-	-
Strong Wind	1	4	-	-	$1,000	$12,200	-	-
Thunderstorm Wind	22	8	1	-	$642,000	$215,000	-	-
Tornado	1	-	3	-	$2,500	-	-	-
Winter Storm	20	2	-	-	-	-	-	-
Winter Weather	3	7	2	-	-	-	-	-

Source: NWS, SHELDUS

Below are accounts from the former AHMP and local media:

- December 1996 Executive Order – Due to severe flooding in parts of the State of Idaho, the Governor declared that states of extreme and disaster emergencies existed in the counties of Benewah, Clearwater, Kootenai, Latah, Nez Perce, Boundary, Bonner, Lewis, Shoshone and Idaho, including the Nez Perce Indian Reservation. The weather situation that impacted all of north Idaho came about from a rapid snow pack accumulation and blizzard conditions exacerbated by a following warm-front carrying high rainfall and extreme winds. Landslides were seen across the region and ice dams plugged area rivers and streams. Transportation was thwarted as major highways were closed and surface streets were flooded. Structures were damaged from high water while high winds broke trees to fall over power lines and ripped roofing from homes and businesses.

- Silver King School collapses, January 2008 – On January 11, 2008, the old Silver King School building gave way to heavy snow; a portion where the gymnasium once was collapsed to the ground. The condemned building was located along Government Gulch, adjacent to the Kellogg School District's bus barn and transportation office. In the collapse, parts of the building crashed into the single-wide office, injuring Kellogg School District personnel and a family member. After the Bunker Hill Mine shutdown, the school was closed. The school district still owned the building but had not used it for years other than the parking area for buses (Shoshone News Press Jan 12, 2008).

- School Bus Barn and Commercial Building Collapse – On February 1, 2008, a severe snow storm hit the Silver Valley, dropping several inches of heavy snow on top of an already

impressive snowpack. The Wallace School District bus barn was one of its causalities when its roof collapsed on top of a full bus barn (Shoshone News Press Feb 2, 2008). Two school buses were totaled and four more suffered only minor damage in the collapse. No people were present or injured from the disaster.

Early morning, on February 1, the Wallace School District bus barn's south end of the roof caved in from heavy snow loads. The building not only served as the parking spot for the district's different buses but as the home of the "Slippery Gulch" Festival and a set for Dante's Peak during filming. School bus routes were covered by neighboring school districts by the next Monday morning. The district moved bus storage into the Shoshone County Transportation Shed in Osburn.

At about 2 p.m. the same day, the roof of the former Furniture Exchange building on Division and Mullan streets in Kellogg collapsed. The privately-owned building housed an apartment which was empty at the time.

On February 3, 2008, two storage units collapsed in Osburn and the Tomlinson Black Kellogg location lost a car port when it collapsed under the snow's pressure (Shoshone News Press Feb 2, 2008).

- Severe Weather Warnings December 2008 – December 2008, was greeted by several National Weather Service warnings for severe winter weather. These warnings informed people of heavy snowfall bringing low temperatures and high winds. Blizzard conditions were observed in locations across north Idaho and eastern Washington. In nearby Spokane, Washington, a record 24-hour period snowfall was recorded on December 18, 2008, with 23.3 inches, shattering the previous record of 13 inches in one 24-hour period in 1950. By the end of December, between Christmas and New Year's, a warm system brought rains to the lower elevations of Shoshone County making a deep snowpack heavy with added rain. High winds gusting to over 40 MPH rocked the region and made conditions hazardous. Snow plows worked throughout the storm to keep local and regional transportation routes open

Although not comprehensive, Figure 35 shows aggregated severe weather events from the NWS Severe Storms Database.

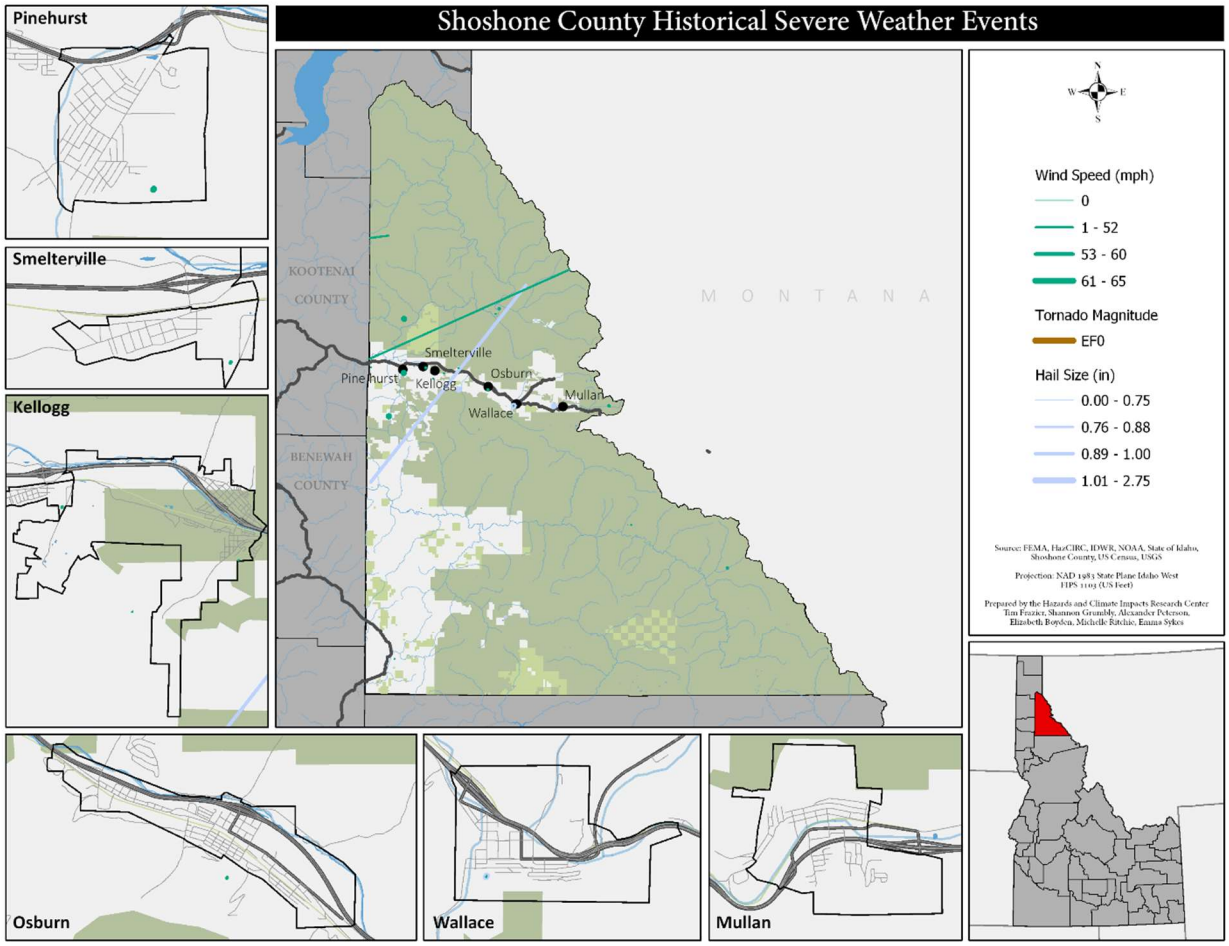


Figure 35. Historical severe weather events

5.11.5 Hazard Exposure & Vulnerability

Severe weather can occur anywhere within Shoshone County, exposing all individuals and structures to a potentially damaging event. Individuals with above average sensitivity are more likely to experience losses should they be impacted by a severe weather event while those with below average adaptive capacity are less likely to overcome impacts.

Snowfall accumulations in the County are highly variable, with most of the population centers located within the Silver Valley where average monthly snowfall in January is “only” 5-16 inches. On the other hand, several communities are located in areas of the county where average January snowfall is in excess of 25 inches, 30 inches and 37 inches. Daily accumulations of one to seven inches are not considered abnormal during snow storm events. However, when accumulations are continuous over a period of many days, accumulations reaching one foot to three feet or more can cause roofs to collapse on structures, especially if the storm system delivers snow with a high moisture content.

Severe storms in the region have even accumulated a record one day total as high as 20 inches. These storms stress the capacity of the cities, the County, and the State to deal with the snow loads. At the same time, private citizens, companies, and municipalities face a difficulty in managing the snow removal from streets, driveways, and roofs.

Witnessing an extreme daily snowfall amount of six inches or greater in a one day period is expected annually, while accumulations of up to two feet from a single storm event within a one week period is considered just as common. Greater snowfall amounts within a day, up to one foot, or five feet in a week can be expected approximately once every five to seven years. Of course, back-to-back snow storms can impact the county through consecutive storms over a period of an entire month dropping from two feet of snow in Kellogg to five feet in Clarkia.

5.11.6 Land Use & Future Development

All new development is at risk to severe weather. Development in rural areas and areas with limited road network are especially vulnerable to severe weather, as inclement weather can result in road closures, wildfire, and other cascading hazards.

5.12 Wildland Fire

5.12.1 Overview

Numerous wildland fires (also known as wildfires) have burned in Shoshone County. Like many of the counties of the State of Idaho, wildfire often poses a high risk to the county's populations, structures, and natural resources. Together, the fuels, weather, and topography of the county make wildfire an annual hazard with potentially devastating consequences. The 2017 plan update incorporated the county's CWPP, which was updated in 2017.

Table 53. Wildfire summary

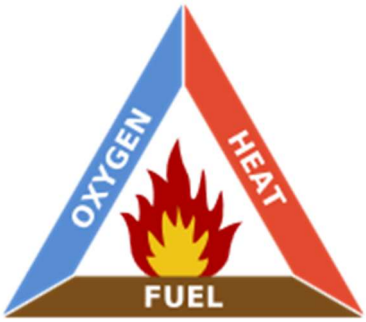
	1980-2008	2009-2017	Total
Occurrences	3	9	12
Disaster Declarations	-	-	-
Casualties	-	-	-
Property Damage	20,810 acres burned	35,070 acres burned	55,880 acres burned
Repetitive Losses	-	-	-

*Greater than 1,000 acres in size

5.12.2 Hazard Description

A wildland fire is defined as any non-structure fire occurring in the wildland. Wildland fires – or wildfires – are unplanned events, and include grass fires, forest fires, and scrub fires. Wildfire is vital to the functioning of many ecosystems within the State of Idaho, and occurs across many different landscapes ranging from arid grassland to coniferous forests on a regular basis. Wildfire as a hazard poses a significant risk to human populations and development due to its extent and destructive potential. Both natural- and human-caused wildfires burn homes and structures, displace populations, and can require significant monetary, human, and technological resources to contain and suppress. Wildfires can also result in secondary hazards, such as flood, mudslide, and landslide.

Wildfires occur when the three primary elements of the fire triangle converge. Wildfires occur when an ignition source (e.g., lightning, an untended campfire, etc.) comes into contact with a combustible material such as vegetation. If sufficient heat is applied and there is adequate oxygen from the ambient air, the material will ignite with the potential to create a wildfire front.



A wildfire front is the intersection of active flame with unburned material, or the smoldering transition between unburned and burned material. There are four classification types of wildland fires:

- Surface Fire – Also known as crawling fires, this type of wildfire burns along forest floors and is fueled by low-lying vegetation such as leaf and timber litter, grass, and shrubbery.
- Ground Fire – These fires move slowly and normally have low damage potential. They are fed by roots, duff, and other buried organic matter, and can burn slowly for lengths ranging from days to months.
- Ladder Fire – These fires consume the material between low-level vegetation and tree canopies. A ladder fire can be a transition from a surface fire to a crown fire.
- Crown Fire – Also known as canopy or aerial fires, this type of wildfire burns suspended materials at the canopy level, such as vines, mosses, leafs, and needles. Crown fires can be devastating, and can spread rapidly dependent on conditions. Conditions that determine crowning include canopy height, weather (especially wind), suspended materials, and canopy continuity.

Wildfire is significantly affected by three principle factors:

- Topography – The arrangement of natural and built environments significantly influences fire behavior, primarily due to the movement of air over the terrain. For example, gulches and canyon act as chimneys by funneling air, intensifying wildfire with the potential to cause rapid spread. Other topographic factors include ridge tops and south-facing aspects, both of which complicate fire behavior with the potential to intensify wildfire. Likewise, slope and terrain

type can act to inhibit or amplify wildfire intensity. Wildfire spreads rapidly up steep slopes, especially those on south-facing aspects where solar radiation preheats and dries fuels. Downslope wildfires spread more slowly, while ridgetops can act as breaks to slow or prevent further spread.

- Fuel – Fuels are combustible material ignitable by wildfire, varying by burn qualities and quantities across a landscape. Often, fuels are classified by weight or volume and type, and expressed as fuel loading (i.e., tons per acre). Fuel types are classified by their estimated potential energy, expected flame length if ignited, and the effort required to contain a fire in a given fuel. Fuels are generally classified into three categories:
    - Ground Fuel – Vegetation close to or on the ground, including dead grass and leaves, pine needles, twigs, and branches.
    - Surface Fuel – Vegetation proximate to the ground but not lying on the ground. Usually entails shrubs, grasses, and low-hanging branches. Also known as ladder fuels.
    - Crown Fuel – Located in the crowns or tops of trees, crown fuels can be volatile and burn rapidly at extreme temperatures.
    - Other fuel-related factors that affect wildfire are fuel continuity and fuel moisture. Fuel continuity represents the distribution of fuels over the landscape and within a forest. Fuel moisture is the percentage of saturation within the fuel, and varies according to climatic and meteorological conditions. Low fuel moisture can significantly contribute to the ignition and severity of wildland fire.
- Weather – The most variable of all factors influencing wildfire, weather can ignite wildfire, cause it to spread and intensify, and also inhibit or dampen wildfire. High temperature, low humidity, and lightning strikes can result in significant wildfire activity, whereas cool temperatures, high humidity, and precipitation can suppress wildfire activity. Fronts and thunderstorm-produced winds impacts and directs wildfire fronts and flame length, as sudden changes in wind speed and direction can result in unpredictable and variable wildfire activity. The most damaging wildfires are usually driven by strong winds.

Wildfire across Idaho is changing, coincident with drought, insects, unusual warm temperatures, and past fire suppression activities. In Idaho, various bark beetles including the western pine beetle, mountain pine beetle, Douglas-fir beetle, and fir engraver are attacking large stands of trees. Because winter is no longer cold enough and long enough to keep these beetles in check, they survive to deplete the tree of nourishment and moisture throughout the year. Affected trees usually die within two or three years. Drought stress, disease infestation, and human disturbance are further impacting wildland fire occurrence and severity.

5.12.3 Hazard Extent, Magnitude, & Probability

Wildland fire can occur in any landscape in Shoshone County. To assess wildland fire risk, flame length, fireline intensity, and crown fire activity are analyzed given their importance in determining potential fire hazards.

- Flame Length – Fire suppression activities and strategies are determined by fire behavior and intensity. Fire behavior can be thought of as a function of flame length, or the distance from the ground at the leading edge of the flame to the flame's tip. Flame length varies from less than one foot in length, to over 10 feet in length. Table 54 details flame length classifications.
- Fireline Intensity – A numerical product of a fire's rate of spread, fuel consumption, and heat yield at a given point on a fire's perimeter.
- Crown Fire Activity – Canopy base height is defined as the lowest point in a stand of trees where fuel is available for the vertical propagation of fuel through the canopy. Fire has a greater chance of transitioning into the tree canopies (becoming a crown fire) the closer the tree canopy is to the surface.

Table 54. Flame length and fire intensity classifications

Class	Flame Length	Fireline Intensity	Vegetation Types	Fire Suppression
Low	<4 ft	<100 Btu/ft/s	Grasses, forbs, cropland, some timber	Fires can generally be attacked at the head or flanks by crews with handtools. Handline should hold the fire.
Medium	4-8 ft	100–500 Btu/ft/s	Grasses, forbs, cropland	Fires are too intense for direct attack by handtools; handline cannot be relied on to hold fire. Bulldozers, engines, and retardant drops can be effective.
High	8-11 ft	501–1,000 Btu/ft/s	Sagebrush, timber	Fires can present control problems; torching, crowning, and spotting. Control efforts at head likely ineffective.
Very High	>11 ft	>1,000 Btf/ft/s	Sagebrush, timber	Crowning, spotting, and major fire runs probable. Control efforts at head ineffective.

This risk analysis likewise employed a modified wildfire risk model originally developed by IDL. The wildfire model incorporates slope, aspect, vegetation, wildfire occurrences, and the WUI. Slope and aspect were calculated from 10 meter DEMs obtained from USGS. Vegetation and wildfire occurrence data were obtained from the Landscape Fire and Resource Management Planning Tools (LANDFIRE) program, and the WUI used in the model was obtained from the SHMP.

Previous research showed slopes above 10 degrees, and east-, south-, and west-facing aspects more at risk to wildfire. Vegetation was classified into conifer, brush, and grass according to the potential

fire severity. Fire occurrences were summarized by populated census block, and areas in the WUI were weighted more heavily than areas outside the WUI. Each factor was classified according to the impact and influence on wildfire and summed to create a composite of the biophysical risk. The results were then classified into low, moderate, and high risk for the Shoshone County (Figure 37).

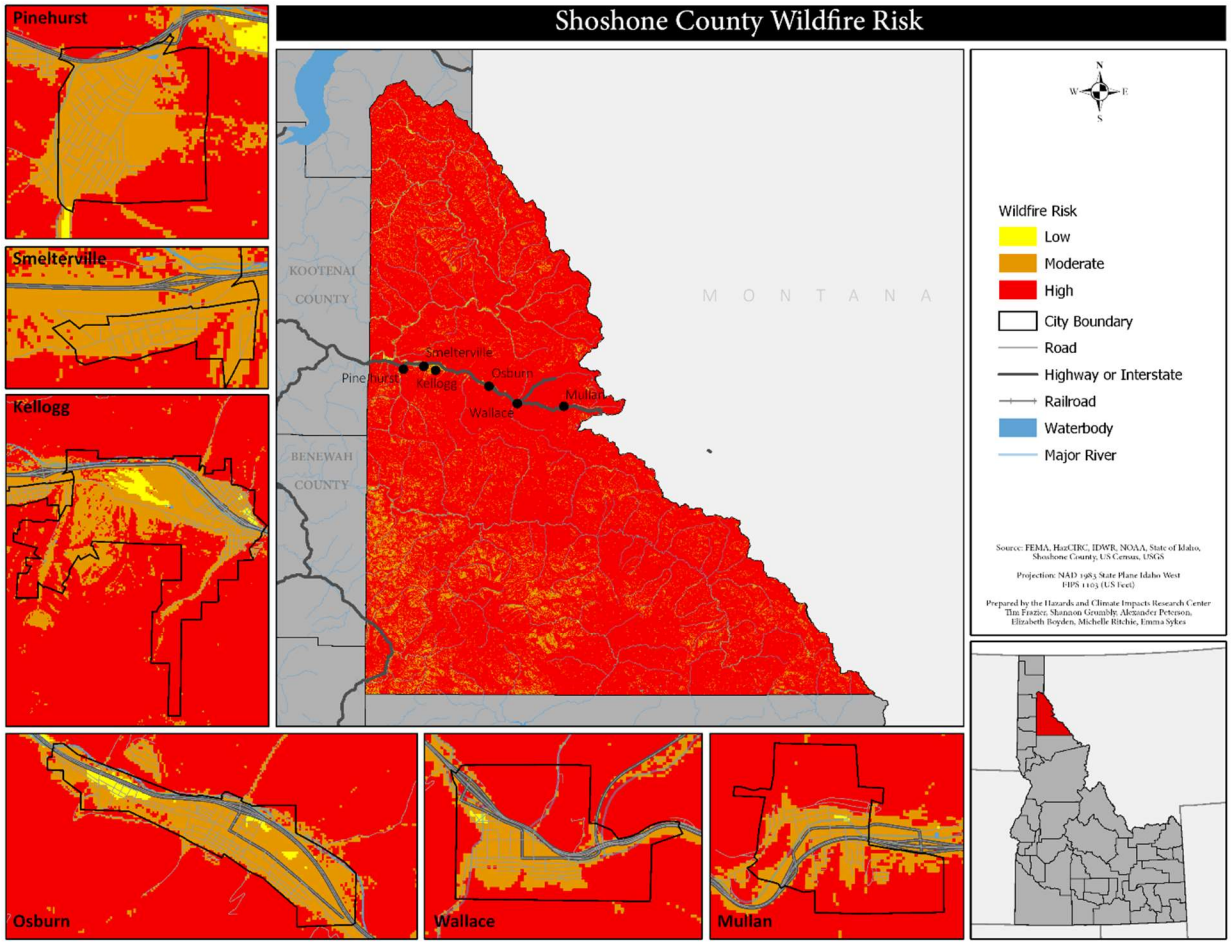


Figure 36. Wildfire risk model map

5.12.4 Hazard Occurrences

Table 55 details wildland fires occurrences in Shoshone County as reported by the LANDFIRE database. Note that these are fires that burned a total of more than 1,000 acres. For a more complete wildland fire profile including historical occurrences, refer to the Shoshone County CWPP.

Table 55. Wildfire occurrences

Year	Fire Name	Ignition Cause	Acres Burned
1986	MARY M II	Natural	1,430
1994	CORRAL	-	14,400
2006	ULM PEAK	Natural	4,980
2009	NUGGET 4	Human	1,534
2010	HEATHER CREEK	Natural	2,167
2013	CRESCENDO	Natural	1,110
2015	Chicadee	Natural	7,403
2015	Crater	Natural	1,522
2015	Caribou	Natural	2,998
2015	White Rock Creek	Natural	2,287
2015	South Bobtail	Natural	8,349
2015	Lower Flat	Natural	7,700

Source: LANDFIRE

Figure 37 shows the spatial distribution of wildland fires for those reported to the LANDFIRE database. A vast majority of reported fires are located in the northern or southern areas of the county in unincorporated areas, where State and Federal agencies manage the land.

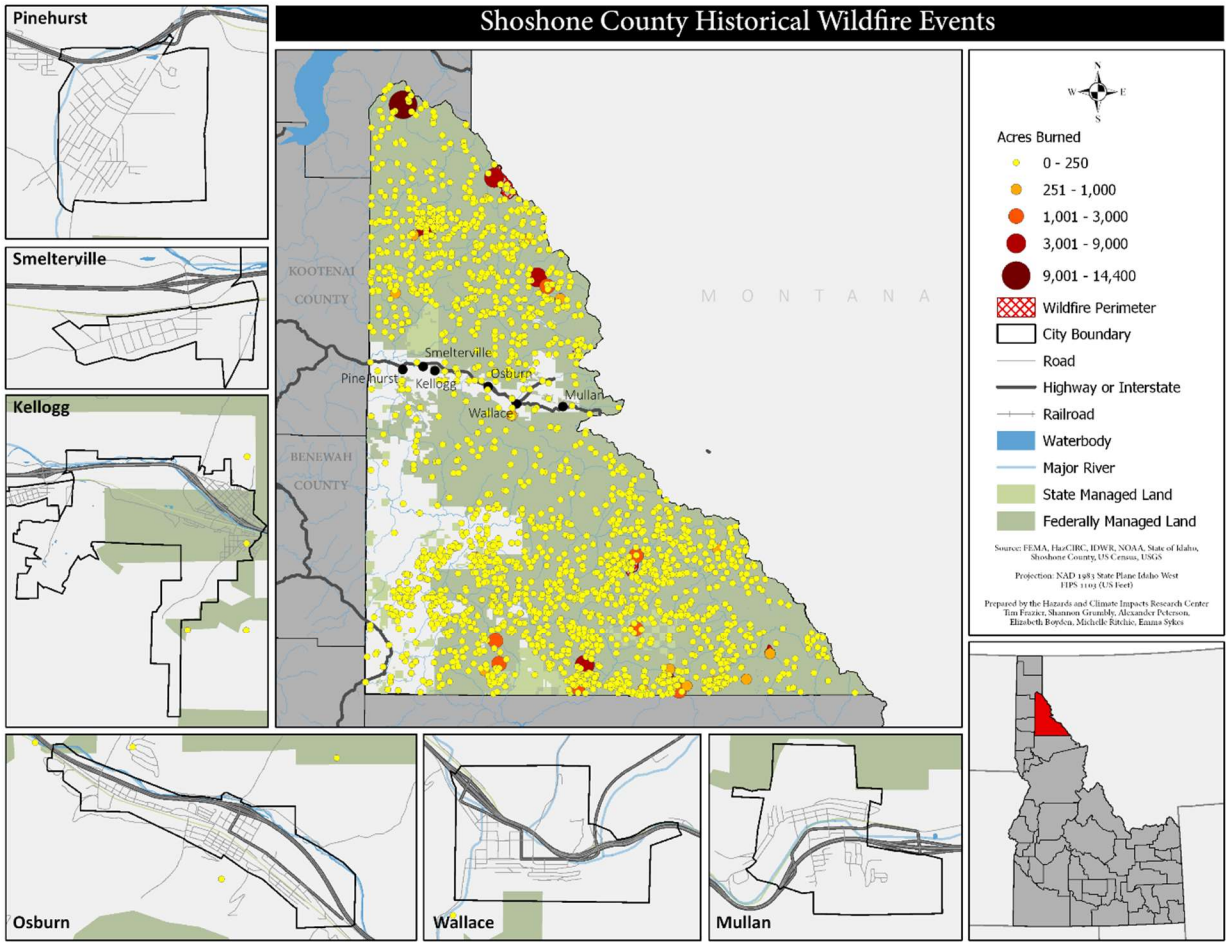


Figure 37. Historical wildfire events

5.12.5 Hazard Exposure & Vulnerability

Most wildfire impacts to people or development occur in the Wildland-Urban Interface (WUI). The WUI consists of areas of development adjoining or mixing with forest or range wildland and wildland fuels. Table 56 through 58 shows the distribution of population, structures, and structure value in each of the wildfire risk classes from the model.

Table 56. Population exposure to wildfire

Risk	Kellogg	Mullan	Osburn	Pinehurst	Smelterville	Unincorp.	Wallace
Low	105	0	104	0	0	41	12
Moderate	1,792	310	1,144	1,494	348	1,530	632

High	116	11	0	29	24	2,505	105

Table 57. Structure exposure to wildfire

	Risk	Res	Com	Ind	Agr	Rel	Gov	Edu
Kellogg	**Low**	50	11	1	0	2	0	0
	Mod	840	99	20	4	7	4	3
	High	127	5	0	0	0	1	0
Mullan	**Low**	0	0	0	0	0	0	0
	Mod	221	6	0	0	0	0	1
	High	6	0	0	0	0	0	0
Osburn	**Low**	57	5	1	0	2	0	0
	Mod	587	32	13	0	10	4	2
	High	0	0	0	0	0	0	0
Pinehurst	**Low**	0	0	0	0	0	0	0
	Mod	682	39	11	1	6	2	2
	High	28	4	1	0	1	0	0
Smelterville	**Low**	0	0	0	0	0	0	0
	Mod	180	1	0	0	0	0	0
	High	0	0	0	0	0	0	0
Unincorporated	**Low**	92	7	1	0	0	0	0
	Mod	1,132	45	21	2	6	2	2
	High	1,052	28	15	4	5	3	5
Wallace	**Low**	7	1	0	0	0	0	0
	Mod	390	67	8	2	6	2	1
	High	2	2	0	0	0	0	0

Table 58. Structure value exposure to wildfire (thousands of US$)

	Risk	Res	Com	Ind	Agr	Rel	Gov	Edu
Kellogg	**Low**	$6,650	$3,637	$1,192	-	$1,367	-	-
	Mod	$163,068	$58,643	$11,772	$1,149	$4,291	$1,306	$4,999
	High	$29,544	$1,917	-	-	-	$1,483	-
Mullan	**Low**	-	-	-	-	-	-	-
	Mod	$34,868	$1,484	-	-	$79	$87	$3,223
	High	$953	-	-	-	-	-	-
Osburn	**Low**	$8,503	$3,208	$310	-	$975	-	-
	Mod	$91,152	$18,456	$3,224	$84	$3,612	$1,802	$433
	High	-	-	-	-	-	-	-
Pinehurst	**Low**	-	-	-	-	-	-	-
	Mod	$92,007	$18,415	$18,134	$516	$3,403	$956	$2,616
	High	$4,271	$1,861	$1,552	-	$444	-	-
Smelterville	**Low**	-	-	-	-	-	-	-
	Mod	$19,277	$728	-	-	-	-	-
	High	-	-	-	-	-	-	-
Unincorporated	**Low**	$12,971	$2,299	$280	-	-	$58	$77
	Mod	$178,014	$13,453	$5,711	$398	$2,267	$1,619	$751
	High	$161,722	$9,580	$4,486	$676	$2,833	$2,068	$3,757
Wallace	**Low**	$4,000	$350	-	-	-	-	-
	Mod	$77,875	$34,237	$2,173	$251	$2,974	$2,005	$2,166
	High	$318	$1,258	$4	-	$83	$1	$5

The SERV model was used to assess societal vulnerability (Figure 38). Vulnerability was found to be spatially variable across the county, with notable concentrations of average and above average vulnerability proximate to Albion and Malta, with additional vulnerability found in the unincorporated areas of the county.

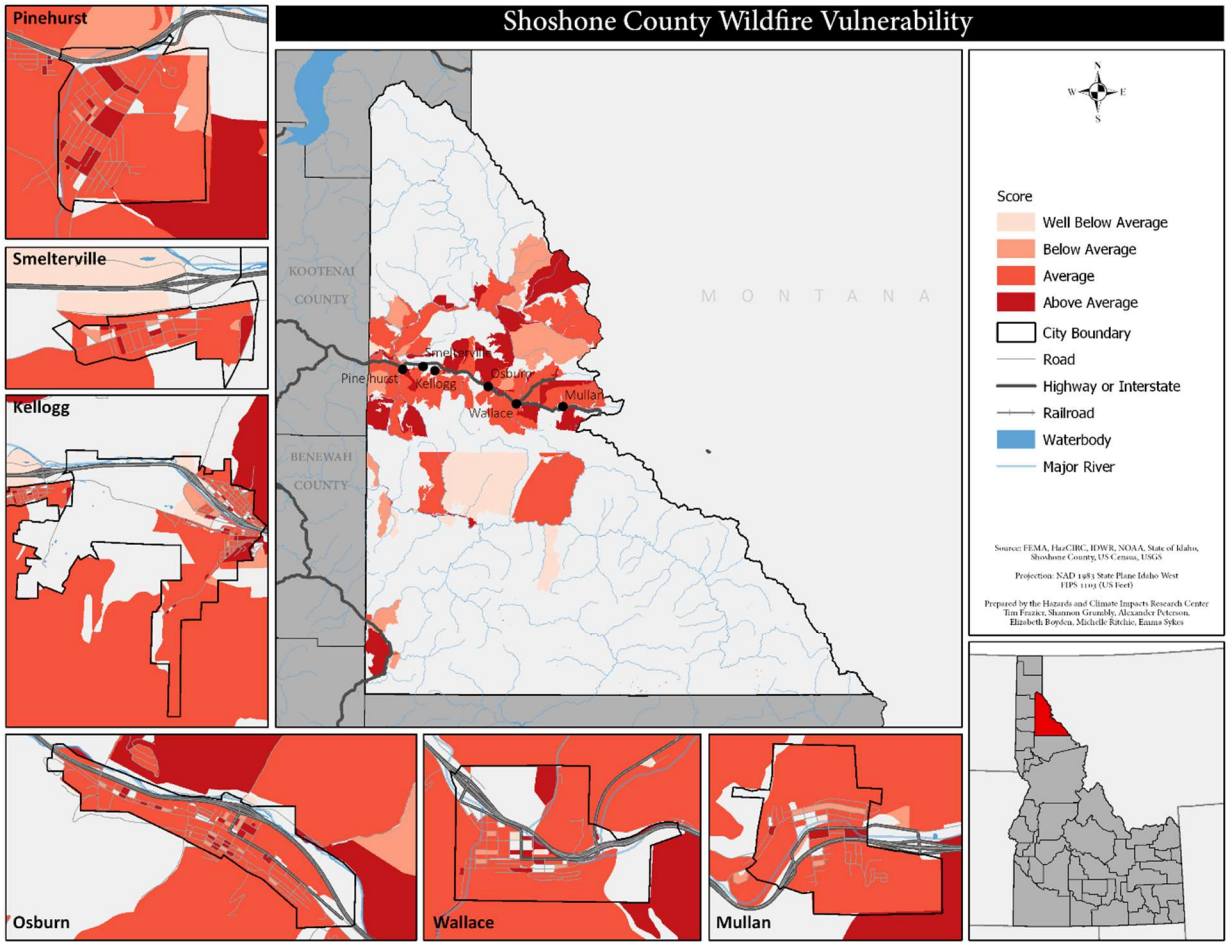


Figure 38. Socioeconomic vulnerability to wildfire events

5.12.6 Land Use & Future Development

Future development in Shoshone County will on some level, be at risk to wildfire. Currently, the portions of the county with high wildfire risk are all lands surrounding the incorporated cities. The incorporated cities themselves are at a low to medium fire risk; however, in the high density residential areas, there may be an increased population exposed to potential wildfire events

5.13 Impoundment Structure Failure

5.13.1 Overview

Although there have been no significant, recorded dam failures in Shoshone County, the county may experience threats from impoundment structure failures. The hazard profile for dams from the former plan was restructured to include more detailed hazard descriptions, a review of potential structure failure impacts, and an overall more comprehensive hazard profile.

Table 59. Impoundment structure failure summary

	Before 2008	2008-2017	Total
Occurrences	-	-	-
Disaster Declarations	-	-	-
Casualties	-	-	-
Property Damage	-	-	-
Repetitive Losses	-	-	-

5.13.2 Hazard Description

Impoundment structures are both human and natural-made structures designed to retain or store water, sediments, and other liquids or non-liquids. This term is applied broadly to include dams, canals, and levees.

- Dams – Defined as an artificial or natural barrier across a watercourse. Often, dams are designed to store, control, or divert water. Other uses include recreation, flood control, irrigation and water supply, hydroelectric generation, industrial and mining use, and to control mine tailings slurry, wastewater, and liquefied industrial or food processing byproduct. Dams are typically constructed of concrete and other earthen material. Dams can be built, owned, and operated by various entities and individuals, such as utility companies, State and Federal government, and private enterprise. The structural integrity of a dam depends on its design, its level of maintenance, weather and drainage, and exogenous factors. Dam failure can result from poor design, inadequate or improper maintenance, streamflow and runoff above design capacity, other hazards (e.g., earthquake and landslide), and through intentional harm. When a dam fails, the sudden surge of water downstream is comparable to riverine or flash flooding. Depending on the storage capacity of the reservoir, inundation can extend for long distances and have significant impacts if population and development are located downstream.
- Levees – Levees prevent flooding of adjacent land to waterways, and be either natural or constructed. Naturally occurring levees are ridges and buildup of sediment deposited by a river and are often relatively low in height, broad at the base with a narrow top, and slopes generally equal to the deposited material's angle of repose. In contrast, constructed levees are structures designed to contain, control, and divert streamflow, often built using soil, rock, or concrete, and can be tall steep or vertical structures. Although levees are constructed to reduce flooding and flood impacts, levees often inadvertently increase flood risk. Increased development proximate to the waterway, poor design, and improper or inadequate maintenance can result in levee failure. Levees can also fail through breaching, overtopping, erosion, and other hazards (e.g., earthquake and landslide).
- Canals – Canals are constructed waterways through which diverted water flows, usually to provide irrigation to agricultural land. There is an increasing awareness of the risk canals pose to development, as canals pose a potential flood risk that is often understudied or unknown. Similar to dams and levees, canals can be breached, overtopped, or break due to poor design and improper maintenance. Often, no regulation dissuades or prevents development adjacent to canals.

5.13.3 Hazard Extent, Magnitude, & Probability

In Idaho, examples of catastrophic flooding have included engineering blunders and earthquake-induced water reservoir failure and dam failure. For example, the Teton Dam was a federally built

earthen dam on the Teton River in southeastern Idaho that suffered a catastrophic failure when filling for the first time. At 7:30 a.m. on Saturday, June 5, 1976, a muddy leak appeared, suggesting sediment was in the water. At 11:55 a.m., the top of the dam collapsed; two minutes later the remainder disintegrated. By 8:00 p.m. that evening, the reservoir had completely emptied (GenDisasters 2008). The communities immediately downstream, Rexburg, Wilford, Sugar City, Salem, and Hibbard, suffered horribly. Thousands of homes and businesses were destroyed. The small community of Sugar City was literally wiped from the river bank. The city of Idaho Falls, further downstream, had time to prepare. At the old and unstable American Falls Dam, engineers released a significant volume of water before the flood arrived. That dam held, and the flood was over, but tens of thousands of acres of land near the river were stripped of topsoil (Reisner 1993). Cleaning up took the rest of the summer. The collapse of the dam resulted in the deaths of 11 people and 13,000 head of cattle (Cantor 2008). The dam was built by the US Bureau of Reclamation and cost about $100 million to build, and the federal government paid over $300 million in claims related to the dam failure (GenDisasters 2008). Total damage estimates have ranged up to $2 billion. The dam was never rebuilt.

There are neither hydroelectric dam sites nor flood control dams in Shoshone County. There are several small water reservoirs used for municipal water supplies, but the volume of water retained by these structures is minimal. A small number of diversion structures and underground conveyance systems on small tributaries (such as Meyer Creek in Osburn, and Milo Creek in Wardner-Kellogg) could do a fair amount of property damage if they were to fail.

The probability of impoundment structure failure is rated as low. However, aging infrastructure coincident with increased precipitation and temperature extremes can increase this probability.

5.13.4 Hazard Occurrences

There have been no previous occurrences of impoundment failures in Shoshone County.

5.13.5 Hazard Exposure & Vulnerability

Property and populations located in the downstream inundation areas of dams, and development and populations proximate to levees and canals are at risk of exposure to impoundment structure failure.

5.13.6 Levee System Certification and Accreditation

In the previous Shoshone County AHMP, TerraGraphics prepared a summary report for the BEIPC on February 6, 2009, to describe the actions and level-of-effort to obtain certification and accreditation of the Silver Valley levee systems.

This report also included steps that must be taken by the communities for accreditation and subsequent revision of the FIRM maps revised in 2008. The action and level of effort required was determined by superimposing the information that is known about the existing levees over the rules for levee certification and FEMA accreditation.

The levee systems for the communities and unincorporated areas of Kellogg, Pinehurst, Cataldo and Osburn were effectively de-accredited by FEMA during the FIRM update in 2008. The de- accreditation resulted in a tremendous expansion of the mapped 100-year floodplain. The task of getting the levees accredited is the responsibility of the local communities; however, the process and burden to the communities is not clearly defined. Kellogg and Pinehurst participate in the USACE PL84-99 Program, however this program targets operational and post-disaster response efforts and does not change the accreditation status for FEMA FIRM mapping. The criteria for levee certification are extensive and would require a large-scale investigation and analysis effort.

Key findings of the report included:

1. There is almost no existing information available to demonstrate to FEMA that the levees meet any of the criteria for certification. The task of obtaining certification would involve starting from scratch for all the levee segments except as discussed in the report.

2. A planning level budget estimate to conduct the up-front engineering and plan development to determine what levee modifications are necessary for certification is $350,000. One mechanism for completing this effort is through the USACE General Investigation New Start Program. The cost to construct the levee improvements would be determined as part of the up-front work.

3. FEMA does not certify levees. It is the levee owner's or community's responsibility to provide data and documentation to demonstrate that a levee system meets NFIP requirements.

4. The levee owner or community would need to submit data that is certified by a Professional Engineer or by a Federal Agency such as the USACE.

FEMA does not certify levees. Levee certification must be done by either a registered Professional Engineer or a Federal Agency with levee design and construction qualifications such as the USACE. The responsibility for seeking levee certification is that of the levee owner or local agency with jurisdiction over the floodplain in question. The local agency may perform the certification analysis with staff or consultants, or may request such technical determination by others. The criteria that must be met in order to achieve certification are stipulated by Federal Regulation 44 CFR 65.10.

Discussions from this report include some important conclusions about specific communities in the Silver Valley based on the concept and definition of freeboard. Freeboard is the difference between the top of the levee and the elevation of the water surface during the 100-year flood, or the Base Flood Elevation (BFE). Minimum freeboard required is 3 feet along length of the levee, and an additional 1

foot within 100 feet of structures (such as bridges) or wherever the flow is restricted. An additional 0.5 foot of freeboard is required at the upstream end of a levee. Conclusions about specific communities in the Silver Valley are summarized below:

Cataldo - The USACE determined in 2001 that the Cataldo levee does not have adequate freeboard. In its current configuration, the levee in Cataldo cannot be certified.

Pinehurst- Part of the levee meets the FEMA freeboard criteria. FEMA determined the Pine Creek levee system from I-90 near the downstream limits of the City of Pinehurst upstream to the first bridge crossing Pine Creek above the City of Pinehurst city limits provided enough capacity to fulfill freeboard requirements during the 100-year flood. All other areas would either be overtopped or would fail based on freeboard requirements for levee design. Since part of the levee does not meet the freeboard criteria it will not meet the certification requirement. If the levee was raised, the additional investigation and analysis efforts need to be completed to determine what modifications to the levee would be necessary for certification.

Osburn - There is no information available regarding freeboard for the Osburn levees. Discussion with the USACE and FEMA indicate the earthen impoundments that exist along the South Fork Coeur d'Alene River in and around Osburn would not constitute levees because of two reasons, (1) the Interstate cannot count as a levee and (2) the earthen impoundments are not engineered structures.

Kellogg - Detailed modeling of the Kellogg levee system in 2002 determined that freeboard requirements are not met in this reach. Therefore, in their current configurations, the levees in Kellogg cannot be certified as meeting the FEMA freeboard criteria.

Mullan - There is no information available regarding freeboard for the Mullan levees. No modeling has been done in this region.

Additional and substantial qualification criteria were presented in the report to BEIPC concerning the status of the levee structures in the Silver Valley. For each criterion several examples of deficiencies were detailed across the entire river system.

Although levee systems can become a critical part of the flood control system along the South Fork Coeur d'Alene River, the existing configuration requires substantial redesign and reconstruction. This effort would have multifaceted benefits to the residents of the South Fork Coeur d'Alene River system from both a structural protection standpoint, and the viewpoint of protecting the remedial actions taken to protect human health in the Superfund Site.

5.13.7 Land Use & Future Development

As there have been no impoundment failures currently to date, future land use and development impacts are somewhat unknown. However, we can make an assumption that with increased development and more intensive land uses in the near future, the possibility of structural damage and loss of life and property increases.

5.14 Unincorporated Places Risk Assessments

Unincorporated communities in Shoshone County are numerous. The following section discusses each of the more populated places in the county and their exposure to the various forms of risk from natural hazards. There were no major changes in the 2017 plan update. Due to data limitations, the 2017 plan update does not include updated parcel data for the unincorporated areas, therefore any property value improvement values are from the former AHMP. Per county officials, there have been no major changes in development in the plan's last plan cycle. Additionally, these detailed risk assessments for Shoshone County's unincorporated areas have only been done for hazards from the former AHMP, which includes Flood, Earthquake, Landslide, Fire, and Severe Weather.

5.14.1 Silverton

Silverton is an unincorporated community located on the northern side of the South Fork Coeur d'Alene River between Wallace (to the east) and Osburn (to the west). The private land holdings in Silverton are surrounded by USFS, BLM, and forest industry lands on all sides. Interstate-90 defines the southern boundary of the community.

Revenue Gulch flows water from the northeastern sections of the community into Silverton and then southward along the ditch of Markwell Ave., until it intersects the South Fork Coeur d'Alene River. At one time, the USFS District Office was located in a building in Silverton and provided stability through jobs and general commerce. Today that office staff has relocated to an office site in Smelterville. The building where the USFS once was located is vacant and appears to be bearing the weight of time poorly. This building is owned by Shoshone County.

The Silver Wood Village Assisted Living Facility is located on the western side of Silverton on top of a general rise in topography to overlook the community. Also located in Silverton is the Silver Valley Special Services Pre-School, and a real estate office. These facilities represent the main sources of local commerce for the community. The remainder of the residents are mostly either retired or commute to other nearby communities for employment.

Much of the downtown area (about 32 acres) surrounding the former USFS Ranger District Headquarters and the current Wind River Building (three story brick building in the center of the public ownership) is in local government ownership and is also located in the 500-year flood zone. This site was the location of the Silverton school facility which is now closed. However, a track, football field, baseball field, and some play equipment are still located on this site.

5.14.1.1 Flood and Impoundment Structure Failure

Water flows from Revenue Gulch (Revenue Creek) present the highest complication to the private property in Silverton. Revenue Creek is a Shreve Stream Order 6 where it enters the community along the Revenue Gulch Road above 9th Street. The stream is curbed within the

ditch of Markwell Ave. as it traverses southward to I-90. The contributing area of Revenue Gulch is not extensive but it does collect the surface waters from USFS, BLM, and forest industry lands in the area.

This stream network is prone to a flash flood profile with a propensity to overtop the road ditch and claim flood zones along Markwell Ave in the 100-year flood profile, and into the previously used school yard and former USFS District Office locations. Flood water transference must consider the additional burden of normal storm water conveyance, and the infrastructure in place is generally inadequate to these tasks. Several homes are located along this drainage route and subject to flood water damage.

Drainage Assessment Summary

The drainage infrastructure system in the Silverton community is deficient. The community relies on small drain systems installed by homeowners to address local drainage issues. The town does not have a public storm water collection and conveyance system. There is no curb and gutter system. Underground springs are located throughout town and are piped beneath streets and houses via small systems that have been installed by homeowners.

Storm water runoff from the public streets and rights-of-way drains onto private property. The town has steep streets that result in high velocity storm water runoff. Erosion of the remediation barriers installed under Superfund Site remediation efforts were observed during the assessment. Nuisance flooding due to insufficient drainage occurs within the community.

Revenue Creek is a threat for flooding and recontamination. This creek was diverted from its natural channel as the town developed. This creek flooded in 1996. Improvements constructed as a result of the 1996 event were only completed in the upper reach of this creek. It appears the improvements may have increased the risk of flooding in the downstream reach located in the community. Three mine activity areas were observed during the assessment. Thirteen historical mine sites are located in the watersheds that drain into the study area.

This drainage assessment was conducted by field evaluations of the drainage systems in the city and the drainages upstream or adjacent to town. The town was delineated into smaller study areas based on topography and common drainage infrastructure. Five populated areas (urban drainages) and two upstream areas (natural drainages) were delineated as study areas. Significant drainage issues observed throughout Silverton are as follows:

- Private storm water drain systems move drainage problems from upstream to downstream properties.
- Gravel road shoulders reconstructed during remediation of the community and located along paved streets erode due to high velocity storm water runoff on the steep grades.

- Storm water runoff from the public rights-of-way drains onto private property.
- There is a potential for recontamination caused by storm water transporting contaminated soils through the community.

Based on the assessment, the town of Silverton needs a storm water collection and conveyance system. A storm water system would solve the drainage and erosion problems within the community. A drainage plan should be developed to identify alternatives for the type of system that should be constructed and the associated costs.

There is a threat of flooding and recontamination from Revenue Creek and the South Fork of the Coeur d'Alene River. The degree of risk and possible measures to mitigate the risk of flooding need to be determined by hydraulic modeling of the systems as the extent of the risks are not easily understood through a visual assessment.

Potential Loss of Private Property Improvements Due to Flood

The community of Silverton has approximately $28.5 million of personal property improvement value assessed by the Shoshone County Assessor. Of this value, approximately $2.5 million of personal property improvements are located within the 100-year flood zone. The majority of the structures attributable to this value are located along Markwell Ave. and Interstate-90. Within the 500-year flood zone, which is much more expansive to the west of Markwell Ave. and includes a substantial area of school district property, approximately $11.7 million of personal property improvements are found. The remaining $14.3 million of improvements in Silverton are located outside of the FEMA flood zone.

School district facilities are located in Silverton, but are currently out of public use and not valued in this risk assessment. Thus, no public structure values are included in this estimate.

Potential Loss of Superfund Site Remedial Actions Due to Flood

The community of Silverton has received substantial efforts to remediate contamination stemming from mining activities. The exposure to existing remedial actions from potential flood damage and storm water movement is substantial. The establishment of remedial actions in the community is estimated $7.3 million. Of this value, approximately $1.9 million is located on properties within the 100-year flood zone. An additional $3.5 million is located on properties within the 500-year flood zone.

The protection of homes, personal property improvements, and the remedial actions taken as part of the Superfund Site cleanup efforts can only be protected through an improved storm water and flood water conveyance system throughout the community to the confluence with the South Fork Coeur d'Alene River.

5.14.1.2 Earthquake

The exposure of Silverton to seismic shaking hazards and fault lines is similar to the risk profile of other communities along the Silver Valley. One notable fault line is located north of, and parallel to, the South Fork Coeur d'Alene River and cuts through the northern third of the community roughly along 9th street.

The exposure of Silverton to seismic shaking hazards can be witnessed in three instances. The first is the presence of the three-story brick building located along Satherfield Rd. in the geographic center of the community (Wind River Publishing building). While this building appears to be fundamentally sound from a structural standpoint, there are several indicators that point to possibly unstable features. These factors include cracks between the foundation and the brick walls at the base, unsteady mortar between bricks, and the extended brick chimney of the structure. This is a privately-owned structure, surrounded by publicly owned property. If this structure is to be used for commercial purposes into the future, it is recommended that reinforcements to the structural stability be considered and implemented.

The second instance of seismic shaking hazards to Silverton is the common issue for most communities in the Silver Valley – brick and mortar chimneys. While some of the homes in the community exhibit brick or metal chimney structures located along an interior wall and show signs of strength and internal support, others do not. Some of these less than desirable examples show crumbling mortar between bricks, extended reaches from wall-support to the terminus of the chimney and even missing brick material. Correcting these faults in the chimney structures and adding vertical supports would reduce the potential of damage in the event of seismic activity in the area. This should be considered for all residential areas of Silverton.

The third exposure to seismic shaking activities in Silverton is the presence of several mobile homes in the southwest reaches of the community. No conclusive details are available concerning the foundations under these homes. However, at least two mobile homes were observed with missing base-skirts to reveal stacked cinder block mounting. In the event of seismic shaking activities these homes could shake off their base to cause structural damage and injury to people inside or beside the structures. A complete review of these homes and an improvement plan should be developed and implemented to improve the protection of people and structures.

5.14.1.3 Landslides and Avalanches

Landslide risks in and around Silverton are minor. Most of the community is located on the sloping profile of Revenue Gulch with moderated valley-type meadow at the south side of

the community. The Landslide Prone Landscape assessment of this community shows a slight increase in this profile along the hillside sloping away from the Silver Wood Village Assisted Living Facility. However, this hillside supports a healthy forest vegetation type that is generally considered to moderate landslide risk.

5.14.1.4 Severe Weather

Silverton is located within the tightening walls of the South Fork Coeur d'Alene River system where snow accumulations are substantial. On one hand, Silverton's situation is moderated in comparison to its neighbors, Wallace and Osburn, as Silverton is located north of the river system while its neighbors are located on the southern side. This northern venue allows more direct sunlight to melt snow loads earlier than other locations. On the other hand, Silverton does not have the access to snow plowing equipment that an incorporated city might have. Silverton is plowed by local residents and the county. Snow staging areas have been limited as the community access routes are narrow and homes are built close to the travel surfaces. Snow staging in the area of the old schoolhouse has been observed.

Numerous examples of unstable roofing attachments were observed in Silverton. As with other assessments, some of the structures exhibit excellent roof resistance to wind damage, while others do not. A moderating factor to Silverton's wind exposure profile is the presence of a ridgeline west of Silverton and another to the east. This undulating topography breaks the direct force of winds rolling up the valley. While this factor does not eliminate the risk exposure to high winds, it does diminish the risk marginally.

Trees overtopping structures are observed throughout Silverton. These trees are a mix of conifer and hardwoods. The hardwoods are mainly variants of poplar trees, which are notorious for breaking during wind storms and landing on the valuables located nearby. The conifer trees located throughout the community are a mix of Colorado blue spruce, Douglas-fir, and ponderosa pine. Fortunately, most of these examples are shorter than their hardwood neighbors and less prone to breakage during a wind storm.

5.14.1.5 Wildfire

The main area of the community of Silverton is considered at low risk to wildfire spread. However, at the perimeter of Silverton where community homes are nestled against the surrounding forests, the wildfire loss potential is substantially higher. This region has witnessed past wildfires that are prone to burn in these natural forestlands.

The eastern side of the community includes land under private and BLM ownership. A similar profile is observed to the north of the community where private and USFS ownership

dominates. To the west of Silverton, a combination of private, forest industry, and BLM ownership is seen. Completing the compass to the south, the parcels consist of a mix of forest industry and BLM ownership. This property supports a generally healthy forest ecosystem on moderately steep slopes. These slopes are not immune to wildfire risks. Only a moderate amount of fuels mitigation efforts has been concentrated around Silverton properties.

On the positive side, the juxtaposition of the community to the Interstate is a positive factor in the potential unlucky event of an evacuation or in the response mode of ingress by emergency services. Silverton receives structural fire protection by Fire District #1 with a station in Osburn. Wildfire protection is provided by the Idaho Department of Lands in Cataldo.

5.14.2 Kingston/Enaville/Cataldo

The communities of Cataldo, Kingston, and Enaville are located at the entry to Shoshone County from the west along Interstate-90. These communities are not incorporated but there is a substantial population living in this area as well as some of the regional support services (Idaho Department of Lands Office in Cataldo).

The Cataldo community spans into both Kootenai County and Shoshone County, mostly along the Interstate. On the eastern side of the community a small amount of livestock farming is visible. Ownership patterns consist mainly of private and forest industry holdings. The Idaho Department of Lands Cataldo office is located inside Shoshone County, south of I-90 along Hilltop Overpass and Silver Valley Road. The Kingston-Cataldo Sewer District also provides services from this location with final treatment by the South Fork Coeur d'Alene River Sewer District at the Page Waste Water Treatment Plant. Private homes are nestled into the forest vegetation throughout this area.

Kingston is located to the east of Cataldo and west of Pinehurst, and is adjacent to the Interstate and the Main Fork Coeur d'Alene River. Here the South Fork, the North Fork, and the Main Fork of the Coeur d'Alene River have combined and continue the journey to Lake Coeur d'Alene. A small amount of local commerce is present here in the form of a convenience store, gas station, and auto service. Private homes are located in the general Kingston area, mostly placed in close proximity to Interstate-90 and along the drainages to the south of the Coeur d'Alene River including Hunt Gulch and French Gulch.

Enaville is northeast of Kingston along the North Fork Coeur d'Alene River. Here the access from the Interstate is left behind and the Coeur d'Alene River Road is used. This two-lane route follows the Coeur d'Alene River upstream to access this drainage and the communities of Prichard, Murray, and Eagle, ultimately crossing into Montana via Thompson Pass after a turn at Prichard. Commerce in Enaville is centered around a gas station and the Snakepit Bar and Grill. Rural residences in this area

are concentrated along the river. Directly east of Enaville a small community of structures is located in an area referred to as the Bear Creek Community; a sub-division of private land surrounded by forest industry holdings and State of Idaho property.

5.14.2.1 Flood and Impoundment Structure Failure

Floods are a striking reality in the Enaville, Kingston, and Cataldo corridor. Here, one of the two the major river systems of Shoshone County combine into a single river channel on its way to Lake Coeur d'Alene. The South Fork Coeur d'Alene River is a Shreve Stream Order 718, while the Main Fork Coeur d'Alene River is a Shreve Stream Order 2,272, producing a Shreve Stream Order 3,020 as the Main Fork Coeur d'Alene River leaves Shoshone County.

From a flood water management standpoint, these characteristics represent a daunting challenge to ensure free flowing water during a flood event. Fortunately, the Main Fork Coeur d'Alene River has not experienced the development pressures from expanding communities and floodplains converted to other uses. The floodplain of the North Fork Coeur d'Alene River is mostly functioning normally. A few notable exceptions to this are seen in Enaville and upstream where numerous private properties have been purchased by the County following repetitive loss events from flooding.

The FEMA Flood Zone along the Main Fork Coeur d'Alene River is mapped to include the nominally flat river bottom area where flood waters would be expected to stand. Most of the Coeur d'Alene River Road traverses the eastern boundary of the flood zone and has been overtopped by floodwaters frequently. Most of the structures in this community are also within the 100-year flood zone.

At the confluence of the two river systems the 100-year flood zone expands notably. The South Fork Coeur d'Alene River is combined with discharge from Bear Creek, a stream that also possesses a 100-year flood profile and several structures at-risk. This lower order confluence of Bear Creek and the South Fork Coeur d'Alene River is only 2,500 feet from the next confluence, a major joining with the Main Fork Coeur d'Alene River. Less than a mile downstream French Gulch enters the system followed closely by Hunt Gulch discharge.

Here backflow pressures are substantial as Kingston often shows standing flood waters at the interchange of Interstate-90 and Coeur d'Alene River Road. Structures are frequently found to be at-risk to flood damage and the roadways are covered with flood water and debris.

Unfortunately, new housing development is seen in both Hunt Gulch and French Gulch, very near the respective rivers and completely within the 100-year flood zone. These new homes do not exhibit the trademark flood protection measures that would mitigate future damages from flooding. Both access roads through these gulches traverse the 100-year flood zone and

parts of the 500-year flood zone through the extent of the mapped risk areas. French Gulch drains an area about twice the size of that area drained by Hunt Gulch. The river system adjacent to French Gulch Road shows signs of high water flow velocity that has eroded cutbanks and undercut culverts in the area.

Throughout the Kingston and Cataldo area, storm water drainage is reliant on roadside ditch networks to deposit surface water flow into the nearby stream. This is especially problematic when surface soils are saturated or covered with a frozen layer of snow. Drainage systems quickly overtop their bank-full widths and lead to small scale flooding. When heavy storms hit, especially as a rain-on-snow event, the result is rapid flooding incidence. All of the Coeur d'Alene River flooding profile is consistent with riverene flooding of the slow kind. The potential high yield of water is staggering from Enaville downstream. Water flows from Hunt Gulch and French Gulch are characteristic of flash flood profiles. However, unlike many of the other flash flood profile streams seen in this river network, both gulches possess a small flood water storage area just above the confluence with the Main Fork Coeur d'Alene River. As already detailed, developments within this flood zone are present, and directly at-risk to flood damages.

Potential Loss of Private Property Improvements Due to Flood

Enaville private property assessed improvement value is estimated at $4.5 million. This includes the properties along the river in the area generally considered to be Enaville, and the private properties along Bear Creek subdivision to the east of Enaville. Approximately $1.9 million of private property improvement value is located within the 100-year flood zone. There is basically no 500-year flood zone mapped for this area. The conceptual reasoning behind this omission is that the 100-year flood zone occupies the entire "flat river bottoms" so that any extension of this zone would be experienced through flood depth and not extended width. The remaining $2.9 million of private property improvement value is located outside of the flood zone. Literally all the access to this region traverses the 100-year flood zone area.

Individual private properties in Kingston have been assessed by the Shoshone County Assessor to comprise approximately $35.1 million in value. Of this amount about $4.9 million is located within the 100-year flood zone. The relative size of the 500-year flood zone in this area is small and no private property improvements were identified in these areas. The remaining private value of private property improvements in Kingston totals about $30.3 million. As with Enaville, all the access to these areas must traverse the 100-year flood zone.

The Shoshone County portion of Cataldo is located generally into two separate areas. The first area, where the Idaho Department of Lands office is located, is on a topographical rise well outside of the flood zone. The other area is located along the Main Fork Coeur d'Alene River

adjacent to the Shoshone-Kootenai County line. These properties are squarely within the 100-year flood zone. Out of the total assessed private property improvements of $4.2 million, approximately $1.3 million is in the 100-year flood zone. Again, very little in the way of a 500-year flood zone has been mapped for this area of the Main Fork Coeur d'Alene River. The remaining appraised private property value of $2.9 million is located outside of the FEMA flood zone.

Potential Loss of Public Property Improvements Due to Flood

Only the Idaho Department of Lands in Cataldo has provided a value for public improvements. All this value is located outside the FEMA flood zones, and thus no public value of structures is listed as being at-risk to flood damage.

Potential Loss of Superfund Site Remedial Actions Due to Flood

The communities of Enaville, Kingston, and Cataldo have received substantial remediation efforts to mitigate contamination stemming from mining activities. The exposure to existing remedial actions from potential flood damage and storm water movement is substantial.

The establishment of remedial actions in the Enaville area is minimal and estimated at $39,000. Of this value, only $3,500 is located on properties within the 100-year flood zone. The remaining $35,000 is located outside of the flood zone. Enaville is located outside of the Superfund Site, but some of the properties in the area are within the site and have been attributed to Enaville.

Kingston is within the Superfund Site and has received substantial remedial action efforts. The total value of remediation activities in the area totals approximately $8.4 million. Of this total, approximately $1.7 million has been located on properties within the 100-year flood zone, and $104,000 has been located on properties within the 500-year flood zone. The remaining $6.6 million has been located on properties outside the flood zone.

Cataldo properties within Shoshone County have received approximately $607,000 in remedial action value. Of this total, only $84,000 is located on properties within the 100-year flood zone. All of the remaining remediation effort value is located on properties outside of the FEMA flood zones.

The protection of homes, personal property improvements, and the remedial actions taken as part of the Superfund Site cleanup efforts can only be protected through an improved storm water and flood water conveyance system throughout these communities.

5.14.2.2 Earthquake

The exposure of these communities to seismic shaking hazards and fault lines is similar to the risk profile of other communities within Shoshone County. One notable fault line is located underneath Interstate-90 from the county line to Pinehurst. Parallel fault lines accompany this fissure, separated by a couple of miles.

Most of the structures in this tri-community area are private homes and small businesses built using wood-frame construction materials. There are a few exceptions to this observation as brick and mortar, multi-story structures are present. One of these examples was listed as "for sale" during the field work observations.

Unlike most of the Silver Valley, the chimney structures in these communities were not typical of the steep-pitch roofs and extended (and unsupported) brick chimney stacks. In this area, many of the wood frame structures support a more moderate roof slope and the chimneys are for the most part internal to the structure walls and pose little if any hazard to collapse.

5.14.2.3 Landslides and Avalanches

Landslide risks in and around Enaville, Kingston, and Cataldo are relatively minor. The only exception of note to this generalization is the southern edge of the Bear Creek watershed near its confluence located between the South Fork Coeur d'Alene River and Bear Creek. In that location potential landslide profiles show more instability. Fortunately, there are no homes located in this area to become damaged from landslide activity.

5.14.2.4 Severe Weather

Enaville is located at the focal point of the confluence of the North Fork Coeur d'Alene River and Main Fork Coeur d'Alene River, while Cataldo and Kingston are located along the Main Fork Coeur d'Alene River, with Kingston situated near the confluence of the South Fork Coeur d'Alene River and Main Fork Coeur d'Alene River. Weather patterns generally move from west to east during severe storm events and can impact this area significantly. Heavy rains, sustained snowfall, and high winds can impact structures through this dangerous combination.

Homes in this area are a combination of newer construction and well-established structures. The newer construction shows roofing materials and design relatively well suited to the environmental conditions of this area. Some of the older construction shows signs of weather beaten wear-and-tear. Metal roofing materials on several structures of this latter category are

partially torn from the corners of the roof and structure walls. Cedar shakes on some of the outbuildings, such as barns and garages, show missing shakes or damaged alignment. Some of the structures supporting metal roofs were also designed with an inconsistent roof pitch, starting steep and then moderating to an almost flat relief. Winter time observations show these roofs hold excessive snow load accumulations.

On the positive side of the severe weather consideration, many of the structures in this area are not overtopped by trees prone to breakage in wind storms. There are notable exceptions to this scrutiny, but in general structures are not at an increased relative risk to tree breakage damage from wind storms. On the other hand, the power line infrastructure in the are is at increased risk to tree breakage. Power line routes along Silver Valley Road, Hunt Gulch Road, French Gulch Road, and even along Valley View Road (north of the Main Fork Coeur d'Alene River) show notable instances of trees overtopping power lines and where wind damage potential is elevated.

Finally, the ability to plow large accumulations of snow is limited. While the main road systems mentioned above are generally plowed, the snow accumulations are mainly pushed to the sides of the roads. Home sites are not typically nestled against the road surfaces, but snow removal provides challenges for many homeowners. A winter time survey of this area reveals many personal trucks sporting mobile snow plow attachments to the front bumpers.

5.14.2.5 Wildfire

The wildfire exposure profile of the tri-community area around the Coeur d'Alene River confluence is highly variable. Many of the low elevation grass lands are at very low wildfire risk. Nearby, homes nestled within the dense forest environment are at increased risk to loss from a wildfire. The largest complication for the homeowners in this area is a general lack of home defensibility space.

Several homes enjoy the visual and noise buffer benefits of wooded vegetation between their home and the homes of neighbors and to decrease sounds from the Interstate. However, these forest trees are accompanied by shrubs, dried grasses, suppressed trees, and other normal forest litter that is at-risk to spreading wildfires. While there are some examples in this area of homes where fire defensible space has been created and maintained, the overall application of this technique is low.

The vegetative profile of this area is susceptible to wildfire spread. When wildfires spread, they often burn homes located within the path of the fire. Fortunately, there are two moderating factors which relieve the pressure on local homeowners in this area. The first factor is the presence of a generally moderate terrain. This moderate terrain does not tend to encourage wildfire spread as steep slopes can. Various locations in this immediate area have steep

slopes, but in general they are not long reaches of long and steep slopes with heavy forest vegetation.

The second moderating factor is the presence of the Idaho Department of Lands Fire Office in Cataldo. These communities can generally rely on a rapid response to wildfire ignitions before fires spread to any significant size.

Even considering these factors, the residents of this area are encouraged to participate in the creation of home defensibility space, and reducing the factors of home ignitability through roofing, decking, and siding material selection.

5.14.3 Prichard/Murray

Prichard is located along the Main Fork Coeur d'Alene River almost 25 miles upstream from Kingston. The river corridor surrounding and downstream from Prichard has been populated by private structures in a combination of year-round residents and summertime visitors. Much of the private property development in this area is along the Main Fork Coeur d'Alene River corridor, and consequently within the FEMA flood zone. The USFS manages vast territories in this region beginning immediately adjacent to the private landholdings along the river low-lands.

Beaver Creek enters the Main Fork Coeur d'Alene River at Prichard. The Beaver Creek area also contains a thin sliver of private lands straddling a river system. The area of Delta is located along the Beaver Creek Road. Beyond the private landholdings in this area, the USFS manages the forestlands. The Beaver Creek Road traverses a route generally heading southward and ultimately enters the Silver Valley at Wallace (Nine Mile Creek Road). A once dirt and gravel road, this paved rural road crosses the divide at Dobson Pass to enter the South Fork Coeur d'Alene River drainage. Access for forest industry logging trucks, mining equipment, and local residents/visitors is provided through this route. Dobson Pass is not a preferred route to traverse in the winter when heavy (or light) snows are present. However, it is an important infrastructure component of the area.

Near Prichard, the Coeur d'Alene River Road meets the Prichard Creek Road. The Prichard Creek Road follows the stream by the same name through the community area of Eagle and Murray, then finally crosses over the Rocky Mountain divide at Thompson Pass. This pass is generally closed in the winter months due to snow, but during the warmer months this route is traversed by local residents, commercial logging trucks, and vacationers.

In Prichard, where Beaver Creek meets the North Fork Coeur d'Alene River, there are several sites of local business and a scattered number of structures. Included in this collection of structures are a couple taverns, a small resort, a gas station, and a fire station (Prichard-Murray Volunteer Fire).

The Prichard Creek Road travels parallel to Prichard Creek past the joining of Eagle Creek with Prichard Creek. Murray is situated parallel and to the north of the Prichard Creek Road. Murray is literally a one-street community spanning the terminus of Buckskin Gulch, Alder Gulch, Gold Run Gulch, and Cougar Gulch. These private properties are tightly packed together and surrounded by USFS land.

5.14.3.1 Flood and Impoundment Structure Failure

Each community in this area is potentially impacted by flood waters. From the homes and businesses located along the North Fork Coeur d'Alene River, to the homes located along Beaver Creek and Prichard Creek, a significant exposure to flooding risk is present. At Prichard, below the confluence with Beaver Creek, the North Fork Coeur d'Alene River is a Shreve Stream Order 1,462, approximately twice the size of the South Fork Coeur d'Alene River Shreve Stream Order number where it meets the North Fork at Enaville and Kingston.

The North Fork Coeur d'Alene River is prone to riverene flooding of the slow kind and the fast kind. The steep "V" shaped valley bottom of this river system in its upper reaches translates into lower-system flooding where the flood plain begins to widen significantly more. This widening occurs near Prichard and continues as the observations are made downstream.

Both Beaver Creek (Shreve Stream Order 98) and Prichard Creek (Shreve Stream Order 242) are prone to flash flooding profiles. Both stream networks are capable of heavy debris flow and high-water velocities. Prichard Creek, especially, is prone to larger flood event capacity matching a riverene flood type of the fast kind. At Murray, the Shreve Stream Order is 95 on Prichard Creek. Several lower order streams pass through Murray on the way to join Prichard Creek. These streams are all Shreve Stream Orders 1 through 6 and prone to flash flooding profiles although none of them drain extensive watershed areas.

Murray possesses no integrated storm water drainage systems. Surface waters are transported through road ditch networks into the nearby streams and transported through culverts to Prichard Creek. This causes the complication of spring and warm-wintertime standing water in and around the community while soils are saturated.

The limited area mapped as a 100-year and 500-year FEMA flood zone around Eagle encompasses many of the local structures at the interchange between the Prichard Creek Road and Eagle Road.

It is apparent that the mapped flood zone was created to consider only the populated places along Prichard Creek. Mapped flood zones by FEMA only include areas surrounding Murray, Eagle, and Prichard. On-site evaluations reveal a significantly larger flood zone exists along Prichard Creek, Eagle Creek, and Beaver Creek.

Potential Loss of Private Property Improvements Due to Flood

Prichard rural areas possess approximately $10.2 million in assessed private property improvements. Of this value, approximately $3.9 million of assessed value is located on parcels within the 100-year flood zone, and $1.3 million is located on parcels in the 500-year flood zone. The remaining $4.9 million is located outside of a mapped flood zone.

Within Murray the assessed private property improvement value is approximately $2.0 million. However, when the FEMA FIRM map analysis was created none of the community was mapped as being within the flood zone. The entire flood zone is considered only for Prichard Creek located south of Prichard Creek Road. In fact, the FEMA Flood zone appears to follow a path not shared by the actual location of Prichard Creek. The flood zone area is situated along the northern boundary of the Prichard Creek channel while the river during low flows is located along the southern edge of the channel. This area and all of Prichard Creek may be considered for additional FIRM mapping efforts by FEMA.

Within the Eagle area, approximately $732,000 of private property improvements are located. About $81,000 of this value is located in the 500-year flood zone, a slight amount is located in the 100-year flood zone, and the remaining $649,000 is located outside the flood zone.

Potential Loss of Public Property Improvements Due to Flood

The Prichard-Murray Volunteer Fire Department structure is the only public facility in Prichard with insurance values provided. The County Shop Road District #1 located in Murray is the only public facility in that location. Because of the mapping techniques used in Murray, that building is not mapped as being within the flood zone. The Prichard-Murray Volunteer Fire Department station in Prichard is located within the 500-year flood zone with an insured value of $91,000.

5.14.3.2 Earthquakes

The majority of the northern two-thirds of Shoshone County is located within an area considered at moderate risk to seismic shaking hazards. The only area within Shoshone County considered at high risk to seismic shaking hazards is located northeast of Murray, near the Montana State line. These designations are not as “line-defined” as mapping would seem to indicate. Instead these transitions from moderate-risk to high-risk should be considered on a continuously changing scale. With this in mind, it could be considered that the Prichard and Murray areas represent the highest seismic shaking hazard exposure to populated places in Shoshone County.

The fault line geology of this area is different from that of other areas discussed in this report. Along most of the river drainage areas of Shoshone County the fault lines are arranged largely parallel to the general direction of the major river systems. In the Prichard to Murray area the fault line orientation is not parallel to the North Fork Coeur d'Alene River system, but instead is parallel with the crest line of the Rocky Mountains. All of the faults in this area are characteristic slip-faults.

Structures in this area are all the result of wood-frame construction techniques. There are several chimney stacks built from mortar and brick, and many of these would benefit from reinforcement. However, few of the structures are multiple story buildings with extended chimney structures that would otherwise be at increased risk during seismic events.

5.14.3.3 Landslides and Avalanches

The surface geology of the Prichard – Murray area is consistent with alluvial deposits and eroded parent materials. The slopes in this area are normally steep and show continuous vegetation. Where road construction and site developments have cut into the toes of slopes, some small-scale erosion has taken place. In other areas, where the site disturbance has been greater, the localized erosion has been significant. In terms of risk exposure to private and public structures, very little relative risk is seen from landslide events.

5.14.3.4 Severe Weather

Severe weather effects are especially pronounced in this region of Shoshone County. The canyon walls drop steeply into the North Fork Coeur d'Alene River from high mountain peaks. Where topography is moderated, such as in the Prichard Creek and Beaver Creek drainages, the elevation is above 2,700 feet, and the surrounding peaks are as high as 5,800 feet.

These topographic combinations ensure sustained snow accumulations in the winter, preceded by early storms, and followed by rain-on-snow events in the spring. High winds are also common in these areas as storms roll up the valleys and approach the Rocky Mountain range.

Structures in this area are generally built to withstand the forces of nature. However, some of the roofing materials used appear to be much less than acceptable to withstand the combined forces of high winds and heavy snow loads. Many of these have stood the test of time, but some have stood this time-test better than others. New construction in the area generally exhibits the architectural designs needed to withstand severe weather conditions. Some of the existing structures appear to be good candidates for roof retrofits.

Hazard tree removal has been completed by many homeowners in the area. There appear to be many candidate locations for more hazard tree removal, especially in the area adjacent to the North Fork Coeur d'Alene River near Prichard. Fortunately, these homes are sheltered from high winds during most storm events.

5.14.3.5 Wildfire

Wildfire risks within the areas surrounding Prichard and Murray are very pronounced. This entire region contains the combination of forest vegetation, steep and moderate slopes, limited access in some areas, and low population densities. The majority of the land in this region is managed by the USFS. The only exceptions to this ownership pattern are scattered State of Idaho parcels and private holdings. Much of this region has burned historically, although many of these large fire events date back to the 1889-90 and 1910-1913 fires.

Home site defensible space is generally very limited. Most homes in this area support vegetative management measures consistent with a recreational use motif. This will become problematic in the event of a wildfire occurrence as these homes will show an increased resistance to fire control: they will be harder for firefighters to protect than sites with limited surface fuels next to the structures. Homeowners are highly encouraged to participate in WUI programs that control ignitable vegetation next to the homes and in communities, control factors of home site ignitability, and improve access to clusters of structures.

5.14.4 St. Joe River Communities

The St. Joe River Valley spans the entire width of Shoshone County in a nearly continuous east to west line. The highest contributing area of the St. Joe River is on Illinois Peak, the highest point in Shoshone County at 7,700 feet (also located on the border between Idaho and Montana). The St. Joe River then flows to the exit point from Shoshone County to Benewah County at the county's lowest point, with an elevation of 2,132 feet. This 5,568-foot drop is made within a reach of roughly 100 miles. During this trek, there are no lakes along its path, with only moderate amounts of slack water flow. This drainage presents stunning valley walls covered with forest vegetation, exposed rocks, and signs of natural environmental conditions.

Much of this region was impacted directly by the historic fires of 1890 and 1910. Today the scars of, and recovery from, those fires are seen in the form of slightly recovered south facing aspects (to the north of the St. Joe River), and densely vegetated north facing aspects (south of the river). While there are exceptions to this observation, the visual scenery is highly variable and attracts thousands of visitors to the region annually.

The St. Joe River Road (USFS Development Road 50) is an important access route in Shoshone County. This route connects St. Maries (located in Benewah County) to Shoshone County communities in this valley. The route then connects to Montana, entering populated places there at St. Regis. While this route is not maintained to the level of Interstate-90 to the north, it is used by forest industry transportation, local access, and vacationers.

The communities of this valley include (from west to east): Trout Creek, Calder, Big Creek, Marble Creek, Hoyt, and Avery. Local commerce in the region is limited to local services, convenience stores, a school and a USFS Ranger Station at Avery, and a USFS work center at Hoyt. Ranching is pronounced in this area, with local efforts using the river lowlands to overwinter their cattle and the surrounding hillsides and mountains to feed on in the summer. Local agricultural efforts are generally limited to hay and pasture lands for the stock.

Forest industry holdings in the St. Joe River valley are extensive. Most of the industrial forestlands are located within two miles to the north of the St. Joe River and then to the south to the county line. More industrial forestland holdings are seen north of Calder and to the southeast of Avery. Southeast of Avery the checkerboard pattern of ownership is an intermix of USFS and forest industry ownership each owning one-square mile areas in the squares of the checkerboard.

Almost exclusively, the private ownership with structures in this St. Joe River valley is located immediately adjacent to the river. This is easily explained by the fact that there is little habitable ground above the valley bottom as the hillsides are steep. Most exceptions to this observation are the locations of the listed communities.

One of the most notable features of this region is the presence of rural addressing in the communities of Calder, Big Creek, and Marble Creek. Here, Fire District #4 has taken recommendations developed as part of the 2002 Shoshone County Wildfire Mitigation Plan, and implemented a full program of posting addresses visible from the nearest public road. This effort is clearly visible and the impact is notable.

5.14.4.1 Flood and Impoundment Structure Failure

The St. Joe River follows an east-west trajectory from its headwaters to the point of exit from Shoshone County. The southern edge of this river system is lined with steep mountain ridges towering thousands of feet over the river below. This shadowing effect of the mountains guarantees that the river is isolated from solar heat all winter. With the headwaters towering over 7,000 feet high, the water is cold and thick ice formation in the river is common.

When warm winter weather systems blow into the region, as is common even in January and February, rainfall can cause ice jam flooding. One of these events occurred in early 2009 as ice jam flooding became an emergency situation. Structures and people at Trout Creek and Calder became threatened and downstream a state of emergency was declared. Shoshone

County and Benewah County (downstream) activated their emergency services, and an ice breaking tug boat was brought in to help break the ice jam.

The typical flooding profile of the St. Joe River is riverine flooding of the slow kind. This extensive drainage evacuates the runoff from hundreds of thousands of acres of high elevation forestlands. At the Avery location, the river is a Shreve Stream Order 1,470, but is still in a reasonably narrow channel with a minor sized flood plain. FEMA FIRM maps have not identified a flood zone as of the September 2008 release. The FIRM mapping of flood zones stops abruptly slightly upstream of Hoyt.

The hundreds of low and moderate size tributaries to the St. Joe River possess a typical flash flood profile with the water release from the streams to the north of the river (south aspect) releasing water earlier than the streams to the south of the river (north aspect) due to earlier snow melt. Because of the variable land management and environmental conditions in this region, the delivery of debris can be seen along most of the tributaries in this drainage system. This debris accumulation can be seen clogging various culverts and bridge crossings along the St. Joe River Road and side access routes.

The first visages of an established flood plain are seen within Avery, although this area is relatively small and currently occupied by privately owned structures. In Hoyt, the flood plain becomes slightly larger for a small distance along the river's path. This flood plain again begins to widen around Marble Creek, but is confined by natural obstacles to expansion. At Marble Creek community, the tributary named Marble Creek enters the system with a Shreve Stream Order of 371, elevating the St. Joe River Shreve Stream Order value to 2,253.

With this elevated river size, the St. Joe River begins to meander slightly more, cutting interior bank water storage areas. By the time the St. Joe River exits the community of Big Creek, several additional large tributaries have entered the system bringing the Shreve Stream Order to 2,472. At this point, the St. Joe River's Shreve Stream Order is greater than the North Fork Coeur d'Alene River's order (2,270) before it is joined by the South Fork Coeur d'Alene River.

Below Big Creek's confluence, Mica Creek (Shreve Stream Order 100) enters the system and additional flood zone areas along the St. Joe River are present. Slightly above Calder a formidable natural flood zone area has been established. Where the Calder Road crosses the St. Joe River, the St. Joe River's Shreve Stream Order is 2,600. Here lies the first substantial flood zone area of the St. Joe River. Human habitation is mainly located to the north of this natural zone area, however, contributing flows from Bear Creek (flowing from the north of Calder and through the edge of town) cause the 100-year flood zone to encompass much of the community.

Further downstream of Calder, the natural flood plain widens substantially to claim transient water flows. Several meandering turns of the river claim more flood plain areas slightly

upstream from Trout Creek. Here the Shreve Stream Order is 2,745 and it grows to a terminal size of 2,791 where it enters Benewah County. Only in the final few miles of its journey out of Shoshone County does the St. Joe River claim a substantial and continuous flood plain area.

Potential Loss of Private Property Improvements Due to Flood

Potential flood losses to private property investments in the St. Joe River Valley are apparently the lowest in the Avery area. This is only because the FEMA flood zone FIRM maps have not been developed for this area. Anecdotal evidence suggests that this area experiences riverine flooding from the St. Joe River. Avery is located just below the confluence of the North Fork St. Joe River (Shreve Stream Order 277), and the Main Fork St. Joe River (Shreve Stream Order 1,193). When the additional tributaries are included, the St. Joe River becomes a Shreve Stream Order 1,487 at the east side of the community. Indications of flooding are obvious and about half of the private structures in this community are at risk to flood damage.

The Hoyt area has a relatively small amount of private property improvements with only $75,000 in assessed value. Only $30,000 of this value is at flood damage risk and it is located in the 100-year flood zone.

At the Marble Creek community, approximately $2.1 million of private property improvements have been assessed by the Shoshone County Assessor. Approximately $939,000 of this value is located in the 100-year flood zone. The remaining $1.2 million is located outside of the FEMA flood zone.

The community of Big Creek contains an assessed private property improvements value of $1.9 million. Of this value, approximately half, $965,000, is located in the 100-year flood zone, and no value is located in the 500-year flood zone. The remaining $904,000 is located outside the FEMA flood zone area.

The community of Calder is the most extensive area of combined human habitation and flood plain in the St. Joe River Valley within Shoshone County. Approximately $1.9 million of total appraised improvement value is located in Calder. Of this amount, about $1.1 million of private property improvements is located within the 100-year flood zone. There is no private property improvement value located within the 500-year flood zone. The remaining $763,000 of private improvement value is located outside of the FEMA flood zone. These estimates indicate that approximately 59% of the total improvement value in and around Calder is located within the 100-year flood zone.

The last downstream community along the St. Joe River valley before entering Benewah County is Trout Creek. Here, approximately $1.0 million of private property improvements

are located within the 100-year flood zone, the remaining $930,000 of assessed private property value is located outside of the FEMA flood zone.

Potential Loss of Public Property Improvements Due to Flood

Substantial public property assets are located within the St. Joe River valley. Insured asset values reveal that approximately $3.6 million of assets are located in Avery. These include the public school and the USFS Avery Ranger Station. FEMA has not mapped the flood zones in this community.

At Hoyt, the USFS owns the Hoyt Flat Work Center with an insured value of $5.0 million. This complex is comprised of several structures located along the river banks. However, preliminary estimates place all of these structures outside of the flood zones.

The Marble Creek Fire Station (Fire District #4) is insured for approximately $15,000 and is located outside of the FEMA flood zone.

At Calder, the total insured value of public structures is $821,000. Approximately $432,000 of this insured value is located in the 100-year flood zone, and the remaining $389,000 is located outside of the flood zone.

5.14.4.2 Earthquake

The quantification of seismic shaking hazards along the St. Joe River valley rates a low risk category from Marble Creek downstream to the county boarder with Benewah County. From Marble Creek, upriver the seismic shaking hazards are ranked as moderate. This change in the relative risk should be considered to occur on a continuous scale.

The fault line activity in this region is notable. Most of the 580 fault lines in Shoshone County are considered a “normal fault” by the USGS. These are faults that slide against each other in a lateral movement. Only 26 fault lines in Shoshone County are of the “thrust fault” designation. These faults tend to represent movements of the earth where one layer rises over the opposing layer. The Hoyt Mountain thrust fault cuts across the St. Joe River beginning near Marble Creek and terminates about 6 miles southeast of Hoyt. Two more short segments of thrust faults extend eastward, generally on the same trajectory as the first. This fault line was near the epicenter of the Hoyt Mountain earthquakes on March 7, and June 3, 1994. Fortunately, no recorded reports of injuries or damages were made. Subjective reports by local residents describe various disruptions as a result of this earthquake ranging from cracked windows to broken water lines.

The remaining thrust fault lines in Shoshone County are concentrated along the Montana state line, near the Rocky Mountain crest. The remainder of the St. Joe River valley is blanketed with a mesh of normal faults running parallel to the river's course.

Very few structures in this river valley are multi-story brick or masonry buildings that would be considered at risk due to seismic shaking hazards. One structure of note is the school at Avery. This building is constructed with at-risk materials, and the age of the structure would indicate concern for these factors. However, this building is a single-story edifice and therefore the risk is exponentially less than if it were a multiple story construction.

Another concern of this region, from a seismic shaking hazards standpoint is the bridge at Avery. This bridge connects Kelly Creek Road to the St. Joe River Road. This is an impressive engineering feat in the sense that the crossing comes off the steep hillside of Kelly Creek, makes a sharp turn over the St. Joe River Road and then drops the remaining elevation needed to join the main road while paralleling the St. Joe River Road. This iron and concrete overpass is used daily by logging trucks, school busses, vacationing RVs, and local residents. Although it seems to be sustaining the weight of its daily burden, in time this structure will need to be reinforced or replaced.

5.14.4.3 Landslides and Avalanches

Much of the St. Joe River valley is settled on consolidated alluvial soils consistent with the location at the bottom of a major river drainage. Human habitation in this region is either on the banks of the river, or cut into the hillsides adjacent to, or above, the river. When the toes of these slopes are cut, the stability of the hillside becomes unstable. Many instances of this are seen in the area where roads are built and homes are sited.

5.14.4.4 Severe Weather

The entire St. Joe River corridor is exposed to the forces of nature. Severe weather patterns move from west to east in traditional weather patterns bringing all forms of storms including rain, wind, snow, and lightning. Because all of the human habitation and business structures are located in the river valley bottom lands, the effect of some of this foul weather is moderated, but, the negative effects of the weather are not eliminated.

Access in and out of the St. Joe River valley is limited to one all-year route, the St. Joe River Road. Another potential access route is the road from Avery to Wallace (North Fork St. Joe River Road, also known as the National Forest Development Road 456). This is a USFS route and is currently not plowed of snow in the winter. This is a route favored by wintertime

snowmobile enthusiasts. Additional dirt and gravel routes are located throughout the vast river system (and the entire county), allowing a seasoned traveler to traverse the entire county while only crossing paved roads occasionally.

Normal fall and spring weather transitions in the St. Joe River valley are pronounced along the St. Joe River Road where freeze-thaw cycles wedge rocks from the road cut-bank onto the travel surface below. There is a general lack of debris catchment along the most vulnerable segments of the road. Evidence of rock debris on the road is common and anecdotal evidence confirms the scattered damage to personal and commercial vehicles from driving over these rocks in the road.

Maintaining an open route of ingress and egress for local access to the communities of the St. Joe River valley is a challenge for winter time snow plowing. However, snow staging along the St. Joe River Road is not problematic. Plowing the residential driveways and local access is more of a challenge, but as with many of the other communities in Shoshone County, there are a large percentage of homeowners in this valley with snow-plows mounted on their personal trucks to clear access as needed.

Gusting winds are a concern for many of the home sites in the St Joe River valley. Metal roofs at a low pitch are not always well anchored to the structures and show signs of wind damage. At the same time, several hardwood and conifer trees overtop valley bottom structures. Many of these trees are potential sources of breakage and subsequent damage to the structures they overtop.

5.14.4.5 Wildfire

The risks of wildfire in the St. Joe River valley are real and elevated. Most of the lowlands adjacent to the river corridor represent a reduced risk to wildland fire loss. However, the steep slopes, mosaic of aspects, and distributed forest vegetation fuels present a complicated montage of fire control components. Historical wildfires have burned through this region and recent fires have ignited. Fortunately, the control efforts exercised in the current era have been effective at controlling the fires in this area while still relatively small.

Home and business structures in the St. Joe River valley are generally nestled into the embrace of the forestlands and the scenic river ecology of this valley. A combination of native evergreen forest tree species such as ponderosa pine, Douglas-fir, western larch, grand fir, lodgepole pine, western white pine, and even wetter site species such as western red cedar and western hemlock can be found throughout this valley. Within the lowest elevations, along the river banks and within the flood zone, hardwood species are common and intermixed with the range of conifer species.

Forest management activities in this region are extensive. The ownership is a mix of forest industry, State of Idaho Department of Lands, and the USFS. While the timber sale program of the latter owner has been significantly curtailed in recent decades, the former two categories of ownership still implement an assertive timber sale program. Generally, these active forest management efforts have a positive impact on wildfire risk in the valley. Managed forests are generally supportive of a healthy vegetative cover and the Idaho Forest Practices Act regulates the disposal of logging slash during and after logging operations.

The challenge for homeowners in the St. Joe River valley is to establish and maintain home site defensibility areas. Several examples of homes with established home defensibility sites were located. In these locations, surface fuels were cut and disposed of, trees were pruned to a level of ten feet and higher, and only healthy and mature conifer trees were left standing. Green grass was maintained and trimmed in the areas surrounding the home site. Access was wide enough to facilitate fire fighting vehicles to enter, turn around, and exit. Equally important, the characteristics of home ignitability were adequately tempered with composite material roofing and non-flammable siding.

Other homes in the region are completely lacking home site defensibility efforts. Auspiciously, most of the homes in the region were observed to be between these two extremes. Because of the combination of factors leading to wildfire control success in the St. Joe River valley, the more home owners can increase the defensibility of their homes, the higher the probability the home will be saved during a wildfire event. Home owners in this region are encouraged to participate in home site modifications beginning with fuels treatments surrounding each home and including modifications of the factors of structure ignitability.

5.14.5 Clarkia Community

The community of Clarkia is located in the furthest southwestern quadrant of Shoshone County. The residents of this area have strong economic ties to the neighboring counties of Latah, Benewah, and Clearwater. Interestingly, it is closer to drive a vehicle from Clarkia to the County Seat locations of Latah, Benewah, Clearwater, and Kootenai Counties in Idaho, and to the County Seat of Whitman County (Colfax), Washington, than it is to drive to the County Seat of Shoshone County in Wallace. Nevertheless, these residents are proud citizens of Shoshone County.

The economic foundations of Clarkia have always been tied closely to natural resources. The Potlatch Corporation operates a log sorting yard at the rail access point the company maintains at the community's central location. The USFS operates an office of the St. Joe Ranger District in Clarkia, providing employment for almost half of the workforce in Clarkia (Census 2000). Logging is a major employment sector in this area along with cattle ranching. Farming is concentrated on pasture and hay in support of livestock husbandry efforts. A tourist attraction of this locale is the world-famous

Clarkia Fossil Locality. The total population of Clarkia is approximately 100 people (Census 2000), and all of the school children attend school in St. Maries located in Benewah County.

Clarkia rests at about 2,830 feet elevation in the broad and gently sloping flood plain of the St. Maries River between Bechtel Butte (4,680 feet), Clarkia Peak (3,520 feet), and Anthony Peak (4,680 feet). The Native American name for this region is "Chatnna" meaning "meadow area".

Access through Clarkia is provided along State Highway 3, through the headwaters of the West Fork St. Maries River from the southwest in Latah County into Shoshone County slightly southwest of Clarkia. State Highway 3 traverses the broad floodplain at the confluence of the West Fork and the Middle Fork of the St. Maries River, then follows the Main Fork of the St. Maries River downstream and crosses into Benewah County and the communities of Santa and St. Maries. This highway route is the only paved route of ingress and egress from Clarkia. Hundreds of miles of dirt and gravel surfaces are accessible from Clarkia and are used for forest management purposes as well as recreational uses.

Services in Clarkia are relatively limited. There is no rural fire protection in Clarkia. Wildfire protection is provided by the Idaho Department of Lands – West St. Joe Fire Protection with an office in St. Maries. Further to the east from Clarkia, wildfire protection is provided by the Clearwater-Potlatch Timber Protective Association (C-PTPA) an organization with headquarters and offices in Clearwater County. C-PTPA is managed as a division of the Idaho Department of Lands.

Water and sewer treatment is conducted at a site adjacent to the Potlatch Corporation log yard, and is located within the FEMA flood zone. Clarkia is one of the "coldest places" in Shoshone County.

5.14.5.1 Flood and Impoundment Structure Failure

The flood profile for the community of Clarkia is very pronounced owing to the location of the community adjacent to the confluence of the two main forks of the St. Maries River. The large meadow area upstream of Clarkia is composed of meandering streams cutting through river deposited sediment. Human habitation and livestock are scattered through this stream network, with several homes nestled into the surrounding forests. Vegetation is dominated by meadow grasses in the floodplain and forestlands surrounding the perimeter.

Local roads provide access through this maze of river tributaries with a combination of bridges and culverts providing stream crossings. An inspection of this transportation network reveals that annual flooding is characteristic of flash flood events from the headwaters. This flood zone area is the first established flood zone along these river networks. Debris flooding is also evident in the form of vegetative fragments wedged in and around bridge abutments and around culvert entrances.

While many of the tributaries passing through this floodplain are impacted where they flow, flood stage events see these streams exceed their bank full width to occupy the wide extent of the valley bottom. When this happens, debris is transported into livestock fencing, onto the local access roads, to homes within the flood zone, and surrounds the general infrastructure of Clarkia.

Within the community's most populated areas, structures are mostly located slightly above the FEMA flood zone but are between the two forks of the river above the confluence. However, this elevation above the flood zone is minimal. Several structures adjacent to Highway 3 and northwest of the community center are completely covered by this flood zone. In addition, the flooding represented by the Middle Fork of the St. Maries River has been truncated artificially as the designation of the flood zone was left incomplete. This situation is repeated across all the tributaries to the St. Maries River system with the flood zone designations prepared as part of the FIRM maps left incomplete as they encounter tributaries.

All the Potlatch Corporation log sort yard and the rail line are located within the FEMA flood zone. State Highway 3 defines the flood zone boundary on the western side in several locations. A few structures are raised, such as the post office modular structure, which is elevated on its foundation to rest above a regulatory flood.

Potential Loss of Private Property Improvements Due to Flood

The Shoshone County Assessor has estimated a total private value of improvements of $1.7 million in the Clarkia area. Out of this total private improvement value, approximately $377,000 is located within the 100-year flood zone. There is no 500-year flood zone mapped within the Clarkia area. The remaining $1.3 million of private property improvements are located outside of the FEMA flood zone.

Potential Loss of Public Property Improvements Due to Flood

The significant investment by public entities in the Clarkia area, totaling $5.5 million, is mostly located outside the FEMA flood zone. Only $198,000 of public property insured value is in the 100-year flood zone. This insured value is represented by the Clarkia Water and Sewer treatment facility managed by the Clarkia Water & Sewer District. The facility is located very near the West Fork St. Maries River and the Potlatch Corporation sort yard. The remaining insured value in Clarkia is located outside the FEMA flood zone areas. This includes the Clarkia Free Library and the USFS Work Center.

When considering potential mitigation measures for Clarkia, specific attention must be applied to the strategic location of additional structures in future developments. First, the 100-year flood plain in this area is not completely mapped and a strong recommendation is to extend the logical boundary of the 100-year floodplain upstream along the Middle Fork St. Maries River where private property is located. Several structures are currently located along this river above the confluence of the Middle Fork St. Maries River and Merry Creek. The extension of this floodplain would only need to be considered for an additional 1.25 miles to encompass all private properties along this river.

Second, a flood water retaining wall is recommended northwest of the main collection of structures in Clarkia, shaped as a "V" pointing in the direction of the confluence, to prevent backwater flooding of the community.

Identifying a viable solution for the dozen parcels located within the 100-year flood zone between State Highway 3 and the community center is difficult. Road access could be better facilitated by constructing an overpass elevated above the flood zone, but this solution would not solve any of the problems for the structures located here. Impounding the river channel into a controlled conveyance structure may limit the ability of the West Fork St. Maries River to damage homes and businesses during regulatory floods.

In all events, the future restriction of new developments to locations outside the FEMA flood zone will help to ensure a limited exposure to flood damage.

5.14.5.2 Earthquakes

Geologically, the Clarkia area is located in a zone of unique historic proportions. This region possesses a large mass of intrusive igneous granitic rock (Herrick Stock) believed to have solidified deep within the earth. The Clarkia formation contains sediments eroded from the Herrick Stock and is the source of the Clarkia Fossil Bowl tourist attraction in the community. This site is characterized by the soft silts that accumulated here 15 million years ago on the bottom of a Miocene era lake bed, preserving an unusually large collection of fossilized prehistoric flora and occasionally fauna as well.

The St. Maries River downstream of the community center lies on a lengthy fault line that begins near Merry Creek and terminates in Benewah County. Another parallel normal fault line is situated between Bechtel Butte and Clarkia Butte and runs in an arc the length of the West Fork St. Maries River floodplain, extending into Clearwater County. Several short fault lines are perpendicular to these main fault-features and one of those cuts right through the Clarkia community, terminating on the extended fault lines already discussed. The result of these crossing fault lines is a tendency for seismic shaking events to be more pronounced as

movements will not always be a continuous forward-and-back shaking movement, but more of a jerky and abrupt jolting activity.

Perhaps fortunately, and perhaps in response to these characteristics, there are very few examples of brick and mortar structures located in this area. Structures are characteristically wood frame construction and modular units mounted on stable foundations. Chimney construction is also resilient to seismic shaking hazards described in this area. Seismic shaking hazards in this region are the lowest seen in Shoshone County.

5.14.5.3 Landslides and Avalanches

Because Clarkia's structure location profile is concentrated on the moderate slope flood plain, the risks to landslides in the area are minor. This is not to imply that the region is not at increased landslide risk, but only that the risk exposure to structures is minimal.

One example of the exception to this low landslide risk profile is seen along the Merry Creek Road. This forest access road traverses from Clarkia to Marble Creek on the St. Joe River. Along the path, several severe landslide prone areas are seen and many of these are induced from the presence of the cut banks for the road itself and from general geologic instability.

State Highway 3, within Shoshone County, is fairly free from landslide prone areas, with the exception of a small area about half a mile north of the USFS Work Station, on the west side of the road. However, this site has remained stable in recent times.

5.14.5.4 Severe Weather

Clarkia residents have turned an annual winter weather problem (excessive snowfall) into a winter-time recreational opportunity. This area is a popular jump-off point for snow mobiles, cross country skiers, and winter enthusiasts looking for deep snow and miles of back roads to traverse. While this provides countless days of outdoor recreation, the burden on structures can be extensive.

Surprisingly, the structures in this area of the county show low pitch roofs. Most have metal roofing, which does shed snow better than composite roofing, but the gravity force to encourage snow to shed on steeper angle roofs would seem to be intuitive.

High winds accompanied by other severe weather components such as lightning and heavy rains are commonplace in the St. Maries River drainage. This region rests just below the 3,000-foot elevation mark and witnesses some record high winds during storms that can break trees, dislocate roofs and other property improvements, and take out power for days at a time.

Through severe wind storms, lightning, heavy snow loads, and other weather-related events, the Clarkia area is frequently challenged to maintain a continuous supply of electric power and landline telephone service. Internet service has not yet been reliably provided to this very rural community. The lack of a reliable telephone service is, in this day and age, extremely problematic and presents a challenge for residents in terms of emergency services coming to the community, and for the community members to learn about emergency warnings as they happen. Add to this the remoteness of this community and even radio services do not provide the level of warning needed to ensure public safety.

Two factors combine to moderate this communications problem. The first is the presence of the USFS Ranger Station in Clarkia. This facility has digital two-way radio communications via repeater site linkages to most of the major cities in the region. The forest industry presence in this community also has access to communications through two-way radio communications using antenna repeaters around the region. When telephones are down, these communication linkages can be used to stage messaging in emergencies.

Unfortunately, this added communication complication can delay response when time is critical. Improved communication network from Clarkia to the rest of the world, especially in the winter, is needed to develop the ability of residents to deal with emergency situations.

Power supplies during and after severe weather events are problematic. Many of the Clarkia households own backup generators and stock fuel for powering them. Heating is provided through natural gas and firewood burning in wood heat stoves. Commercial applications have large power generators to deal with the frequent power outages in the community. An improved power supply system will also increase the ability of these residents to deal with the realities of typical weather systems pounding Clarkia.

5.14.5.5 Wildfire

While the grasslands dominating the flood plain of the St. Maries River system present a minimal resistance to wildfire control, the slopes leading out of the valley bottom are all populated by a mix of conifer tree species which are the fodder of wildfire spread. Many factors determine the potential spread and extent of wildfires in any location. Suffice to say, this region is not immune to wildfire risks.

Historically, much of this area has witnessed wildland fires and the future is expected to be no different. A significant mitigating force is the location of wildland fire fighting resources in the region (in response to the local risk factors) such as the USFS Ranger District office, the juxtaposition of the Idaho Department of Lands in St. Maries, and the C-PTPA in Bovill. Forest industry equipment and human resources are also frequently here and can serve as a mitigating force during wildfire events.

However, as has been stated, many of the private structures are located within the valley bottom surrounded by meadow grasses. Livestock grazing within the St. Maries River valley and in the surrounding hillsides adjacent to the flood plain is a positive wildfire fuel reducing factor. As cattle graze these grasses, they are reducing the potential fuel loads that build-up and dry in the late summer months. By grazing these grasses when green and then when cured, the cattle reduce the fuel loading and therefore fire intensity on these sites.

5.15 Risk Calculations & Rankings

5.15.1 Overview

Due to challenges in replicating the Hazard Risk Calculation methodology from the former plan, a statistical method was employed to better inform the mitigation strategy. Risk calculations provide a numerical ranking of the relative impact of each hazard, taking into account both past occurrences and event magnitudes, and the current exposure of populations and structures. The numerical output from each hazard-specific risk calculations were then compared and ranked to allow for a standard means of comparing disparate hazards that often entail many different impacts.

The standardized scores, risk score, and hazard rankings are shown in Table 60. Due to limitations in the data, risk calculations were limited county-wide calculations and to avalanche, communicable disease (specifically pandemic influenza), earthquake, flood, hazmat, landslide, severe weather, and wildfire.

Due to these data limitations, the planning team and local officials have said that since the last plan adoption, efforts and resources were primarily dedicated to the hazards profiled in the 2008 HMP. Given changes in climate conditions and development, the planning team and local officials are concerned with the increased magnitude of these hazard events over the plan's 2017 to 2022 lifecycle. Taking into consideration the planning team and local official's experience since the last plan update and concerns for the plan's next lifecycle, the Risk Assessment from the 2008 HMP is still reflective of hazard risk conditions in the county. This is consistent across all jurisdictions in the county. The priority hazards are:

- Flood
- Wildland Fire
- Earthquakes & Seismic Shaking Hazards
- Landslides
- Severe Winter Weather

The planning committee widely recognized the existence of additional potential risks, but felt that the inclusion of additional hazards could be addressed at a later time. Some of these risks are reflective in the hazard profiles in the appendices and can be amended to the plan at any time during the plan's next lifecycle or during the next five-year plan update.

5.15.2 Methodology

To derive the risk calculation, population and structure value exposure for all hazard magnitudes was weighted and summed. Return periods, fatalities, injuries, property and crop damage from past occurrences, and the weighted exposure were standardized using the z-score. The final risk score was derived from the following equation:

*Risk = Return Period * (Fatalities + Injuries + Property Damage + Weighted Exposure)*

Table 60. Risk calculations and rankings

	Standardized Scores							Risk Ranking
	Return Period	Fatalities	Injuries	Prop Damage	Population Exposure	Structure Exposure	Risk Score	
Avalanche	0.125	-0.38	-0.38	-0.40	-1.48	-1.17	0.48	**8**
PanFlu	65.125	-0.38	2.65	-0.40	-0.06	-1.17	41.51	**1**
Earthquake	4	-0.38	-0.38	-0.40	1.51	1.55	7.60	**3**
Flood	0.75	-0.38	-0.38	2.64	0.55	0.65	2.32	**4**
Hazmat	0.625	-0.38	-0.38	-0.40	-0.16	0.28	0.65	**7**
Landslide	0.25	-0.38	-0.38	-0.40	-1.41	-1.09	0.91	**6**
Severe Weather	9.625	2.65	-0.38	-0.36	-0.06	-0.13	16.58	**2**
Wildfire	1.125	-0.38	-0.38	-0.30	1.10	1.08	1.27	**5**

VI. MITIGATION STRATEGY

6.1 Overview

Shoshone County's mitigation strategy represents a comprehensive effort to reduce or eliminate potential losses from the hazards detailed in the risk assessment. The goals, objectives, and actions that comprise the mitigation strategy were carried forward from the form plan, with additional goals, objectives, and actions developed through collaborative effort across the county that included its communities, various State and Federal agencies, and through public engagement.

6.1.1 FEMA Requirements

The 2017 plan update developed the mitigation strategy consistent with the process and requirements detailed by FEMA. This section satisfies the following FEMA requirements:

- FEMA 44 CFR §201.6(c)(3) – A mitigation strategy that provides the jurisdiction's blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs, and resources, and its ability to expand on and improve these existing tools.
- FEMA 44 CFR §201.6(c)(3)(i) – A description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.
- FEMA 44 CFR §201.6(c)(3)(ii) – A section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure. All plans approved by FEMA after October 1,2008, must also address the jurisdiction's participation in the NFIP, and continued compliance with NFIP requirements, as appropriate.
- FEMA 44 CFR §201.6(c)(3)(iii) – An action plan, describing how the action identified in paragraph (c)(3)(ii) of this section will be prioritized, implemented, and administered by the local jurisdiction. Prioritization shall include a special emphasis on the extent to which benefits are maximized according to cost benefit review of the proposed projects and their associated costs.
- FEMA 44 CFR §201.6(c)(3)(iv) – For multijurisdictional plans, there must be identifiable action items specific to the jurisdiction requesting FEMA approval or credit of the plan.
- FEMA 44 CFR §201.6(c)(4)(ii) – A process by which local governments incorporate the requirements of the mitigation plan into other planning mechanisms such as comprehensive capital improvements, when appropriate.

6.2 Mitigation Successes & Highlights

Shoshone County actively mitigates against various hazards and risks. The following are some of the successes and highlights of past mitigation efforts within the plan's last cycle:

- Replacing Hydrants, Water Lines, & Sewer System Lines in the City of Mullan – The City of Mullan is in the process of upgrading all water and sewer lines, and all fire hydrants. This project began in 2015 and is nearly complete as of July 2016. The system was originally built in the late 1800's and was in need of an upgrade due to its aging infrastructure. A road remediation project had also just begun and the city wanted to finish this project before the remediation project began therefore, the city did not have to dig up the roads again in the near future. In 2006 the city began collecting a sewer tax from residents and this small sum was used in conjunction with the city budget and without the help of grant money. These funds totaled somewhere between $25,000 to $50,000. As sewer lines were replaced, they were then relocated to the curb so if maintenance needed to be done, the streets would not need to be completely dug up. In 2016, the City of Mullan received a grant provided cooperatively between the Department of Environmental Quality (DEQ) and other federal sources totaling $31,000 and $29,000 respectively. At the same time, East Shoshone Water District received a bond to jump ahead of road crews as well and put in new water lines.

- Updating the Existing City of Kellogg Comprehensive Plan to Incorporate Hazard Mitigation – The City of Kellogg's Comprehensive Plan was recently updated to incorporate hazard mitigation recommendations, particularly those related to the National Flood Insurance Program (NFIP) and Community Rating System (CRS) Compliance. Issues relating to floodplains, such as building codes, have been integrated into local ordinances. The City of Kellogg also has a CRS Community Class status of eight. Shoshone County also participates in the CRS and has a Community Class rating of seven.

- Public Outreach for Floodplain Management in the South Fork Coeur d'Alene River System to Area Residents – Providing the public with information regarding the floodplain in the South Fork Coeur d'Alene River System is an ongoing task that is a part of the CRS program. The county's floodplain manager posts information about the floodplain and floodplains in general to the county website along with additional web links. In addition, a flyer is sent out once a year to residents detailing what to do in the event of a flood, how to properly store things to avoid flood damages, and how to prepare for a flood event. Information is also kept at libraries including resources on how to build in and near floodplains. Cities and residents within the county can also contact the floodplain manager to acquire information regarding the floodplain. GIS mapping is also used within the county to help determine if residences are located in or outside of the floodplain.

- Upgrading Radio System Operability and Deployment – As part of an ongoing process, upgrades have been made to radio communications between personnel, vehicles, and stations in Shoshone County. These upgrades have allowed for interoperable communications

with county, state, and federal responders. As of July 2016, all sheriffs and emergency vehicles have been updated with new radios that were purchased through funding from the State Homeland Security Program (SHSP) for 2012-2015. Fire districts have also internally purchased new radios over the past two years. Emergency responders are in the process of upgrading their mobile equipment in vehicles, including having laptops with extended Wi-Fi. These upgrades allow for constant contact and allow Dispatch to communication directly with first responding vehicles.

- Engineering and Building an Adequate Storm Drainage System for Silver Valley Road Old Highway #10 – The Silver Valley Road Old Highway #10 has been remediated from the easterly city limit of Osburn to the city limits of Wallace. It was given new pavement and a storm drainage system. In 2014, the section from Osburn to Silverton was completed. Then in 2015, the section from Silverton to Wallace was completed. This project was conducted due to aging infrastructure. Funding for this project came from the Environmental Protection Agency (EPA) and the Roads Remediation Project.

6.3 Mitigation Actions

6.3.1 Overview

Mitigation actions are specific projects, plans, programs, policies, or activities designed to reduce risk or eliminate risk to human life and property from the hazards identified in the risk assessment. The 2017 plan update steering committee reviewed the mitigation actions listed in the former plan, assessed the level of progress and challenges to successful implementation, and made decisions on which mitigation actions to carry forward or eliminate.

Table 61 details the 2017 HMP update status of each mitigation action. These actions have either been marked as Completed, Deferred, Ongoing/Iterative, Deleted. In addition to 2017 statuses, the mitigation actions that were carried forward into the plan's next lifecycle have updated lead agencies, timelines, costs, and funding sources where appropriate. Following the table of mitigation actions are explanations for those mitigations actions that were removed from the former plan and were not carried forward. Table 61 also details new mitigation actions put forth by the planning committee.

Table 61. Shoshone County Mitigation Actions

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
Potential Mitigation Activities for Policy Related Activities						
1. Update existing City of Kellogg Comprehensive Plan to incorporate hazard mitigation recommendations in this plan, especially those related to NFIP and CRS compliance.	All Hazards	City of Kellogg	70	Immediate	Completed	N/A
2. Update existing City of Mullan Comprehensive Plan to incorporate hazard mitigation recommendations in this plan, especially those related to NFIP compliance.	All Hazards	City of Mullan	70	Immediate	Ongoing	Est Cost: No additional cost, P & Z budget Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: P & Z budget
3. Update existing City of Osburn Comprehensive Plan to incorporate hazard mitigation recommendations in this plan, especially those related to NFIP compliance.	All Hazards	City of Osburn	70	Immediate	Ongoing	Est Cost: No additional cost, P & Z budget Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: P & Z budget

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
4. Update existing City of Pinehurst Comprehensive Plan to incorporate hazard mitigation recommendations in this plan, especially those related to NFIP compliance.	All Hazards	City of Pinehurst	70	Immediate	Ongoing	Est Cost: No additional cost, P & Z budget Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: P & Z budget
5. Update existing City of Smelterville Comprehensive Plan to incorporate hazard mitigation recommendations in this plan, especially those related to NFIP compliance.	All Hazards	City of Smelterville	70	Immediate	Ongoing	Est Cost: No additional cost, P & Z budget Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: P & Z budget
6. Update existing City of Wallace Comprehensive Plan to incorporate hazard mitigation recommendations in this plan, especially those related to NFIP compliance.	All Hazards	City of Wallace	70	Immediate	Ongoing	Est Cost: No additional cost, P & Z budget Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: P & Z budget

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
7. Update existing City of Wardner Comprehensive Plan to incorporate hazard mitigation recommendations in this plan, especially those related to NFIP compliance.	All Hazards	City of Wardner	70	Immediate	Ongoing	Est Cost: No additional cost, P & Z budget Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: P & Z budget
8. Update existing Shoshone County Planning and Zoning Ordinance to incorporate the recommendations in this plan to include strict enforcement of policies related to limiting or excluding certain activities in hazard prone areas such as the DFIRM flood zones. Penalties for violations should be clear and consider property title restrictions and compliance penalties against violators of the ordinances.	All Hazards (especially flood and impoundment structure failure)	Shoshone County	68	Immediate	Ongoing	Est Cost: No additional cost, P & Z budget Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: P & Z budget
9. Develop & Adopt City of Kellogg Planning and Zoning Ordinance (Plan) to include strict enforcement of policies related to limiting or excluding certain activities in hazard prone areas such as the DFIRM flood zones. Penalties for violations should be clear and consider property title restrictions and compliance penalties against violators of the ordinances.	All Hazards (especially flood and impoundment structure failure)	City of Kellogg	65	Immediate	Ongoing	Est Cost: No additional cost, P & Z budget Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: P & Z budget

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
10. Develop & Adopt City of Mullan Planning and Zoning Ordinance (Plan) to include strict enforcement of policies related to limiting or excluding certain activities in hazard prone areas such as the DFIRM flood zones. Penalties for violations should be clear and consider property title restrictions and compliance penalties against violators of the ordinances.	All Hazards (especially flood and impoundment structure failure)	City of Mullan	65	Immediate	Ongoing	Est Cost: No additional cost, P & Z budget Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: P & Z budget
11. Develop & Adopt City of Osburn Planning and Zoning Ordinance (Plan) to include strict enforcement of policies related to limiting or excluding certain activities in hazard prone areas such as the DFIRM flood zones. Penalties for violations should be clear and consider property title restrictions and compliance penalties against violators of the ordinances.	All Hazards (especially flood and impoundment structure failure)	City of Osburn	65	Immediate	Ongoing	Est Cost: No additional cost, P & Z budget Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: P & Z budget
12. Develop & Adopt City of Pinehurst Planning and Zoning Ordinance (Plan) to include strict enforcement of policies related to limiting or excluding certain activities in hazard prone areas such as the DFIRM flood zones. Penalties for violations should be clear and consider property title restrictions and compliance penalties against violators of the ordinances.	All Hazards (especially flood and impoundment structure failure)	City of Pinehurst	65	Immediate	Ongoing	Est Cost: No additional cost, P & Z budget Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: P & Z budget

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
13. Develop & Adopt City of Smelterville Planning and Zoning Ordinance (Plan) to include strict enforcement of policies related to limiting or excluding certain activities in hazard prone areas such as the DFIRM flood zones. Penalties for violations should be clear and consider property title restrictions and compliance penalties against violators of the ordinances.	All Hazards (especially flood and impoundment structure failure)	City of Smelterville	65	Immediate	Ongoing	Est Cost: No additional cost, P & Z budget Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: P & Z budget
14. Develop & Adopt City of Wallace Planning and Zoning Ordinance (Plan) to include strict enforcement of policies related to limiting or excluding certain activities in hazard prone areas such as the DFIRM flood zones. Penalties for violations should be clear and consider property title restrictions and compliance penalties against violators of the ordinances.	All Hazards (especially flood and impoundment structure failure)	City of Wallace	65	Immediate	Ongoing	Est Cost: No additional cost, P & Z budget Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: P & Z budget

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
15. City of Kellogg Storm Water Runoff Policy Development, Updates, and Enforcement of ICP Guidelines for Storm Water Management, and EPA's Clean Water Act associated with Storm Water Protection Plans.	Flood and Impoundment Structure Failure	City of Kellogg, PHD, BEIPC, IDEQ	66	Immediate	Ongoing	Est Cost: No additional cost, Departmental Budgets Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: City and other departmental budgets
16. City of Mullan Storm Water Runoff Policy Development, Updates, and Enforcement of ICP Guidelines for Storm Water Management, and EPA's Clean Water Act associated with Storm Water Protection Plans.	Flood and Impoundment Structure Failure	City of Mullan, PHD, BEIPC, IDEQ	66	Immediate	Ongoing	Est Cost: No additional cost, Departmental Budgets Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: City and other departmental budgets

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
17. City of Osburn Storm Water Runoff Policy Development, Updates, and Enforcement of ICP Guidelines for Storm Water Management, and EPA's Clean Water Act associated with Storm Water Protection Plans.	Flood and Impoundment Structure Failure	City of Osburn, PHD, BEIPC, IDEQ	66	Immediate	Ongoing	Est Cost: No additional cost, Departmental Budgets Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: City and other departmental budgets
18. City of Pinehurst Storm Water Runoff Policy Development, Updates, and Enforcement of ICP Guidelines for Storm Water Management, and EPA's Clean Water Act associated with Storm Water Protection Plans.	Flood and Impoundment Structure Failure	City of Pinehurst, PHD, BEIPC, IDEQ	66	Immediate	Ongoing	Est Cost: No additional cost, Departmental Budgets Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: City and other departmental budgets

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
19. City of Wallace Storm Water Runoff Policy Development, Updates, and Enforcement of ICP Guidelines for Storm Water Management, and EPA's Clean Water Act associated with Storm Water Protection Plans.	Flood and Impoundment Structure Failure	City of Wallace, PHD, BEIPC, IDEQ	66	Immediate	Ongoing	Est Cost: No additional cost, Departmental Budgets Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: City and other departmental budgets
20. City of Wardner Storm Water Runoff Policy Development, Updates, and Enforcement of ICP Guidelines for Storm Water Management, and EPA's Clean Water Act associated with Storm Water Protection Plans	Flood and Impoundment Structure Failure	City of Wardner, PHD, BEIPC, IDEQ	66	Immediate	Ongoing	Est Cost: No additional cost, Departmental Budgets Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: City and other departmental budgets

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
21. Shoshone County Storm Water Runoff Policy Revision & Enforcement to further address this component in the Site Disturbance Ordinance (Entire County).	Flood and Impoundment Structure Failure	Shoshone County, PHD, BEIPC, IDEQ	66	Immediate	Ongoing	Est Cost: No additional cost, Departmental Budgets Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: County and other departmental budgets
22. Shoshone County Wildfire Control Protocol within the Superfund Site (advanced priority for control efforts and erosion mitigation within the site).	Wildfire, HazMat	Shoshone County, US Forest Service, Bureau of Land Management, forest industry, private forestland owners	65	Immediate	Ongoing	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: FEMA grant funding, Shoshone County and City budgets, or seek funding through list of funding sources

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
23. Identification of landslide prone areas where development is unstable due to exposure to landslide risks. Prohibit further unmitigated development in these landslide prone areas through Planning & Zoning Ordinances.	Landslides, Avalanche	Shoshone County	63	Immediate	Deferred	Est Cost: No additional cost (landslide risk map included in risk assessment) P & Z budget Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: P & Z budget
24. Develop a complete geospatial database and geospatial library of information used by the County and Cities, and make those data, along with detailed maps of the County and Cities available to all decision makers in the municipalities and the general public. Offer the services through existing offices and over the Internet.	All Hazards	Shoshone County & All Cities	64	Immediate	Ongoing	Est Cost: No additional cost, Departmental budgets Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: County and City budget; other departmental budgets

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
25. Develop Minor Home Repair Program and obtain grant funding support to award low-interest deferred loans for emergency preparedness repairs for low income resident homeowners in Shoshone County.	All Hazards	Shoshone County & All Cities	63	Immediate	Deferred	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: FEMA grant funding, Shoshone County and City budgets, or seek funding through list of funding sources
26. Participate in the Panhandle Stormwater & Erosion Education Program (SEEP) sponsored by the Panhandle Area Council to distribute information and increase awareness and skills of construction professionals in the City of Kellogg.	Flood, Impoundment Structure Failure, Landslides, Avalanche	City of Kellogg, Shoshone County, PHD, BEIPC, IDEQ	59	Short-term	Ongoing	Est Cost: No additional cost Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: N/A

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
27. Participate in the Panhandle Stormwater & Erosion Education Program (SEEP) sponsored by the Panhandle Area Council to distribute information and increase awareness and skills of construction professionals in the City of Mullan	Flood, Impoundment Structure Failure, Landslides, Avalanche	City of Mullan, Shoshone County, PHD, BEIPC, IDEQ	59	Short-term	Ongoing	Est Cost: No additional cost Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: N/A
28. Participate in the Panhandle Stormwater & Erosion Education Program (SEEP) sponsored by the Panhandle Area Council to distribute information and increase awareness and skills of construction professionals in the City of Osburn.	Flood, Impoundment Structure Failure, Landslides, Avalanche	City of Osburn, Shoshone County, PHD, BEIPC, IDEQ	59	Short-term	Ongoing	Est Cost: No additional cost Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: N/A
29. Participate in the Panhandle Stormwater & Erosion Education Program (SEEP) sponsored by the Panhandle Area Council to distribute information and increase awareness and skills of construction professionals in the City of Pinehurst.	Flood, Impoundment Structure Failure, Landslides, Avalanche	City of Pinehurst, Shoshone County, PHD, BEIPC, IDEQ	59	Short-term	Ongoing	Est Cost: No additional cost Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: N/A

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
30. Participate in the Panhandle Stormwater & Erosion Education Program (SEEP) sponsored by the Panhandle Area Council to distribute information and increase awareness and skills of construction professionals in the City of Smelterville.	Flood, Impoundment Structure Failure, Landslides, Avalanche	City of Smelterville, Shoshone County, PHD, BEIPC, IDEQ	59	Short-term	Ongoing	Est Cost: No additional cost Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: N/A
31. Participate in the Panhandle Stormwater & Erosion Education Program (SEEP) sponsored by the Panhandle Area Council to distribute information and increase awareness and skills of construction professionals in the City of Wallace.	Flood, Impoundment Structure Failure, Landslides, Avalanche	City of Wallace, Shoshone County, PHD, BEIPC, IDEQ	59	Short-term	Ongoing	Est Cost: No additional cost Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: N/A
32. Participate in the Panhandle Stormwater & Erosion Education Program (SEEP) sponsored by the Panhandle Area Council to distribute information and increase awareness and skills of construction professionals in the City of Wardner.	Flood, Impoundment Structure Failure, Landslides, Avalanche	City of Wardner, Shoshone County, PHD, BEIPC, IDEQ	59	Short-term	Ongoing	Est Cost: No additional cost Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: N/A

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
33. Participate in the Panhandle Stormwater & Erosion Education Program (SEEP) sponsored by the Panhandle Area Council to distribute information and increase awareness and skills of construction professionals in the unincorporated areas of Shoshone County.	Flood, Impoundment Structure Failure, Landslides, Avalanche	Shoshone County, PHD, BEIPC, IDEQ	59	Short-term	Ongoing	Est Cost: No additional cost Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: N/A
34. Develop realistic Volunteer Firefighter Recruitment & Retention Program for all Shoshone County Fire Districts.	All Hazards	Shoshone County Fire Districts 1, 2, 3, 4, and Prichard-Murray Volunteer Fire Department, Shoshone County, Each City	63	Short-term	Ongoing	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: County and City budget; other departmental budgets
35. Enhance Automatic Mutual Aid Agreements between fire districts in Shoshone County and neighboring counties.	All Hazards	Shoshone County Fire Districts 1, 2, 3, 4, and Prichard-Murray Volunteer Fire Department, Shoshone County, Each City	70	Short-term	Complete	N/A

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
36. Evaluate a Fire District Consolidation Feasibility Plan and consider implementation based on the findings.	All Hazards	Shoshone County Fire Districts 1, 2, 3, 4, and Prichard-Murray Volunteer Fire Department, Shoshone County, Each City	70	Short-term	Deferred	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: County and City budget; other departmental budgets
37. Annex the Lookout Ski Hill area into Shoshone County Fire District #3 to reflect current area of services.	All Hazards	Shoshone County Fire District #3, Shoshone County	64	Short-term	Ongoing	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: County and City budget; other departmental budgets

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
38. Continue to provide public information about the unique problems of the floodplain in the South Fork Coeur d'Alene River System to area residents.	Flood and Impoundment Structure Failure	Shoshone County, PHD, BEIPC, IDEQ	70	Short-term	Iterative	Est Cost: No additional cost; P & Z budget and other departmental budgets Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: P & Z budget and other departmental budgets
39. Develop Shoshone County Planning and Zoning Policy to encourage or require new developments in the Wildland-Urban Interface to make initial installation of home defensibility space around new structures.	Wildfire	Shoshone County, all Cities	65	Short-term	Ongoing	Est Cost: No additional cost; P & Z budget Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: P & Z budget

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
40. Clearly delineate all Shoshone County boarders including the state line.	All Hazards	Shoshone County, Idaho State Tax Commission	60	Short-term	Deferred	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: County and City budget; other departmental budgets
41. Provide information about, and clearly identify with signs, for area residents, the locations of Emergency Shelters and Emergency Plans in each City.	All Hazards	Shoshone County, all Cities	69	Short-term	Ongoing	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: County and City budget; other departmental budgets

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
42. Participate in, and become officially registered in the StormReady Community Program	Severe Weather	City of Kellogg, NOAA	69	Short-term	Deferred	Est Cost: Minimal administrative costs Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: County and City budget; other departmental budgets
43. Participate in, and become officially registered in the StormReady Community Program	Severe Weather	City of Mullan, NOAA	69	Short-term	Deferred	Est Cost: Minimal administrative costs Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: County and City budget; other departmental budgets

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
44. Participate in, and become officially registered in the StormReady Community Program	Severe Weather	City of Osburn, NOAA	69	Short-term	Deferred	Est Cost: Minimal administrative costs Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: County and City budget; other departmental budgets
45. Participate in, and become officially registered in the StormReady Community Program	Severe Weather	City of Pinehurst, NOAA	69	Short-term	Deferred	Est Cost: Minimal administrative costs Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: County and City budget; other departmental budgets

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
46. Participate in, and become officially registered in the StormReady Community Program	Severe Weather	City of Smelterville, NOAA	69	Short-term	Deferred	Est Cost: Minimal administrative costs Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: County and City budget; other departmental budgets
47. Participate in, and become officially registered in the StormReady Community Program	Severe Weather	City of Wallace, NOAA	69	Short-term	Deferred	Est Cost: Minimal administrative costs Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: County and City budget; other departmental budgets

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
48. Participate in, and become officially registered in the StormReady Community Program	Severe Weather	City of Wardner, NOAA	69	Short-term	Deferred	Est Cost: Minimal administrative costs Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: County and City budget; other departmental budgets
49. Participate in, and become officially registered in the StormReady Community Program with the unincorporated communities of Shoshone County	Severe Weather	Shoshone County, NOAA	69	Short-term	Deferred	Est Cost: Minimal administrative costs Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: County and City budget; other departmental budgets

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
50. Continue participation in the National Flood Insurance Program (NFIP) and strive to implement activities and policies that improve the NFIP rating score while reducing the risk exposure to flooding in the City of Kellogg. This effort includes, but is not limited to, participation in community assistance visits, flood mapping priorities or update needs, potential changes to flood ordinance regulations, enforcement, or permitting, and / or actions that will support CRS rating improvements.	Flood and Impoundment Structure Failure	City of Kellogg, Shoshone County, PHD, BEIPC, IDEQ	70	Short-term	Iterative	Est Cost: Activities and costs TBD, will seek within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: FEMA grants; City and County budgets; seek funding through funding sources table
51. Continue participation in the National Flood Insurance Program (NFIP) and strive to implement activities and policies that improve the NFIP rating score while reducing the risk exposure to flooding in the City of Mullan. This effort includes, but is not limited to, participation in community assistance visits, flood mapping priorities or update needs, potential changes to flood ordinance regulations, enforcement, or permitting.	Flood and Impoundment Structure Failure	City of Mullan, Shoshone County, PHD, BEIPC, IDEQ	70	Short-term	Iterative	Est Cost: Activities and costs TBD, will seek within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: FEMA grants; City and County budgets; seek funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
52. Continue participation in the National Flood Insurance Program (NFIP) and strive to implement activities and policies that improve the NFIP rating score while reducing the risk exposure to flooding in the City of Osburn. This effort includes, but is not limited to, participation in community assistance visits, flood mapping priorities or update needs, potential changes to flood ordinance regulations, enforcement, or permitting.	Flood and Impoundment Structure Failure	City of Osburn, Shoshone County, PHD, BEIPC, IDEQ	70	Short-term	Iterative	Est Cost: Activities and costs TBD, will seek within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: FEMA grants; City and County budgets; seek funding through funding sources table
53. Continue participation in the National Flood Insurance Program (NFIP) and strive to implement activities and policies that improve the NFIP rating score while reducing the risk exposure to flooding in the City of Pinehurst. This effort includes, but is not limited to, participation in community assistance visits, flood mapping priorities or update needs, potential changes to flood ordinance regulations, enforcement, or permitting.	Flood and Impoundment Structure Failure	City of Pinehurst, Shoshone County, PHD, BEIPC, IDEQ	70	Short-term	Iterative	Est Cost: Activities and costs TBD, will seek within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: FEMA grants; City and County budgets; seek funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
54. Continue participation in the National Flood Insurance Program (NFIP) and strive to implement activities and policies that improve the NFIP rating score while reducing the risk exposure to flooding in the City of Smelterville. This effort includes, but is not limited to, participation in community assistance visits, flood mapping priorities or update needs, potential changes to flood ordinance regulations, enforcement, or permitting.	Flood and Impoundment Structure Failure	City of Smelterville, Shoshone County, PHD, BEIPC, IDEQ	70	Short-term	Iterative	Est Cost: Activities and costs TBD, will seek within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: FEMA grants; City and County budgets; seek funding through funding sources table
55. Continue participation in the National Flood Insurance Program (NFIP) and strive to implement activities and policies that improve the NFIP rating score while reducing the risk exposure to flooding in the City of Wallace. This effort includes, but is not limited to, participation in community assistance visits, flood mapping priorities or update needs, potential changes to flood ordinance regulations, enforcement, or permitting.	Flood and Impoundment Structure Failure	City of Wallace, Shoshone County, PHD, BEIPC, IDEQ	70	Short-term	Iterative	Est Cost: Activities and costs TBD, will seek within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: FEMA grants; City and County budgets; seek funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
56. Continue participation in the National Flood Insurance Program (NFIP) and strive to implement activities and policies that improve the NFIP rating score while reducing the risk exposure to flooding in the unincorporated areas of Shoshone County. This effort includes, but is not limited to, participation in community assistance visits, flood mapping priorities or update needs, potential changes to flood ordinance regulations, enforcement, or permitting, and / or actions that will support CRS rating improvements.	Flood and Impoundment Structure Failure	Shoshone County, PHD, BEIPC, IDEQ	70	Short-term	Iterative	Est Cost: Activities and costs TBD, will seek within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: FEMA grants; City and County budgets; seek funding through funding sources table
57. Establish Hazard Advisory Commission composed of representatives of the Local Emergency Planning Committee, all cities, fire protection districts, agencies and organizations in Shoshone County. Purview of this commission is to ensure a consolidated approach to the implementation of this Multi-Jurisdictional Hazards Mitigation Plan.	All Hazards	Shoshone County, PHD, BEIPC, IDEQ, US Forest Service, BLM, State of Idaho Department of Lands, and others	70	Short-term	Ongoing	Est Cost: No additional costs; ongoing Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Departmental budgets

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
58. Develop a Shoshone County internet web site with information about natural disasters, contact information for the county and cities, and emergency response details for the citizens and visitors of the region. Include an interactive mapping feature to share the county and city information on hazard risks, developments, property ownership, infrastructure, mitigation measures, and all related data.	All Hazards	Shoshone County & All Cities	68	Short-term	Ongoing	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; seek other funding opportunities through funding sources table
59. Develop a Shoshone County comprehensive disaster database of all hazards in terms of the hazard event, location, beginning date, ending date, and impact of the event on people, structures, infrastructure, and the economy of the region. Include the cost of rehabilitating the site to pre-disaster conditions, and any mitigation measures implemented to prevent future disaster losses.	All Hazards (especially Landslides, Avalanches and Floods)	Shoshone County Disaster Services Department	70	Immediate	Ongoing	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; seek other funding opportunities through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
60. Develop and deliver an information sharing public relations program for residents and businesses in Shoshone County to disseminate detailed information about hazards in Shoshone County (especially flooding and the NFIP program), to highlight ongoing management of hazard mitigation programs, information on risks (including flooding), and City and County responses to implementing programs and policies to reduce losses from natural disasters.	All Hazards (especially Flood)	Shoshone County Floodplain Administrator & All Cities	70	Immediate	Deferred	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; seek other funding opportunities through funding sources table
61. Shoshone County Floodplain Administrator will complete requirements for training to certify through the Building Code Effectiveness Grading Schedule (BCEGS), which assesses the building codes in effect and how the communities enforce building codes, with special emphasis on mitigation of losses from natural hazards. The County Floodplain Administrator will then work with the Board of County Commissioners to implement these findings through current programs in the County, while working with the City Councils to implement these programs through City programs and policies.	All Hazards (especially flood, windstorm, and earthquake damage)	Shoshone County Floodplain Administrator & All Cities	70	Immediate	Complete	N/A
62. Shoshone County Floodplain Administrator will complete requirements for training to continue advancement of National Incident Management System (NIMS) training.	All Hazards (especially Flood and wildfire)	Shoshone County Floodplain Administrator	70	Immediate	Complete	N/A

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
63. Shoshone County Floodplain Administrator will complete requirements for training to complete training course E-273- Managing Floodplain Development, through the NFIP	Flood	Shoshone County Floodplain Administrator	70	Immediate	Complete	N/A
64. Shoshone County Floodplain Administrator will complete requirements for training to complete training course E-278- NFIP, Community Rating System.	Flood	Shoshone County Floodplain Administrator	70	Immediate	Complete	N/A
65. Shoshone County Floodplain Administrator will complete requirements for training to complete training and certification as a Federally Certified Floodplain Administrator by FEMA.	Flood	Shoshone County Floodplain Administrator	70	Immediate	Complete	N/A
66. Shoshone County Floodplain Administrator will work with the City of Kellogg Planning Administrator to maintain and implement improved floodplain management activities in the City of Kellogg including CRS score improvements for the City of Kellogg CRS rating already in effect. These activities to include integration with the proposed levee system for the South Fork Coeur d'Alene River system in Shoshone County. These activities build on increased capabilities developed through the implementation of measures SHO-1062 through SHO-1065. Kellogg has already identified to FEMA and is implementing projects to maintain and improve its CRS rating score.	Flood and Impoundment Structure Failure	Shoshone County Floodplain Administrator, City of Kellogg Planning Administrator	70	Short-term	Complete	N/A

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
67. Shoshone County Floodplain Administrator will work with the City of Mullan Planning Administrator to maintain and implement improved floodplain management activities in the City of Mullan. 68. These activities to include integration with the proposed levee system for the South Fork Coeur d'Alene River system in Shoshone County, and the creation of a database of actions implemented within the past 5 years to mitigate flood damages along the local river drainages in Mullan. These activities build on increased capabilities developed through the implementation of measures SHO-1062 through SHO- 1065.	Flood and Impoundment Structure Failure	Shoshone County Floodplain Administrator, City of Mullan Planning Administrator with consultations by City of Kellogg Planning Administrator	70	Short-term	Complete	N/A
69. Shoshone County Floodplain Administrator will work with the City of Osburn Planning Administrator to maintain and implement improved floodplain management activities in the City of Osburn. 70. These efforts will include consideration of introducing Osburn as a CRS participant. These activities to include integration with the proposed levee system for the South Fork Coeur d'Alene River system in Shoshone County. These activities build on increased capabilities developed through the implementation of measures SHO-1062 through SHO-1065.	Flood and Impoundment Structure Failure	Shoshone County Floodplain Administrator, City of Osburn Planning Administrator with consultations by City of Kellogg Planning Administrator	70	Short-term	Complete	N/A

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
71. Shoshone County Floodplain Administrator will work with the City of Pinehurst Planning Administrator to maintain and implement improved floodplain management activities in the City of Pinehurst These efforts will include consideration of introducing Pinehurst as a CRS participant. These activities to include integration with the proposed levee system for the South Fork Coeur d'Alene River system in Shoshone County. These activities build on increased capabilities developed through the implementation of measures SHO-1062 through SHO-1065	Flood and Impoundment Structure Failure	Shoshone County Floodplain Administrator, City of Pinehurst Planning Administrator with consultations by City of Kellogg Planning Administrator	70	Short-term	Complete	N/A
72. Shoshone County Floodplain Administrator will work with the City of Smelterville Planning Administrator to maintain and implement improved floodplain management activities in the City of Smelterville. These activities to include integration with the proposed levee system for the South Fork Coeur d'Alene River system in Shoshone County. These activities build on increased capabilities developed through the implementation of measures SHO-1062 through SHO-1065.	Flood and Impoundment Structure Failure	Shoshone County Floodplain Administrator, City of Smelterville Planning Administrator with consultations by City of Kellogg Planning Administrator	70	Short-term	Complete	N/A

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
73. Shoshone County Floodplain Administrator will work with the City of Wallace Planning Administrator to maintain and implement improved floodplain management activities in the City of Wallace. 74. These efforts will include consideration of introducing Wallace as a CRS participant. These activities to include integration with the proposed levee system for the South Fork Coeur d'Alene River system in Shoshone County. These activities build on increased capabilities developed through the implementation of measures SHO-1062 through SHO-1065.	Flood and Impoundment Structure Failure	Shoshone County Floodplain Administrator, City of Wallace Planning Administrator with consultations by City of Kellogg Planning Administrator	70	Short-term	Complete	N/A
75. Shoshone County Floodplain Administrator will work with the City of Wardner Planning Administrator to maintain and implement improved floodplain management activities in the City of Wardner. These activities build on increased capabilities developed through the implementation of measures SHO-1062 through SHO-1065.	Flood and Impoundment Structure Failure	Shoshone County Floodplain Administrator, City of Wardner Planning Administrator with consultations by City of Kellogg Planning Administrator	70	Short-term	Complete	N/A

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
76. Shoshone County Floodplain Administrator to coordinate an informational meeting for the County and City Departments to discuss detailed NFIP and CRS program requirements. This seminar and discussion will be designed to detail specific implementation activities for each jurisdiction to develop and implement in a holistic approach to floodplain management activities in Shoshone County. Further, this seminar will facilitate the potential application for certain cities not already in the CRS program to join through concentrated efforts to be identified with the Shoshone County Floodplain Administrator.	Flood and Impoundment Structure Failure	Shoshone County Floodplain Administrator, each City, Idaho State Floodplain Coordinator, Idaho Office of Emergency Management	70	Short-term	Deferred	Est Cost: Minimal costs Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; P & Z; Public Works; other departmental budgets
77. Shoshone County and all Municipalities will encourage Idaho IOEM and FEMA Region X to use the newly acquired LiDAR elevation models in the development of revised DFIRM maps for Shoshone County.	Flood and Impoundment Structure Failure	Shoshone County and all Municipalities	70	Immediate	Deferred	Est Cost: No cost; encourage Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: N/A

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
78. Shoshone County and all Municipalities will take an active participant role in the identification and mapping of Flood Insurance Rate Maps developed by FEMA by asking for a "seat at the table", and expecting FEMA to respond favorably to the request. This participation will be indicated by the development and sharing of pertinent information collected locally that influences the identification of the floodplain in Shoshone County. Further, this activity level will be indicated by the enforcement of the DFIRM map zones for planning and zoning ordinances in each Municipality and the County.	Flood and Impoundment Structure Failure	Shoshone County and all Municipalities	70	Immediate	Deferred	Est Cost: No cost; participation Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: N/A
79. Shoshone County Floodplain Administrator and the Municipalities, will develop and implement a community appropriate building code request for upgrades program to address structures built within the current floodplain (DFIRM 08) but prior to the current designation as a flood zone to require substantial improvements to abate flood damages while seeking a building permit to complete "significant improvements" to existing structures. The definition of "significant" to be determined locally and based on a percent of total value of the structure versus the value of the improvement.	Flood and Impoundment Structure Failure	Shoshone County and all Municipalities jointly	70	Immediate	Complete	N/A

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
80. Increase NFIP participation with new policies for existing structures and new construction through public information sharing of the benefits of the NFIP in Shoshone County. Include data about the CRS program and the County's rating score and ongoing activities.	Flood and Impoundment Structure Failure	Shoshone County	69	Immediate	Deferred	Est Cost: No additional cost Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County; P & Z budget; Public Works and other departmental budgets
81. Increase NFIP participation with new policies for existing structures and new construction through public information sharing of the benefits of the NFIP in the City of Kellogg. Include data about the CRS program and the City's rating score and ongoing activities.	Flood	City of Kellogg	69	Immediate	Deferred	Est Cost: No additional cost Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Kellogg budget; P & Z budget; Public Works and other departmental budgets

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
82. Increase NFIP participation with new policies for existing structures and new construction through public information sharing of the benefits of the NFIP in the City of Mullan.	Flood	City of Mullan	69	Immediate	Deferred	Est Cost: No additional cost Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Mullan budget; P & Z budget; Public Works and other departmental budgets
83. Increase NFIP participation with new policies for existing structures and new construction through public information sharing of the benefits of the NFIP in the City of Osburn.	Flood	City of Osburn	69	Immediate	Deferred	Est Cost: No additional cost Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Osburn budget; P & Z budget; Public Works and other departmental budgets

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
84. Increase NFIP participation with new policies for existing structures and new construction through public information sharing of the benefits of the NFIP in the City of Pinehurst.	Flood	City of Pinehurst	69	Immediate	Deferred	Est Cost: No additional cost Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Pinehurst budget; P & Z budget; Public Works and other departmental budgets
85. Increase NFIP participation with new policies for existing structures and new construction through public information sharing of the benefits of the NFIP in the City of Smelterville.	Flood	City of Smelterville	69	Immediate	Deferred	Est Cost: No additional cost Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Smelterville budget; P & Z budget; Public Works and other departmental budgets

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
86. Increase NFIP participation with new policies for existing structures and new construction through public information sharing of the benefits of the NFIP in the City of Wallace.	Flood	City of Wallace	69	Immediate	Deferred	Est Cost: No additional cost Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Wallace budget; P & Z budget; Public Works and other departmental budgets
87. City of Kellogg Floodplain Administrator will complete requirements for training to certify through the Building Code Effectiveness Grading Schedule (BCEGS), which assesses the building codes in effect and how the communities enforce building codes, with special emphasis on mitigation of losses from natural hazards. The City of Kellogg Floodplain Administrator will then work with the City Council to implement these findings through current programs in the City, while working with the Shoshone County Floodplain Administrator to implement these programs within the scope of other local activities.	All Hazards (especially flood, windstorm, and earthquake damage)	City of Kellogg Floodplain Administrator & Shoshone County Floodplain Administrator	70	Immediate	Complete	N/A

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
88. City of Kellogg Floodplain Administrator will complete requirements for training to continue advancement of National Incident Management System (NIMS) training.	All Hazards (especially Flood and wildfire)	City of Kellogg Floodplain Administrator	70	Immediate	Deferred	Est Cost: minimal cost Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: City of Kellogg budget; if necessary seek funding through FEMA
89. City of Kellogg Floodplain Administrator will complete requirements for training to complete training course E-273- Managing Floodplain Development, through the NFIP.	Flood	City of Kellogg Floodplain Administrator	70	Immediate	Deferred	Est Cost: minimal cost Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: City of Kellogg budget; if necessary seek funding through FEMA

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
90. City of Kellogg Floodplain Administrator will complete requirements for training to complete training course E-278- NFIP, Community Rating System.	Flood	City of Kellogg Floodplain Administrator	70	Immediate	Deferred	Est Cost: minimal cost Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: City of Kellogg budget; if necessary seek funding through FEMA
91. City of Kellogg Floodplain Administrator will complete requirements for training to complete training and certification as a Federally Certified Floodplain Administrator by FEMA	Flood	City of Kellogg Floodplain Administrator	70	Immediate	Deferred	Est Cost: minimal cost Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: City of Kellogg budget; if necessary seek funding through FEMA
Potential Mitigation Activities to Reduce Loss Potential						

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
92. Structural flood-proofing of private structures: identification of public assistance money, design and implementation of structural enhancements within the City of Kellogg.	Flood, Impoundment Structure Failure	City of Kellogg, Shoshone County Planning and Building Department, Shoshone Disaster Services Department	57	Short-term	Deferred	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
93. Structural flood-proofing of private structures: identification of public assistance money, design and implementation of structural enhancements within the City of Mullan.	Flood, Impoundment Structure Failure	City of Mullan, Shoshone County Planning and Building Department, Shoshone Disaster Services Department	57	Short-term	Deferred	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
94. Structural flood-proofing of private structures: identification of public assistance money, design and implementation of structural enhancements within the City of Osburn.	Flood, Impoundment Structure Failure	City of Osburn, Shoshone County Planning and Building Department, Shoshone Disaster Services Department	57	Short-term	Deferred	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
95. Structural flood-proofing of private structures: identification of public assistance money, design and implementation of structural enhancements within the City of Pinehurst.	Flood, Impoundment Structure Failure	City of Pinehurst, Shoshone County Planning and Building Department, Shoshone Disaster Services Department	57	Short-term	Deferred	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
96. Structural flood-proofing of private structures: identification of public assistance money, design and implementation of structural enhancements within the City of Smelterville.	Flood, Impoundment Structure Failure	City of Smelterville, Shoshone County Planning and Building Department, Shoshone Disaster Services Department	57	Short-term	Deferred	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
97. Structural flood-proofing of private structures: identification of public assistance money, design and implementation of structural enhancements within the City of Wallace.	Flood, Impoundment Structure Failure	City of Wallace, Shoshone County Planning and Building Department, Shoshone Disaster Services Department	57	Short-term	Deferred	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
98. Structural flood-proofing of private structures: identification of public assistance money, design and implementation of structural enhancements within the City of Wardner.	Flood, Impoundment Structure Failure	City of Wardner, Shoshone County Planning and Building Department, Shoshone Disaster Services Department	57	Short-term	Deferred	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
99. Structural flood-proofing of private structures: identification of public assistance money, design and implementation of structural enhancements within the unincorporated areas of Shoshone County.	Flood, Impoundment Structure Failure	Shoshone County Planning and Building Department, Shoshone Disaster Services Department	57	Mid-term	Deferred	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
100. Seek project funding, and identify Un-Reinforced Masonry buildings and design corrective actions to correct risk to public safety within City of Kellogg.	Earthquake	City of Kellogg, Shoshone County	44	Mid-term	Deferred	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
101. Seek project funding, and identify Un-Reinforced Masonry buildings and design corrective actions to correct risk to public safety within City of Mullan.	Earthquake	City of Mullan, Shoshone County	44	Mid-term	Deferred	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
102. Seek project funding, and identify Un-Reinforced Masonry buildings and design corrective actions to correct risk to public safety within City of Osburn.	Earthquake	City of Osburn, Shoshone County	44	Mid-term	Deferred	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
103. Seek project funding, and identify Un-Reinforced Masonry buildings and design corrective actions to correct risk to public safety within City of Pinehurst	Earthquake	City of Pinehurst, Shoshone County	44	Mid-term	Deferred	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
104. Seek project funding, and identify Un-Reinforced Masonry buildings and design corrective actions to correct risk to public safety within City of Smelterville.	Earthquake	City of Smelterville, Shoshone County	44	Mid-term	Deferred	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
105. Seek project funding, and identify Un-Reinforced Masonry buildings and design corrective actions to correct risk to public safety within City of Wallace.	Earthquake	City of Wallace, Shoshone County	44	Mid-term	Deferred	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
106. Seek project funding, and identify Un-Reinforced Masonry buildings and design corrective actions to correct risk to public safety within City of Wardner.	Earthquake	City of Wardner, Shoshone County	44	Mid-term	Deferred	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
107. Seek project funding, and identify Un-Reinforced Masonry buildings and design corrective actions to correct risk to public safety within the unincorporated areas of Shoshone County.	Earthquake	Shoshone County	44	Mid-term	Deferred	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
108. Seek project funding, and identify exposed and unreinforced masonry or brick chimney structures, then design improvements and reinforce these structures to correct the risk to public safety within the City of Kellogg.	Earthquake	City of Kellogg, Shoshone County	59	Mid-term	Deferred	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
109. Seek project funding, and identify exposed and unreinforced masonry or brick chimney structures, then design improvements and reinforce these structures to correct the risk to public safety within the City of Mullan.	Earthquake	City of Mullan, Shoshone County	59	Mid-term	Deferred	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
110. Seek project funding, and identify exposed and unreinforced masonry or brick chimney structures, then design improvements and reinforce these structures to correct the risk to public safety within the City of Osburn.	Earthquake	City of Osburn, Shoshone County	59	Mid-term	Deferred	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
111. Seek project funding, and identify exposed and unreinforced masonry or brick chimney structures, then design improvements and reinforce these structures to correct the risk to public safety within the City of Pinehurst.	Earthquake	City of Pinehurst, Shoshone County	59	Mid-term	Deferred	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
112. Seek project funding, and identify exposed and unreinforced masonry or brick chimney structures, then design improvements and reinforce these structures to correct the risk to public safety within the City of Smelterville.	Earthquake	City of Smelterville, Shoshone County	59	Mid-term	Deferred	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
113. Seek project funding, and identify exposed and unreinforced masonry or brick chimney structures, then design improvements and reinforce these structures to correct the risk to public safety within the City of Wallace.	Earthquake	City of Wallace, Shoshone County	59	Mid-term	Deferred	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
114. Seek project funding, and identify exposed and unreinforced masonry or brick chimney structures, then design improvements and reinforce these structures to correct the risk to public safety within the City of Wardner.	Earthquake	City of Wardner, Shoshone County	59	Mid-term	Deferred	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
115. Seek project funding, and identify exposed and unreinforced masonry or brick chimney structures, then design improvements and reinforce these structures to correct the risk to public safety within the unincorporated areas of Shoshone County.	Earthquake	Shoshone County	59	Mid-term	Deferred	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
116. Seek project funding, and identify needed roofing improvements, especially for low income families, related to severe weather events such as heavy snowfall or high winds. Implement corrective actions within the City of Kellogg.	Severe Weather	City of Kellogg, Shoshone County	66	Mid-term	Deferred	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
117. Seek project funding, and identify needed roofing improvements, especially for low income families, related to severe weather events such as heavy snowfall or high winds. Implement corrective actions within the City of Mullan.	Severe Weather	City of Mullan, Shoshone County	66	Mid-term	Deferred	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
118. Seek project funding, and identify needed roofing improvements, especially for low income families, related to severe weather events such as heavy snowfall or high winds. Implement corrective actions within the City of Osburn.	Severe Weather	City of Osburn, Shoshone County	66	Mid-term	Deferred	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
119. Seek project funding, and identify needed roofing improvements, especially for low income families, related to severe weather events such as heavy snowfall or high winds. Implement corrective actions within the City of Pinehurst.	Severe Weather	City of Pinehurst, Shoshone County	66	Mid-term	Deferred	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
120. Seek project funding, and identify needed roofing improvements, especially for low income families, related to severe weather events such as heavy snowfall or high winds. Implement corrective actions within the City of Smelterville.	Severe Weather	City of Smelterville, Shoshone County	66	Mid-term	Deferred	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
121. Seek project funding, and identify needed roofing improvements, especially for low income families, related to severe weather events such as heavy snowfall or high winds. Implement corrective actions within the City of Wallace.	Severe Weather	City of Wallace, Shoshone County	66	Mid-term	Deferred	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
122. Seek project funding, and identify needed roofing improvements, especially for low income families, related to severe weather events such as heavy snowfall or high winds. Implement corrective actions within the City of Wardner.	Severe Weather	City of Wardner, Shoshone County	66	Mid-term	Deferred	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
123. Seek project funding, and identify needed roofing improvements, especially for low income families, related to severe weather events such as heavy snowfall or high winds. Implement corrective actions within the unincorporated communities of Shoshone County.	Severe Weather	Shoshone County	66	Mid-term	Deferred	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table
124. Continue the Shoshone County Wildland-Urban Interface Fire Mitigation Program efforts to identify and implement structural protection for at-risk fuels around homes, and modifications to the structural factors at-risk in the City of Kellogg.	Wildfire	City of Kellogg, Shoshone County	67	Short-term	Iterative	Est Cost: No additional cost; ongoing Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County Fire Mitigation Program; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
125. Continue the Shoshone County Wildland-Urban Interface Fire Mitigation Program efforts to identify and implement structural protection for at-risk fuels around homes, and modifications to the structural factors at-risk in the City of Mullan.	Wildfire	City of Mullan, Shoshone County	67	Short-term	Iterative	Est Cost: No additional cost; ongoing Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County Fire Mitigation Program; FEMA grants; seek other funding through funding sources table
126. Continue the Shoshone County Wildland-Urban Interface Fire Mitigation Program efforts to identify and implement structural protection for at-risk fuels around homes, and modifications to the structural factors at-risk in the City of Osburn.	Wildfire	City of Osburn, Shoshone County	67	Short-term	Iterative	Est Cost: No additional cost; ongoing Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County Fire Mitigation Program; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
127. Continue the Shoshone County Wildland-Urban Interface Fire Mitigation Program efforts to identify and implement structural protection for at-risk fuels around homes, and modifications to the structural factors at-risk in the City of Pinehurst.	Wildfire	City of Pinehurst, Shoshone County	67	Short-term	Iterative	Est Cost: No additional cost; ongoing Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County Fire Mitigation Program; FEMA grants; seek other funding through funding sources table
128. Continue the Shoshone County Wildland-Urban Interface Fire Mitigation Program efforts to identify and implement structural protection for at-risk fuels around homes, and modifications to the structural factors at-risk in the City of Smelterville.	Wildfire	City of Smelterville, Shoshone County	67	Short-term	Iterative	Est Cost: No additional cost; ongoing Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County Fire Mitigation Program; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
129. Continue the Shoshone County Wildland-Urban Interface Fire Mitigation Program efforts to identify and implement structural protection for at-risk fuels around homes, and modifications to the structural factors at-risk in the City of Wallace.	Wildfire	City of Wallace, Shoshone County	67	Short-term	Iterative	Est Cost: No additional cost; ongoing Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County Fire Mitigation Program; FEMA grants; seek other funding through funding sources table
130. Continue the Shoshone County Wildland-Urban Interface Fire Mitigation Program efforts to identify and implement structural protection for at-risk fuels around homes, and modifications to the structural factors at-risk in the City of Wardner.	Wildfire	City of Wardner, Shoshone County	67	Short-term	Iterative	Est Cost: No additional cost; ongoing Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County Fire Mitigation Program; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
131. Continue the Shoshone County Wildland-Urban Interface Fire Mitigation Program efforts to identify and implement structural protection for at-risk fuels around homes, and modifications to the structural factors at-risk in the unincorporated areas of Shoshone County. Target the expansion of this program to include community defensible space around all populated places, even outside the incorporated cities.	Wildfire	Shoshone County	67	Short-term	Iterative	Est Cost: No additional cost; ongoing Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County Fire Mitigation Program; FEMA grants; seek other funding through funding sources table
132. Structural Landslide Protection of private structures and public structures: identification of public assistance money, design and implementation of structural enhancements and access stabilization within the City of Kellogg.	Landslide, Avalanche	City of Kellogg, Shoshone County Planning and Building Department, Shoshone Disaster Services Department	56	Short-term	Deferred	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
133. Structural Landslide Protection of private structures and public structures: identification of public assistance money, design and implementation of structural enhancements and access stabilization within the City of Mullan.	Landslide, Avalanche	City of Mullan, Shoshone County Planning and Building Department, Shoshone Disaster Services Department	56	Short-term	Deferred	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
134. Structural Landslide Protection of private structures and public structures: identification of public assistance money, design and implementation of structural enhancements and access stabilization within the City of Osburn	Landslide, Avalanche	City of Osburn, Shoshone County Planning and Building Department, Shoshone Disaster Services Department	56	Short-term	Deferred	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
135. Structural Landslide Protection of private structures and public structures: identification of public assistance money, design and implementation of structural enhancements and access stabilization within the City of Pinehurst.	Landslide, Avalanche	City of Pinehurst, Shoshone County Planning and Building Department, Shoshone Disaster Services Department	56	Short-term	Deferred	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
136. Structural Landslide Protection of private structures and public structures: identification of public assistance money, design and implementation of structural enhancements and access stabilization within the City of Smelterville.	Landslide, Avalanche	City of Smelterville, Shoshone County Planning and Building Department, Shoshone Disaster Services Department	56	Short-term	Deferred	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
137. Structural Landslide Protection of private structures and public structures: identification of public assistance money, design and implementation of structural enhancements and access stabilization within the City of Wallace.	Landslide, Avalanche	City of Wallace, Shoshone County Planning and Building Department, Shoshone Disaster Services Department	56	Short-term	Deferred	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
138. Structural Landslide Protection of private structures and public structures: identification of public assistance money, design and implementation of structural enhancements and access stabilization within the City of Wardner.	Landslide, Avalanche	City of Wardner, Shoshone County Planning and Building Department, Shoshone Disaster Services Department	56	Short-term	Deferred	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
139. Structural Landslide Protection of private structures and public structures: identification of public assistance money, design and implementation of structural enhancements and access stabilization within the unincorporated areas of Shoshone County.	Landslide, Avalanche	Shoshone County Planning and Building Department, Shoshone Disaster Services Department	56	Mid-term	Deferred	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table
Potential Mitigation Activities to Enhance Resource and Capabilities						
140. Radio System Operability and Deployment. Upgrade radio communications between personnel, vehicles, and station, and allow interoperable (P25) communications with County, State, and Federal responders in the City of Kellogg.	All Hazards	City of Kellogg, Shoshone County Fire District 2, Shoshone County, PHD, BEIPC, IDEQ	68	Short-term	Complete	N/A
141. Radio System Operability and Deployment. Upgrade radio communications between personnel, vehicles, and station, and allow interoperable (P25) communications with County, State, and Federal responders in the City of Mullan.	All Hazards	City of Mullan, Shoshone County Fire District 3, Shoshone County, PHD, BEIPC, IDEQ	68	Short-term	Complete	N/A

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
142. Radio System Operability and Deployment. Upgrade radio communications between personnel, vehicles, and station, and allow interoperable (P25) communications with County, State, and Federal responders in the City of Osburn.	All Hazards	City of Osburn, Shoshone County Fire District 1, Shoshone County, PHD, BEIPC, IDEQ	68	Short-term	Complete	N/A
143. Radio System Operability and Deployment. Upgrade radio communications between personnel, vehicles, and station, and allow interoperable (P25) communications with County, State, and Federal responders in the City of Pinehurst.	All Hazards	City of Pinehurst, Shoshone County Fire District 2, Shoshone County, PHD, BEIPC, IDEQ	68	Short-term	Complete	N/A
144. Radio System Operability and Deployment. Upgrade radio communications between personnel, vehicles, and station, and allow interoperable (P25) communications with County, State, and Federal responders in the City of Smelterville.	All Hazards	City of Smelterville, Shoshone County Fire District 2, Shoshone County, PHD, BEIPC, IDEQ	68	Short-term	Complete	N/A
145. Radio System Operability and Deployment. Upgrade radio communications between personnel, vehicles, and station, and allow interoperable (P25) communications with County, State, and Federal responders in the City of Wallace.	All Hazards	City of Wallace, Shoshone County Fire District 1, Shoshone County, PHD, BEIPC, IDEQ	68	Short-term	Complete	N/A
146. Radio System Operability and Deployment. Upgrade radio communications between personnel, vehicles, and station, and allow interoperable (P25) communications with County, State, and Federal responders in the City of Wardner.	All Hazards	City of Wardner, Shoshone County Fire District 2, Shoshone County, PHD, BEIPC, IDEQ	68	Short-term	Complete	N/A

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
147. Radio System Operability and Deployment. Upgrade radio communications between personnel, vehicles, and station, and allow interoperable (P25) communications with County, State, and Federal responders in the Prichard-Murray Volunteer Fire District.	All Hazards	Prichard-Murray Volunteer Fire District, Shoshone County, PHD, BEIPC, IDEQ	68	Short-term	Complete	N/A
148. Radio System Operability and Deployment. Upgrade radio communications between personnel, vehicles, and station, and allow interoperable (P25) communications with County, State, and Federal responders in the Shoshone County Fire District #4 (Calder to Marble Creek on the St. Joe River).	All Hazards	Shoshone County Fire District 4, Shoshone County, PHD, BEIPC, IDEQ	68	Short-term	Complete	N/A
149. Radio System Coverage Enhancement. Enhance radio communications through Shoshone County by locating radio repeaters in strategic locations to allow access in the several remote areas accessed by emergency responders.	All Hazards	Shoshone County, US Forest Service, Bureau of Land Management, State of Idaho, PHD, BEIPC, IDEQ	67	Mid-term	Complete	N/A
150. Develop a scenario to provide fire protection to the communities of Clarkia and Emerald Creek on the St. Maries River. Include fire apparatus, facilities, communications equipment, training and other support to the protection area. Consider new fire protection district or expansion of the Fernwood Fire District (Benewah County).	All Hazards	Shoshone County	60	Short-term	Complete	N/A

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
151. Fire Department Training Opportunities: develop custom training programs for firefighting in Shoshone County and implement training for all fire department staff and volunteers in Shoshone County.	All Hazards	Shoshone County Fire Districts, 1, 2, 3, 4, and Prichard-Murray Volunteer Fire Department, and Shoshone County	70	Short-term	Complete	N/A
152. Fire Department Training Opportunities: develop custom training programs for hazardous waste containment in Shoshone County and implement training for all fire department staff and volunteers in Shoshone County.	All Hazards	Shoshone County Fire Districts, 1, 2, 3, 4, and Prichard-Murray Volunteer Fire Department, and Shoshone County	70	Short-term	Complete	N/A
153. Heavy Equipment Acquisition for Emergency Response: Locate equipment needed for emergency response situations such as a front-end loader for flood sludge removal, snowplow or grader for snow removal, or similar equipment for the City of Kellogg.	Flood, Severe Weather, Landslide, Avalanche	City of Kellogg, Shoshone County, PHD, BEIPC, IDEQ	65	Mid-term	Complete	N/A
154. Heavy Equipment Acquisition for Emergency Response: Locate equipment needed for emergency response situations such as a front-end loader for flood sludge removal, snowplow or grader for snow removal, or similar equipment for the City of Mullan.	Flood, Severe Weather, Landslide, Avalanche	City of Mullan, Shoshone County, PHD, BEIPC, IDEQ	65	Mid-term	Complete	N/A
155. Heavy Equipment Acquisition for Emergency Response: Locate equipment needed for emergency response situations such as a front-end loader for flood sludge removal, snowplow or grader for snow removal, dump truck, sand spreader, or similar equipment for the City of Osburn.	Flood, Severe Weather, Landslide, Avalanche	City of Osburn, Shoshone County, PHD, BEIPC, IDEQ	65	Mid-term	Complete	N/A

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
156. Heavy Equipment Acquisition for Emergency Response: Locate equipment needed for emergency response situations such as a front-end loader for flood sludge removal, snowplow or grader for snow removal, or similar equipment for the City of Pinehurst.	Flood, Severe Weather, Landslide, Avalanche	City of Pinehurst, Shoshone County, PHD, BEIPC, IDEQ	65	Mid-term	Complete	N/A
157. Heavy Equipment Acquisition for Emergency Response: Locate equipment needed for emergency response situations such as a front-end loader for flood sludge removal, snowplow or grader for snow removal, or similar equipment for the City of Smelterville.	Flood, Severe Weather, Landslide, Avalanche	City of Smelterville, Shoshone County, PHD, BEIPC, IDEQ	65	Mid-term	Complete	N/A
158. Heavy Equipment Acquisition for Emergency Response: Locate equipment needed for emergency response situations such as a front-end loader for flood sludge removal, snowplow or grader for snow removal, or similar equipment for the City of Wallace.	Flood, Severe Weather, Landslide, Avalanche	City of Wallace, Shoshone County, PHD, BEIPC, IDEQ	65	Mid-term	Complete	N/A
159. Heavy Equipment Acquisition for Emergency Response: Locate equipment needed for emergency response situations such as a front-end loader for flood sludge removal, snowplow or grader for snow removal, or similar equipment for the City of Wardner.	Flood, Severe Weather, Landslide, Avalanche	City of Wardner, Shoshone County, PHD, BEIPC, IDEQ	65	Mid-term	Complete	N/A
160. Heavy Equipment Acquisition for Emergency Response: Locate additional equipment needed for emergency response situations such as a front-end loader for flood sludge removal, snowplow or grader for snow removal, or similar equipment for the unincorporated areas of Shoshone County.	Flood, Severe Weather, Landslide, Avalanche	Shoshone County, PHD, BEIPC, IDEQ	65	Mid-term	Complete	N/A

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
161. Enhanced Telephone Operability in Clarkia, the St. Joe River Valley, Prichard, Murray, and other rural areas. Work with service providers to improve the level of service in these areas, especially in the winter, to provide reliable telephone services.	All Hazards	Shoshone County	65	Immediate	Complete	N/A
162. Self-Contained Breathing Apparatus (SCBA) inventory upgrade. Needs include 20 new units.	All Hazards	Shoshone County Fire District #1, Shoshone County	65	Immediate	Complete	N/A
163. Hydrant Replacement & System Extension. Replace and locate existing hydrant system.	All Hazards	Shoshone County Fire District #1, Shoshone County	62	Short-term	Ongoing	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
164. Structure Fire & Wildfire Vehicle Purchase. Replace aging rolling stock (3 vehicles).	All Hazards	Shoshone County Fire District #1, Shoshone County	63	Short-term	Ongoing	Est Cost: $300,000 Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table
165. Wildfire Firefighting Vehicle Purchase; 3 water tenders, 3 type-6 brush trucks.	Wildfire	Shoshone County Fire District #2, Shoshone County	63	Short-term	Ongoing	Est Cost: $600,000 Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
166. Structure Fire Fighting Vehicle Purchase; 100-foot ladder truck, and a station to store it in.	All Hazards	Shoshone County Fire District #2, Shoshone County	63	Long-term	Deferred	Est Cost: $300,000 Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table
167. Wildfire Firefighting Vehicle Purchase; combined structure and wildfire engine, and a 3,000 gallon all-wheel drive water tender.	Wildfire	Shoshone County Fire District #3, Shoshone County	63	Mid-term	Deferred	Est Cost: $300,000 Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
168. Six inch trailer mounted pump unit with associated suction and discharge piping.	All Hazards	South Fork Coeur d'Alene River Sewer District, Shoshone County	63	Mid-term	Complete	N/A
169. Increase Water Reserve Capacity available to fire protection: enhance water storage and reserve it for fire protection in Shoshone County	Wildfire	Shoshone County Fire Districts, 1, 2, 3, 4, and Prichard-Murray Volunteer Fire Department, Shoshone County, US Forest Service, BLM, IDL	62	Mid-term	Complete	N/A
170. Rural Addressing & Sign Posting available for all Shoshone County residents: in Cities post street signs with address block numbers, and in rural areas post house numbers visible from the nearest public access route (as Fire District #4 has done).	All Hazards	Shoshone County Fire Districts, 1, 2, 3, 4, and Prichard-Murray Volunteer Fire Department, Shoshone County Disaster Services	67	Mid-term	Ongoing	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
171. Acquisition of three Trailer Mounted Generators necessary to power emergency relief centers identified in the Shoshone County Emergency Operations Plan. Couple this effort with electric wiring of facilities to accept alternate power supplies when main power supplies are unavailable	All Hazards	Shoshone County Disaster Services, All Cities, School Districts (and other EOP Relief Centers).	63	Short-term	Complete	N/A
Potential Mitigation Activities to Change Characteristics of Risk						
172. South Fork Coeur d'Alene River Levee System, tributary confluence enhancement, and implementation system in the City of Kellogg.	Flood, Impoundment Structure Failure	City of Kellogg, Shoshone County, PHD, BEIPC, IDEQ	39	Short-term	Deferred	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
173. South Fork Coeur d'Alene River Levee System, tributary confluence enhancement, and implementation system in the City of Mullan.	Flood, Impoundment Structure Failure	City of Mullan, Shoshone County, PHD, BEIPC, IDEQ	39	Short-term	Deferred	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
174. South Fork Coeur d'Alene River Levee System, tributary confluence enhancement, and implementation system in the City of Osburn.	Flood, Impoundment Structure Failure	City of Osburn, Shoshone County, PHD, BEIPC, IDEQ	39	Short-term	Deferred	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
175. South Fork Coeur d'Alene River Levee System, tributary confluence enhancement, and implementation system in the City of Pinehurst.	Flood, Impoundment Structure Failure	City of Pinehurst, Shoshone County, PHD, BEIPC, IDEQ	39	Short-term	Deferred	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
176. South Fork Coeur d'Alene River Levee System, tributary confluence enhancement, and implementation system in the City of Smelterville.	Flood, Impoundment Structure Failure	City of Smelterville, Shoshone County, PHD, BEIPC, IDEQ	39	Short-term	Deferred	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
177. South Fork Coeur d'Alene River Levee System, tributary confluence enhancement, and implementation system in the City of Wallace.	Flood, Impoundment Structure Failure	City of Wallace, Shoshone County, PHD, BEIPC, IDEQ	39	Short-term	Deferred	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
178. South Fork Coeur d'Alene River Levee System, tributary confluence enhancement, and implementation system in unincorporated areas of the river.	Flood, Impoundment Structure Failure	Shoshone County, PHD, BEIPC, IDEQ	39	Short-term	Deferred	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
179. South Fork Coeur d'Alene River flood water containment system and flood storage enhancement.	Flood, Impoundment Structure Failure	Shoshone County, PHD, BEIPC, IDEQ	48	Short-term	Ongoing	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
180. Community of Silverton storm water system design and implementation.	Flood, Impoundment Structure Failure	Shoshone County, PHD, BEIPC, IDEQ	61	Mid-term	Ongoing	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
181. Storm water drainage system design and implementation to link to improved levee system within City of Kellogg.	Flood, Impoundment Structure Failure	City of Kellogg, Shoshone County, PHD, BEIPC, IDEQ	64	Mid-term	Ongoing	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
182. Storm water drainage system design and implementation to link to improved levee system within City of Mullan.	Flood, Impoundment Structure Failure	City of Mullan, Shoshone County, PHD, BEIPC, IDEQ	64	Mid-term	Ongoing	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
183. Storm water drainage system design and implementation to link to improved levee system within City of Osburn.	Flood, Impoundment Structure Failure	City of Osburn, Shoshone County, PHD, BEIPC, IDEQ	64	Mid-term	Ongoing	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
184. Storm water drainage system design and implementation to link to improved levee system within City of Pinehurst and upstream along Pine Creek. Resize culvert at off/on ramp to I-90 (longer and larger diameter).	Flood, Impoundment Structure Failure	City of Pinehurst, Shoshone County, PHD, BEIPC, IDEQ	64	Mid-term	Ongoing	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
185. Storm water drainage system design and implementation to link to improved levee system within City of Smelterville.	Flood, Impoundment Structure Failure	City of Smelterville, Shoshone County, PHD, BEIPC, IDEQ	64	Mid-term	Ongoing	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
186. Storm water drainage system design and implementation to link to improved levee system within City of Wallace.	Flood, Impoundment Structure Failure	City of Wallace, Shoshone County, PHD, BEIPC, IDEQ	64	Mid-term	Ongoing	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
187. Storm water drainage system design and implementation to link to improved levee system within City of Wardner.	Flood, Impoundment Structure Failure	City of Wardner, Shoshone County, PHD, BEIPC, IDEQ	64	Mid-term	Ongoing	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
188. Storm water drainage and St. Maries Creek flood control through the community of Clarkia and across the access to Highway 3.	Flood, Impoundment Structure Failure	Shoshone County	64	Mid-term	Deferred	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
189. Storm water drainage and Bear Creek flood control through the community of Calder. Placement of Bear Creek and culvert sizing.	Flood, Impoundment Structure Failure	Shoshone County	64	Mid-term	Ongoing	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table
190. Calder Road reconstruction from the St. Joe River road to the north end of the Calder Road Bridge entering the community of Calder.	Flood, Impoundment Structure Failure	Shoshone County	67	Mid-term	Complete	N/A

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
191. North Side Road reconstruction from the intersection with the St. Joe River road to the north end of the North Side Road Bridge entering the community of Marble Creek.	Flood, Impoundment Structure Failure	Shoshone County	67	Mid-term	Ongoing	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
192. Installation of debris catchment devices along the St. Joe River Road, the North Fork Road, Prichard Creek Road, and Dobson Pass Road to prevent rock and debris from falling on the road surface.	Landslide, Avalanche	Shoshone County	69	Mid-term	Ongoing	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
193. Enhancement of Mill Creek and Boulder Creek courses through City of Mullan to the confluence with the South Fork Coeur d'Alene River, to keep the watercourse in its channel during high water events. Address channel and culvert issues.	Flood, Impoundment Structure Failure	City of Mullan, Shoshone County, PHD, BEIPC, IDEQ	66	Mid-term	Ongoing	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
194. Engineer and build a dike (floodwall) around the Waste Water Treatment Facility's Lift Station in Page that houses the emergency power, screening facility and plant lift station.	Flood, Impoundment Structure Failure	Shoshone County, South Fork River Sewer District, PHD, BEIPC, IDEQ	69	Short-term	Deferred	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
195. Engineer and build a dike (floodwall) around the Waste Water Treatment Facility in Smelterville.	Flood, Impoundment Structure Failure	City of Smelterville, Shoshone County, PHD, BEIPC, IDEQ	69	Short-term	Deferred	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
196. Engineer and build a dike (floodwall) around the Community Water Supply and Sewage Treatment Facility in Clarkia.	Flood, Impoundment Structure Failure	Shoshone County, Clarkia Water and Sewer District	69	Short-term	Deferred	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
197. Elevate Old Milwaukee Railroad grade providing access to Trout Creek on the St. Joe River.	Flood,	Shoshone County	63	Long-term	Deferred	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
198. Replace 6th Street bridge on Small Fork in City of Wallace.	Flood,	City of Wallace, PHD, BEIPC, IDEQ	68	Long-term	Ongoing	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
199. Replace South Fork Coeur d'Alene River retaining wall in City of Wallace.	Flood, Impoundment Structure Failure	City of Wallace, PHD, BEIPC, IDEQ	68	Long-term	Deferred	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
200. Enhancement of Printers Creek, Canyon Creek, and Nine Mile Creek courses into the City of Wallace to the confluence with the South Fork Coeur d'Alene River. Address channel and culvert issues.	Flood, Impoundment Structure Failure	City of Wallace, PHD, BEIPC, IDEQ	64	Long-term	Ongoing	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
201. Analyze and implement bank and slope stabilization on Pearl, Maple, High, and High Bank Roads in the City of Wallace.	Landslide, Avalanche	City of Wallace	60	Long-term	Ongoing	Est Cost: Timeline: Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
202. Analysis of tributaries flowing into the South Fork Coeur d'Alene River for flow diversions and culvert sizing. Address channel and culvert issues for 20 tributaries identified in former AHMP.	Flood	Shoshone County, All Cities, PHD, BEIPC, IDEQ	70	Short-term	Ongoing	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
203. Implementation of the tributary analysis flowing into the South Fork Coeur d'Alene River for flow diversions and culvert sizing recommended in Project SHO-4031. Correct channel and culvert issues for 20 tributaries identified in former AHMP.	Flood	Shoshone County, All Cities, PHD, BEIPC, IDEQ	64	Long-term	Ongoing	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table
204. Inspect schools, City Hall offices, Fire District offices, and other public structures for snow-load capability and retrofit (using budgets and grant funding) where appropriate and continue effort to create a snow removal plan.	Severe Weather	Shoshone County Disaster Services, All Cities, School Districts	67	Long-term	Ongoing	Est Cost: TBD, seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Planning and Building Department

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
205. Engineer and build a dike (floodwall) around the Central Shoshone Water District Well Facility in Enaville.	Flood, Impoundment Structure Failure	Shoshone County, Central Shoshone Water District, PHD, BEIPC, IDEQ	68	Short-term	Deferred	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table
206. Engineer and build adequate storm drainage system for Silver Valley Road Old Highway #10 (county road) from the easterly city limit of Osburn to the city limits of Wallace.	Flood	Shoshone County, PHD, BEIPC, IDEQ	68	Long-term	Complete	N/A

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
207. Engineer and build an adequate storm drainage system on county road system in Burke Canyon east of State Highway #4.	Flood	Shoshone County, PHD, BEIPC, IDEQ	68	Long-term	Ongoing	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
208. Engineer and build adequate storm drain system for the Elizabeth Park Development.	Flood	Shoshone County, PHD, BEIPC, IDEQ	68	Mid-term	Ongoing	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
209. Engineer and build embankment and shoulder stabilization from Bumblebee to Old Silver Bridge on Old Coeur d'Alene River Road (west side).	Flood, Impoundment Structure Failure	Shoshone County	68	Short-term	Ongoing	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
210. Engineer and build and adequate storm drainage system on Silver Valley Road Old Highway #10 from city limit of Kellogg to Evolution Bridge.	Flood	Shoshone County, PHD, BEIPC, IDEQ	68	Long-term	Ongoing	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
211. Design and build adequate storm drainage system for Meyer Gulch & McPherson Gulch.	Flood	Shoshone County, PHD, BEIPC, IDEQ	68	Long-term	Deferred	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
212. Establish a site location for a NOAA Weather Radio Tower Repeater in collaboration between Shoshone County and the National Weather Service for participation in the StormReady Program.	All Hazards	Shoshone County, National Weather Service	70	Immediate	Ongoing	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table
New Mitigation Activities from 2017 Plan Update						

Project Name	Hazard	Responsible Organization	STAPLEE SCORE	2009 Implementation Time Frame	2017 Plan Update Status	Updated Cost, Timeline, & Funding Sources
213. Wardner Peak communications site upgrade. Structural improvement and reconstruction of radio site. Upgrade emergency generator.	All Hazards	Shoshone Fire District #2, City of Kellogg	57	Long-term	New Project	Est Cost: TBD, will seek cost within 6 months of adoption Timeline: Initiated, worked on, or completed within 1 calendar year Funding Sources: Shoshone County budget; other county and city departmental budgets; FEMA grants; seek other funding through funding sources table

6.3.2 Changes in Mitigation Action Priorities

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

The prioritization process includes a special emphasis on cost-benefit analysis review. The process will reflect that a key component in funding decision is a determination that the project will provide an equivalent or more in benefits over the life of the project when compared with the costs. Projects will be administered by county and local jurisdictions.

County Commissioners and the elected officials of all jurisdictions will evaluate opportunities and establish their own unique priorities to accomplish mitigation activities where existing funds and resources are available and there is community interest in implementing mitigation measures. If no federal funding is used in these situations, the prioritization process may be less formal. Often the types of projects that the County can afford to do on their own are in relation to improved codes and standards, department planning and preparedness, and education. These types of projects may not meet the traditional project model, selection criteria, and benefit-cost model. The County will consider all pre-disaster mitigation proposals brought before the County Commissioners by department heads, city officials, fire districts, local civic groups, and private citizens.

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

The prioritization of projects will occur annually and be facilitated by Shoshone County to include the County Commissioner's Office, City Mayors and Councils, Fire District Chiefs and Commissioners, agency representatives (USFS, BLM, State Lands, etc.). The prioritization of projects will be based on the selection of projects which create a balanced approach to predisaster mitigation which recognizes the hierarchy of treating (highest first):

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

The 2008 STAPLEE scoring and prioritization method was carried forward into the 2017 HMP update. New mitigation actions were scored using this method to ensure consistency. According to the planning committee and local officials, the 2008 priority mitigation actions are still reflective of 2017 conditions and priorities and therefore, these priority actions should be carried into the plan's 2017-2022 lifecycle. The new mitigation action (Wardner Peak communications site upgrade. Structural improvement and reconstruction of radio site. Upgrade emergency generator) has a STAPLEE score of 57 putting this action as a medium priority for Shoshone County.

The guidelines for the STAPLEE scoring are provided below:

The STAPLEE matrix has been proposed as an approach to use when creating unbiased evaluations of potential mitigation measures. These seven criteria are determined subjectively and independently from each other. For these purposes, each project has been rated on a scale of zero (0) to ten (10). The cumulative scores can range from zero to seventy. The score of seventy would be considered a highly desirable project while a very low scoring project would be considered a very undesirable project. Table 62 defines the conditions considered with each criterion.

Table 62. Evaluation Criteria (STAPLEE) for Mitigation Actions

Evaluation Category	Discussion "It is important to consider..."	Considerations
Social	The public support for the overall mitigation strategy and specific mitigation actions.	Community acceptance Adversely affects population
Technical	If the mitigation action is technically feasible and if it is the whole or partial solution.	Technical feasibility Long-term solutions Secondary impacts
Administrative	If the community has the personnel and administrative capabilities necessary to implement the action or whether outside help will be necessary.	Staffing Funding allocation Maintenance/operations
Political	What the community and its members feel about issues related to the environment, economic development, safety, and emergency management.	Political support Local champion Public support
Legal	Whether the community has the legal authority to implement the action, or whether the community must pass new regulations.	Local, state, and federal authority Potential legal challenge
Economic	If the action can be funded with current or future internal and external sources, if the costs seem reasonable for the size of the project, and if enough information is available to complete a FEMA Benefit-Cost Analysis.	Benefit/cost of action Contributes to other economic goals Outside funding required FEMA Benefit-Cost Analysis
Environmental	The impact on the environment because of public desire for a sustainable and environmentally healthy community.	Effect on local flora and fauna Consistent with community

		environmental goals Consistent with local, state, and federal laws

All of these will be ranked on scale (subjective) from 0 to 10. The sum of the total will create the Mitigation Action's overall score with the highest ranked scores achieving the highest ranked mitigation measures. If any one category score is below 3, the mitigation measure will be determined to be "unfeasible", removing it from further consideration.

The implementation timeframe for these mitigation measures will be dependent on several factors including funding, personnel time to implement these activities within existing budgets and manpower resources, and the political realities of implementing these activities within the realm of day-to-day activities all administrators of small jurisdictions face. Each mitigation project will be initiated, worked on, or completed within 1 calendar year of adoption to ensure the continuity of mitigation actions over the plan's next lifecycle.

It is reasonable to expect that certain municipalities will incorporate these mitigation measures into their programs quicker than other municipalities. It is expected that Shoshone County government will provide a leadership in the implementation of this series of mitigation measures through example and knowledge of the regulatory environment.

6.4 Federal & State Planning & Regulatory Capabilities

A number of federal and state regulations and policies form the legal framework in which to implement Shoshone County's hazard mitigation goals and projects. A list of these regulations and plans is presented below:

- Federal
  - The Federal Civil Defense Act of 1950
  - Public Law 96-342, The Improved Civil Defense Act of 1980
  - Public Law 91-606, Disaster Relief Act
  - Public Law 93-288, The Robert T. Stafford Disaster Relief Act of 1974.
  - Presidential Executive Order 11988, Floodplain Management
  - Presidential Executive Order 11990, Protection of Wetlands
- State of Idaho
  - Idaho State Code Title 46, Chapter 10, State Disaster Preparedness Act
  - Idaho State Code Title 39, Chapter 71, Hazardous Material Act
  - Idaho State Title 67, Chapter 65, Local Land Use Planning Act

- Governor's Executive Order 2000-04, April 20, 2000

6.5 County Planning & Regulatory Capabilities

Shoshone County and its incorporated communities employ other measures that regulate development and certain activities in hazardous areas. Updates to Shoshone County's planning and regulatory capabilities included including natural hazards within The City of Kellogg's Comprehensive Plan update. Per local officials, all other capabilities documented in the former AHMP are still reflective of current conditions.

Throughout the lifecycle of this HMP, each jurisdiction should continue to maintain, improve upon, and enforce these planning and regulatory capabilities. Each jurisdiction should strive to adopt additional planning mechanisms that address hazard mitigation. Examples of these mechanisms can be found in *Section 7.3 Examples of Regional Best Practices for Hazard Mitigation & Comprehensive Plan Integration, Section 7.4 Implementation through Existing Plans & Programs and Section 7.5 Recommended Strategies & Tools for Implementation & Future Updates.*

Table 63. Shoshone County Legal and Regulatory Resources Available for Hazard Mitigation Efforts

Regulatory Tool	Name	Description (Effect on Hazard Mitigation)	Hazards Addressed	Mitigation, Preparedness, Response, or Recovery	Affects Development in Hazard Areas?
Plans	**Shoshone County EOP**	Defines Responsibilities	All	Preparedness and Response	No
	County Comprehensive Plan	Defines level of importance	All	All	Yes
	County Fire Mitigation Plan	Identifies threats and hazard mitigation activities for wildfire	Wildfire	All	No
Policies	**Zoning Ordinance**	Identifies land use locations	All	Mitigation and Preparedness	Yes
	Subdivision Ordinance	Specifies Densities	All	Mitigation and Preparedness	Yes
	Floodplain Ordinance	Identifies Restricted or controlled areas	Flood	Mitigation, Preparedness, and Recovery	Yes
	Site Disturbance Ordinance	Controls Construction Disturbance	All	All	Yes
	Institutional Controls Program	Autonomous District Program to Address Superfund Site Disturbances. Shoshone County adopted ordinances requiring ICP to sign for building permits before the county signs the building permit	All	All	Yes
Program	**County fire Mitigation Program**	Reduces Threat	Fire	Mitigation and Preparedness	No
	Superfund Cleanup Program (EPA and IDEQ)	Efforts to cleanup soil contamination and protect human health	All	All	Yes

Table 64. Local Municipality Legal and Regulatory Guidance for Hazard Mitigation Efforts.

Regulatory Tool	Name	Description (Effect on Hazard Mitigation)	Hazards Addressed	Mitigation, Preparedness, Response, or Recovery	Affects Development in Hazard Areas?
Plans - City of Kellogg	**Kellogg City Comprehensive Plan**	City Comprehensive Plan acknowledges hazards	All	All	Yes
	City of Kellogg Floodplain Ordinance	City ordinance to guide growth within the floodplain. Meets the directives of the NFIP and CRS.	Flood	All	Yes
	City of Kellogg Land Use Ordinance	Identifies desired land use planning objectives within the city.	All	Mitigation	Yes
	City of Kellogg Landscaping and Soil Stabilization Controls	Identifies development activities affecting site specific disturbances	Landslides, Storm water	Mitigation	Yes
	City of Kellogg Storm Water Runoff Standards	Identifies development activities affecting site specific disturbances	Storm water, Flood	Mitigation	Yes
Plans - City of Mullan	**City of Mullan Land Use Ordinance**	Identifies desired land use planning objectives within the city.	All	Mitigation	Yes
	Mullan City Comprehensive Plan	City Comprehensive Plan acknowledges hazards	All	No	Yes
Plans - City of Osburn	**City of Osburn Comprehensive Plan**	City Comprehensive Plan acknowledges hazards	All	All	Yes
	City of Osburn Land Use Ordinance	Identifies desired land use planning objectives within the city.	All	Mitigation	Yes

	Shoshone County EOP	City relies on County EOP and the City's Role in that planning document	All	Response	No
Plans - City of Pinehurst	**Pinehurst City Comprehensive Plan**	Defines Flood Hazard Areas	Flood	Mitigation, Preparedness, and Response	Yes
	City of Pinehurst Land Use Ordinance	Identifies desired land use planning objectives within the city.	All	Mitigation	Yes
	Disaster Plan	Defines Roles & Responsibilities	All	Preparedness and Response	No
Plans - City of Smelterville	**Shoshone County EOP**	City relies on County EOP and the City's Role in that planning document	All	Preparedness and Response	No
	City of Smelterville Storm Water Runoff Standards	Identifies development activities affecting site specific disturbances	Storm water, Flood	Mitigation	Yes
	City of Smelterville Land Use Ordinance	Identifies desired land use planning objectives within the city.	All	Mitigation	Yes
	Smelterville City Comprehensive Plan	City Comprehensive Plan acknowledges hazards	All	No	Yes
Plans - City of Wallace	**City of Wallace Land Use Ordinance**	Identifies desired land use planning objectives within the city.	All	Mitigation	Yes
	Wallace City Comprehensive Plan	City Comprehensive Plan acknowledges hazards	All	No	Yes
Plans - City of Wardner	**Wardner Planning and Zoning Ordinances**	Identifies desired land use planning objectives within the city	All	Mitigation	Yes

	City of Wardner Land Use Ordinance	Identifies desired land use planning objectives within the city.	All	Mitigation	Yes
	City of Wardner Comprehensive Plan	City Comprehensive Plan acknowledges hazards	All	No	Yes
	City of Wardner Storm Water Runoff Standards	Identifies development activities affecting site specific disturbances	Storm water, Flood	Mitigation	No
	Wildfire Evacuation Plan for Wardner (County plan)	Preparedness	Wildfire	Preparedness	No
Policies - City of Kellogg	**Kellogg City is in the CRS class 8 community program**	10% floodplain reduction for all residents who have flood insurance premiums	Flood	No	Yes
	Institutional Controls Program	Adopted ordinances requiring ICP to sign for building permits before the city signs the building permit.	All	Mitigation, Preparedness, and Recovery	Yes
Policies - City of Mullan	**Zoning Ordinances**	Identifies Land Use Locations and adopts the National Building Codes	All	Mitigation and Preparedness	Yes
	Institutional Controls Program	Adopted ordinances requiring ICP to sign for building permits before the city signs the building permit.	All	Mitigation, Preparedness, and Recovery	Yes
Policies - City of Osburn	**Planning and Zoning Ordinance**	Identifies Land Use Locations	All	Mitigation and Preparedness	Yes
	Subdivision Ordinance	Specifies Structure Density	All	Mitigation and Preparedness	Yes

	Institutional Controls Program	Adopted ordinances requiring ICP to sign for building permits before the city signs the building permit.	All	Mitigation, Preparedness, and Recovery	Yes
Policies - City of Pinehurst	**Zoning Ordinance**	Identifies Land Use Locations	All	Mitigation and Preparedness	Yes
	Flood Plan Ordinances	Identifies Restricted or Controlled Areas	Flood	Mitigation, Preparedness, and Recovery	Yes
	Site Disturbance Ordinance	Controls Constructions Disturbance	All	All	Yes
	Institutional Controls Program	Adopted ordinances requiring ICP to sign for building permits before the city signs the building permit.	All	Mitigation, Preparedness, and Recovery	Yes
Policies - City of Smelterville	**Building and Zoning Ordinances**	Identifies Land Use Locations	All	Mitigation and Preparedness	Yes
	Storm Water Runoff	Establishes Criteria	All	Mitigation	Yes
	Institutional Controls Program	Adopted ordinances requiring ICP to sign for building permits before the city signs the building permit.	All	Mitigation, Preparedness, and Recovery	Yes
Policies - City of Wallace	**Coordination with federal agencies for land use management**	Identifies Land Use Locations	All	Mitigation and Preparedness	Yes
	Adopted International Building Code	Identifies Land Use Location and adopts the National Building Codes	All	Mitigation and Preparedness	Yes
	Planning and Zoning	Identifies Land Use Locations	All	Mitigation and Preparedness	Yes

	Institutional Controls Program	Adopted ordinances requiring ICP to sign for building permits before the city signs the building permit.	All	Mitigation, Preparedness, and Recovery	Yes
Policies - City of Wardner	**Institutional Controls Program**	Adopted ordinances requiring ICP to sign for building permits before the city signs the building permit.	All	Mitigation, Preparedness, and Recovery	Yes
Programs	**No Cities Reporting Established Programs that are not already by the County.**				

Table 65 U.S. Forest Service & BLM Legal and Regulatory Resources Available for Hazard Mitigation Efforts

Regulatory Tool	Name	Description (Effect on Hazard Mitigation)	Hazards Addressed	Mitigation, Preparedness, Response, or Recovery	Affects Development in Hazard Areas?
Plans	**Forest Plan Idaho Panhandle National Forests 1987**	Defines Management Direction on all National Forest Land	All	Mitigation	N/A
	Idaho Panhandle National Forests Fire Management Plan	Defines Program to manage wildland and prescribed fire.	Wildfire	Mitigation, Preparedness, and Response	Yes
	Interagency Standards for Fire and Fire Aviation Operations	Provides program management direction and guiding principles	Wildfire	Mitigation, Preparedness, and Response, or Recovery	Yes
	North Idaho Interagency Fire Danger Rating Operating Plan	Provides tools for fire managers to correlate fire danger ratings with appropriate fire business decisions.	Wildfire	Mitigation, Preparedness, and Response	No
	Coeur d'Alene Interagency Dispatch Center Standard Operating Procedures	Provide Management oversight of the operation of Coeur d'Alene Interagency Dispatch Center (CDC).	All	Mitigation, Preparedness, and Response, or Recovery	No

Plans – BLM	**Coeur d'Alene Resource Management Plan 2007**	Defines Management Direction on all BLM Managed Public Lands	All	Mitigation	N/A
	Coeur d'Alene Field Office Fire Management Plan 2004	Defines Program to Manage Wildland and Prescribed Fire	Wildfire	Mitigation, Preparedness, Response and Recovery	Yes

Table 66. Shoshone Medical Center Regulatory Resources Available for Hazard Mitigation Efforts

Regulatory Tool	Name	Description (Effect on Hazard Mitigation)	Hazards Addressed	Mitigation, Preparedness, Response, or Recovery	Affects Development in Hazard Areas?
Plans	**Disaster Plan**	Defines Hospital Hazards Internal/External	External Fire BIO/CHM Bomb Threat Evacuation	Preparedness and Response	No

6.6 County Resource Capabilities

This Resources and Capabilities summary was completed to summarize the human and technological services available to the citizens of Shoshone County and each jurisdiction. These services include Fire (structure and wildfire) Protection, Highways and Roads, Sewer and Water, administrative services, and others. Per local officials, these capabilities that were documented in the 2008 AHMP are still reflective of current conditions in the 2017 HMP plan update.

Table 67. County and Municipality Resources, Capabilities, and Needs

Shoshone County	
Name and Position of Person Preparing this Summary	John Specht, Emergency Manager
Address and Telephone	700 Bank Street Wallace, Idaho 83873 208-556-0392
Service Area	Shoshone County
Describe your services and organization goals in overview (100 words or less)	Provide Emergency assistance within Shoshone County in the event of natural or man-made disasters. Provide for transportation management on County Roads and their maintenance. Set policies for planning and zoning requirements for areas outside city boundaries. Provide Law Enforcement for all unincorporated area of Shoshone County and the Cities of Mullan, Wallace, and Smelterville.
List your currently available technological resources for use in responding to emergencies in your service area (e.g. list of fire protection apparatus, snow plows, search and rescue trucks, etc.)	4 Backhoes 3 Crawler Tractors 1 Mini Excavator 1 Large Excavator 10 Road Graders 9 Front end Loaders 2 Chippers 25 Pickups 2 Plow/Sander Trucks 14 Sander Trucks 2 Mechanics Shop Trucks 14 Trailers 1 Suburban 3 Single Axel Dump Trucks 19 Tandem Axel Dump Trucks 1 Lowboy 1 3000 Gallon Water Truck 28 Law Enforcement vehicles 5 ATV's 3 Snowmobiles 1 Command Trailer
List your currently available human resources for use in responding to emergencies in your service area (e.g. detail staff by position and number, plus volunteers)	1 Emergency Manager 3 County Commissioners 2 Planning and Zoning officials 1 Public Works Director 2 Public Works Administrative Assistants 27 Public Works Equipment Operators 28 Commissioned Law Enforcement Officers 3 Law Enforcement Administrative Assistants

	10 Volunteer Law Enforcement Officers 30 Volunteer Search and Rescue Members
List your organization's technological needs for responding to hazard emergencies, which are not currently in inventory, in your service area (eg., fire trucks or water tenders, fire hydrant network, radio communications network, etc.)	5 Hand held portable radios 2 laptop computers 5- ¾ ton 4x4 Law Enforcement Pickups 3 high performance Snowmobiles 1 Tandem Axel enclosed Trailer 3 Road Graders 4 Front End Loaders 1 Backhoe 2 Mechanic Shop Trucks 6- ¾ ton Pickups with snow plows 1 two-ton Deicer Truck 2 Snow Plow/Sander trucks.
List your organization's human resource needs for responding to hazard emergencies, which are not currently utilized, in your service area (eg., additional number of paid staff, more volunteers, training for volunteers and staff, etc.)	1 trained GIS specialist 1 qualified finance officer 2 qualified Information Computer Personnel 3 Volunteer Radio Operators 1 trained Public Information Officer 4 Equipment Operators 1 Assistant Public Works Director
City of Kellogg	
Name and Position of Person Preparing this Summary	Walter J. Hadley Planning Administrator
Address and Telephone	1007 McKinley Avenue Kellogg, Idaho 83837 208-786-9131
Service Area	City of Kellogg
Describe your services and organization goals in overview (100 words or less)	I provide planning services, floodplain administration, grant writing, park and roadway planning within the City limits of Kellogg, Idaho. Our overall goal within the city is to provide a safe environment for residents while allowing planned development within those areas suitable for development to build our tax base and economy.
List your currently available technological resources for use in responding to emergencies in your service area (e.g. list of fire protection apparatus, snow plows, search and rescue trucks, etc.)	The city has a number of trucks and pieces of equipment that can be mobilized to plow snow, flood fight, and provide support for wildfire and search and rescue efforts.
List your currently available human resources for use in responding to emergencies in your service area (e.g. detail staff by position and number, plus volunteers)	The City of Kellogg currently has 25 employees and 5 advisory boards with approximately 35 volunteers that could help in a time of need.
List your organization's technological needs for responding to hazard emergencies, which are not currently in inventory, in your service area (eg., fire trucks or water tenders, fire hydrant network, radio communications network, etc.)	An upgraded radio system of portables

List your organization's human resource needs for responding to hazard emergencies, which are not currently utilized, in your service area (eg., additional number of paid staff, more volunteers, training for volunteers and staff, etc.)	Training for volunteers and staff would be nice
City of Mullan	
Name and Position of Person Preparing this Summary	Daniel T. White, City Council Member
Address and Telephone	112 Terril Loop PO Box 475 Mullan, ID 83846 208-744-1515
Service Area	Mullan City limits and impact area
Describe your services and organization goals in overview (100 words or less)	General city municipality services
List your currently available technological resources for use in responding to emergencies in your service area (e.g. list of fire protection apparatus, snow plows, search and rescue trucks, etc.)	1970 International, Pumper Fire Truck 1996 Freightliner, Fire Truck 1975 Ford, Dump Truck 1989 Chevrolet, K3500 pickup with snowplow and sander 2000 John Deer, 624H 4WD loader with Monroe snowplow 2008 John Deer, 544J 4WD loader with Monroe snowplow 1970 Austin Western, Maintainer 1985 Kubota, Trackhoe
List your currently available human resources for use in responding to emergencies in your service area (e.g. detail staff by position and number, plus volunteers)	Two street workers with about 25 volunteer firemen
List your organization's technological needs for responding to hazard emergencies, which are not currently in inventory, in your service area (eg., fire trucks or water tenders, fire hydrant network, radio communications network, etc.)	None at this time.
List your organization's human resource needs for responding to hazard emergencies, which are not currently utilized, in your service area (eg., additional number of paid staff, more volunteers, training for volunteers and staff, etc.)	Additional volunteer EMP's, more training for volunteer firemen and street workers in hazardous waste containment.
City of Obsurn	
Name and Position of Person Preparing this Summary	Charles Angle
Address and Telephone	921 E. Mullan Avenue Osburn ID
Service Area	City of Osburn
Describe your services and organization goals in overview (100 words or less)	General city municipality services
List your currently available technological resources for use in responding to emergencies in your service area (e.g. list of fire protection apparatus, snow plows, search and rescue trucks, etc.)	2 loaders equipped with snow plows 2 single axle dump trucks with bladed 3,000 gal water tanker truck 1 sweeper truck with vac.
List your currently available human resources for use in responding to emergencies in your service area (e.g. detail staff by position and number, plus volunteers)	3 paid staff: 2 Police Officers and 1 Public Works person

List your organization's technological needs for responding to hazard emergencies, which are not currently in inventory, in your service area (eg., fire trucks or water tenders, fire hydrant network, radio communications network, etc.)	We need radios for all emergency and public works vehicles.
List your organization's human resource needs for responding to hazard emergencies, which are not currently utilized, in your service area (eg., additional number of paid staff, more volunteers, training for volunteers and staff, etc.)	Two volunteers when available.
City of Pinehurst	
Name and Position of Person Preparing this Summary	Carla Ross, City Clerk
Address and Telephone	106 North Division P.O. Box 417 Pinehurst, ID 83850 208-682-3721
Service Area	City of Pinehurst
Describe your services and organization goals in overview (100 words or less)	At this time the City is limited to one full time police officer and one full time street employee. It would be ideal if we could hire 2 more full time police officers and another full time street employee. This would allow for better service to the community and less that we need to rely on the County for help.
List your currently available technological resources for use in responding to emergencies in your service area (e.g. list of fire protection apparatus, snow plows, search and rescue trucks, etc.)	The City has a dump truck with mounted plow and two other vehicles with mounted plows.
List your currently available human resources for use in responding to emergencies in your service area (e.g. detail staff by position and number, plus volunteers)	We currently have a police chief, 3 reserve officers and a street overseer.
List your organization's technological needs for responding to hazard emergencies, which are not currently in inventory, in your service area (eg., fire trucks or water tenders, fire hydrant network, radio communications network, etc.)	The City could use a front end loader and grader and two newer police vehicles. The police department also needs to upgrade their radios.
List your organization's human resource needs for responding to hazard emergencies, which are not currently utilized, in your service area (eg., additional number of paid staff, more volunteers, training for volunteers and staff, etc.)	The City could use one or two more full time police officers, another full time street employee and training for volunteers.
City of Smelterville	
Name and Position of Person Preparing this Summary	Lee Haynes, City Planner
Address and Telephone	PO Box 340, Smelterville, ID
Service Area	City of Smelterville
Describe your services and organization goals in overview (100 words or less)	The City of Smelterville is a rural town with limited resources. The City employs two street and general maintenance personnel who also fill positions as Sewer Treatment Plant Technicians. The City also employs a full-time City Clerk and a part-time City Planner / consultant. The City provides snow removal, sewer maintenance and compliance, park service and general maintenance to City property. The City of Smelterville recently completed a sewer line replacement project and upgrade to the wet well at the Sewer Treatment Plant. The City will start a storm water replacement project this fall using Army Corps of Engineers 595

	funding. The City is annexing numerous properties into the City limits north and adjacent to the current City limits.
List your currently available technological resources for use in responding to emergencies in your service area (e.g. list of fire protection apparatus, snow plows, search and rescue trucks, etc.)	1 – ¾ ton Dodge diesel truck with snow plow (2006) 1 – 3 ton Chevy dump truck with snow plow (1987) 1 – Computer system with Internet 1 – ATV 2 seater
List your currently available human resources for use in responding to emergencies in your service area (e.g. detail staff by position and number, plus volunteers)	1 – city planner (formerly Shoshone County Disaster Services Director) 2 – City street and sewer personnel
List your organization's technological needs for responding to hazard emergencies, which are not currently in inventory, in your service area (eg., fire trucks or water tenders, fire hydrant network, radio communications network, etc.)	Back hoe Track hoe Fire Truck EMS
List your organization's human resource needs for responding to hazard emergencies, which are not currently utilized, in your service area (eg., additional number of paid staff, more volunteers, training for volunteers and staff, etc.)	Fire Police Engineering
City of Wallace	
Name and Position of Person Preparing this Summary	Chase Sanborn, City Council
Address and Telephone	703 Cedar Street Wallace, ID 83873 208-660-3430
Service Area	City limits of the City of Wallace
Describe your services and organization goals in overview (100 words or less)	The City of Wallace is responsible for providing services which directly affect the lives of their residents. Through fire and police protection, Wallace safeguards lives and property. Wallace also constructs and maintain streets, provide facilities for sewage, storm drainage, and waste disposal, and look after health, recreational and social needs. The City of Wallace also provides water. City planning and zoning determine land use compatible with community economic, environmental, historic and cultural goals. To carry out the functions of local government, Wallace is granted powers by the state of Idaho. City of Wallace may legislate to protect the health, safety, and welfare of their people, provided that these regulations are not in conflict with Idaho or federal law. Wallace may generate revenue by levying taxes, by license and service fees, and by borrowing. Wallace may employ needed personnel. They may condemn property for public use. While the city of Wallace powers are derived from the Idaho constitution and from laws enacted by the legislature, Wallace was created only by the request and consent of the residents in our area.
List your currently available technological resources for use in responding to emergencies in your service area (e.g. list of fire protection apparatus, snow plows, search and rescue trucks, etc.)	2 Pick-ups with snowplows 2 Front end loaders 1 Grader 1 Sander

	1 Water truck
List your currently available human resources for use in responding to emergencies in your service area (e.g. detail staff by position and number, plus volunteers)	2 Full time Public Works employees 1 Full time office staff 1 Part time office staff 2 Part time Library staff 7 Full time Pool staff (Summer Only)
List your organization's technological needs for responding to hazard emergencies, which are not currently in inventory, in your service area (eg., fire trucks or water tenders, fire hydrant network, radio communications network, etc.)	Radio's and radio communication network 1 Dump Truck 1 Front end Loader
List your organization's human resource needs for responding to hazard emergencies, which are not currently utilized, in your service area (eg., additional number of paid staff, more volunteers, training for volunteers and staff, etc.)	Volunteers nd Volunteer Training
City of Wardner	
Name and Position of Person Preparing this Summary	Rhonda Kays, City Council
Address and Telephone	537 S. Main Street Wardner, ID 83837 208-209-3862
Service Area	City of Wardner
Describe your services and organization goals in overview (100 words or less)	To anticipate and provide for the needs of the community through quality service, innovation and leadership for today and in the future. Our goals are: Committed to delivery of quality services, provide a safe community with a high quality of life, strive to be proactive, innovative and plan for the future, encourage broad-based public dialogue and consensus concerning strategic issues, and finally to protect the financial health of the City and promote the economic viability of the region.
List your currently available technological resources for use in responding to emergencies in your service area (e.g. list of fire protection apparatus, snow plows, search and rescue trucks, etc.)	1995 Dodge flatbed truck ($25,000) 1998 New Holland tractor ($52,865) 1999 International dump truck ($45,000) 2005 Tennant power sweeper ($30,417)
List your currently available human resources for use in responding to emergencies in your service area (e.g. detail staff by position and number, plus volunteers)	None
List your organization's technological needs for responding to hazard emergencies, which are not currently in inventory, in your service area (eg., fire trucks or water tenders, fire hydrant network, radio communications network, etc.)	Fire truck Water tenders Radio communications network
List your organization's human resource needs for responding to hazard emergencies, which are not currently utilized, in your service area (eg., additional number of paid staff, more volunteers, training for volunteers and staff, etc.)	The City of Wardner needs volunteers and training for those volunteers.
Community of Clarkia	
Name and Position of Person Preparing this Summary	Karen Anderson (Community Member) and Mellisa Stoor (Community Member)
Address and Telephone	PO Box 1146, 83 Cedar Street Clarkia, Idaho 83812

Service Area	Clarkia Community
Describe your services and organization goals in overview (100 words or less)	Clarkia's goal is to have an emergency plan in place that will utilize our community members, because out resources are limited. Knowing whom to get in touch with for services would be a great asset.
List your currently available technological resources for use in responding to emergencies in your service area (e.g. list of fire protection apparatus, snow plows, search and rescue trucks, etc.)	Clarkia Road District (County), has two snow plows and a water truck for community use and the US Forest Service has a water truck, radio, GPS, and a helipad for non-private uses. Clarkia has one fire hydrant in town and a 980 (loader) at the Potlatch log yard for loading trucks, trains, and dump trucks.
List your currently available human resources for use in responding to emergencies in your service area (e.g. detail staff by position and number, plus volunteers)	Emergencies are responded to by community members. We also have Road District and Water and Sewer District employees (wheat Kruger and Fred Turner), a librarian (Karen Anderson), and a Forest Service employee (Wanda Edwards) who share in responses when needed.
List your organization's technological needs for responding to hazard emergencies, which are not currently in inventory, in your service area (eg., fire trucks or water tenders, fire hydrant network, radio communications network, etc.)	The Clarkia Community is very self-sufficient, but we desperately need phone lines that are reliable, because of our aging community dynamics. During the winter months our phone services are often disconnected due to weather and our cell and satellite phone reception is seldom possible.
List your organization's human resource needs for responding to hazard emergencies, which are not currently utilized, in your service area (eg., additional number of paid staff, more volunteers, training for volunteers and staff, etc.)	Most emergency personnel can be flown into Clarkia in a timely manner. Training for volunteers in medical and fire services would be used extensively.

Table 68. Fire Protection Resources, Capabilities, and Needs

Shoshone County Fire District #1	
Name and Position of Person Preparing this Summary	James R. Walcker, Fire Chief
Address and Telephone	P.O. Box 723 Osburn, Idaho 83849 208-752-1101
Service Area	Service Area: MP 55 West to MP 65 East, Unincorporated area within the Cities of Wallace-Osburn. The total size of area is 14 square miles.
Describe your services and organization goals in overview (100 words or less)	Fire and EMS response to citizenry and visitors Public education programs. Goal is to improve services continuously.
List your currently available technological resources for use in responding to emergencies in your service area (e.g. list of fire protection apparatus, snow plows, search and rescue trucks, etc.)	3 Engines (1250/1000/750) 2 water tenders (2100/3000) 1 Type 6 Brush 1 medium rescue/extrication
List your currently available human resources for use in responding to emergencies in your service area (e.g. detail staff by position and number, plus volunteers)	Career: 1-Fire Chief 1-Sr. FF/EMT (In charge in absence of Chief) 2-FF/EMT Volunteers:

	5 FF/EMT 7- EMT 14 FF/Driver 7 Auxiliary
List your organization's technological needs for responding to hazard emergencies, which are not currently in inventory, in your service area (eg., fire trucks or water tenders, fire hydrant network, radio communications network, etc.)	P-25 Compliant radios Portables-16 min Mobiles-7 min Base-2 min SCBA Inventory upgrade to CBRN (20 minimum) Replace/Upgrade hydrants in District New Fire Station/EOC-DO NOT OWN A BUILDING Replace aging apparatus/Engines: 1-over 25 years old, 1-over 21 years old, 1- over 18 years old
List your organization's human resource needs for responding to hazard emergencies, which are not currently utilized, in your service area (eg., additional number of paid staff, more volunteers, training for volunteers and staff, etc.)	Double career staff at a minimum; 4 personnel per shift is national standard Update training standards to FF 1 minimum (Volunteer) Update training standards to FF2/EMTA (Career) Develop retention program that is realistic Automatic aid agreements/consolidation of districts
Shoshone County Fire District #2	
Name and Position of Person Preparing this Summary	Dale A. Costa, Fire Chief
Address and Telephone	14 W. Market Street Kellogg, ID 83837 208-784-1188
Service Area	Starting at I-90 milepost 55.5 west to milepost 29.5. Down State highway 3 to milepost 103.4. We service both Western Shoshone and Eastern Kootenai County. We only go approximately 2-tenths of a mile up the Coeur d'Alene River from I-90. We take in all the gulches within our jurisdiction. Pinecreek we up 10 miles from the station to the Spokane/Idaho Mine. Approximately 2 miles above the Sunshine Mine. We do have 37 private fire protection contracts up the Coeur d'Alene River. Our district covers approximately 200 square miles.
Describe your services and organization goals in overview (100 words or less)	Shoshone County Fire District No. 2 responds to both structural and wildland fires within our jurisdiction. We provide basic first responder non- transport Emergency Medical Services, Heavy Rescue Extrication and some Backcountry Rescue Operations and are capable of responding to any Hazardous Materials Situation, to provide for rescue operations, and initial size up along with securing the scene until the arrival of the Region 1 Response Team. We also provide mobile decontamination services. In addition, we provide ice rescue services and have six certified drivers that are supported by the Fire District to work with the Shoshone County Dive Rescue Team. Shoshone County Fire District No. 2 is dedicated to providing a Well Trained, Highly Efficient, and Cost Effective Fire / Rescue Entity along with Public Services provided to all the citizens and visitors that are encountered.

List your currently available technological resources for use in responding to emergencies in your service area (e.g. list of fire protection apparatus, snow plows, search and rescue trucks, etc.)	Shoshone County Fire District No. 2 operates out of 4 stations with a 5th to be built this Summer. The 2 fire stations in Kellogg are owned by the City. Both the Kellogg and Doyle Road Stations have training rooms. Apparatuses We have six type on engines that meet or exceed NFPA Standards. One is equipped with an on board foam system and three have onboard generators with lights. 3 Equipped with 1500 GPM pumps with 1000 gallons of water. 1 Equipped with 1000 GPM pump with 750 gallons of water. 1 Equipped with 750 GPM pump with 750 gallons of water. 1 Equipped with 1500 GPM pump with 1000 gallons of water. 1 50-foot aerial platform, 1000 GPM pump with 300 gallons of water. 1 2500 Gallon Water Tender. 1 Heavy Rescue Extrication Vehicle with the Hurst "Jaws of Life". 1 2500 Gallon Water Tender. 1-250 gallon Water Donkey, not potable. 1 Hazardous material Response Trailer. 9 Level A Hazardous Material suites. 6 level A Training suites. Decontamination Equipment. Portable Propane Hot Water Heater. 4 CBRNE Certified Self Contained Breathing Apparatus. 1 – 6000 PSI Hypress Compressor with 4 bottle Cascade System. 2 – 2 bottle Cascade Systems. 6 Ice Rescue Suites. 2 Fold-A-Tanks, 1-2500 gallon and 1-1500 galloon. 2 Thermal Imaging Cameras, one with remote video feed. 2 District owned command Vehicles.
List your currently available human resources for use in responding to emergencies in your service area (e.g. detail staff by position and number, plus volunteers)	8 Career Fire Fighters with 2 Chief Officers and 6 Fire Fighters with 2 on duty 24-7. 30 Volunteer Fire Fighters.
List your organization's technological needs for responding to hazard emergencies, which are not currently in inventory, in your service area (eg., fire trucks or water tenders, fire hydrant network, radio communications network, etc.)	We need to update our portables and pagers. We provide one each for all personnel and 1 for each of our apparatus. Total need is 47 of each. All our equipment is old and we maintain them to the best of our ability. We are updating when possible We need to add three water tenders and three type 6 brush trucks, one for each of our stations. We need a 100-foot ladder for Kellogg, which would require a new station for it to fit in.
List your organization's human resource needs for responding to hazard emergencies, which are not currently utilized, in your service area (eg., additional number of paid staff, more volunteers, training for volunteers and staff, etc.)	We need to add 9 fire fighters to bring us back to our 1982 staffing with duty personnel 24-7. To meet NFPA standards we need 18 personnel to be in complacence with NFPA 2-in-2-out rule on a first in engine.
Shoshone County Fire District #3	
Name and Position of Person Preparing this Summary	Bruce VanBroeke
Address and Telephone	PO Box 83, Mullan, ID 83846 208-744-1194
Service Area	All Private structures outside the City of Mullan in the Eastern part of Shoshone County. Approximately 100 residences and several industrial facilities.

Describe your services and organization goals in overview (100 words or less)	Provide structure fire protection to the unincorporated areas in the eastern parts of Shoshone County. Work in cooperation with the Mullan Volunteer Fire Department to assist them in structure protection within the City of Mullan. District #3 has three Fire Commissioners and shares 20 Volunteer Firemen with Mullan. Assure that all Volunteers are trained and equipped to provide safe fire operations. Assist Idaho Department of Lands and US Forest Service in Wildland Fire suppression as requested.
List your currently available technological resources for use in responding to emergencies in your service area (e.g. list of fire protection apparatus, snow plows, search and rescue trucks, etc.)	District #3 has one fire station and City of Mullan has one Station we share the following equipment: One 4000 gallon water tender, One type 6 engine, One type 7 engine and Two type 3 structure engines.
List your currently available human resources for use in responding to emergencies in your service area (e.g. detail staff by position and number, plus volunteers)	3 Fire commissioners 1 volunteer chief 20 volunteer firefighters 4 EMT's
List your organization's technological needs for responding to hazard emergencies, which are not currently in inventory, in your service area (eg., fire trucks or water tenders, fire hydrant network, radio communications network, etc.)	Updated communications equipment including repeaters, portable and mobile radios and pagers to be compliant with new regulations. One combined structure and wildland engine, 3000 gallon an all-wheel drive.
List your organization's human resource needs for responding to hazard emergencies, which are not currently utilized, in your service area (eg., additional number of paid staff, more volunteers, training for volunteers and staff, etc.)	Would like to have 2 paid positions, 4 additional trained EMT's, structure and hazardous materials training.
Shoshone County Fire District #4	
Name and Position of Person Preparing this Summary	-
Address and Telephone	-
Service Area	-
Describe your services and organization goals in overview (100 words or less)	-
List your currently available technological resources for use in responding to emergencies in your service area (e.g. list of fire protection apparatus, snow plows, search and rescue trucks, etc.)	3 – 1,000 gallon Water Trucks 1 – 2007 6-passenger Type 2 structural engine 2 – buildings located in Calder and Marble Creek
List your currently available human resources for use in responding to emergencies in your service area (e.g. detail staff by position and number, plus volunteers)	1 chief 12 volunteers
List your organization's technological needs for responding to hazard emergencies, which are not currently in inventory, in your service area (eg., fire trucks or water tenders, fire hydrant network, radio communications network, etc.)	-
List your organization's human resource needs for responding to hazard emergencies, which are not currently utilized, in your service area (eg.,	-

additional number of paid staff, more volunteers, training for volunteers and staff, etc.)	
Prichard-Murray Volunteer Fire Department	
Name and Position of Person Preparing this Summary	-
Address and Telephone	Prichard / Murray Volunteer Fire Department Inc. 21109 Coeur D'Alene River Road Wallace, Idaho 83873 208-682-3952
Service Area	-
Describe your services and organization goals in overview (100 words or less)	-
List your currently available technological resources for use in responding to emergencies in your service area (e.g. list of fire protection apparatus, snow plows, search and rescue trucks, etc.)	Stations: Prichard Station; 21109 Coeur d'Alene River Road, Wallace, Idaho 83873 Type 1 Engine, 1- Type 2 Water Tender, 1- Type 4 Brush Unit, 1- EMS ILS / Rescue Vehicle Murray Station; 6343 Prichard Creek Road, Murray, Idaho 83874 1-Type 1 Engine 1- EMS BLS response vehicle Equipment Summary: E511 Type 1 Engine w/1500 gpm pump and 750 gal water (1986 Mack) E512 Type 1 Engine w/1250 gpm pump and 1,000 gal water (1983 Spartan) T521 Type 2 Tender w/375 gpm pump and 2,700 gal water (1965 Military 5 ton) R531 Rescue vehicle w/EMS, Extrication, Water Rescue (2007 Dodge) R532 Rescue Vehicle w/EMS (1989 Suburban) B541 Type 4 Engine w/100 gpm pump and 750 gal water (1983 International)
List your currently available human resources for use in responding to emergencies in your service area (e.g. detail staff by position and number, plus volunteers)	Personnel summary: ID, Name, Rank, Station, Alt. Phone, Phone C501, Steve Coyle, Chief / EMT, Prichard, 664-3398 (CDA), 682-3952 C502, James Cleveland, Asst. Chief / EMT-A, Murray, 682-4436 C503, Joe Moos, Captain / EMT, Prichard, 682-9137 C504, Rich Babin, Captain, Prichard, 682-3990 C505, Captain, Murray C506, Mike Decker, Engineer, Prichard, 682-2310 C507, Dewey Skaggs, Engineer / EMT, Prichard, 682-4420, 682-9954 C508, Ron Wilson, Engineer, Murray, 682-3903 C509, Donna Skaggs, Safety Officer / EMT, Prichard, 682-4420, 682-9954 P510, Terran Tester, Prevention Officer, Prichard, 682-4003 F590, Donald Erickson, Firefighter, Prichard, 682-4720

	F591, Corlina Erickson, Firefighter / EMT, Prichard, 682-4450 F592, Randy Childress, Firefighter, Prichard, 682-4653 F593, James McFeeley, Firefighter, Murray, 682-4708 F594, Mariann Cleveland, Firefighter / EMT, Murray, 512-0209, 682-4436 F595, Clint Kunze, Firefighter / EMT, Prichard, 682-2267 F596, Lloyd Roath Firefighter, Murray, 682-3901 (work), 682-4787
List your organization's technological needs for responding to hazard emergencies, which are not currently in inventory, in your service area (eg., fire trucks or water tenders, fire hydrant network, radio communications network, etc.)	-
List your organization's human resource needs for responding to hazard emergencies, which are not currently utilized, in your service area (eg., additional number of paid staff, more volunteers, training for volunteers and staff, etc.)	-

Table 69. Organization and Agency Resources, Capabilities, and Needs

South Fork Coeur d'Alene River Sewer District	
Name and Position of Person Preparing this Summary	Ross Stout, District Manager
Address and Telephone	PO Box 783, Osburn ID 83849 208-753-8041
Service Area	All communities along the South Fork Coeur d'Alene River, from Mullan to Pinehurst
Describe your services and organization goals in overview (100 words or less)	Sewage collection and treatment to maintain public and aquatic health.
List your currently available technological resources for use in responding to emergencies in your service area (e.g. list of fire protection apparatus, snow plows, search and rescue trucks, etc.)	Vactor unit Sewer jet VAC tank truck (1500 gal/cap) Power rodder Trailer mounted generator TV unit and push cameras Contained space entry equipment
List your currently available human resources for use in responding to emergencies in your service area (e.g. detail staff by position and number, plus volunteers)	Four collection / treatment plant operators
List your organization's technological needs for responding to hazard emergencies, which are not currently in inventory, in your service area (eg., fire trucks or water tenders, fire hydrant network, radio communications network, etc.)	Six inch trailer mounted pump unit with associated suction and discharge piping.
List your organization's human resource needs for responding to hazard emergencies, which are not currently utilized, in your service area (eg.,	Engineering specialist.

additional number of paid staff, more volunteers, training for volunteers and staff, etc.)	
Idaho Department of Lands – Cataldo Supervisory Area	
Name and Position of Person Preparing this Summary	Bob Burke, Area Manager
Address and Telephone	Idaho Department of Lands/ Cataldo Supervisory Area 80 Hilltop Overpass Road Kingston ID, 83839 Office: 208.682.4611 Fax: 208.682.2991
Service Area	Administrative Area, Forest Practices/ Lands, Minerals and Range = 888,300 acres Fire/ Forest Protection District = 312,300 acres State Endowment Management = 34,000 acres
Describe your services and organization goals in overview (100 words or less)	Our Mission: "We will manage endowment trust lands to maximize long-term financial returns to the beneficiary institutions and provide protection to Idaho's natural resources." The services we provide in support of our mission are: Endowment Land management Fire Suppression Regulatory Functions For Slash Management Forest Practices Mineral Reclamation Navigable Waters
List your currently available technological resources for use in responding to emergencies in your service area (e.g. list of fire protection apparatus, snow plows, search and rescue trucks, etc.)	1- Type 6 Wildland fire engine (300 Gal.) w/ portable pumps, chainsaw, hand tools, fittings and hoses. (mobile radio, GPS, Kestrel). Vehicle: 31-F-42 2- Type 5 Wildland fire engines (500 Gal.) w/ portable pumps, chainsaws, hand tools, fittings and hoses. (mobile radio, GPS, Kestrel). Vehicle: 31-F-43 and Vehicle: 31-F- 47. 14- Portable/ Programmable Radios (Bendix King GPH) 4- ATV's; Vehicle: 31-F-45, Vehicle: 31-T-52, Vehicle: 31-T-55, Vehicle: 31-T-59. 9- four wheel drive pickups; Vehicle: 31-F-40; ½ ton Vehicle: 31-F-41; ½ ton Vehicle: 31-F-44; 1 ton crew Vehicle: 31-T-12; ¾ ton Vehicle: 31-T-18; ½ ton crew Vehicle: 31-T-48; ¾ ton Vehicle: 31-T-49; ¾ ton Vehicle: 31-T-53; 1 ton crew Vehicle: 31-T-54; ¾ ton Two Snowmobiles; Vehicle: 31-T-51 and Vehicle: 31-T-20 Two Camp Trailers; Unit: 31-F-50, and Unit: 31-F-57. Other supplies may be obtained through the Coeur d'Alene Interagency Fire Cache

List your currently available human resources for use in responding to emergencies in your service area (e.g. detail staff by position and number, plus volunteers)	Position, Duties: Area Manager, Line Officer Fire Warden, Fire, Hazard Mgmt., Forest Practices Assistant Fire Warden, Fire, Hazard Mgmt., HFT Private Forestry Specialist, FPA, Service Forestry, Fire Private Forestry Technician, FPA, Service Forestry, Fire 2 Endowment Foresters, Timber Mgmt., Fire Office Specialist, Receptionist, Office Admin Administrative Assistant, Office Admin Resource Foreman- Fire, Fire Suppression, Hazard Mgmt., HFT 8 Seasonal Firefighters, Fire Suppression, HFT, Hazard Mgmt. Timber Technician, Salvage, Direct Timber Sale Admin. Timber Resource Foreman, Timber Sale Preparation
List your organization's technological needs for responding to hazard emergencies, which are not currently in inventory, in your service area (eg., fire trucks or water tenders, fire hydrant network, radio communications network, etc.)	Reference Idaho Department of Lands Fire Mobilization Guide for additional Resources.
List your organization's human resource needs for responding to hazard emergencies, which are not currently utilized, in your service area (eg., additional number of paid staff, more volunteers, training for volunteers and staff, etc.)	Reference Idaho Department of Lands Fire Mobilization Guide for additional Resources.
Panhandle Health District	
Name and Position of Person Preparing this Summary	Jerry Cobb, Program Manager
Address and Telephone	114 W. Riverside Ave. Kellogg, ID 83837 208-783-0707
Service Area	Shoshone County and Kootenai County within the Superfund Site
Describe your services and organization goals in overview (100 words or less)	Institutional Control Program (ICP) of the Bunkerhill Superfund Site: The Institutional Controls Program (ICP) is a locally enforced set of rules and regulations designed to ensure the integrity of clean soil and other protective barriers placed over contaminants left throughout the Bunker Hill Superfund Site. The ICP Provides education, sampling assistance and access to permanent disposal sites for contaminated soils generated site wide. Work permits are required for excavation or grading projects and certain interior projects. All contractors doing such work must be licensed by the ICP. The fundamental purpose of the ICP is to protect the public health and assist local land transactions within the Superfund Site. ICP website is located at: ww.phd1.idaho.gov
List your currently available technological resources for use in responding to emergencies in your service area (e.g. list of fire protection apparatus, snow plows, search and rescue trucks, etc.)	2 – ½ ton 4-wheel drive pickups 1 – 1 ton dual wheel truck with a dump box 3 – 1yd hydraulic lift trailers 35 mm and digital cameras and video cameras Large electronic and paper database on contamination site wide

	Cell phones Sampling equipment
List your currently available human resources for use in responding to emergencies in your service area (e.g. detail staff by position and number, plus volunteers)	1 – Program Manager 2 – Field personnel 1 – Full-time administrative Assistant 1 – Part-time Administrative Assistant List of all contractors licensed through the ICP
List your organization's technological needs for responding to hazard emergencies, which are not currently in inventory, in your service area (eg., fire trucks or water tenders, fire hydrant network, radio communications network, etc.)	We have no radio communication capability.
List your organization's human resource needs for responding to hazard emergencies, which are not currently utilized, in your service area (eg., additional number of paid staff, more volunteers, training for volunteers and staff, etc.)	None at this time.
Basin Environmental Improvement Project Commission	
Name and Position of Person Preparing this Summary	Terry A. Harwood, PE Executive Director
Address and Telephone	1005 W. McKinley Kellogg, ID 83837 208-783-2528
Service Area	CDA Basin from headwaters to Spokane River west of Spokane.
Describe your services and organization goals in overview (100 words or less)	Commission is established to implement, direct, and/or coordinate environmental remediation, natural resource restoration, and related measures to address water quality and heavy metal contamination in the CDA Basin. This includes coordinating the implementation of the 2002 Record of Decision approved pursuant to the Comprehensive Environmental Response Compensation Liability Act (CERCLA). Commission also works on implementation of Phase II of the Bunker Hill Comprehensive Cleanup Plan, adoption and implementation/coordination of the Lake Coeur d'Alene Management Plan, and remediation of heavy metal contamination at specific mining sites in the North Fork of the Coeur d'Alene River.
List your currently available technological resources for use in responding to emergencies in your service area (e.g. list of fire protection apparatus, snow plows, search and rescue trucks, etc.)	None
List your currently available human resources for use in responding to emergencies in your service area (e.g. detail staff by position and number, plus volunteers)	2 staff members: Terry A. Harwood, PE Executive Director Jeri DeLange, Assistant to the ED Remainder of support is provided by a team of technical leaders from the various agencies cooperating within the Commission.
List your organization's technological needs for responding to hazard emergencies, which are not currently in inventory, in your service area (eg., fire trucks or water tenders, fire hydrant network, radio communications network, etc.)	None

List your organization's human resource needs for responding to hazard emergencies, which are not currently utilized, in your service area (eg., additional number of paid staff, more volunteers, training for volunteers and staff, etc.)	None
Bureau of Land Management	
Name and Position of Person Preparing this Summary	Kurt Pavlat, Assistant Field Manager, Coeur d'Alene Field Office
Address and Telephone	3815 Schreiber Way Coeur d'Alene, ID 83815 208- 769-5038
Service Area	Boundary, Bonner, Kootenai, Benewah and Shoshone Counties
Describe your services and organization goals in overview (100 words or less)	Multiple use and sustained yield management of federal public lands located in the five northern counties of Idaho. BLM resource specialists located in Coeur d'Alene specialize in forest management, hazardous fuels management, botany, wildlife/fisheries management, lands/realty, noxious/invasive species management, hydrology, geology/mine engineering, GIS, IT, environmental engineering, outdoor recreation management, environmental planning, law enforcement, cadastral survey, public affairs, financial management and abandoned mine land (AML) management.
List your currently available technological resources for use in responding to emergencies in your service area (e.g. list of fire protection apparatus, snow plows, search and rescue trucks, etc.)	The BLM has a type 6 fire engine located in Coeur d'Alene.
List your currently available human resources for use in responding to emergencies in your service area (e.g. detail staff by position and number, plus volunteers)	The BLM has one Law Enforcement Officer (LEO), various ICS qualified personnel (fire), one hydrologist, one mining engineer, one budget analyst, one public affairs officer, one information technology (IT) specialist, three administrative assistants and one environmental engineer located in Coeur d'Alene.
List your organization's technological needs for responding to hazard emergencies, which are not currently in inventory, in your service area (eg., fire trucks or water tenders, fire hydrant network, radio communications network, etc.)	N/A
List your organization's human resource needs for responding to hazard emergencies, which are not currently utilized, in your service area (eg., additional number of paid staff, more volunteers, training for volunteers and staff, etc.)	N/A
US Forest Service	
Name and Position of Person Preparing this Summary	James Grasham, Assistant Fire Management Officer
Address and Telephone	222 South 7th Street St. Maries, ID 83861 208-245-6062
Service Area	Wildland fire protection on approximately 778,880 acres located within the St. Joe, Little North Fork of the Clearwater and St. Maries river drainages.
Describe your services and organization goals in overview (100 words or less)	The St. Joe Ranger District is dedicated to the highest quality of Natural Resource Stewardship while fostering teamwork, good communication, and respect within our agency and

	communities. The primary mission of the St. Joe Fire Management program is to provide safe, organized, mobile and highly skilled engine and hand crews for all phases of wildland fire suppression and fire and fuels management. Crew organization, qualifications, equipment and specialized skills can also be utilized to meet other management objectives.
List your currently available technological resources for use in responding to emergencies in your service area (e.g. list of fire protection apparatus, snow plows, search and rescue trucks, etc.)	Two Type IV Engines and two Type VI Engines with six persons each. We have several portable pumps and chainsaws along with various water handling equipment and tools. We also have approximately 30 programmable Bendix King Portable Radios and two Palm Infra-red cameras for location of hotspots.
List your currently available human resources for use in responding to emergencies in your service area (e.g. detail staff by position and number, plus volunteers)	Personnel include: 1 District Fire Management Officer 2 Assistant District Fire Management Officers 26 production fire fighters 1 fire prevention technician
List your organization's technological needs for responding to hazard emergencies, which are not currently in inventory, in your service area (eg., fire trucks or water tenders, fire hydrant network, radio communications network, etc.)	Coeur d'Alene Interagency Fire Cache and Resource Orders to Coeur d'Alene Interagency Dispatch Center for additional resource needs.
List your organization's human resource needs for responding to hazard emergencies, which are not currently utilized, in your service area (eg., additional number of paid staff, more volunteers, training for volunteers and staff, etc.)	Administered on a regional, state, and national level.
Avista Corporation	
Name and Position of Person Preparing this Summary	Allison Sieverding, Construction Design Rep
Address and Telephone	120 N Hill St Kellogg Id 83837 208-659-9761
Service Area	Silver Valley (Office also serves St. Maries and Avery)
Describe your services and organization goals in overview (100 words or less)	We are an electric and gas provider. We generate and distribute these commodities across our distribution system which includes transmission and generation facilities.
List your currently available technological resources for use in responding to emergencies in your service area (e.g. list of fire protection apparatus, snow plows, search and rescue trucks, etc.)	5 aerial devices up to 60' high 2 line trucks – for lifting a limited load 2 snow cat vehicles with plow Misc. small trucks, pickups
List your currently available human resources for use in responding to emergencies in your service area (e.g. detail staff by position and number, plus volunteers)	8- field personnel (Silver Valley) 3 administration 5 field personnel (St. Maries – for Avery)
List your organization's technological needs for responding to hazard emergencies, which are not currently in inventory, in your service area (eg., fire trucks or water tenders, fire hydrant network, radio communications network, etc.)	Avista Corp. would assist in every way possible to protect and or support our electric and gas facilities. Our other offices would provide the same type of support as our local office, but with more manpower.

List your organization's human resource needs for responding to hazard emergencies, which are not currently utilized, in your service area (eg., additional number of paid staff, more volunteers, training for volunteers and staff, etc.)	Avista Corp. would assist in every way possible to protect and or support our electric and gas facilities. Our other offices would provide the same type of support as our local office, but with more manpower.

6.7 National Flood Insurance Capabilities

6.7.1 Overview

In response to the mounting flood-related losses over the 20th century, the US Congress passed the National Flood Insurance Act (NFIA) of 1968, which instituted the National Flood Insurance Program (NFIP). The NFIP made flood insurance available to communities that agreed to adopt and enforce floodplain management ordinances, through hazard mitigation planning, site design and construction standards, and land use regulations. The NFIP was based on the premise that populations located in flood-prone areas (e.g., the 100-year floodplain) should bear a substantial portion of the cost to reduce community vulnerability and bear responsibility for a majority of losses should the community experience a flood disaster. Table 69 details the county's participation and policies in the NFIP.

According to FEMA's policy statistics for Idaho, seven of the eight participating NFIP communities hold at least one active policy (Table 70). The City of Kellogg holds the most at 382 polices whereas the City of Mullan holds six policies. The City of Wardner is the only incorporated community that does not hold any flood insurance policies as of 7/5/2016.

Table 70. National Flood Insurance Program statistics

Community Name	NFIP Status	CRS Status*	Flood Claims**	Claims Paid	Repetitive Loss Properties	Total NFIP Policies	Total Insurance Coverage	Avg. Premium Price
Shoshone County (unincorporated areas)	Yes	Yes	105	$772,153	6	92	$13,347,600	$795
City of Kellogg	Yes	Yes	10	$30,153	0	382	$55,198,200	$495
City of Mullan	Yes	No	1	0	0	6	$593,100	$878
City of Osburn	Yes	No	1	0	0	13	$1,180,800	$828
City of Pinehurst	Yes	No	8	$147,623	2	65	$7,828,500	$673
City of Smelterville	Yes	No	0	0	0	39	$5,063,500	$751
City of Wallace	Yes	No	0	0	1	13	$1,973,900	$1,842
City of Wardner	Yes	No	0	0	0	0	0	-
County-wide	-	-	125	$949,929	9	610	$85,185,600	-

*as of 5/1/2014

**as of 7/5/2016

6.7.2 NFIP Community Rating System

The NFIP Community Rating System (CRS) is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements. As a result, flood insurance premium rates are discounted to reflect the reduced flood risk resulting from the community actions meeting the three goals of the CRS: reduce flood losses; facilitate accurate insurance rating; and promote the awareness of flood insurance.

The CRS provides for 10 classes, with Class 1 having the most premium credit and communities in Class 10 receiving none. A community's CRS class is based on the number of credit points calculated for the activities that are undertaken to reduce flood losses, facilitate accurate flood insurance rating, and promote the awareness of flood insurance. Shoshone County is currently enrolled in the CRS Program with a score of seven and a 15 percent flood insurance discount for the Special Flood Hazard Area (SFHA) and the City of Kellogg also participates with a score of eight and a ten percent flood insurance discount for the SFHA.

The following is a brief description of the 18 activities that receive credit under the CRS:

- 300 Series – Public information
    - 310 - Elevation Certificates
    - 320 - Map Information Service
    - 330 - Outreach Projects
    - 340 - Hazard Disclosure
    - 350 - Flood Protection Information
    - 360 - Flood Protection Assistance
- 400 Series – Mapping and Regulations
    - 410 - Additional Flood Data
    - 420 - Open Space Preservation
    - 430 - Higher Regulatory Standards
    - 440 - Flood Data Maintenance
    - 450 - Storm Water Management
- 500 Series – Flood Damage Reduction
    - 510 - Floodplain Management Planning
    - 520 - Acquisition and Relocation
    - 530 - Flood Protection
    - 540 - Drainage System Maintenance
- 600 Series – Flood Preparedness
    - 610 - Flood Warning
    - 620 - Levee Safety
    - 630 - Dam Safety

Additional benefits a community realizes from participation in the CRS include:

- The CRS floodplain management activities provide enhanced public safety, a reduction in damage to property and public infrastructure, avoidance of economic disruption and losses, reduction of human suffering, and protection of the environment.
- A community can evaluate the effectiveness of its flood program against a nationally recognized benchmark.
- Technical assistance in designing/implementing some activities is available at no charge. A CRS community's flood program benefits from having an added incentive to maintain its flood programs over the years. The fact that the community's CRS status could be affected by the elimination of a flood-related activity, or a weakening of the regulatory requirements for new development, should be taken into account by the governing board when considering such actions. A similar system used in fire insurance rating has had a strong impact on the level of support local governments give to their fire protection programs.
- Implementing some CRS activities, such as floodplain management planning, can help a community qualify for certain federal assistance programs.

6.7.3 NFIP Repetitive Loss Properties

Repetitive loss properties under the NFIP are those which have had two or more flood losses reported which were paid more than $1,000 for each loss within a 10-year period. Significant repetitive loss properties are those that have experienced four or more separate building and content claims since 1978 each exceeding $5,000.

Shoshone County has a total of nine repetitive loss or significant repetitive loss properties, with six in the unincorporated areas, two in the City of Pinehurst, and one in the City of Wallace. All of them were single-family dwellings. One parcel experienced seven losses over the period from 1980 until 2007. A total of nearly $301,861 has been paid to offset RFLP damages to buildings and contents over this period. One of the Pinehurst properties was determined to be located outside of the city in the rural community of Kingston and is appropriately listed under the County's NFIP policy.

Three of the RFLP parcels (located in unincorporated areas) were mitigated in response to flood loss events impacting those parcels in 1980. The most recent recorded RFLP loss occurred in 1997. Two properties in this category were impacted in 1996, two in 1995, and one in 1990.

Because RFLP structures are recorded only for structures insured by the NFIP, this summary is not inclusive of all properties suffering from repetitive losses in a general sense. It includes only those structures insured by NFIP that suffered these repetitive loss events. Other losses by homeowners not insured by the NFIP are not recorded in these statistics.

The Shoshone County Floodplain Administrator has provided a complete review of these properties to FEMA and determined that through a series of activities, only one parcel, located along the St. Joe River floodplain, still contains a structure. This structure is a garage attached to a private residence.

The following details RFLP parcels in Shoshone County:

- RFLP# 0049257
    - Location: Enaville, CID# 160114
    - This property is no longer considered a RFLP property.
    - Updated as no building on property – on 01/28/2005.
- RFLP# 0033016
    - Location: Enaville, CID# 160114
    - This property is no longer considered a RFLP property.
    - Updated as "unable to locate" - on 03/24/1999.
- RFLP# 0117740
    - Location: Enaville, CID# 160114
    - No building or floodplain development permits have been issued to this parcel since last claim.
    - Per site inspection by Community Floodplain Administrator, no structures exist on this property.
- RFLP# 0080642
    - Location: Big Eddy on the St. Joe River, CID#160114
    - Update cosmetic changes to the address: RP-49N02E-31-3140 A
    - After review of the site conditions of the subject and surrounding property it appears that the past loss claims are a direct result of the residence structure design. The residence is a typical Ranch style with a daylight garage. The garage floor elevation is below the locally determined BFE.
    - Potential mitigation measures and various sources of information and floodplain education have been explored and discussed with the property owner(s). To the knowledge of the County, no structural modifications or improvements have been completed. However, the Berm/levee area has been elevated over the years by the adjacent property owners.
    - Most of the adjacent properties are predominately used by recreational vehicles, however, there are six (6) permanent (Assessable) structures potentially at risk of flood damage. No new structure(s) will be allowed within this area without meeting FEMA Floodway/Floodplain construction requirements.
- RFLP# 0016498
    - Location: Enaville, CID# 160114
    - Update Cosmetic changes to the address
    - Duplicate listing with RFLP # 0016497
    - Previously updated- this property is no longer considered a RFLP property – Updated as flood protection provided – on 04/21/1999 Structure was raised to BFE.
- RFLP# 0016497
    - Location: Enaville, CID# 160114
    - Update Cosmetic changes to the address
    - Duplicate listing with RFLP # 0016498
    - Previously updated- this property is no longer considered a RFLP property – Updated as flood protection provided – on 04/21/1999 Structure was raised to BFE.

- SEE RFLP# 0016498.

RFLP parcels located in a municipality:

- RFLP# 0085259
  - Location: Pinehurst, CID # 160200
  - Pcl # G-0100-002-002-0
  - Country Club Lane
  - Udated as- Property located with the 0.2 % chance flood hazard area (500-year flood zone) per September 28, 2008 FIRM. No further mitigation is known.
- RFLP# 0078381
  - Location: Pinehurst, CID # 160200 (Currently, See update notes below)
  - Pcl# 49N02E-08-0800
  - Palo Road
  - Kingston is actual location of this parcel placing the parcel in the Shoshone County CID
  - # 160114
  - Actually located outside of incorporated limits of the City of Pinehurst -Community # 160200. Residence was constructed within Floodway designated portion of the FIRM. Residence built to BFE as required at the time of construction and remodel after last claim.
- RFLP# 011303
  - Location: Wallace, CID # 160118
  - Cedar St., Wallace
  - Property located with the 0.2 % chance flood hazard area per September 28, 2008 FIRM. No further mitigation is known.

6.7.4 Flood Property Buy-Out Program

Loss-prone flood properties can be purchased by the county through the flood buy-out program, using FEMA-awarded mitigation funds dispersed post-disaster. This approach is supported by the US Federal Government, and has been employed successfully across the nation. The caveat is that the property cannot be used subsequently for structure development and is therefore removed from the County's tax base. Acceptable uses include wetland, parks, and even sporting fields. This option remains available to Shoshone County and the municipalities as a mitigation measure.

For instance, the Federal Government offered to buy out flood-prone properties in order to prevent repeated disasters after the 1993 Midwest floods. Several communities accepted, and a partnership between state and federal governments bought 25,000 properties that were then converted into wetlands. These wetlands now act natural hazard mitigation areas against further storms, and proved successful when floods returned in 1995.

In Shoshone County, several flood buyout properties have been transacted between FEMA, Shoshone County, and willing sellers. These flooded property buyouts were in response to flood activities in 1998, 1999, 2001, and 2002. A complete summary of property buyout actions in Shoshone County includes:

- Disaster 1102 X ID
    - Project 0002, Completed 08/27/1998. One parcel.
        - 130 Palo Road, Kingston, ID 83839. Parcel 49NO2E-08-0760
    - Project 0007, Completed 08/27/1998. One parcel.
        - 2472A CDA River Road, Kingston, ID 83839. Parcel 49NO2E-19-8700.
    - Project 0008, Completed 08/27/1998. Seven parcels.
        - 42928 Kingston, Kingston ID 83839. Parcel 49NO16-36-1540.
        - 42942 Riverview Drive, Kingston ID 83839. Parcel 49NO1E-36-1560.
        - 42988 Riverview Drive, Kingston ID 83839. Parcel 49NO166-36-1900.
        - 43000 Riverview Drive, Kingston ID 83839. Parcel 49NO1E-36-1620.
        - 43092 Riverview Drive, Kingston ID 83839. Parcel 49NO1E-36-1880.
        - 42948 Riverview Drive, Kingston ID 83839. Parcel 49NO1E-36-1580.
        - 43036 Riverview Drive, Kingston ID 83839. Parcel 49NO1E-36-1680
    - Project 0009, Completed 08/27/1998. Three parcels.
        - 5438 CDA River Road, Kingston, ID 83839. Parcel 49NO26E-08-1530
        - 5482 CDA River Road, Kingston, ID 83839. Parcel 49NO2E-08-1540
        - 5580 CDA River Road, Kingston, ID 83839. Parcel 49NO2E-08-1570
    - Project 0027, Completed 08/27/1998. Five parcels
        - 2000 CDA River Road, Kingston, ID 83839. Parcel 0-1550-007-003-A
        - 2020 CDA River Road, Kingston, ID 83839. Parcel 0-1550-007-001-0
        - 1831 CDA River Road, Kingston, ID 83839. Parcel 49NO2E-30-8100
        - 27 Enaville Street Kingston, ID 83839. Parcel 49NO1E-30-1275
        - 41 Enaville Street Kingston, ID 83839. Parcel 49NO1E-30-1300
    - Project 0028, Completed 01/31/1999. One parcel.
        - 0000 Corner of Main & Division, Kellogg, ID 83835. Parcel D-0100-010-000-015-0.
- Disaster 1177 X ID
    - Project 0012, Completed 01/29/2002. Three parcels.
        - 0583 Riverview Drive, Cataldo, ID 83810. Parcel 0-0925-000-004-0
        - 40586 Riverview Drive, Cataldo, ID 83810. Parcel 0-1180-001-007
        - 13584 S Cataldo Road, Cataldo, ID 83810. Parcel 49NO1E-34-4150
    - Project 0013, Completed 02/02/2001. One Parcel.
        - 42892 Riverview Drive, Kingston, ID 83873. Parcel 49NO1E-36-1500

It is important to note that the eighteen parcels listed above include only residential property acquisitions in Shoshone County affected as a result of specific disasters. This is not a comprehensive summary of properties suffering from repeated flood losses in Shoshone County. As a matter of

current municipality and county policies, flooded property buy-out options are reviewed in response to declared disasters. At the time, the option for purchasing these parcels becomes available, the property buy-out program is considered and implemented.

6.7.5 Current & Future NFIP Compliance

Communities participating in the NFIP within Shoshone County adopted and enforced floodplain management ordinances in order to maintain good standing within the program.

As of the 2017 plan update, communities participating in NFIP within Shoshone County will continue to enforce their floodplain management ordinances over this plan's life-cycle in order to maintain good standing within the program; this will be done with oversight and collaboration with the State Floodplain Coordinator and FEMA.

6.8 Mitigation Funding Programs & Opportunities

Mitigation assistance can be sought after through various funding sources. These sources can be financial, technical, or education/outreach related. Provided below are funding sources that are available for communities and individuals within Shoshone County.

Table 71. Funding sources for mitigation actions

Name: Bureau of Land Management (BLM) Communities at Risk (Community Assistance) Program
Description: Provides financial assistance to local jurisdictions in Idaho for efforts that support fire prevention activities. Funds may be used for planning efforts (including the use of GIS software and support), the hiring of countywide WUI coordinators, and education efforts such as FIREWISE. Funds may also be used to reduce hazardous fuels accumulations on non-Federal lands; however, use of funds for this purpose may require environmental clearance. Applications are available through Grants.gov. Please contact your local BLM line officer or fire mitigation specialist for more information. Eligible Recipients: County Wildland Fire Interagency Groups, county governments, communities, not-for-profit entities.
Additional Information: Jon Skinner, Idaho Fire Mitigation Specialist Bureau of Land Management, Idaho State Office

(208) 373-3854

Name: Community Assistance Program – State Support Services Element (CAP-SSSE)

Description: This program provides funding to States to provide technical assistance to communities in the National Flood Insurance Program (NFIP) and to evaluate community performance in implementing NFIP floodplain management activities.

Additional Information: http://www.fema.gov/plan/prevent/floodplain/fema_cap-ssse.shtm

Name: Community Development Block Grant (CDBG) Program

Description: The CDBG program provides grants and technical assistance to federally designated and non-designated municipalities for any type of community development. An Entitlement component provides funding for designated communities via a set formula. The Competitive component provides funding of up to $500,000 to non-federally designated communities. These grants may be used for infrastructure improvement, public services, or development and planning, but 70% of the project must benefit low- and moderate-income persons. CDBG money can be used as matching funds for the FEMA HMA grant programs.

Additional Information: U.S. Department of Housing and Urban Development; Phone: 208-334-1990
ID_Webmanager@hud.gov

Name: Community Forestry Program

Description: The Community Forestry Program transfers technology and provides financial assistance to develop awareness and understanding of the value of sound urban/community forestry management among community citizens and leaders. Assistance is provided to Idaho communities to establish and enhance sustainable urban and community forestry management programs for public and private lands.

Additional Information: http://www.idl.idaho.gov/bureau/community_forestry/home/index.htm

Joyce Jowdy
Phone: 208-666-8622
Fax: 208-769-1524
Email: jjowdy@idl.idaho.gov

Name: The Conservation Reserve Program (CRP)

Description: The CRP is a voluntary program for agricultural landowners. Through CRP, landowners can receive annual rental payments and cost-share assistance to establish long-term, resource-conserving vegetative covers on eligible farmland. The Commodity Credit Corporation (CCC) makes annual rental payments based on the agriculture rental value of the land, and it provides cost-share assistance for up to 50% of the participant's costs in establishing approved conservation practices. Participants enroll in CRP contracts for 10 to 15 years.

Additional Information:

USDA/FSA
Idaho State FSA
9173 West Barnes Drive
Boise, ID 83709-1573
Phone: 208-378-5650
Fax: 208-378-5678

Name: Continuing Authorities Program

Description: Congress has provided the USACE with a number of standing authorities to study and build water resource projects for various purposes without additional project specific congressional authorization. The types of projects addressed by the Continuing Authorities Program include emergency streambank and shoreline erosion, small flood control projects, small navigation projects, and snagging and clearing for flood control.

Additional Information: US Army Corps of Engineers cenww-pa@usace.army.mil

Name: Department of Commerce/Economic Development Authority (EDA)

Description: EDA was created by Congress pursuant to the Public Works and Economic Development Act of 1965 to provide financial assistance to distressed communities, both rural and urban. EDA's mission is to lead the Federal economic development agenda by promoting innovation and competitiveness, preparing American regions for growth and success in the worldwide economy. EDA will fulfill its mission by fostering entrepreneurship, innovation, and productivity through investments in infrastructure development, capacity building, and business development. These investments will be made to attract private capital investments and higher-skill, higher-wage jobs to regions experiencing substantial and persistent economic distress. EDA works in partnership with distressed regions to address problems associated with long-term economic distress and to assist regions experiencing sudden and severe economic dislocations, such as those resulting from natural disasters,

conversions of military installations, changing trade patterns, and the depletion of natural resources. EDA investments generally take the form of grants to or cooperative agreements with eligible recipients.

EDA provides assistance via:

- Construction Grant Program
- Planning Grants
- Revolving Loan Fund
- Technical Assistance Grants

Additional Information:

Economic Development Authority
Jackson Federal Building, Room 1890
915 Second Avenue
Seattle, WA 98174-1001
Phone: 206-220-7660
Fax: 206-220-7669
A. Leonard Smith, Regional Director
lsmith7@eda.doc.gov

Idaho Department of Commerce
700 W State Street
P.O. Box 83720
Boise, ID 83720-0093
Phone: (208) 334-2470
Fax: (208) 334-2631

Name: Department of Homeland Security Grant (HSGP) Program

Description: The HSGP consists of three sub-programs: the State Homeland Security Program (SHSP), Urban Areas Security Initiative (UASI), and Operation Stonegarden (OPSG). The SHSP is the core assistance program in this suite; it provides funds to build capabilities at the State and local levels and to implement the goals and objectives included in State homeland security strategies and initiatives in their State Preparedness Reports. At least 25% of these funds are dedicated towards anti-terrorism activities. UASI focuses on enhancing regional preparedness in metropolitan areas, while OPSG is intended to enhance cooperation and coordination among law enforcement agencies in a joint mission to secure the U.S. border. Program priorities include the integration of law enforcement, fire, and emergency medical service providers for a coordinated response to mass casualty incidents; and support citizen preparedness drills and exercises. Priorities may vary each fiscal year.

Additional Information: http://www.bhs.idaho.gov/Pages/FinanceAndLogistics/Grants.aspx

Name: Department of Transportation/Federal Highway Administration (FHWA) Emergency Relief Program
Description: Congress authorized in Title 23, United States Code, Section 125, a special program from the Highway Trust Fund for the repair or reconstruction of Federal-aid highways and roads on Federal lands which have suffered serious damage as a result of (1) natural disasters or (2) catastrophic failures from an external cause. This program, commonly referred to as the emergency relief or ER program, supplements the commitment of resources by States, their political subdivisions, or other Federal agencies to help pay for unusually heavy expenses resulting from extraordinary conditions.
Additional Information: **FHWA Idaho Division Office** 3050 Lakeharbor Lane, #126 Boise, ID 83703 FHWA Office Phone : (208) 334-1843

Name: Drought Assistance Programs
Description: Natural disaster is a constant threat to America's farmers and ranchers and rural residents. USDA provides assistance for losses from drought, flood, fire, freezing, tornadoes, pest infestation, and other calamities.
Additional Information: **Dennis McNees, Commodity Technician (Emergency Food Assistance)** Tel: (208) 332-6820 Fax: (208) 334-2228 Email: dwmcnees@sde.idaho.gov **Gene Sue Weppner (Food Stamp- Emergency Assistance)** Program Manager Division of Welfare State of Idaho 450 West State Street, 2th Floor Boise, ID 83720 Tel: (208) 334-5656 Cell: (208) 850-8250 Fax: (208) 334-5817 Email: weppnerg@dhw.idaho.gov

Christine Baylis, CPM
Policy Specialist
Idaho Department of Health & Welfare
Division of Welfare
State of Idaho
450 West State Street, 2nd Floor
Boise, ID 8372
Tel: (208) 334-5742
Fax: (208) 334-5817
Email: baylisc@dhw.idaho.gov

Name: Emergency Management Performance Grants (EMPG)

Description: The Federal Government, through the EMPG Program, provides necessary direction, coordination, and guidance, and provides necessary assistance, as authorized in this title so that a comprehensive emergency preparedness system exists at all levels for all hazards for States, Territories, federally-recognized tribes and local communities. Participating communities develop performance goals for their emergency management programs and design projects to meet those goals. After being funded, the participants must evaluate progress and report back to BHS to remain eligible.

Additional Information: http://www.fema.gov/fy-2013-emergency-management-performance-grants-empg-program-0

Name: Environmental Planning and Historic Preservation (EHP) Program

Description: The EHP Program integrates historic preservation considerations with FEMA's mission of preparedness, response, recovery, and mitigation. During disaster recovery operations, the agency assesses damages to historic and cultural resources, provides technical assistance to States and local jurisdictions, and ensures compliance with applicable Federal laws and regulations, such as the National Historic Preservation Act.

Additional Information: http://www.fema.gov/environmental-planning-and-historic-preservation-program

Name: Federal Excess Personal Property Program

Description: The program is administered by the USDA's Forest Service with delivery through the State Forester. The Federal Excess Personal Property (FEPP) program re-utilizes excess Federal property obtained from military

and other Federal sources for use in rural and wildland firefighting. This equipment is loaned by agreement to State Foresters, who can sub-loan it to local firefighting organizations.
Eligible Recipients: Rural Fire Departments serving 10,000 people or less.

Additional Information:

Dee Sessions
Stewardship/Forest Land Enhancement Program/Legacy/Forest Resource Management/Cooperative Watershed/CostShare
Phone: 801-625-5189
Email: dsessions@fs.fed.us

Cathy Scofield
Coop Fire - Idaho, N. Dakota, and Montana
Phone: 406-329-3409
cscofield@fs.fed.us

Name: FEMA: Firefighter Assistance Grants

Description: This competitive grant from the Federal Emergency Management Agency provides direct assistance to fire protection organizations. Funds may be awarded for training safety and equipment, firefighting vehicles, fire prevention equipment, or emergency services.

Eligible Recipients: fire departments at all levels.

Additional Information: Firefighter Assistance Grants website: http://www.fema.gov/welcome-assistance-firefighters-grant-program or firegrants@dhs.gov

Name: Fire Management Assistance Grant Program

Description: Fire Management Assistance is available to State, local, and Tribal governments for the mitigation, management, and control of fires on publicly or privately owned forests or grasslands, which threaten such destruction as would constitute a major disaster. The Fire Management Assistance declaration process is initiated when a State submits a request for assistance to the FEMA Regional Administrator at the time a "threat of major disaster" exists. The entire process is accomplished on an expedited basis, and FEMA's decision is rendered in a matter of hours.

Additional Information:

Federal Emergency Management Agency
Federal Regional Center
130 - 228th Street, Southwest
Bothell, WA 98021-8627
(425) 487-4600

Name: Flood Mitigation Assistance Program (FMA) Program

Description: The FMA program is authorized by Section 1366 of the National Flood Insurance Act of 1968, as amended with the goal of reducing or eliminating claims under the National Flood Insurance Program (NFIP). FMA provides funding to States, Territories, federally-recognized tribes and local communities for projects that reduce or eliminate long-term risk of flood damage to structures insured under the NFIP. FMA funding is available for flood hazard mitigation projects, plan development and management costs. Funding is appropriated by Congress annually.

Additional Information: http://www.fema.gov/pre-disaster-mitigation-grant-program

Name: Flood Plain Management Services (FPMS) Program

Description: Section 206 of the 1960 Flood Control Act (PL 86-645), as amended, provides the authority for the U.S. Army Corps of Engineers (USACE) to provide assistance and guidance on all aspects of floodplain management planning. The program develops or interprets site-specific data on obstructions to flood flows, flood formation and timing; and the extent, duration, and frequency of flooding. Upon request, program services are provided to State, regional, and local governments, Indian Tribes, and other non-Federal public agencies without charge.

Additional Information: US Army Corps of Engineers cenww-pa@usace.army.mil

Name: Forest Stewardship Program (FSP)

Description: the FSP provides technical assistance, through State forestry agency partners, to nonindustrial private forest owners to encourage and enable active long-term forest management. A primary focus of the FSP is the development of comprehensive, multi-resource management plans that provide landowners with the information they need to manage their forests for a variety of products and services.

Participation in the FSP is open to any non-industrial private forest landowners who are committed to the active management and stewardship of their forested properties for at least 10 years. The FSP is not a cost-share

program. Cost-share assistance for plan implementation may be available through other programs, such as the Forest Land Enhancement Program.

Additional Information:

Dee Sessions
Stewardship/Forest Land Enhancement Program/Legacy/Forest Resource Management/Cooperative Watershed/CostShare
Phone: 801-625-5189
Email: dsessions@fs.fed.us

Name: Hazard Mitigation Assistance Grant Program (HMAGP)

Description: The FMA program is authorized by Section 1366 of the National Flood Insurance Act of 1968, as amended with the goal of reducing or eliminating claims under the National Flood Insurance Program (NFIP). FMA provides funding to States, Territories, federally-recognized tribes and local communities for projects that reduce or eliminate long-term risk of flood damage to structures insured under the NFIP. FMA funding is available for flood hazard mitigation projects, plan development and management costs. Funding is appropriated by Congress annually.

Additional Information: http://www.fema.gov/government/grant/hma/index.shtm

Name: Hazardous Materials Emergency Preparedness Grant (HMEPG)

Description: Grant funds will be passed through to local emergency management offices and HazMat teams having functional and active LEPC's.

Additional Information: http://www.bhs.idaho.gov/Pages/FinanceAndLogistics/Grants.aspx

Name: Idaho Fish and Wildlife Foundation

Description: The Idaho Fish and Wildlife Foundation is dedicated to the conservation of natural resources; fish, wildlife, and habitat. The Foundation is a 501 (c) (3) nonprofit organization established in 1990 and is headquartered in Boise, Idaho. Board members represent all regions of the State and work to enhance Idaho's fish and wildlife habitat. The Foundation grants funding for statewide conservation and education projects.

Additional Information: (208)334-2648 or ifwf@idfg.idaho.gov

Name: Individuals and Households Program (IHP)

Description: The IHP is a combined FEMA and State program. When a major disaster occurs, this program provides money and services to people in the declared area whose property has been damaged or destroyed and whose losses are not covered by insurance. In every case, the disaster victim must register for assistance and establish eligibility.

Additional Information: http://www.fema.gov/individual-assistance-program-tools

Name: Inspection of Completed Works Program

Description: Civil works structures whose failure or partial failure could jeopardize the operational integrity of the project, endanger the lives and safety of the public, or cause substantial property damage are periodically inspected and evaluated to ensure their structural stability, safety, and operational adequacy. For structures constructed by the USACE and turned over to others for operation and maintenance, the operating entity is responsible for periodic inspection and evaluation. The USACE may conduct the inspection on behalf of the project sponsor, provided appropriate reimbursement to the USACE is made. However, the USACE may participate in the inspection with the operating entity at the government's expense.

Additional Information: US Army Corps of Engineers cenww-pa@usace.army.mil

Name: Internal Revenue Service (IRS) Casualty Loss-Special Disaster Provisions

Description: Special tax law provisions may help taxpayers and businesses recover financially from the impact of a disaster, especially when the Federal government declares their location to be a major disaster area. Depending on the circumstances, the IRS may grant additional time to file returns and pay taxes. Both individuals and businesses in a federally declared disaster area can get a faster refund by claiming losses related to the disaster on the tax return for the previous year, usually by filing an amended return.

The IRS also offers audio presentations on Planning for Disaster. These presentations discuss business continuity planning, insurance coverage, recording keeping and other tips to stay in business after a major disaster.

Additional Information: http://www.irs.gov/businesses/small/article/0,,id=156138,00.html

Name: National Earthquake Hazards Reduction Program (NEHRP)
Description: Under NEHRP, The National Earthquake Technical Assistance (NETAP) Program is a technical assistance program created to provide short-term, no-cost architectural and engineering support related to earthquake mitigation. Examples of NETAP projects are seismic retrofit/evaluation training, evaluation of seismic hazards to critical/essential facilities, post-earthquake evaluations of buildings, and the development of retrofit guidance for homeowners. BHS administers this program in Idaho.
Additional Information: http://www.fema.gov/plan/prevent/earthquake/training_pubs.shtm for training information. For more information: **Ms. Tamra Biasco** Federal Emergency Management Agency (425) 487-4645 tamra.biasco@dhs.gov

Name: National Flood Insurance Program (NFIP)
Description: The NFIP offers flood insurance to homeowners, renters, and business owners if their community participates in the NFIP. Communities participate in the NFIP by adopting and enforcing floodplain development controls designed to reduce future flood risks in the 1-percent-annual-chance floodplain. The program is available to all floodprone communities (participation in NFIP is voluntary), and most eligible communities have elected to participate. IDWR administers the program in Idaho, and insurance is sold through State-licensed companies. The NFIP includes Increased Cost of Compliance (ICC) coverage for new and renewed Standard Flood Insurance Policies. ICC is an effective way to help cover costs of meeting community floodplain ordinance requirement for high risk properties and may be considered in combination with other funding streams. Community Rating System - The NFIP's Community Rating System (CRS) is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements. Flood insurance premium rates are discounted to reflect the reduced flood risk resulting from community actions meeting the three goals of the CRS.
Additional Information: http://www.fema.gov/business/nfip/

Name: National Oceanic Atmospheric Restoration Center Grants

Description: The NOAA Restoration Center is devoted to restoring the Nation's coastal ecosystems and preserving diverse and abundant marine life. Through its strong commitment to restoration and by promoting partnerships and local stewardship, our programs inform and inspire people to act on behalf of a healthier coastal environment

Additional Information:

Lauren Senkyr
Idaho NOAA
1201 NE Lloyd Boulevard, Suite 1100
Portland, OR 97232
Phone: 503-231-2110
Fax: 503-231-6265
Lauren.Senkyr@noaa.gov

Name: Pacific Northwest Region Water Quality Program

Description: The goal of the Pacific Northwest Program is to provide leadership for water resources research, education, and outreach to help communities, industry, and governments prevent and solve current and emerging water quality and quantity problems. To achieve this goal, the Partners have developed a coordinated regional water quality effort based on promoting and strengthening individual State programs.

The Pacific Northwest Program promotes regional collaboration by acknowledging existing programs and successful efforts; assessing program gaps; identifying potential issues for cross-agency and private sector collaboration; and developing a clearinghouse of expertise and programs. In addition, the program establishes or enhances partnerships with Federal, State, and local environmental and water resource management agencies, such as placing a University Liaison within the offices of EPA Region 10.

Additional Information:

Robert L. Mahler
Ph.D., Professor
University of Idaho
Soil and Environmental Sciences,
Soil Science Division
Moscow, ID 83844-2339
Phone: 208-885-7025
FAX: 208-885-7760
bmahler@uidaho.edu

Name: Planning Assistance to States Program
Description: Section 22 of the Water Resources Development Act (WRDA) of 1974, as amended, provides authority for the USACE to assist States, local governments, and other non-Federal entities in the preparation of comprehensive plans for the development and conservation of water and related land resources. Section 208 of the WRDA of 1992 amended the WRDA of 1974 to include Native American Tribes as equivalent to a State.
Additional Information: US Army Corps of Engineers cenww-pa@usace.army.mil

Name: Pre-Disaster Mitigation (PDM) Program
Description: The PDM Program, authorized by Section 203 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, is designed to assist States, territories, Federally-recognized tribes, and local communities in implementing a sustained pre-disaster natural hazard mitigation program. The goal is to reduce overall risk to the population and structures from future hazard events, while also reducing reliance on Federal funding in future disasters. This program awards planning and project grants and provides opportunities for raising public awareness about reducing future losses before disaster strikes. PDM grants are funded annually by Congressional appropriations and are awarded on a nationally competitive basis.
Additional Information: http://www.fema.gov/pre-disaster-mitigation-grant-program

Name: Public Assistance (PA) Program
Description: Funding provided through federally declared disaster assistance programs may be used for mitigation actions as part of the recovery process. This funding is administered by BHS. Examples of such applications include the PA Program. The measures must apply only to the damaged elements of a facility rather than to other, undamaged parts of the facility or to the entire system. Section 406 mitigation measures are considered part of the total eligible costs of repair, restoration, reconstruction, or replacement of a facility. They are limited to measures of permanent work, and the Applicant may not apply mitigation funding to alternate projects or improved projects if a new replacement facility is involved. Required upgrades meeting applicable codes and standards are part of eligible restoration work and are not considered mitigation measures.
Additional Information: http://www.fema.gov/public-assistance-local-state-tribal-and-non-profit/hazard-mitigation-funding-under-section-406-0

Name: Rehabilitation and Inspection Program
Description: The Rehabilitation and Inspection Program is the USACE program that provides for inspection of flood control projects, the rehabilitation of damaged flood control projects, and the rehabilitation of federally authorized and constructed hurricane or shore protection projects
Additional Information: US Army Corps of Engineers cenww-pa@usace.army.mil

Name: Reimbursement for Firefighting on Federal Property
Description: Under Section 11 of the Federal Fire Prevention and Control Act of 1974, fire departments may be reimbursed for fighting fire on property owned by the Federal government. Only firefighting costs over and above normal operating costs are reimbursable. Claims are submitted to USFA and are reviewed by the Deputy Administrator to ensure they meet the criteria outlined in the Code of Federal Regulations.
Additional Information: Reimbursement is paid to the fire departments by the U.S. Department of Treasury after a claim is approved for payment. For more information, please contact the USFA's Tim Ganley at (301) 447-1358.

Name: Rural Fire Assistance (RFA) Program
Description: Eligible Recipients: Rural Fire Departments serving 10,000 people or less that are adjacent to BLM land. Types of projects or purchases that are acceptable: • Personal Protective Equipment • New-generation fire shelters/case • Communications equipment • Basic Tools • Basic Wildland Fire Training Contact BLM for specifics on purchasing guidelines. The U.S. Fish & Wildlife Service, Bureau of Indian Affairs, and National Park Service also have RFA funds available for rural fire departments with protection areas adjacent to these Federal lands. Please contact your local Federal representative for information.
Additional Information: BLM Rural Fire Assistance Program (RFA):

Jon Skinner, Rural Fire Assistance Coordinator
Bureau of Land Management, Idaho State Office
(208) 373-3854

Name: Rural Housing Programs

Description: This service is responsible for providing safe, sanitary, and affordable housing for rural families with very low income, low income, and moderate income. The Rural Housing Program delivers its services through a wide range of housing programs, including programs supporting single-family homeownership, multi-family rental housing, and farm labor housing.

Additional Information:

Roni Atkins, Director, Housing Program Director
9173 West Barnes, Ste A1
Boise, ID 83709
Phone: 208-378-5630
E-Mail: roni.atkins@id.usda.gov

Name: Small Business Administration (SBA) Disaster Loan Programs

Description: The SBA Disaster Loan Program provides businesses low-interest, long-term loans to repair or replace damaged property owned by the business, including real estate, machinery and equipment, inventory, and supplies. Homeowners may also qualify for low-interest loans to help rebuild or repair their homes or repair or replace uninsured or underinsured flood-damaged personal property. Renters may qualify for loans to repair or replace personal property. Economic Injury Disaster Loans provide working capital to small businesses and small agricultural cooperatives to assist them through the recovery period.

Additional Information: Small Business Administration; Phone: (916) 735-1500

Name: State Dam Safety Program

Description: The State DSP is administered in Idaho by the IDWR. This program focuses on inspection, classification, and emergency planning for dam safety and permitting of Emergency Action Plans (EAPs). Funding may be used for a variety of projects, including dam safety – related training for State personnel and training in the field for dam owners on conducting annual maintenance reviews; revision of State maintenance and operation guidelines; improvements to dam inventory databases; and, creation of dam safety videos and outreach materials.

Additional Information:

The Idaho Water Center
322 East Front Street
PO Box 83720
Boise, Idaho 83720-0098
Phone: (208) 287-4800
Fax: (208) 287-6700

Name: The Steele-Reese Foundation Grant Program

Description: The Steele-Reese Foundation, a trust for charitable purposes, was created by Eleanor Steele Reese on August 10, 1955. The foundation makes grants to charitable organizations operating in Idaho and Montana, and in the southern Appalachian mountain region of eastern Kentucky.

Rural Conservation: Examples include composting programs, wildlife projects, ecosystem protection programs, and water projects. All conservation/environmental programs must be locally, rather than regionally, focused. National organizations are eligible for support only if all Steele-Reese funds will be employed directly in projects located in the geographical areas served by this foundation.

Rural Health: Examples include hospices; preventive health programs; equipment for clinics, small hospitals, EMS and ambulance units; family-planning programs.

Rural Humanities: Examples include local arts groups and local historical projects.

Additional Information:

Linda Tracy
Western Program Director
The Steele-Reese Foundation
PO Box 8311
Missoula, MT 59807-8311
E-mail: linda@steele-reese.org
Phone: (406) 207-7984
Fax: (207) 470-3872

Name: USDA Farm Service Agency's (FSA) Emergency Conservation Program (ECP)
Description: The ECP provides emergency funding and technical assistance for farmers and ranchers to rehabilitate farmland damaged by natural disasters and to carry out emergency water conservation measures in periods of severe drought. Funding for ECP is appropriated by Congress. County FSA committees determine land eligibility based on onsite inspections of damage, taking into account the type and extent of damage. For land to be eligible, the natural disaster must create new conservation problems that, if untreated, would: • impair or endanger the land; • materially affect the land's productive capacity; • represent unusual damage which, except for wind erosion, is not the type likely to recur frequently in the same area; and • be so costly to repair that Federal assistance is or will be required to return the land to productive agricultural use.
Additional Information: http://disaster.fsa.usda.gov

Name: USDA Farm Service Agency's (FSA) Tree Assistance Program (TAP)
Description: TAP provides financial assistance to qualifying orchardists and nursery tree growers to replant or rehabilitate eligible trees, bushes and vines damaged by natural disasters occurring on or after Jan. 1, 2008, and before Oct. 1, 2011. TAP was authorized by the 2008 Farm Bill and is funded through the Agricultural Disaster Relief Trust Fund.
Additional Information: **USDA/FSA** Idaho State FSA 9173 West Barnes Drive Boise, ID 83709-1573 Phone: 208-378-5650 Fax: 208-378-5678

Name: USDA Water and Waste Disposal Programs

Description: The Rural Utilities Service (RUS), the Rural Business-Cooperative Service, and the Rural Housing Service comprise USDA's Rural Development mission area. As the name suggests, the three agencies' programs are designed to meet the needs of people who live in rural areas, including infrastructure, housing, health and medical, education, and employment. The Rural Utilities Service's Water Programs Division has four programs, which provide financial and technical assistance for development and operation of safe and affordable water supply systems and sewage and other forms of waste disposal facilities.

Recipients must be public entities. These can include municipalities, counties, special purpose districts, Indian Tribes, and corporations not operated for profit, including cooperatives. A new entity may be formed to provide the needed service, if an appropriate one does not already exist.

Additional Information:

USDA/FSA
Idaho State FSA
9173 West Barnes Drive
Boise, ID 83709-1573
Phone: 208-378-5650
Fax: 208-378-5678

Name: U.S. Department of Housing and Urban Development (HUD) Programs

Description: HUD awards grants to organizations and groups for a variety of purposes. To participate in the HUD grants program, you need to be registered with Grants.gov.

Some HUD programs and services are:

- HUD 5-H Homeownership Program
- HUD Home Program
- HUD Partnership for Advancing Technology in Housing
- HUD/Federal Housing Administration (FHA) Title I Home Repair Loan Program
- HUD/FHA Section 203(h) Mortgage Insurance for Disaster Victims
- HUD/FHA Section 203(k) Rehabilitation Mortgage Insurance Program
- HUD Disaster Recovery Grants

Additional Information: http://portal.hud.gov/hudportal/HUD or

HUD Boise Field Office
Plaza IV, Suite 220
800 Park Boulevard
Boise, Idaho 83712-7743
Phone: (208) 334-1990

Fax: (208) 334-9648

Name: U.S. Forest Service/Idaho Department of Lands (USFS/IDL) Community Fire Protection and BLM Partnership Funds

Description: Provide funding for hazardous fuels treatments on private lands adjacent to National Forests (Community Fire Protection) and BLM (Partnership Fund) boundaries. Funds may only be used for hazardous fuels work and not for related activities.

Eligible Recipients: County Wildland Fire Interagency Groups (or county governments)

Additional Information:

Tyre Holfeltz
Idaho Department of Lands
tholfeltz@idl.idaho.gov
208-666-8653

Name: Volunteer Fire Assistance (VFA) Program

Description: The Volunteer Fire Assistance (VFA) Program, formerly known as the Rural Community Fire Protection (RCFP) Program, provides financial, technical, and other Federal assistance to State Foresters and other appropriate officials to organize, train and equip fire departments in rural areas and rural communities to suppress fires. A rural community is defined as having a population of 10,000 or less. This 10,000-person limit for participation facilitates the distribution of VFA funding to the neediest fire departments.

Eligible Recipients: Rural Fire Departments serving 10,000 people or less.

Additional Information: VFA Program Website: http://www.fs.fed.us/fire/partners/vfa/ or

Ken Ockfen
ID Department of Lands
3284 W. Industrial Loop
Coeur d'Alene, ID 83815
(208) 769-1525
Fax: (208) 769-1524
kockfen@idl.idaho.gov

Name: Water Quality Improvement Projects

Description: Department of Environmental Quality (DEQ) administers Federal and State funds used to provide grants and low-interest loans to eligible entities for specific activities designed to improve the quality of Idaho's water resources. Each grant and loan has its own application requirements and time schedule. In addition, DEQ often receives notice of funding opportunities for water quality improvement projects from other agencies and organizations and passes relevant information on to stakeholders. These are not DEQ-administered funds or programs, and DEQ is not involved in decisions relating to them but provides the information as a public service.

Additional Information:

Water Quality Division
DEQ State Office
1410 North Hilton
Boise, Idaho 83706
Phone: (208) 373-0502
Fax: (208) 373-0576

Name: Western States Fire Manager's Grant Program

Description: This grant program is the primary source of funding used to conduct hazardous fuels treatments on private lands in Idaho. The ILRCC prioritizes all applications received in Idaho. These applications are then reviewed by a panel of Western States Fire Managers, where final funding decisions are made.

Eligible Recipients: County Wildland Fire Interagency Groups (or county governments)

Additional Information:

General ILRCC questions:
Suzanne Schedler, Administrative Assistant
Idaho Department of Lands
3780 Industrial Ave South
Coeur d'Alene, ID 83815
Phone: (208) 666-8649
Fax: (208) 769-1524

Specific questions regarding policies or procedures of the ILRCC:
Craig Glazier, Idaho National Fire Plan Coordinator
Idaho Department of Lands/USDA Forest Service
Phone:(208) 666-8646

Name: The Wilburforce Foundation Grant Program
Description: Wilburforce Foundation protects wildlife habitats in Western North America by actively supporting organizations and leaders advancing conservation solutions. Wilburforce makes investments that contribute to the following types of outcomes: • Increase access to and use of scientific, legal, political, and economic information resources; • Improve the efficiency and effectiveness of grantee organizations conservation leaders, and other allies; • Increase communication, cooperation and collaboration among grantees, stakeholders, decision-makers and/or allies; • Increase awareness, support and utilization of conservation policies, plans and practices that protect wildlife habitat; • Decrease or mitigate threats to wildlife habitat; • Improve the protected status of wildlife habitat; • Improve the ecological resilience of the landscapes in which we work.
Additional Information: **Wilburforce Foundation** 3601 Fremont Ave N, #304 Seattle, WA 98103-8753 Phone: 206-632-2325 Fax: 206-632-2326 Email: grants@wilburforce.org

VII. PLAN MAINTENANCE

7.1 Overview

To remain an effective and relevant document, it is vital the plan is actively maintained throughout the five-year lifecycle. This section describes the method and schedule for monitoring, evaluating, and updating the HMP, as well as continued community participation throughout the five years. This section also details existing plans, policies, and programs that the county and responsible agencies can employ or work through to more effectively implement the mitigation strategy, as well as recommended updates for 2021.

This section is consistent with the process and requirements detailed by FEMA. The FEMA requirements addressed in this section include:

- FEMA 44 CFR §201.6(c)(4)(i) – A section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan within a five-year cycle.
- FEMA 44 CFR §201.6(c)(4)(ii) – A process by which local governments incorporate the requirements of the mitigation plan into other planning mechanisms such as comprehensive or capital improvement plans, where appropriate.
- FEMA 44 CFR §201.6(c)(4)(iii) – A discussion on how the community will continue public participation in the plan maintenance process.

7.2 Monitoring, Evaluation, & Updating

Required by FEMA, monitoring, evaluating, and updating the HMP throughout its five-year lifecycle is important in maintaining the plan's relevance to Shoshone County. Often, HMPs are left unmaintained until after the mandatory five-year update deadline, at which point the county and the incorporated cities that adopted the plan become ineligible for further pre-disaster and recovery funding assistance from federal entities. To avoid loss of potential funding, the 2017 plan will be engaged on an annual basis until it's the following update in 2021. This monitoring, evaluating, and plan update process applies to the county and all adopting jurisdictions.

7.2.1 Formal Review Process

The Shoshone County Emergency Management Department (Emergency Manager) will be responsible for coordinating the efforts of Shoshone County, each municipality, organization, and agency involved

in hazard preparedness on a continual basis, for coordinating the annual reviews, and preparing the county for the five-year update process of the Multi-Jurisdictional Hazards Mitigation Plan. The plan will be evaluated on an annual basis to determine the effectiveness of programs and to reflect changes that may affect mitigation priorities. To maintain the HMP throughout its lifecycle, the Shoshone County Emergency Management Department and planning committee will assess hazard occurrence, mitigation action progress and implementation, updates to growth management strategies incorporating hazard mitigation, and changes in risk perception and/or mitigation priorities on an annual basis. The monitoring, evaluating, and updated process includes an annual meeting with identified local agencies, jurisdictions, and organizations that were identified as having participated in the 2017 plan update (refer to planning committee members, participating stakeholders, and mitigation action tables). The annual meeting will be held at an agreed-upon date, time, and location, and provide the opportunity for additional stakeholder and neighboring community engagement. The annual review will consider changes or additional county, state, and federal laws. Members of the planning committee can engage in email or phone correspondence between annual meetings if the need arises.

Mitigation actions can be implemented through both independent action and collaborative action of the many organizations and entities working in Shoshone County; however, it is the responsibility of the Shoshone County Emergency Management Department (Emergency Manager) and planning committee to maintain progress reports of the start, progress, and end of mitigation action implementation across Shoshone County. The Mitigation Action Progress Report located in Appendix F should be used at the commencement, major milestones, and successful or unsuccessful completion of all mitigation-related projects implemented in the county. The annual compilation of these reports will then provide the foundation for the mitigation review and update in 2021.

At the three-year anniversary of the adoption of this Multi-Jurisdictional Hazards Mitigation Plan, the Shoshone County Emergency Manager will identify the funding mechanism to seek an update to this plan considering potential grants, in-kind contributions, budgets, and other funding mechanisms to initiate planning for funding within ongoing budgets and grant applications that will require one or two years to realize. The award of potential grants or budget monies should be scheduled well enough in advance to facilitate funding, contract with potential consultants to the planning process, initiate the planning process, and to complete the plan's update prior to the five-year expiration of this approved plan.

The Shoshone County Emergency Management Department and planning committee will also re-evaluate the plan after any losses are incurred after a hazard event. Losses incurred during and after a disaster provide the opportunity to assess vulnerabilities, potential future issues, and needed mitigation actions to reduce future loss of life and property. If the need arises, the planning committee will initiate a plan update before the required five-year update, with focus on the risk assessment and mitigation strategy.

To provide a comprehensive evaluation, the Shoshone County Emergency Management Department and planning committee will distribute the Internal Capabilities Assessment Form located in Appendix F to all organizations with technological and human resources able to respond to and recover from a disaster. The bi-annual compilation of these reports provides an avenue for assessing the county's equipment and human resource needs, and can form the basis of the capabilities section in the 2021 plan update while providing additional mitigation actions.

These forms will form the basis for a summary presentation with the Shoshone Board of County Commissioners, open to the public, discussing the status and pending action items related to hazard mitigation and preparedness in Shoshone County and each municipality. The revised plan will be posted in public meeting spaces (such as the County Administration Building) and online, and comments and feedback will be solicited. This feedback will be incorporated into the revised plan before final submission.

7.2.2 Continued Public Involvement

Shoshone County and the adopting jurisdictions will continue public participation throughout the plan's five-year lifecycle using the same process. Shoshone County Emergency Management Department (Emergency Manager) is dedicated to involving the public directly in the review and updated of the Plan. The Emergency Manager is responsible for the annual reviews and update of this Plan. The public will also 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 County departments and outside agencies. 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 EM. 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 Board of County Commissioners will be responsible for using the County resources to publicize the annual public meetings and maintain public involvement.

7.3 Examples of Regional Best Practices for Hazard Mitigation & Comprehensive Plan Integration

Including hazard mitigation policies within a community's comprehensive plan is a vital step towards reducing hazard risk and vulnerability. These policies can then be implemented through regulatory growth management strategies. This section provides "best practice" examples of integrating hazard

mitigation policies into comprehensive plans from communities in Idaho and the nearby states of Alaska, Oregon, and Washington.

7.3.1 City of Driggs, Idaho

The City of Driggs is located in the Teton Valley between the Teton and Big Hole Mountains in eastern Idaho. The city is at risk to hazards such as drought, winter storms, flooding, earthquakes, and wildfire. The city includes not only the Idaho LLUPA-mandated hazardous area chapter in its comprehensive plan, but also includes a recommended future land use map that designates the floodplain as preferred open space and wetlands. The hazardous area chapter of the comprehensive plan includes a goal, objective, and detailed actions aiming to reduce hazard vulnerability. The overall goal for the hazardous area chapter in the City of Driggs Comprehensive Plan is to "minimize risk or damage or injury from known hazards." In order to achieve this goal, the city proposed detailed actions that can be implemented through the state's growth management strategies. These actions (which are often one of the weakest components of hazardous area chapters around the state) include the following:

- Developing a floodplain ordinance
- Requiring PUDs to place all building envelopes outside of the 100-year floodplain and providing incentives for this option
- Continuing to work with county, state, and federal agencies, and other organizations on a restoration plan for Teton Creek
- Continuing to adopt the most recent International Building Code
- Enforcing the business license requirements for inspections of potential hazards prior to allowing occupancy for new uses
- Working with the Teton County Fire District and other emergency management officials to assess zoning and development regulations for potential hazardous uses
- Using pamphlets and a website to educate the public on the risks of radon, testing services, and mitigation systems

7.3.2 City of Albany, Oregon

The City of Albany, Oregon is located between the Cascade and Coast mountain ranges at the confluence of the Willamette and Calapooia rivers. The city is at risk to flooding, windstorms, severe weather, earthquakes, wildfires, and volcanic eruption. The State of Oregon requires each city and county to adopt a comprehensive plan and the corresponding zoning and land-division ordinances needed to put the plan into effect. Within a city or county comprehensive plan, 19 statutory goals need to be addressed. The City of Albany Comprehensive Plan includes the mandatory hazardous area goal, hazard maps, hazard mitigation policies addressing flood events and steep slopes, and specific implementation methods for these policies. Going above and beyond the minimum requirement of including the mandated hazardous area goal within its comprehensive plan, the City of Albany is a noteworthy success due to its integration of hazard mitigation into the required housing goal. Often,

hazardous area components are standalone chapters and rarely integrated into other community goals and policies. However, the City of Albany addressed hazards within their future housing projections. The city calculated projected housing needs using various growth rate scenarios and then compared the results to the buildable land, which excludes floodplains, wetlands, and slopes. This example is a proactive, long-term growth management success as the city successfully analyzed and determined that there was enough buildable land to meet the projected community's housing needs until 2025.

7.3.3 City of Nome, Alaska

The City of Nome, Alaska is located in northwest Alaska on the southern tip of the Seward Peninsula. The city is at risk to coastline flooding, coastal storm surge, erosion, severe weather, and earthquakes. The State of Alaska allows municipalities to implement land use regulations, such as zoning or subdivision ordinances, but mandates that in order to do so the municipality must first adopt a comprehensive plan by ordinance. This comprehensive plan has minimum requirements that include statements of policies, goals, and standards; a land use plan; a transportation plan; a community facility plan; and implementation recommendations. The City of Nome goes above the minimum requirement by including not only a hazardous area chapter, but one which is completely designated to the stand-alone HMP. This integration technique is noteworthy given the rarity amongst comprehensive plans to contain detailed contents of an HMP. Likewise, it's rare for the HMP process to be directly cited within a hazardous area chapter in comprehensive planning. The end result ensures consistency between the two plans and can lead to an increase in the implementation of hazard mitigation policies within the city.

7.3.4 Kittitas County, Washington

Kittitas County is located in the center of Washington State, starting in the high Cascade Mountains and extending east to the Columbia River. The county is at risk to severe weather, earthquake, flood, avalanche, landslide, and wildfire. The State of Washington adopted the Growth Management Act (GMA), which provides various tools and strategies to manage growth, protect rural character, protect critical areas, and conserve natural resources. The GMA's detailed policy framework requires fast-growing cities and counties to address 14 goals within their comprehensive plan. These goals include housing; capital facilities; utilities; transportation; rural lands (for counties); and shoreline chapters (if applicable). Also required by the GMA is the designation and protection of critical areas and the designation of natural resource lands. By adopting the local HMP by reference within the comprehensive plan, Kittitas County goes above the minimum requirements to provide information, goals, and policies related to frequently flooded areas and geologically hazardous areas. Kittitas County's adoption of the HMP is noteworthy as comprehensive plans often omit HMP references and only provide general information relating to hazards, making it difficult to plan for growth while simultaneously attempting to reduce the risk from hazard events.

7.4 Implementation through Existing Plans & Programs

7.4.1 Overview

For a community to succeed in reducing risks in the long term, the information and recommendations of the mitigation plan should be integrated throughout government operations. This section describes the community's process to integrate the data, analysis, and mitigation goals and actions into other planning mechanisms. The City of Osburn and the City of Wardner are currently not adopting the plan however, planning mechanisms are provided for how the city may implement hazard mitigation actions with participation and adoption.

Table 72 Implementation through Existing Planning Mechanisms

Jurisdiction	Planning Mechanism (s)	Hazard Mitigation Implementation
Shoshone County	• Comprehensive Plan • Shoshone County EOP • County Fire Mitigation Plan • Land Use Ordinances • Floodplain Ordinance • County Fire Mitigation Program • NFIP	• Mitigation actions implemented through policies in the "Hazardous Areas" section in Comp Plan • Development and Infrastructure related mitigation actions implemented through Building Codes and Development Standards in Zoning, Subdivision, and Floodplain Ordinances • Wildfire mitigation actions implemented through County Fire Mitigation Plan and Mitigation Program • Continue participation in the National Flood Insurance Program
City of Kellogg	• Comprehensive Plan • Land Use Ordinances • Floodplain Ordinance • Water Runoff Standards • NFIP	• Mitigation actions from this plan update included in Comprehensive Plan • Development and Infrastructure related mitigation actions implemented through Building Codes and Development Standards in Zoning, Subdivision, and Floodplain Ordinances • Continue participation in the National Flood Insurance Program • Development restricted through water runoff standards
City of Mullan	• Comprehensive Plan	• Mitigation actions implemented through

	• Land Use Ordinances • NFIP	policies in the "Hazardous Areas" section in Comp Plan • Development and Infrastructure related mitigation actions implemented through Building Codes and Development Standards in Zoning, Subdivision, and Floodplain Ordinances • Continue participation in the National Flood Insurance Program
City of Osburn	• Comprehensive Plan • Land Use Ordinances • NFIP	• Mitigation actions implemented through policies in the "Hazardous Areas" section in Comp Plan • Development and Infrastructure related mitigation actions implemented through Building Codes and Development Standards in Zoning, Subdivision, and Floodplain Ordinances • Continue participation in the National Flood Insurance Program
City of Pinehurst	• Comprehensive Plan • Land Use Ordinances • NFIP	• Mitigation actions implemented through policies in the "Hazardous Areas" section in Comp Plan • Development and Infrastructure related mitigation actions implemented through Building Codes and Development Standards in Zoning, Subdivision, and Floodplain Ordinances • Continue participation in the National Flood Insurance Program
City of Smelterville	• Comprehensive Plan • Land Use Ordinances • NFIP • Water Runoff Standards	• Mitigation actions implemented through policies in the "Hazardous Areas" section in Comp Plan • Development and Infrastructure related mitigation actions implemented through Building Codes and Development Standards in Zoning, Subdivision, and Floodplain Ordinances • Continue participation in the National

		Flood Insurance Program • Development restricted through water runoff standards
City of Wallace	• Comprehensive Plan • Land Use Ordinances • NFIP	• Mitigation actions implemented through policies in the "Hazardous Areas" section in Comp Plan • Development and Infrastructure related mitigation actions implemented through Building Codes and Development Standards in Zoning, Subdivision, and Floodplain Ordinances • Continue participation in the National Flood Insurance Program
City of Wardner	• Comprehensive Plan • Land Use Ordinances • NFIP • Water Runoff Standards	• Mitigation actions implemented through policies in the "Hazardous Areas" section in Comp Plan • Development and Infrastructure related mitigation actions implemented through Building Codes and Development Standards in Zoning, Subdivision, and Floodplain Ordinances • Continue participation in the National Flood Insurance Program • Development restricted through water runoff standards

7.4.2 Incorporate Hazard Mitigation into the Comprehensive Plan

A comprehensive plan, which sometimes is called a general plan, is the official statement of a local government establishing policies for its future long-range development. According to Idaho's Local Land Use and Policy Act (LLUPA), comprehensive plans consider previous and existing conditions, trends, compatibility of land uses, desirable goals and objectives, or desirable future situations for 17 required components. A comprehensive plan is what guides the growth of the community and has the most regulatory power, although the document is not always regulatory in itself. Policies discerned within the comprehensive plan are more likely to be implemented than if they are relegated to other, separate documents (such as the HMP).

Therefore, integrating the HMP into the comprehensive plan can facilitate communication and collaboration between planners and emergency managers to make certain that appropriate hazard assessment information is considered during future land use and development planning. This two-way communication helps reduce risk and future losses to hazards within the community.

Other benefits for implementing the HMP into the county comprehensive plan include:

- Enhancing both the comprehensive planning process and the natural hazard mitigation strategy.
- Reducing a community's vulnerability to hazards and disasters.
- Support effective pre- and post-disaster decision making.
- Creating an effective planning tool.
- Helping speed the return of an impacted community to normalcy following a hazard event.
- Providing a forum for analysis of potentially sensitive issues.

Idaho's LLUPA requires each city and county to prepare a comprehensive plan that guides the growth of the community through land use planning. Within a comprehensive plan, it is required to include current conditions and future desired conditions for 17 different components. One of these components must be designated to natural hazards, however natural hazard mitigation can be incorporated into multiple components of the comprehensive plan. Examples of this incorporation include, but are not limited to, incorporating hazard mitigation into the following components:

- Land Use – Ways through which hazard mitigation can be incorporated into the land use component of the comprehensive plan is by clearly identifying the natural hazard areas; designing policies to discourage development or redevelopment within natural hazard areas; and designing policies at providing adequate space for expected future growth in areas outside natural hazard areas.

- Transportation – Ways through which hazard mitigation can be incorporated into the transportation component is by designing policies that limit access to hazard areas and guide growth to safe locations; designing policies that aim at having facilities function under disaster conditions (e.g., evacuation); and designing policies to have contingencies in place in case of bridge or other transportation infrastructure failure.

- Property Rights – Ways through which hazard mitigation can be incorporated into the property rights component is by designing policies that balance private property rights and hazard mitigation; designing policies that aim at making partnerships and/or agreements between landowners and local governments for use of land for hazard mitigation; and designing policies to reduce conflict or provide mediation during hazard mitigation disputes.

- Natural Resources & Environment – Ways through which hazard mitigation can be into through the natural resources and environment component is by providing a list or map of environmental systems that protect development from hazards; designing policies to maintain and restore protective ecosystems; designing policies to provide incentives for

development located outside protective ecosystems; designing polices to limit development in flood prone areas; designing policies to protect wildlife migration corridors along rivers and streams to serve as habitat and environment protection; designing policies to preserve natural vegetation and woodlands on steep slopes to reduce the likelihood of landslides; and designing policies to conserve woodlands without development to reduce building exposure to wildfires. Hazard mitigation can also be coupled with environmental policies (e.g., clean air, clean water, endangered species) and watershed management policies.

- Recreation & Open Space – Ways through which hazard mitigation can be incorporated into the recreation and open space component is by designing policies to convert or contain floodplain land, steep slope, and areas vulnerable to wildfire or other hazards into open space or recreational areas to minimize damage to life and property.
- Economic Development – Ways through which hazard mitigation can be incorporated into the economic development component is by providing a list or map of business locations that are within hazardous areas; designing policies to provide adequate space for expected business growth in areas located outside natural hazard areas; designing policies to aid economic recovery post-disaster; designing policies to educate business owners about hazards and their risks; designing policies to assist business owners with hazard mitigation and preparedness; and designing policies to use the community's safety to attract potential new businesses to the area.
- Population – Ways through which hazard mitigation can be incorporated into the population component is by providing a list or map of populations within hazardous areas; providing a list or description of populations that are socio-economically vulnerable; designing policies to educate the public about hazards; designing policies to assist the public with hazard mitigation and preparedness; designing policies to aid the public with post-disaster recovery; designing policies that protect the public from risk to natural hazards; and designing policies to develop response plans for natural hazard events.
- School Facilities & Transportation – Ways through which hazard mitigation can be incorporated into the school facilities and transportation component is by providing a list or map of school facilities within hazardous areas; designing policies so that school facilities are designed to function under disaster conditions; designing policies in order to be able to utilize school facilities in safe areas as emergency shelters; designing policies that provide contingencies in case of school facility or transportation infrastructure failure; and designing policies for locating future facilities outside of hazardous areas.
- Public Services, Facilities, & Utilities – Ways through which hazard mitigation can be incorporated into the public services, facilities, and utilities component is by providing a list or map of public facilities within hazardous areas; designing policies to limit public expenditure for infrastructure and public facilities in high-hazard areas; designing policies that link water treatment facilities, stormwater management, and sewerage and solid waste with hazard

mitigation; designing policies to interconnect service networks and allow more than one route to any point in order to reduce vulnerability when failures do occur; designing capital improvement policies that steer development away from hazardous areas; designing policies that aim for the safe location of critical facilities outside of hazardous areas; designing policies that aim to have facilities function under disaster conditions; and design policies that utilize other major facilities in safe areas as emergency shelters.

- Special Areas or Sites – Ways through which hazard mitigation can be incorporated into the special areas or sites component is by providing a list or map of special sites or areas within hazardous areas; designing policies that aim to apply appropriate hazard retrofitting techniques or standards to protect historic or other special site structures from hazard events; and designing policies in order to protect special areas or sites that may double as hazard mitigation (e.g., wildlife refuges, wetlands).
- Housing – Ways through which hazard mitigation can be incorporated into the housing component is by providing a list or map of housing developments within hazardous areas, and designing policies that aim to use appropriate hazard retrofitting techniques for current or future housing located within hazardous areas or that aim to discourage development or redevelopment in hazard areas.
- Community Design – Ways through which hazard mitigation can be incorporated into the community design component is by designing policies that aim to use design standards that are appropriate for housing located within hazardous areas or that aim to discourage development or redevelopment within hazardous areas.
- Agriculture – Ways through which hazard mitigation can be incorporated into the agriculture component is by designing policies to the adopt agricultural techniques that help prevent, mitigation, or reduce the risk of impacts from hazard events; designing policies that aid the agricultural sector with recovery post-disaster; and designing policies that are designed to educate agricultural landowners about preventative measures they can implement to reduce risk to hazard events including but not limited to:
    - Storing hay bales and equipment in areas less likely to be flooded
    - Installing ponds or swales to capture Stormwater
    - Planting vegetation that can tolerate inundation
    - Land management practices to improve the capability of the soil to retain water
- Public Airport Facilities – Ways through which hazard mitigation can be incorporated into the public airport facilities component is by providing a list or map of current airport facilities within hazardous areas; designing policies aimed at retrofitting current or developing future airport facilities and infrastructure that adhere to multi-hazard building codes; designing policies to encourage the creation of emergency response plans for airport facilities during disasters; designing policies that aim to utilize facilities in safe areas as emergency shelters and for those facilities that are located within hazard areas; and making sure the airport

facilities can function under disaster conditions. Lastly, policies should be aimed at developing contingencies in case of airport facility infrastructure failure.

7.4.3 Targeted Hazard Mitigation Integration into the Shoshone County Comprehensive Plan

A comprehensive plan evaluation focusing on HMP integration was conducted to assess the current status and future potential of integrating the HMP within the Shoshone County Comprehensive Plan. Due to time constraints, the county plan was the only plan evaluated in great detail however, the concepts from this plan evaluation should be applied to all of Shoshone County's jurisdictions and their individual Comprehensive Plans.

The evaluation consisted of 18 sections, one for each of the required LLUPA components and an overall evaluation of the comprehensive plan. The evaluation was completed at the county level, although the matrix is also applicable to the incorporated areas and cities. Within each section, component goals, implementations, and policies and plan content were evaluated using a yes/no criterion in addition to supplemental comments regarding the success or future potential of hazard mitigation elements into the comprehensive plan.

Shoshone County has various opportunities to integrate hazard mitigation into its comprehensive plan. Three of the overall goals of the 1996 comprehensive plan can be linked to the HMP goals. Those goals include:

1. Land use regulation in pursuit of the public welfare should not be confiscatory.
2. The rural nature of Shoshone County should be protected and preserved.
3. The investigation of alternative land use controls (such as: development rights, conservation easements, public corporations, cluster zoning, floating zones, performance and impact zones, performance standards, etc.) and their application toward accomplishment of the goals and objectives."

Sections of the comprehensive plan that best incorporated hazard mitigation included the Housing and Recreation and Open Space components. For example, Shoshone County provides policies aimed at using appropriate hazard retrofitting techniques and standards for current or future housing located within hazardous areas by use of "consistency with zoning ordinances and NFIP standards." Policies for recreational housing development are also aimed at "being located in areas where adequate protection from natural hazards can be incorporated into the building or site design." Policies within the housing component also state that "housing should be restricted in hazardous, flood prone, or slippage areas to the degree of risk the site imposes."

The Recreation and Open Space component has general policies and objectives designed to "convert or contain floodplain land, steep slope, and other hazard areas into open space or recreational areas." Since this plan has not been recently updated and the county is experiencing an increase in the

recreation sector, the county has an opportunity to expand this concept and create comprehensive implementation strategies that can be included in both the HMP and the comprehensive plan.

Hazard mitigation strategies can be integrated into the other components of the comprehensive plan to achieve more successful implementation, to guide safe and sustainable development, and enhance the county's resilience to hazards. The inclusion of maps and other visualizations clearly identifying hazard-prone areas, profiles of the hazards and risks present within the county (including hazard descriptions, locations, extents, etc.), incorporating actions from the HMP, and including the HMP's risk assessment within the Hazardous Area component of the comprehensive plan can help guide policy and regulation to reduce loss of life and property. Furthermore, the future land-use map should include the location of hazardous areas, and land-use objectives and policies should aim to limit or discourage development within hazard-designated areas. Rural character is important to Shoshone County, which can be capitalized on to create policies to protect development from hazards by designating special areas or sites (i.e, wildlife refuges, wetlands, scenic areas) that can double as natural hazard mitigation. Wildlife migration corridors along rivers and streams to serve as habitat and environmental protection, and the creation of policies designed to preserve natural vegetation and woodlands on steep slopes to reduce the likelihood of landslides can all be included in the Natural Resources component to better integrate the plans.

Currently, Shoshone County includes few elements of hazard mitigation within the comprehensive plan, though there are many opportunities to do so. Integrating the comprehensive plan and the HMP can help increase the effectiveness of both plans, guide safe development, and create a more resilient county. For other potential mitigation activities/policies that can be integrated within the comprehensive plan, please refer to the completed HazCIRC Shoshone County Comprehensive Plan Evaluation for HMP Integration in Appendix B. Other FEMA resources include *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards*, *Smart Growth Audit*, and *Integrating the Local Natural Hazard Mitigation Plan into a Community's Comprehensive Plan*.

7.5 Recommended Strategies & Tools for Implementation & Future Updates

The following implementation strategies and recommendations provide opportunities for Shoshone County to strengthen the use of mitigation coincident with the growth management process, reduce vulnerability and risk, and increase community resilience.

7.5.1 Future Acquisitions Map

Idaho's LLUPA presents the authority to cities and counties to adopt, amend, appeal, or repeal a future acquisitions map in accordance with the notice and hearing procedures provided in section 67-6509,

Idaho Code. The map shall designate land proposed for acquisition by a public agency for a maximum of 20 years. Lands that may be designated on this acquisition map include:

- Streets, roads, other public ways, or transportation facilities proposed for construction or alteration
- Proposed schools, airports, or other public buildings
- Proposed parks or other open space
- Lands for other public purposes

Shoshone County can utilize the risk assessment and partner with local, state, or federal agencies (e.g., USFS, BLM, Parks & Recreation, etc.) to identify hazardous areas and designate them on a Future Acquisitions Map. Mapping hazard areas on a future acquisitions map can help recognize the linkages between conservation of open space and risk reduction to property and life. Areas to potentially identify in plan maps include:

- Steep slopes
- Flood hazard areas
- Wildland-urban interface
- Subsidence zones
- Avalanche paths
- Unstable soils
- Other geologic hazard areas

7.5.2 Flood Control District

Inherent in the roles of local government is protecting citizens and property from injury and damage by natural hazards. In order to carry out this role, Shoshone County and its incorporated cities have the power to implement a Flood Control District that provides funding and policy oversight for flood protection projects and programs.

Funding for a flood district can come from a property levy tax, an amount determined by each community, per $1,000 assessed value. This funding can be put towards projects including but not limited to:

- Mitigation projects identified in HMPs
- Flood containment levees and bank stabilization projects
- Providing for a regional flood warning center and emergency response
- Flood facility maintenance
- Public education and outreach
- Mapping and technical studies, and
- Mechanisms for citizen inquiry and public response

A Flood Control District can act as an independent special purpose government and should consist of

a Board of Supervisors responsible for developing a plan for funding maintenance and repairs of flood control facilities. Other committees should include an Executive Committee that meets monthly, develops policy recommendations, and oversees the day-to-day business of the District; an Advisory Committee that makes annual recommendations to the Board of Supervisors related to the annual budget; and a Watershed Technical Committee that ensures that watershed-scale issues and technical information are factored into the decision-making of the flood district.

7.5.3 Funding Opportunities

The costs of mitigation actions and projects can vary from minimal to many millions of dollars. Structural and critical infrastructure projects in particular often require financial assistance. However, funding is often cited as the limiting factor in the successful implementation or completion of a risk-reducing action. Departmental and agency funds can be limited and pre-allocated to non-mitigation activities, while grants and other sources of funding are ignored or unknown.

Therefore, it is important that the communities within Shoshone County coordinate and actively seek financial assistance for mitigation actions. This assistance can come in the form of grants, loans, technical assistance, or in-kind contributions. Given the complexity of financial assistance, it is recommended that the communities within Shoshone County designate a point of contact or committee for seeking out, applying, and distributing grants and other funds. Such designation or committee should work across local, state, and federal institutions, and keep a shared calendar of important dates for grants and other sources of funding. Likewise, this position can help communities identify any initiatives or activities that can be accomplished using existing programs or budgets.

7.5.4 Communicate Mitigation Successes

Communicating successfully completed mitigation actions and projects can help garner further support for continuing mitigation efforts. Communicating successes through public service announcements, newspaper and website articles, social media, and other avenues helps inform the general public of the risks in their community and the efforts undertaken to mitigate such risks. Likewise, communicating these successes can help garner institutional support by highlighting cost-effective and resource-efficient actions with the potential to reduce the monetary costs of hazards. It is recommended the communities within Shoshone County cooperatively develop a county-wide public outreach strategy and regularly communicate mitigation successes. Example outreach methods include the following:

- Participating in community events
- Interviews
- News media, including radio, newspaper, and television
- Presentations to governing bodies

- Social media
- Community-specific meetings
- Website

7.5.5 Comprehensive Socioeconomic Vulnerability Assessment

Socioeconomic vulnerability is the predisposition of an individual or population to be negatively impacted by a hazard due to existing socioeconomic or demographic characteristics. For example, elderly populations are often more vulnerable to hazards due to challenged mobility, requiring additional evacuation time and special care. Likewise, female populations are more vulnerable than male populations to disasters due to family responsibilities and lower average incomes, making it more difficult for female populations (notably single parent female head of households with children) to recover. Understanding socioeconomic vulnerability is crucial in mitigation planning, yet is often omitted in both risk assessments and mitigation strategies.

When socioeconomic vulnerability is accounted for, the model employed often lacks the sophistication to produce an accurate measure of vulnerability. These traditional models produce results at resolutions too coarse for sub-county mitigation efforts. Although appropriate for studies or plans written at the state- or nation-wide scale, these models are inappropriate for county- or regional planning and analysis. Likewise, traditional vulnerability models are often generalized and do not consider the distinct local characteristics of a community, relying on general statistical analyses of demographic data collected in the decadal census. Finally, these models are often statistically incorrect, and do not account for the spatial patterns and relationships of the indicators used as proxy measures of vulnerability.

To overcome these limitations, the SERV model was developed by Dr. Tim Frazier at HazCIRC. This model addressed these limitations by accounting for local community characteristics, incorporating advanced spatial analysis and statistics, and producing sub-county results. The SERV model accounts for a community's ability to overcome stressors, its sensitivity to stressors, and the population exposed to various magnitudes of a hazard to produce a comprehensive vulnerability score. The SERV model was employed in this 2017 HMP Risk Assessment to identify areas at greater risk to loss of lives and property from various hazards. However, a more comprehensive and targeted vulnerability assessment should be undertaken to identify the underlying factors amplifying vulnerability.

The targeted socioeconomic vulnerability assessment should employ the Geographically-Weighted Spatially Explicit Resilience-Vulnerability (GWSERV) model (Figure 39). The GWSERV is an improvement on the SERV model, and is the most advanced socioeconomic vulnerability model to date. The GWSERV employs geographically-weighted factor analysis to provide high-resolution localized analyses and results. The GWSERV does not simply produce a measure of vulnerability, but provides stakeholders and decision makers with the primary underlying socioeconomic and demographic indicators driving vulnerability (Figure 39). This knowledge and information is vital to best target mitigation efforts, and to reduce community vulnerability and enhance community resilience.

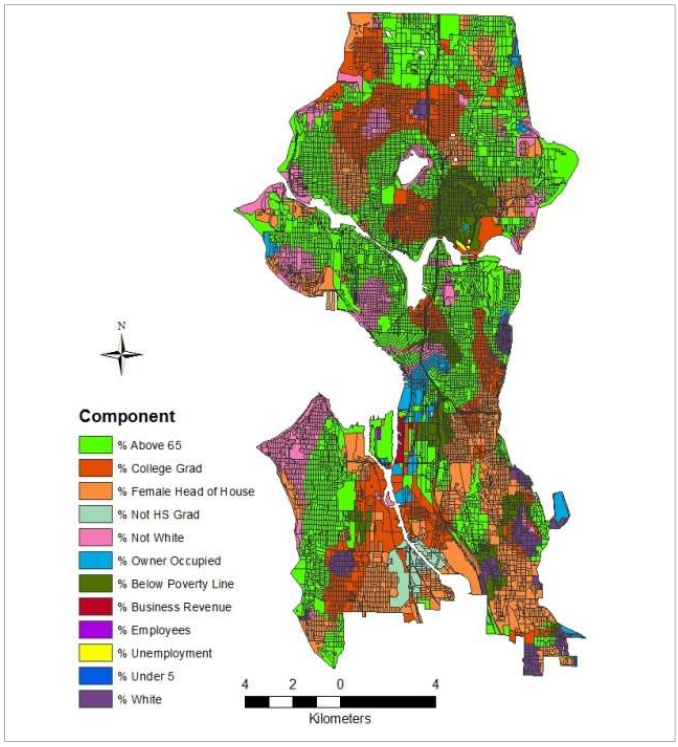


Figure 39. Example GWSERV results

7.5.6 Improved GIS Mapping & Data Management

GIS mapping and data management are foundational in understanding risk, effectively targeting mitigation efforts, managing development for sustainability, and ultimately enhancing community resilience to hazards. GIS maps in combination with high-quality data provide the means to visualize the extent and magnitude of hazards, the potential losses if a disaster were to occur, and the location of vulnerable populations. GIS analyses can help improve the understanding of hazard impacts and expose areas or populations of concern that might otherwise stay hidden. Such maps and data help identify and prioritize mitigation areas, and can likewise be used to assess mitigation areas of effect.

Given the utility of GIS maps and data, it is recommended that the communities within the Shoshone County maintain comprehensive and high-quality GIS data. Examples of data include but are not limited to the following:

- Building stock (with hazard-specific attributes)
- Historical hazard occurrences
- Future hazard probabilities
- Critical facilities and infrastructure data
- Land use and zoning
- Areas of city impact and future development

- Socioeconomic vulnerability
- Community assets
- High potential loss facilities
- Geo-coding of mitigation actions

Such data provides a foundation on which to build a comprehensive GIS program to reduce community vulnerability and enhance resilience. For example, developing a building stock dataset with hazard-specific attributes allows for the creation of User-Defined Facilities (UDF) for use in Hazus-MH loss estimations. The inclusion of UDFs produces more accurate results than the general building stock included in the software. However, like all modeling, the output and results of Hazus-MH loss estimations and other GIS models are dependent on the quality of the input dataset. Therefore, it is important to build datasets with appropriate levels of detail and accuracy. Building and using data that captures real-world conditions greatly increases its reliability and usability.

To maintain high-quality data, communities within the watershed can standardize and share data collection and archiving. Likewise, the counties and communities can format all newly-permitted construction records and assess existing construction records to create an accurate and standardized dataset of structures.

7.5.7 Develop a Post-Disaster Recovery Plan

Although mitigation is vital to reducing community vulnerability and enhancing community resiliency, it is only one aspect of the disaster continuum. Another aspect that should be considered through the planning process is recovery following a disaster. Disaster recovery is defined by FEMA as a return of community systems and structures to a “normal state”, which is usually held as the pre-disaster state of the community. Together, planning for both mitigation and recovery allows communities a more holistic approach to hazards and risk, and ultimately facilitate greater community resiliency.

To produce a holistic mitigation strategy, Shoshone County and a cooperative county-wide group should prepare post-disaster recovery plans (PDRPs). The PDPR is the means to identify and plan for issues a community is likely to face after a disaster. The primary goals of a PDRP are to identify and prioritize key issues; establish partnerships within the community, with neighboring communities, and state and federal agencies; develop a recovery strategy implementable immediately following an event; and more effectively and efficiently allocate resources. Through the PDPR planning process, communities can also identify pre-disaster mitigation projects and enhance response and preparedness capabilities. Undertaken at the county scale, PDPRs can greatly enhance the resiliency of the Shoshone County through a bioregional approach by building relationships vital in both the pre-, during-, and post-disaster periods, illuminating region-wide issues that may arise in the post-disaster period, and instituting a plan to seize the short-yet-vital window in the post-disaster period to enhance resiliency across multiple spatial scales.

To best formulate the PDRPs, the following strategies (but not limited to) should be included in the PDRPs:

- Post-disaster recovery plans
- Recovery ordinances
- Business and government continuity plans
- Post-disaster buildable lands inventories
- Utility recovery and reconstruction plans
- Temporary shelter, housing plans, and business plans
- Establishment of a coordinating organization and guiding principles for reconstruction

7.5.8 Climate Impacts Assessment

The impacts of a changing climate can be detrimental to a community, especially if the community is dependent on agriculture, seasonal precipitation, or is unable to cope with the degree of changes in climate systems. At the county-level, these impacts can translate to vegetative shifts, loss of critical wildlife habitat, changed precipitation regimes, increased wildfire, drought, and severe storms, and more. Understanding county-level impacts and the cascading impacts on communities is important in preparing for, adapting to, and mitigating against negative changes while providing opportunity for capitalizing on positive changes. A climate impacts assessment provides this understanding, and is recommended for Shoshone County. A climate impacts assessment identifies the systems and processes within the watershed and its communities that are affected by climate, and how these systems can be impacted by shifts in temperature, precipitation, and other aspects of climate. Through the assessment process, climate impacts are analyzed and described based on the best-available science to inform management activities about the positives and negatives likely to occur in the short- and long-term. The assessment identifies and promotes best practices for adaption and mitigation, and is a tool to build public awareness and understanding of climate change. Likewise, the assessment can build partnerships with local, state, and federal stakeholders and partners, which are vital to enhancing community resilience.

7.5.9 Appreciative Inquiry: Asset Based Workshop during next HMP Update Process

In order to maintain eligibility for FEMA mitigation grant funds, HMPs must be updated every five years. This update process must include an open public involvement process constituting a more comprehensive approach to reducing the effects of natural hazards. However, due to the complex and technical nature of hazards planning, participation is often low in communities. This presents opportunity to implement the “Appreciative Inquiry Approach” developed by Freitag et. al 2014, in which the goal is to highlight local assets that promote well-being and adaptive capacities for recovery after an imagined disaster with a focus on non-hazard community factors.

This approach could be adapted and used for Shoshone County during their next HMP update in order to prioritize mitigation actions and increase public support and participation. This process entails holding community workshops where the public would participate in two mapping exercises. The first of the two mapping exercises prompt the public to identify community assets that are important to their wellbeing during everyday life. The second of the two mapping exercises prompts the public to identify community assets that they feel are important during a disaster scenario. After the completion of these two mapping exercises, local officials and stakeholders can identify the overlapping areas and assets in the two maps and consider them to be Areas of Mitigation Interest (AOMI) in the HMP.

APPENDICES

The following appendices contain documentation related to the HMP, to be used in future updates, or collects the documentation of the planning process.

Contents

Appendix A. Official Documentation & Resolutions

Appendix B. Plan & Policy Evaluations

Appendix C. Meeting Documentation

Appendix D. Disaster Declarations

Appendix E. Survey & Responses

Appendix F. Forms & Templates

Appendix G. Community Wildfire Protection Plan

Appendix H. Mitigation Action Worksheets

Appendix I. Hazard Profiles

Appendix J. Resources

APPENDIX A. OFFICIAL DOCUMENTATION & RESOLUTIONS

This appendix contains scans and copies of all official documents, signed resolutions, and promulgations pertaining to the 2017 plan update.

Contents

1. Shoshone County match and support letter
2. City of Kellogg Letter of Intent to participate and adopt
3. City of Mullan Letter of Intent to participate and adopt
4. City of Osburn Letter of Intent to participate and adopt
5. City of Pinehurst Letter of Intent to participate and adopt
6. City of Smelterville Letter of Intent to participate and adopt
7. City of Wallace Letter of Intent to participate and adopt
8. City of Wardner Letter of Intent to participate and adopt

COMMISSIONERS:

JIM BEST, District 1
LARRY YERGLER, District 2
LESLEE STANLEY, District 3

email: bocc@co.shoshone.id.us

Office Phone: 752-3331
Fax: 752-4304

County of Shoshone

700 BANK STREET, SUITE 120
WALLACE, IDAHO 83873-2348

PEGGY WHITE, CLERK DISTRICT COURT AUDITOR and RECORDER

email: pwhite@co.shoshone.id.us

Office Phone: 752-1264
Fax: 752-1896

July 7, 2014

State of Idaho
Bureau of Homeland Security
c/o Susan Cleverly
4040 W. Guard St., Bldg 600
Boise, Id. 83705-5005

Dear Susan:

The Shoshone County Commissioners would like to participate in the Hazard Mitigation Grant plan in the amount of $10,417.00 to consist mostly in, in kind soft match, and minimal cash for publication.

Thank you.

Sincerely,

BOARD OF COUNTY COMMISSIONERS

Larry Yergler

Larry Yergler, Chairman

City of Kellogg

Phone: 208.786.9131
Fax: 208.784.1100

1007 McKinley Avenue
Kellogg, Idaho 83837

July 14, 2014

Shoshone County
Mr. Cory Foster, Emergency Manager
700 Bank Street
Wallace, Idaho 83873

RE: 2014 Hazard Mitigation Assistance

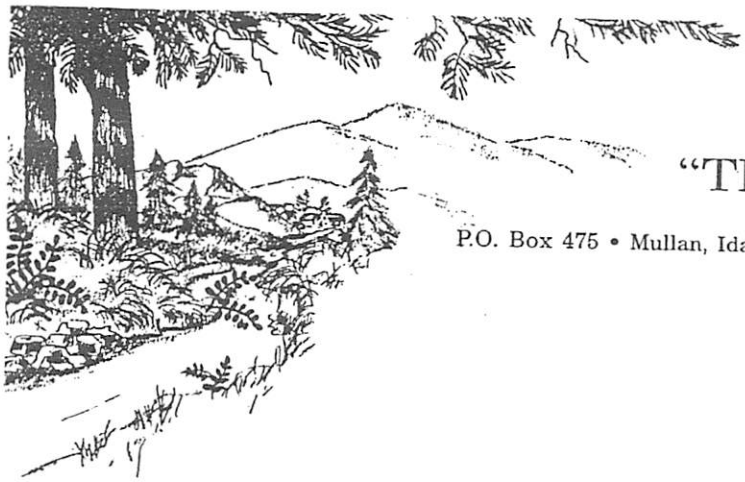
Dear Mr. Foster:

It is our understanding that Shoshone County is in the process of updating the All Hazards Mitigation Plan which is expiring.

The City of Kellogg realizes the importance of emergency preparedness and wishes to participate in the Plan updates with Shoshone County.

Sincerely,

Terry Douglas
Council President



MULLAN
"The Town of Trails"

P.O. Box 475 • Mullan, Idaho 83846-0475 • Office: (208) 744-1515 • Fax: (208) 744-1138
email: cityofmullan@nidlink.com

July 14, 2014

To Whom It May Concern,

It has come to our attention that the Shoshone County All Hazard Mitigation Plan is reaching its expiration and a new plan is currently being worked on to replace the existing one. The City of Mullan wishes to participate and be included in the updating of this mitigation plan. We realize the importance of emergency preparedness and the need to protect the citizens and visitors to our area.

Sincerely,

Trisha Crandall
Mullan City Clerk

City of Osburn

921 E. Mullan Ave.
P.O. Box 865
OSBURN, ID. 83849

Phone (208)752-0001
Fax (208)753-8585

July 9, 2014

Mr. Cory Foster
Shoshone County Emergency Manager
700 Bank Street
Wallace, ID 83873

Re: 2014 Hazard Mitigation Assistance (HMA) Program

Dear Cory:

It has come to our attention that the Shoshone County Multi Jurisdiction All Hazard Mitigation Plan is reaching its expiration, and we understand an updated plan is in process. The City of Osburn wishes to participate and be included in the updating of this plan. We realize the importance of emergency preparedness and the need to protect our citizens and visitors to our area.

We look forward to working with you on this project.

Respectfully,

Kip R McGillivray

Kip McGillivray
Mayor

KM:ldm

CITY OF PINEHURST
Post Office Box 417
PINEHURST, IDAHO 83850
Telephone: (208) 682-3721
Fax: (208) 682-4644

July 14, 2014

Shoshone County
700 Bank Street
Wallace, ID 83873

Re: Hazard Plan

It has come to our attention that the Shoshone County Multi-Jurisdictional Hazards Mitigation Plan is reaching its expiration and a new plan is currently being worked on to replace the existing one. The City of Pinehurst wishes to participate and be included in the updating of this mitigation plan. We realize the importance of emergency preparedness and the need to protect the citizens and visitors to our area.

Sincerely,

Jay L. Huber
Mayor

City of Smelterville

P. O. Box 200 – 501 Main St.
Smelterville, Idaho 83868
cityofsmelterville@usamedia.tv
208-786-3351 (Phone and Fax)

Mayor, Larry E. Huber
City Clerk, Mary Eixenberger
City Attorney, Hollis J. Anderson

Council Members:
Jeff Frank, President
Gordan Chrisman
Dennis Fretheim
Linda Guthmiller

July 15, 2014

Cory Foster
Shoshone County
Emergency Manager
700 Bank Street
Wallace, Idaho 83873

Re: All Hazards Mitigation Plan

Dear Cory:

It has come to my attention that the Shoshone County "All Hazards Mitigation Plan" is reaching its expiration.

This letter is to confirm that the City of Smelterville would like to participate and be included in the updating of this plan. The City Council and I realize the importance of emergency preparedness and the need to protect the citizens and visitors to our area.

Please feel free to contact me if I can be of any help with your project.

Regards,

Larry Huber

Larry E. Huber,
Mayor

LEH/me

HISTORIC WALLACE IDAHO
SILVER CAPITAL OF THE WORLD

CITY OF WALLACE
STATE OF IDAHO

703 Cedar Street
Wallace, Idaho 83873-2396
(208) 752-1147
Fax (208) 752-7741

Mayor
Dr. Dick L. Vester

Certified Municipal
Clerk/Treasurer
Joanne McCoy, C.M.C.

July 7, 2014

Mr. Cory Foster
Shoshone County Emergency Manager
700 Bank Street
Wallace, ID 83873

RE: 2014 Year Hazard Mitigation Assistance

Dear Mr. Foster:

It has come to our attention that the All Hazards Mitigation Plan is reaching its expiration and a new plan is currently being worked on to update the exiting one.

The city of Wallace would like to participate and be included in the updating of this mitigation plan. We realize the importance of emergency preparedness and the need to protect the citizens and visitors that come to our area.

If you have any questions or concerns you may contact me at 208-752-2020.

Sincerely,

Dr. Dick Vester, Mayor

City of Wardner
649 Main Street, WARDNER
P.O. Box 719
KELLOGG, IDAHO 83837

July 9, 2014

Mr. Cory Foster
Shoshone County Emergency Manager
700 Bank Street
Wallace, ID 83873

Dear Mr. Foster:

Re: All Hazards Mitigation Plan

It is my understanding that the All Hazards Mitigation Plan is due for review. This letter will serve to advise you that the City of Wardner intends to participate in the review and plan update process.

Very truly yours,

Joseph A. Guardipee
Mayor

JAG/lw

APPENDIX B. PLAN & POLICY EVALUATIONS

This appendix contains plan and policy evaluations, including the former plan evaluation, the comprehensive plan evaluation, and the local plan review tool used to assess the plan's compliance.

Content

1. Shoshone County HMP evaluation
2. Shoshone County Comprehensive Plan evaluation

Local Hazard Mitigation Plan Evaluation Matrix

Plan Title	Shoshone County Multi-Jurisdictional Hazards Mitigation Plan
Jurisdictions Included	Shoshone County, Cities of Kellogg, Mullan, Osburn, Pinehurst, Smelterville, Wallace, and Wardner
Evaluation Date	16-Sep-15
Edition (1st, 2nd, etc.)	1st
Preparer	Alexander Peterson

Scoring Methods:
Ordinal Scale: Indicators measured from 0 to 3;
0 = not identified,
1 = suggested or identified but not detailed,
2 = detailed
3 = comprehensive detail

*Binary Scale: Indicators measured from 0 to 1;
0 = not identified/address,
1 = identified/addressed
*Use Ordinal Scale unless otherwise indicated

Clarity of purpose, issues, solid fact basis, integration, linkage of land use and emergency management efforts, internal consistency and comprehensible organization, assigned responsibility for implementation, monitoring and updating

FEMA Requirements

HMPS MUST PASS THE FOLLOWING BASE LEVEL REQUIREMENTS TO QUALIFY FOR FEMA MITGATION GRANT FUNDING

Element A. Planning Process

Content	Method	Score	Page No.	Strengths, Weaknesses, Recommendations, and Notes
A1. Does the plan document the planning processes, including how it was prepared and who was involved in the process for each jurisdiction?	Ordinal	3	15, 20, 25	Detailed exposition of planning environment and narrative on the development and approval process, with specifics listed in tables.
A2. Does the plan document an opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, agencies that have the authority to regulate development, as well as other interests to be involved in the planning process?	Ordinal	3	15, 23-24	Opportunities and participation of external and neighboring agencies and organizations including surrounding counties, state, and federal agencies detailed
A3. Does the plan document how the public was involved in the planning process during the drafting stage?	Ordinal	3	15, 26-49	Public involvement included press releases, mail survey, meetings, and open review, all detailed extensively.
A4. Does the plan describe the review and incorporation of existing plans, studies, reports, and technical information?	Ordinal	2	18-19	Plan links county HMP and Idaho State Mitigation Plan, provides table of other legal and regulatory resources considered. Could integrate comprehensive plans and Wildfire Mitigation Plan.
A5. Is there discussion on how the community(ies) will continue public participation in the plain maintenance process?	Ordinal	3	296-297	County and municipalities will hold annual public meetings and forums with feedback periods.
A6. Is there a description of the method and schedule for keeping the plan current (monitoring, evaluating and updating the mitigation plan within a 5-year cycle)?	Ordinal	3	293-295	Plan includes maintenance program for each municipality and county with templates to be completed annually, forming the basis for the 5-year update.

Element B. Hazard Identification and Risk Assessment

Content	Method	Score	Page No.	Strengths, Weaknesses, Recommendations, and Notes
B1. Does the plan include a description of the type, location, and extent of all natural hazards that can affect each jurisdiction?	Ordinal	2	86	Plan details flood, wildland fire, earthquake and seismic shaking, landslides, and severe winter weather as determined by subjective scoring exercise. Lists other hazards in table, but does not expound. Includes type, located, and extent of detailed hazards, but lacks geospatial figures.
B2. Does the plan include information on previous occurrences of hazard events and on the probability of future hazard events for each jurisdiction?	Ordinal	2	89, 90, 130, 139, 152	Historical occurrences detailed, but lacks comphrensive information on the probability of future hazards events. Lacks geospatial figures of either.
B3. Is there a description of each identified hazard's impact on the community as well as an overall summary of the community's vulnerability for each jurisdiction?	Ordinal	2	85-233	County-wide and municipality-specific hazard impacts detailed.
B4. Does the plan address NFIP insured structures within the jurisdiction that have been repetitively damaged by floods?	Ordinal	2	100-102	Properties meeting Repetitive Flood Loss Property (RFLP) classification detailed.

Element C. Mitigation Strategy				
Content	**Method**	**Score**	**Page No.**	**Strengths, Weaknesses, Recommendations, and Notes**
C1. Does the plan document each jurisdiction's existing authorities, policies, programs and resources and its ability to expand on and improve these existing policies and programs?	Ordinal	2	107	Includes resources, capabilities, and needs summary at county- and municipality- levels, but lacks policies, programs, and ability to expand and improve.
C2. Does the plan address each jurisdiction's participation in the NFIP and continued compliance with NFIP requirements, as appropriate?	Ordinal	3	100, 106-116	Plan details jurisdictional participation in NFIP and expounds on participation and continued compliance through text and tables.
C3. Does the plan include goals to reduce/avoid long-term vulnerabilities to the identified hazards?	Ordinal	1	263-286	Includes mitigation measures but lacks explicit goals related to vulnerabilities.
C4. Does the plan identify and analyze a comprehensive range of specific mitigation actions and projects for each jurisdiction being considered to reduce the effects of hazards, with emphasis on new and existing buildings and infrastructure?	Ordinal	2	263-286	Tables detail potential mitigation actions regarding policy, losses, and risk by hazard, identifies responsible organizations, provides STAPLEE score, and implementation timeframe.
C5. Does the plan contain an action plan that describes how the actions identified will be prioritized (including cost benefit review), implemented, and administered by each jurisdiction?	Ordinal	2	259-260	Detailed prioritization actions and justification includes timeframe, participation, and hierarchy of treating. Plan considers each 'resources at risk' section as benefit portion, but lacks explicit cost benefit analysis.
C6. Does the plan describe a process by which local governments will integrate the requirements of the mitigation plan into other planning mechanisms, such as comprehensive or capital improvement plans, when appropriate?	Ordinal	1	263-274	Plan lists updating municipality comprehensive plans with hazard mitigation recommendations, but does not expound. Additionally, plan recommends developing and adopting ordinance for enforcement related to hazards.

Element D. Plan Review, Evaluation, and Implementation (applicable to plan updates only)				
Content	**Method**	**Score**	**Page No.**	**Strengths, Weaknesses, Recommendations, and Notes**
D1. Was the plan revised to reflect changes in development?	Ordinal	NA	NA	NA
D2. Was the plan revised to reflect progress in local mitigation efforts?	Ordinal	NA	NA	NA
D3. Was the plan revised to reflect changes in priorities?	Ordinal	NA	NA	NA
Element E. Plan Adoption				
E1. Does the plan include documentation that the plan has been formally adopted by the governing body of the jurisdiction requesting approval?	Ordinal	3	1-14	Adoptions, promulgations, and acceptance by each jurisdiction included.
E2. For multi-jurisdictional plans, has each jurisdiction requesting approval of the plan documented formal plan adoption?	Ordinal	3	1-14	All jurisdictions documented formal plan adoption.

FEMA Requirements Scores and Notes			
Element	**Possible Score**	**Plan Score**	**Notes**
Element A. Planning Process	**18**	**17**	Plan provides comprehensive narrative of planning process and extensive public participation, includes monitoring and evaluation metrics, and adheres to required timeframe. Recommend better integrating County comprehensive plan and HMP.
Element B. Hazard Identification and Risk Assessment	**12**	**8**	Plan provides extensive detailed occurrences of a wide range of hazards for each jurisdiction, but recommend improvement using comprehensive risk and vulnerability assessments with best-available data.
Element C. Mitigation Strategy	**18**	**11**	Plan presents both general mitigation strategies and specific mitigation actions. Progress on mitigation actions need to be evaluated and updated.
Element D. Plan Review, Evaluation, and Implement	**NA**	**NA**	NA: Applicable to Plan updates only.
Element E. Plan Adoption	**6**	**6**	Plan includes resolutions and signatures.
Total	**45**	**42**	Plan presents a strong foundation that can be improved upon through the update process.

Internal Plan Recommended and Supplemental Targets

FEMA RECOMMENDATIONS AND RECOMMENDATIONS BASED ON LITERATURE AND INTERVIEWS WITH COUNTY PERSONNEL

Fact-Based Hazard Assessment

	Content	Method	Score	Page No.	Strengths, Weaknesses, Recommendations, and Notes
Which hazards are addressed?	Seismic/Earthquake	Binary	1	118-126	Detailed profile, but lacks maps and figures.
	Severe Storm	Binary	1	138-143	Considers winter storms, thunderstorms, and windstorms.
	Flood	Binary	1	86-117	Considers riverine, flash, ice/debris jam, mud, and catastrophic. Lacks maps and figures.
	Landslide/Ground Failures	Binary	1	126-136	Attempted a detailed profile, but admitted lacking.
	Volcanic Eruption	Binary	0	NA	NA
	Wildfire	Binary	1	145-165	Detailed profile, but lacks maps and figures.
	Tsunami	Binary	NA	NA	NA
	Drought	Binary	0	NA	NA
	Avalanche	Binary	0	NA	NA
	Sea Level Rise	Binary	NA	NA	NA
	Coastal Erosion	Binary	NA	NA	NA
	Dam Safety/Failure	Binary	0	NA	NA
	Human-Caused	Binary	0	NA	NA
	Pandemic	Binary	0	NA	NA
	Other	Binary	NA	NA	NA

Fact-Based Hazard Assessment (Continued)

Content		Method	Score	Page No.	Strengths, Weaknesses, Recommendations, and Notes
Hazard identification assessment	Are the hazards prioritized in the plan?	Ordinal	2	NA	Though hazard consideration was prioritized, hazards within the plan are not.
	Are the factors used in prioritizing hazards identified (intensity, frequency, geographic distribution, mitigation potential, past losses)? Was a systematic procedure used in prioritizing hazards?	Ordinal	2	NA	The plan did not prioritize hazards.
	Does the plan include delineation of the probability of future events occurring?	Ordinal	1	131, 152-154	The plan does not explicitly delineate future flood, earthquake, or severe weather probability; more comprehensive delineation of landslide and wildfire are included.
	Does the plan include an analysis of future and current conditions to include population, economy, etc. (with explanation of reasoning)?	Ordinal	1	50-55	The plan details demographics and economics, but lacks a future component. Population and economic projections are recommended, in addition to consideration in risk assessments.
	Does the plan include climate change when considering future events?	Ordinal	0		
	Does the plan include maps and other visuals (tables, charts) that are clear and unambiguous and support reasoning? Do the maps delineate the location and magnitude of hazards?	Ordinal	1	See Table of Contents	Tables and charts are included, but the plan lacks maps and comprehensive figures. The reasoning behind some figures and charts are unclear and could be improved.

Vulnerability Assessment

	Content	Method	Score	Page No.	Strengths, Weaknesses, Recommendations, and Notes
The plan should describe vulnerability in terms of the types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard area.	Is there an assessment of the number of people exposed to hazards?	Ordinal	1	NA	Population exposure is not analyzed.
	Is there an assessment of disadvantaged/vulnerable pops exposed (# of people, demographic groups, locations)?	Ordinal	0	NA	The plan lacks socioeconomic vulnerability analysis.
	Does the plan include an assessment of number of state facilities exposed to hazards?	Ordinal	1	71-75, 96, 120-125	The plan includes a table of public buildings and the flood, earthquake, and wildfire profiles include basic public building considerations but are not comprehensive. Landslides and severe weather profiles do not explicitly consider public buildings.
	Does the plan describe vulnerability in terms of the types and numbers of existing buildings, infrastructure, and critical facilities located/exposed in the identified hazard areas?	Ordinal	1	93-99, 120-121, 132-136, 155-163	The plan includes general economic analysis of parcel data, but does not include explicitly vulnerability of buildings and infrastructure.
	Does the plan describe vulnerability in terms of the types and numbers of future buildings, infrastructure, and critical facilities located in the identified hazard areas?	Ordinal	0	NA	Not considered.
	Does the plan analyze existing capacity and future demand for public infrastructure?	Ordinal	0	NA	Infrastructure is not considered.

Vulnerability Assessment (Continued)

	Content	Method	Score	Page No.	Strengths, Weaknesses, Recommendations, and Notes
The plan should describe vulnerability in terms of providing a general description of land uses and development trends within the community so that mitigation options can be considered in future land use decisions.	Analyzing Development Trends: Does the plan describe land uses and development trends?	Ordinal	2	52-56	Details land use, but lacks development trends.
	Estimating Potential Losses: Does the plan describe the methodology used to prepare the estimate?	Ordinal	2	68-75	Details methodology for estimating valuation of real property but lacks comprehensive potential losses.
	Does the plan include an assessment of danger from a multiple hazard event?	Ordinal	1	NA	The plan discusses multiple hazard events in individual hazard profiles, but lacks comprehensive consideration.
	Does the plan include an assessment of the danger of hazardous facilities or materials in the hazard area?	Ordinal	2	63-68, 97-99	The plan details superfund site, but lacks specific consideration of hazardous material incidents.
	Does the plan address the state of natural environment resources and constraints?	Ordinal	1	63-68	Superfund site profile touches on the state of the natural environment.
	Does the plan include an assessment of the environmental impacts of a disaster?	Ordinal	0	NA	Environmental impacts are not considered.

Risk Analysis

	Content	Method	Score	Page No.	Strengths, Weaknesses, Recommendations, and Notes
Incorporates estimates of the probability of various levels of injury and damage from a full range of possible hazards in a geographic area.	Does the plan include a probability assessment of the various intensities of a hazard?	Ordinal	1	131, 153	Includes an analysis of landslide and fire prone landscapes but poorly differentiates between intensities. Other considered hazards lack a probability assessment.
	Does the plan include a probability assessment of the impacts on structures and populations in the event of a hazard?	Ordinal	1	93-99, 130-136, 159-163	Brief considerations of structure values are scattered throughout the plan, but there is no explicit incorporation of population.
	Does the plan address the magnitude of possible losses?	Ordinal	1	93-99, 130-136, 159-163	Economic analysis of parcel data addresses the magnitude of possible losses.
	Does the plan address the probabilities of losses for the range of possible hazard events?	Ordinal	1		
	Does the plan call for probability mapping?	Ordinal	0	NA	Lacks probability mapping call.
	Does the plan include a systematic risk assessment, combining the probability of hazard events with the likely expected losses from those events?	Ordinal	0	NA	NA

Mitigation Strategies

	Content	Method	Score	Page No.	Strengths, Weaknesses, Recommendations, and Notes
Identifies goals, state and local policies, programs and capabilities; mitigation actions; and funding sources. Represents general community/jurisdiction goals, problem alleviations, and needs based on assumed shared local values.	Are the goals included in the plan reflective of public values?	Binary	1	32-49, 76-86	Goals are listed and public input is considered throughout the plan.
	Include statements of future desired conditions?	Binary	0	NA	The plan lacks future component.
	Include a general economic goal (i.e. minimize fiscal impacts of disasters)?	Binary	1	16	Goals listed.
	Include a goal to reduce damage or vulnerability of property?	Binary	1	16	Goals listed.
	Include a goal to protect safety of the population?	Binary	1	16	Goals listed.
	Include a goal to recognize and improve conditions of marginalized populations?	Binary	0	NA	No explicit goal listed.
	Include a general environmental quality goal?	Binary	1	17	Goals listed.
	Include a goal to increase coordination of mitigation efforts of state and local governments?	Binary	1	17	Goals listed.
	Include a goal to increase coordination of mitigation efforts on a regional scale?	Binary	1	17	Goals listed.
	Include a goal to increase availability of relevant mitigation information?	Binary	1	16-17	Goals listed.
	Include a goal to increase resiliency?	Binary	0	NA	No explicit goal listed.
	Include a goal to promote sustainable development?	Binary	1	16	Goals listed.
	Are goals based on measurable objectives?	Ordinal	2	NA	No explicit measureable objective listed among the goals.

Capabilities Assessment

Content	Method	Score	Page No.	Strengths, Weaknesses, Recommendations, and Notes
Federal Capabilities (programs, policies, laws or actions)	Ordinal	1	250-251	Lacks comprehensive federal capabilities.
State Capabilities	Ordinal	1	246-250	Lacks comprehensive state capabilities.
Local Capabilities	Ordinal	3	234-246	Identifies local capabilities with points of contact.
Does the plan identify policies and programs that increase and decrease vulnerability?	Ordinal	0	NA	No specific policies or programs linked to vulnerability.
Identifies changes needed in policies and programs?	Ordinal	0	NA	No changes identified.

Mitigation Actions and Policies					
	Content	Method	Score	Page No.	Strengths, Weaknesses, Recommendations, and Notes
Information dissemination and increasing awareness: Does the plan include the following:	Educational awareness: public information regarding hazards and methods of mitigation through pamphlets, lectures, media.	Ordinal	2	266, 270, 296-297	Plan touches on educational awareness and public relations programs for dissemination; No specifics.
	Hazard Warning Signage.	Ordinal	1	267	Mentions signage for emergency shelters, but not for specific hazardous areas.
	Technical assistance for developers, property owners and other members of the public.	Ordinal	2	265	Minor home repair program, stormwater and erosion education program.
	Does the plan provide for technical assistance for local officials?	Ordinal	2	270-274	Technical assistance for floodplain administrators and lacks assistance for other local officials.
	Does the plan provide for disaster warning and response programs?	Ordinal	1	111	Calls for an early warning system for floods, but lacks response programs.
	Does the plan encourage purchase of flood or earthquake insurance?	Ordinal	2	107, 273-274	Details NFIP participation as potential mitigation activities; Lacks earthquake.
	Does the plan call for conducting research to improve knowledge, develop standards and identify and map hazards?	Ordinal	2	265, 272-273	Scattered statements regarding research. Mitigation actions call for a geospatial database and mapping.
	Does the plan include Capital Improvement projects?	Ordinal	0	NA	No Capital Improvement projects found.

Mitigation Actions and Policies (Continued)					
	Content	Method	Score	Page No.	Strengths, Weaknesses, Recommendations, and Notes
Financial Assistance Control of Hazards	Description of possible revenue sources for mitigation planning and projects?	Ordinal	2	254-258	Plan lists tradition, non-tradition, community, and federal, state, and local funding options.
	Description of mitigation financing through federal and state grants?	Ordinal	1	254-258	Describes some mitigation financing through FEMA and lacks a state component.
Control of New Development/Development Management Tools	Subdivision regulations, storm water management and other standards regulating design of new development?	Ordinal	1	263-268	Mitigation actions include regulations and enforcement of zoning policies, but lacks specifics.
	Cluster development, density bonus?	Ordinal	0	NA	Neither were found in the plan.
	Setbacks or buffer zones near hazard areas?	Ordinal	1	NA	Discusses buffer zones for flood and wildfire, but lacks specific policies.
	Laws to protect natural mitigation features (wetlands…)?	Ordinal	0	NA	No specific laws were specified.
	Building standards to make structures less susceptible to hazards?	Ordinal	1	172, 189, 273-277	Touches on standards for floods and earthquakes, and includes them in potential mitigation actions.
	Tax incentives or disincentives, impact taxes, risk-based taxes?	Ordinal	0	NA	Not discussed.
	Land or structure acquisition, TDR?	Ordinal	1	103	Lists properties acquired from the Flood Property Buy-Out Program.
	Removal of property from market/direct development away from hazardous areas?	Ordinal	1	111	Basic recommendation of steering development away from a hazardous area, but does not include removal from the market.

Mitigation Actions and Policies (Continued)

Content		Method	Score	Page No.	Strengths, Weaknesses, Recommendations, and Notes
Control of Hazards Recovery Measures	Physical structures to lessen impacts (levees, seawalls…)?	Ordinal	2	115-116, 122-124, 283-286	Includes structures for floods and earthquakes.
	Stormwater controls: drainage systems, culverts, retention ponds…?	Ordinal	2	226, 283-286	Stormwater discussed throughout the plan. Mitigation actions include stormwater considerations.
	Maintenance of structures?	Ordinal	2	274-280	Mitigation actions include maintenance of structures.
Recovery Measures, Emergency Preparedness and Response	Land-use Change	Ordinal	0	NA	No mention.
	Building Design Change	Ordinal	1	123-126	Discusses reinforcements against earthquakes, but none were discussed for other hazards.
	Moratorium	Ordinal	0	NA	No moratorium stated.
	Recovery Organization	Ordinal	0	NA	No recovery organization stated.
	Post disaster adjustments to community facilities and public infrastructure	Ordinal	0	NA	No adjustments discussed.
	Financing Recovery	Ordinal	1	258	The table lists federal financial resources, including those for recovery.
Emergency Preparedness and Response	Preparedness plan/program	Ordinal	0	NA	No explicit preparedness plan/program.
	Evacuation plan/program	Ordinal	1	138, 144	Brief recommendation for individuals to develop their own evacuation plans.
	Emergency shelter	Ordinal	1	267	Dissemination of emergency shelter listed under potential mitigation actions.
	Emergency response plan for organizations other than local governments (hospitals, nursing homes…)	Ordinal	0	NA	None listed or identified.

Monitoring and Implementation				
Content	**Method**	**Score**	**Page No.**	**Strengths, Weaknesses, Recommendations, and Notes**
Does the plan include provisions for monitoring hazards?	Ordinal	1	111, 137	Mentioned only briefly.
Does the plan include provisions for updating baseline hazard identification/risk assessment data?	Ordinal	0	NA	No explicit provisions for updating baseline data.
Are there indicators of objectives to assess progress?	Ordinal	1	263-286	Mitigation actions are considered indicators.
Does the plan include a timelines for implementing actions?	Ordinal	1	262	Mitigation actions assigned a general implementation timeframe.
Does the plan include provisions for monitoring the progress of implementation?	Ordinal	1	263-286	Mitigation actions considered indicators.
Schedule for monitoring of hazards and implementation and evaluation of measures?	Ordinal	0	NA	No schedule included.
Is citizen participation in the monitoring, evaluating and updating process included in the plan?	Ordinal	1	NA	Not to any considerable extent to fulfill indicator.
Does the plan include provisions for evaluating success/failure of mitigation action items?	Ordinal	1	NA	No evaluating metric included.

1				
Content	**Method**	**0**	**Page No.**	**Strengths, Weaknesses, Recommendations, and Notes**
Does the plan identify organizations responsible for implementation?	Ordinal	2	263-286	Responsible organizations listed in potential mitigation actions.
Are implementation costs identified in the plan?	Ordinal	0	NA	No costs identified.
Does the plan identify sources of funding to implement mitigation activities identified?	Ordinal	1	254-258, 263-286	General funding sources identified, no specifics to mitigation actions.
Does the plan include an assessment of obstacles in implementation?	Ordinal	0	NA	No obstacles listed.
Does the plan identify sources to implement mitigation activities?	Ordinal	1		
Does the plan identify current sources of technical assistance to implement mitigation activities?	Ordinal	1	234-253	Capabilities assessment includes points of contact and potential resources.
Does the plan include provisions for plan maintenance, to include responsible party, funding, timeline?	Ordinal	1		
Does the plan assess those losses avoided following disasters?	Ordinal	0	NA	No losses post-disaster due to mitigation efforts assessed.
Does the plan include provision for mediation to resolve conflicts that may arise during implementation?	Ordinal	0	NA	No mediation options identified.

Internal Plan Characteristics				
Content	**Method**	**Score**	**Page No.**	**Strengths, Weaknesses, Recommendations, and Notes**
Does the plan include a description of community needs, assets, trends, future vision of what the community wants to be?	Ordinal	1	15-17	Not addressed in detail, but includes a mission statement, vision statement, and goals for the county.
Policies/Policy Framework				
Are policies sufficiently specific to be tied to definite actions?	Ordinal	1	105, 122, 136, 143, 163, 258-287	Recommended actions with regards to each hazard are general; however, the plan does include mitigation actions for the county and each municipality.
Do policies include special designs to accommodate future growth?	Ordinal	0	NA	No specific policies address future growth.
Internal Consistency				
Are the policies clearly linked to the goals and implementation actions?	Ordinal	1		
Does the monitoring process include indicators to measure goal achievement and effectiveness of policies?	Ordinal	1	293	Plan includes a progress report to be completed annually, but lacks any specific indicators. Potential mitigation activities can be converted to indicators.
Data Assessment				
Are data sources identified?	Ordinal	1	69	Some sources are identified through text. Recommend table detailing data, data source, citation, date, etc.
Does the plan include an assessment of the quality of data about the hazards?	Ordinal	1	69	Plan touches on data quality, but no explicit quality assessment is detailed.

Internal Plan Recommended and Supplemental Targets Score

Element	Possible Score	Plan Score	Notes
Fact-Based Hazard Assessment	**27**	**12**	Assessment of considered hazards extensive, but recommend including more hazards (e.g., drought, pandemic, human-caused).
Vulnerability Assessment	**36**	**11**	Plan does not include socioeconomic vulnerability measure or comprehensively assess critical and essential facility vulnerabilities.
Risk Analysis	**18**	**4**	Risk assessment is well-grounded, but lacks comprehensive methodology. Various intensities and potential losses should be included for each hazard.
Mitigation Strategies	**15**	**11**	Mitigation strategies detailed in hazard profiles, but recommend better cross-referencing of strategies with specific policies and actions.
Capabilities Assessment	**15**	**5**	Plan includes detailed capabilities assessment but needs updating. Recommend including both federal and state resources and needs.
Mitigation Actions and Policies	**93**	**30**	Specific mitigation actions are strong especially regarding physical structures, but better integration of land use, development, public outreach, technical assistance, etc. can strengthen the Plan.
Monitoring and Implementation	**51**	**12**	Plan should include specific monitoring and evaluation metrics. Plan needs updating regarding action implementation.
Internal Plan Characteristics	**3**	**1**	Community needs mentioned throughout Plan, but lacks visions and future desired conditions.
Policies/Policy Framework	**6**	**1**	Inclusion of future growth considerations can help strengthen the Plan. Recommend including more detail on inclusion of other plans/policies, notably state and federal agencies.
Internal Consistency	**6**	**2**	More comprehensive monitoring metrics in addition to more explicit linkages with community goals and values can help strengthen the Plan.
Data Assessment	**6**	**2**	Plan lists data sources and includes basic quality assessment.
Total	**276**	**91**	Though the Plan meets the baseline FEMA requirements, the Plan can be improved through comprehensive risk and vulnerability assessments.

External Plan Recommended and Supplemental Targets

FEMA RECOMMENDATIONS AND RECOMMENDATIONS BASED ON LITERATURE AND INTERVIEWS WITH COUNTY PERSONNEL

Planning Process

	Content	Method	Score	Page No.	Strengths, Weaknesses, Recommendations, and Notes
Organizational Involvement, Coordination and Integration	Federal Agencies	Binary	1	23-26	USFS, NOAA, and BLM listed in participation.
	State Agencies	Binary	1	23-24	Lists the number of state agencies but not a comprehensive description of their involvement.
	Local and Regional Agencies	Binary	1	20-23	Lists local and regional agencies, mainly communities located in the county.
	Non-Profit/Non-Governmental	Binary	1	25.00	Avista Corporation listed in participation.
	Explanation of why the organizations identified in the plan were involved?	Ordinal	0	NA	No detailed description.
	Identification of those involved in the update process not originally involved?	Ordinal	NA	NA	NA
	Indication of coordination among agencies and changes between original plan and updated plan?	Ordinal	NA	NA	NA
	Identification of which agencies/organizations provide data in the plan?	Ordinal	2		Analysis methodology briefly discusses the agency/organizational data.
	Identification of which agencies provide technical assistance in preparation?	Ordinal	0	NA	Attendance record listed, but no explicit mention of technical assistance was provided.

Coordination of Local Hazard Mitigation Planning				
Content	**Method**	**Score**	**Page No.**	**Strengths, Weaknesses, Recommendations, and Notes**
Does the plan describe integration with other plans (or policies of public and private parties)?	Ordinal	1	263-265	The plan lists integration with jurisdictional comprehensive plans.
Is there vertical coordination with plans or policies of federal, state and regional parties?	Ordinal	0	NA	None identified (other than NFIP policies and requirements).
Is there horizontal coordination with plans or policies of other local parties within or outside local jurisdictions?	Ordinal	0	NA	None identified.
Does the plan discuss integration of mitigation action items and other plan elements into local comprehensive plans?	Ordinal	1	263-265	The plan lists integration with jurisdictional comprehensive plans.

Public/Community Involvement				
Content	**Method**	**Score**	**Page No.**	**Strengths, Weaknesses, Recommendations, and Notes**
Public Notices	Binary	1	28, 41-42	Press releases throughout the planning process.
Public meetings/workshops	Binary	1	32	Multiple public meetings and presentations.
Focus groups, surveys or questionnaires	Binary	1	42-48	Public mail survey.
Website	Binary	1	29	Website and FTP server for the planning committee.
Newsletter, brochures	Binary	0	NA	None listed.
Media	Binary	0	NA	None listed.
Organization and Presentation				
Table of contents	Binary	1	i-xiii	Table of Contents could link to the appropriate sections.
Glossary	Binary	0	NA	No glossary included.
Executive Summary	Ordinal	0	NA	No summary included.
Cross-referencing of issues, visions, goals and policies	Ordinal	0	NA	No explicit cross-referencing.
Clear visuals and supporting documents	Ordinal	1	See Table of Contents	Some appropriate visuals, lacking cohesion and comprehensive visuals and documents.

External Plan Recommended and Supplemental Targets Score

Element	Possible Score	Plan Score	Notes
Planning Process	**13**	**6**	Plan's baseline narrative of the planning process is detailed, but can be strengthened with explanations of why individual stakeholders were involved and their role through the process.
Coordination of Local Hazard Mitigation Planning	**8**	**2**	Better description of Plan's integration of other plans/policies/etc. in addition to vertical and horizontal coordiation with other agencies can improve the Plan.
Public/Community Involvement	**6**	**4**	Public involvement commendable and extensive; recommend continuation.
Organization and Presentation	**7**	**2**	Plan is organized, follows a logical progression, and is visually appealing. Recommend cross-referencing mitigation goals and specific policies in hazard profiles.
Total	**34**	**14**	The Plan's strength lie in its planning narrative, extensive hazards profiles, and capabilities assessments. Plan can be improved by focusing on mitigation actions and additional risk and vulnerability assessments.

Comprehensive Plan Score

COMPREHENSIVE SCORE INTEGRATES FEMA REQUIREMENTS, RECOMMENDATIONS, AND EXPANDED TARGETS

Element	Possible Score	Plan Score	Notes
FEMA Requirements	**42**	**42**	
Internal Plan Recommended and Supplemental Targets	**196**	**91**	
External Plan Recommended and Supplemental Targets	**34**	**14**	
Total	**272**	**147**	

Comprehensive Plan Evaluation for HMP Integration

County Name: Shoshone County

Comprehensive Plan Component	Yes	No
General Comprehensive Plan		
1. What are the goals for this Comprehensive Plan? (if applicable)	-	-
Comments: There are general development goals. Also, on the Planning and Zoning website, the overall mission is: "It is our mission to provide the best available information and interpretation of the rules and regulations possible. It is our goal to provide our community the best customer service possible during the completion of their permit approval process." This provides opportunity to link the Comprehensive Plan goals with the Hazard Mitigation Plan (HMP) goals. The goals are as follows: 1. LAND USE REGULATION IN PURSUIT OF THE PUBLIC WELFARE SHOULD NOT BE CONFISCATORY; 2. WELL-DEFINED URBAN GROWTH CENTERS ALREADY ESTABLISHED SHOULD BE ENCOURAGED TO CONTINUE TO DEVELOP WITHIN THE		
2. Do the overall Comprehensive Plan goals relate to Hazard Mitigation Plan goals? (if applicable)	X	
Comments: The current HMP goals are as follows: 1. Promote and implement disaster-resistant development policies; 2. Build and support local capacity to enable the local government and the community to prepare for, respond to, and recover from disasters; 3. Reduce the possibility of damages and losses due to Floods; 4. Reduce the possibility of damages and losses due to Wildfire; 5. Reduce the possibility of damages and losses due to Landslides; 6. Reduce the possibility of damages and losses due to Earthquakes; 7. Reduce the possibility of damages and losses due to Severe Weather; Parallel goals: 1. Reduce the threats to public health and safety		
3. What year has the Comprehensive Plan been most recently updated?	-	-
Comments: 1996. However, various codes and ordinances have been adopted since then including: zoning code: subdivision code; building code, site disturbance, and floodplain administration.		
4. Does the plan mention when the next update will be? If so, when?		X
Comments: This provides opportunity to include HMP related policies, etc. for the next update. The plan could also be updated during the most current or next HMP update.		
5. Does the plan have an overall implementation strategy?		X
Comments: The plan has tentative recommendations at the end of the plan. However, it is out of date. There are recommendations to develop implementation tools to implement the policies stated within the plan. Currently, Shoshone County implements most of its planning through ordinances that are listed on the Planning and Zoning website.		
Hazardous Areas		
1. What are the goals for this component? (if applicable)	-	-

Comments: The goal for this component is: "Development should occur in places safe from all natural hazards."		
2. Does the component provide a map that clearly identifies natural hazard areas?		X
Comments: There is a very outdated map of slope steepness. There is opportunity to include floodplain maps, as flooding is the largest hazard in the county. Maps from the most recent HMP update can be included in this section of the Comprehensive Plan.		
3. Does the component provide a profile for each applicable natural hazard? (e.g., description, location, extent, etc.)		X
Comments: There is opportunity to include the hazard descriptions from the most recent HMP update. Currently, there is a brief description of flooding within the plan and on the Planning and Zoning website.		
4. Does the component provide a profile for human-caused or technological hazards?		X
Comments: There is a general development goal to include the Superfund site while in consideration of the Comprehensive Plan policies. There is potential to include this within the 'Hazardous Areas' component of the Comprehensive Plan. Also, there is potential to use the section for human-caused or technological hazards in the most recent HMP update.		
hazards?		X
Comments: There is potential to use the section in the most recent HMP update that describes the facilities located in the county and are exposed to various hazards.		
6. Does the component provide a list or description of populations that are socioeconomically vulnerable to hazards?		X
Comments: There is potential to use the socioeconomic vulnerability assessment from the most recent HMP update.		
applicable hazard?		X
Comments: There is potential to include the risk assessment from the most recent HMP update.		
8. Are policies designed to enact specific hazard mitigation activities/projects?	X	

Comments: The policies include: "encouraging the study of natural hazard areas, retaining steep slopes or slippage areas as open space, flood proofing for new and current structures within the floodplain, and limiting construction within hazardous areas." There is also potential to use mitigation policies from the most recent HMP update.		
9. Are implementation strategies (e.g., who is responsible, funding, etc.) for policies provided?		X
Comments: There are no implementation strategies within this component. This provides opportunity to include implementation strategies from the most current HMP update.		
Land Use		
1. What are the goals for this component? (if applicable)	-	-
Comments: There are 5 districts within the county that include different goals: North Shoshone, South Shoshone, West Corridor, Central Corridor, and East Corridor. The goal for North Shoshone is: "Preservation of Existing Rural Environment." The rest of the goals are included within the Corridor districts, as the majority of development occurs here. The Residential goals for the Corridor districts include: 1. HIGH DENSITY RESIDENTIAL USES SHOULD BE CONFINED IN THE CORRIDOR TO PLACES WHERE ADEQUATE UTILITIES ARE AVAILABLE OR CAN BE MADE AVAILABLE; 2. RURAL RESIDENTIAL USES SHOULD BE DEVELOPED IN A MANNER THAT NECESSARY SERVICES CAN BE EFFICIENTLY PROVIDED; 3. SEASONAL		
2. Does the future land-use map clearly identify natural hazard areas?		X
Comments: There is potential to overlay all hazard maps from the most recent HMP update onto the most recent land use map in order to guide growth to safer locations in the future.		
3. Are policies designed to discourage development or redevelopment within natural hazard areas?		X
Comments: The plan briefly mentions that industrial development locations should be on level land that won't require a lot of grading, and that will be located above flood hazard. On the Planning and Zoning website there is brief mention of the floodplain regulations for development within the Special Flood Hazard Area (SFHA). There is potential to include more development restrictions in hazard areas based from the most recent HMP update.		
4. Are policies aimed at providing adequate space for expected future growth in areas located outside natural hazard areas?		X
Comments: There is mention that there must be adequate growth, but there is no mention of growth outside of natural hazard areas. There is a potential to establish future development policies and regulations based on the hazard overlay maps from the most recent HMP update.		
5. Are implementation strategies (e.g., who is responsible, funding, etc.) for policies provided?		X
Comments: There are no implementation strategies specifically for this component. Implementation strategies may be created or used from the most recent HMP update.		
Transportation		
1. What are the goals for this component? (if applicable)	-	-

Comments: The goals for this component are as follows: 1. MAINTAIN THE HIGHWAYS AND RAILROADS AS THE MAJOR TRANSPORTATION SYSTEMS IN SHOSHONE COUNTY; 2. STRENGTHEN THE ECONOMY BY FACILITATING THE MOVEMENT OF PEOPLE AND GOODS THROUGHOUT THE COUNTY AND FOR THEIR TRANSFER TO OTHER MODES OF TRAVEL; 3. ESTABLISH COOPERATION BETWEEN THE COUNTY, CITIES, ROAD DISTRICTS AND STATE; ON STREET, ROAD AND OTHER TRANSPORTATION MATTERS; 4. DEVELOP METHODS OF MASS TRANSIT FOR THE PEOPLE OF SHOSHONE COUNTY WHICH WILL MEET AND SERVE THEIR NEEDS; 5. SHOSHONE COUNTY SHOULD		
2. Are policies aimed at limiting access to hazard areas?		X
Comments: There is potential to create these policies. If there are some already within the most recent HMP update, these policies can be transferred into this component of the Comprehensive Plan.		
3. Are policies used to guide growth to safe locations?		X
Comments: There is a potential to create these policies. If there are some already within the most recent HMP update, these policies can be transferred into this component of the Comprehensive Plan.		
4. Are policies aimed at having facilities designed to function under disaster conditions (e.g., evacuation)?		X
Comments: There is potential to create these policies. If there are some already within the most recent HMP update, these policies can be transferred into this component of the Comprehensive Plan.		
5. Are policies aimed at having contingencies in place in case of bridge or other transportation infrastructure failure?		X
Comments: There is a potential to create these policies. If there are some already within the most recent HMP update, these policies can be transferred into this component of the Comprehensive Plan.		
6. Are implementation strategies (e.g., who is responsible, funding, etc.) for policies provided?		X
Comments: There are no implementation strategies specifically for this component. Implementation strategies may be created or used from the most recent HMP update.		
Property Rights		
1. What are the goals for this component? (if applicable)	-	-
Comments: There is no specific component for property rights, but there is a goal related to this property rights located within the 'General Development' goals section. The goal is: 1.LAND USE REGULATION IN PURSUIT OF THE PUBLIC WELFARE SHOULD NOT BE CONFISCATORY.		
2. Are policies designed to balance private property rights and hazard mitigation?		X

Comments: There is a potential to create these policies. If there are some already within the most recent HMP update, these policies can be transferred into this component of the Comprehensive Plan. There is already a good foundation for creating policies that balance hazard mitigation with property rights due to the nature of the goal "land use regulation in pursuit of the public welfare should not be confiscatory."		
for hazard mitigation?		X
Comments: There is a potential to create these policies. If there are some already within the most recent HMP update, these policies can be transferred into this component of the Comprehensive Plan. There may be opportunity to create easements or trade non-developable private land for public developable land.		
4. Are policies designed to reduce conflict or provide mediation?		X
Comments: There is a potential to create these policies. If there are some already within the most recent HMP update, these policies can be transferred into this component of the Comprehensive Plan. One option may include 'Appreciative Inquiry' processes, which aim to produce mitigation strategies that are important to the private landowners as well as the government.		
5. Are implementation strategies (e.g., who is responsible, funding, etc.) for policies provided?		X
Comments: There are no implementation strategies specifically for this component. Implementation strategies may be created or used from the most recent HMP update.		
Natural Resources/Environment		
1. What are the goals for this component? (if applicable)	-	-
Comments: There is no specific 'Natural Resource/Environment" component, yet there are descriptions of the geology, geography, and climate. There is potential to create this component with goals that are linked to the HMP.		
2. Does this component provide a list or map of environmental systems that protect development from hazards?		X
Comments: There is potential to create this list or map. If there is one already within the most recent HMP update, this can be transferred into this component of the Comprehensive Plan once it is created. This could be used as an overlay that is combined with a hazard overlay that will prohibit development in these areas.		
3. Are policies designed to maintain and restore protective ecosystems?		X
Comments: There is a potential to create these policies. If there are some already within the most recent HMP update, these policies can be transferred into this component of the Comprehensive Plan once it is created. As this county is rural in nature, there presents great opportunity to protect undeveloped land that contain protective ecosystems in order to double as hazard mitigation.		
4. Are policies aimed at providing incentives for development located outside protective ecosystems?		X

Comments: There is a potential to create these policies. If there are some already within the most recent HMP update, these policies can be transferred into this component of the Comprehensive Plan once it is created. If there are various policies that aim to prohibit development, there should be a balance of policies that encourage development outside of these hazardous areas. Incentives may include subdivision cluster bonuses or tax breaks.		
5. Are policies designed to limit development in flood prone areas?		X
Comments: There is a potential to create these policies. If there are some already within the most recent HMP update, these policies can be transferred into this component of the Comprehensive Plan once it is created. As there is no specific 'Natural Resource' component, there is no mention of such policies. However, throughout the plan and on the Planning and Zoning website, there are ordinances and/or policies that aim to limit development on steep slopes and within the floodplain.		
6. Are policies designed to protect wildlife migration corridors along rivers and streams to serve as habitat and environmental protection?		X
Comments: There is a potential to create these policies. If there are some are already within the most recent HMP update, these policies can be transferred into this component of the Comprehensive Plan once it is created. Due to the rural nature of this county, policies of this nature would link both the HMP and Comprehensive Plan.		
7. Are policies designed to preserve natural vegetation and woodlands on steep slopes to reduce the likelihood of landslides?		X
Comments: There is a potential to create these policies. If there are some already within the most recent HMP update, these policies can be transferred into this component of the Comprehensive Plan once it is created. Due to the rural nature of this county, policies of this nature would link both the HMP and comp plan, especially since over 90 percent of the county has a slope greater than 15%.		
8. Are policies designed to conserve woodlands without development to reduce building exposure to wildfires?		X
Comments: There is a potential to create these policies. If there are some already within the most recent HMP update, these policies can be transferred into this component of the Comprehensive Plan once it is created. Due to the rural nature of this county, policies of this nature would link both the HMP and Comprehensive Plan.		
9. Are environmental policies (i.e., clean air, clean water, endangered species) coupled with hazard mitigation policies?		X
Comments: There is a potential to create these policies. If there are some already within the most recent HMP update, these policies can be transferred into this component of the Comprehensive Plan once it is created. Due to the rural nature of this county, policies of this nature would link both the HMP and Comprehensive Plan, especially with the prevalence of the Bunker Hill Superfund Site.		
10. Are watershed management policies coupled with hazard mitigation policies?		X
Comments: There is a potential to create these policies. If there are some already within the most recent HMP update, these policies can be transferred into this component of the Comprehensive Plan once it is created. Due to the rural nature of this county, policies of this nature would link both the HMP and Comprehensive Plan.		
11. Are implementation strategies (e.g., who is responsible, funding, etc.) for policies provided?		X

Comments: There are no implementation strategies within this component, as there is no 'Natural Resources' component as of yet. Implementation strategies may be created or used from the most recent HMP update.		
Recreation/Open Space/Trails		
1. What are the goals for this component? (if applicable)	-	-
Comments: There is no 'Recreation/Open Space/Trails' component, yet there are goals for recreation and open space within the 'Land Use' component. Those goals are: 1. ENCOURAGE THE SUPPLIERS OF RECREATIONAL OPPORTUNITIES TO PROVIDE A VARIETY OF RECREATIONAL FACILITIES; 2. A COUNTY SHOULD DEVELOP A PARK LAND ACQUISITION REQUIREMENT FOR AREAS WITHIN THE COUNTY AS RECOMMENDED BY THE PARKS PLAN; 3. EXISTING AND FUTURE PARKS SHOULD BE DEVELOPED OR IMPROVED WITH AS FEW PHYSICAL BARRIERS FOR THE HANDICAPPED AS POSSIBLE; 4. RETAIN AREAS WITHIN THE DEVELOPED PORTION OF THE COUNTY AS GREEN SPACE;		
2. Are policies designed to convert or contain floodplain land, steep slope, and areas vulnerable to wildfire or other hazards into open space or recreational areas to minimize damage to life and property?	X	
Comments: There are general policies describing this, but there is a potential to make them more specific especially due to the recreation potential in the county. There is already foundation for the creation of policies related to using hazardous areas by means of the goals that states: "Encourage the utilization of hazard areas as open space."		
3. Are implementation strategies (e.g., who is responsible, funding, etc.) for policies provided?		X
Comments: There are no implementation strategies specifically for this section. Implementation strategies may be used from the most recent HMP update. However, there is a goal that states that the county should explore and make use of financial techniques to establish parks and open space. There is also a goal that states: "A county should develop a park land acquisition requirement for areas within the county as recommended by the parks plan. This plan has the potential to be integrated within the most recent HMP and Comprehensive Plan. Specific policies and implementation strategies can be built off of these goals and plans.		
Economic Development		
1. What are the goals for this component? (if applicable)	-	-
Comments: This component is limited and contains more of a projection of what the economy will look like rather than economic goals and policies. However, there are overall employment goals: "Many service related jobs will pay minimum wage which will not support a household. Explore the feasibility of bringing higher paying jobs into the county via aggressive means . These jobs (or industries) should remain complementary to the existing developing tourism industry. Possible means of recruitment could involve the Silver Valley Economic Development and or grants to encourage local companies to expand their markets and by encouraging the expansion of basic industries for the manufacturing of existing products."		
2. Does this component provide a list or map of business locations that are within hazardous areas?		X
Comments: There is potential to create this list or map. If there is one already within the most recent HMP update, this can be transferred into this component of the Comprehensive Plan. Business location is especially important if they are located within hazardous areas, such as floodplains. If a business if located within the floodplain, it may be required to have flood insurance, which may possibly strain the business. This in effect could possibly strain the county's economy. Planning for these monetary requirements may be essential as well as preparedness for the physical nature of a hazard event.		
3. Are policies aimed at providing adequate space for expected business growth in areas located outside natural hazard areas?		
Comments: There is a potential to create these policies. If there are some already within the most recent HMP update, these policies can be transferred into this component of the Comprehensive Plan. Due to the rural nature of this county, there is a demand for recreation and mining industries, which could potentially create a need for more development. If this development can be located outside of hazardous areas, losses to life and property could diminish.		
4. Are policies designed to aid economic recovery post disaster?		X

Comments: There is a potential to create these policies. If there are some already within the most recent HMP update, they can be transferred into this component of the Comprehensive Plan. Policies could even be targeted towards mining impacts.		
5. Are policies designed to educate business owners about hazards?		X
Comments: There is a potential to create these policies. If there are some already within the most recent HMP update, they can be transferred into this component of the Comprehensive Plan. With new development in a rural county, education can be essential for possible insurance purposes or how to prepare for the physical impacts of natural hazard events.		
6. Are policies designed to assist business owners with hazard mitigation and preparedness?		X
Comments: There is a potential to create these policies. If there are some already within the most recent HMP update, they can be transferred into this component of the Comprehensive Plan. With new development in a rural county, mitigation can be essential in order to prepare for natural hazard events.		
7. Are policies aimed towards using the community's safety to attract potential new businesses to the area?		X
Comments: There is a potential to create these policies. If there are some already within the most recent HMP update, they can be transferred into this component of the Comprehensive Plan.		
8. Are implementation strategies (e.g., who is responsible, funding, etc.) for policies provided?		X
Comments: There are no implementation strategies within this component. Implementation strategies may be created or used from the most recent HMP update.		
Population		
1. What are the goals for this component? (if applicable)	-	-
Comments: There are no goals for the 'Population' component. There is potential to create and link goals to those within the most recent HMP.		
2. Does the component provide a list or map of populations within hazardous areas?		X
Comments: There is a potential to create this list or map. If there is one already within the most recent HMP update, this can be transferred into this component of the Comprehensive Plan. Showing population exposure may be essential to understand which areas may have to prepare for one or multiple natural hazard events.		
3. Does this component provide a list or description of populations that are socio-economically vulnerable?		X

Comments: There is a potential to create this map. If it is already completed from the most recent HMP update, it can be transferred into this component of the Comprehensive Plan. This may help target policies towards vulnerable populations, which in turn may increase their adaptive capacity to natural hazard events.		
4. Are policies designed to educate the public about hazards?		X
Comments: There is a potential to create these policies. If there are some already within the most recent HMP update, they can be transferred into this component of the Comprehensive Plan. With new development in a rural county, education for how to be prepared for natural hazard events may be essential, especially as the county is majorly made up of steep slopes and floodplains.		
5. Are policies designed to assist the public with hazard mitigation and preparedness?		X
Comments: There is potential to create these policies. If there are some already within the most recent HMP update, they can be transferred into this component of the Comprehensive Plan. With new development in a rural county, mitigation may be essential in order to lessen the impacts from natural hazard events.		
6. Are policies designed to aid the public with recovery post disaster?		X
Comments: There is a potential to create these policies. If there are some already within the most recent HMP update, they can be transferred into this component of the Comprehensive Plan.		
7. Are policies aimed towards protecting the public from risk of natural hazard events?		X
Comments: There is a potential to create these policies. If there are some already within the most recent HMP update, they can be transferred into this component of the Comprehensive Plan. This is essential due to the rural nature of the county and the amount of land that is either on a steep slope or in a floodplain.		
8. Are policies designed to develop response plans for natural hazards?		X
Comments: There is a potential to create these policies. If there are some already within the most recent HMP update, they can be transferred into this component of the Comprehensive Plan. This is essential due to the rural nature of the county and the amount of land that is either on a steep slope or in a floodplain. This coupled with new development will pose a greater threat where response plans are essential to protect the citizens of the county.		
9. Are implementation strategies (e.g., who is responsible, funding, etc.) for policies provided?		X
Comments: There are no implementation strategies within this component. Implementation strategies may be created or used from the most recent HMP update.		
School Facilities and Transportation		
1. What are the goals for this component? (if applicable)	-	-

Comments: There is no 'School Facilities and Transportation' component however, the plan does mention school facilities with the land use public facility goals. That goal which includes school facilities is: 1. ENCOURAGE DELIVERY OF ADEQUATE COUNTY SERVICES TO ALL RESIDENTS OF THE COUNTY.		
2. Does the component provide a list or map of school facilities within hazardous areas?		X
Comments: There is a potential to create this list or map. If one is already within the most recent HMP update, it can be transferred into this component of the Comprehensive Plan once the component is created. Loss estimates may also be mapped and integrated within school facility maps.		
3. Are policies aimed so that school facilities are designed to function under disaster conditions?		X
Comments: There is a potential to create these policies. If they are already created for the HMP, they can be integrated within the Comprehensive Plan, once the component is created. In order to provide effective educational opportunities within the county, school facilities need to be able to function during severe weather events or other hazard events. Therefore, policies created to ensure that school facilities function under disaster conditions, may be essential.		
4. Are policies aimed towards utilizing school facilities in safe areas as emergency shelters?		X
Comments: There is a potential to create these policies. If they are already created for the HMP, they can be integrated within the Comprehensive Plan, once the component is created. In order to provide for the safety of the public during hazard events, school facilities should be able to serve in the response sector and act as shelters. Therefore, policies created to use schools as shelters may be essential.		
5. Are policies aimed at having contingencies in place in case of school facility or transportation infrastructure failure?		X
Comments: There is a potential to create these policies. If they are already created for the HMP, they can be integrated within the Comprehensive Plan, once a component is created. In order to provide effective educational opportunities and promote the safety of the people, school facilities need to be able to function during severe weather events or other hazard events. Therefore, policies created to ensure that school facilities within the two school districts within the county have alternate infrastructure in order to maintain operation may be essential.		
6. Are policies designed for the safe location of future facilities outside hazardous areas?		X
Comments: There is a potential to create these policies. If they are already created for the HMP, they can be integrated within the Comprehensive Plan, once a component is created. In order to provide effective educational opportunities and promote the safety of the people, school facilities need to be able to function during severe weather events or other hazard events. Therefore, policies created to ensure that future school facilities are located outside of these hazard areas as much as possible may be essential.		
7. Are implementation strategies (e.g., who is responsible, funding, etc.) for policies provided?		X
Comments: There are no implementation strategies within this component, as one has yet to be created. For when a 'School Facilities and Transportation' component is created, implementation strategies may be created or used from the most recent HMP update.		
Public Services, Facilities, and Utilities		
1. What are the goals for this component? (if applicable)	-	-

Comments: The goals for this component are as follows: 1.ENCOURAGE DELIVERY OF ADEQUATE COUNTY SERVICES TO ALL RESIDENTS OF THE COUNTY; 2. PLAN FOR THE EXTENSION OF THE COUNTY SERVICES IN THE MOST EFFICIENT AND ECONOMICAL MANNER; 3. TO DESIGN AND LOCATE PUBLIC BUILDINGS AND FACILITIES IN SUCH A WAY THAT FUTURE NEEDS ARE CONSIDERED , AMPLE LAND IS AVAILABLE FOR BUILDING, PLANT EXPANSION AND PARKING ; ECONOMIES OF SCALE ARE LOOKED AT WHERE JOINT OPERATION AND USE BY MORE THAN ONE GOVERNMENTAL AGENCY CAN OCCUR, THUS SAVING TAXPAYERS MONEY.		
2. Does the component provide a list or map of public facilities within hazardous areas?		X
Comments: There is a potential to create this list or map. If one is already within the most recent HMP update, it can be transferred into this component of the Comprehensive Plan. Providing a map of facilities with hazard overlays can help guide utility development to safer locations or allows for those that are already located within hazardous areas to be retrofitted to withstand hazards.		
3. Are policies aimed at limiting public expenditure for infrastructure and public facilities in high-hazard areas?		X
Comments: There is a potential to create these policies. If some are already within the most recent HMP update, they can be transferred into this component of the Comprehensive Plan. There is already mention of "land use considerations from response organizations for the delivery of county services to the residents of the county." This provides foundation and can be expanded upon for more specific policies.		
4. Are policies aimed towards linking water treatment facilities, stormwater management, and sewerage and solid waste with hazard mitigation?		X
Comments: There is a potential to create these policies. If some are already within the most recent HMP update, they can be transferred into this component of the Comprehensive Plan. There is already mention of "land use considerations from response organizations for the delivery of county services to the residents of the county." This can be expanded upon.		
5. Are policies designed to interconnect service networks and allow more than one route to any point in order to reduce vulnerability when failures occur?		X
Comments: Potential to create these policies. If already within the most recent HMP update, they can be transferred into this component of the Comprehensive Plan. There is already mention of "land use considerations from response organizations for the delivery of county services to the residents of the county." This can be expanded upon. Moreover, future development may create the need for more facilities and therefore, having policies in place that provide for alternative utilities when a hazard event occurs may essential to the safety of the public and functioning of the county.		
6. Are capital improvement policies aimed towards steering development away from hazardous areas?		X
Comments: There is a potential to create these policies. If there are some already within the most recent HMP update, they can be transferred into this component of the Comprehensive Plan. There is already mention of "land use considerations from response organizations for the delivery of county services to the residents of the county." This can be expanded upon. Moreover, future development may create the need for more facilities and therefore having these new facilities developed within safe location may lower the risk of damage or failure during a natural hazard event.		
7. Are policies designed for the safe location of critical facilities (i.e., fire stations, EOC) outside hazardous areas?		X
Comments: There is a potential to create these policies. If there are some already within the most recent HMP update, they can be transferred into this component of the Comprehensive Plan. There is already mention of "land use considerations from response organizations for the delivery of county services to the residents of the county." This can be expanded upon. Moreover, future development may create the need for more facilities and therefore, having these new facilities developed within safe location may lower the risk of damage or failure during a natural hazard event. Also, new development or current development provides a need for emergency response facilities in order to protect the public. If these facilities are located within safe locations,		
8. Are policies aimed at facilities designed to function under disaster conditions?		X

Comments: There is a potential to create these policies. If there are some already within the most recent HMP update, they can be transferred into this component of the Comprehensive Plan. Future development may create the need for more facilities and therefore, having policies in place that provide for utilities to function when a hazard event occurs may essential to the safety of the public and functioning of the county.		
9. Are policies aimed towards utilizing other major facilities in safe areas as emergency shelters?		X
Comments: There is a potential to create these policies. If there are some already within the most recent HMP update, they can be transferred into this component of the Comprehensive Plan. Future development or current development may create the need for a larger population that needs protection during hazard events. Therefore, having other public facilities outside of hazardous areas (i.e., libraries, schools) may be essential to the safety of the public and functioning of the county.		
10. Are implementation strategies (e.g., who is responsible, funding, etc.) for policies provided?		X
Comments: There are no implementation strategies within this component. Implementation strategies may be created or used from the most recent HMP update.		
Special Areas or Sites		
1. What are the goals for this component? (if applicable)	-	-
Comments: There is only one paragraph providing description for the 'Special Areas or Sites" component and there are no goals listed as well.		
2. Does the component provide a list or map of special sites or areas within hazardous areas?		X
Comments: There is a potential to create this list or map. If there is one already within the most recent HMP update, this can be transferred into this component of the Comprehensive Plan. Providing a map of special areas or sites in combination of hazard overlays may help to determine what type of building standards need to be taken into consideration if renovating a historic building or it may help determine if a special area (i.e., wildlife refuges) converges with a natural hazard area, which may help with natural hazard mitigation.		
3. Are policies aimed at using appropriate hazard retrofitting techniques or standards to protect historic or other special site structures from hazardous areas?		X
Comments: There is a potential to create these policies. If there are some already within the most recent HMP update, they can be transferred into this component of the Comprehensive Plan. Due to the historic nature of the Silver Valley, historic revitalizations may occur and when buildings are being stabilized, this provides opportunity to retrofit it to applicable hazards.		
4. Are policies aimed towards protecting special areas or sites that may double as hazard mitigation (i.e., wildlife refuges, wetlands)?		X
Comments: There is a potential to create these policies. If there are some already within the most recent HMP update, they can be transferred into this component of the Comprehensive Plan. Due to the rural nature of the county, portions of floodplains can host various wildlife and can serve as natural hazard mitigation.		
5. Are implementation strategies (e.g., who is responsible, funding, etc.) for policies provided?		X

Comments: There are no implementation strategies within this component. Implementation strategies may be created or used from the most recent HMP update.		
Housing		
1. What are the goals for this component? (if applicable)	-	-
Comments: The goals for for this component are: 1. ENCOURAGE THE UPGRADING OF SUBSTANDARD HOUSING AND THE REHABILITATION OF EXISTING HOUSES; 2. HIGH QUALITY AND DIVERSIFIED TYPES OF HOUSING SHOULD BE AVAILABLE TO THE WHOLE COUNTY; 3. PROMOTE THE CONSTRUCTION OF NEW HOUSING TO MEET THE DEMAND OF THE CITIZENRY; 4. ENCOURAGE THE DEVELOPMENT OF RECREATIONAL HOUSING IN CONFORMANCE WITH THE COMPREHENSIVE PLAN.		
2. Does the component provide a list or map of housing development within hazardous areas?		X
Comments: There is a potential to create this list or map. If there is one already within the most recent HMP update, this can be transferred into this component of the Comprehensive Plan. Providing a map of current and future housing development in combination with hazard overlays may help to determine what type of building standards need to be taken into consideration if developing or redeveloping and it can help guide future development to land outside of the hazardous areas.		
3. Are policies aimed at using appropriate hazard retrofitting techniques and standards for current or future housing located within hazardous areas?	X	
Comments: There is brief mention about development being consistent with zoning regulations, which is where mention of the National Flood Insurance Program (NFIP) could be explicit. There is also mention that recreational housing should be located where adequate protection from natural hazards can be incorporated into the building or site design. This can always be expanded upon and made more specific.		
4. Are policies aimed at discouraging housing development or redevelopment within hazardous areas?	X	
Comments: There are policies that state that "housing be restricted in hazardous, flood prone, or slippage areas to the degree of risk the site imposes." There is also brief mention about development being consistent with zoning regulations, which is where mention of the NFIP could be explicit. There is also mention that recreational housing should be located where adequate protection from natural hazards can be incorporated into the building or site design. This can always be expanded upon and made more specific.		
5. Are implementation strategies (e.g., who is responsible, funding, etc.) for policies provided?		X
Comments: There are no implementation strategies within this component. Implementation strategies may be created or used from the most recent HMP update.		
Community Design		
1. What are the goals for this component? (if applicable)	-	-
Comments: There is no 'Community Design' component. There is opportunity to create one and link its goals with those in the most recent HMP update.		
2. Are policies aimed towards using hazard design standards that are appropriate for housing located within hazardous areas?		X

Comments: There is a potential to create these policies. If some are already within the most recent HMP update, they can be transferred into this component of the Comprehensive Plan. As the county is primarily rural and much of the land is within a floodplain, this would be a great opportunity to provide detail on the NFIP and development regulations.		
3. Are policies designed to discourage development or redevelopment within hazardous areas?		X
Comments: There is a potential to create these policies. If some are already within the most recent HMP update, they can be transferred into this component of the Comprehensive Plan. As the county is primarily rural and much of the land is within a floodplain, this would be a great opportunity to provide detail on the NFIP and development regulations, as well as policies restricting development on steeper slopes.		
4. Are implementation strategies (e.g., who is responsible, funding, etc.) for policies provided?		X
Comments: There are no implementation strategies within this component. Implementation strategies may be created or used from the most recent HMP update.		
Agriculture		
1. What are the goals for this component? (if applicable)	-	-
Comments: There is no 'Agriculture' component, as well as goals within that component. There is a potential to create this component and goals that may link to those of the most recent HMP, if applicable to the county.		
2. Are policies aimed at utilizing the adoption of agricultural techniques that help prevent, mitigate, or reduce the risk of impacts from natural hazards?		X
Comments: There is a potential to create these policies. If there are some already within the most recent HMP update, they can be transferred into this component of the Comprehensive Plan if created. However, due to the rural nature of the county, the agricultural industry may not be as prevalent, creating a lesser need to create policies pertaining to hazard mitigation and agriculture. This can help place focus and resources on components that are more pertinent to the county such as 'Natural Resources.'		
3. Are policies designed to aid the agricultural sector with recovery post disaster?		X
Comments: There is a potential to create these policies. If already within the most recent HMP update, they can be transferred into this component of the Comprehensive Plan if created. However, due to the rural nature of the county, the agricultural industry may not be as prevalent, creating a lesser need to create policies pertaining to hazard mitigation and agriculture. This can help place focus and resources on other components that are more pertinent to the county such as 'Natural Resources.'		
4. Are policies designed to educate the agricultural sector about hazards?		X
Comments: There is a potential to create these policies. If there are some already within the most recent HMP update, they can be transferred into this component of the Comprehensive Plan. However, due to the rural nature of the county, the agricultural industry may not be as prevalent, creating a lesser need to create policies pertaining to hazard mitigation and agriculture. This can help place focus and resources on other components that are more pertinent to the county such as 'Natural Resources.'		
5. Are implementation strategies (e.g., who is responsible, funding, etc.) for policies provided?		X

Comments: There are no implementation strategies within this component. If an 'Agriculture' component is created, implementation strategies may be created or used from the most recent HMP update.		
National Interest Electric Transmission Corridor (if applicable)		
1. What are the goals for this component? (if applicable)	-	-
Comments: N/A		
2. Does the component provide a list or map of current transmission corridors within hazardous areas?	N/A	N/A
Comments: N/A		
3. Are policies designed for the location of future transmission corridors outside of hazardous areas?	N/A	N/A
Comments: N/A		
4. Are policies aimed at having current facilities designed to function under disaster conditions?	N/A	N/A
Comments: N/A		
5. Are policies aimed at having contingencies in place in case of transmission corridor infrastructure failure?	N/A	N/A
Comments: N/A		
6. Are implementation strategies (e.g., who is responsible, funding, etc.) for policies provided?	N/A	N/A
Comments: N/A		
Public Airport Facilities (if applicable)		
1. What are the goals for this component? (if applicable)	-	-

Comments: There is no 'Public Airport Facilities' component. However, there is mention of these facilities throughout the plan, with a goal in the land use public facilities section which states: 7. MAINTAIN AND EXPAND THE SHOSHONE COUNTY AIRPORT FACILITIES.		
2. Does the component provide a list or map of current airport facilities within hazardous areas?		X
Comments: There is a potential to create this list or map. If one is already within the most recent HMP update, this can be transferred into this component of the Comprehensive Plan, once it is created.		
3. Are policies aimed at retrofitting current or developing future airport facilities and infrastructure that adhere to multi-hazard building codes?		X
Comments: There is a potential to create these policies. If there are some already within the most recent HMP update, they can be transferred into this component of the Comprehensive Plan, once it is created. There is a goal to expand the airport facilities, which provides opportunity to link the expansion with hazard mitigation techniques.		
4. Are policies aimed towards the creation of emergency response plans for airport facilities during a disaster event (e.g., earthquake leading to fuel spills)?		X
Comments: There is a potential to create these policies. If there are some already within the most recent HMP update, they can be transferred into this component of the Comprehensive Plan, once it is created. There is a goal to expand the airport facilities, which provides opportunity to link the expansion with hazard mitigation techniques.		
5. Are policies aimed towards utilizing airport facilities in safe areas as emergency shelters?		X
Comments: There is a potential to create these policies. If already within the most recent HMP update, they can be transferred into this component of the Comprehensive Plan, once it is created. There is a goal to expand the airport facilities, which provides opportunity to link the expansion with hazard mitigation techniques and possibly locate outside of hazardous areas so that potential losses may decrease, while increasing its other uses.		
6. Are policies aimed at having current facilities designed to function under disaster conditions?		X
Comments: There is a potential to create these policies. If there are some already within the most recent HMP update, they can be transferred into this component of the Comprehensive Plan, once it is created. There is a goal to expand the airport facilities, which provides opportunity to link the expansion with hazard mitigation techniques and possibly locate outside of hazardous areas so that potential losses may decrease, while increasing its other uses.		
7. Are policies aimed at having contingencies in place in case of airport facility infrastructure failure?		X
Comments: There is a potential to create these policies. If there are some already within the most recent HMP update, they can be transferred into this component of the Comprehensive Plan, once it is created. There is a goal to expand the airport facilities, which provides opportunity to link the expansion with hazard mitigation techniques and possibly locate outside of hazardous areas so that potential losses may decrease.		
8. Are implementation strategies (e.g., who is responsible, funding, etc.) for policies provided?		X

Comments: There are no implementation strategies within this component. Once a 'Public Airport Facilities' component is created, implementation strategies may be created or used from the most recent HMP update.		

References

LLUPA of Idaho (2015)
FEMA Integrating the Local Hazard Mitigation Plan into a Community's Comprehensive Plan (2013)
FEMA's Safe Growth Audit (2013)
Natural Disaster Vulnerability (Burns and McDonnell, 2011) http://www.burnsmcd.com/insightsnews/insights/aviation-special-report/2011/natural-disaster-vulnerability
Food and Agriculture Organization of the United Nations: The Impact of Natural Hazards and Disasters on Agriculture and Food Security and Nutrition (May 2015)

APPENDIX C. MEETING DOCUMENTATION

Appendix C collects all planning and public meeting-related documentation, including sign-in sheets, minutes, and presentations.

Contents:

1. Kick-off meeting presentation
2. October planning meeting sign-in sheet
3. October planning meeting presentation
4. February planning meeting sign-in sheet
5. February planning meeting presentation
6. April planning meeting sign-in sheet
7. April planning meeting presentation
8. July public meeting presentation

Pre-disaster Mitigation Grant for 10 Idaho Counties – University of Idaho

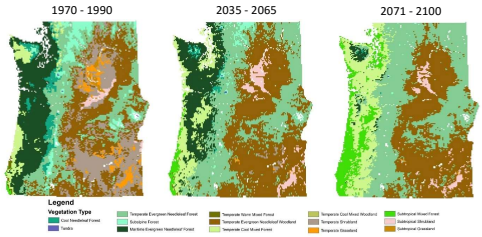
Counties Included

- Bear Lake
- Boise
- Bonner
- Cassia
- Caribou
- Franklin
- Minidoka
- Owyhee
- Lincoln
- Shoshone

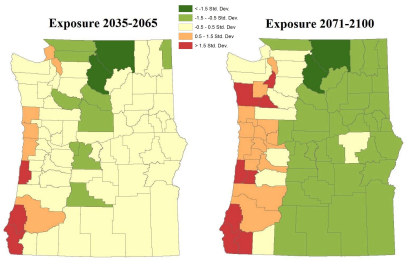
Hazards to be Addressed

- Will be specific to the geographic area
- Examples
  - Severe storms
  - Windstorms
  - Dam/Levee break
  - Earthquake
  - Mud/Landslide
  - Fire
  - Drought

Climate Change Vulnerability



Climate Change Vulnerability

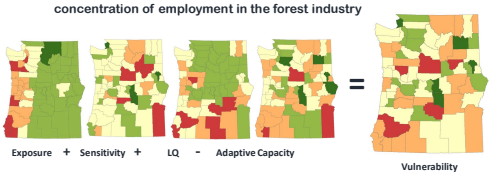


Climate Change Vulnerability

- Modified Vulnerability Equation

Vulnerability = [Exposure + Sensitivity + Location Quotient] – Adaptive Capacity

Location Quotient – Provides a measure of relative concentration of employment in the forest industry

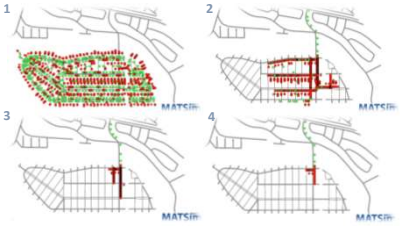


Multi-modal Evacuation Model

- Developed to integrate under-addressed concepts
  - Failure to do so can underestimate evacuation time
- Custom travel demand model
  - Identifies evacuees based on variety of data
  - Can be altered to match assumptions

Multi-modal Evacuation Model

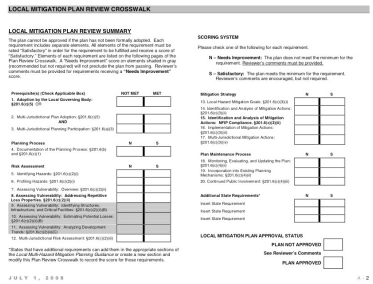
- Evacuation simulation using MATSim
  - Open-source, easily accessible
  - Low computational requirements



Process

- Evaluate current plans
  - Base on the FEMA crosswalk – Match to local hazard
  - Determine if they include a full socioeconomic risk/vulnerability assessment
  - Use hazard mitigation plan (HMP) evaluation protocol that holds HMPs to a more stringent standard than exists within FEMA's crosswalk

Mitigation & Adaptation Plan Analysis



LOCAL MITIGATION PLAN REVIEW CROSSWALK

LOCAL MITIGATION PLAN REVIEW SUMMARY

The plan cannot be approved if the plan has not been formally adopted. Each requirement includes separate elements. All elements of the requirement must be "satisfactory" in order for the requirement to be fulfilled and receive a score of "Satisfactory." Elements of each requirement are listed on the following pages of the Plan Review Crosswalk. Plans that do not meet the minimum for the requirement. Items recommended but not required will not preclude the plan from passing. Reviewer's comments must be provided for requirements receiving a "**Needs Improvement**" score.

SCORING SYSTEM

Please check one of the following for each requirement:

N – Needs Improvement: The plan does not meet the minimum for the requirement. Reviewer's comments must be provided.

S – Satisfactory: The plan meets the minimum for the requirement. Reviewer's comments are encouraged, but not required.

Prerequisite(s) (Check Applicable Box)	NOT MET	MET
1. Adoption by the Local Governing Body: §201.6(c)(5) OR		
2. Multi-Jurisdictional Plan Adoption: §201.6(c)(5) **AND**		
3. Multi-Jurisdictional Planning Participation: §201.6(a)(5)		

Planning Process	N	S
4. Documentation of the Planning Process: §201.6(b) and §201.6(c)(1)		

Risk Assessment	N	S
5. Identifying Hazards: §201.6(c)(2)(i)		
6. Profiling Hazards: §201.6(c)(2)(i)		
7. Assessing Vulnerability: Overview: §201.6(c)(2)(ii)		
8. Assessing Vulnerability: Addressing Repetitive Loss Properties. §201.6(c)(2)(ii)		
9. Assessing Vulnerability: Identifying Assets: §201.6(c)(2)(ii)(A) and §201.6(c)(2)(ii)(B)		
10. Assessing Vulnerability: Estimating Potential Losses: §201.6(c)(2)(ii)(B)		
11. Assessing Vulnerability: Analyzing Development Trends: §201.6(c)(2)(ii)(C)		
12. Multi-Jurisdictional Risk Assessment: §201.6(c)(2)(iii)		

Mitigation Strategy	N	S
13. Local Hazard Mitigation Goals: §201.6(c)(3)(i)		
14. Identification and Analysis of Mitigation Actions: §201.6(c)(3)(ii)		
15. Identification and Analysis of Mitigation Actions: NFIP Compliance: §201.6(c)(3)(ii)		
16. Implementation of Mitigation Actions: §201.6(c)(3)(iii)		
17. Multi-Jurisdictional Mitigation Actions: §201.6(c)(3)(iv)		

Plan Maintenance Process	N	S
18. Monitoring, Evaluating, and Updating the Plan: §201.6(c)(5)(i)		
19. Incorporation into Existing Planning Mechanisms: §201.6(c)(5)(ii)		
20. Continued Public Involvement: §201.6(c)(5)(iii)		

Additional State Requirements*	N	S
Insert State Requirement		
Insert State Requirement		
Insert State Requirement		

LOCAL MITIGATION PLAN APPROVAL STATUS

PLAN NOT APPROVED

See Reviewer's Comments

PLAN APPROVED

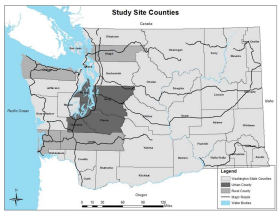
*States that have additional requirements can add them in the appropriate sections of the *Local Multi-Hazard Mitigation Planning Guidance* or create a new section and modify this Plan Review Crosswalk to record the score for those requirements.

JULY 1, 2008

A-2

Mitigation & Adaptation Plan Analysis

- Wanted to look at quality of hazard mitigation plans
- Plan comprised of pre-disaster measures aimed at minimizing or preventing losses to communities
- Minimal standards focus on physical exposure

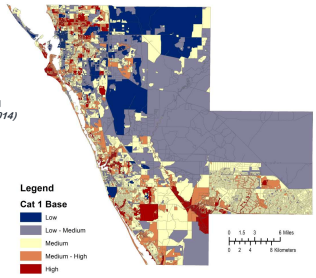


Mitigation & Adaptation Plan Analysis

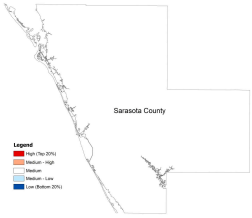
- Not consider probabilistic mapping & socioeconomic analysis
- Can result in plans not specific to local hazards
- Counties & suggested mitigation strategies
- Data problems

SERV Results - Vulnerability

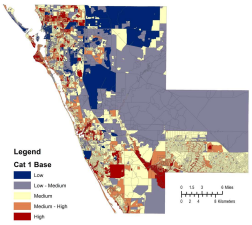
SERV Model
(Frazier et al 2014)



SERV Results - Vulnerability



Traditional vulnerability assessment results

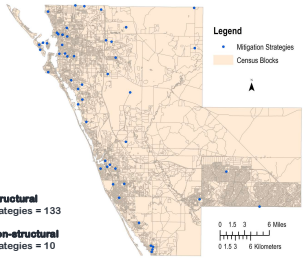


SERV Model

Application of SERV Model

- Determine location of existing mitigation strategies implemented by Sarasota County's Unified Local Mitigation Strategy (ULMS) plan
- Determine where mitigation strategies are most likely to be targeted
  - Are mitigation strategies focused in areas of high vulnerability or high hazard exposure? (Pelling 1999)
  - What types of mitigation strategies are most commonly implemented: structural (Levee) or non-structural (enhancement of social capital)

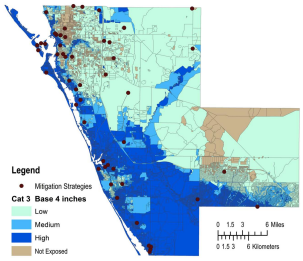
Geocoded Mitigation Strategies



Number of **structural** mitigation strategies = 133

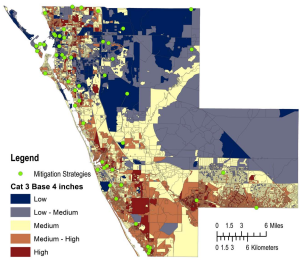
Number of **non-structural** mitigation strategies = 10

Mitigation Strategies with Exposure



Exposure & Mitigation

Mitigation Strategies with SERV Vulnerability



Vulnerability & Mitigation

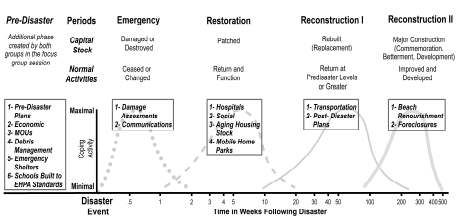
Process (continued)

- Integrate with various aspects of community planning, better coordination, and more extensive public participation
  - In-person, online, and/or focus group meetings as well as phone interviews
  - Community partners and state agencies will help gather data

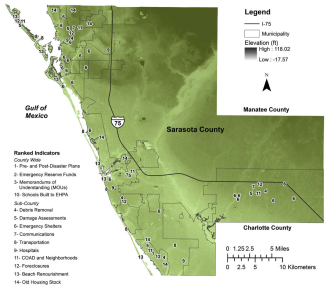
Evaluate Mitigation & Adaptation Strategies

- Working more with locally stakeholders
- Focus group with 20 county stakeholders
- Given background information on resilience & resilience indicators
- List resilience indicators important to county
- Identify & rank resilience indicators & temporally along a disaster recovery timeline (DRT)

Sample of DRT Indicator Placement Results



Hazard Mitigation & Adaptation Planning

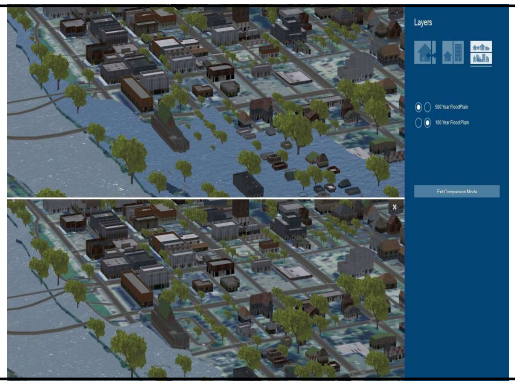


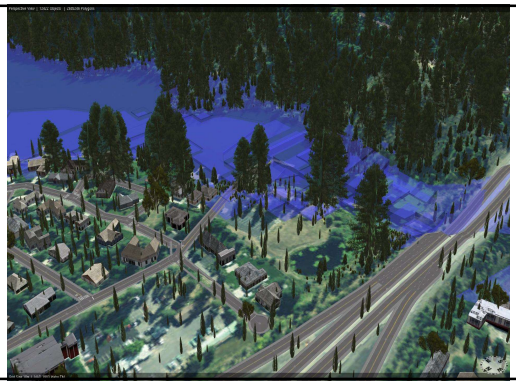
Adaptation Planning

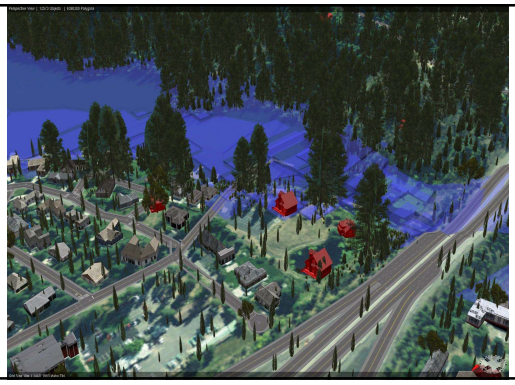
Adaptation Planning

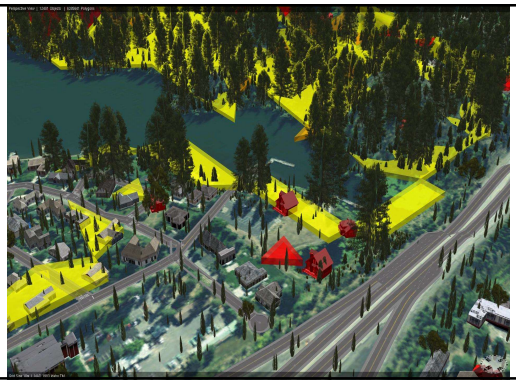
Linking Policy & Practice

- Even when vulnerability is measured correctly mitigation & adaptation strategies are difficult to implement
- This is often due to competing interests
- Uncertainty in the hazard models & Indicators used
- Political environment
- Need more research with stakeholders to select & rank mitigation strategies to help facilitate implementation (Frazier et al., 2013)









Process (continued)

- A plan will be developed for each county
  - Probabilistic risk assessment, vulnerability assessment, hazard mitigation summaries and strategies, and benefit-cost analysis
    - Identify risk and hazards
    - Demonstrate societal exposure
    - Offer mitigation strategies
  - End product is a FEMA-certified hazard mitigation plan

Time Line
Activities and Participants

- Months 1-12:
  - Pre-disaster mitigation community plan update support
  - Research team
- Month 1:
  - Develop community work plans
  - Research team + Local communities
- Months 2-4:
  - Identify and compile best available hazard data
  - Research team + Agency partners

Time Line (Continued)
Activities and Participants

- Months 2-10:
  - Conduct risk analysis
  - Research team
- Months 2-11:
  - Conduct community planning meetings, assess existing plans/policies, and update community profiles
  - Research team + Local communities

Time Line (Continued)
Activities and Participants

- Months 10-17:
  - Draft plan preparation support and internal review
  - Research team + Local communities
- Months 18-24:
  - State and FEMA review, County adoptions, and closeout
  - Research team + Agency participants + Local communities

Shoshone County HMP Evaluation & Update

University of Idaho — Hazard Research Group

Binghamton University — State University of New York

Grant Overview

- Pre-Disaster Mitigation Community Plan Update
- Develop community work plans
- Identify and compile best available hazard data
- Conduct risk analysis and sub-county vulnerability assessment
- Conduct community planning meetings, assess existing plans and policies and update community profile
- Draft plan preparation support and internal review
- State and FEMA review, county adoptions and closeouts

Scope of Work

Goals and End Product

- Update HMPs to reduce risk and enhance community resilience.
- Update HMPs to ensure eligibility for hazard mitigation assistance.
- End product: FEMA-certified HMP including probabilistic risk assessments, vulnerability assessments, hazard mitigation summaries and strategies, and cost-benefit analysis.

Scope of Work

Evaluation Matrix

- Most HMPs aim to meet minimum requirements.
- HMPs evaluated on the FEMA Crosswalk requirements and comprehensive criteria.
- Comprehensive criteria based on pre- and post-disaster experiences and knowledge, interviews, and scientific literature.
- Evaluations identify weaknesses which can be targeted in the update process.
- FEMA Crosswalk 4 pages vs. Comprehensive Criteria 25 pages.

FEMA Requirements Scores and Notes

Element	Possible Score	Plan Score	Notes
Element A. Planning Process	18	17	Plan provides comprehensive narrative of planning process and extensive public participation, includes monitoring and evaluation metrics, and adheres to required timeframe. Recommend better integrating County comprehensive plan and HMP.
Element B. Hazard Identification and Risk Assessment	12	8	Plan provides extensive detailed occurrences of a wide range of hazards for each jurisdiction, but recommend improvement using comprehensive risk and vulnerability assessments with best-available data.
Element C. Mitigation Strategy	18	11	Plan presents both general mitigation strategies and specific mitigation actions. Progress on mitigation actions need to be evaluated and updated.
Element D. Plan Review, Evaluation, and Implement	NA	NA	NA: Applicable to Plan updates only.
Element E. Plan Adoption	6	6	Plan includes resolutions and signatures.
Total	45	42	Plan presents a strong foundation that can be improved upon through the update process.

Internal Plan Recommended and Supplemental Targets Score

Element	Possible Score	Plan Score	Notes
Fact-Based Hazard Assessment	27	12	Assessment of considered hazards extensive, but recommend including more hazards (e.g., drought, pandemic, human-caused).
Vulnerability Assessment	36	11	Plan does not include socioeconomic vulnerability measure or comprehensively assess critical and essential facility vulnerabilities.
Risk Analysis	18	4	Risk assessment is well-grounded, but lacks comprehensive methodology. Various intensities and potential losses should be included for each hazard.
Mitigation Strategies	15	11	Mitigation strategies detailed in hazard profiles, but recommend better cross-referencing of strategies with specific policies and actions.
Capabilities Assessment	15	5	Plan includes detailed capabilities assessment but needs updating. Recommend including both federal and state resources and needs.
Mitigation Actions and Policies	93	30	Specific mitigation actions are strong especially regarding physical structures, but better integration of land use, development, public outreach, technical assistance, etc. can strengthen the Plan.
Monitoring and Implementation	51	12	Plan should include specific monitoring and evaluation metrics. Plan needs updating regarding action implementation.
Internal Plan Characteristics	3	1	Community needs mentioned throughout Plan, but lacks visions and future desired conditions.
Policies/Policy Framework	6	1	Inclusion of future growth considerations can help strengthen the Plan. Recommend including more detail on inclusion of other plans/policies, notably state and federal agencies.
Internal Consistency	6	2	More comprehensive monitoring metrics in addition to more explicit linkages with community goals and values can help strengthen the Plan.
Data Assessment	6	2	Plan lists data sources and includes basic quality assessment.
Total	276	91	Though the Plan meets the baseline FEMA requirements, the Plan can be improved through comprehensive risk and vulnerability assessments.

External Plan Recommended and Supplemental Targets Score

Element	Possible Score	Plan Score	Notes
Planning Process	13	6	Plan's baseline narrative of the planning process is detailed, but can be strengthened with explanations of why individual stakeholders were involved and their role through the process.
Coordination of Local Hazard Mitigation Planning	12	2	Better description of Plan's integration of other plans/policies/etc. in addition to vertical and horizontal coordination with other agencies can improve the Plan.
Public/Community Involvement	6	3	Public involvement commendable and extensive; recommend continuation.
Organization and Presentation	11	2	Plan is organized, follows a logical progression, and is visually appealing. Recommend cross-referencing mitigation goals and specific policies in hazard profiles.
Total	42	13	The Plan's strength lie in its planning narrative, extensive hazards profiles, and capabilities assessments. Plan can be improved by focusing on mitigation actions and additional risk and vulnerability assessments.

Comprehensive Plan Score

COMPREHENSIVE SCORE INTEGRATES FEMA REQUIREMENTS, RECOMMENDATIONS, AND EXPANDED TARGETS

Element	Possible Score	Plan Score	Notes
FEMA Requirements	45	42	
Internal Plan Recommended and Supplemental Targets	276	91	
External Plan Recommended and Supplemental Targets	42	13	
Total	363	146	

Plan Updates & Improvements

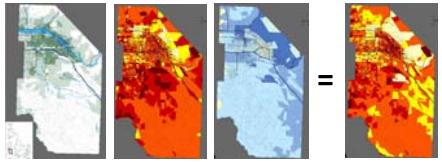
- Systematic risk assessment employing best-available data.
- Holistic sub-county vulnerability assessment.
- Mitigation actions and projects.
- Capabilities, resources, and needs assessment.

Introduction Scope of Work Evaluations **Updates**

Plan Updates & Improvements

SERV Model

- Social vulnerability defined as the susceptibility of social groups to potential losses from hazard events.



Exposure + Sensitivity - Adaptive Capacity Vulnerability

Introduction Scope of Work Evaluations **Updates**

Plan Updates & Improvements

Evacuation Modeling

- First-in, first-out evacuation modeling.
- Designed for smaller towns or specific neighborhoods (additional network analysis techniques for larger rural areas).

Introduction Scope of Work Evaluations **Updates**

Plan Updates & Improvements

ESRI CityEngine

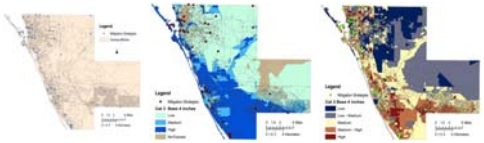
- Visualize hazard risk in 3D.

Introduction Scope of Work Evaluations **Updates**

Plan Updates & Improvements

Mitigation Mapping

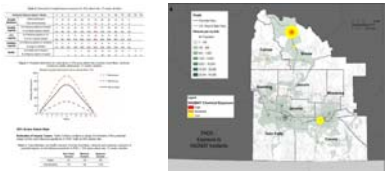
- Map potential area of effect of mitigation measures.



Plan Updates & Improvements

Idaho JRA

- Integrate public health and natural hazards risk assessment.
- Pandemic Influenza and hazardous materials incidents modeling.



Plan Updates & Improvements

Other

- Data Inventory
  - What we have, what we need from you or external sources, what you think we're missing.
- Web Portal
  - Expand on current version by including HMP components.
  - Useable by both County and public.
- Hazus Level II
  - Incorporate user-defined facilities if available.
  - Satisfies FEMA, but potential for improvements.

Plan Updates & Improvements

Mitigation

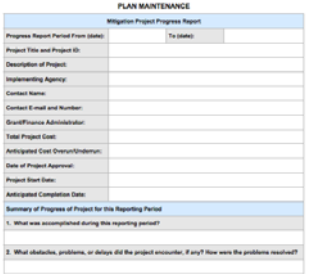
- 5+ years after HMP adoption; mitigation actions need to be updated.
  - Need local input and direction on what mitigation actions were implemented or unsuccessful.
- Resources, Capabilities, and Needs assessment.
- Monitoring and evaluation metrics.
- Mitigation ranking method and feedback form/survey will be developed and sent out.
- Meeting with County planning/steering committee to discuss mitigation metrics in Janurary/February.

Plan Updates & Improvements

6. Resources, Capabilities, and Needs Summary

6.1 Shoshone County

Plan Updates & Improvements



PLAN MAINTENANCE

Mitigation Project Progress Report			
Progress Report Period From (date):		To (date):	
Project Title and Project ID:			
Description of Project:			
Implementing Agency:			
Contact Name:			
Contact E-mail and Number:			
Grant/Finance Administrator:			
Total Project Cost:			
Anticipated Cost Overrun/Underrun:			
Date of Project Approval:			
Project Start Date:			
Anticipated Completion Date:			
Summary of Progress of Project for this Reporting Period			
1. What was accomplished during this reporting period?			
2. What obstacles, problems, or delays did the project encounter, if any? How were the problems resolved?			

Plan Updates & Improvements

Short-term Timeline

- Week of Oct. 26th-30th:
  - Deliver HMP evaluations and PowerPoint slides in PDF format.
  - Make data inventory available online.
- Week of Nov. 2nd-6th:
  - Deliver capabilities, resources, and needs assessment.
  - Deliver mitigation monitoring and evaluation templates.
  - Deliver mitigation review templates.
- Week of Nov. 9th-13th:
  - Deliver detailed action plan and schedule for risk and vulnerability assessments.
  - Begin planning planning meetings for early 2016.
  - Begin planning public meetings in early/mid Spring.

Introduction Scope of Work Evaluations **Updates**

Plan Updates & Improvements

Long-term Timeline

- November through March:
  - SERV modeling.
  - MATSim evacuation modeling.
  - CityEngine visualization.
  - Mitigation mapping.
- January/February:
  - Planning meeting to discuss mitigation actions in detail, gather feedback from County.
- February through March:
  - Begin drafting plan updates and finalizing figures for review by County.

Introduction Scope of Work Evaluations **Updates**

Plan Updates & Improvements

Public Meetings

- County-led meetings to better engage community.
  - How many meetings to be conducted?
- Meeting itinerary will be developed along with mitigation discussion and modeling.

Introduction Scope of Work Evaluations **Updates**

Plan Updates & Improvements

Short-term items

- Any missing data or components you feel we need to incorporate.
- Begin collecting CAD files, user-defined facilities, and parcel data if available – reach out to County assessor's office or other officals.
- Status on mitigation actions using progress template.
- Feedback/survey on future mitigation measures.
- Schedule for planning and community meetings.

Introduction Scope of Work Evaluations **Updates**

Shoshone County HMP Evaluation Meeting

10/23/15 11am-1pm

Sign-In Sheet

Name	Signature	Position and Agency	Email Address	Phone Number
Michelle Ritchie	[illegible]	BU HazCirc RA	mritchi2@binghamton.edu	860-967-9171
Mark Stephensen	Mark Stephensen	IBHS - SHMO	mstephensen@bhsidaho.gov	(208)259-6544
Cory Foster	[illegible]	Shoshone CTY Emergency MNGR	cfoster@co.shoshone.id.us	208 512 4555
Forrest Greenfield	[illegible]	Public Works Director	fgreenfield@co.shoshone.id.us	off 208-753-5475 cell 208-277-8444
Dan Martinsen	Dan Martinsen	SC P/Z Building	pze@co.shoshone.id.us	208-752-8891
Alexander Peterson	[illegible]	BU/41 HazCIRC	alexander.petersn@gmail.com	360-535-9964
Tim Frazier	[illegible]	BU	frazier1@binghamton.edu	785-766-2797

Shoshone County HMP Update Planning Committee Meeting February 18, 2016

BINGHAMTON UNIVERSITY
STATE UNIVERSITY OF NEW YORK

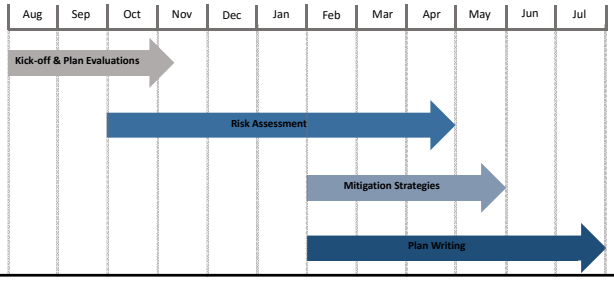
HAZARDS RESEARCH GROUP

University of Idaho

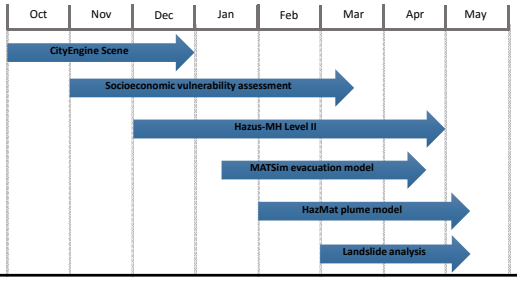
Meeting Agenda

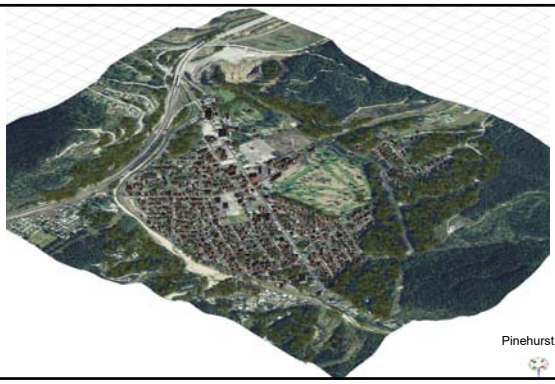
- Introductions & meeting overview
- HMP update progress (10 minutes)
- Mitigation strategies review (1 hour)
- Mapping exercises (1 hour)
- Templates & forms (10 minutes)
- Future meetings (10 minutes)

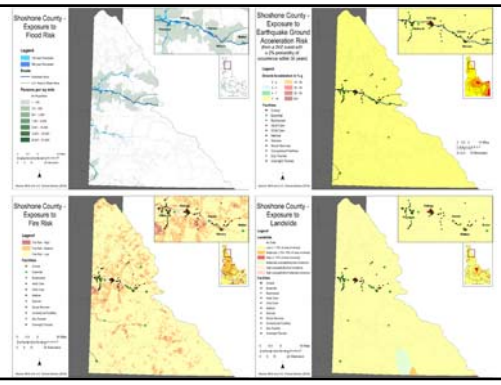
HMP Update



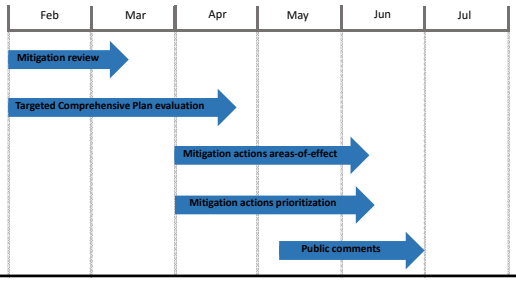
HMP Update – Risk Assessment



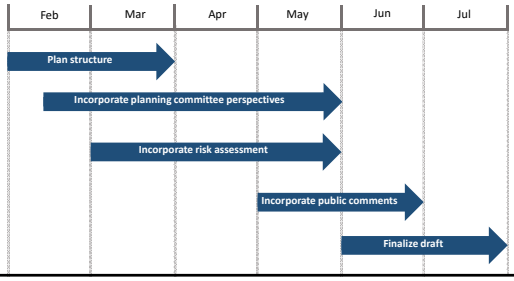




HMP Update – Mitigation Strategies



HMP Update – Plan Writing



Mitigation Strategies Review

- Examine progress made towards implementing mitigation actions.
- FEMA mandated in the update process.
- Provides baseline for updating mitigation strategies.

Mitigation Strategies Review (1 Hour)

- Work through the *Mitigation Strategy Review & Update* form.
  - Write in the corresponding Primary and Parallel Goals and Objectives number.
  - Mark status:
    - Complete
    - In Progress
    - Failed or Incomplete
  - Mark if committee wants to carry mitigation action forward in plan update.
  - Please note any relevant information on mitigation action.

Mitigation Strategies Review (1 Hour)

- Use notes area to list contact, responsible agency, etc.
  - If status is unknown, list contacts with possible information on action.
- Use the *Mitigation Strategy Update* template in conjunction.
  - Provides space to add, modify, or remove goals, objectives, and actions.
- Focus on reviewing the mitigation strategies.
  - New strategies are focus of April's planning meeting.

Map Exercises (1 Hour)

- Two map exercises to gather committee perspectives and information.
  - Included in HMP.
  - Informs mitigation strategies and prioritization.
- Mark up the maps however you see fit.
- Will modify future participatory maps based on feedback.

Exercise 1

- Locate the following places on the provided map:
  - Future land use and development within the county.
  - Recent or repeatedly damaged places.

Exercise 2

- Locate the following places on the provided map:
  - Community assets (such as historical places, places of cultural value, natural resources and recreation, etc.).
  - Vital facilities (both hazard- and non-hazard related).

Templates & Forms

- Soliciting feedback on:
  - Capabilities Assessment Template
  - Mitigation Monitoring Template
- Need completed:
  - Stakeholder Involvement Form
  - FEMA Capabilities Assessment Form

Future Meetings

- April Planning Meeting
  - Present risk assessment
  - Continue mitigation strategy update
  - Prepare for public meeting
- May Public Meeting
  - Present HMP update
  - Solicit comments
  - Participatory mapping exercises

HMP Update Progress to Date

- HMP kick-off and evaluation
- Risk assessment data collection
- CityEngine scene development
- Socioeconomic vulnerability assessment
- HazMat plume modeling
- County Comprehensive Plan evaluation matrix

Meeting Sign-In Sheet

Meeting: MJAHP Date: 2/18/2016

Name (please print)	Email	Phone	Address
Cory Foster	cfoster@co.shoshone.id.us	512-4555	Emergency Manager
Mark Aamodt	MAAMODT@shoshonesd2.com	784-1188	Fire Chief
DAVID WALK	Kellogg-Police@usamedia.tv	784-1131	Chief of Police Kellogg
DAVID OLSON	dayodsonOGMAIL	512-5986	PINEHURST - STREET OVERSEER
Rick Smith	rsmith@shoshoneso.com	682-0771	Mullan City
Jay Huber	JHuber@Co.Shos.Id	722 3331	Commissioner
No match			
KJELL TRUESDELL	KTRUESDELL@IDL.IDAHO.GOV	682-4611	IDL - Cataldo
Aaron Cagle	aaronsagaind@yahoo.com	512 7229	District #1 FIRE
JAY D BAKER	jbaker@bhs.idaho.gov	755-1980	600 W Prairie Ave CDA, ID 83815
Greg Zupan	gzupan@wsd393.org	752-7832	Transportation Director Wallace School District
Sarah Jerome	sjerome@fs.fed.us	783-2109	Smelterville, ID
Sam Gibbons	sgibbons@fs.fed.us	783-2114	Smelterville ID
Terry Harwood	terry.harwood@dig.idaho.gov	783-2578	Kellogg, ID
Dan Martinsen	pzo@co.shoshone.id.us	752-8891	700 Bank St #75
FORREST Greenfield	Shoshone Co Public Works	753-5475	fgreenfield@co.shoshone.id.us
Susan Cleverley	scleverley@bhs.idaho.gov	258-6545	IBHS, 4040 Guard St, Boise

Shoshone County HMP Update Planning Meeting

April 22, 2016

BINGHAMTON UNIVERSITY
STATE UNIVERSITY OF NEW YORK

HAZARDS RESEARCH GROUP

University of Idaho

Progress Overview

- Updated previous mitigation actions.
- Preliminary risk assessment results.
- Public outreach.
- County profile text and figures.
- CWPP integration.

Participatory Mapping

- Committee perspectives to be included in HMP update.
- Draw on and mark up maps using different colors and labels.
  - Maps will be digitized.
  - Similar exercises in public meetings.
- Please use notes page to create legend/write descriptions.

Map Exercise 1: Part A

- Map everyday assets that are meaningful, contribute to quality of life.
- Which park do you most often take your kid?
- Which businesses are vital to the local economy?
- Which places or businesses are important to your health?
- See handout for additional examples, but not limited to handout.

Map Exercise 1: Part B

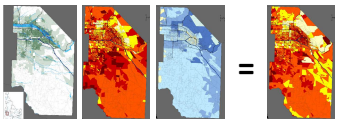
- Map future development areas.
- Think about any recent or new developments, or areas of priority.
- Focus on the next 5-10 years.
- Examples include new subdivisions, Area of City Impact.
- Where do you think your community will grow?

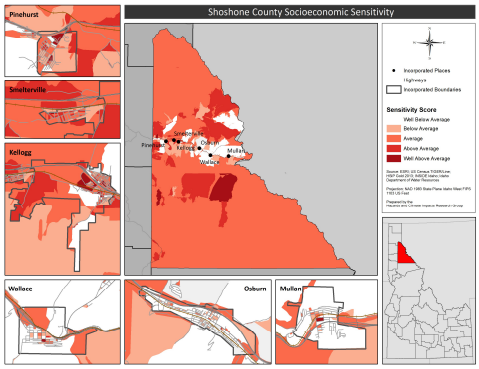
Preliminary Risk Assessment Results

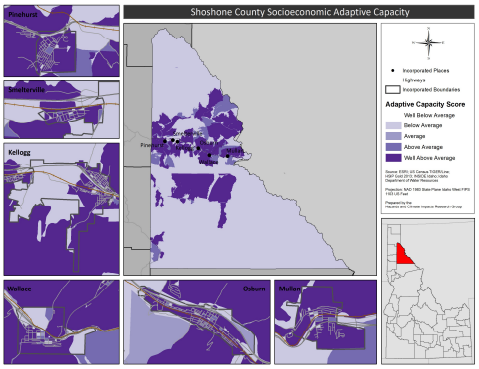
- Hazard events since 2009:
  - Severe Weather
    - Winter Weather
    - Wind
    - Severe Storms & Thunderstorms
    - Hail
  - Flooding
  - Landslide
- Total losses:
  - $1,728,708 (2014-adjusted)
  - No reported mortality
- 1 Federal Disaster Declaration
  - 2011 flood event

Preliminary Vulnerability Results

- Social vulnerability defined as the susceptibility of social groups to potential losses from hazard events.
- Considers sensitivity, adaptive capacity, and exposure.





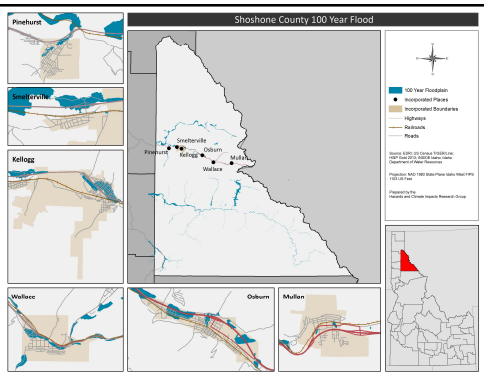


Hazard-Specific Results

- Hazards of focus:
  - Flood
  - Earthquake
  - Wildfire
  - Hazardous Materials
  - Pandemic Influenza
  - Landslide
  - Severe Weather
- Loss estimation for flood and earthquake.
- Assessor overlay for all others.

Flood

Date	Hazard	Property Damage
1/16/2011	Flooding	$1,052,445
1/17/2011	Flooding	$31,573
3/30/2011	Flooding	$15,786
5/15/2011	Flooding	$26,311
3/28/2012	Flooding	$350,782
Total Occurrences (2009-2014)		**Total**
5		**$1,476,897**

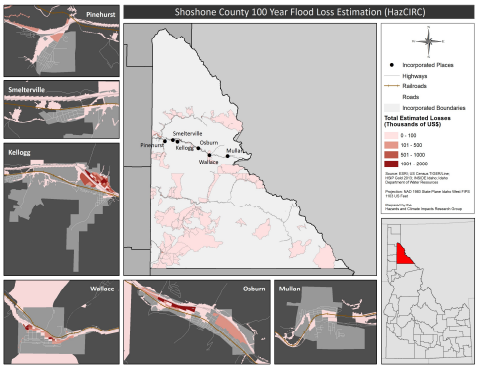


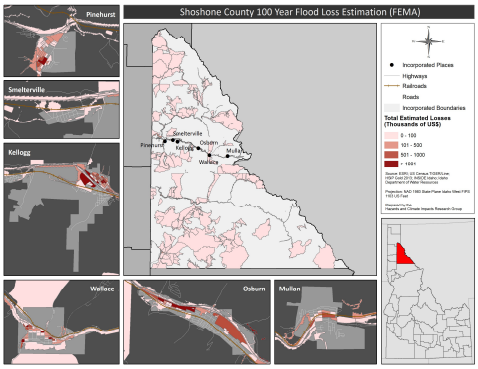
Hazus Flood Loss Estimation

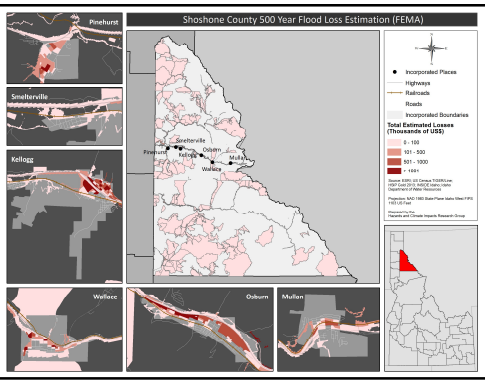
- Updated critical facilities using HSIP Gold, Infogroup data, and State data.
- Data validation of facility and transportation infrastructure.
- Hazus Scenarios:
  - 100 Year Return Interval
    - HazCIRC depth grids (interpolated)
    - FEMA non-regulatory depth grids
    - Hazus hydrology
  - 500 Year Return Interval
    - FEMA non-regulatory depth grids

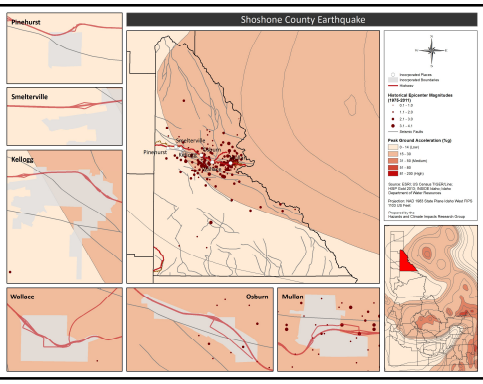
Hazus Flood Loss Estimation

	100 Year (HazCIRC)	100 Year (FEMA)	500 Year (FEMA)
Displaced Households & Sheltered Individuals	Hazus-limited	880 households 1,400 individuals	1,000 households 1,600 individuals
Debris	16,000 tons 640 truckloads	15,700 tons 630 truckloads	19,000 tons 760 truckloads
At Least Moderate Damage to Essential Facilities	2 fire stations 4 hospitals 2 police stations 2 schools	2 fire stations 3 hospitals 2 police stations 3 schools	1 fire stations (substantial) 5 hospitals 1 police stations 1 schools
Economic Losses	$142 million structural $0.4 million business interruption	$170 million structural $0.7 million business interruption	$205 million structural $0.8 business interruption







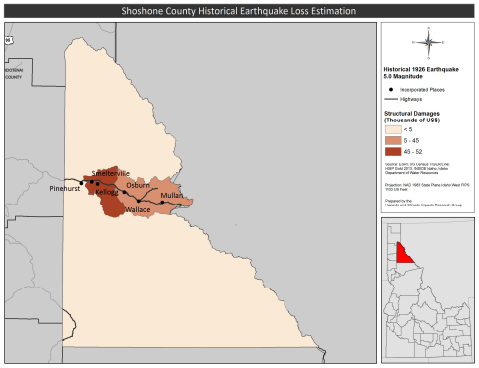


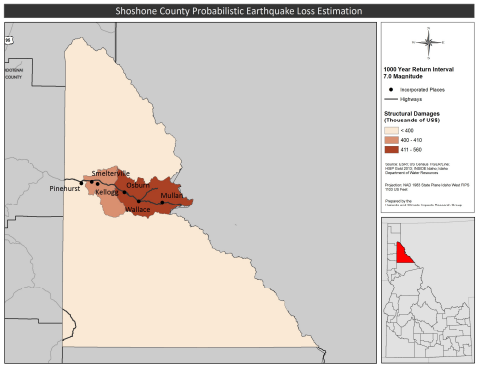
Earthquake

- Updated critical facilities using HSIP Gold, Infogroup data, and State data.
- Data validation of facility and transportation infrastructure.
- Hazus Scenarios:
  - Probabilistic
    - 1000 year return interval
    - 7.0 magnitude
  - Historical
    - 1926
    - 5.0 magnitude

Hazus Earthquake Loss Estimation

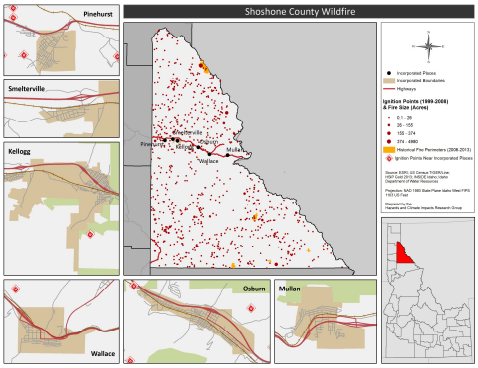
	Historical	Probabilistic
Casualties	0	2 at 2pm 2 at 2am 1 at 5pm
Displaced Households & Sheltered Individuals	0 displaced 0 sheltered	2 households 1 individual
Debris	0	0
Damage to Essential Facilities	0	0
Building-Related Losses	$0.70 million	$9.2 million
Income Losses	$0.10 million	$1.7 million
Transportation Losses	$4 million	$16 million
Utility Losses	$0.45 million	$8.2 million

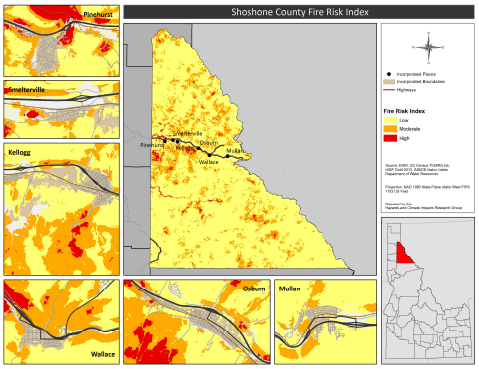




Wildfire

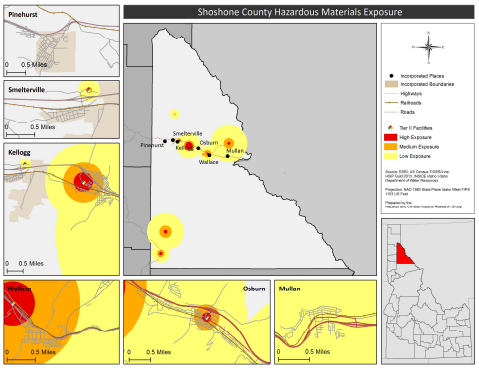
- Community Wildfire Protection Plan follows 90% of requirements.
- More in-depth focus than usual HMP hazard profile.
- Integrating and updating CWPP into HMP.
- Working to merge HMP risk assessment and CWPP risk assessment.





Hazardous Materials

Location	Responsible	Date	Hazard	Damage or Losses
Osburn	Galena Mining Co.	2010	Concentrated Ore	None reported
Osburn	Accident	2012	Corrosives	None reported
Osburn	Accident	2012	Unknown	None reported
Kellogg	New Jersey Mine	2014	Sodium Cyanide	None reported

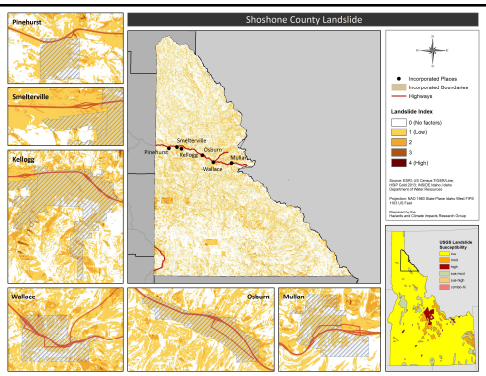


Pandemic Influenza

		1918 Strain			1968 Strain		
		15%	25%	35%	15%	25%	35%
Total Hospital Admissions	Minimum	115	191	267	14	23	33
	Most Likely	325	541	757	30	50	70
	Maximum	613	1022	1431	39	65	91
Total Deaths	Minimum	44	73	103	4	7	10
	Most Likely	103	171	240	6	11	15
	Maximum	183	306	428	10	17	23

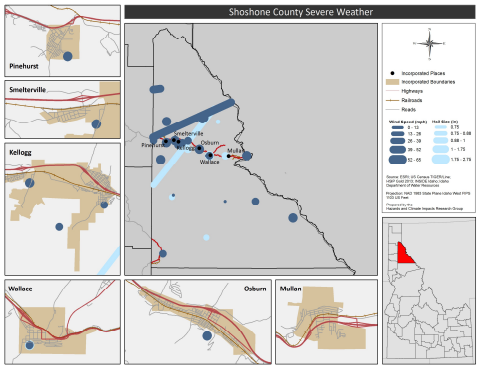
Landslide

Date	Hazard	Property Damage
4/1/2011	Landslide	$19,733
3/30/2012	Landslide	$197,972
3/30/2012	Landslide	$1,288
Total Occurrences (2009-2014)		**Total**
3		**$218,993**



Severe Weather

Date	Hazard	Property Damage
1/1/2009	Winter Weather	$183
4/8/2010	Wind	$2,714
5/3/2010	Wind	$1,357
10/6/2011	Winter Weather	$631
7/20/2012	Severe Storm/Thunder Storm	$6,186
7/20/2012	Severe Storm/Thunder Storm	$2,062
7/20/2012	Severe Storm/Thunder Storm	$1,031
7/20/2012	Severe Storm/Thunder Storm	$1,031
7/20/2012	Severe Storm/Thunder Storm	$1,031
7/20/2012	Severe Storm/Thunder Storm	$1,031
12/17/2012	Wind	$257
4/29/2013	Wind	$50
10/27/2013	Wind	$254
7/23/2014	Hail	$10,000
8/2/2014	Severe Storm/Thunder Storm	$5,000
Total Occurrences (2009-2014)		**Total**
15		**$32,818**



Map Exercise 2: Part A

- Map facilities and places vital for response and recovery if a disaster were to happen.
- Can be hazard-specific and/or hazard-agnostic.
- Consider movement of supplies and people, shelters needed, and equipment.
- See handout for additional examples, but not limited to handout.

Intro | Map 1 | Risk Results | Map 2 | Mitigation | Map 3 | Conclusion

Map Exercise 2: Part B

- Map repeatedly damaged places, or places of repeated concern.
- What places are most at risk?
- Consider multiple hazards, or cascading hazards.

Intro | Map 1 | Risk Results | Map 2 | Mitigation | Map 3 | Conclusion

Mitigation Strategy Update

- Reviewed status of mitigation strategy.
- Need to add mitigation actions.
- As a committee, discuss and list potential mitigation actions.
- For those to be included, fill out Mitigation Actions Implementation form.

Intro | Map 1 | Risk Results | Map 2 | Mitigation | Map 3 | Conclusion

Map Exercise 3

- Map priority mitigation action areas – whether current or new.
- What areas do they protect?
- Consider structural and non-structural.
  - What houses did the levee protect from flood?
  - What neighborhood was targeted in the educational awareness campaign?
- See handout for additional examples, but not limited to handout.

Intro | Map 1 | Risk Results | Map 2 | Mitigation | Map 3 | Conclusion

Conclusion

- Upcoming tasks:
  - Digitize map exercises.
  - Finalize risk assessment.
  - Finalize text and figures.
  - Score and detail mitigation actions.
- Set public meeting dates.
- Feedback on map exercises, risk assessment, figures, etc.

Planning Committee Meeting Sign-In Sheet

County: SHOSHONE COUNTY	Date: April 22, 2016	Time: 9:00 am

Name	Signature	Position & Agency	Email Address	Phone Number
Henry Nipp	Henry Nipp	Fire Mitigation	hnipp@co.shoshone.id.us	208-572-4069
Mark Amadt	Mark Amadt	Fire Chief Shoshone Fire Dist #2	maamadt@shoshonefd2.com	208-784-1188
MARK MAGNUS	Mark Magnus	BUILDING OFFICIAL CITY OF KELLOGG	mark_magnus@usamedia.tv	783-7751
Cory Foster	[illegible]	Emergency MNGT SC	cfosterc@shoshone-id.us	208-556-0332
Dan Martinsen	Dan Martinsen	SC Planning & Zoning	pz@co.shoshone.id.us	208 752-8891
Terry Harwood	[illegible]	BEIPC	terry.harwood@dep.idaho.gov	783-2528
Susan Cleverley	Susan Cleverley	Mitigation Section Chief IBHS	scleverley@bhs.idaho.gov	208-258-6545

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Shoshone County
2016 Hazard Mitigation Plan Update

August 1, 2016

Dr. Tim Frazier
Executive Director
Emergency & Disaster Management Program
Georgetown University

Alexander Peterson
Graduate Research Assistant
Emergency & Disaster Management Program
Georgetown University

GEORGETOWN UNIVERSITY 1789

HAZARDS & CLIMATE IMPACTS RESEARCH CENTER

Introduction

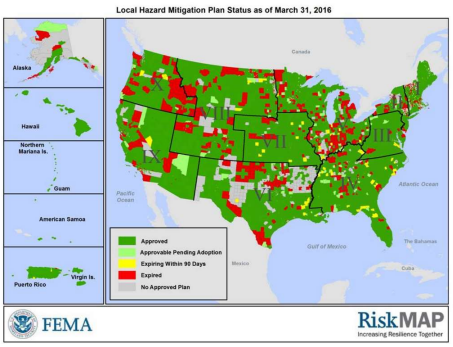
- What is mitigation?
  - Mitigation are actions taken to reduce hazard risks to life and property.
- Without mitigation, communities and individuals are more vulnerable to loss.
- Examples include:
  - Education and awareness programs.
  - Structural protection.
  - Land use and zoning policies.

Why Mitigate?

- For every $1 spent on mitigation, $4 saved in recovery.
- Efficient allocation of resources and efforts.
- Opportunity to build local partnerships.
- Increases awareness of hazards.
- Align risk reduction with objectives.
- Safe, resilient, and sustainable communities.

Hazard Mitigation Plans

- Hazard Mitigation Plans (HMPs) identify risks and mitigation actions to reduce risks.
- Authorized by the Disaster Management Act of 2000.
  - Plans required by FEMA for funds and resources.
  - Plans expire 5 years after adoption.
- What happens if the HMP is expired?
  - County not eligible for pre- and post-disaster assistance.
  - Pre-Disaster Mitigation funds or Hazard Mitigation Grant Program funds.



Hazard Mitigation Plans

- Supported by federal grant with 9 other counties.
  - Cooperative effort between state and counties.
  - Reduced cost and burden on the county.
- HazCIRC goals:
  - Comprehensive update to reduce risk and enhance community resilience.
  - Update plan to ensure eligibility for federal assistance.
- End product: FEMA-certified plan.

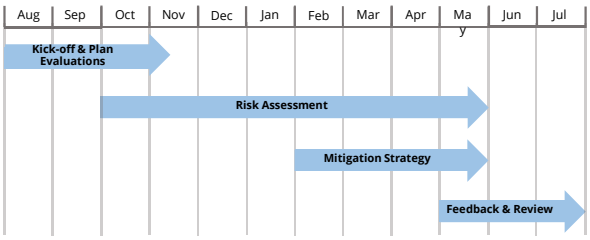
Hazard Mitigation Plans

- Other benefits to the county:
  - Comprehensive Plan evaluation and integration to guide land use policies.
  - Data useable by the communities and agencies.
  - Preparedness website useable over the plan's lifecycle.
  - Recommended update process for 2021.

Community Wildfire Protection Plan Integration

- Wildfire-specific plan overseen by Idaho Dept. of Lands.
- CWPPs address wildfire response, mitigation, community preparedness, structure protection.
- The CWPP & HMP share similar requirements and structures.
  - Agreement between IOEM & IDL allows plan integration.
- Strengthens both plans, opens additional funding avenues, standardizes planning process.

Hazard Mitigation Planning Process



Hazard Mitigation Plan Process

- Community Participation:
  - Shoshone County
  - Kellogg
  - Pinehurst
  - Mullan
  - Cataldo
  - Fire Districts
  - School Districts
  - Public Works
- Stakeholders:
  - Office of Emergency Management
  - Bureau of Land Management
  - Idaho Dept. of Lands
  - US Forest Service

Hazard Mitigation Plan Process

- Risk assessment incorporated best available data and modeling.
- Sub-county socioeconomic vulnerability assessment.
- Loss estimation for flood and earthquake.
- Evacuation model.
- CityEngine 3D scene.

Hazard Mitigation Plan Process

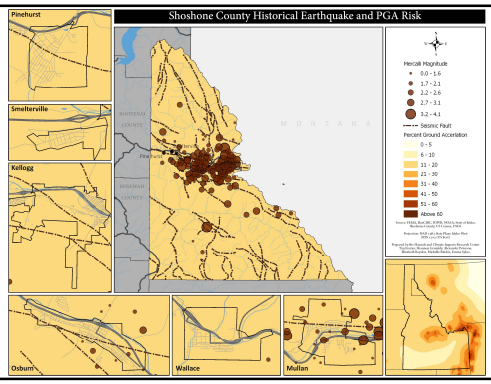
- Mitigation Highlights:
  - Replacing hydrants, water lines, and sewer lines in Mullan.
  - Updated Kellogg comprehensive plan to incorporate hazard mitigation.
  - Public outreach of floodplain management in S. Fork area to residents.
  - Upgraded radio system operability and deployment.

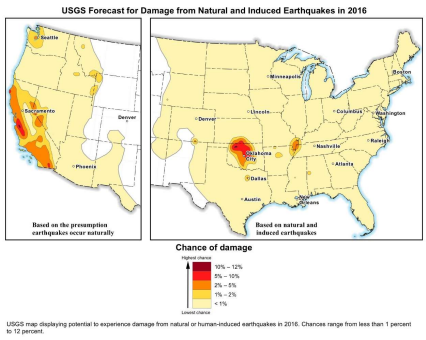
Hazard Mitigation Plan Process

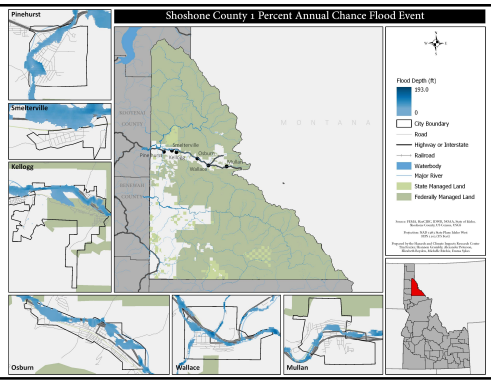
- Updated hazards:
  - Flood
  - Landslide
  - Earthquake
  - Severe Weather
  - Wildfire
- Additional hazards:
  - Avalanche
  - Communicable Disease
  - Cyber Hazards
  - Drought
  - Hazardous Materials
  - Transportation Accidents & Incidents
  - Volcanic Eruption
  - Food Shortages
  - Power Outages
  - Air Quality
  - Source Water Protection
  - Civil Unrest & Terrorism

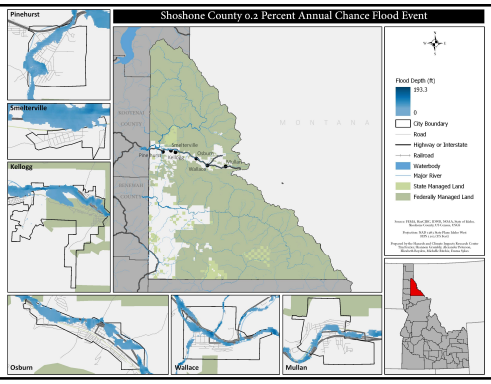
Hazard Events Overview

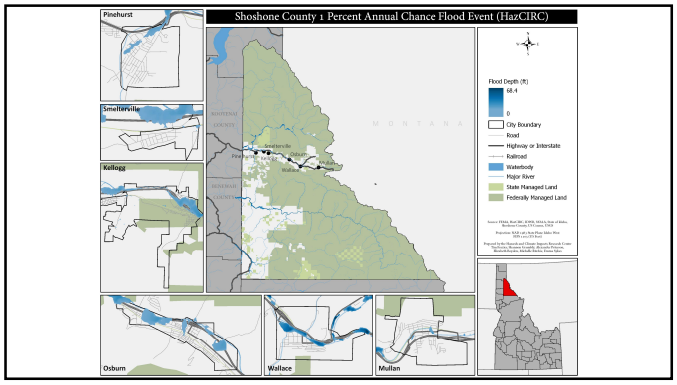
Hazard	Number of Events	Source	Losses
Communicable Disease	521 Recorded	IDHW	-
Drought	1 Declared	USDA	-
Earthquake	32 Recorded	USGS	-
Flood	10 Recorded, 1 Declared	NCDC	>$1.4 Million Property
Hazardous Materials	5 Recorded	NRC	-
Landslide	4 Recorded	IDT, UI, & SHELDUS	>$210k Property
Severe Weather	86 Recorded	NCDC	>$242k Property
Transportation	1,093 Recorded	IDT	15 Fatalities; 355 Injuries
Wildfire	391 Recorded	LANDFIRE	>40k Acres

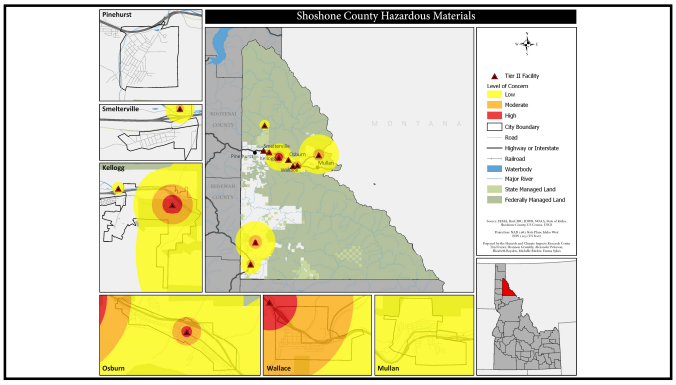


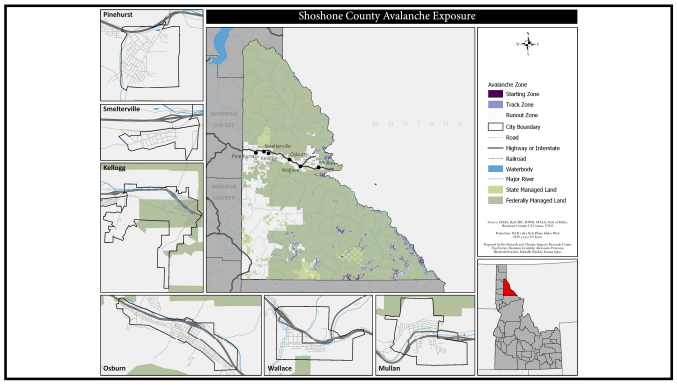


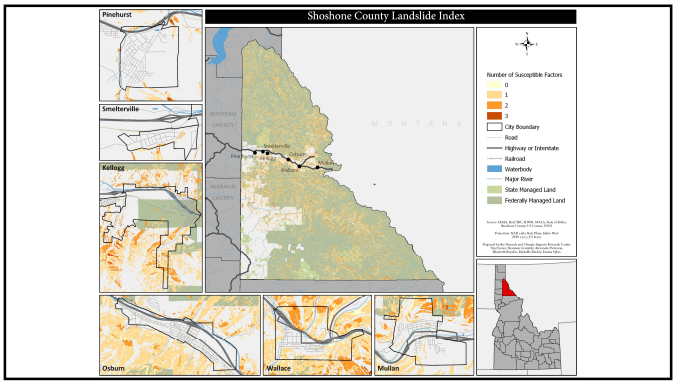


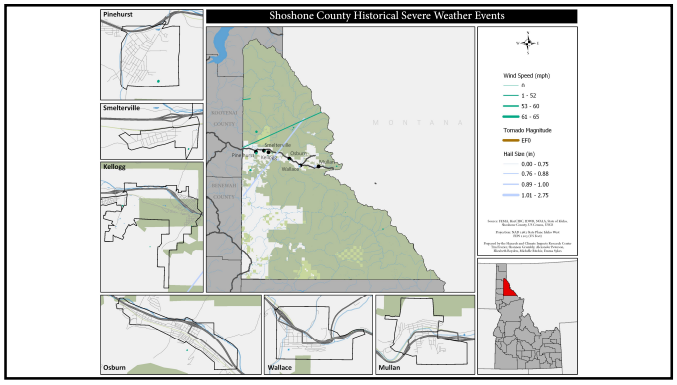


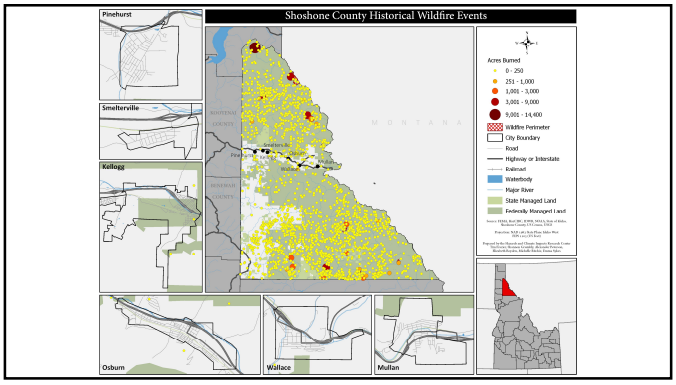

Shoshone County 1 Percent Annual Chance Flood Event (HazCIRC)
Pinehurst
Smelterville
Kellogg
Osburn
Wallace
Mullan
Flood Depth (ft)
68.4
0
City Boundary
Road
Highway or Interstate
Railroad
Waterbody
Major River
State Managed Land
Federally Managed Land

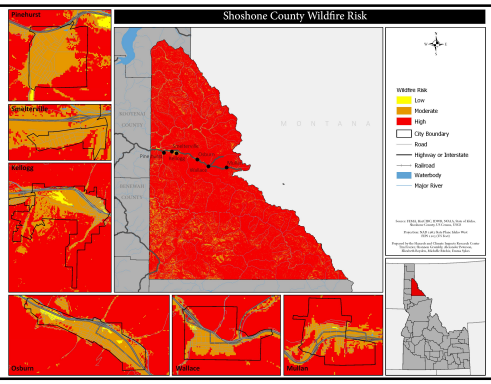

Shoshone County Hazardous Materials
Pinehurst
Smelterville
Kellogg
Osburn
Wallace
Mullan
Tier II Facility
Level of Concern
Low
Moderate
High
City Boundary
Road
Highway or Interstate
Railroad
Waterbody
Major River
State Managed Land
Federally Managed Land


Shoshone County Avalanche Exposure
Pinehurst
Smelterville
Kellogg
Osburn
Wallace
Mullan
Avalanche Zone
Starting Zone
Track Zone
Runout Zone
City Boundary
Road
Highway or Interstate
Railroad
Waterbody
Major River
State Managed Land
Federally Managed Land


Shoshone County Landslide Index
Pinehurst
Smelterville
Kellogg
Osburn
Wallace
Mullan
Number of Susceptible Factors
0
1
2
3
City Boundary
Road
Highway or Interstate
Railroad
Waterbody
Major River
State Managed Land
Federally Managed Land


Shoshone County Historical Severe Weather Events
Pinehurst
Smelterville
Kellogg
Osburn
Wallace
Mullan
Wind Speed (mph)
n
1 - 52
53 - 60
61 - 65
Tornado Magnitude
EF0
Hail Size (in)
0.00 - 0.75
0.76 - 0.88
0.89 - 1.00
1.01 - 2.75


Shoshone County Historical Wildfire Events
Pinehurst
Smelterville
Kellogg
Osburn
Wallace
Mullan
Acres Burned
0 - 250
251 - 1,000
1,001 - 3,000
3,001 - 9,000
9,001 - 14,400
Wildfire Perimeter
City Boundary
Road
Highway or Interstate
Railroad
Waterbody
Major River
State Managed Land
Federally Managed Land

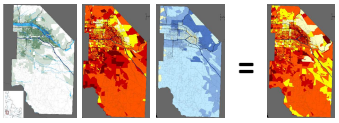


Pandemic Influenza

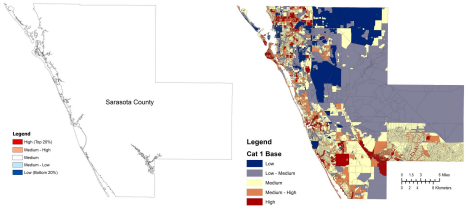
		1918 Strain			1968 Strain		
		15%	25%	35%	15%	25%	35%
Total Hospital Admissions	Minimum	115	191	267	14	23	33
	Most Likely	325	541	757	30	50	70
	Maximum	613	1022	1431	39	65	91
Total Deaths	Minimum	44	73	103	4	7	10
	Most Likely	103	171	240	6	11	15
	Maximum	183	306	428	10	17	23

Socioeconomic Vulnerability

- Defined as the susceptibility of social groups to potential losses from hazards.
- Employed the Spatially Explicit Resilience-Vulnerability (SERV) model developed by Dr. Frazier.



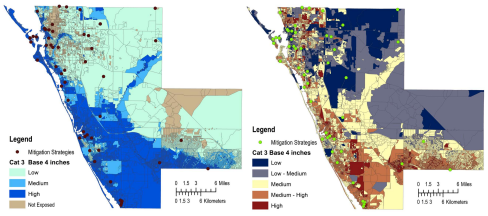
Socioeconomic Vulnerability

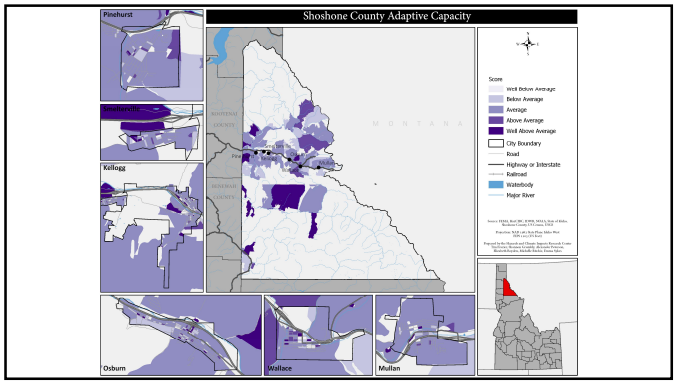


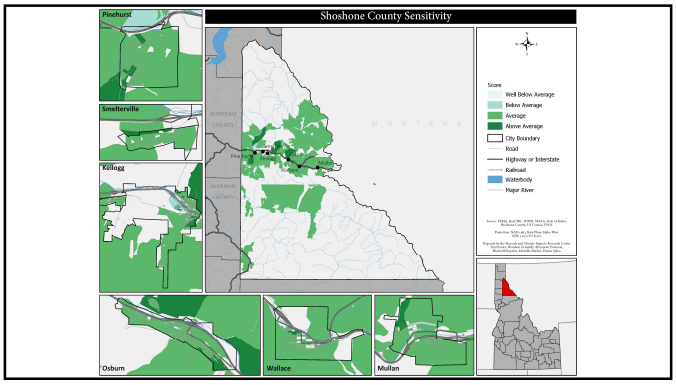
Socioeconomic Vulnerability

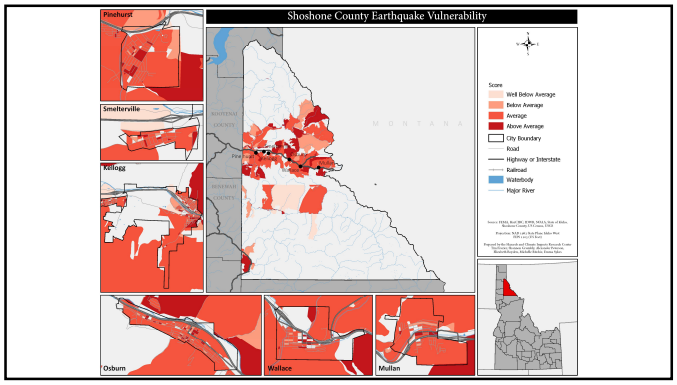
Adaptive Capacity	Sensitivity
No High School Diploma	Pop Female
College	Pop Below Poverty
Age Dependent	Race White
Owner Occupied Households	Race Minority
Female Head of Households	Disability
Not Single Sector Employment	Age Dependent
Sales Volume	Renter Occupied Households
Employee Number	Female Head of Households
Pop Below Pov	Critical Facilities
Health Insurance	Essential Facilities
Labor Force	Dependent Population Locations
Female Employees	Public Venues
Critical Facilities	Overnight Venues
Essential Facilities	Sales Volume
	Employee Number

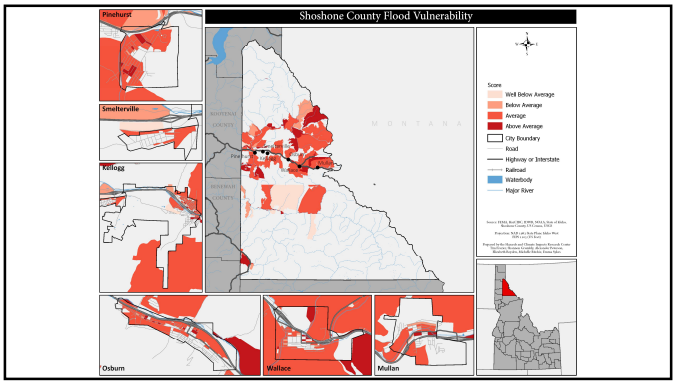
Socioeconomic Vulnerability

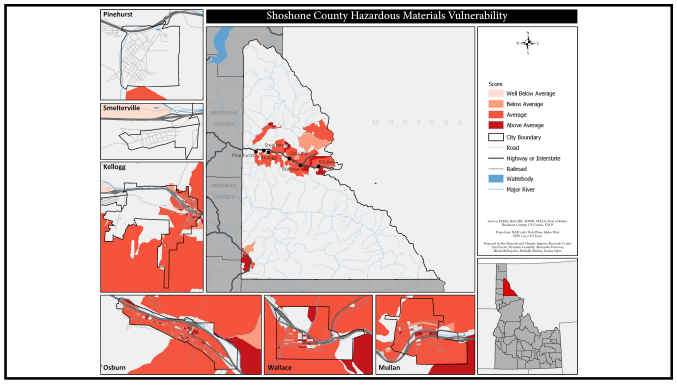


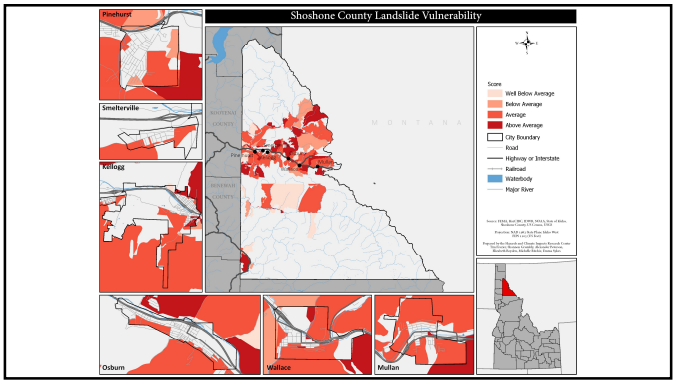

Shoshone County Adaptive Capacity
Pinehurst
Smelterville
Kellogg
Osburn
Wallace
Mullan
MONTANA
Score
Well Below Average
Below Average
Average
Above Average
Well Above Average
City Boundary
Road
Highway or Interstate
Railroad
Waterbody
Major River

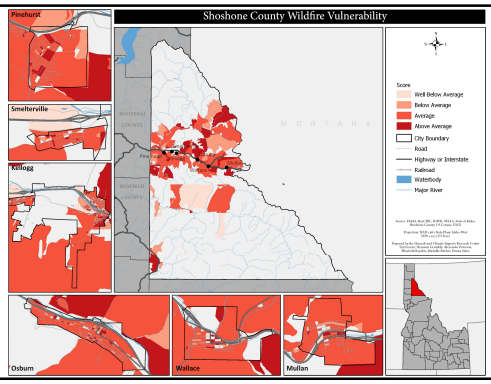

Shoshone County Sensitivity
Pinehurst
Smelterville
Kellogg
Osburn
Wallace
Mullan
MONTANA
Score
Well Below Average
Below Average
Average
Above Average
City Boundary
Road
Highway or Interstate
Railroad
Waterbody
Major River


Shoshone County Earthquake Vulnerability
Pinehurst
Smelterville
Kellogg
Osburn
Wallace
Mullan
MONTANA
Score
Well Below Average
Below Average
Average
Above Average
City Boundary
Road
Highway or Interstate
Railroad
Waterbody
Major River


Shoshone County Flood Vulnerability
Pinehurst
Smelterville
Kellogg
Osburn
Wallace
Mullan
MONTANA
Score
Well Below Average
Below Average
Average
Above Average
City Boundary
Road
Highway or Interstate
Railroad
Waterbody
Major River


Shoshone County Hazardous Materials Vulnerability
Pinehurst
Smelterville
Kellogg
Osburn
Wallace
Mullan
MONTANA
Score
Well Below Average
Below Average
Average
Above Average
City Boundary
Road
Highway or Interstate
Railroad
Waterbody
Major River


Shoshone County Landslide Vulnerability
Pinehurst
Smelterville
Kellogg
Osburn
Wallace
Mullan
MONTANA
Score
Well Below Average
Below Average
Average
Above Average
City Boundary
Road
Highway or Interstate
Railroad
Waterbody
Major River



Conclusion

- First draft uploaded online at **http://hazcirc.org/hazard-mitigation-plans/shoshone-county**
- Second draft will incorporate comments, more detailed profiles, risk rankings, and mitigation prioritization.
- Comments and inquiries can be emailed to alexander@hazcirc.org

Conclusion

- Open discussion on risk and mitigation:
  - What community assets are most important to you?
  - Where do you see the highest risk?
  - What do you want to see protected?
  - Where do you think mitigation should occur?

APPENDIX D. DISASTER DECLARATIONS

This appendix contains the disaster declarations for the county.

Contents

1. 2008 FEMA Flood Disaster Declaration

Idaho Flooding – FEMA-1781-DR

Declared July 31, 2008

On July 21, 2008, Governor C.L. "Butch" Otter requested a major disaster declaration due to flooding caused by rapid melting snowpacks and a period of heavy rain during the period of May 13 to June 24, 2008. The Governor requested a declaration for Public Assistance for two counties and Hazard Mitigation for all counties. During the period of July 8-10, 2008, joint Federal, State, and local Preliminary Damage Assessments (PDAs) were conducted in the requested counties and are summarized below. PDAs estimate damages immediately after an event and are considered, along with several other factors, in determining whether a disaster is of such severity and magnitude that effective response is beyond the capabilities of the State and the affected local governments, and that Federal assistance is necessary.[1]

On July 31, 2008, President Bush declared that a major disaster exists in the State of Idaho and defined the incident period as May 15 to June 9, 2008. This declaration made Public Assistance requested by the Governor available to State and eligible local governments and certain private nonprofit organizations on a cost-sharing basis for emergency work and the repair or replacement of facilities damaged by the flooding in Kootenai and Shoshone Counties. This declaration also made Hazard Mitigation Grant Program assistance requested by the Governor available for hazard mitigation measures statewide.[2]

Summary of Damage Assessment Information Used in Determining Whether to Declare a Major Disaster

Individual Assistance - *(Not requested)*

- Total Number of Residences Impacted:[3] -

  Destroyed - -
  Major Damage - -
  Minor Damage - -
  Affected - -

- Percentage of insured residences:[4] -
- Percentage of low income households:[5] -
- Percentage of elderly households:[6] -
- Total Individual Assistance cost estimate: -

Public Assistance

- Primary Impact: Damage to roads an bridges
- Total Public Assistance cost estimate: $1,840,417
- Statewide per capita impact: [7] $1.42
- Statewide per capita impact indicator: [8] $1.24
- Countywide per capita impact: Kootenai County ($11.95)
  Shoshone County ($39.30)
- Countywide per capita impact indicator:[9] $3.11

[1] The preliminary damage assessment (PDA) process is a mechanism used to determine the impact and magnitude of damage and resulting needs of individuals, businesses, public sector, and community as a whole. Information collected is used by the State as a basis for the Governor's request for a major disaster or emergency declaration, and by the President in determining a response to the Governor's request (44 CFR § 206.33).

[2] When a Governor's request for major disaster assistance under the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended (Stafford Act) is under review, a number of primary factors are considered to determine whether assistance is warranted. These factors are outlined in FEMA's regulations (44 CFR § 206.48). The President has ultimate discretion and decision making authority to declare major disasters and emergencies under the Stafford Act (42 U.S.C. § 5170 and § 5191).

[3] Degree of damage to impacted residences:

- Destroyed – total loss of structure, structure is not economically feasible to repair, or complete failure to major structural components (e.g., collapse of basement walls/foundation, walls or roof);
- Major Damage – substantial failure to structural elements of residence (e.g., walls, floors, foundation), or damage that will take more than 30 days to repair;
- Minor Damage – home is damaged and uninhabitable, but may be made habitable in short period of time with repairs; and
- Affected – some damage to the structure and contents, but still habitable.

[4] By law, Federal disaster assistance cannot duplicate insurance coverage (44 CFR § 206.48(b)(5)).

[5] Special populations, such as low-income, the elderly, or the unemployed may indicate a greater need for assistance (44 CFR § 206.48(b)(3)).

[6] Ibid (44 CFR § 206.48(b)(3)).

[7] Based on State population in the 2000 Census.

[8] Statewide Per Capita Impact Indicator for FY08, *Federal Register*, October 1, 2007.

[9] Countywide Per Capita Impact Indicator for FY08, *Federal Register*, October 1, 2007.

APPENDIX E. SURVEY & RESPONSES

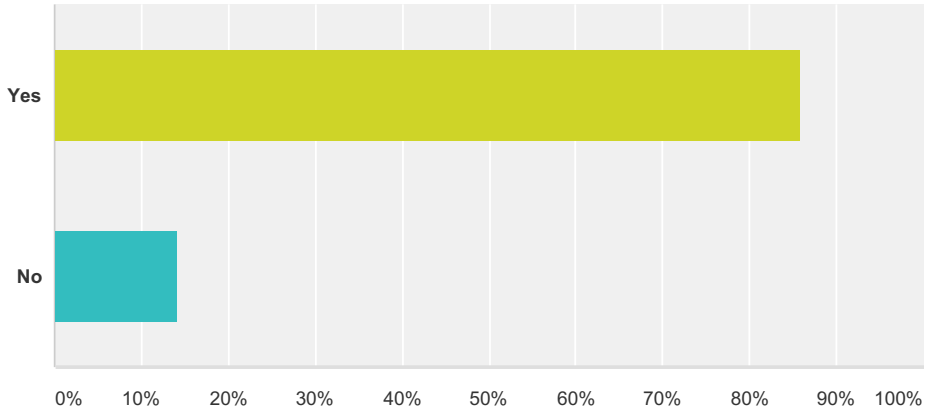
This appendix contains the survey distributed to the planning committee, stakeholders, and public.

Contents:

1. Survey

Q1 During the past five years in ShoshoneCounty, have you or someone in your household directly experienced a hazardsuch as a severe windstorm, flood, wildfire or other type of hazard?

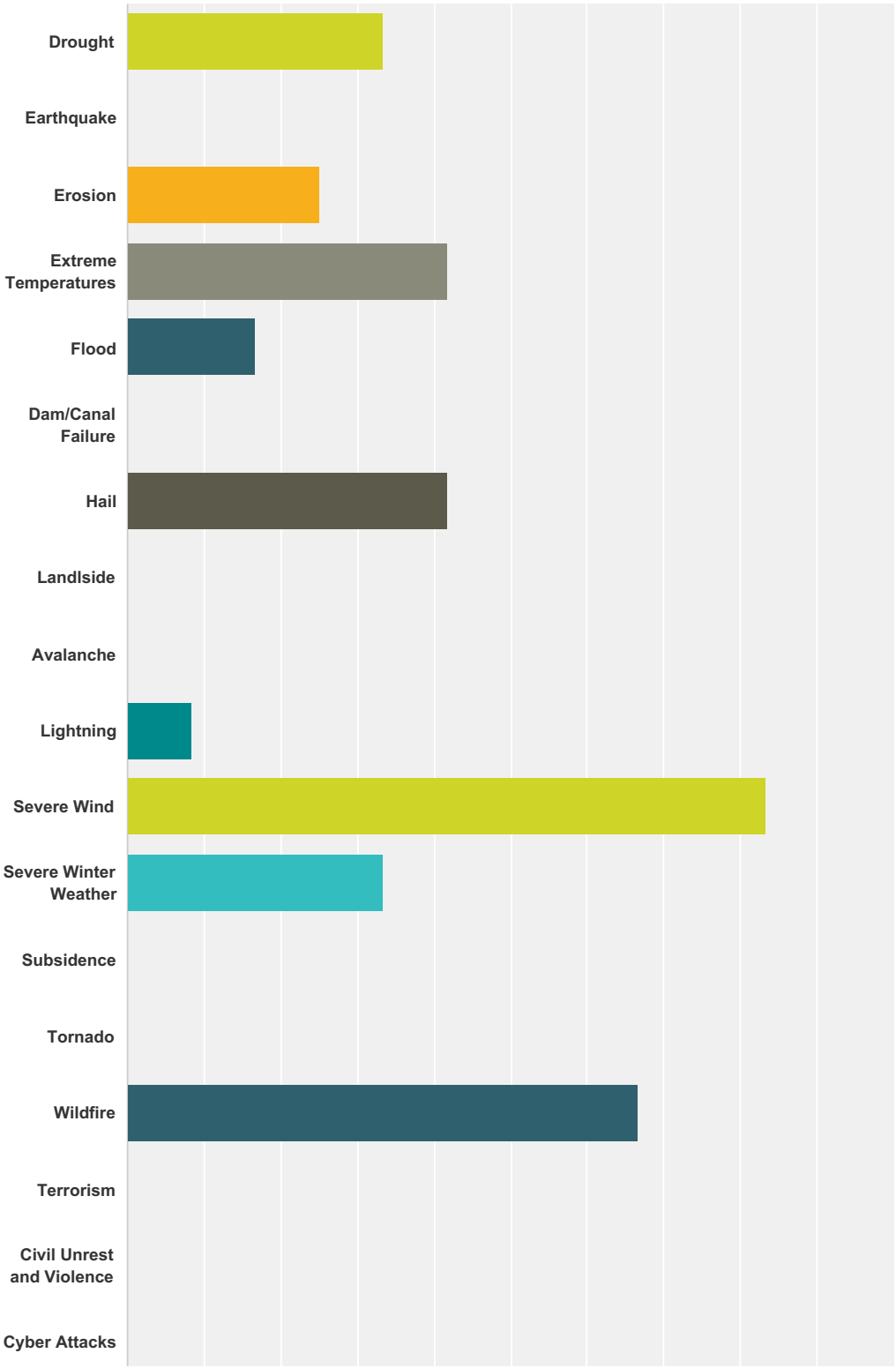
Answered: 14 Skipped: 2

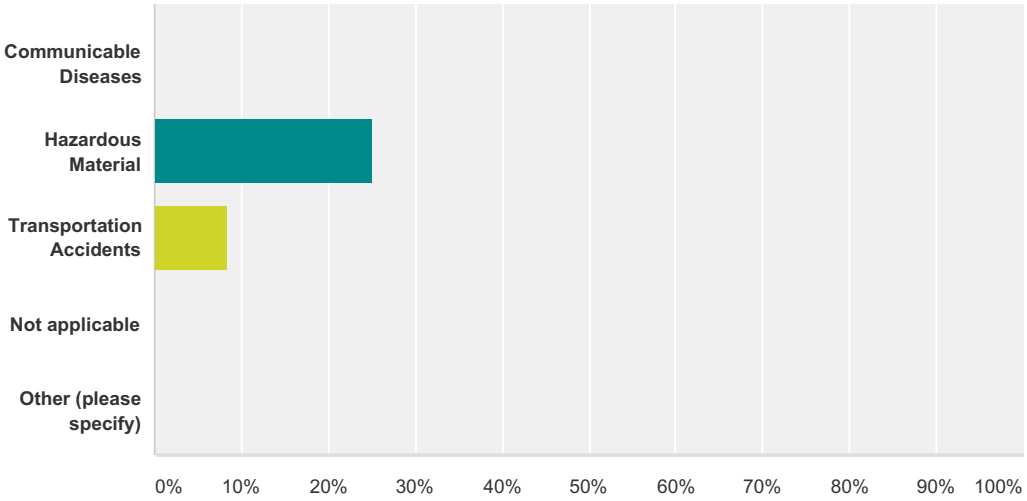


Answer Choices	Responses	
Yes	**85.71%**	12
No	**14.29%**	2
Total		**14**

Q2 If you responded yes to the previous question, which of these hazardshave you or someone in your household experienced in the past five years? Please check all that apply.

Answered: 12 Skipped: 4





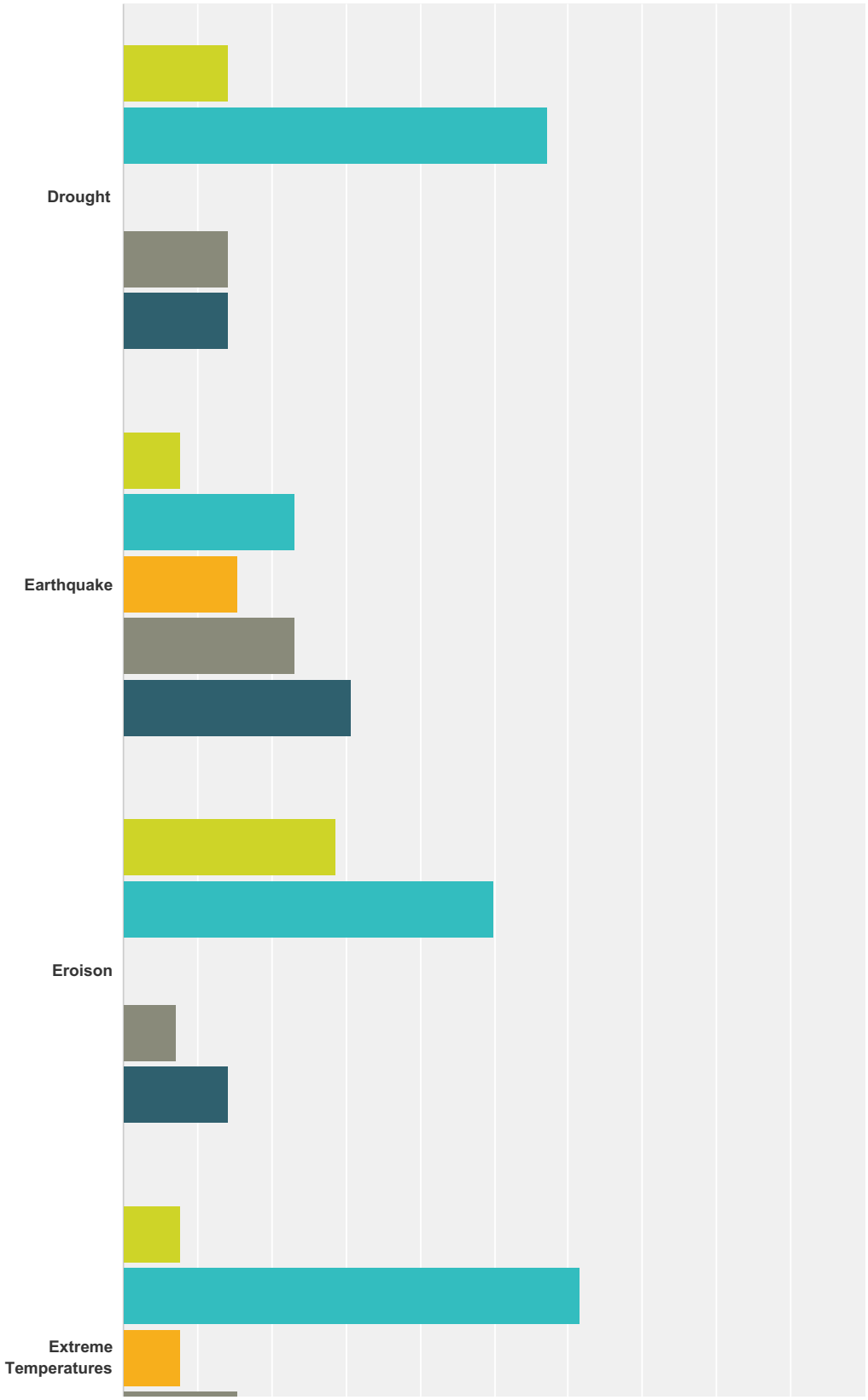
Answer Choices	Responses	
Drought	**33.33%**	4
Earthquake	**0.00%**	0
Erosion	**25.00%**	3
Extreme Temperatures	**41.67%**	5
Flood	**16.67%**	2
Dam/Canal Failure	**0.00%**	0
Hail	**41.67%**	5
Landlside	**0.00%**	0
Avalanche	**0.00%**	0
Lightning	**8.33%**	1
Severe Wind	**83.33%**	10
Severe Winter Weather	**33.33%**	4
Subsidence	**0.00%**	0
Tornado	**0.00%**	0
Wildfire	**66.67%**	8
Terrorism	**0.00%**	0
Civil Unrest and Violence	**0.00%**	0
Cyber Attacks	**0.00%**	0
Communicable Diseases	**0.00%**	0
Hazardous Material	**25.00%**	3
Transportation Accidents	**8.33%**	1
Not applicable	**0.00%**	0
Other (please specify)	**0.00%**	0

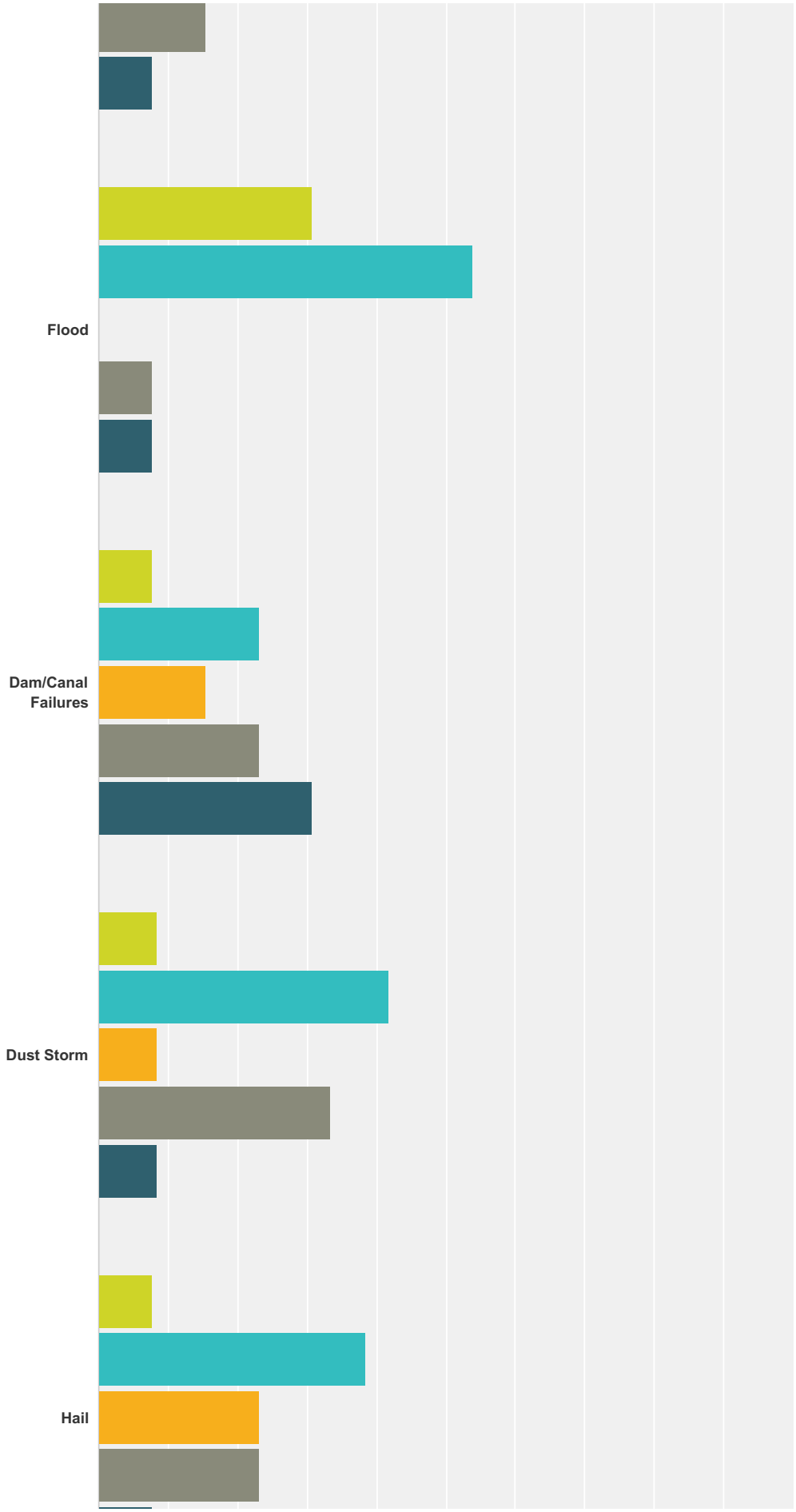
Total Respondents: 12	

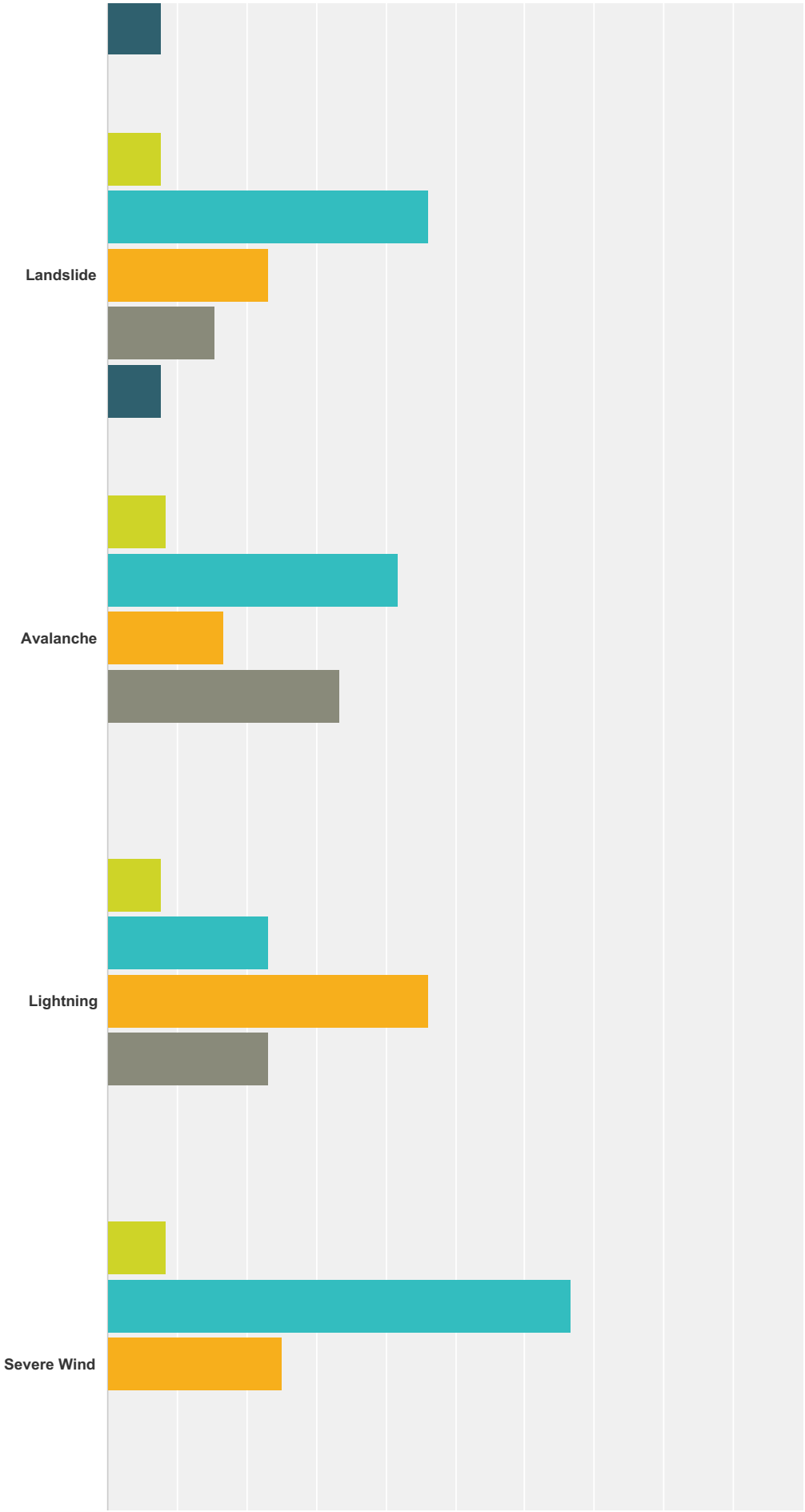
#	Other (please specify)	Date
	There are no responses.	

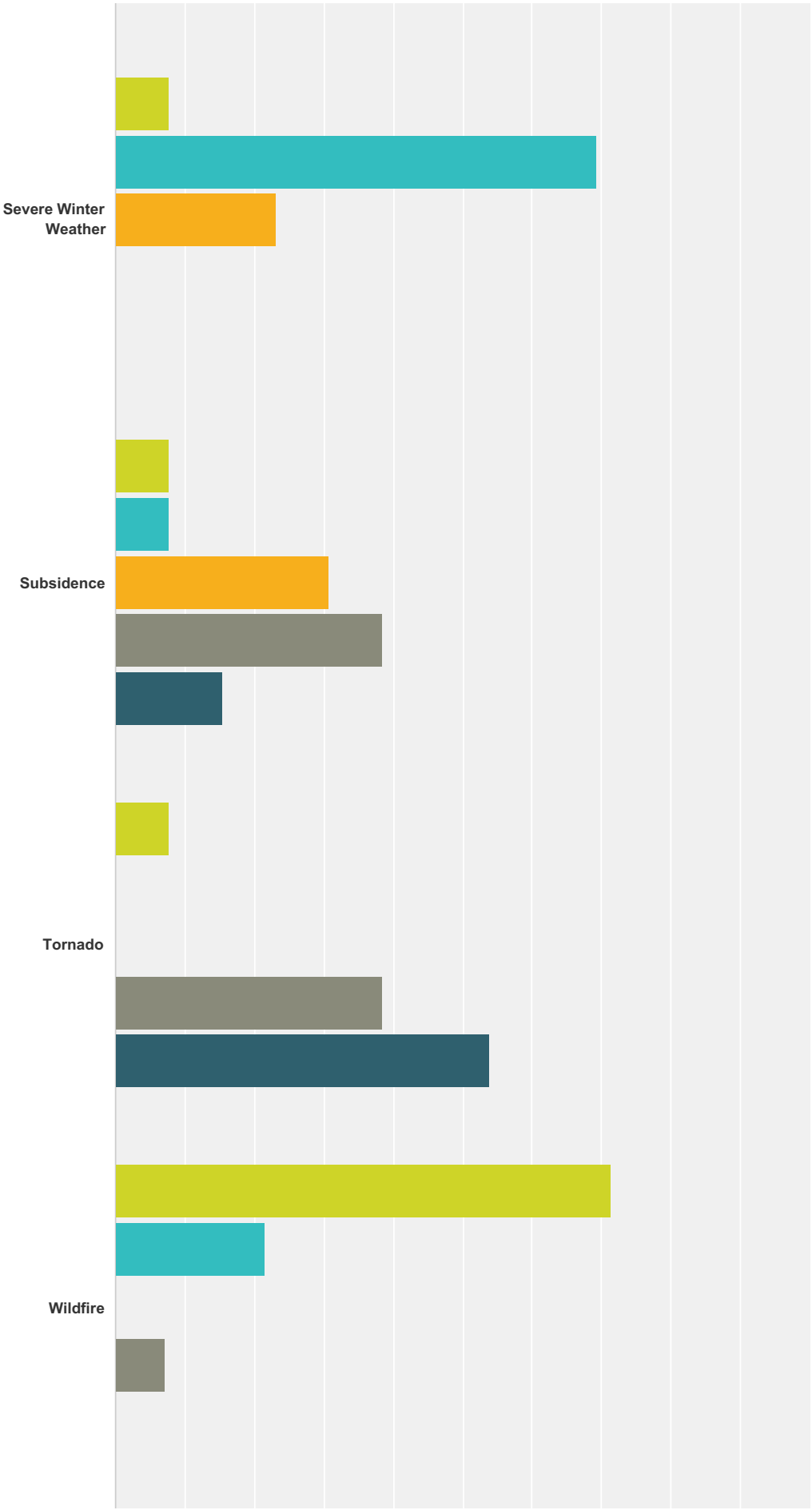
Q3 How concerned are you about the following hazardsaffecting ShoshoneCounty?

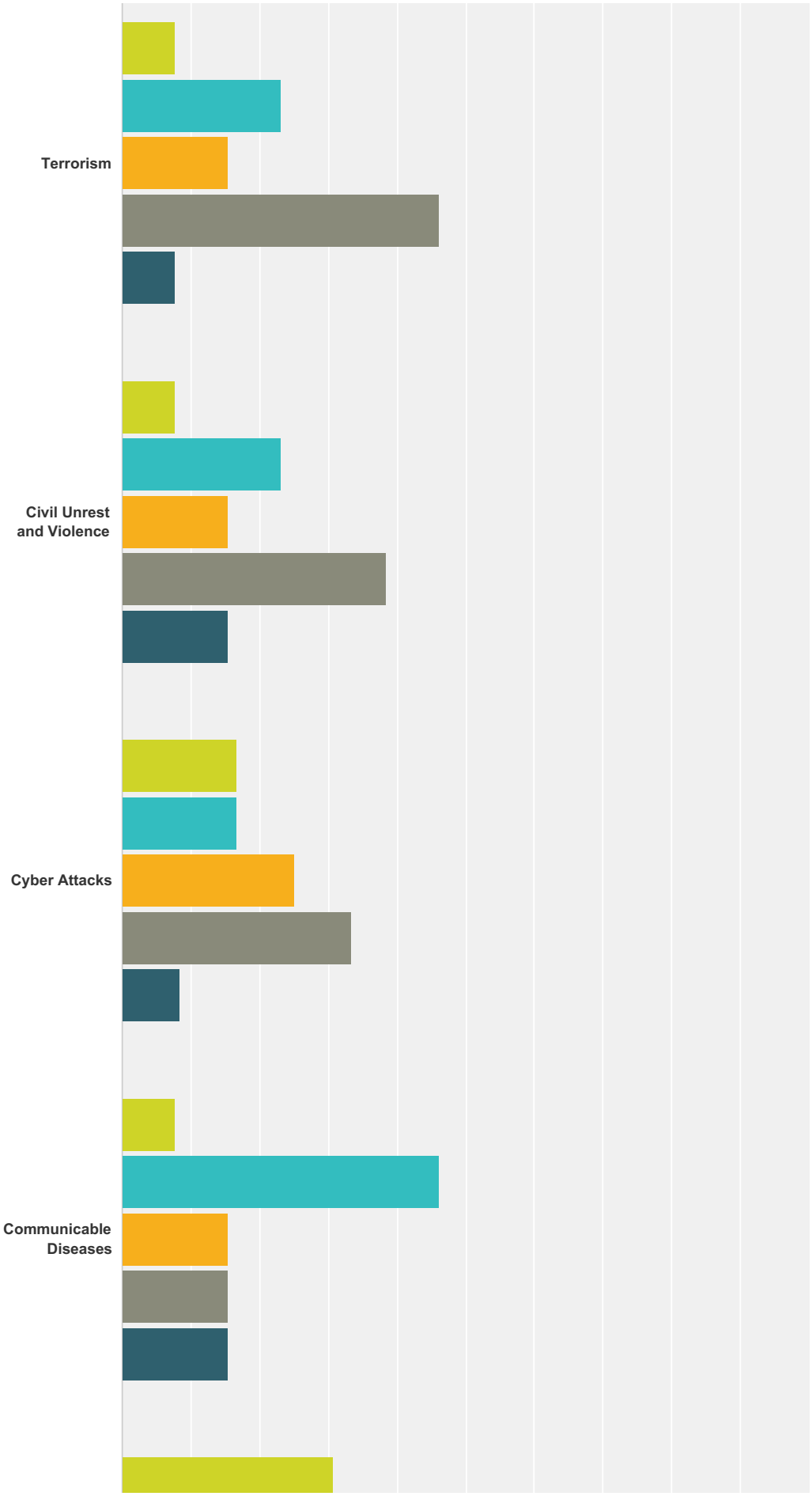
Answered: 14 Skipped: 2

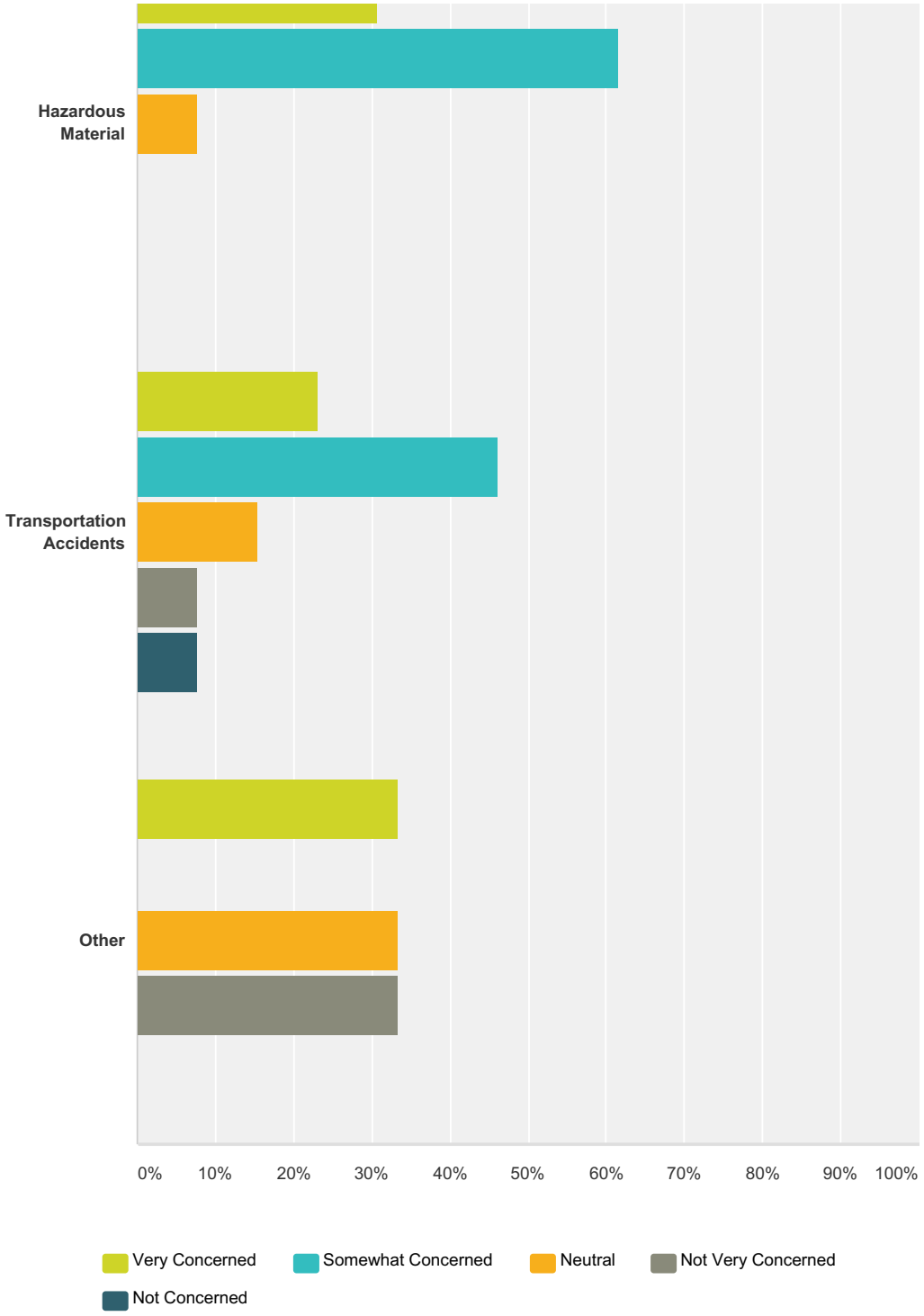



Flood
Dam/Canal Failures
Dust Storm
Hail


Landslide
Avalanche
Lightning
Severe Wind


Severe Winter Weather
Subsidence
Tornado
Wildfire


Terrorism
Civil Unrest and Violence
Cyber Attacks
Communicable Diseases



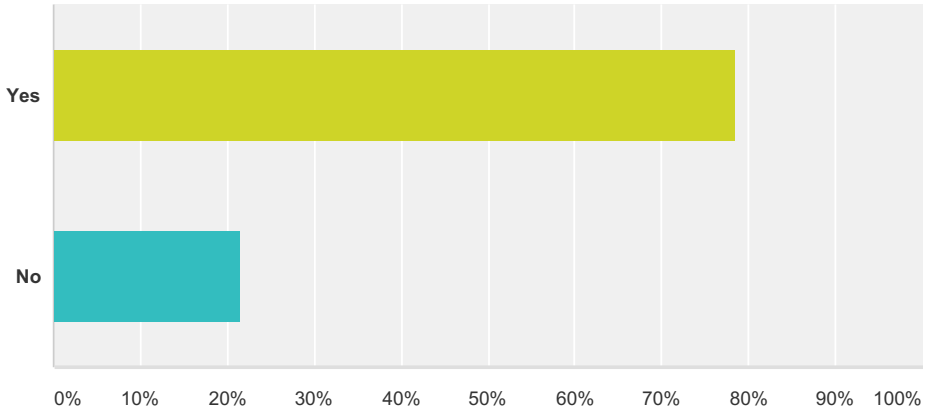
	Very Concerned	Somewhat Concerned	Neutral	Not Very Concerned	Not Concerned	Total Respondents
Drought	**14.29%** 2	**57.14%** 8	**0.00%** 0	**14.29%** 2	**14.29%** 2	14
Earthquake	**7.69%** 1	**23.08%** 3	**15.38%** 2	**23.08%** 3	**30.77%** 4	13
Eroison	**28.57%** 4	**50.00%** 7	**0.00%** 0	**7.14%** 1	**14.29%** 2	14
Extreme Temperatures	**7.69%** 1	**61.54%** 8	**7.69%** 1	**15.38%** 2	**7.69%** 1	13

Flood	**30.77%** 4	**53.85%** 7	**0.00%** 0	**7.69%** 1	**7.69%** 1	13
Dam/Canal Failures	**7.69%** 1	**23.08%** 3	**15.38%** 2	**23.08%** 3	**30.77%** 4	13
Dust Storm	**8.33%** 1	**41.67%** 5	**8.33%** 1	**33.33%** 4	**8.33%** 1	12
Hail	**7.69%** 1	**38.46%** 5	**23.08%** 3	**23.08%** 3	**7.69%** 1	13
Landslide	**7.69%** 1	**46.15%** 6	**23.08%** 3	**15.38%** 2	**7.69%** 1	13
Avalanche	**8.33%** 1	**41.67%** 5	**16.67%** 2	**33.33%** 4	**0.00%** 0	12
Lightning	**7.69%** 1	**23.08%** 3	**46.15%** 6	**23.08%** 3	**0.00%** 0	13
Severe Wind	**8.33%** 1	**66.67%** 8	**25.00%** 3	**0.00%** 0	**0.00%** 0	12
Severe Winter Weather	**7.69%** 1	**69.23%** 9	**23.08%** 3	**0.00%** 0	**0.00%** 0	13
Subsidence	**7.69%** 1	**7.69%** 1	**30.77%** 4	**38.46%** 5	**15.38%** 2	13
Tornado	**7.69%** 1	**0.00%** 0	**0.00%** 0	**38.46%** 5	**53.85%** 7	13
Wildfire	**71.43%** 10	**21.43%** 3	**0.00%** 0	**7.14%** 1	**0.00%** 0	14
Terrorism	**7.69%** 1	**23.08%** 3	**15.38%** 2	**46.15%** 6	**7.69%** 1	13
Civil Unrest and Violence	**7.69%** 1	**23.08%** 3	**15.38%** 2	**38.46%** 5	**15.38%** 2	13
Cyber Attacks	**16.67%** 2	**16.67%** 2	**25.00%** 3	**33.33%** 4	**8.33%** 1	12
Communicable Diseases	**7.69%** 1	**46.15%** 6	**15.38%** 2	**15.38%** 2	**15.38%** 2	13
Hazardous Material	**30.77%** 4	**61.54%** 8	**7.69%** 1	**0.00%** 0	**0.00%** 0	13
Transportation Accidents	**23.08%** 3	**46.15%** 6	**15.38%** 2	**7.69%** 1	**7.69%** 1	13
Other	**33.33%** 1	**0.00%** 0	**33.33%** 1	**33.33%** 1	**0.00%** 0	3

#	Other (please specify)	Date
	There are no responses.	

Q4 Have you ever received information about how to make members of your household and your home safer from hazards?

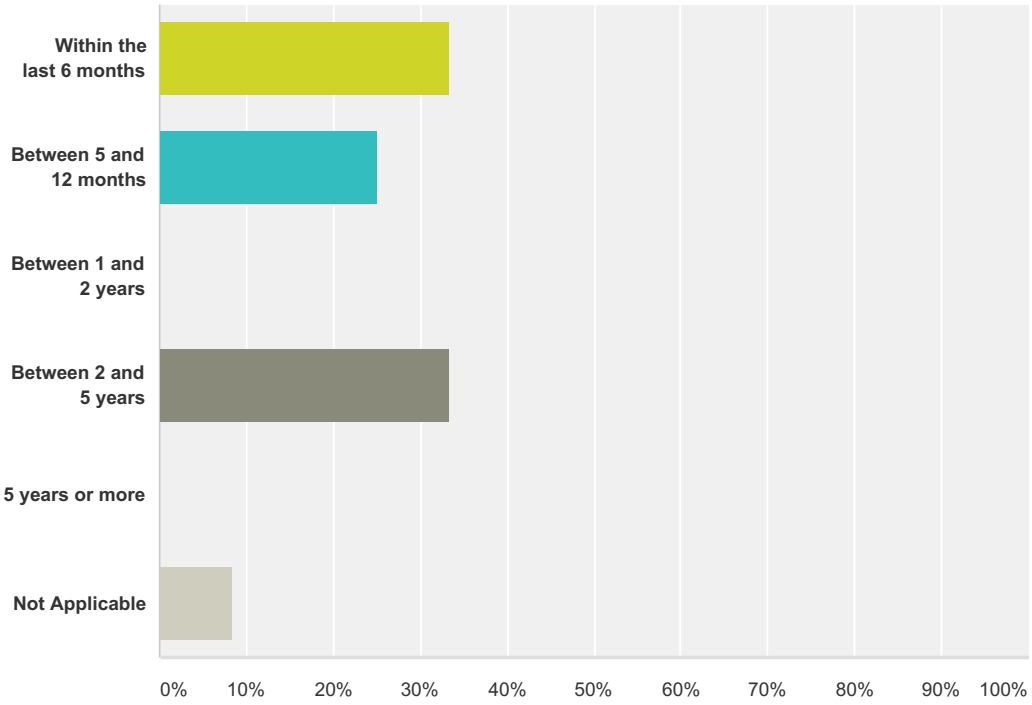
Answered: 14 Skipped: 2



Answer Choices	Responses	
Yes	**78.57%**	11
No	**21.43%**	3
Total		**14**

Q5 If you answered yes to the previous question, please specific how recently you received safety information

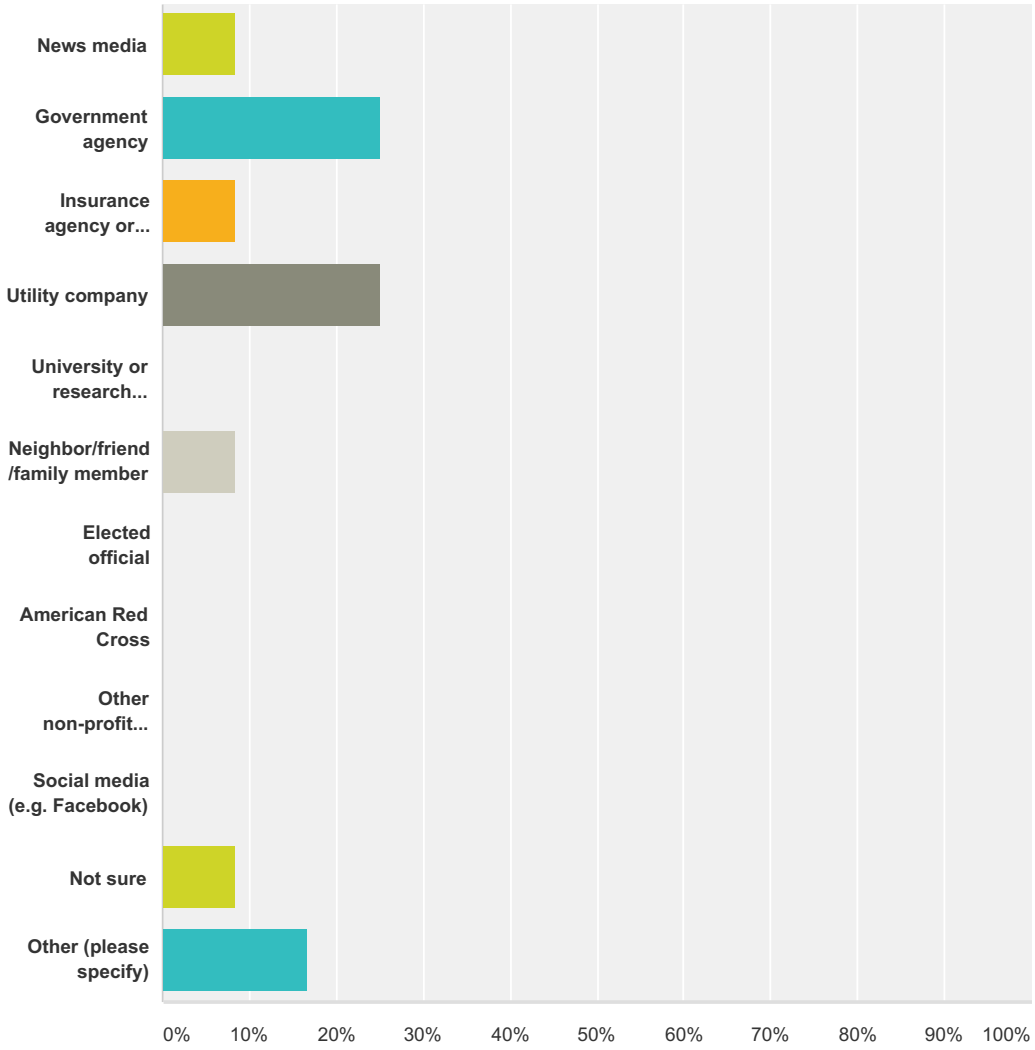
Answered: 12 Skipped: 4



Answer Choices	Responses	
Within the last 6 months	**33.33%**	4
Between 5 and 12 months	**25.00%**	3
Between 1 and 2 years	**0.00%**	0
Between 2 and 5 years	**33.33%**	4
5 years or more	**0.00%**	0
Not Applicable	**8.33%**	1
Total		**12**

Q6 From whom did you last receive information about how to make members of your household and your home safer from hazards?

Answered: 12 Skipped: 4



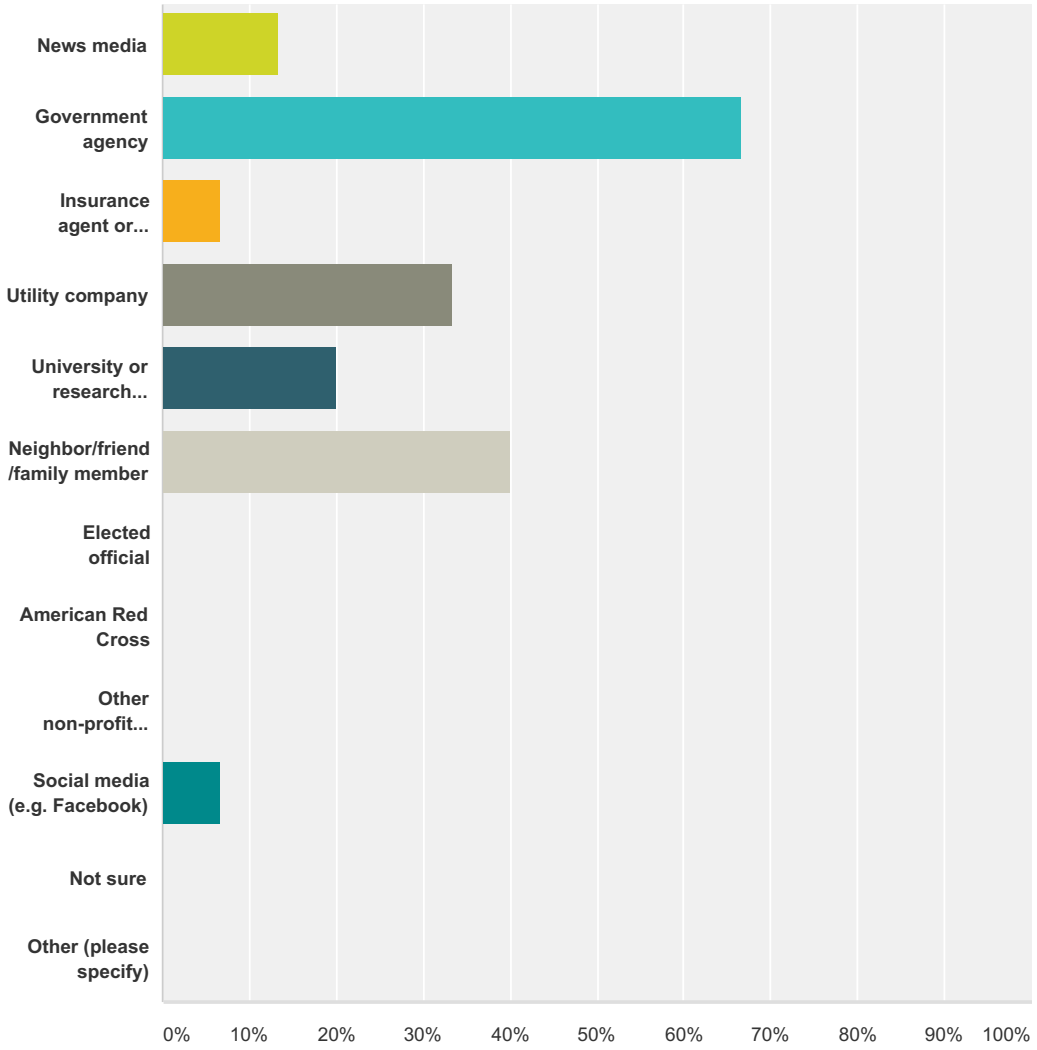
Answer Choices	Responses	
News media	**8.33%**	1
Government agency	**25.00%**	3
Insurance agency or company	**8.33%**	1
Utility company	**25.00%**	3
University or research institution	**0.00%**	0
Neighbor/friend/family member	**8.33%**	1
Elected official	**0.00%**	0

American Red Cross	**0.00%**	0
Other non-profit organization	**0.00%**	0
Social media (e.g. Facebook)	**0.00%**	0
Not sure	**8.33%**	1
Other (please specify)	**16.67%**	2
Total		**12**

#	Other (please specify)	Date
1	shoshone County	7/19/2016 12:51 PM
2	Religious group (JW)	7/1/2016 12:45 PM

Q7 Who do you most trust to provide you with information about how to make your household and home safer from hazards? Select up to three

Answered: 15 Skipped: 1



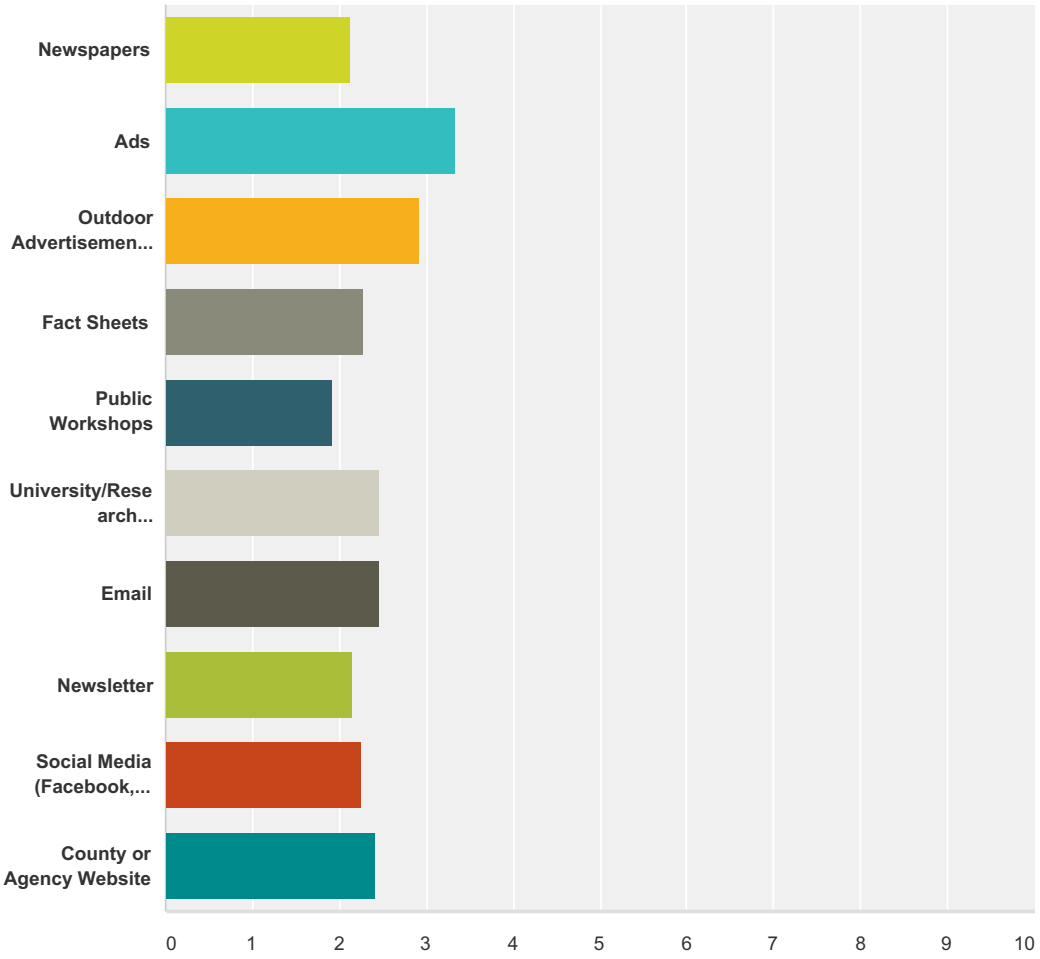
Answer Choices	Responses	
News media	**13.33%**	2
Government agency	**66.67%**	10
Insurance agent or company	**6.67%**	1
Utility company	**33.33%**	5
University or research institution	**20.00%**	3
Neighbor/friend/family member	**40.00%**	6
Elected official	**0.00%**	0

American Red Cross	**0.00%**	0
Other non-profit organization	**0.00%**	0
Social media (e.g. Facebook)	**6.67%**	1
Not sure	**0.00%**	0
Other (please specify)	**0.00%**	0
Total Respondents: 15		

#	Other (please specify)	Date
	There are no responses.	

Q8 What is the most effective way for you to receive information about how to make your household and home safer from hazards?

Answered: 15 Skipped: 1



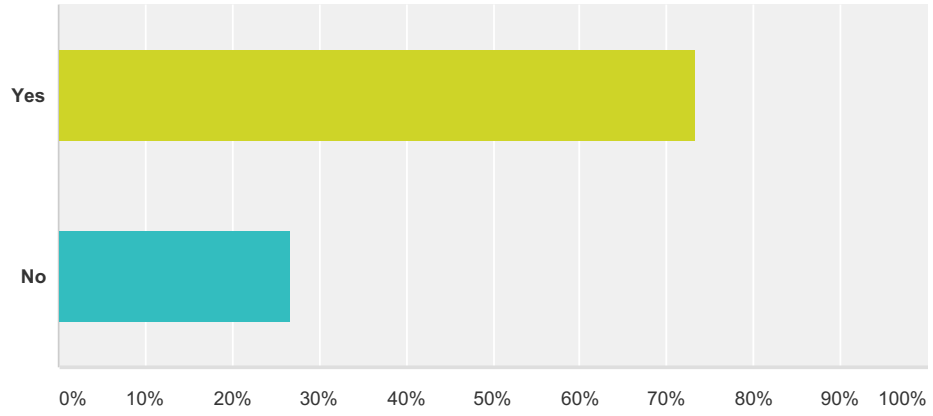
	Very Effective	Somewhat Effective	Neutral	Not Effective	Total	Weighted Average
Newspapers	**20.00%** 3	**60.00%** 9	**6.67%** 1	**13.33%** 2	15	2.13
Ads	**0.00%** 0	**16.67%** 2	**33.33%** 4	**50.00%** 6	12	3.33
Outdoor Advertisements (Billboards)	**0.00%** 0	**35.71%** 5	**35.71%** 5	**28.57%** 4	14	2.93
Fact Sheets	**9.09%** 1	**63.64%** 7	**18.18%** 2	**9.09%** 1	11	2.27
Public Workshops	**23.08%** 3	**61.54%** 8	**15.38%** 2	**0.00%** 0	13	1.92
University/Research Institution Outreach	**23.08%** 3	**23.08%** 3	**38.46%** 5	**15.38%** 2	13	2.46
Email	**7.69%** 1	**46.15%** 6	**38.46%** 5	**7.69%** 1	13	2.46

Newsletter	**15.38%** 2	**53.85%** 7	**30.77%** 4	**0.00%** 0	13	2.15
Social Media (Facebook, Twitter)	**16.67%** 2	**50.00%** 6	**25.00%** 3	**8.33%** 1	12	2.25
County or Agency Website	**8.33%** 1	**50.00%** 6	**33.33%** 4	**8.33%** 1	12	2.42

#	Other (please specify)	Date
	There are no responses.	

Q9 Prior to receiving this survey, were you aware of ShoshoneCounty's Hazard Mitigation Plan (HMP)

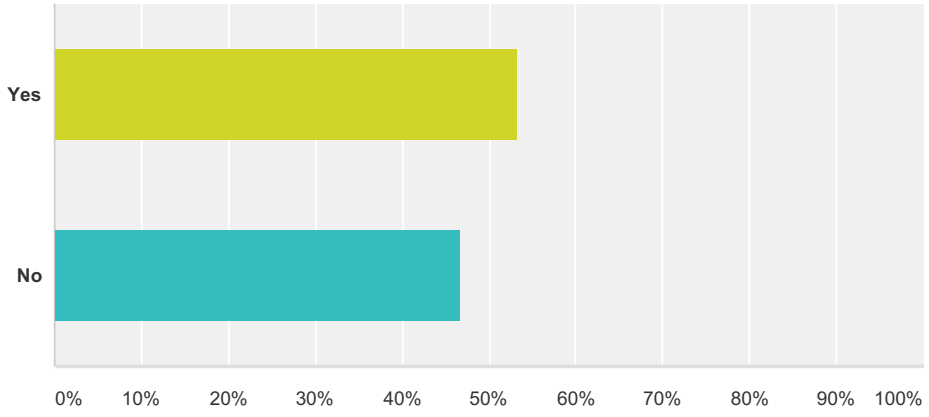
Answered: 15 Skipped: 1



Answer Choices	Responses	
Yes	**73.33%**	11
No	**26.67%**	4
Total		**15**

Q10 Prior to receiving this survey, were you aware that the HMP was being updated?

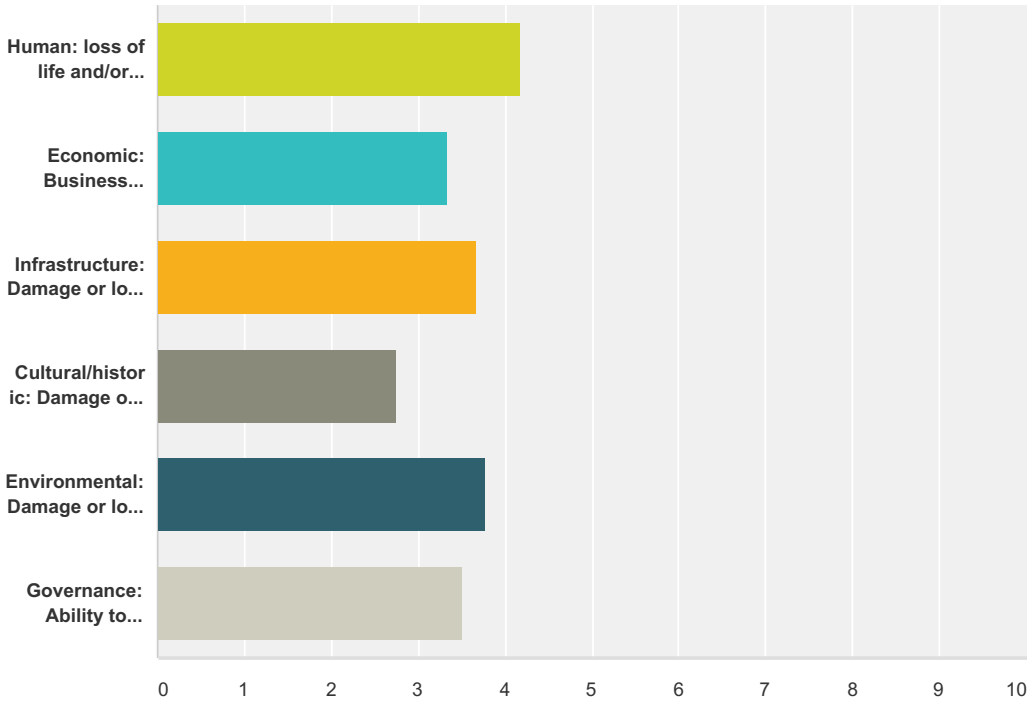
Answered: 15 Skipped: 1



Answer Choices	Responses	
Yes	**53.33%**	8
No	**46.67%**	7
Total		**15**

Q11 Community assets are features, characteristics, or resources that either make a community unique or allow the community to function. In your opinion, which of the following categories are most susceptible to the impacts caused by hazards in your community. Please rank from 1-6

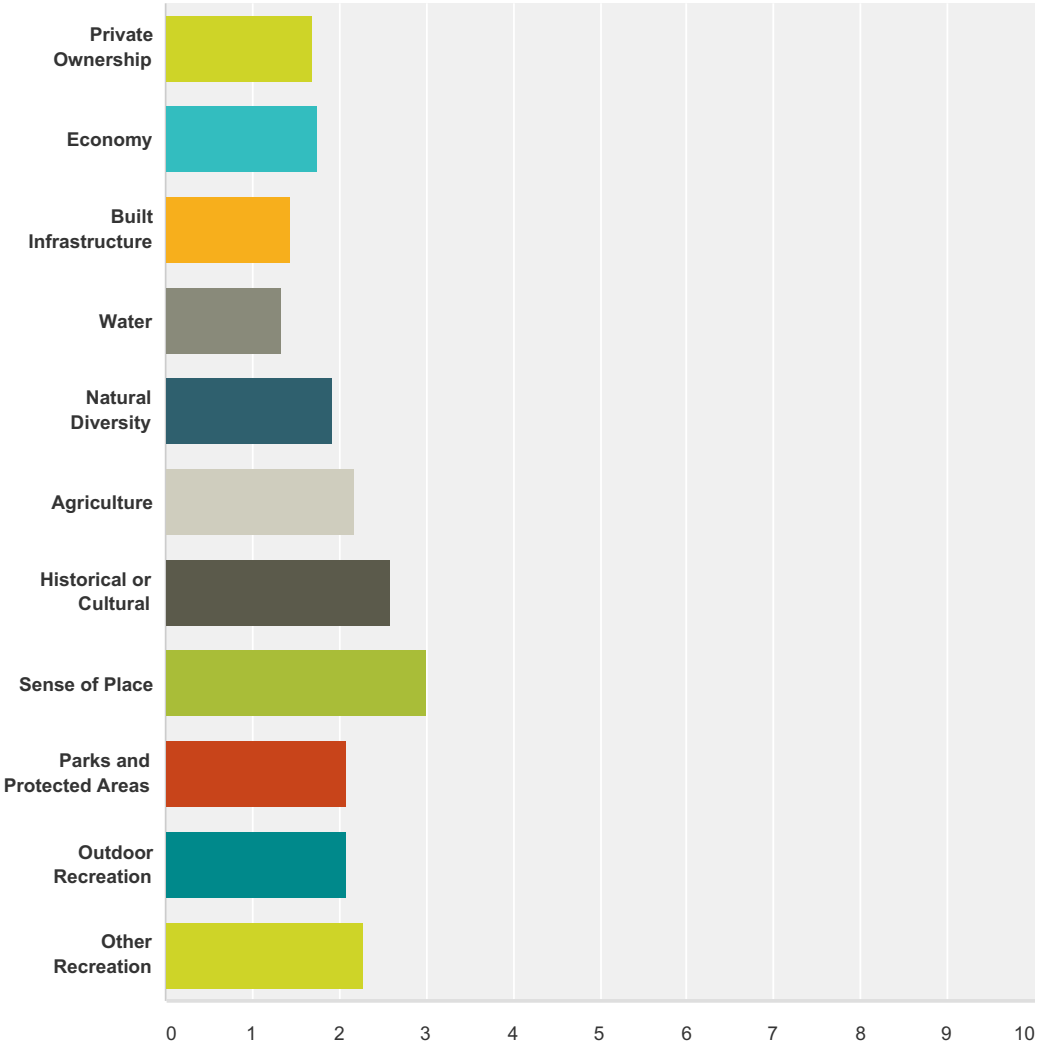
Answered: 14 Skipped: 2



	1	2	3	4	5	6	Total	Score
Human: loss of life and/or injuries	**36.36%** 4	**27.27%** 3	**9.09%** 1	**0.00%** 0	**0.00%** 0	**27.27%** 3	11	4.18
Economic: Business closures and/or job losses	**0.00%** 0	**16.67%** 2	**33.33%** 4	**33.33%** 4	**0.00%** 0	**16.67%** 2	12	3.33
Infrastructure: Damage or loss of bridges, utilities, schools, etc.	**8.33%** 1	**16.67%** 2	**33.33%** 4	**16.67%** 2	**25.00%** 3	**0.00%** 0	12	3.67
Cultural/historic: Damage or loss of libraries, museums, fairgrounds, etc.	**8.33%** 1	**8.33%** 1	**8.33%** 1	**25.00%** 3	**25.00%** 3	**25.00%** 3	12	2.75
Environmental: Damage or loss of forests, rangeland, waterways, etc.	**23.08%** 3	**15.38%** 2	**7.69%** 1	**30.77%** 4	**15.38%** 2	**7.69%** 1	13	3.77
Governance: Ability to maintain order and/or provide public amenities and services	**25.00%** 3	**8.33%** 1	**16.67%** 2	**8.33%** 1	**25.00%** 3	**16.67%** 2	12	3.50

Q12 Next we would like to know what specific types of community assets are most important to you. Please reference definitions of each community asset that were defined on the first page of this section.

Answered: 13 Skipped: 3

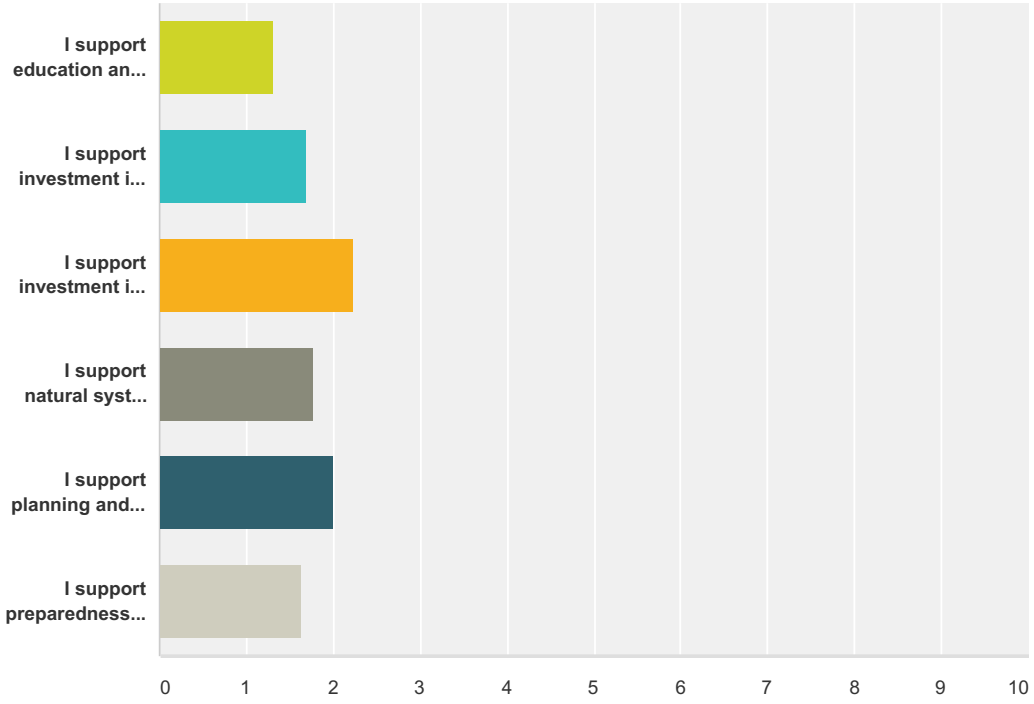


	Very Important	Somewhat Important	Neutral	Not Very Important	Not Important	Total	Weighted Average
Private Ownership	**38.46%** 5	**53.85%** 7	**7.69%** 1	**0.00%** 0	**0.00%** 0	13	1.69
Economy	**50.00%** 6	**41.67%** 5	**0.00%** 0	**0.00%** 0	**8.33%** 1	12	1.75
Built Infrastructure	**54.55%** 6	**45.45%** 5	**0.00%** 0	**0.00%** 0	**0.00%** 0	11	1.45
Water	**83.33%** 10	**8.33%** 1	**0.00%** 0	**8.33%** 1	**0.00%** 0	12	1.33

Natural Diversity	**25.00%** 3	**58.33%** 7	**16.67%** 2	**0.00%** 0	**0.00%** 0	12	1.92
Agriculture	**8.33%** 1	**66.67%** 8	**25.00%** 3	**0.00%** 0	**0.00%** 0	12	2.17
Historical or Cultural	**25.00%** 3	**25.00%** 3	**16.67%** 2	**33.33%** 4	**0.00%** 0	12	2.58
Sense of Place	**9.09%** 1	**27.27%** 3	**27.27%** 3	**27.27%** 3	**9.09%** 1	11	3.00
Parks and Protected Areas	**41.67%** 5	**33.33%** 4	**0.00%** 0	**25.00%** 3	**0.00%** 0	12	2.08
Outdoor Recreation	**41.67%** 5	**33.33%** 4	**0.00%** 0	**25.00%** 3	**0.00%** 0	12	2.08
Other Recreation	**18.18%** 2	**54.55%** 6	**9.09%** 1	**18.18%** 2	**0.00%** 0	11	2.27

Q13 A number of activities can reduce your community's risk from hazards. These activities can be both regulatory and non-regulatory. Please check the box that best represents your opinion of the following strategies to reduce the risk and loss associated with hazards.

Answered: 13 Skipped: 3



	Very Important	Somewhat Important	Neutral	Not Very Important	Not Important	Total	Weighted Average
I support education and awareness programs (e.g., websites with maps and information, mailings to neighborhoods, Firewise, Stormready, etc.)	**76.92%** 10	**15.38%** 2	**7.69%** 1	**0.00%** 0	**0.00%** 0	13	1.31
I support investment in structural measures(e.g. dams, levees, Any physical construction to reduce or avoid possible impacts of hazards, or application of engineering techniques to achieve hazard-resistance and resilience in structures or systems)	**53.85%** 7	**23.08%** 3	**23.08%** 3	**0.00%** 0	**0.00%** 0	13	1.69
I support investment in non-structural measures(building codes, land use planning laws, research and assessment, public awareness programs, etc.)	**23.08%** 3	**38.46%** 5	**30.77%** 4	**7.69%** 1	**0.00%** 0	13	2.23
I support natural systems protection (e.g., sediment and erosion control, stream corridor restoration)	**46.15%** 6	**38.46%** 5	**7.69%** 1	**7.69%** 1	**0.00%** 0	13	1.77
I support planning and regulation (e.g., comprehensive plans, land use ordinances, subdivision regulation, development review, cyber security plans)	**38.46%** 5	**30.77%** 4	**23.08%** 3	**7.69%** 1	**0.00%** 0	13	2.00

I support preparedness and response actions (e.g., creating mutual aid agreements with neighboring communities, purchasing radio communication equipment, developing procedures for notifying citizens of available shelter locations)	**61.54%** 8	**30.77%** 4	**0.00%** 0	**0.00%** 0	**7.69%** 1	13	1.62

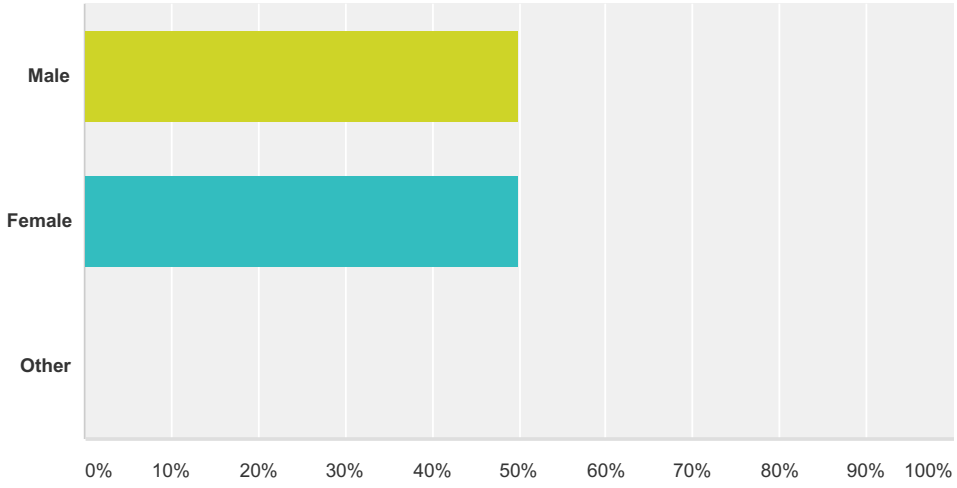
Q14 Please indicate your age

Answered: 11 Skipped: 5

#	Responses	Date
1	40	7/11/2016 5:09 PM
2	57	7/9/2016 12:40 AM
3	39	7/5/2016 5:52 PM
4	40	7/1/2016 1:43 PM
5	62	6/29/2016 5:20 PM
6	46	6/29/2016 5:06 PM
7	65	6/29/2016 4:50 PM
8	41	6/29/2016 4:38 PM
9	60	6/29/2016 3:22 PM
10	41	6/29/2016 3:02 PM
11	46	6/29/2016 2:24 PM

Q15 Gender

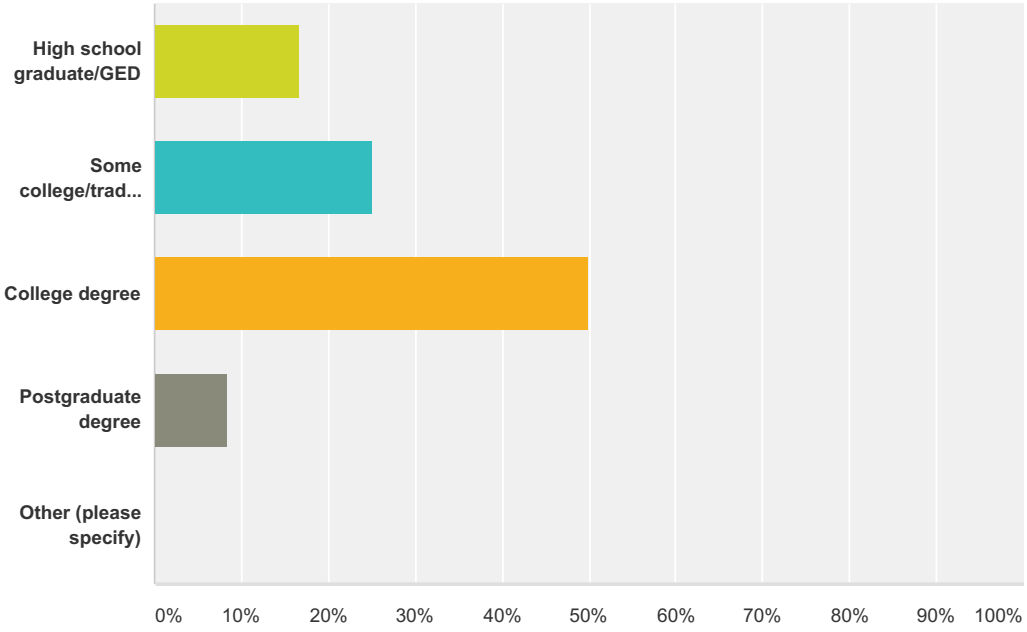
Answered: 12 Skipped: 4



Answer Choices	Responses	
Male	**50.00%**	6
Female	**50.00%**	6
Other	**0.00%**	0
Total		**12**

Q16 Please indicate your level of education

Answered: 12 Skipped: 4

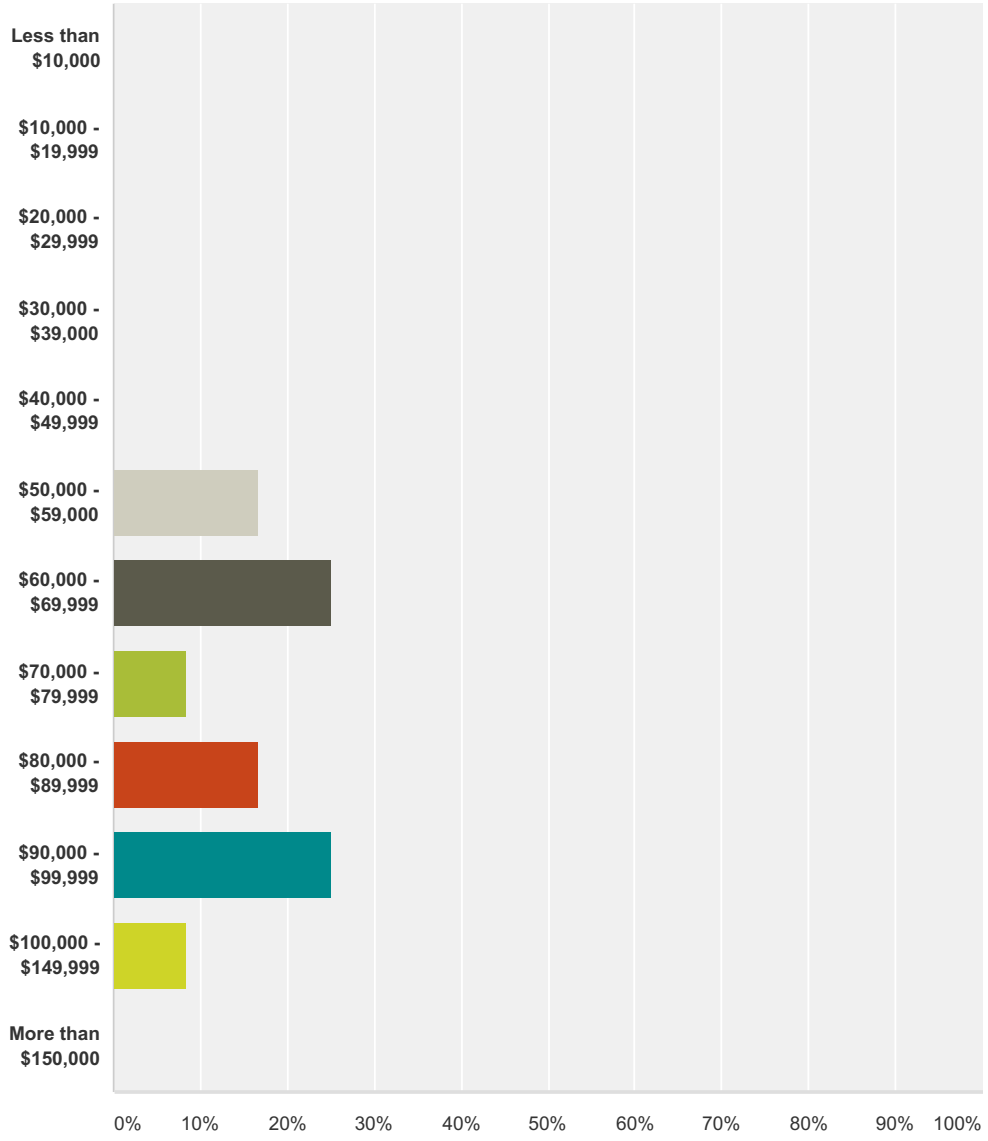


Answer Choices	Responses	
High school graduate/GED	**16.67%**	2
Some college/trade school	**25.00%**	3
College degree	**50.00%**	6
Postgraduate degree	**8.33%**	1
Other (please specify)	**0.00%**	0
Total		**12**

#	Other (please specify)	Date
	There are no responses.	

Q17 What is your total household income?

Answered: 12 Skipped: 4



Answer Choices	Responses	
Less than $10,000	**0.00%**	0
$10,000 - $19,999	**0.00%**	0
$20,000 - $29,999	**0.00%**	0
$30,000 - $39,000	**0.00%**	0
$40,000 - $49,999	**0.00%**	0
$50,000 - $59,000	**16.67%**	2
$60,000 - $69,999	**25.00%**	3
$70,000 - $79,999	**8.33%**	1

$80,000 - $89,999	**16.67%**	2
$90,000 - $99,999	**25.00%**	3
$100,000 - $149,999	**8.33%**	1
More than $150,000	**0.00%**	0
Total		**12**

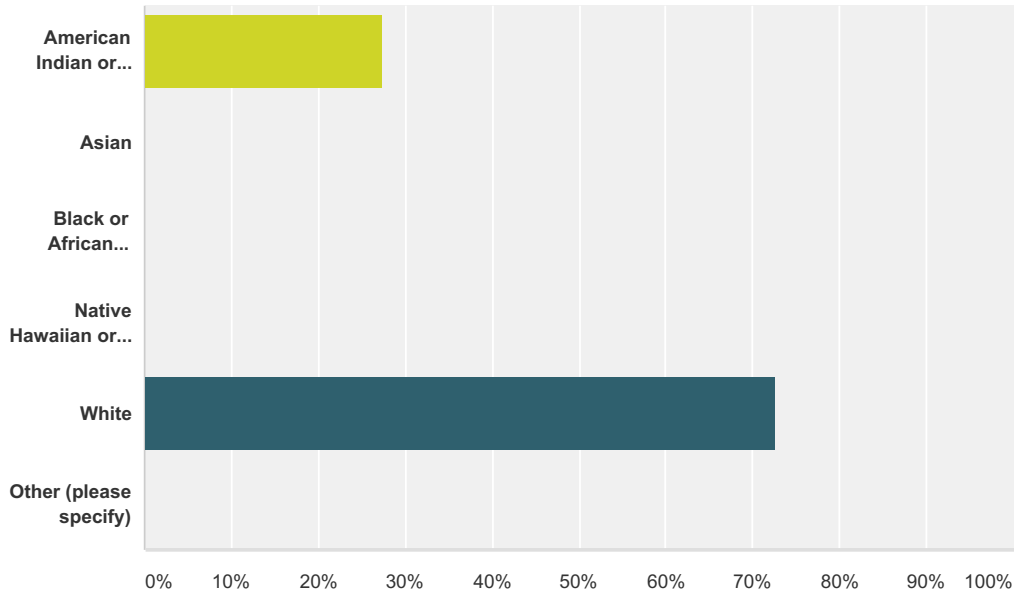
Q18 Zip code (optional)

Answered: 8 Skipped: 8

#	Responses	Date
1	83837	7/11/2016 5:09 PM
2	83837	7/9/2016 12:40 AM
3	83837	7/5/2016 5:52 PM
4	83837	7/1/2016 1:43 PM
5	83839	6/29/2016 5:20 PM
6	83837	6/29/2016 5:06 PM
7	83837	6/29/2016 4:50 PM
8	83837	6/29/2016 3:22 PM

Q19 Please specify your race

Answered: 11 Skipped: 5

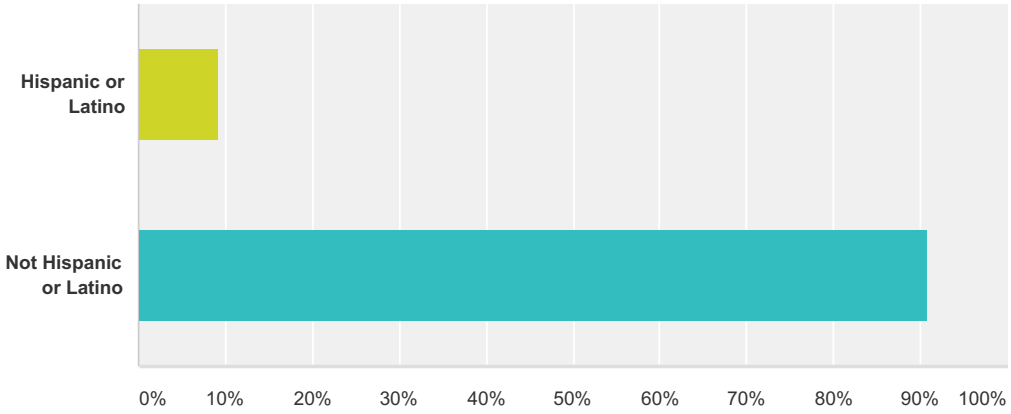


Answer Choices	Responses	
American Indian or Alaska Native	**27.27%**	3
Asian	**0.00%**	0
Black or African American	**0.00%**	0
Native Hawaiian or Other Pacific Islander	**0.00%**	0
White	**72.73%**	8
Other (please specify)	**0.00%**	0
Total		**11**

#	Other (please specify)	Date
	There are no responses.	

Q20 Please specify your ethnicity

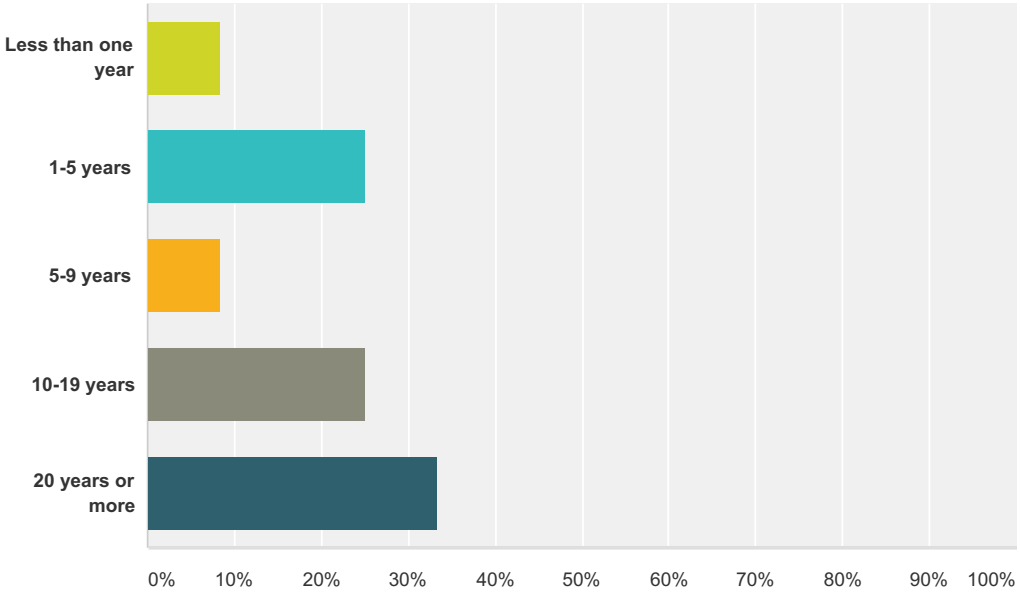
Answered: 11 Skipped: 5



Answer Choices	Responses	
Hispanic or Latino	**9.09%**	1
Not Hispanic or Latino	**90.91%**	10
Total		**11**

Q21 How long have you lived in ShoshoneCounty?

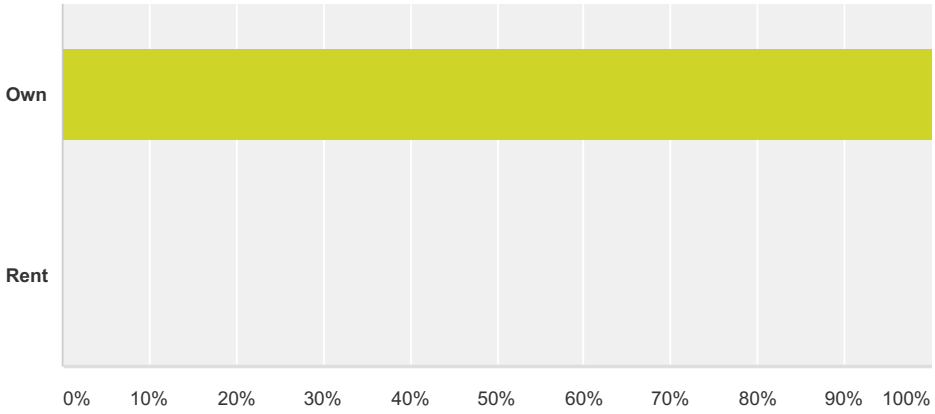
Answered: 12 Skipped: 4



Answer Choices	Responses	
Less than one year	**8.33%**	1
1-5 years	**25.00%**	3
5-9 years	**8.33%**	1
10-19 years	**25.00%**	3
20 years or more	**33.33%**	4
Total		**12**

Q22 Do you own or rent your home?

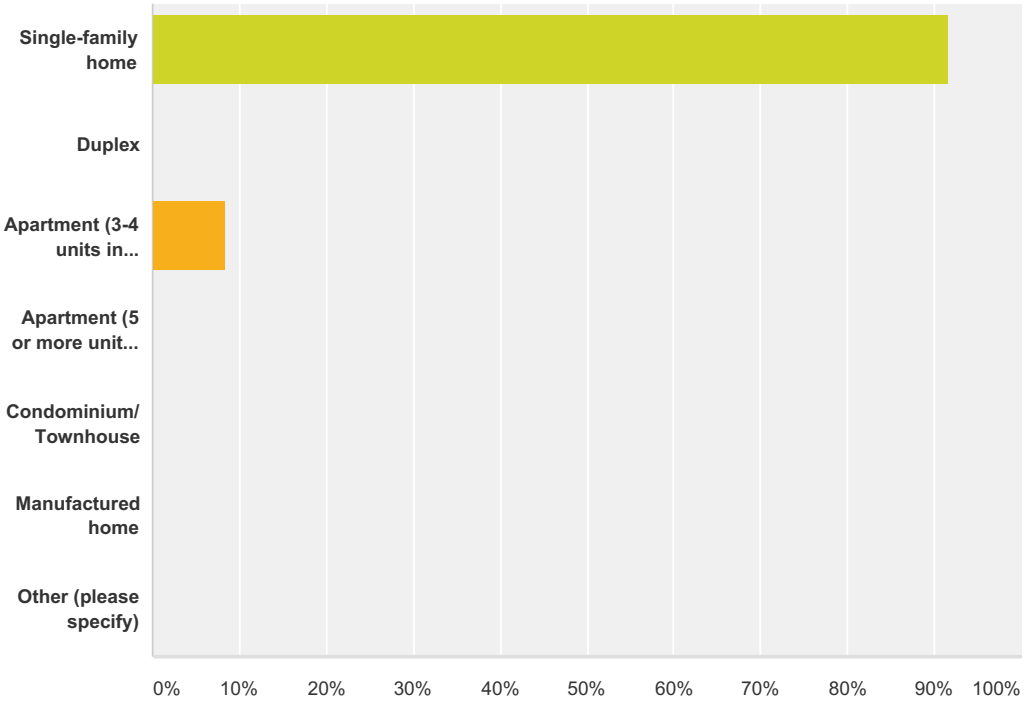
Answered: 12 Skipped: 4



Answer Choices	Responses	
Own	**100.00%**	12
Rent	**0.00%**	0
Total		**12**

Q23 Do you own/rent a

Answered: 12 Skipped: 4



Answer Choices	Responses	
Single-family home	**91.67%**	11
Duplex	**0.00%**	0
Apartment (3-4 units in structure)	**8.33%**	1
Apartment (5 or more units in structure)	**0.00%**	0
Condominium/ Townhouse	**0.00%**	0
Manufactured home	**0.00%**	0
Other (please specify)	**0.00%**	0
Total		**12**

#	Other (please specify)	Date
	There are no responses.	

Q24 Please feel free to provide any additional comments in the space provided:

Answered: 2 Skipped: 14

#	Responses	Date
1	Towns within the same County need to work for the greater good and drop the ego.	7/1/2016 1:43 PM
2	I would like to see more erosion problems taken care of along the CDA River, just below the confluence of the North and South fork. I also agree with fire mitigation but am concerned about the effects on wildlife and the garbage the mitigation crews leave in the area they work in.	6/29/2016 5:20 PM

APPENDIX F. FORMS & TEMPLATES

Appendix F collects various forms and templates. These forms and templates are designed to help update the plan throughout its five-year lifecycle.

Contents:

1. FEMA capabilities assessment template
2. Mitigation actions worksheet
3. Human and technological capabilities assessment template
4. Mitigation actions monitoring template

FEMA Capabilities Assessment Template

The goal of this template is to summarize the existing authorities, policies, programs, and additional resources that reduce hazard impacts or that can be used to implement hazard mitigation strategies.

FEMA Capabilities Assessment & Summary

Jurisdiction(s)	

Planning and Regulatory

Planning and regulatory capabilities are the plans, policies, codes, and ordinances that prevent and reduce the impacts of hazards. Please indicate which of the following your jurisdiction has in place.

Plans	Yes/No Year Pertinent Jurisdictions	Does the plan address hazards? Does the plan identify projects to include in the mitigation strategy? Can the plan be used to implement mitigation actions?
Comprehensive/Master Plan		
Capital Improvements Plan		
Economic Development Plan		
Local Emergency Operations Plan		

Continuity of Operations Plan		
Transportation Plan		
Stormwater Management Plan		
Community Wildfire Protection Plan		
Other special plans (e.g., brownfields redevelopment, disaster recovery, climate change adaptation)		
Building Code, Permitting, and Inspections	Yes/No	Are codes adequately enforced?
Building Code		Version/Year:
Building Code Effectiveness Grading Schedule (BCEGS) Score		Score:
Fire department ISO rating		Rating:
Site plan review requirements		

Land Use Planning and Ordinances	Yes/No	Is the ordinance an effective measure for reducing hazard impacts? Is the ordinance adequately administered and enforced?
Zoning ordinance		
Subdivision ordinance		
Floodplain ordinance		
Natural hazard specific ordinance (e.g., stormwater, wildfire, etc.)		
Flood insurance rate maps		
Acquisition of land for open space and public recreation use		
Other		
How can these capabilities be expanded and improved to reduce risk?		

Administrative and Technical

Identify whether your jurisdiction has the following administrative and technical capabilities. These include staff, skills, and tools that can be used for mitigation planning and to implement specific actions. For smaller jurisdictions without local staff resources, indicate available public resources at the next level of government.

Administration	Yes/No	Describe capability Is coordination effective?
Planning Commission		
Mitigation Planning Committee		

Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems, etc.)		
Mutual aid agreements		
Staff	Yes/No & FT/PT	Is staffing adequate to enforce regulations? Is staff trained on hazards and mitigations? Is coordination between agencies and staff effective?
Chief Building Official		
Floodplain Administrator		
Emergency Manager		
Community Planner		
Civil Engineer		
GIS Coordinator		
Other		

Technical	Yes/No	Describe capability Has capability been used to assess/mitigate risk in the past?
Warning systems/services (e.g., reverse 911, outdoor warning signals)		
Hazard data and information		
Grant writing		
Hazus analysis		
Other		
How can these capabilities be expanded and improved to reduce risk?		

Financial

Identify whether your jurisdiction has access to or is eligible to use the following funding resources for hazard mitigation.

Funding Resource	Access/Eligibility (Yes/No)	Has the funding resource been used in the past and for what type of activities? Could the resource be used to fund future mitigation actions?
Capital improvements project funding		
Authority to levy taxes for specific purposes		
Fees for water, sewer, gas, or electric services		
Impact fees for new development		
Stormwater utility fee		
Incur debt through general obligation bonds and/or special tax bonds		
Incur debt through private activities		
Community Development Block Grant		
Other federal funding programs		

State funding programs		
Other		
How can these capabilities be expanded and improved to reduce risk?		

Education and Outreach

Identify whether your jurisdiction has access to or is eligible to use the following funding resources for hazard mitigation.

Program/Organization	Yes/No	Describe the program/organization its relation to resilience and mitigation. Could the program/organization help implement future mitigation activities?
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, functional needs populations, etc.		
Ongoing public education or information program (e.g., responsible water use, fire safety, environmental education, etc.)		

Natural disaster or safety related school programs		
StormReady certification		
Firewise Communities certification		
Public-private partnership initiatives addressing disaster-related issues		
Other		
How can these capabilities be expanded and improved to reduce risk?		

County Capabilities Assessment Template

The goal of this template is to summarize the human and technological services available to citizens of the County including fire protection (structural and wild), highways and roads, sewer and water, administrative services, and any/all other capabilities and resources to better understand the County's ability to respond and cope with hazards. Additionally, this template allows us to evaluate any gaps in the County's capabilities.

Resources, Capabilities, and Needs Summary	
Name and position of person preparing this summary	
Local address and telephone	
Service area	
Describe your services and organization goals in overview	
List your currently available technological resources for use in responding to emergencies (e.g. list of fire protection apparatus, snow plows, search and rescue services, etc.)	

List your currently available human resources for use in responding to emergencies (e.g. detail staff by position and number, volunteers, etc.)	
List your technological resource needs for responding to hazard emergencies which are not currently in inventory (e.g. fire trucks or water tenders, fire hydrant network, radio communications network, etc.)	
List your human resource needs for responding to hazard emergencies which are not currently utilized (e.g. additional number of paid staff, more volunteers, training for volunteers and staff, etc.)	
List any other currently available resources for use in responding to emergencies not previously mentioned	
List any other resource needs for responding to hazard emergencies not previously mentioned	

Other Comments:

Mitigation Action Scoring

Mitigation Action/Project Title	
Lead & Supporting Jurisdiction(s)/Agency(ies)	
Hazard(s) Addressed	
Potential Funding Source	
Cost Estimate	
Benefits & Avoided Losses	
Timeline Estimate	

Hazard Magnitude & Frequency	
The Hazard Magnitude/Frequency rating is a combination of the recurrence period and magnitude of a hazard. The severity of the hazard being mitigated and the frequency of that event must both be considered. For example, a project mitigating a 10-year event that causes significant damage would receive a higher rating than one that mitigates a 500- year event that causes minimal damage. For a ranking of 10, the project mitigates a high frequency, high magnitude event. A 1 ranking is for a low frequency, low magnitude event. Note that only the damages being mitigated should be considered here, not the entire losses from that event.	

Potential for Repetitive Loss Reduction	
Those projects that mitigate repetitive losses receive priority consideration here. Common sense dictates that losses that occur frequently will continue to do so until the hazard is mitigated. Projects that will reduce losses that have occurred more than three times receive a rating of 10. Those that do not address repetitive losses receive a rating of 1.	

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

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

Population Benefit	
Population Benefit relates to the ability of the project to prevent the loss of life or injuries. A ranking of 10 has the potential to impact 90% or more of the people in the municipality (county, city, or district). A ranking of 5 has the potential to impact 50% of the people, and a ranking of 1 will not impact the population. In some cases, a project may not directly provide population benefits, but may lead to actions that do, such as in the case of a study. Those projects will not receive as high of a rating as one that directly effects the population, but should not be considered to have no population benefit.	

Property Benefit	
Property Benefit relates to the prevention of physical losses to structures, infrastructure, and personal property. These losses can be attributed to potential dollar losses. Similar to cost, a ranking of 10 has the potential to save $1,000,000 or more in losses. Property benefit of less than $1,000,000 will receive a score of the benefit divided by $1,000,000 (a ratio below $1 million). Therefore, a property benefit of $300,000 would receive a score of 3. In some cases, a project may not directly provide property benefits, but may lead to actions that do, such as in the case of a study. Those projects will not receive as high of a rating as one that directly effects property, but should not be considered to have no property benefit.	

Economic Benefit	
Economic Benefit is related to the savings from mitigation to the economy. This benefit includes reduction of losses in revenues, jobs, and facility shut downs. Since this benefit can be difficult to evaluate, a ranking of 5 would prevent a total economic collapse, a ranking of 3 could prevent losses to about half the economy, and a ranking of 1 would not prevent any economic losses. In some cases, a project may not directly provide economic benefits, but may lead to actions that do, such as in the case of a study. Those projects will not receive as high of a rating as one that directly affects the economy, but should not be considered to have no economic benefit.	

Project Feasibility (Environmentally, Politically, & Socially)	
Project Feasibility relates to the likelihood that such a project could be completed. Projects with low feasibility would include projects with significant environmental concerns or public opposition. A project with high feasibility has public and political support without environmental concerns. Those projects with very high feasibility would receive a ranking of 5 and those with very low would receive a ranking of 1.	

Potential to Mitigate Hazards to Future Development	
Proposed actions that can have a direct impact on the vulnerability of future development are given additional consideration. If hazards can be mitigated on the onset of the development, the County will be less vulnerable in the future. Projects that will have a significant effect on all future development receive a rating of 5. Those that do not affect development should receive a rating of 1.	

Potential Project Effectiveness & Sustainability	
Two important aspects of all projects are effectiveness and sustainability. For a project to be worthwhile, it needs to be effective and mitigate the hazard. A project that is questionable in its effectiveness will score lower in this category. Sustainability is the ability for the project to be maintained. Can the project sustain itself after grant funding is spent? Is maintenance required? If so, are or will the resources be in place to maintain the project. An action that is highly effective and sustainable will receive a ranking of 5. A project with effectiveness that is highly questionable and not easily sustained should receive a ranking of 1.	

Mitigation Monitoring Template

The goal of utilizing this template is to create a uniform compilation of progress reports to ensure that monitoring of the various County mitigation action projects are being carried out and reported on in a uniform manner throughout the project's life cycle. Please feel free to use more than this single page.

Mitigation Project Progress Report

Progress Report Period (From Date - To Date)	
Project Title (and Project ID, if any)	
Description of Project	
Implementing Agency	
Contact Name	
Contact E-mail and Phone Number	
Grant/Finance Administrator	
Total Project Cost (can be estimate)	
Anticipated Cost Overrun/Underrun	
Date of Project Approval	
Project Start Date	
Anticipated Completion Date	

What was accomplished during this reporting period?
What obstacles, problems, or delays did the project encounter, if any? How were the problems resolved?

Other Comments:

APPENDIX G. COMMUNITY WILDFIRE PROTECTION PLAN

This appendix contains the Shoshone County Community Wildfire Protection Plan (also called the Wildland-Urban Interface Wildfire Mitigation Plan) and all appendices and addendums to the CWPP.

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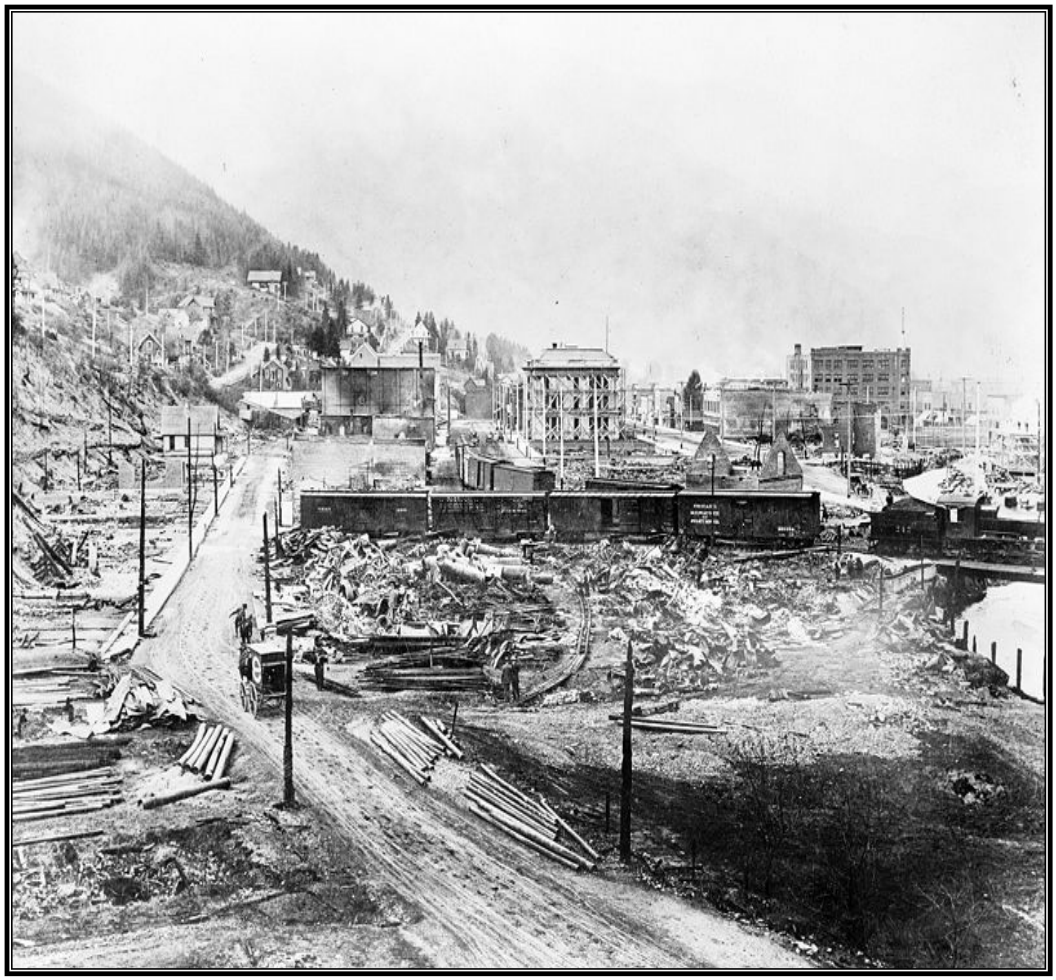
1. Shoshone County Community Wildfire Protection Plan

Shoshone County, Idaho

Community Wildfire Protection Plan

2011 Revision



Wallace, Idaho after the 1910 Fires

Adopted by the Shoshone County Board of Commissioners January 2011

This plan was developed by Shoshone County Community Wildfire Protection Plan committee.

Acknowledgments

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

To obtain copies of this plan contact:

Shoshone County Commissioners Office
Shoshone County Courthouse
700 Bank Street
Wallace, Idaho 83873-2348

Phone: 208-752-3331
Fax: 208-752-4304

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Forward

The process of developing a Community Wildfire Protection Plan (CWPP) can help a community clarify and refine its priorities for the protection of life, property, and critical infrastructure in the wildland–urban interface on both public and private land. It also can lead community members through valuable discussions regarding management options and implications for the surrounding land base. Local fire service organizations help define issues that may place the county, communities, and/or individual homes at risk. Through the collaboration process, the CWPP planning committee discusses potential solutions, funding opportunities, and regulatory concerns and documents their resulting recommendations in the CWPP. The CWPP planning process also incorporates an element for public outreach. Public involvement in the development of the document not only facilitates public input and recommendations, but also provides an educational opportunity through interaction of local wildfire specialists and an interested public.

The idea for community-based forest planning and prioritization is neither novel nor new. However, the incentive for communities to engage in comprehensive forest planning and prioritization was given new and unprecedented impetus with the enactment of the Healthy Forests Restoration Act (HFRA) in 2003. This landmark legislation includes the first meaningful statutory incentives for the US Forest Service (USFS) and the Bureau of Land Management (BLM) to give consideration to the priorities of local communities as they develop and implement forest management and hazardous fuel reduction projects. In order for a community to take full advantage of this new opportunity, it must first prepare a Community Wildfire Protection Plan (CWPP).

A countywide CWPP planning committee generally makes project recommendations based on the issue causing the wildfire risk, rather than focusing on individual landowners or organizations. Thus, projects are mapped and evaluated without regard for property boundaries, ownership, or current management. Once the CWPP is approved by the county board of commissioners, the planning committee will begin further refining proposed project boundaries, feasibility, and public outreach as well as seeking funding opportunities.

*The **Shoshone County Wildland Urban Interface Fire Mitigation Plan** was originally drafted in 2002 with project facilitation and support provided by Northwest Management, Inc. After the enactment of the HFRA in 2003, the Shoshone County WUI committee began mapping the official Wildland Urban Interface boundary, which was adopted by Shoshone County in 2004. In 2006, the committee developed a prioritized list of fuels reduction treatments that was amended to the WUI Plan. In 2008, the committee again amended the 2002 Plan to include an Appendix A (CWPP prioritized project update) and Attachment D (Firefighting Assistance Funds priority lists). The committee amended the Plan again in 2009 with updated versions of Appendix A and Attachment D.*

The 2010 Community Wildfire Protection Plan expands on the wildfire chapter of the Shoshone County Multi-Hazard Mitigation Plan, which was updated in 2009.

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Chapter 1

Overview of this Plan and its Development

This Community Wildfire Protection Plan (CWPP) for Shoshone County, Idaho, is the result of analyses, professional collaboration, and assessments of wildfire risks and other factors focused on reducing wildfire threats to people, structures, infrastructure, and unique ecosystems in Shoshone County. Agencies and organizations that participated in the planning process included:

- Avista Corporation
- City of Kellogg
- City of Mullan
- City of Osburn
- City of Pinehurst
- City of Smelterville
- City of Wallace
- City of Wardner
- Clearwater-Potlatch Timber Protective Association
- Idaho Department of Lands
- Northwest Management, Inc.
- Prichard/Murray Volunteer Fire Department
- Shoshone County Commissioners and County Departments
- Shoshone County Fire District №1
- Shoshone County Fire District №2
- Shoshone County Fire District №3/Mullan Volunteer Fire Department
- Shoshone County Fire District №4
- Silver Valley Economic Development Corporation
- USDA Forest Service
- USDI Bureau of Land Management

Northwest Management, Inc. of Moscow, Idaho was selected to assist the planning committee by facilitating meetings, leading the assessments, and authoring the document. John Specht, Shoshone County Emergency Management, served as the lead for Shoshone County. The project co-managers from Northwest Management, Inc. were Mr. Vaiden Bloch and Mrs. Tera R. King.

Goals and Guiding Principles

Planning Philosophy and Goals

The goals of the planning process include integration with the National Fire Plan, the Healthy Forests Restoration Act, and the Disaster Mitigation Act. The plan utilizes the best and most appropriate science from all partners as well as local and regional knowledge about wildfire risks and fire behavior while meeting the needs of local citizens and recognizing the significance wildfire can have to the regional economy.

Goal Statement

It is Shoshone County's goal to reduce the rate of spread and acres of land burned by forest fires through the implementation of targeted fuel mitigation treatments where the landscape has the potential to sustain fires that threaten communities and other assets in the wildland urban interface.

Objectives

1. Identify high risk areas for fire ignition
2. Locate landscape features with a high risk for rapid fire spread
3. Identify significant concentrations of home sites and other buildings at risk to wildfire and develop feasible solutions to mitigate the risk
4. Determine areas where continued mitigation efforts should be focused
5. Develop risk reduction action items

United States Government Accountability Office (GAO)

Since 1984, wildland fires have burned an average of more than 850 homes each year in the United States and, because more people are moving into fire-prone areas bordering wildlands, the number of homes at risk is likely to grow. The primary responsibility for ensuring that preventative steps are taken to protect homes lies with homeowners. Although losses from fires made up only 2 percent of all insured catastrophic losses from 1983 to 2002, fires can result in billions of dollars in damages.

GAO was asked to assess, among other issues, (1) measures that can help protect structures from wildland fires, (2) factors affecting use of protective measures, and (3) the role technology plays in improving firefighting agencies' ability to communicate during wildland fires.

The two most effective measures for protecting structures from wildland fires are: (1) creating and maintaining a buffer, called defensible space, from 30 to 100 feet wide around a structure, where vegetation and other flammable objects are reduced or eliminated; and (2) using fire-resistant roofs and vents. In addition to roofs and vents, other technologies – such as fire-resistant windows and building materials, chemical agents, sprinklers, and geographic information systems mapping – can help in protecting structures and communities, but they play a secondary role.

Although protective measures are available, many property owners have not adopted them because of the time or expense involved, competing concerns such as aesthetics or privacy, misperceptions about wildland fire risks, and lack of awareness of their shared responsibility for fire protection. Federal, state, and local governments, as well as other organizations, are attempting to increase property owners' use of protective measures through education, direct monetary assistance, and laws requiring such measures. In addition, some insurance companies have begun to direct property owners in high risk areas to take protective steps[1].

[1] United States Government Accountability Office. Technology Assessment – Protecting Structures and Improving Communications during Wildland Fires. Report to Congressional Requesters. GAO-05-380. April 2005.

State and Federal CWPP Guidelines

This Community Wildfire Protection Plan will include compatibility with FEMA requirements for a Hazard Mitigation Plan, while also adhering to the guidelines proposed in the National Fire Plan, and the Healthy Forests Restoration Act (2004). This Community Wildfire Protection Plan has been prepared in compliance with:

- The National Fire Plan: A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment 10-Year Comprehensive Strategy Implementation Plan (December 2006).
- Healthy Forests Restoration Act (2003).
- The Federal Emergency Management Agency's Region 10 guidelines for a Local Hazard Mitigation Plan as defined in 44 CFR parts 201 and 206, and as related to a fire mitigation plan chapter of a Multi-Hazard Mitigation Plan.
- National Association of State Foresters – guidance on identification and prioritizing of treatments between communities (2003).

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

Additional information detailing the state and federal guidelines used in the development of the Shoshone County Community Wildfire Protection Plan is included in Appendix 6.

Integration with Other Local Planning Documents

During development of this Community Wildfire Protection Plan, several planning and management documents were reviewed in order to avoid conflicting goals and objectives. Existing programs and policies were reviewed in order to identify those that may weaken or enhance the mitigation objectives outlined in this document. The following sections identify and briefly describe some of the existing Shoshone County planning documents and ordinances considered during development of this plan.

Shoshone County Multi-Jurisdictional Hazards Mitigation Plan

The Shoshone County Multi-Jurisdictional Hazards Mitigation Plan (MHMP)[2] provides an in-depth risk assessment for several major natural hazards that pose risks to the County. The primary objectives of the MHMP are to reduce the negative impacts of future disasters on the community, to enhance life safety, increase public awareness, protect natural systems, and build partnerships. Numerous action items are recommended the MHMP to mitigate hazard risk in each jurisdiction.

[2] Shoshone County, Idaho. 2009. Shoshone County Multi-Jurisdictional Hazards Mitigation Plan. TerraGraphics Environmental Engineering, Inc. Moscow, Idaho.

Shoshone County Comprehensive Plan

The Shoshone County Comprehensive Plan[3] is was drafted in 1996. The existing Plan was adopted as last amended in 2004. The document outlines a pattern of growth for the County that is compatible with community traditions, values, and vision for the future. The Comprehensive Plan serves as a basis for ordinances and regulations that will achieve the overall goals identified through the active participation of county residents.

Shoshone County Emergency Operations Plan

The Shoshone County Emergency Operations Plan[4] is a set of guidelines and procedures developed to assist in the emergency response effort within the County. It reflects the National Response Framework and incorporates guidance from the Federal Emergency Management Agency as well as lessons learned from disasters and emergencies that have threatened Shoshone County in the past. The Emergency Operations Plan applies to all emergency response elements, government agencies, and disaster relief organizations and agencies supporting Shoshone County emergency operations.

Shoshone County Subdivision Regulations

Ordinance No. 139[5], Subdivision Regulations, proposes regulations to promote the public comfort, welfare, and safety. The ordinance specifies prior to construction, subdivisions proposed in timbered areas require a Wildfire Mitigation Plan. Additionally, there are provisions for providing fire protection infrastructure, allows fire department officials to be on the County's Technical Review committee, and provides for road gradient standards.

Shoshone County Forest Health Collaborative Operations Manual

The Shoshone County Forest Health Collaborative (SCC) Operations Manual[6] outlines the organizational structure, communications, and decision making processes of the Collaborative. The SCC's mission is to ensure the public health, safety and welfare, and protection of Shoshone County residents and property from wildfire through science-based consideration of ecosystem components; and to promote a sustainable ecosystem, economic viability, and quality of life through collaboration.

Bureau of Land Management Coeur d'Alene District Fire Management Plan

The Bureau of Land Management's Coeur d'Alene District Fire Management Plan[7] (FMP) identifies resource values and conditions pertaining to fire management. The FMP contains

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[3] Shoshone County, Idaho. 1996. Shoshone County Comprehensive Plan. Shoshone County Board of Commissioners. Wallace, Idaho.

[4] Shoshone County, Idaho. 2008. Shoshone County Emergency Operations Plan. Shoshone County Board of Commissioners. Wallace, Idaho.

[5] 2009. *Ordinance No. 139, Subdivision Regulations in the Unincorporated Areas of Shoshone County*. Shoshone County Board of Commissioners. Wallace, Idaho. December 2009. Available online at http://www.shoshonecounty.org/index.php?option=com_content&view=article&id=52&Itemid=86.

[6] Shoshone County Forest Health Collaborative. 2010. Operations Manual: Organization Structure, Communication, and Decision Making Process. Published May 2010.

[7] USDI Bureau of Land Management. 2010. Fire Management Plan. Coeur d'Alene District. Coeur d'Alene, Idaho. June 2010.

strategic and operational element that describe how to manage applicable fire program components such as unplanned ignitions, wildland fire for resource benefit, hazardous fuels and vegetation management, non-fire fuels treatment, burned area emergency stabilization and rehabilitation, community interactions and collaborative partnership roles, and monitoring and evaluation programs.

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Chapter 2

Documenting the Planning Process

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

Description of the Planning Process

The Shoshone County Community Wildfire Protection Plan was developed through a collaborative process involving all of the organizations and agencies detailed in Chapter 1 of this document. The planning process included five distinct phases which were in some cases sequential (step 1 then step 2) and in some cases intermixed (step 4 completed throughout the process):

1. **Collection of Data** about the extent and periodicity of the wildfire hazard in and around Shoshone County.
2. **Field Observations and Estimations** about risks, location of structures and infrastructure relative to risk areas, access, and potential treatments.
3. **Mapping** of data relevant to pre-wildfire mitigation and treatments, structures, resource values, infrastructure, risk assessments, and related data.
4. **Facilitation of Public Involvement** from the formation of the planning committee to news releases, public meetings, public mail surveys, public review of draft documents, and acknowledgement of the final plan by the signatory representatives.
5. **Analysis and Drafting of the Report** to integrate the results of the planning process, provide ample review and integration of committee and public input, and signing of the final document.

The Planning Team

Leading the planning effort from Shoshone County was John Specht, Shoshone County Emergency Manager, and Henry Nipp, Shoshone County Fire Mitigation Coordinator. Additional partners included local communities, fire departments, federal and state agencies, and others.

The planning philosophy employed in this project included the open and free sharing of information with interested parties. Information from federal, state, and local agencies was integrated into the database of knowledge used in this project. Meetings with the committee were held throughout the planning process to facilitate a sharing of information between participants. When the public meetings were held, many of the committee members were in attendance and shared their support and experiences and their interpretations of the results.

Multi-Jurisdictional Participation

44 CFR §201.6(a)(3) calls for multi-jurisdictional planning in the development of Hazard Mitigation Plans which impact multiple jurisdictions. This Community Wildfire Protection Plan impacts the following jurisdictions:

- Shoshone County
- City of Kellogg
- City of Mullan
- City of Osburn
- City of Pinehurst
- City of Smelterville
- City of Wallace
- City of Wardner
- Clearwater-Potlatch Timber Protective Association
- Prichard/Murray Volunteer Fire Department, Inc.
- Shoshone County Fire District №1
- Shoshone County Fire District №2
- Shoshone County Fire District №3/ Mullan Volunteer Fire Department
- Shoshone County Fire District №4
- USDA Forest Service
- USDI Bureau of Land Management
- Idaho Department of Lands

These jurisdictions were represented on the planning committee and in public meetings either directly or through their servicing fire department or district. They participated in the development of hazard profiles, risk assessments, and mitigation measures. The planning committee meetings were the primary venue for authenticating the planning record. However, additional input was gathered from each jurisdiction in the following ways:

- Planning committee leadership visits to local group meetings (e.g. county departmental meetings, city council meetings, local emergency planning commission, planning commission meetings) where planning updates were provided and information was exchanged.
- One-on-one visits between the planning committee leadership and representatives of the participating jurisdictions (e.g. meetings with county commissioners, city councilors and/or mayors, fire district commissioners, or community leaders).
- Written correspondence between the planning committee leadership and each jurisdiction updating the participating representatives on the planning process, making requests for information, and facilitating feedback.

Like other areas of Idaho and the United States, Shoshone County's human resources have many demands placed on them in terms of time and availability. A few of the elected officials (county commissioners, city mayors, and fire chiefs) do not serve in a full-time capacity; some of them have other employment and serve the community through a convention of community service. Recognizing this and other time constraints, many of the jurisdictions decided to identify a representative to cooperate on the planning committee and then report back to the remainder of their organization on the process and serve as a conduit between the planning committee and the jurisdiction.

Planning Committee Meetings

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

NAME	ORGANIZATION
Bob Burke	Idaho Department of Lands
Bonnie England	Shoshone County Fire Mitigation
Brian White	Bureau of Land Management
Charles Mooney	City of Osburn
Chuck Reynolds	Mullan Volunteer Fire Department/Shoshone County Fire District №3
Chuck Wardell	Silver Valley Economic Development Corporation
Dale Costa	Shoshone County Fire District №2
Dan Martinsen	Shoshone County Planning and Zoning
Henry Nipp	Shoshone County Fire Mitigation
James Cleveland	Prichard-Murray Volunteer Fire Department
Jim Walcker	Shoshone County Fire District №1
John Pollard	US Forest Service
John Specht	Shoshone County Emergency Management
Jon Cantamessa	Shoshone County Commission
Kim Johnson	US Forest Service
Kjell Truesdell	Idaho Department of Lands
Kurt Naccarato	Idaho Department of Lands
Kurt Pindel	Bureau of Land Management
Larry Kaiser	Bureau of Land Management
Len Young	Idaho Department of Lands
Lonnie Newton	Bureau of Land Management
M. Dunnigan	City of Mullan
Mary Fritz	Idaho Department of Lands
Sarah Jerome	US Forest Service
Sharon Vore	Avista Corporation
Shawn Pearson	US Forest Service
Tera King	Northwest Management, Inc.
Tom Paulson	Idaho Department of Lands
Vaiden Bloch	Northwest Management, Inc.
Vince Rinaldi	Shoshone County Commission
Walter Hadley	City of Kellogg

Committee Meeting Minutes

Committee meetings were scheduled and held from July 2010 through November 2010. These meetings served to facilitate the sharing of information and to lay the groundwork for the updated Shoshone County CWPP. Northwest Management, Inc. as well as other planning committee leadership attended the meetings to provide the group with regular updates on the progress of the document and gather any additional information needed to complete the Plan.

Planning committee meeting minutes are included in Appendix 2.

Public Involvement

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

News Releases

Under the auspices of the Shoshone County Commissioners, periodic press releases were submitted to the *Shoshone News Press* and the *St. Maries Gazette*. Informative flyers were also distributed around town and to local offices within the communities by the committee members.

Figure 2.1. Sample Press Release.

SHOSHONE COUNTY PLANS TO REDUCE WILDFIRE RISK WITH COMMUNITY WILDFIRE PROTECTION PLAN UPDATE

Shoshone County has launched the process of updating their county-level Community Wildfire Protection Plan (CWPP), which was originally developed in 2002. Local agencies and organizations in Shoshone County are working with Wildland Urban Interface (WUI) planning committee to complete the Community Wildfire Protection Plan update as part of the National Fire Plan and Healthy Forests Restoration Act. The revised Shoshone County CWPP will include risk analysis at the community level with predictive models indicating where fires are likely to ignite and their potential for spread. Northwest Management, Inc. has been retained by Shoshone County to provide wildfire risk assessments, mapping, field inspections, interviews, and to collaborate with the committee to prepare the Plan. The committee includes representatives from rural and wildland fire districts, Idaho Department of Lands, U.S Forest Service, Bureau of Land Management, private land managers, city representatives, and various Shoshone County departments.

The intention of the project is to conduct analyses of fire prone landscapes and make recommendations specific to rural homes, structures, and infrastructure. Some of the goals of this project are to:

- Continue reducing the wildfire risk to Shoshone County residents,
- Improve awareness of wildland fire issues locally,
- Identify high fire risk areas and develop strategies to reduce this risk, and
- Improve accessibility of funding assistance to achieve these goals.

The planning team will be conducting public meetings to discuss preliminary findings and to seek public involvement in the planning process early this fall. A notice of the dates and locations of these meetings will be posted in local newspapers. Once completed, the draft Plan will also be available for public review and comment.

For more information on the Community Wildfire Protection Plan Update in Shoshone County, contact John Specht, Shoshone County Emergency Manager, at 208-512-4555.

Public Meetings

Public meetings were scheduled in several communities during the hazard assessment phase of the planning process to share information on the Plan, obtain input on the details of the hazard assessments, and discuss potential mitigation treatments. Attendees at the public meetings were asked to give their impressions of the accuracy of the information generated and provide their opinions of potential treatments.

The schedule of public meetings in Shoshone County included 3 locations; Wallace, Smelterville, and Avery. They were attended by a number of individuals on the committee and from the general public. The public meeting announcement sent to the local newspapers, local citizen participation organizations, county departments, fire district representatives, and distributed by committee members is included below in Figure 2.2.

Figure 2.2. Public Meeting Flyer.

Shoshone County, Idaho

Community Wildfire Protection Plan Update

Public Meetings!

Smelterville: Tuesday, September 28 - USFS Office (173 Commerce Dr) at 6:30
Avery: Wednesday, September 29 - Community Center (10 Depot Road) at 6:30
Wallace: Thursday, September 30 - Elks Lodge (419 Cedar St) at 6:30pm

These public meetings will address the **Community Wildfire Protection Plan** being updated for Shoshone County. Public input is being sought to better understand the vulnerability of County residents, businesses, and resources to wildfire. The purpose of this plan is to promote awareness of the countywide wildland fire hazard and propose workable solutions to reduce the wildfire risk.

The planning committee is working on:
- Reviewing the 2004 Wildland Urban Interface map for Shoshone County
- Improving public awareness and educating the public about wildfire risk
- Evaluating strategies for landowners to lessen wildfire potential
- Developing inventories of public and private critical infrastructure
- Recommending new fuels reduction and wildfire risk mitigation projects

Ulm Peak Fire 2006

Carbon Creek Fire

These meetings are open to the public and will include slideshow presentations by wildfire specialists and local personnel working to develop the plan.

Learn about the assessments of wildfire risk and the wildland urban interface of Shoshone County. Discuss *YOUR* priorities for how our community can best mitigate these risks.

Please attend and participate!

The planning committee would like to provide the opportunity for meaningful discussions among community members and local, state, and federal government representatives regarding their priorities for local fire protection and forest management.

For more information on the Community Wildfire Protection Plan project, contact John Specht, Shoshone County Emergency Manager, at 208-512-4555 or Tera King at Northwest Management, Inc. 208-883-4488 ext 133.

Documented Review Process

Review and comment on this plan has been provided through a number of avenues for the committee members as well as the members of the general public.

During regularly scheduled committee meetings in the summer and fall of 2010, the committee met to discuss findings, review mapping and analysis, and provide written comments on draft sections of the document. During the public meetings, attendees observed map analyses and photographic collections, discussed general findings from the community assessments, and made recommendations on potential project areas.

The first draft of the document was prepared after the public meetings and presented to the committee on November 3rd, 2010 for a full committee review. The committee was given one month to provide comments to the plan.

Continued Public Involvement

Shoshone County is dedicated to involving the public directly in review and updates of this Community Wildfire Protection Plan. The Shoshone County Commissioners, working through the CWPP planning committee, are responsible for review and update of the plan as recommended in chapter 6 of this document.

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

A public meeting will also be held as part of each annual evaluation or when deemed necessary by the planning committee. The meetings will provide the public a forum for which they can express its concerns, opinions, or ideas about the Plan. The County Commissioner's office will be responsible for using county resources to publicize the annual public meetings and maintain public involvement through the public access channel, webpage, and newspapers.

Chapter 3

Shoshone County Characteristics

Information summarized from the Shoshone County Area, Idaho soil survey manuscript.[8]

Shoshone County, Idaho is in the northeastern part of the Idaho Panhandle and home to the Silver Valley, one of the nation's greatest mining regions. Mining is and almost always has been the county's best known industry. Rugged mountains are present throughout Shoshone County. These mountains contain an abundance of natural resources including timber, water, and minerals.

Shoshone County is bounded by the Rocky Mountain western crest on the east side of the county, coinciding with the Idaho/Montana state line. Moving from the southern Shoshone County boundary clockwise, Shoshone County borders the Idaho Counties of Clearwater County, Latah County, Benewah County, Kootenai County, and Bonner County.

Geography and Climate

Three major river drainages dominate the landscape of the county; the St. Maries River and the St. Joe River in the south and multiple forks of the Coeur d'Alene River draining the north end of the county. Major population centers in the area are Kellogg, Mullan, Osburn, Pinehurst, Smelterville, Wallace, and Wardner. Elevation ranges from about 2,126 feet above sea level along the western boundary of the county at the St. Joe River to about 7,664 feet above sea level at Illinois Peak along the Idaho/Montana Border.

Information in the following sections was excerpted from the Shoshone County Multi-Jurisdictional Hazards Mitigation Plan.[9]

The Rocky Mountain western foothills continental climatic conditions prevail in much of Shoshone County. This weather pattern carries storm systems from the Pacific Ocean onto the continent, crossing the high Rocky Mountain crest along the eastern edge of Shoshone County. Because of this pattern, precipitation can be heavy at times and is frequently accompanied by high winds and extreme temperature variations. The average annual total precipitation ranges from 31 inches to nearly 39 inches per year. Temperature variations on a monthly basis range from a low of 18º F (average January temperature in Wallace and Clarkia) to an average high of 85º F (average July temperature in Kellogg).

Population and Demographics

The population of Shoshone County in 2007 is estimated at 12,838 and has experienced a 7% decline since 2000 when it was estimated at 13,771. Individual communities within Shoshone County have witnessed population changes of similar magnitudes.

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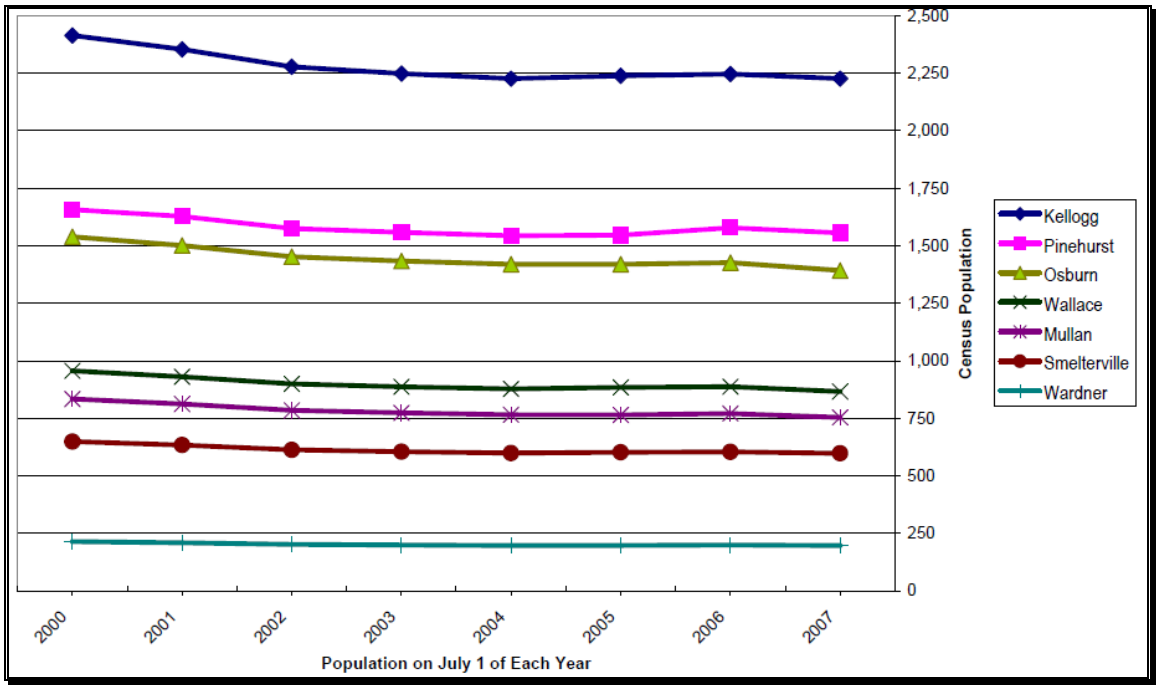
[8] Barker, Raymond J. 1981. United States Department of Agriculture Soil Conservation Service. University of Idaho, College of Agriculture. Idaho Soil Conservation Commission.

[9] Shoshone County, Idaho. 2009. Shoshone County Multi-Jurisdictional Hazards Mitigation Plan. TerraGraphics Environmental Engineering, Inc. Moscow, Idaho.

Figure 3.1 Estimated Population of Shoshone County Municipalities 2000-2007.



The vast majority of Shoshone County populated places have concentrated urban development on the valley bottoms where construction is easier. Shoshone County was established in 1864 and named after the Shoshone Indian Tribe. The Silver Valley is famous nationwide for the vast amounts of silver produced from its mines.

As of the 2000 census, there were 13,771 people, 5,906 households, and 3,856 families residing in the county. The population density was 5 people per square mile. There were 7,057 housing units at an average density of 3 per square mile. The racial makeup of the county was 95.84% White, 0.11% Black or African American, 1.52% Native American, 0.23% Asian, 0.07% Pacific Islander, 0.49% from other races, and 1.74% from two or more races. Approximately 1.93% of the population were Hispanic or Latino of any race, 22.1% were of German, 14.0% American, 11.3% English, 9.7% Irish and 5.9% Norwegian ancestry.

Out of the 5,906 households in the county, about 27% contained children under the age of 18, 52.70% contained married couples living together, 8.10% had a female householder with no husband present, and 34.70% were designated as non-families. Individuals made up 29.40% of all households and 13.60% had someone living alone who was 65 years of age or older. The average household size was 2.30 and the average family size was 2.82. By age class, the population was spread out with 22.90% under the age of 18, 6.70% from 18 to 24; 25.50% from 25 to 44; 27.40% from 45 to 64; and 17.40% who were 65 years of age or older. The median age was 42 years.

In 2000, the median income for a household in the county was $28,535, and the median income for a family was $35,694. Males had a median income of $30,439 versus $18,831 for females. The per capita income for the county was $15,934. About 12.40% of families and 16.40% of the population were below the poverty line, including 21.80% of those under age 18 and 10.00% of those over 65.

Land Ownership

The total area of Shoshone County is 1,682,327 acres (2,628.6 square miles), making it the eighth largest land area county in Idaho. This also makes Shoshone County slightly larger than the entire State of Delaware (2,489 square miles), and 70% larger than the State of Rhode Island (1,545 square miles).

Landownership in Shoshone County is dominated by federal ownership, mainly by the USFS and the BLM, who together manage approximately 76% of the land area in Shoshone County. Private land holdings (66,272 acres) occupy slightly more than State of Idaho Department of Lands managed forests (61,680 acres) at about 4% of the total land area each. Significant land holdings are managed by forest industry in Shoshone County with 263,220 acres (16%). Although this latter category is considered a form of private lands, they have been evaluated separately. [10]

Table 3.1. Ownership Categories in Shoshone County

Landowner	Acres	Percent
City	1	<1%
City/County	1,604	<1%
Coeur d'Alene Tribe	402	<1%
EPA	258	<1%
Fish and Game	1,2578	<1%
Forest Industry	263,220	16%
Private	66,272	4%
State of Idaho	61,680	4%
USDA Forest Service	1,204,823	72%
USDI Bureau of Land Management	71,490	4%
Total	**1,682,328**	**100%**

Natural Resources

Shoshone County is a diverse ecosystem with a complex array of vegetation, wildlife, and fisheries that have developed with, and adapted to fire as a natural disturbance process. Nearly a century of wildland fire suppression coupled with past land-use practices (primarily timber harvesting and mining) has altered plant community succession and has resulted in dramatic shifts in the fire regimes and species composition. As a result, some forests in Shoshone County have become more susceptible to large-scale, high-intensity fires posing a threat to life, property, and natural resources including wildlife and plant populations. High-intensity, stand-replacing fires have the potential to seriously damage soils, native vegetation, and fish and wildlife populations. In addition, an increase in the number of large, high-intensity fires throughout the nation's forest and rangelands has resulted in significant safety risks to firefighters and higher costs for fire suppression.

[10] Shoshone County, Idaho. 2009. Shoshone County Multi-Jurisdictional Hazards Mitigation Plan. TerraGraphics Environmental Engineering, Inc. Moscow, Idaho.

Biota

Fish and Wildlife – Shoshone County is home to a diverse array of fish and wildlife species. Shoshone County streams provide habitat for native trout and char, including populations that are listed as threatened under the federal Endangered Species Act. Forestlands and interface areas are important habitat for many species of birds and mammals.

Vegetation - In the early 1800s (pre-European settlement), the landscape in Shoshone County was strikingly different than that which is seen today. Conditions mirrored those found throughout the Rocky Mountain region and northern Idaho. Conifer forests on rugged mountain slopes dominated the vegetation throughout Shoshone County. The forested areas contained a wide diversity of tree species the most predominant of which were ponderosa pine, Douglas-fir, lodgepole pine, western larch, western white pine, grand fir, and western red cedar.

The National Land Cover Database was used to assess the natural vegetation in Shoshone County. The classification of evergreen forest and scrub/shrub lands comprise an overwhelming 99% of the county. Only a small trace of land area in Shoshone County is agricultural land and much of this is located along the river systems. Most of this agricultural land is used for pasture and hay to feed livestock. Populated places in Shoshone County occupy a small percent of the total area, but sum to approximately 7,900 acres (including the high, medium, and low intensity developed areas in combination with developed open space). Much of these populated areas are located in the valleys of the major river systems including the Coeur d'Alene River (especially the South Fork), the St. Joe River, and to a lesser extent, the St. Maries River system.

Table 3.2. Vegetative Cover Types in Shoshone County

Land Cover	Acres	Percent of Total Area
Evergreen Forest	1,310,280	78%
Shrub/Scrub	345,013	21%
Grassland/Herbaceous	7,128	<1%
Emergency Herbaceous Wetlands	7,095	<1%
Developed Open Space	3,520	<1%
Developed Low Intensity	2,346	<1%
Developed Medium Intensity	1,790	<1%
Woody Wetlands	1,490	<1%
Barren Land	1,304	<1%
Open Water	989	<1%
Pasture/Hay	498	<1%
Deciduous Forest	408	<1%
Developed High Intensity	220	<1%
Mixed Forest	203	<1%
Cultivated Crops	30	<1%
Perennial Ice/Snow	12	<1%
Total	**1,682,326**	**100%**

Hydrology

Shoshone County depends heavily on groundwater for private wells, public drinking water, irrigation, industrial operations, and other beneficial uses. The Idaho Water Resource Board (IWRB) is charged with the development of the Idaho Comprehensive State Water Plan. Included in the State Water Plan are the statewide water policy plan and component basin and

water body plans which cover specific geographic areas of the state.[11] The Idaho Department of Water Resources has prepared General Lithologies of the Major Ground Water Flow Systems in Idaho. Much of the Silver Valley is designated as part of the Coeur d'Alene River-Silver Valley groundwater flow system by the IWRB.[12] The state may assign or designate beneficial uses for particular Idaho water bodies to support. These beneficial uses are identified in sections 3.35 and 100.01 - .05 of the Idaho water quality standards.

Air Quality

The primary means by which the protection and enhancement of air quality is accomplished is through implementation of National Ambient Air Quality Standards (NAAQS). These standards address six pollutants known to harm human health including ozone, carbon monoxide, particulate matter, sulfur dioxide, lead, and nitrogen oxides.[13]

The Clean Air Act, passed in 1963 and amended in 1977, is the primary legal authority governing air resource management. The Clean Air Act provides the principal framework for national, state, and local efforts to protect air quality. Under the Clean Air Act, the Organization for Air Quality Protection Standards (OAQPS) is responsible for setting the NAAQS standards for pollutants which are considered harmful to people and the environment. OAQPS is also responsible for ensuring these air quality standards are met, or attained (in cooperation with state, Tribal, and local governments) through national standards and strategies to control pollutant emissions from automobiles, factories, and other sources.[14]

Smoke emissions from fires potentially affect an area and the airsheds that surround it. Climatic conditions affecting air quality in Idaho are governed by a combination of factors. Large-scale influences include latitude, altitude, prevailing hemispheric wind patterns, and mountain barriers. At a smaller scale, topography and vegetation cover also affect air movement patterns. Locally adverse conditions can result from occasional wildland fires in the summer and fall, and prescribed fire and agricultural burning in the spring and fall.

Due principally to local wind patterns, air quality in Shoshone County is generally good, rarely falling below IDEQ pollution standards. Emissions from motor vehicles are the primary and most persistent cause of the degradation of local air and noise quality. Occasional intrusions of smoke from field and slash burning and the use of wood stoves also occur.

Forestland burning in Shoshone County is regulated by the Montana/Idaho Airshed Management Group. The northern half of the county is within Airshed 11 and the southern half makes up a portion of Airshed 12b. Currently, a small area surround the community of Pinehurst is the only

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[11] IDEQ (Idaho Department of Environmental Quality). 2003. Rules of the Department of Environmental Quality, IDAPA 58.01.02, "Water Quality Standards and Wastewater Treatment Requirements". Idaho Administrative Code (3-20-97), IDAPA 58.01.02, Boise, Idaho.

[12] Graham, William G. and Linford J. Campbell. 1981. Groundwater Resources of Idaho. Idaho Department of Water Resources. Statehouse. Boise, Idaho. Available online at http://www.idwr.idaho.gov/WaterInformation/Publications/misc/Ground_Water_Resources_ID.pdf.

[13] USDA-Forest Service (United States Department of Agriculture, Forest Service). 2000. Incorporating Air Quality Effects of Wildland Fire Management into Forest Plan Revisions – A Desk Guide. April 2000. – Draft.

[14] Louks, B. 2001. Air Quality PM 10 Air Quality Monitoring Point Source Emissions; Point site locations of DEQ/EPA Air monitoring locations with Monitoring type and Pollutant. Idaho Department of Environmental Quality. Feb. 2001. As GIS Data set. Boise, Idaho.

listed Impact Zone in the county. Impact Zones are defined as areas where smoke is likely to be a problem because of local topography, meteorology, or other factors. Areas with existing air quality problems that smoke could exacerbate may also be designated as an Impact Zone.[15]

Summary of Superfund Status in the Silver Valley

Information in this section was excerpted from the Shoshone County Multi-Jurisdictional Hazards Mitigation Plan.[16]

The Bunker Hill Mining and Metallurgical Complex is a Superfund Site located in the Coeur d'Alene River Basin situated in approximately the center of Shoshone County and includes three Operable Units (OU). A century of releases from mining and smelting activities left several thousand acres contaminated with heavy metals. The most significant contaminants are antimony, arsenic, cadmium, copper, lead, mercury, and zinc. The principal sources of unconfined metal contamination were emissions from smelting operations and discharge of mine/mill tailings and waste rock to the South Fork Coeur d'Alene River and its tributaries.

Several million tons of tailings were confined in large waste piles on-site or used as aggregate and fill in widespread construction activities. Tailings discharged to local streams have heavily contaminated approximately 1,100 acres of the floodplain. These wastes were subsequently transported throughout the area by flooding, erosion, wind, and anthropogenic activities. Decades of sulfur oxide emissions from smelter operations and extensive logging denuded the adjacent hillsides resulting in severe erosion.

This site was added to the National Priority List in 1983 due to the widespread heavy metal contamination and consequent excess blood lead levels identified in area children. An approximate 21 square mile area, commonly referred to as the Bunker Hill Box (the Box), contains the original OUs 1 and 2. The greater Coeur d'Alene River Basin surrounding the Box is OU3. The Populated Areas (i.e., OU1) Record of Decision (ROD) was adopted in 1991 and the Non-Populated Areas ROD (OU2) was adopted in 1992. The Basin (OU3) ROD was signed a decade later in 2002.

The risk management strategy adopted in the RODs was to achieve exposure reductions through replacement and/or cover of contaminated soil, dust, and waste piles with clean soils. In residential and common use areas such as parks and schools, this meant 6 to 12 inches of contaminated soils were removed, placed in repositories on-site, and capped with clean soils. The Institutional Controls Program (ICP) was adopted to ensure the long-term integrity of these clean material barriers, and the Lead Health Intervention Program (LHIP) was implemented to minimize exposure through targeted intervention efforts in the interim . The Panhandle Health District (PHD) adopted the ICP in 1995 and currently administers the ICP for the Bunker Hill Superfund site. The ICP was expanded into the Basin in July 2007. Under ICP rules, PHD is directed to require homeowners to repair their own barrier, once established, in order to control contaminant migration and exposure. Numerous documents have been prepared that describe the Bunker Hill Superfund site in more detail, particularly related to its location, background and

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[15] Montana/Idaho Airshed Management Group. 2010. Montana/Idaho Airshed Management System. Available online at http://www.smokemu.org/.

[16] Shoshone County, Idaho. 2009. Shoshone County Multi-Jurisdictional Hazards Mitigation Plan. TerraGraphics Environmental Engineering, Inc. Moscow, Idaho.

history: the Five Year Reviews, the RODs, and the NAS review of mining megasites only name a few.

The extent and nature of the cleanup that has occurred and is currently ongoing at the Bunker Hill Superfund Site present special considerations for Shoshone County. Hazard mitigation, especially flood control, must be considered in the context of protecting the environmental cleanup actions taken under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as well as mitigating traditional flooding impacts to homes, businesses, and infrastructure.

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Chapter 4

Risk and Preparedness Assessments

Wildland Fire Characteristics

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

A brief description of each of the fire environment elements follows in order to illustrate their affect on fire behavior.

Weather

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

Topography

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

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

Fuels

Fuel is any material that can ignite and burn. Fuels describe any organic material, dead or alive, found in the fire environment. Grasses, brush, branches, logs, logging slash, forest floor litter, conifer needles, and buildings are all examples. The physical properties and characteristics of fuels govern how fires burn. Fuel loading, size and shape, moisture content, and continuity and arrangement all have an effect on fire behavior. Generally speaking, the smaller and finer the fuels, the faster the potential rate of fire spread. Small fuels such as grass, needle litter and other fuels less than a quarter inch in diameter are most responsible for fire spread. In fact, "fine" fuels, with high surface to volume ratios, are considered the primary carriers of surface fire. This is apparent to anyone who has ever witnessed the speed at which grass fires burn. As fuel size increases, the rate of spread tends to decrease due to a decrease in the surface to volume ratio. Fires in large fuels generally burn at a slower rate, but release much more energy and burn with much greater intensity. This increased energy release, or intensity, makes these fires more difficult to control. Thus, it is much easier to control a fire burning in grass than to control a fire burning in timber.

When burning under a forest canopy, the increased intensities can lead to torching (single trees becoming completely involved) and potential development of crown fires. That is, they release much more energy. Fuels are found in combinations of types, amounts, sizes, shapes, and arrangements. It is the unique combination of these factors, along with the topography and weather, which determines how fires will burn.

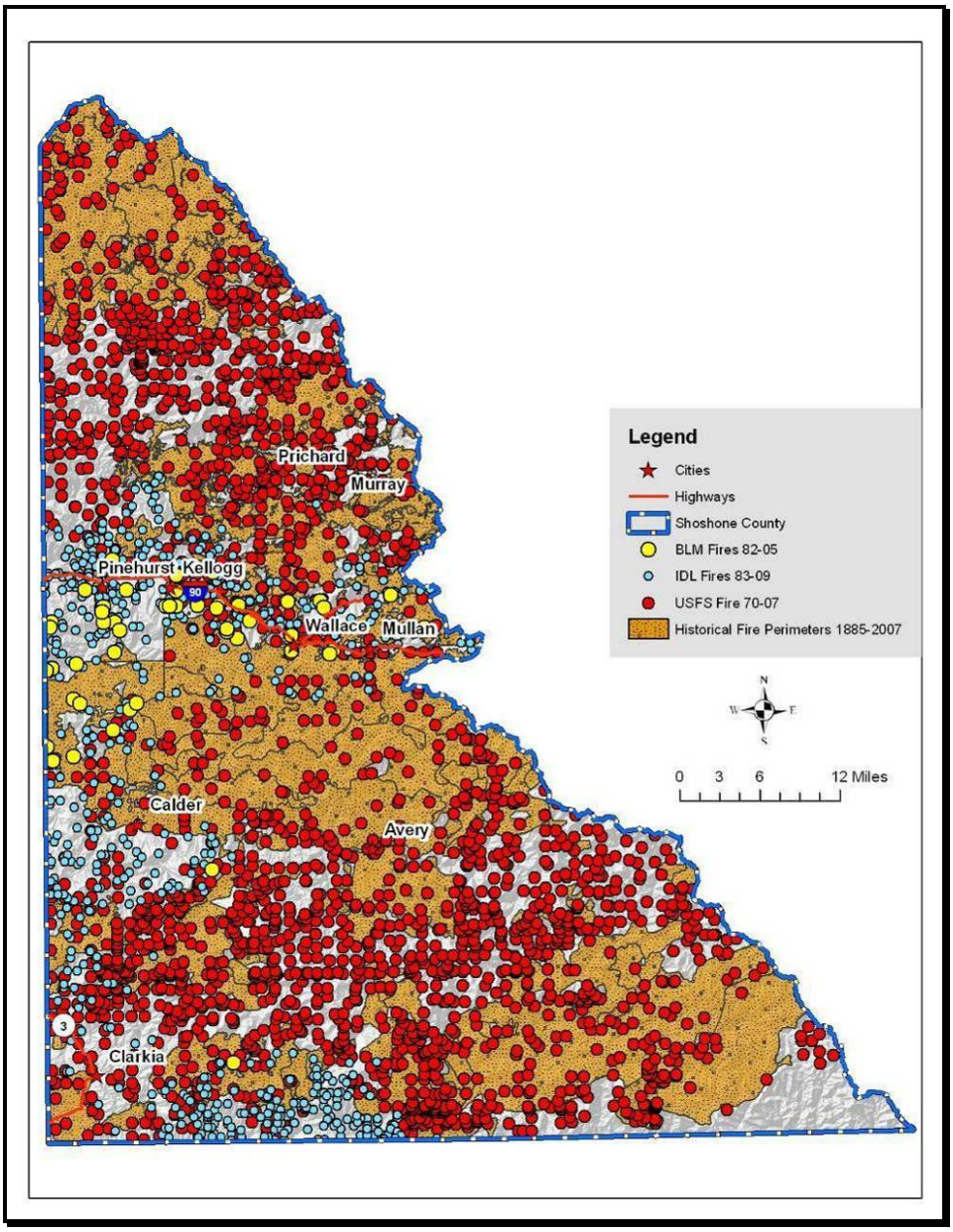
The study of fire behavior recognizes the dramatic and often-unexpected effect small changes in any single component have on how fires burn. It is impossible to speak in specific terms when predicting how a fire will burn under any given set of conditions. However, through countless observations and repeated research, some of the principles that govern fire behavior have been identified and are recognized.

Wildfire Hazards

In the 1930s, wildfires consumed an average of 40 to 50 million acres per year in the contiguous United States, according to US Forest Service estimates. By the 1970s, the average acreage burned had been reduced to about 5 million acres per year. Over this time period, fire suppression efforts were dramatically increased and firefighting tactics and equipment became more sophisticated and effective. For the 11 western states, the average acreage burned per year since 1970 has remained relatively constant at about 3.5 million acres per year.

The severity of a fire season can usually be determined in the spring by how much precipitation is received, which in turn determines how much fine fuel growth there is and how long it takes this growth to dry. These factors, combined with annual wind events can drastically increase the chance a fire start will grow and resist suppression activities. Furthermore, harvest operations and recreational activities are typically occurring throughout the months of August and September. Occasionally, these types of human activities cause an ignition that could spread into populated areas and timberlands.

Figure 4.1. Ignition History in Shoshone County.



Fire History

Fire was once an integral function within the majority of ecosystems in Idaho. The seasonal cycling of fire across the landscape was as regular as the July, August and September lightning storms plying across the canyons and mountains. Depending on the plant community composition, structural configuration, and buildup of plant biomass, fire resulted from ignitions with varying intensities and extent across the landscape. Shorter return intervals between fire events often resulted in less dramatic changes in plant composition.[17] The fires burned from 1 to

[17] Johnson, C.G. 1998. Vegetation Response after Wildfires in National Forests of Northeastern Oregon. 128 pp.

47 years apart, with most at 5- to 20-year intervals.[18] With infrequent return intervals, plant communities tended to burn more severely and be replaced by vegetation different in composition, structure, and age.[19] Native plant communities in this region developed under the influence of fire, and adaptations to fire are evident at the species, community, and ecosystem levels. Fire history data (from fire scars and charcoal deposits) suggest fire has played an important role in shaping the vegetation throughout Shoshone County.

Table 4.1. USFS Large Fire Summary 1965-2007.

Fire Name	Year	Cost	Acres Burned in Shoshone County
Cabin Creek	1979	-	728
Cabin Creek	1988	$200,000	90
Suburban	1992	$120,000	31
1956 North	1994	$125,000	223
Unknown	1994	$75,000	28
Casper	1994	$70,000	23
Murray Peak	1994	$46,000	34
Berge Peak #4	2000	$263,036	47
Taylor Saddle	2000	$15,000	13
Clinton	2000	$20,000	13
Tank Creek	2001	$14,800	26
Larch Mountain 24	2003	$13,069	90
Ulm	2003	$3,000	26
Bobtail 1	2003	$2,320	41
Mile Post 17	2003	$6,589	5
Barrymore	2003	$25,141	4
Haystack 3	2003	$27,573	2
Toboggan	2003	$1,575,000	302
Gold Chest	2003	$509,000	92
Ulm Peak	2006	$4,253,000	4,985
Revett	2006	$111,000	164
Collins Tooth	2006	$99,700	377
First Fire	2007	$51,500	9
Elm Street	2007	$600,000	75
Roundtop	2007	$100,000	24
Total		**$8,325,728**	**7,452**

1910 Fires

In a brief 48-hour span, fires carried by hurricane-force winds burned more than 3 million acres, killed 85 persons, devastated the eastern part of Wallace and destroyed between seven and eight billion board-feet of timber. The winds, which gave the Big Blowup its horror, came up from the

[18] Barrett, J.W. 1979. Silviculture of ponderosa pine in the Pacific Northwest: the state of our knowledge. USDA Forest Service, General Technical Report PNW-97. Pacific Northwest Forest and Range Experiment Station, Portland, OR. 106 p.

[19] Johnson, C.G.; Clausnitzer, R.R.; Mehringer, P.J.; Oliver, C.D. 1994. Biotic and Abiotic Processes of Eastside Ecosytems: the Effects of Management on Plant and Community Ecology, and on Stand and Landscape Vegetation Dynamics. Gen. Tech. Report PNW-GTR-322. USDA-Forest Service. PNW Research Station. Portland, Oregon. 722pp.

southwest in the Nez Perce National Forest near Elk City. 2.5 million acres of the Clearwater River, burning all of the Clearwater's headwaters from Weitas Creek up through Kelly Creek and across the Bitterroot Range.[20]

Shoshone County suffered the brunt of the historic 1910 fires resulting in many communities being burnt, including a portion of Wallace.[21] The scars of that fire are still evident across the landscape of Shoshone County as some previously forested regions still do not support forest trees and shrubs, especially along the southern facing slopes, while other areas have a mosaic of regeneration of different size classes. Other areas have begun to support trees due to aggressive reforestation programs that were initiated two decades ago and have made significant headway on these previously barren sites.

Toboggan Fire

In 2003, The Tobaggan Fire burned over 300 acres 12 miles northeast of Wallace in the east fork of Eagle Creek near Murray Peak.

Gold Chest Fire

In 2003, the Gold Chest Fire burned nearly 100 acres just two miles southwest of Murray.

Ulm Peak Fire

The Ulm Peak Fire was detected on August 18th, 2006 along the Idaho/Montana state line 12 miles southwest of Noxon, Montana in the Kootenai and Idaho Panhandle National Forests. The fire was started by lightning and grew to almost 5,000 acres. At one point, over 250 firefighters were assigned to this fire.

Wildfire Ignition Profile

Detailed records of wildfire ignitions and extents from the US Forest Service, Bureau of Land Management (BLM), and Idaho Department of Lands (IDL) have been analyzed. In interpreting these data, it is important to keep in mind that the information represents only the lands protected by the agency specified and may not include all fires in areas covered only by local fire departments or other agencies.

The US Forest Service and BLM database of wildfire ignitions used in this analysis includes ignition and extent data from 1970 through 2007 within their jurisdictions. During this period, the agencies recorded an average of 71 wildfire ignitions per year resulting in an average total burn area of 237 acres per year. The highest number of ignitions was witnessed in 1994 with 373 separate ignitions. However, these fires were successfully suppressed resulting in only 632 total acres burned.

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[20] Peterson, Jim. 1995. "The 1910 Fire". Evergreen Magazine, Winter Edition 1994-1995. Idaho Forest Products Commission. Available online at http://www.idahoforests.org/fires.htm.

[21] Pyne, Dr. Stephen. 2001. "The Source". Joint Conference of the American Society for Environmental History and the Forest History Society. Distinguished Lectureship in Forest and Conservation History. Available online at http://www.foresthistory.org/Events/lecture2001%20text.html.

Table 4.2. USFS Ignition and Extent Data 1970-2007.

Year	Number of Ignitions	Acres Burned
1970	163	21
1971	58	12
1972	74	7
1973	63	23
1974	129	37
1975	47	20
1976	55	14
1977	60	12
1978	36	3
1979	147	32
1980	23	1
1981	65	15
1982	48	11
1983	36	2
1984	94	21
1985	41	17
1986	63	1,464
1987	45	136
1988	52	92
1989	42	16
1990	33	113
1991	29	14
1992	64	111
1993	14	2
1994	373	632
1995	58	33
1996	54	19
1997	44	3
1998	99	29
1999	78	12
2000	72	141
2001	54	24
2002	59	21
2003	72	472
2004	84	56
2005	25	32
2006	88	5,513
2007	58	114
Total	**2,699**	**9,297**

Table 4.3. IDL Ignition and Extent Data 1983- 2008.

Year	Number of Ignitions	Acres Burned
1983	4	1
1984	11	2
1985	40	30
1986	30	1,460
1987	23	37
1988	27	21
1989	20	12
1990	17	3
1991	27	10
1992	29	10
1993	9	1
1994	95	153
1995	11	65
1996	13	9
1997	11	1
1998	32	30
1999	27	16
2000	10	3
2001	14	15
2002	5	1
2003	37	23
2004	22	6
2005	4	-
2006	35	27
2007	28	52
2008	12	8
2009	27	67
Total	**620**	**2,063**

Based on these data, the IDL experiences an average of 76 burned acres on 23 separate events annually. Only one "large fire" event has been summarized in the IDL fire occurrence database from 1983 through 2008. In this dataset, the Mary Mix II fire in 1986 charred approximately 1,438 acres and was ignited from equipment use.

From 1970 through 2007, state and federal wildland fire protection agencies recorded ignition causes and tracked them for each fire in the database. During this time period, approximately 75% of all ignitions were caused by lightning. In some areas of Idaho and the inland western US, this percentage drops to rates around 50%. This does not mean that the lightning is less of a problem, but instead that human causes are more common in relation to the number of total ignitions.

Table 4.4. Summary of Ignition Causes from IDL, USFS, and BLM Databases.

General Cause	Number of Ignitions	Percent of Total Ignitions
Lightning	2,445	75%
Campfire	77	2%
Smoking	111	3%
Debris Burning	224	7%
Arson	99	3%
Equipment Use	50	2%
Railroad	52	2%
Children	40	1%
Miscellaneous	163	5%
Total	**3,261**	

The data reviewed above provides a general picture regarding the level of wildland-urban interface fire risk within Shoshone County. There are several reasons why the fire risk may be even higher than suggested above, especially in developing wildland-urban interface areas.

1) Large fires may occur infrequently, but statistically they will occur. One large fire could significantly change the statistics. In other words, 40 years of historical data may be too short to capture large, infrequent wildland fire events.

2) The level of fire hazard depends profoundly on weather patterns. A several year drought period would substantially increase the probability of large wildland fires in Shoshone County. For smaller vegetation areas, with grass, brush and small trees, a much shorter drought period of a few months or less would substantially increase the fire hazard.

3) The level of fire hazard in wildland-urban interface areas is likely significantly higher than for wildland areas as a whole due to the greater risk to life and property. The probability of fires starting in interface areas is much higher than in wildland areas because of the higher population density and increased activities. Many fires in the wildland urban interface are not recorded an agency datasets because the local fire department responded and successfully suppressed the ignition before it spread.

Wildfire Extent Profile

Across the west, wildfires have been increasing in extent and cost of control. Data summaries for 2000 through 2006 are provided and demonstrate the variability of the frequency and extent of wildfires nationally.

Table 4.5. National Fire Season Summaries.

Statistical Highlights	2000	2001	2002	2003	2004	2005	2006
Number of Fires	122,827	84,079	88,458	85,943	77,534	66,753	96,385
10-year Average ending with indicated year	106,393	106,400	103,112	101,575	100,466	89,859	87,788
Acres Burned	8,422,237	3,555,138	6,937,584	4,918,088	6,790,692	8,689,389	9,873,745
10-year Average ending with indicated year	3,786,411	4,083,347	4,215,089	4,663,081	4,923,848	6,158,985	6,511,469
Structures Burned	861	731	2,381	5,781	1,095	--	--
Estimated Cost of Fire Suppression (Federal agencies only)	$1.3 billion	$917 million	$ 1.6 billion	$1.3 billion	$890 million	$876 million	--

The National Interagency Fire Center maintains records of fire costs, extent, and related data for the entire nation. Tables 4.5 and 4.6 summarize some of the relevant wildland fire data for the nation and some trends that are likely to continue into the future unless targeted fire mitigation efforts are implemented and maintained. According to these data, the total number of fires is trending downward while the total number of acres burned is trending upward. Since 2000 there has been a significant increase in the number of acres burned.[22]

Table 4.6. Total Fires and Acres 1980 - 2008 Nationally.

Year	Fires	Acres	Year	Fires	Acres
2009	78,792	5,921,786	**1994**	114,049	4,724,014
2008	68,594	4,723,810	**1993**	97,031	2,310,420
2007	85,822	9,321,326	**1992**	103,830	2,457,665
2006	96,385	9,873,745	**1991**	116,953	2,237,714
2005	66,753	8,689,389	**1990**	122,763	5,452,874
2004	77,534	6,790,692	**1989**	121,714	3,261,732
2003	85,943	4,918,088	**1988**	154,573	7,398,889
2002	88,458	6,937,584	**1987**	143,877	4,152,575
2001	84,079	3,555,138	**1986**	139,980	3,308,133
2000	122,827	8,422,237	**1985**	133,840	4,434,748
1999	93,702	5,661,976	**1984**	118,636	2,266,134
1998	81,043	2,329,709	**1983**	161,649	5,080,553
1997	89,517	3,672,616	**1982**	174,755	2,382,036
1996	115,025	6,701,390	**1981**	249,370	4,814,206
1995	130,019	2,315,730	**1980**	234,892	5,260,825

These statistics are based on end-of-year reports compiled by all wildland fire agencies after each fire season. The agencies include: Bureau of Land Management, Bureau of Indian Affairs, National Park Service, US Fish and Wildlife Service, Forest Service, and all state agencies.

The fire suppression agencies in Shoshone County respond to numerous wildland fires each year, but few of those fires grow to a significant size. According to national statistics, only 2% of all wildland fires escape initial attack. However, that 2% accounts for the majority of fire suppression expenditures and threatens lives, properties, and natural resources. These large fires are characterized by a size and complexity that require special management organizations

[22] National Interagency Fire Center. 2008. Available online at http://www.nifc.gov/.

drawing suppression resources from across the nation. These fires create unique challenges to local communities by their quick development and the scale of their footprint. According to the US Forest Service and Bureau of Land Management's Legacy Data, approximately 2.5 million acres burned in Shoshone County between 1885 and 1965. The most significant of these years were 1910 (945,371 acres), 1889 (320,373), 1926 ((292,226). 1919 (133,375), and 1929 (107,726).

Shoshone County has experienced high impact wildland fires that have taken lives and burned structures and infrastructure within their wildland urban interface. However, there has not been a large wildfire event that has threatened structures in the last 50 years. This does not mean that the county is at low risk. In fact, many of the fire professionals in Shoshone County believe the question is not "if" there will be a large fire in this area; it is "when." If Shoshone County experienced a wildfire similar in scale to the recent Cascade Complex in Valley County, Idaho (2007) or the Castle Rock Fire in Blaine County, Idaho (2007), it would have a severe impact on the region and local communities. It is important that regional planners as well as local residents understand what has happened in the past in order to be more effective in the future when preparing for the inevitable.

Wildfire Hazard Assessment

Shoshone County was analyzed using a variety of models, managed on a Geographic Information System (GIS) system. Physical features of the region including roads, streams, soils, elevation, and remotely sensed images were represented by data layers. Field visits were conducted by specialists from Northwest Management, Inc. and others. Discussions with area residents and local fire suppression professionals augmented field visits and provided insights into forest health issues and treatment options. This information was analyzed and combined to develop an objective assessment of wildland fire risk in the region.

Historic Fire Regime

Historical variability in fire regime is a conservative indicator of ecosystem sustainability, and thus, understanding the natural role of fire in ecosystems is necessary for proper fire management. Fire is one of the dominant processes in terrestrial systems that constrain vegetation patterns, habitats, and ultimately, species composition. Land managers need to understand historical fire regimes, the fire return interval (frequency) and fire severity prior to settlement by Euro-Americans, to be able to define ecologically appropriate goals and objectives for an area. Moreover, managers need spatially explicit knowledge of how historical fire regimes vary across the landscape.

Many ecological assessments are enhanced by the characterization of the historical range of variability which helps managers understand: (1) how the driving ecosystem processes vary from site to site; (2) how these processes affected ecosystems in the past; and (3) how these processes might affect the ecosystems of today and the future. Historical fire regimes are a critical component for characterizing the historical range of variability in fire-adapted ecosystems. Furthermore, understanding ecosystem departures provides the necessary context for managing sustainable ecosystems. Land managers need to understand how ecosystem processes and functions have changed prior to developing strategies to maintain or restore sustainable systems. In addition, the concept of departure is a key factor for assessing risks to ecosystem components. For example, the departure from historical fire regimes may serve as a useful proxy for the potential of severe fire effects from an ecological perspective.

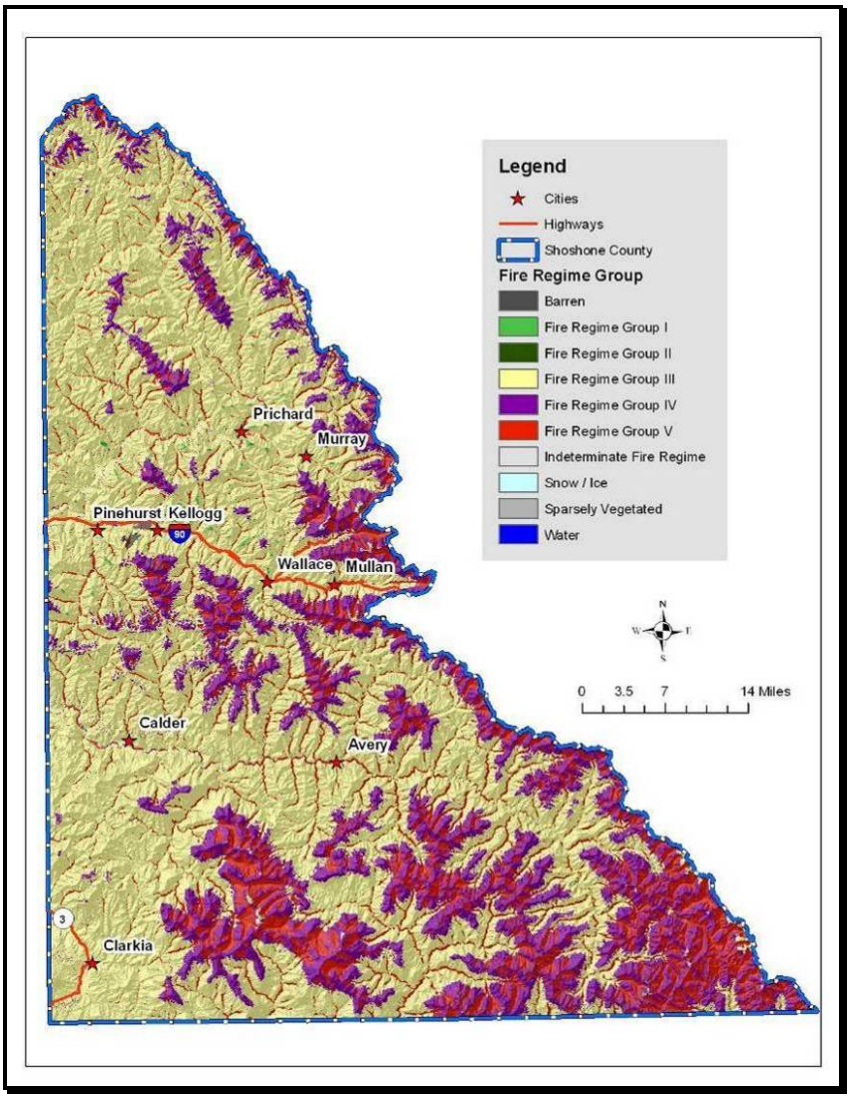
Table 4.7. Historic Fire Regimes in Shoshone County.

Historic Fire Regime	Description	Acres	Percent of Total
Fire Regime Group I	Mixed Severity – Short Interval	3,549	0%
Fire Regime Group II	Stand Replacement – Short Interval, Non-forest	206	0%
Fire Regime Group III	Mixed Severity – Long Interval	1,106,034	65%
Fire Regime Group IV	Stand Replacement – Short Interval	336,484	20%
Fire Regime Group V	Stand Replacement – Long Interval	235,459	14%
Water	Water	1,091	0%
Snow/Ice	Snow/Ice	24	0%
Barren	Barren	6,924	0%
Sparsely Vegetated	Sparsely Vegetated	1	0%
Indeterminate	Indeterminate	73	0%
Total		**1,689,844**	**100%**

The historic fire regime data for Shoshone County shows most of the County being characterized by Regime Group III or mixed severity fires with relatively long return intervals. Higher elevations areas, particularly in the southeastern region of the County have increasing amounts of lands designated as Regime Groups IV and V. These areas are more likely to experience stand replacing fires. Fires occurring on ridge tops in these areas will tend to occur more frequently while those on north aspects and in moist draws will tend to burn very intensely, but have long return intervals. The population centers in Shoshone County are located in areas characterized by historically mixed severity fires.

Additional explanation of how the historic fire regime data were derived is included in Appendix 3.

Figure 4.2. Historic Fire Regime for Shoshone County.



Shoshone County's Wildland-Urban Interface

The wildland-urban interface (WUI) has gained attention through efforts targeted at wildfire mitigation; however, this analysis technique is also useful when considering other hazards because the concept looks at where people and structures are concentrated in any particular region.

A key component in meeting the underlying need for protection of people and structures is the protection and treatment of hazards in the wildland-urban interface. The wildland-urban interface refers to areas where wildland vegetation meets urban developments or where forest fuels meet urban fuels such as houses. The WUI encompasses not only the interface (areas immediately adjacent to urban development), but also the surrounding vegetation and topography. Reducing the hazard in the wildland-urban interface requires the efforts of federal, state, and local agencies

and private individuals.[23] "The role of [most] federal agencies in the wildland-urban interface includes wildland firefighting, hazard fuels reduction, cooperative prevention and education, and technical experience. Structural fire protection [during a wildfire] in the wildland-urban interface is [largely] the responsibility of Tribal, state, and local governments".[24] The role of the federal agencies in Shoshone County is and will be much more limited. Property owners share a responsibility to protect their residences and businesses and minimize danger by creating defensible areas around them and taking other measures to minimize the risks to their structures.[25] With treatment, a wildland-urban interface can provide firefighters a defensible area from which to suppress wildland fires or defend communities against other hazard risks. In addition, a wildland-urban interface that is properly treated will be less likely to sustain a crown fire that enters or originates within it. [26]

By reducing hazardous fuel loads, ladder fuels, and tree densities, and creating new and reinforcing existing defensible space, landowners can protect the wildland-urban interface, the biological resources of the management area, and adjacent property owners by:

- minimizing the potential of high-severity ground or crown fires entering or leaving the area;
- reducing the potential for firebrands (embers carried by the wind in front of the wildfire) impacting the WUI. Research indicates that flying sparks and embers (firebrands) from a crown fire can ignite additional wildfires as far as 1¼ miles away during periods of extreme fire weather and fire behavior;[27]
- improving defensible space in the immediate areas for suppression efforts in the event of wildland fire.

Three wildland-urban interface conditions have been identified (Federal Register 66(3), January 4, 2001) for use in wildfire control efforts. These include the Interface Condition, Intermix Condition, and Occluded Condition. Descriptions of each are as follows:

- **Interface Condition** – a situation where structures abut wildland fuels. There is a clear line of demarcation between the structures and the wildland fuels along roads or back fences. The development density for an interface condition is usually 3+ structures per acre;
- **Intermix Condition** – a situation where structures are scattered throughout a wildland area. There is no clear line of demarcation; the wildland fuels are continuous outside of and within the developed area. The development density in the intermix ranges from structures very close together to one structure per 40 acres; and

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[23] Norton, P. Bear Valley National Wildlife Refuge Fire Hazard Reduction Project: Final Environmental Assessment. Fish and Wildlife Services, Bear Valley Wildlife Refuge. June 20, 2002.

[24] USFS. 2001. United States Department of Agriculture, Forest Service. Wildland Urban Interface. Web page. Date accessed: 25 September 2001. Accessed at: http://www.fs.fed.us/r3/sfe/fire/urbanint.html

[25] USFS. 2001. United States Department of Agriculture, Forest Service. Wildland Urban Interface. Web page. Date accessed: 25 September 2001. Accessed at: http://www.fs.fed.us/r3/sfe/fire/urbanint.html

[26] Norton, P. Bear Valley National Wildlife Refuge Fire Hazard Reduction Project: Final Environmental Assessment. Fish and Wildlife Services, Bear Valley Wildlife Refuge. June 20, 2002.

[27] McCoy, L. K., et all. Cerro Grand Fire Behavior Narrative. 2001.

- **Occluded Condition** – a situation, normally within a city, where structures abut an island of wildland fuels (park or open space). There is a clear line of demarcation between the structures and the wildland fuels along roads and fences. The development density for an occluded condition is usually similar to that found in the interface condition and the occluded area is usually less than 1,000 acres in size.

Shoshone County's wildland-urban interface (WUI) was originally developed collaboratively by the Shoshone County planning committee in 2004. During the 2010 CWPP update process, the committee reviewed the boundaries of the WUI and made some slight modifications to reflect growth, forest management, completed projects, and other changed conditions.

The Shoshone County WUI map is divided into two distinct levels:

Level 1: Wildland Urban Interface Zone (WUIZ)

The WUIZ is the most important, where life and property is the primary resource to be protected. This level includes a minimum of ½ mile buffers around towns; inhabited structures and primary escape routes. Municipal watersheds are also included, whether they are primary or back up sources. The WUI boundary is extended to ridgetops when necessary due to topography, potential fire behavior, and suppression tactics. WUIZ includes many utilities such as power lines, radio towers, and cell towers.

Stipulations in the WUIZ include:

1. Wildfires occurring in the WUIZ receive the top priority for fire suppression.
2. Access for fire suppression is as a minimum maintained and improved where necessary.
3. Cooperating agencies place priority on fuel reduction projects within this area; the planning committee on a case-by-case basis would support fuel reduction projects outside the WUI.
4. On any ownership, the planning committee recommends that these areas be actively managed to reduce the risk of intense fires that are resistant to control. Active management would include commercial harvest, with appropriate post-harvest fuel reduction treatments to minimize slash fire hazards.
5. The Shoshone County Fire Mitigation Program will concentrate its efforts within the WUI.

Level 2: Secondary Resource Protection Zone (SRPZ)

SRPZ includes areas outside the WUIZ, but considered critical infrastructure or is an important asset or resource to Shoshone County such as power lines, radio sites, and escape routes in sparsely populated or recreation areas.

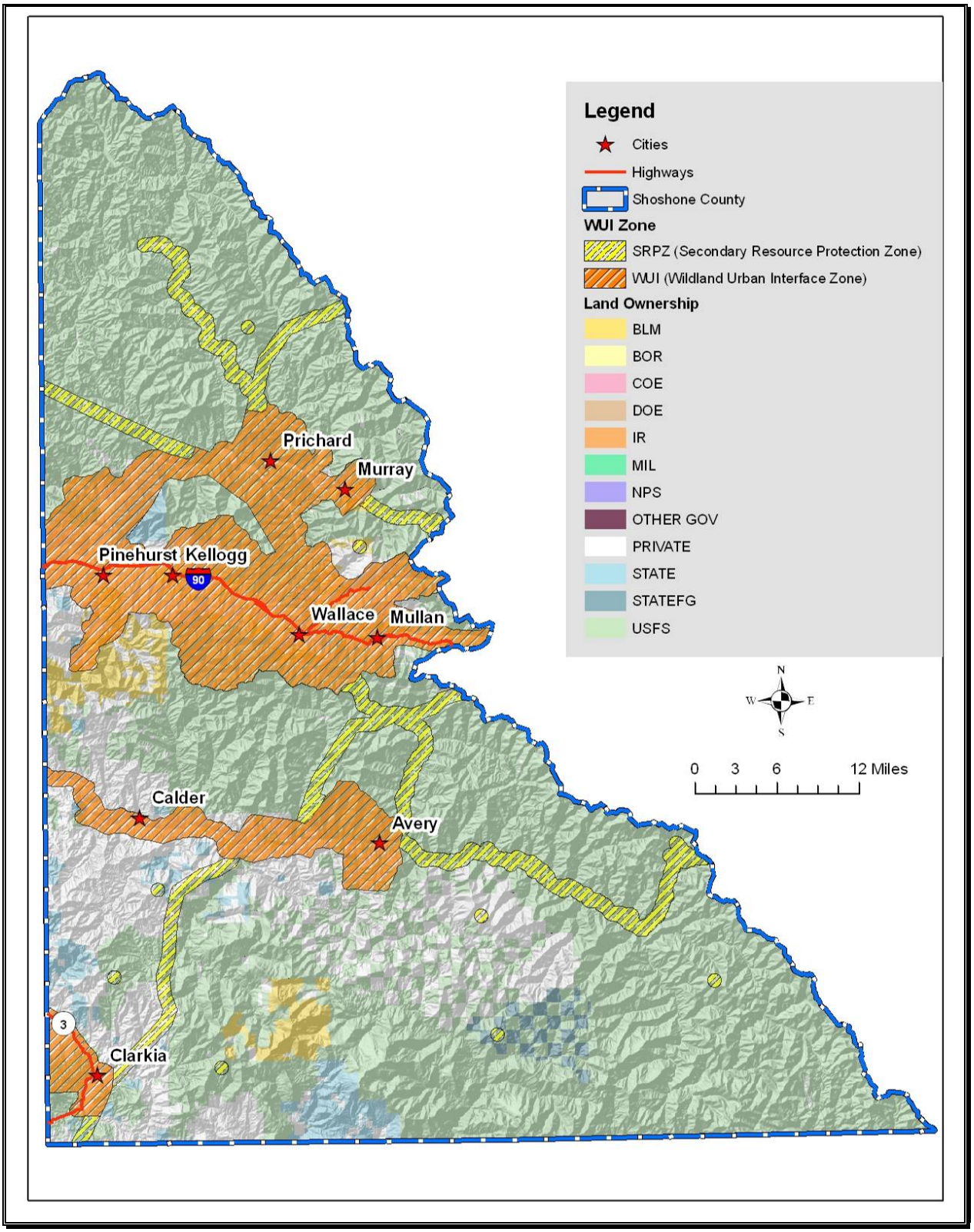
Stipulations for Management in the SRPZ include:

1. The SRPZ should be managed to reduce detrimental effects caused by wildfire such as electrical power interruptions, communications interruptions, traffic delays, etc.
2. The SRPZ should also be managed to reduce potential fire behavior resulting from ignitions originating from transmission lines in order to allow efficient and effective initial attack of wildfires.

3. Resources such as communication towers (cellular, radio, telephone) should be evaluated to determine their risk to wildfire. Where a significant risk exists, fuel reduction treatments should be completed to mitigate the risk.

The Healthy Forests Restoration Act makes a clear designation that the location of the WUI is at the determination of the county or reservation when a formal and adopted Community Wildfire Protection Plan is in place. It further states that the federal agencies are obligated to use this WUI designation for all Healthy Forests Restoration Act purposes. The Shoshone County Community Wildfire Protection Plan planning committee evaluated a variety of different approaches to determining the WUI for the county and selected this approach and has adopted it for these purposes. In addition to a formal WUI map for use with the federal agencies, it is hoped that it will serve as a planning tool for the county, the Idaho Department of Lands, and local fire districts.

Figure 4.3. Wildland Urban Interface in Shoshone County, Idaho.



Potential WUI Treatments

The definition and mapping of the WUI is the creation of a planning tool to identify where structures, people, infrastructure, and fuels are located in reference to each other. It should not be assumed that just because an area is identified as being within the WUI, that it will therefore receive treatments because of this identification alone. Nor should it be implicit that all WUI treatments will be the application of the same prescription. Instead, each location targeted for treatments must be evaluated on its own merits: factors of structural ignitability, access, resistance to control, population density, resources and capabilities of firefighting personnel, and other site specific factors.

It should also not be assumed that WUI designation on national or state forest lands automatically equates to a treatment area. The Forest Service, Bureau of Land Management, and Idaho Department of Lands are still obligated to manage lands under their control according to the standards and guides listed in their respective forest plans. The adopted forest plan has legal precedence over the WUI designation until such a time as the forest plan is revised to reflect updated priorities.

Most treatments may begin with a home evaluation, and the implicit factors of structural ignitability (roofing, siding, deck materials) and vegetation within the treatment area of the structure. However, treatments in the low population areas may look closely at access (two ways in and out) and communications through means other than land-based telephones. On the other hand, a subdivision with densely packed homes surrounded by forests and dense underbrush, may receive more time and effort implementing fuels treatments beyond the immediate home site to reduce the probability of a crown fire entering the subdivision.

The determination, planning, prioritization, and implementation of WUI treatments is decided by the CWPP planning committee on an annual basis.

Shoshone County Conditions

Shoshone County is characterized by temperate winters and warm, dry summers. Although infrequent, fires in the forest fuel types present throughout much of the County have the potential to result in large, intense and damaging fires such as the 1910 Fire or the Sundance Fire. Past timber harvest operations have created a mosaic of stand conditions that is evident from almost any viewpoint. The fire risk associated with these activities is highly variable depending on a number of factors, some of which include the amount of timber volume removed (i.e. number and size of trees left standing), treatment of slash post-harvest, reforestation success, use of equipment, and many site specific factors such as aspect. Generally, treatment of slash by prescribed burning or pile burning can significantly reduce the risk of intense wildfire by removing hazardous fuels in the understory.

Vegetative structure and composition within Shoshone County is closely related to elevation, aspect and precipitation. Relatively mild and moist environments characterize the rugged topography of the region, which is largely dominated by coniferous forests (78%). These forest habitat types often contain high fuel accumulations that have the potential to burn at moderate to high intensities. Highly variable topography coupled with dry, windy weather conditions typical of the region contribute to the potential for large fire development.

The transition between developed agricultural land and timberlands occurs abruptly, usually along distinct land use and property boundaries. In the higher, mountainous areas, moisture

becomes more abundant due to a combination of higher precipitation and reduced solar radiation. Vegetative patterns shift from forested communities dominated by lodgepole and ponderosa pine, western larch, and Douglas-fir at the lower elevations to grand fir, western white pine, subalpine fir, and lodgepole pine at the higher elevations. Engelmann spruce and western red cedar are commonly found in moist draws and frost pockets. These forested conditions possess a greater quantity of both dead and down fuels as well as live fuels. Rates of fire spread tend to be lower than those in the grass and shrub lands, however, intensities can escalate dramatically, especially under the effect of slope and wind. These conditions can lead to control problems and potentially threaten lives, structures and other valued resources.

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

Forested areas dominated by ponderosa pine or Douglas-fir tend to be quite dry, as they typically inhabit south and west aspects where the drying effect of the sun and the wind create conditions favorable for shade-intolerant species. Light grass fuels and the abundance of pine needles cast from overstory trees contribute to the fine fuel loads along the forest floor. Fires in the dry ponderosa pine and mixed species forests tend to burn at reduced rates of spread relative to open range and agricultural areas due to the shielding of the wind by overstory trees. However, in areas of low stocking, there may not be a significant wind reduction factor, allowing fire to be pushed more rapidly through the surface fuels. If regular forest tending has kept surface fuel loading and ladder fuels to a minimum, fires in these dry forest types will generally remain on the surface. However, if heavy surface fuel loads and abundant understory regeneration has accumulated, fires in these drier forest types can burn at high intensities, leading to torching of large mature trees. These conditions present significant control problems for suppression resources and can pose a significant threat to homes in the fire path.

Fire suppression often depends on two important factors: availability of fire suppression resources and access. Fire suppression resources include firefighting personnel, equipment and apparatus as well as water and chemical fire suppressants. The greater the availability of fire suppression resources, the more likely it is that a given fire will be contained quickly. Fire suppression also depends on access. Fires in remote areas without ground access are more difficult to fight and thus harder to contain than are fires in roaded areas. Access and effective response is partially a function of land management objectives. Lands managed for natural conditions where roads have not been built or the existing roads have been obliterated tend to have a much poorer fire suppression response than commercial forestlands where road systems are maintained.

Because wildland fires are being effectively suppressed, the patterns and characteristics of fires are changing. Vegetation that historically would have been minimized by frequent fires has become more dominant. Over time, some species have also become more susceptible to disease and insect damage, which leads to an increase in mortality. The resulting accumulation of dead wood and debris creates the types of fuels that promote intense, rapidly spreading fires.

Decades of logging and fire suppression have also changed the characteristics of forests, trending towards younger forest stands. Mature forests are typically less dense, and contain larger more fire-resistant trees. Young forests are denser with larger numbers of small, less fire-resistant trees. Younger trees have thinner bark and may sustain more economic damage than an older stand.

Areas subject to wildland-urban interface fires have very different fire hazard characteristics. The defining characteristic of the wildland-urban interface area is that structures are built in areas with essentially continuous (and often high) vegetative fuel loads. When wildland fires occur in such areas, they tend to spread quickly and structures in these areas may, unfortunately, become little more than additional fuel sources. The placement of homes in wildland urban interface settings has also changed over time. Historically pioneering families built their homes in low lands, close to water and the fields they intended to work. Within the last 50 years, rural homes have increasingly been built in locations chosen because of the view or other amenities. Thus, many newer homes are in locations more difficult to defend against wildland fires.

Fire risk to structures and occupants in wildland-urban interface areas is high due to high vegetative fuel loads and limited fire suppression resources compared to urban or suburban areas. Homes in wildland-urban interface areas are most commonly on wells rather than on municipal water supplies, which limits the availability of water for fire suppression. Less availability of water resources makes it more likely that a small wildland fire or a single structure fire will spread before it can be extinguished.

In many areas of Shoshone County, narrow winding roads, dead end driveways, and inadequate bridges impede access by firefighting apparatus. As with water supplies, the lower availability of firefighting personnel and apparatus and longer response times increase the probability that a small wildland fire or a single structure fire will spread.

Developments in wildland-urban interface areas often face high fire risk because of the combination of high fire hazard (high vegetative fuel loads) and limited fire suppression capabilities. Unfortunately, occupants in many wildland-urban interface areas also face high safety risks, especially from large fires that may spread quickly. The safety risks in interface areas are often exacerbated by limited numbers of roads (in the worst case only one access road) that are often narrow and winding and subject to blockage by a wildland fire.

Potential safety issues within interface areas are often increased by homeowners' reluctance to evacuate homes quickly. Instead, homeowners often try to protect their homes with whatever fire suppression resources are available. Such efforts generally have very little effectiveness. Unfortunately, homeowners who delay evacuation often place themselves in jeopardy.

Developments in rural wildland-urban interface areas face a range of risk factors. Developments that have all or most of the following attributes are at the highest level of risk:

1) Location in or surrounded by heavy fuel loads with a high degree of continuity (i.e. few significant firebreaks). Risk may be particularly high if the fuel load is grass, brush, and smaller trees subject to low moisture levels in short duration drought periods.
2) Steep slopes, which cause fires to spread more rapidly.
3) Limited fire suppression capacity including limited water supply capacity for fire suppression purposes, limited firefighting personnel and apparatus, and typically long response times for fire alarms.

4) Limited access for firefighting apparatus and limited evacuation routes for residents at risk.

5) Construction of structures to less than fully fire-safe practices,

6) Lack of maintenance of firebreaks and defensible zones around structures.

Overall, the threat of wildland fire appears high for Shoshone County. This is in large part because of the steep topography, limited access, fuel types, and structure density. However, portions of Shoshone County, including those in the valley bottoms and those that have received (and maintained) fuels reduction treatments have a low to moderate risk of being significantly impacted by a wildfire.

Overall Mitigation Activities

There are many actions that will help improve safety in a particular area; there are also many mitigation activities that can apply to all residents and all fuel types. General mitigation activities that apply to all of Shoshone County are discussed below while area-specific mitigation activities are discussed within the strategic planning area assessments.

Prevention. The safest, easiest, and most economical way to mitigate unwanted fires is to stop them before they start. Generally, prevention actions attempt to prevent human-caused fires. Campaigns designed to reduce the number and sources of ignitions can be quite effective and can take many forms. Shoshone County has a very active Fire Prevention Cooperative made up of individuals from county fire districts, volunteer fire departments, and wildland fire agencies within the Silver Valley. The co-op's primary focus is fire prevention through education, particularly youth education.

Active prevention techniques can involve mass media, radio, and the local newspapers. The Shoshone County Fire Prevention Cooperative's partnership of agencies, departments and individuals pools their resources to accomplish all types of prevention activities extending from Rose Lake to Mullan.

Limiting Use. Areas within the IDL protection district boundary are also subject to public use restrictions, referred to as "Regulated Use", during fire season in an attempt to limit, or manage use of activities known to cause fires. Fire departments typically observe the State of Idaho's closed fire season between May 10 and October 20. During this time, an individual seeking to conduct any type of burning shall obtain a permit to prescribe the conditions under which the burn can be conducted and the resources that need to be on hand to suppress the fire from a State of Idaho fire warden.

Defensible Space. Effective mitigation strategies begin with public awareness campaigns designed to educate homeowners of the risks associated with living in a flammable environment. Residents of Shoshone County must be made aware that home defensibility starts with the homeowner. Once a fire has started and is moving toward a structure, the probability of that structure surviving is largely dependent on the structural and landscaping characteristics of the building. *"Living with Fire, A Guide for the Homeowner"* is an excellent tool for educating homeowners on the steps to take in order to create an effective defensible space. Residents of Shoshone County should be encouraged to work with local fire departments and fire management agencies within the county to complete individual home site evaluations. Home defensibility steps should be enacted based on the results of these evaluations. Beyond the

homes, forest management efforts must be considered to slow the approach of a fire that threatens a community.

Evacuation. Development of community evacuation plans is necessary and critical to assure an orderly evacuation in the event of a threatening wildland fire. Designation and posting of escape routes would reduce chaos and escape times for fleeing residents. Community safety zones should also be established in the event safe evacuation is impossible and 'sheltering in place' becomes the better option. In recognition of this need, the Shoshone County Commissioners approved (December 2010) the development of a contract to prepare a county evacuation plan.

Access. Also of vital importance is the accessibility of homes to emergency apparatus. The fate of a home will often be determined by homeowner actions prior to the event. A few simple guidelines such as widening or pruning along driveways and creating a turnaround area for large vehicles, can greatly enhance home survivability.

Facility Maintenance. Recreational facilities near communities or in the surrounding forests such as parks or natural areas should be kept clean and maintained. In order to mitigate the risk of an escaped campfire, escape-resistant fire rings and barbeque pits should be installed and maintained. In some cases, restricting campfires during dry periods may be necessary. Surface fuel accumulations in nearby forests can also be kept to a minimum by periodically conducting pre-commercial thinning, pruning and limbing, and possibly controlled burns.

Fire District Response. Once a fire has started, how much and how large it burns is often dependent on the availability of suppression resources. In most cases, rural fire departments are the first to respond and have the best opportunity to halt the spread of a wildland fire. For many districts, the ability to reach these suppression objectives is largely dependent on the availability of functional resources and trained individuals. Increasing the capacity of departments through funding and equipment acquisition can improve response times and subsequently reduce the potential for resource loss.

Development Standards. Furthermore, county policies can be revised to provide for more fire conscious techniques such as using fire resistant construction materials; improved road, driveway, and bridge standard, establishment of permanent water resources, and adoption of a WUI building code.

Other Mitigation. Other actions to reduce fire hazards are thinning and pruning timbered areas, creating a fire resistant buffer along roads and power line corridors, and strictly enforcing fire-use regulations. Ensuring that areas beneath power lines have been cleared of potential high risk fuels and making sure that the buffer between the surrounding forest lands is wide enough to adequately protect the poles as well as the lines is imperative.

Overview of Fire Protection System

The US Forest Service, the BLM, and the IDL all maintain resources to combat wildfire ignitions and maintain records of wildfire ignitions in north Idaho. Primary wildfire protection in Shoshone County is provided by the Forest Service and the IDL. The IDL is responsible for wildfire protection in the Silver Valley and along the western side of the county from Clarkia north to the Silver Valley.

The Clearwater-Potlatch Timber Protective Area is responsible for wildfire protection in an area slightly east of Clarkia and in neighboring Clearwater and Latah Counties. The remainder of the county is protected by the Forest Service. BLM resources are available from Coeur d'Alene on a

mutual aid basis with the State and US Forest Service. Mutual aid agreements have been made between each of the local fire districts and the IDL to supplement resources of a fire agency or district during a time of critical need. Mutual aid is given only when equipment and resources are available. On wildland fires, fire districts typically provide initial attack resources until the IDL assumes command of the incident.

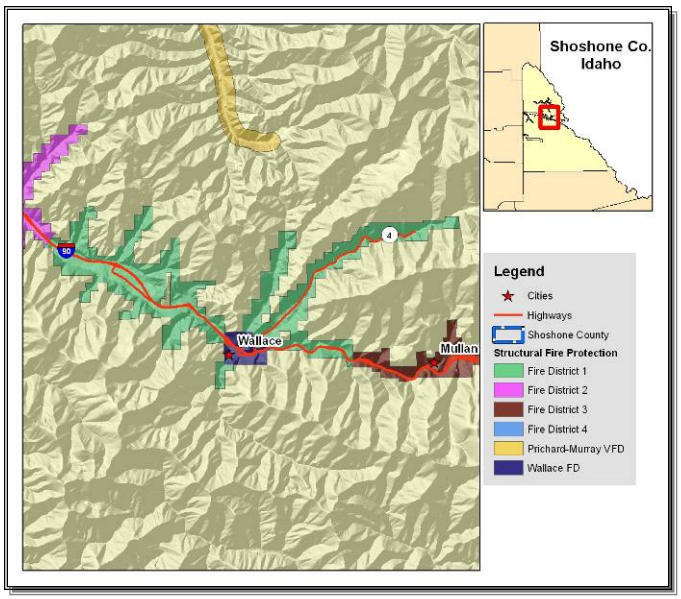
Local Fire Department and District Summaries

The firefighting resources and capabilities information provided in this section is a summary of information provided by the fire chiefs or representatives of the wildland firefighting agencies listed. Each organization completed a survey with written responses. Their answers to a variety of questions are summarized here. These synopses indicate their perceptions and information summaries.

Appendices 4 and 5 contain contact information, a complete available resource list, and a "needs" list for each of the following fire service organizations.

Shoshone County Fire District №1

District Summary: District №1 is responsible for a 14 square mile response area in the central part of the Silver Valley. The District covers the west end of Osburn to milepost 65 on Interstate 90 and all gulches in between as well as the cities of Osburn and Wallace and the communities of Silverton and Woodland Park. The District maintains 4 career staff consisting of three shift workers and 1 paid chief. Also assisting with responses are 32 dedicated volunteer staff. District №1 responds out of two stations; one in Osburn and one in Wallace. The Osburn station is manned 24/7 365 days a year. The Wallace station is unmanned and houses reserve equipment. District №1 responds to approximately 100 fire calls and 350-400 EMS calls on average annually.



Issues of Concern: District №1's main concern is the continued overcrowding in Wallace leading building on inaccessible sites. Shoshone County needs to address road grade issues through consideration and adoption of countywide road standards.

Water resources and locations are also a concern for the District. Shoshone County needs to address this issue through countywide ordinances.

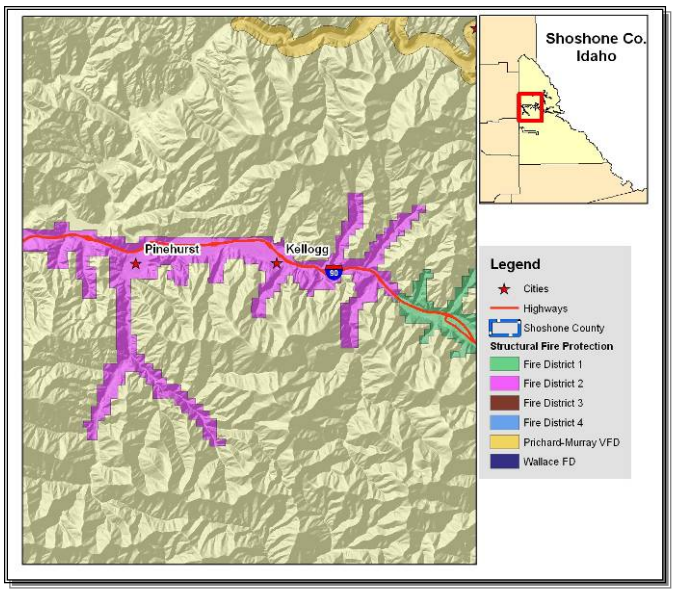
Cooperative Agreements: District №1 has signed mutual aid agreements with the surrounding fire districts as well as the IDL. However, these agreements may need updated to reflect changes in equipment and personnel.

Shoshone County Fire District №2

District Summary: Shoshone County Fire District №2 is located in western Shoshone and eastern Kootenai County in northern Idaho. Geographically, the District is located along Interstate 90 approximately 70 miles east of Spokane, Washington and 130 miles west of Missoula, Montana. The District provides fire and emergency medical services to approximately 185 square miles in a mountainous region with an approximate population of 9,000 permanent citizens and variable seasonal citizens. The District includes the four incorporated cities of Kellogg, Wardner, Smelterville, and Pinehurst along with approximately ten unincorporated communities in a vast area of outlying canyons and drainages. District №2 operates from four fire stations; two in Kellogg, one in Pinehurst, and one on Doyle Road near Rose Lake. A fifth station was to be built in 2010 in Medimont, but due to the economic conditions, it has been postponed. The District has a staff of eight career firefighters and 30 dedicated volunteer firefighters district-wide that are trained for both structural and wildland firefighting.

Issues of Concern: There are several issues of concern for District №2:

Residential Growth: Single-family year around residential growth has not been a problem to date, but there are several big and ambitious projects that have stalled due to the economy. If they should start moving forward, there will be the need for additional stations and equipment. A piece of specialty equipment such as firefighting apparatus on tracks would be beneficial for use over snow.



The District has seen over 400 condominiums built over the last several years with the majority housed in six buildings; five being 5-stories and a sixth that is 4 stories. District №2 has yet to receive any additional tax monies from the construction, but the District has responded to calls at their location. The District is short on personnel for initial response and it does not have an aerial long enough to reach over roofs or to the top floor windows for rescue during a fire emergency.

Communications: All communication sites in Shoshone County, both public and private, need to be identified, evaluated, and the necessary steps taken to ensure that there is no communications disruption during a major incident.

Presently, the District is having issues with the radio system, mainly coming from dispatch. District №2 has taken some major steps to improve the system and is working towards a final resolution. One solutions is to install a second repeater to cover the large response area. Budget is a limiting factor to complete this project. Additionally, some of the District's radio equipment is not narrow band as is required by the Federal Government and will need to be updated by 2013 to meet the Federal mandate.

Burn Permit Regulations: District №2 follows the International Fire Code as adopted by the Sate of Idaho when setting open burning regulations. In addition, the District works closely with the Idaho Department of Lands, the US Forest Service, and the other fire departments in the Silver Valley when setting open burning restrictions when the fire danger is designated "high" or "extreme". The software the District is currently using for issuing burning permits needs to be updated and more specific. The biggest problem is simply getting people to get a permit or call when they plan to burn.

Other Issues: Load ratings on bridges are very important throughout Shoshone County, particularly in District №2 where many small private bridges are the only access to some residential structures. Case in point, the District has had one bridge collapse from the weight of the front axel of our engine while responding to a fully engulfed residential structure fire. In addition, the Ross Oil Company had bridge collapse under the weight of a truck with 800 gallons of fuel oil leaving the rear axel in Montgomery Creek and the front axel on the road.

The State of Idaho has adopted the International Fire Code, which can be enforced by the fire departments and districts throughout the State. The State legislature has mandated that certain portions of the code are not adopted, but have left those sections at the discretion of each County government. Standards for road grades, width, all weather surfaces, dead-ends, gates, and water supply for one and two family dwellings need to be specifically adopted by Shoshone County.

Furthermore, whereas Shoshone County has an ordinance for residential rural addressing, it needs to be reviewed, a penalty set for non-compliance, and enforced.

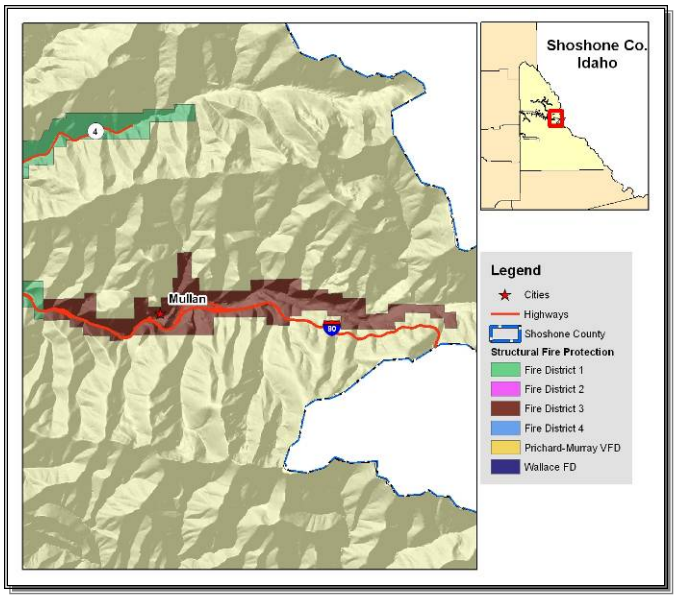
Cooperative Agreements: Presently, District №2 has mutual aid agreements with Shoshone County Fire Districts 1 & 3, the Mullan Volunteer Fire Department, Idaho Department of Lands, City of Coeur d'Alene, Kootenai County Fire and Rescue, and the St. Maries Fire District.

FIRE DISTRICT #3

Mullan & Larson

Shoshone County Fire District №3/Mullan Volunteer Fire Department

District Summary: Both Mullan Volunteer Fire Department (VFD) and Shoshone County Fire District №3 have fire protection responsibility for the city of Mullan and eastern Shoshone County from Exit 65 to the top of Lookout Pass.



Shoshone County Fire District №3 and Mullan VFD have a mutual aid agreement with the IDL, Shoshone County Fire District №1 and West End Fire District in Mineral County, Montana.

Issues of Concern: The primary concern for the District is access issues and lack of water resources in Willow Creek or other new subdivisions in Mullan. There needs to be a countywide ordinance to prevent the construction of steep road grades to homes, fix narrow one-way in access, and require a developed water resource within subdivision or group of homes.

Additionally, Lookout Ski Hill and Lodge is not within the Shoshone County Fire District №3 fire protection and EMS boundary. Structural protection for this site falls under Shoshone County Sheriff jurisdiction. USFS Lolo National Forest and the Idaho Department of Lands have wildland fire protection responsibilities. It is unclear if West End Fire District in Montana will provide structural fire protection for the Lookout ski area.

FIRE DISTRICT #4

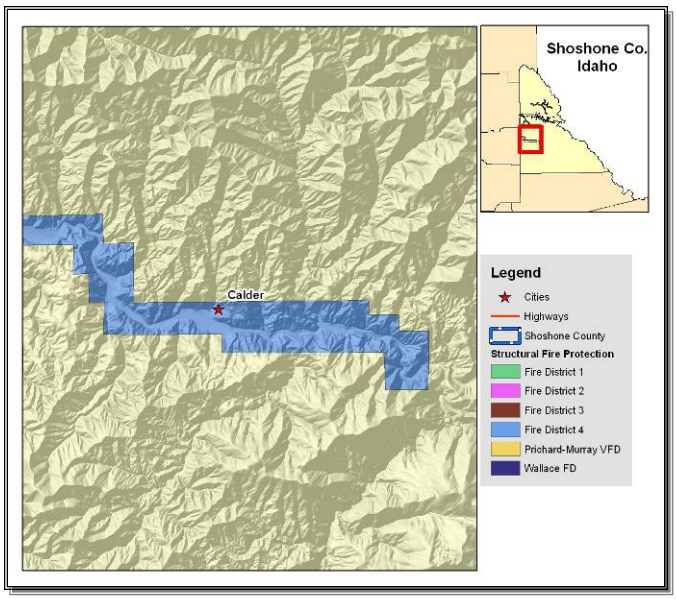
The Western St. Joe River Valley

Shoshone County Fire District №4

District Summary: Shoshone County Fire District №4 provides structural protection to homes along the St. Joe River from the western county line to Marble Creek. The district maintains a station in Calder and Marble Creek.

Issues of Concern: The greatest issue of concern for District №4 is poor communication capabilities with Shoshone County and mutual aid partners.

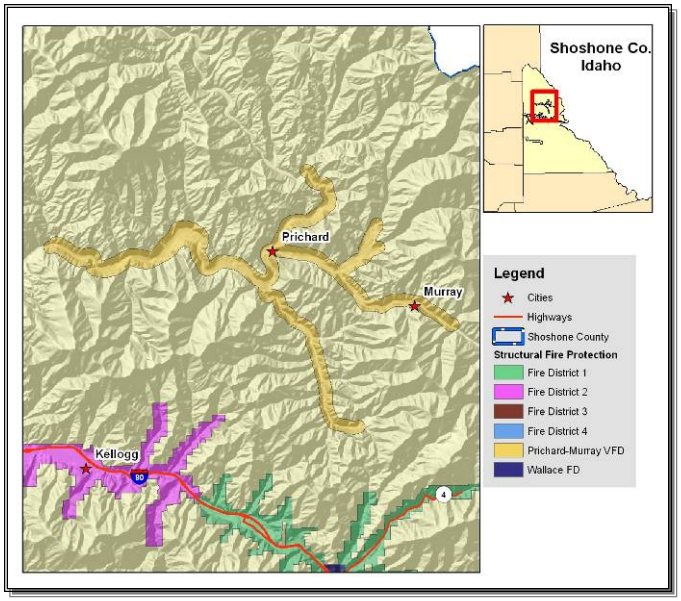
Additionally, there are populated areas upriver of Marble Creek, including Hoyt Flats and Avery that currently have no structural fire protection. The District has repeatedly been asked to respond to fire emergencies in this "no mans land". This practice puts the District at significant risk to lawsuits and can be viewed as a disservice to tax paying customers within their existing coverage area. District №4 is working with the Shoshone County Commissioners to annex unprotected areas along the St. Joe River corridor into the District boundaries.



Prichard-Murray Volunteer Fire Department, Inc.

District Summary: The Prichard-Murray Volunteer Fire Department, Inc. is a small, all volunteer, rural, non-profit organization that provides fire, rescue, and emergency medical services to northern Shoshone County. Fire protection is provided from milepost 11 on the Coeur d'Alene River Road to milepost 31 as well as to the top of Dobson Pass and Thompson Pass. Emergency medical services are provided over 500 square miles while fire protection is offered only in the valley basins. Operating out of 2 stations (Prichard and Murray) with 20 volunteers, the Prichard-Murray Volunteer Fire Department provides service to the isolated communities of Prichard, Murray, Eagle, and Delta as well as several thousand visitors to the Panhandle National Forest. Due to the distance from the Silver Valley and the mountainous nature of our region, mutual aid is typically at least 30 minutes away, in good weather.

The Department provides initial response to the three commercial mining operations within the coverage area. There are also several large buildings built prior to 1900 that are identified as hazards including an 18,000 square foot museum that is made up of several interconnected buildings. Major infrastructure within the Department boundaries includes Forest Highway 9 (a main corridor between northern Montana, Idaho, and eastern Washington) and 27 miles of petroleum transmission pipeline.



Issues of Concern: There are numerous issues for the Prichard-Murray Volunteer Fire Department including funding and capitol improvements as well as access and water supply issues.

Funding: The Prichard-Murray Volunteer Fire Department, Inc. is a non-profit corporation and is not a political subdivision or taxing entity. The Department subsists solely on fundraisers, donations, and what grants can be generated for much needed improvements. The problem lies in the fact that this source of funding is variable from year to year and does not always provide sufficient funding for operations and improvements. This lack of a stable funding mechanism puts the entire Department at risk. Another concern is growth. Even in the current depressed economy, several homes have been built within the Department's coverage area. As a non-governmental agency, the Department has no way of assessing impact fees for new construction. Because the organization exists on such a limited budget, every additional residence strains the capabilities of the Department's resources. Growth is also occurring as a result of formerly recreational properties turning into full time residences. As more people move into the area, there is a higher likelihood of incidents.

Access: Access in the Prichard-Murray area is particularly difficult because homes are built on driveways or roads that have substantially limited access. Some of these roads have bridges, both private and US Forest Service owned, with inadequate weight limitations. Many of these

bridges do not have signage indicating the limits. Some roads are too steep for fire apparatus to access, especially in the winter. The closure of the Old River Road during the winter has also had a negative impact on the Department. Response to homes on the Old River Road is delayed in the winter as firefighters must drive over 20 miles to access this part of the Department's service area.

Water Supply: Although there is one water utility and two other private water systems in the Department's response area, only one of these systems has fire hydrants. The community of Murray has no functional water supply system. One private water system protects an area of about 15 homes and has a 100 gallon per minute pump that supplies an outlet in their pump house. Lastly, Shoshone Camp has a private water system that has hydrants, but its location is too remote to be of assistance to other areas within the Department's service area. There needs to be positive pressure water systems in the primary communities as well as improved rural water supply access.

Capital Improvements: There are a number of capitol improvement concerns for the Prichar-Murray Fire Department. Recently, the Department has been asked to change radio frequencies from what has been used for years because it is an alternate frequency for the Shoshone County Sheriff's Department. This has had a large impact because of the costs, the technical nature of making such a switch, and the anticipated maintenance costs.

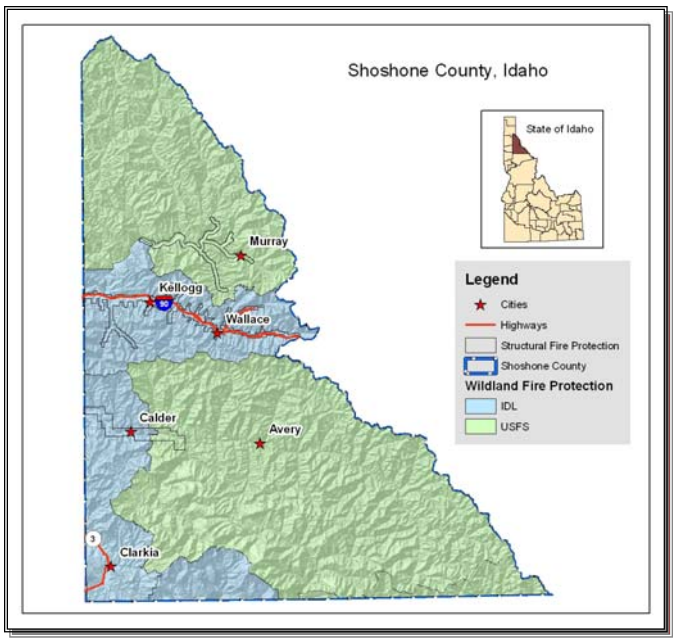
Fire stations are another concern for the Department. The station located in Murray is completely inadequate and needs replaced. It has two apparatus bays and is not tall enough to house modern firefighting apparatus. This station needs to have at least three apparatus bays that can house modern equipment. A new station, including basic equipment, also needs to be built in the Copper Camp or Shoshone Camp areas due to the lengthy response time to these areas. A satellite station would drastically improve the Department's capabilities and protection services for residents in this area. There is also a need to have a station that can access the Old River Road year round, but this is such a remote area that it will likely have to wait several years.

USDA Forest Service – St. Joe National Forest

District Summary: The US Forest Service provides wildland fire protection only. The St. Joe National Forest covers a large section of Shoshone County from the Clarkia area north to the Silver Valley. The Forest maintains field offices in St. Maries and Avery.

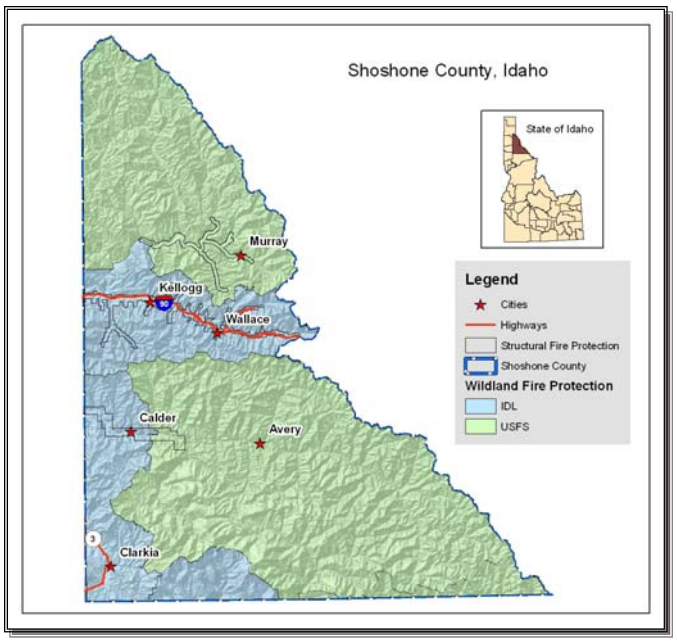
The St. Joe National Forest is a partner in the North Idaho Cooperative Operating Plan and the State of Idaho Annual Cooperative Operating Plan.

Issues of Concern: Major concerns for the St. Joe National Forest include increasing residential growth in the wildland urban interface as well as the presence of the Bonneville Power Administration transmission line.



USDA Forest Service – Coeur d'Alene National Forest

District Summary: The Coeur d'Alene River Ranger District of the Idaho Panhandle National Forests provides wildland fire protection on nearly 690,000 acres throughout Shoshone, Kootenai, and Bonner counties. Although most of the CDA River Ranger District's protection is National Forest System (NFS) lands, their protection also includes private ownership and public lands managed by the Bureau of Land Management. The majority of the district's fire protection lies within the North Fork of the CDA River drainage, although it also includes protection east of Hayden Lake, Coeur d'Alene, Coeur d'Alene Lake, and north of the Chain Lakes. The district has one Fire Management Officer who manages an active fuels program as well as firefighters in both district offices, Fernan and Smelterville. Each office has and Assistant Fire Management Officer who directly supervises two fire engine modules (one Type 4 engine and one Type 6 engine). The district generally sees an active fire season managing human-caused fires, lightning-caused fires, and more recently, fires that are managed for resource benefits. The district's prescribed burning program generally includes a target of at least 1,500 acres per year to be completed in spring and fall burning seasons.



Issues of Concern: The primary concern for the Coeur d'Alene River Ranger District is the protection of public and firefighter safety, which is most challenging in the district's extensive Wildland-Urban Interface. In addition, the North Fork of the CDA River corridor is heavily populated with recreationists during the fire season. Two major transmission lines bisect the district, as well as many smaller transmission and distribution lines, and three gas pipelines.

Bureau of Land Management

District Summary: The BLM Coeur d'Alene District administers land management on BLM lands in their North Idaho Fire Planning Unit. The goal for wildfire management in this area is to protect life and property while returning fire to its natural role in the ecosystem. The BLM Resource Management Plan directs the management of wildfires to include objectives for all wildland fire emphasizing firefighter and public safety while protecting resources and assets and minimizing suppression costs. Shoshone County is split into the Central Fire Management Unit (FMU) (Silver Valley area north) and the South FMU (St. Joe River corridor and Clarkia) for the Coeur d'Alene District. The BLM has ranked the priorities for the Central FMU as high for suppression, wildland fire for resource benefit on select lands only, high for prescribed fire treatments, high for non-fire fuels treatments, and high for community assistance and protection. Priorities in the South FMU are low for suppression, wildland fire for resource benefit on select lands only, low for prescribed fire treatment, low for non-fire fuels treatment, and low for community assistance and protection.

The Coeur d'Alene District has facilitated cooperative management county governments and participates on the Shoshone County WUI planning committee. The BLM also maintains an "offset" agreement for fire suppression with the Idaho Department of Lands. This means that the IDL is providing fire suppression on BLM lands in Shoshone County in exchange for the BLM providing fire suppression services on State land in southern Idaho. The BLM also has a memorandum of understanding with Clearwater-Potlatch Timber Protective Association.

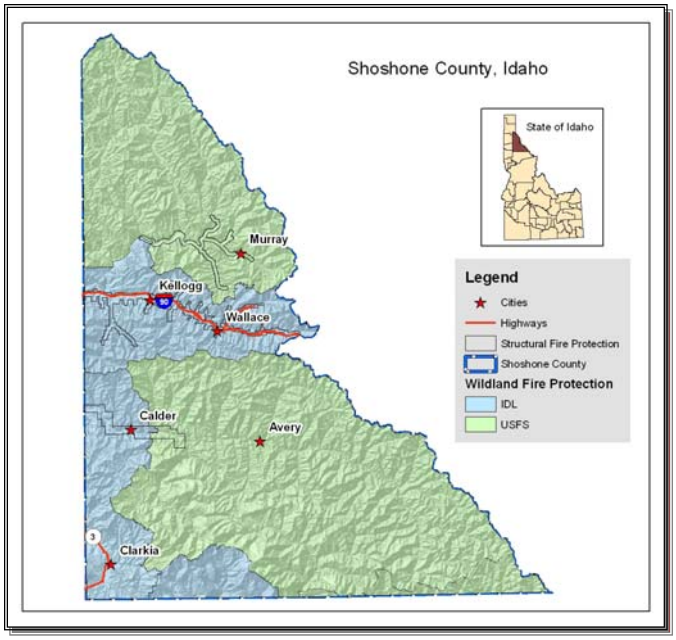
Issues of Concern: As identified in the BLM Fire Management Plan (2010), issues of concern for the Coeur d'Alene Field Office include forest health, forest products, air quality, forest management, fish and wildlife, cultural resources, and transportation and travel management.

Idaho Department of Lands, Cataldo Supervisory Office

District Summary: The Idaho Department of Lands (IDL); Cataldo Supervisory Area's administrative district encompasses approx. 888,300 acres of state, federal and private lands. The IDL's wildland fire responsibilities include pre-suppression (preparedness), prevention, and fire suppression. The Cataldo Fire Protection District encompasses approximately 312,300 acres and has the responsibility to suppress wildland fires within this district boundary pursuant to Chapter 1: Idaho Forestry Act 38-107; Uncontrolled fires a nuisance. In Shoshone County, the Cataldo IDL office is a member of the Shoshone County Fire Prevention Cooperative, which coordinates all the structural and wildland prevention activities within the Silver Valley. Fire suppression readiness is maintained during the closed fire season of May 10th to October 20th. The IDL has mutual aid agreements in place with all area fire agencies.

Burning permits are required from May 10th – October 20th. Permits are issued based upon the consensus of the Shoshone County Fire Chief's Association. Permitted burners are also asked to call the Idaho Department of Environmental Quality hotline to see if smoke dispersal is adequate before burning.

Issues of Concern: Issues of concern for the Cataldo office include educating the public and communities on defensible space techniques, accurate mapping as new residences are built in the WUI, and active participation in the Shoshone County Fire Prevention Cooperative.



Clearwater-Potlatch Timber Protective Association

The Clearwater Timber Protective Association and the Potlatch Timber Association were separately organized in the early 1900's. In 1966, these two entities merged to form the Clearwater-Potlatch Timber Protective Association, a non-corporate entity. Subsequently, on July 16, 1982, the Association completed filings for incorporation under the Idaho Nonprofit Corporation Act and became the Clearwater-Potlatch Timber Protective Association, Inc.

The Association is controlled by forest landowners belonging to its membership and subject to the provisions of the Idaho Forestry Act. The Association is primarily responsible for the conservation and protection of the forests and forestland within the State of Idaho; specifically, the Palouse, Potlatch, and North Fork of the Clearwater River drainages.

A cooperative agreement continues to this date between the Association and the State Board of Land Commissioners through the Director of the Idaho Department of Lands. The purpose of this agreement is to clarify the forest protection relationship between the Association and the Idaho Department of Lands. It defines the reimbursable expenditures and emergency fire suppression expenditures that may be incurred by the State and Association. In addition, the agreement addresses the following: (1) fire protection plans, (2) fire management, (3) reports and records, (4) budgets, (5) administrative matters, (6) payments, (7) duration, and (8) limited obligation by the State.

The protection agreement with the Corps of Engineers to provide additional protection services around Dworshak Reservoir was continued during the 2003 fire season. This agreement provides for boat patrols, aerial patrols, fire prevention, prescribed fire, and maintenance efforts in the campsites.

The C-PTPA maintains 5 stations located at Boehls Cabin, Headquarters, Elk River, and Orofino (administrative office). All aircraft resources are based out of Orofino. The Association has over 1 million acres of wildland fire protection in Clearwater, Latah, and Shoshone County. CPTPA has cooperative agreements in place with the IDL, US Forest Service, BLM, and rural fire districts.

Issues of Concern: Residential growth in the WUI is increasing at a fast rate. This will require additional response capabilities and prevention efforts for CPTPA fire wardens and local fire chiefs.

CPTPA needs to update radio communication to meet narrow band requirement by 2013.

Fire Protection Issues

The following sections provide a brief overview of the many difficult issues currently challenging Shoshone County in providing wildland fire safety to citizens. These issues were discussed at length both during the committee process and at several of the public meetings. In most cases, the committee has developed action items (Chapter 6) that are intended to begin the process of effectively mitigating these issues.

Urban and Suburban Growth

One challenge Shoshone County faces is the large number of houses in the urban/rural fringe compared to twenty years ago. Since the 1970s, a segment of Idaho's growing population has expanded further into traditional forest or resource lands. The "interface" between urban and suburban areas and the resource lands created by this expansion has produced a significant increase in threats to life and property from fires, and has pushed existing fire protection systems beyond original or current design or capability. Many property owners in the interface are not aware of the problems and threats they face and owners have done very little to manage or offset fire hazards or risks on their own property. Furthermore, human activities increase the incidence of fire ignition and potential damage.

It is one of the goals of this document to help educate the public on the ramifications of living in the wildland-urban interface, including their responsibilities as landowners to reduce the fire risk on their property and to provide safe access to their property for all emergency personnel and equipment. Homeowners building in a high fire risk area must understand how to make their properties more fire resistant using proven firesafe construction and landscaping techniques, and they must have a realistic understanding of the capability of local fire service organizations to defend their property.

Rural Fire Protection

People moving from urban to more rural areas frequently have high expectations for structural fire protection services. Often, new residents do not realize they are living outside a fire protection district, or that the services provided are not the same as in an urban area. The diversity and amount of equipment and the number of personnel can be substantially limited in rural areas. Fire protection may rely more on the landowner's personal initiative to take measures to protect his or her property. Furthermore, subdivisions on steep slopes and the greater number of homes exceeding 3,000 square feet are also factors challenging fire service organizations. In the future, public education and awareness may play a greater role in rural or interface areas. Great improvements in fire protection techniques are being made to adapt to large, rapidly spreading fires that threaten large numbers of homes in interface areas.

Debris Burning

Local burning of trash and yard debris has been identified as a significant and growing cause of wildfires throughout Shoshone County. Not only are some people regularly burning outside of the designated time frame, but escaped debris fires impose a very high fire risk to neighboring properties and residents. A growing portion of local fire department calls are in response to debris fires or "backyard burning" that either have escaped the landowner's control or are

causing smoke management problems. It is likely that regulating this type of burning will always be a challenge for local authorities and fire departments; however, improved public education regarding the county's burning regulations and permit system as well as potential risk factors would be beneficial.

Pre-planning in High Risk Areas

Although conducting home, community, and road defensible space projects is a very effective way to reduce the fire risk to communities in Shoshone County, recommended projects cannot all occur immediately and many will take several years to complete. Thus, developing pre-planning guidelines specifying which and how local fire agencies and departments will respond to specific areas is very beneficial. These response plans should include assessments of the structures, topography, fuels, available evacuation routes, available resources, response times, communications, water resource availability, and any other factors specific to an area. All of these plans should be available to the local fire departments as well as dispatch personnel.

Shoshone County Forest Health Collaborative

Shoshone County, Idaho is in the process of redefining the community's role in forest management. Opportunities exist to address ecological restoration and stewardship needs, while providing quality jobs for local workers and restoration "by-products" for local manufacturing. Accomplishing this requires a new approach to natural resources stewardship; one that is locally supported, incentive-driven, and reliant on the power of solutions that integrate the environmental, economic, and social needs of communities. Collaboration between diverse stakeholders and land management agencies is an essential tool in this approach. The mission of the Shoshone County Forest Health Collaborative is to ensure the public health, safety and welfare, and protection of Shoshone County residents and property from wildfire through science-based consideration of ecosystem components; and to promote a sustainable ecosystem, economic viability, and quality of life through collaboration.

The Shoshone County Forest Health Collaborative's Forest Health Subcommittee is working in tandem with the WUI planning committee to plan and implement fuels reduction and forest health improvement projects in areas that will provide wildfire protection to communities and critical infrastructure.

Fire Service "No Man's Land"

A large area surrounding the populated areas of Clarkia, Avery, and between milepost 1 and milepost 11 on the Forest Highway 9 are not currently within a structural fire protection district. In many cases, the homeowners are not aware that they do not have structural fire protection. Additionally, some landowners are aware of the inadequacy, but are resistant to formation of a new fire district or annexation into an existing district for various reasons. Shoshone County supports researching the options available to improve the fire services in this area, which may involve a well-organized public education campaign to ensure homeowners in the area are aware of the situation and understand the ramifications.

Road and Bridge Standards

Fire chiefs throughout Shoshone County have identified home accessibility issues as a primary concern in many of the rural areas in the county. Some private driveways are too narrow and/or too steep and most do not have adequate turnouts, turnaround areas, or alternative escape routes. In addition, some privately-maintained rural access roads have become overgrown by vegetation, effectively restricting safe access, particularly in a wildfire situation.

Inadequate private bridges lacking weight rating signage are also a common problem. There have been at least two documented incidents of loaded trucks collapsing substandard bridges. Due to the risk of bridge failure and resulting personnel injury and equipment damage, fire and medical service organizations will not cross bridges that may be incapable of handling the weight of emergency response apparatus.

The planning committee involved in the development of this CWPP found accessibility due to poor road conditions, steep grades, lack of turnouts/turnarounds, and substandard bridges to be a significant issue throughout. It is a clear goal of this planning process to begin the development, enforcement, and maintenance of accepted road and bridge standards countywide. As part of this process, the committee has recommended action items for completing an inventory and certification process for bridges, road improvement projects, and access improvement through roadside fuels reduction.

Avista Utilities

Avista Utilities has over 100 miles (1250 acres) of transmission rights of way in Shoshone County and 350 miles of distribution lines crossing the county. Transmission lines are integral to the transfer of electricity and the electric grid. Avista's vegetation management program is designed to maintain and protect facilities, electric reliability, and associated resources. Annual inspections and line patrols are conducted specifically for vegetation related concerns. Patrols are used to identify trees that pose a hazard to the conductors as well as to assess general vegetation conditions and growth on the ROW. Maintenance activities on these lines involve right of way clearing, hazard tree patrol, and herbicide treatments. The desired outcome is a stable, low growing plant community that will reduce the risk of outages, fire hazard, or interfere with right of way access. Avista is an active participant in Shoshone County's fire mitigation and prevention programs. They also allow shared uses of their access roads and support the use of power line corridors as fuel breaks.

Wildland Fire Specific Building Regulations

As the trend to build in the wildland-urban interface continues, many counties and communities have begun to develop wildland-urban interface codes for new construction that regulate the use of certain building materials (roofing, siding, vents, decking, etc.) in high fire risk areas. In addition, WUI codes regarding road and bridge standards, availability of water resources, proximity of vegetation, and other requirements have been adopted in communities and counties across the United States.

Shoshone County has begun researching examples of wildland fire specific building codes in the wildland urban interface areas.

Hazard Trees

Hazard trees are typically individual trees in publicly-used areas that create a wildfire or safety hazard due either to their location or as a result of poor health and/or structure. It is often difficult and expensive to remove hazard trees as they are generally widely scattered over large areas. Shoshone County is working on an effort to remove hazard trees along road right-of-ways and near public facilities and critical infrastructure.

Shoshone County is developing a mechanism to identify and remove hazard trees in public areas throughout the County. This has been identified as a high priority action item in this document.

Hazardous Fuels Treatment Project Maintenance

Shoshone County has an established Fire Mitigation program that has been implementing hazardous fuels reduction projects for over 8 years including thinning, pruning, brush cutting, and debris removal on hundreds of acres countywide. Many of the program's earliest projects are now in need of maintenance work as brush and conifer regeneration is beginning to once again increase the wildland fire risk. Many of these projects were completed first because they present the highest risk to residents or infrastructure. Currently, there are few mechanisms in place locally or at the state and federal levels that provide assistance for maintenance projects. As hazardous fuels treatment programs continue to develop, the need for maintenance on existing high priority project areas will become increasingly important.

Public Wildfire Awareness

As the potential fire risk in the wildland-urban interface continues to increase, it is clear that fire service organizations cannot be solely responsible for protection of lives, structures, infrastructure, ecosystems, and all of the intrinsic values that go along with living in rural areas. Public awareness of the wildland fire risks as well as homeowner accountability for the risk on their own property is paramount to protection of all the resources in the wildland-urban interface.

The continued development of mechanisms and partnerships to increase public awareness regarding wildfire risks and promoting "do it yourself" mitigation actions is a primary goal of the CWPP planning committee as well as many of the individual organizations participating on the committee.

Superfund Site

During the operations of the smelter located at Smelterville, an enormous volume of pollutants were expelled into the atmosphere. This atmospheric hazardous waste was distributed downwind during decades of operations. This fine particulate matter settled on the surrounding hills and forestlands during this time of aerial deposition. Some of this contaminated exhaust, after it settled on vegetation and the soil, was washed downstream during and after precipitation events. Additional fallout settled on the forest floor and became a part of the duff layer through the normal process of decomposition of leaves, twigs, and decaying wood. Today, these contaminated particles are incorporated into the upper layers of the forest floor.

These contaminated particles are encapsulated in this identifiable layer of soil duff, then overtopped by new, recent detritus material. This occurs through the normal process of forest soil formation. The risks associated in the forestlands surrounding the location of the now closed smelter site are related to increased erosion. This erosion can occur either from forest harvesting that exposes broad expanses of bare soil or from intense wildfire activity that produces similar results. The exposed soil is not directly the vector of contamination. Instead, it is mobilized when rains intercept the exposed soil layers and carries it down slope to the stream channel. By these means, the contaminants are introduced into the streams and storm water runoff. This mobilization from sub-surface particulate in the soil to the stream channel represents an introduction of particulate contamination that will ultimately be relocated to storm water and flood water sludge deposits, or into Lake Coeur d'Alene.

The forestlands situated downwind of Smelterville are managed by forest industry, IDL, the BLM, the USFS, and several private forestland owners. Historical evidence suggests that aerial contamination was measured as far downwind as Osburn and even Silverton. The means of protecting the potentially contaminated area from erosion begins with using low impact equipment during timber harvest activities. Small amounts of logging slash are generally allowed to remain on-site as this can assist in reducing surface erosion during and after logging operations.

Rapid reforestation efforts will also ensure limited erosion potential. Site specific silvicultural systems are recommended for all impacted area timber harvesting operations. The goal must be to protect these sites from erosion as much as possible. The State of Idaho Forest Practices Act regulates certain conditions of timber harvesting including slash disposal and reforestation targets.

Wildland urban interface areas burned by fires must also be rehabilitated as soon as possible to avoid erosion. Immediate suppression is expected within this zone. The post-fire considerations must address site-specific remediation efforts to immediately intercept surface erosion. This can be accomplished using straw bales anchored to the site and arranged perpendicular to the slope of the site, by using small rubber dams arranged mid-slope in the bottom of the gorges to intercept overland flow, or other tactics. If large fires occur on state or federal lands, then interagency agreements to plan for, and implement these controls can be made ahead of the fires. If a wildfire occurs on forest industry or private lands, then some form of incentive may need to be considered to insure urgent erosion control measures.

In either event, it behooves Shoshone County to work with area forestland owners (private, state, federal), the Idaho Department of Environmental Quality and the public health district, and others to develop a pre-disaster response protocol on wildfire impacted forestlands. In this way, a comprehensive response can be developed before a wildfire occurs.

Current Wildfire Mitigation Activities

Shoshone County Fire Prevention Cooperative

The Shoshone County Fire Prevention Cooperative was started in 1987 with a federal grant. It is made up of individuals from county fire districts, volunteer fire departments, and wildland fire agencies within the Silver Valley. The co-op's primary focus is fire prevention through education, particularly youth education. This Silver Valley partnership of agencies, departments

and individuals pool their resources to accomplish prevention activities extending from Rose Lake to Mullan.

Shoshone County Fire Mitigation Program

The Shoshone County office of Fire Mitigation is responsible for overseeing and coordinating the county fire and fuel management program to implement community fire protection measures and hazardous fuels treatments in conjunction with programs authorized by the Board of Commissioners. The Project Manager works with private landowners, elected officials, various State and Federal agency officials, designated planning committees, the Emergency Services Manager, and the County Commissioners to preserve life and protect natural resources and critical infrastructure from catastrophic fires.

Firewise Communities/USA

The Firewise Communities/USA program is designed to provide an effective management approach for preserving wildland living aesthetics. Participating in this educational program gives communities in Shoshone County a way to balance sustainable ecological lifestyles with an effective means of wildland fire protection.

This Community Wildfire Protection Plan will fulfill the community assessment requirement for participation in the Firewise Communities/USA program for all population centers in Shoshone County. The Shoshone County Fire Mitigation program will assist communities with participation in the Firewise Communities/USA program by managing the applications and other paperwork, maintaining the CWPP, ensuring applications meet the requirements of the program, and assisting with the development and funding of wildfire mitigation activities.

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Chapter 5

Community Fire Risk Assessments

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

Avery

Fuels Assessment – 1 mile from home sites

Forestlands on the south side of the St. Joe River are closed canopy, mature or over mature timber with a component of heavy down material and a large amount of timber litter. In some areas adjacent to the town of Avery, particularly on harvested private lands, the fuel is composed of litter from western red cedar and western hemlock partial harvests.

The slopes along the St. Joe River and near Avery are steep, often 50-60%. As the slope lessens near ridge tops, commercial logging has provided a patchwork of mature timber broken by plantations of 12-20 foot tall trees. There are also areas of interspersed selective harvests where some slash abatement has occurred either by burning, natural decomposition, or a combination of both.

On the north side of the St. Joe River is a mixture of steep, open shrub and grassy fuels with a great deal of rock outcrops, especially when in close proximity to the St. Joe River or the North Fork. Where timber is present, it is patchy to uniform Douglas-fir with some areas more prone to ponderosa pine transitioning to Douglas-fir. Very little down material or timber litter is present.

Fuels Assessment – 3 miles from community center

The area 2 to 3 miles from Avery south of the St. Joe River is mature to over mature forests with a large down fuel component (slash and debris). However, in this zone there are plantations and previous

commercial timber sales where slash has been burned; thus, providing small areas of relief in the fuel base should a large fire occur.

In general, the fuels on the north side of St. Joe River are younger Douglas-fir stands or dense brush fields with little to no timber present.

Community Risk Assessment

Avery has a population of approximately 57 permanent residents. There are about 66 structures in this community concentrated tightly near the community center. All of these buildings are considered at risk to loss in the event of a wildfire because of the characteristics of the region including limited access. There is no rural fire department providing structural fire protection in the community of Avery. Wildland fire protection is provided by the US Forest Service, St. Joe National Forest.

The highest concentration of forest fuels near homes is in the area immediately adjacent to the community on the south side of the St. Joe River. In some places, the logging debris is within 100 feet of homes. When combined with the steep slopes, this becomes a high fire risk area.

Because of the reduced fuels risk, the moderate slopes, and the dispersion of the homes in this community; home defensible zones are recommended. Two additional activities should be undertaken in this community to reduce the risk of casualty loss in the event of a fire. First, a community defensible zone should be created that extends from the paved road to approximately 250 feet above the roadway on the north-facing slope adjacent to the homes extending from the Kelly Creek Road west to Roundhouse Gulch. Within this protection zone, trees should be thinned, pruned, and shrubs removed, piled, and burned. This protection zone would increase the probability that homes will survive a wildland fire burning on the hill above Avery.

Second, the logging slash in the private land south of Avery should be treated to reduce the fuel load as much as possible. The combination of treating the fuels and creating a community defensible zone will greatly reduce the wildfire risk.

Calder

Fuels Assessment – 1 mile from home sites

On the north side of the St. Joe River and on the flat area south of the River, native grass and pasture is grazed while its green until late summer. Fires in this area would most likely burn through the fine, porous grass, especially in moderate to extreme drought years. Surface fires would be expected to move rapidly through the cured grass.

North of the River, grass pastures transition into grass and shrub with a timber overstory. The steepness of the slope also increases as the terrain changes from flat to moderate slopes with short benches. Fires would tend to be surface fires with intensities governed by the amount of herbaceous fuel and down and dead stemwood.

Fuels Assessment – 3 miles from community center

East of town and north of the River within the 3 mile radius from the community center, the fuels change from open grass and shrub with a timber overstory to mixed conifer stands that range from open ponderosa pine and Douglas-fir mix to closed Douglas-fir or a Douglas-fir/grand fir mix. Ground fires with occasional flare ups through fuel concentrations would be expected in this fuel type. Torching of individual trees, spotting, jackpotting, and crowning is also likely.

All areas transition from flat, grassy, pasture to closed canopy mixed conifer stands with heavy concentrations of down material either from over maturity or from activity. Fires in this fuel type can be expected to burn intensely, especially through areas with heavy ground fuel concentrations. As described above; crowning, spotting, jackpotting, and torching as well as suppression difficulties can be expected.

Community Risk Assessment

There is an estimated permanent population of less than 50 individuals living in the community of Calder. There are approximately 58 structures at risk within 3 miles of the community of Calder. All of these structures are considered at moderate risk due to the dispersion of buildings and the high degree of wildland interface characteristics. Although it is not a high risk area currently, this may change in the next decade, depending on forest growth rates and fire mitigation efforts in the area.

Calder supports the Shoshone County Rural Fire District №4 with fire stations in Calder and further up the St. Joe River in Marble Creek. Wildland fire protection is provided by the Idaho Department of Lands in St. Maries. However, the boundary of the protection zone for this agency extends just to the border of the 3-mile community buffer zone. Beyond this zone eastward, the US Forest Service, St. Joe Ranger District is responsible wildland fire protection coverage.

Because of the reduced fuels risk, the moderate slopes, and the dispersion of the homes in this community; home defensible zones are recommended. These zones should follow the basic recommendations for homeowners in the wildland urban interface and should include the removal of shrubs, ladder fuels, and dense forests within 150 feet of homes with fire breaks strategically located around homes or groups of homes. Access issues should be addressed for each home and include an assessment of driveway width, the creation of turnouts, and an evaluation of weight restrictions on bridges and cattle guards. In some instances, evacuation routes should be marked while some routes will require road improvements to ensure that homeowners will have alternative routes in an emergency.

Cattle grazing is common and has served to reduce the late summer fuel load in fields and forestlands around this community. This reduction of grasses and shrubs serves the community well and is a practice that should be continued.

Canyon Creek Drainage

Fuels Assessment – 1 mile from home sites

The entire Canyon Creek drainage from Wallace to beyond the community of Burke, is characterized as steep forested slopes climbing dramatically from Canyon Creek to the

surrounding ridges. The vegetation is primarily Douglas-fir and other conifers that are between 60 and 90 years old. The understory has a minor amount of herbaceous shrubs, grasses, and litter from the canopy. Timber harvesting has been conducted in various areas with road building activities accessing only a minor amount of the drainage. Slopes are steep, averaging around 40% in some areas.

Home sites in this drainage are all concentrated along the river bottom from Wallace to Burke in small clusters. These homes capitalized on the flatter areas for building sites; however, the steep canyon walls climb immediately from these sites to the forest and the canyon walls. In many instances, forest trees overtop homes obscuring them from view, even from only a few yards away.

Fuels Assessment – 3 miles from community center

There is little significant difference between the forest conditions surrounding the home sites of this drainage and the timber found on the slopes and ridge tops. For planning purposes, the differentiation between the two can be ignored in favor of considering the creation of defensible zones around the home sites and considering fire spread potential.

The upper end of the drainage transitions from a mixed conifer forest to a mountain forest ecosystem dominated by subalpine fir, western red cedar, mountain hemlock, and wet-site shrubs. The duff layer in these forests is very thick. Fires are rare in these high elevation ecosystems, but when they do occur (about every 100-500 years) they can be very intense.

Power lines and access roads cut through the forest providing a connection between Idaho and Montana power grids. Shrubs and small trees are growing under the power line right-of-way. Although it is not a problem at this time, the right-of-way must be kept cleared of vegetation that may support an ignition sparked by the power line. Trees along the edges of the right-of-way for a distance of 100 feet should be evaluated for potential hazard tree removal. This component of the ecosystem is at a high elevation and at a high risk of rapid wildfire spread due to dead and dying subalpine fir and lodgepole pine. This route is the only escape for residents of the community if access to Wallace is compromised. In the event that a fire starts lower in the drainage, residents may be forced to flee the area through this escape route. Every effort should be made to guarantee that this area has a low probability of ignition.

Community Risk Assessment

Canyon Creek includes the communities of Burke, Mace, and Gem. State Highway 4 winds up the river bottom where homes, mining structures, and other buildings are located. There are approximately 103 structures located in the area. Although all of these structures are along Canyon Creek and the state highway, they are all at very high-risk to wildfire loss. Structural fire protection is provided by Fire District №1 with fire stations in Wallace and Osburn. Wildland fire protection is provided by the Idaho Department of Lands.

The greatest risk for casualty loss in the Canyon Creek drainage is a wildfire that starts in the vicinity of Wallace and spreads up-canyon in the direction of Gem, Mace, and Burke. If this ignition is accompanied by northeast winds, which is the prevalent wind direction in late summer, the steep canyon walls may funnel the heat, flames, and smoke up the river bottom. This "worst-case-scenario" would be difficult for fire fighters to access and suppress. It would also be a challenge to evacuate the residents via the US Forest Service Road 7623 to the northeast of the drainage and into Montana.

If high winds from the northeast were not present at the time of ignition, then it is probable that the fire spread would be limited to upslope locations with spotting across the drainage. Fire spread in the area could easily approach 500 feet per hour on the flat slopes and over 5 miles per hour on the steeper slopes. It would not be difficult for fire moving upslope to spread to the crowns of the trees if fuel moisture was below 8% and midslope flame speeds were above 5 miles per hour.

Homes in Canyon Creek are at risk to ignition in the event of a wildfire. Only a few home sites near Wallace have any defensible space surrounding them. Other home sites in the drainage are characterized by dense forest canopies that overtop roofs and overhang outbuildings. All of these home sites would benefit greatly from the creation of home defensible space surrounding personal property according to Firewise standards.

Access for fire fighting equipment should be evaluated with respect to bridges to determine the maximum weight the bridges will support. These ratings should be posted on the bridges and kept in a record book at the Fire District №1 station. In addition, evacuation routes should be clearly marked in the event of a fire emergency. Further, these routes should be evaluated by a roads specialist to ensure that 2-wheel drive vehicles are capable of negotiating the designated escape routes.

Clarkia

Fuels Assessment – 1 mile from home sites

Located in the southwestern corner of Shoshone County, Clarkia is surrounded by managed forests in the possession of a variety of federal, state, and private owners. The landowners in this area are actively managing forestlands through timber harvesting, fuels and slash reduction, reforestation, thinning, and road maintenance. The resulting landscape is a diverse mix of species, ages, and density. As a result, fire risk in this area is generally lower than in other locale in Shoshone County.

To the west of Clarkia, US Forest Service ownership dominates. These forests have been managed to a lesser degree than the surrounding privately owned land. Private ownerships show evidence of past fires and logging activity. Because of the close proximity to the community of Clarkia, the dense, overcrowded forests with dead and dying trees represent increased risks to wildfire spread. This land is managed by the US Forest Service and is also the location of the US Forest Service work center.

Pasture lands and scattered shrubs dominate the landscape immediately surrounding the community of Clarkia and much of State Highway 8. The area transitions from fescues and

grasses to scattered forest tree species. The grasses are a fire spread risk when cured or dead as spread is governed by the fine, very porous, and continuous herbaceous layer. Fires can move rapidly through this layer and transition into the forest or homes. The pasture fields support active cattle grazing, which helps keep the grasses clipped and the resulting fuels reduced. Because of this, the homes' fire risks are greatly abated.

Commercial forestlands near homes and beyond are representative of a diverse mix of species, age classes, and density giving rise to a diversity of potential fire behavior. This area has moderate slopes and is well roaded.

Fire fighting efforts in this zone are aided by the diversity of forest cover types that would burn only in the most extreme weather conditions because of the discontinuous tree canopy and lack of surface fuels. Overall, the community of Clarkia is likely at the lowest risk to wildfire spread in Shoshone County because of the actively managed forestlands.

Community Risk Assessment

The Census reported that the population of Clarkia was 190 persons in 2000. There are approximately 85 buildings within a 3-mile radius of the community of Clarkia. All of these buildings are considered at low to moderate risk to loss in a wildfire that burns the forests surrounding this community. This particular community is surrounded by managed forests that are not likely to burn intensely, but still have a potential to burn. For this reason, this community has been ranked with a low to moderate risk rating.

There is no rural or volunteer fire district serving the community of Clarkia. The Clearwater-Potlatch Timber Protective Association provides most of the wildland fire protection to the south and southeast and the Idaho Department of Lands (St. Maries) and US Forest Service (St. Maries) provides wildfire protection to the north and northeast.

Although this community has a relatively low risk to wildfire loss, there are specific treatments that can improve the risk rating for individual homes and areas. Specifically, some of the homes in this Clarkia are built at the intersection of fields and forestlands. While these areas have adequate access, some are at increased risk to wildfire because of trees with branches reaching to the ground, dead and dying trees, and tall, ungrazed grasses. These individual homes would benefit from the creation of home site defensible space surrounding the home and out-buildings. In addition, some of these homes have small bridges or cattle guards on their driveway that should be weight-rated. In a few cases, driveways should be trimmed of overhanging shrubs and trees to allow emergency vehicles better access.

Cattle grazing in this community keeps the forbs, fescues, and shrubs trimmed and reduced in volume. This serves to protect the community from a wildfire and should be continued into the future. Increasing grazing on forestlands would decrease the fuels in these areas as well.

Active forest management south and southeast of Clarkia has targeted mature forests, which typically would have had an with increased risk of wildfire. US Forest Service land managers removed the small diameter trees, cut the underbrush, and prepared

the site for prescribed fire treatment in 2002. These sites are located near roads and on south aspects. The trees left on site are generally dominant and co-dominant Douglas-fir, ponderosa pine, and western larch. The trees are healthy and well spaced. These sites represent an excellent example of wildfire mitigation efforts in and around communities.

Additional US Forest Service lands to the west of Clarkia and State Highway 8 would benefit from similar treatments. Treatments should focus on those lands adjacent to the highway and where recreational uses are the greatest.

Kellogg & Wardner

Fuels Assessment – 1 mile from home sites

Located at the base of the Silver Mountain ski area, Kellogg straddles Interstate 90 and continues along the hills to the south towards Wardner. Additional home sites are scattered up gulches in this region where access and forest fuels are a concern. North of Kellogg, the hills still show signs of the area's mining history as exhibited by slow tree establishment and growth. South of Kellogg, young western white pine less than 30 feet tall dominate.

To the east, Montgomery Creek has a few dozen homes located on either side of the river. The west side of the gulch is dominated by brush fields with scattered ponderosa pine trees while the east side has young trees and little underbrush. Access is provided from the south by the Silver Valley Road and by a forest access road 2.3 miles north of the Interstate that leads into National Forest lands. Further to the east, north of I-90, Moon Creek is similar to Montgomery Creek except that the escape route to the north has been closed by the Forest Service.

Fuels Assessment – 3 miles from community center

Beyond the immediate zone of homes in Kellogg and Wardner, the ridge tops support a variety of forest types with moderate risk factors for wildfire.

Community Risk Assessment

Kellogg had a population of 2,591 according to the Census in 2000 making it the largest community in Shoshone County. The community's structures are concentrated near the downtown area. There are approximately 1,028 structures within 2 miles of the community center (excluding those near Smelterville). Due to recent growth and development within Kellogg, the city council has installed mechanisms that require new construction to follow Firewise practices such as cluster developments and establishing structural sprinkler systems in order to lessen the fire risk. The downtown area is not considered to be at risk to wildfire loss. The area immediately surrounding Kellogg are also not at high risk to wildfire due to past wildfire history and environmental alterations related to mining in the region. The structures located beyond 0.5 miles from the city center including those along the perimeter of the community, in the drainages, and in the surrounding forests are at low to moderate risk to wildfire risk in the future. There are approximately 475 structures in this low to moderate risk zone. As the trees and underbrush continue to re-establish and grow in this area, the fire risk will increase.

This entire area has structural fire protection provided by Shoshone County Fire District №2 with a station in Kellogg. Wildland fire protection responsibilities are shared by the Idaho Department of Lands and Fire District №2.

The water source for the community of Wardner is the North Fork of the Coeur d'Alene River. However, the Milo Creek and Big Creek drainages south of Wardner are tapped to provide domestic water supplies for the communities downstream during an emergency. The forests in this drainage are young, healthy, and at only a slight to moderate risk to wildfire. As these forest stands continue to grow, the fire danger will likely increase without management. Because it may serve as a backup domestic water supply, the forest conditions in the Milo and Big Creek watersheds should be monitored.

Multiple access routes for the residents of Milo Creek between Wardner and Kellogg is a minor factor at this time because of the low fire risk rating; however, access through this area should be improved in the future because it will become beneficial in the event of an emergency.

Although dual access is provided in the Montgomery Creek drainage, the potential escape route to the north is not signed. It is highly recommended that this route be signposted all the way to Prichard. Home access bridges in this drainage should be evaluated for maximum load ratings with the ratings posted and kept on record at Shoshone County Fire District №2 and the IDL's Cataldo office. From a fuels standpoint, the brush fields to the west of the gulch present some degree of risk. However, this brush field is comprised primarily of hardwoods, has an eastward aspect, and there are no homes located on the slope above it. Live fuel moistures will tend to retard any ignition and subsequent spread suggesting that a well-maintained defensible space around the homes adjacent to this brush field would be adequate to protect homes and property from the effects of wildland fire.

The Moon Creek drainage east of Montgomery Creek is similar in forest fuel type and conditions. However, the US Forest Service road that would normally provide an escape route to residents has been blocked. National Forest Development Road 930, when originally built, provided an escape route to Prichard and other points north from this valley. The US Forest Service is strongly encouraged to re-evaluate this permanent road closure in favor of a solution that would allow its utilization in the event of a life threatening emergency.

The forests surrounding Kellogg should be monitored over the next 10 years as the young western white pine stands mature and underbrush thickens. Pruning and the creation of fuel breaks along the natural terrain features should be implemented as funding becomes available. Although it is at a low risk to wildfire currently, this will change over time.

Kingston

Fuels Assessment – 1 mile from home sites

Kingston is located on the western side of Shoshone County along the I-90 corridor. Homes in this community are scattered near the interstate and along the river valleys running north and south including French Gulch, Hunt Gulch, and along the Coeur d'Alene River. Slopes near

homes are more gentle in this area than most of the county with structures scattered in a more diverse pattern. A small amount of livestock husbandry is practiced in the vicinity of Kingston.

Forest habitats are a range of wet site species near the river to dry site species along the hill slopes and ridge tops. Mature forests in this area are characteristically dense with a moderate amount of dead and dying trees in the canopy and a noticeable amount of duff that could carry a ground fire.

Wildfire spread in this region would most likely be carried in the tree canopies and move in the characteristic west to southwest direction after ignition. Residents in this neighborhood have ample escape routes when needed, but there are no signs or planned routes for residents to follow. Home defensibility in this area ranges from excellent to poor. For the most part, the scattered nature of the home sites dictates that defensibility zones will be built around individual homes or possibly around smaller clusters of homes.

Fuels Assessment – 3 miles from community center

Beyond the immediate zone of homes in this area, the ridge tops support a variety of forest types with moderate risk factors for wildfire.

Community Risk Assessment

This community along the Coeur d'Alene River had a population of 500 as reported in the 2000 Census. Combined with Enaville, Kingston is less than 2 miles from Pinehurst and is scattered in all directions from the intersection of the Coeur d'Alene River Road and I-90. There are approximately 288 structures within 3 miles of Kingston, excluding those attributed to Pinehurst. The structures within 0.25 miles of I-90 are not considered at high risk to wildfire; however, those beyond this distance have an increased risk. There are approximately 151 structures in this high-risk zone.

Structural fire protection is provided by subscription to residents of this community by Shoshone County Fire District №2 with a station in Pinehurst. The area from Kingston upriver to approximately Coal Creek has no structural protection. Wildland fire protection responsibilities are shared by District №2 and the Idaho Department of Lands. Wildland protection is transferred to the US Forest Service office in Smelterville at Bumblebee Bridge.

Because of the extremely rural nature of this community, most of the nearly 300 structures are next to the wildland urban interface. Homes have generally been built at the junction of trees and farm fields. Livestock feed in many fields reducing the threat from a grass fire, but the potential threat presented by the forest is still a concern for many residents. Individual home site defensibility zones should be constructed around homes and groups of homes to help prevent losses from wildland fires.

A few homes in this zone exhibit extremely risky characteristics such as firewood stacked against the wooden deck, cedar shake roofs, dense forest trees and shrubs against the house, and limited access. These homes are not only themselves at risk to wildfire, they also put other

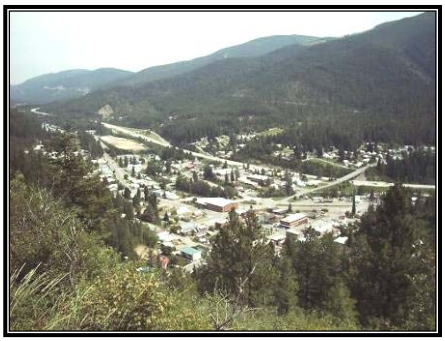
homes at risk to a fire that starts in the home and spreads to the forest and then other homes. These homeowners are strongly encouraged to reduce individual home site risk factors.

Many of the homes located along river access their homes through the use of single driveway bridges. While some of these stream crossings are well constructed, others are not. As with many areas in the region, Kingston is in need of maximum load ratings on bridges with the results kept on file at the local fire station.

Mullan

Fuels Assessment – 1 mile from home sites

Located near the eastern extent of Shoshone County, Mullan sits along Interstate 90, and the South Fork of the Coeur d'Alene River. This community is fairly flat in comparison to other towns in the County. Forests not only surround the community, there are natural forest areas within the borders of town as well. Access to and from Mullan is provided by Interstate 90 both to the east and west.



Forest conditions in the area differ from one side of town to the other. North of Mullan, the slopes are mostly south facing and dominated by Douglas-fir, ponderosa pine, western white pine, and assorted other species. The south side of town is relatively flat to north facing and supports western red cedar, western white pine, western hemlock, grand fir, and lodgepole pine. Slopes in both locations range from fairly flat to over 40%.

In the Mill Creek drainage north of Mullan, a few dozen homes are located very near the main road. The forests in this drainage directly abut private homes. As is the case with other home sites in the county, these homes would greatly benefit from the construction of defensible space; removal of hazard trees, pruning, and removal of slash and other debris. There has been forest management activities conducted on private property west side of the road. Selective harvesting in this area has resulted in a reduced wildfire risk.

Fuels Assessment – 3 miles from community center

There is no significant difference between the forest conditions immediately surrounding the townsite and the conditions found within a 3 mile radius except for the ecological differences dictated by changes in elevation. Landowners in this zone should consider silvicultural prescriptions that will not only accomplish their management objectives, but will also lessen the wildland fire risk to the individual property and the community. These types of practices, implemented on a broad scale, have the potential to make a meaningful difference in fire protection to the community of Mullan.

From Mullan elevations climb to over 5,000 feet on US Forest Service managed land. The BLM is also a significant landowner within 1 mile of the community. Forest health issues dominate any discussion of this forest ecosystem as insects have infected large areas killing thousands of trees. Dead trees are easily seen from I-90 near Mullan and into Montana. This landscape presents a significant fire risk to the communities of Mullan and Larson and the homes along the South Fork of the Coeur d'Alene River. The federal land management agencies responsible for the stewardship of these forests should make every effort to mitigate the potential for loss due to a wildfire.

Community Risk Assessment

Mullan recorded 821 residents during the 2000 Census. This community has approximately 426 structures located within 3 miles of the city center. Not all of these structures are considered at high risk to wildfire loss. Buildings within 1 mile of the city center are at risk, but not to the degree of structures located beyond this distance. It is estimated that 60 of these structures are at high risk and that the remaining 366 have a moderate risk to wildfire. Shoshone County Fire District №3 and the Mullan Volunteer Fire Department both provide structural fire protection. The Idaho Department of Lands provides wildland fire protection.

As mentioned, the homes located in the northwest corner of the community along Mill Creek have been the beneficiaries of good forest management practices near their homes. However, there are still a few activities that will further increase the defensibility of these homes such as pruning. While most of this area is private land, there is a small amount of BLM ground. Firewise techniques should be conducted from the edge of the BLM land on the northern extent southward on the east facing slopes all the way to the area just above Faye Street.

The homes along the northern edge of the community are bordered by forest. Normally, this condition would dictate that a large buffer zone be created upslope of the homes where trees are thinned and debris is removed. However, the trees that border the homes along the northern edge of the community only extend upslope approximately 300 to 400 feet and give way to shrubs, scattered trees, and the Mullan "M". Homeowners should create a defensible space around their homes that includes pruning, thinning, debris and slash removal, and other Firewise landscaping and construction techniques.

South Mullan is divided into two distinct groups of homes separated by a stand of trees bordering Boulder Creek. This stand is substantial and provides both a visual and a noise buffer from the Interstate. However, this dense thicket of conifers is also a fire risk. Given the average August conditions at midday, a fire starting on one side of the community could spread to the other side in as little as 45 minutes. The number of homes in the area and the impact forest management activities would have on lessening potential losses justifies giving this area a high priority for treatment.

Further south of the community, timber harvesting activities have left a stand that will retard the spread of wildfire. It is strongly recommended that the patches of trees surrounding and within South Mullan be thinned and pruned with all of the slash removed.

Residents are advised to create defensible space around their homes in conjunction with the fuel mitigation activities on forested areas both within and surrounding the community. Many homeowners in South Mullan have wood piles against structures, rain gutters filled with needles, and trees touching or overhanging roofs and siding. These conditions put all homes in the community at risk. A community focus to make homes "fire-safe" would benefit the entire town.

Beyond the community's borders is a variety of wildland urban interface conditions from houses in the valley surrounded by a combination of trees and grass fields to homes located completely within the forest. While fuel conditions are not at the highest risk for wildfire spread,

homeowners are advised to create defensible space and limit the potential that a fire could ignite on their property.

Nine Mile Creek Drainage

Fuels Assessment – 1 mile from home sites

The Nine Mile Creek drainage runs primarily north-south from Wallace through the community of Bunn. Nine Mile Road provides access between Wallace and Bunn and the communities to the north including Prichard and Murray. The ownership of the drainage is a scattering of BLM, US Forest Service, and private owners. Forest conditions in the drainage support wet site tree species such western red cedar, western hemlock, grand fir, and some of the drier site species such as Douglas-fir and ponderosa pine.

Forest management activities in this drainage have created a mosaic of forest conditions from dense forests to young, open timber. Fire spread would not be expected to move rapidly or build intense heat except for the influence of the very steep slopes. In less than 5 miles, the elevation rises from 2,700 feet in Wallace to 4,186 feet at Dobson Pass. These steep slopes will dictate that any fire fighting activities will only be able to hold a control line at the crest of ridges. Home site protection will be reliant on the creation of defensible space prior to an ignition.

Steep canyon walls and the north-south orientation of the drainage both contribute to the wet microsite conditions found in the area. Although this translates into a reduced ignition risk compared with the dry conditions to the east in Canyon Creek, it also means that the site has produced more biomass that will be available to burn. This increased fuel loading is a concern, especially when high temperatures, low humidity, and winds combine to further increase the wildland fire potential.

A few homes in Nine Mile Creek are surrounded by fields and some have thinned trees near their home. These sites are considerably more protected from a potential forest fire than their neighbors.

Fuels Assessment – 3 miles from community center

There is no significant difference between the forest conditions surrounding the home sites and the timber found along the ridges. The differentiation can be ignored in favor of considering the creation of defensible zones around the homes.

Two escape routes for residents of this community are available. The most immediate route would be towards Wallace to the south. In the event this route is blocked, it would be possible to drive north over Dobson Pass to Prichard. These escape routes should be clearly marked.

Community Risk Assessment

Nine Mile Creek drainage is located north of Wallace and has approximately 77 structures. All of these structures are surrounded by the forest and are difficult to access due to terrain. These structures are considered to be at high risk to loss in the event of a wildfire.

Structural fire protection is provided by Fire District №1 with stations in Wallace and Osburn. Wildland fire protection is provided by the Idaho Department of Lands.

The greatest risk for casualty loss in the Nine Mile Creek drainage is a wildfire that starts in the vicinity of Wallace and spreads up-canyon in the direction of Bunn and Dobson Pass. If this ignition is accompanied by upslope southerly winds, the steep canyon walls may funnel heat,

flames, and smoke up the river. This "worst-case-scenario" wildfire would be difficult to suppress. It would be challenging to evacuate the residents of the area by exiting the drainage via the Nine Mile Creek Road to the north into Prichard. The creation of defensible zones around home sites according to Firewise standards is the key to protecting personal property.

Aggressive home defensible space activities should be carried out by all homeowners as many of the homes in this drainage have wood porches, trees overtopping roofs, firewood stacked against houses and garages, and other high risk conditions.

Analysis of the region indicates that forest conditions along the ridge separating Nine Mile Creek and Canyon Creek are at a high risk to fire ignition and subsequent spread. Past forest management activities will help mitigate potential spread, but it is unlikely that these activities will serve to halt a fire's advance. Once a fire has started in either of these drainages, it is likely that the fire will spread over the ridge and down the adjoining canyon moving with the prevailing northwesterly winds. Fires that back down a slope move more slowly, but tend to burn intensely because of an ample supply of oxygen. In both drainages, defensible space around homes will be the key factor saving residential property in the event of a wildfire.

Forest management activities along the ridge separating Canyon Creek and Nine Mile Creek may prove to be beneficial to many of the surrounding communities. Drastic forest stand modifications are warranted in this zone. Forest fuel modifications would reduce the risk of fire spread dramatically. This entire ridge would benefit from slash treatments involving a mixture of piling and burning and/or underburning in the fall or spring. This would reduce the potential for loss due to a wildfire in Wallace and all communities in both Canyon Creek and Nine Mile Creek. The majority of these modifications will be on private and BLM forestlands.

Osburn

Fuels Assessment – City Limits

The city of Osburn is a concentration of homes and businesses located mainly to the south of I-90. The southwestern perimeter of this community defines the wildland-urban interface for these residents. Unlike most communities in Shoshone County, homes and businesses are not densely concentrated along the forested slopes rising from the valley floor. For the most part, structures are set back from the forest edge providing a defensible buffer against a possible wildland fire.

The exception to this is found along the city perimeter near 1st Street where homes are encroaching on forestland. This proximity to the forest is coupled with risky homeowner practices such as stacks of firewood against wood siding, a continuous ladder of limbs from the ground, branches overhanging wood decks and siding, and other high ignition risk practices. This highest risk area is only 2,200 feet long and would benefit from the combination of homeowners reducing their individual risk factors and the creation of a community defensible zone such as a shaded fuel break.

This area is a high priority for the community of Osburn for a number of reasons. First, the predominant direction of fire spread in this region is from the southwest to the northeast; thus, a fire that ignites on the ridge south of Osburn has the potential to spread in the direction of the

community. Second, this area is the city's primary water source. Third, a structure fire near these homes has the potential to burn uphill and ignite the forest. Mitigation activities have the potential to reduce the risk of casualty loss in Osburn.

Fuels Assessment – 1 mile from home sites

The community of Osburn is located in the I-90 corridor between Wallace and Kellogg. Homes and businesses are generally in a concentrated cluster near the Interstate. Steep hillsides rise from the community edge. Scattered mining enterprises are located in the valleys to the south of Osburn with gravel roads dead-ending a few hundred yards up each hill. Forests in these areas are characteristically north aspect habitiat types dominated by western red cedar, western white pine, Douglas-fir, ponderosa pine, and grand fir. Forest health is generally good with a few pockets of dead or dying trees, but not the extent found in other parts of Shoshone County.

Forest management activities on the hillslopes south of Osburn have thinned forestlands leaving healthy dominant and co-dominant trees with little underbrush. The slopes north of Osburn were not burned like those to the east nor do they have the same environmental challenges as the slopes to the west resulting in a fully forested hillside. This south aspect is dominated by ponderosa pine and Douglas-fir with scattered shrubs in the understory. Because of the exposure to direct sunlight, the forest habitat is much drier than that across the valley on north facing aspects.

Fuels Assessment – 3 miles from community center

The lands beyond the 1 mile perimeter of Osburn are primarily federally managed forestlands. These forests are characteristic of high elevation woodlands with past evidence of fire scars and forest health challenges. Most of the lands in this zone are well roaded with primary access provided by the I-90 corridor as well as from secondary points to the north and south.

Community Risk Assessment

The community of Osburn had 1,579 residents at the Census in 2000. Although this community is concentrated in a definable city, there are many smaller communities in the immediately surrounding area. These communities include Silverton, Terror Gulch, Sunnyslope, Big Creek, and parts of Moon Creek. There are roughly 1,179 buildings within 3 miles of the city center. Out of these structures, nearly 611 are considered to be at high risk to wildfire. These structures are outside of the community center along the edges and scattered throughout the river drainages and forested areas.

Shoshone County Fire District №1 provides structural fire protection with a station located in Osburn. Wildland fire protection is provided by the Idaho Department of Lands.

Silverton

Silverton is located between Osburn and Wallace on the north side of I-90. This small community is home to the historic Wallace Ranger District headquarters of the US Forest Service. This heavily wooded area demonstrates

specific factors that increase risk for the residents of this community. The perimeter of the community, with the exception of those structures within a few hundred feet of I-90, has a high risk of wildland fire loss. Additionally, the forestlands beyond the immediate community boundary have high wildfire risk factors that include reduced forest health, limited access, and steep slopes.

Within the community, residents should reduce individual home site risk factors by stacking firewood away from flammable structures, eliminating tall and cured grasses next to structures, removing dead and dying trees from the immediate location vicinity of structures, and thinning and pruning healthy trees around homes.

The entire community should be protected by a defensible zone that provides a fuel break to prevent the movement of a fire between the forest and the homes. Although this would be an extensive project, land managers would be able to take advantage of natural fuel breaks like openings and fields and roadways. In addition, the fuel break would not have to be a drastic treatment as the project area would concentrate on removing ground and ladder fuels, thinning subordinate stems, piling, and disposing of the debris.

Beyond the fuel break, federal land managers should consider forest management activities targeting improved forest health and reduction of fire risk to this community.

Sunnyslope & Terror Gulch

The community of Sunnyslope holds a singular distinction as being one of the few communities in Shoshone County built above the valley floor. Although this real estate provides scenic views of the surrounding landscape, it also provides increased risk of wildfire loss from fires igniting below and spreading uphill. Access to this area is provided through Terror Gulch where over 40 structures are located. The access road to Sunnyslope and to the homes in Terror Gulch is less than a mile and not at high risk to wildfire.

However, the lands on the west side of Terror Gulch represent some degree of risk as past forest management activities have left logging debris and brush fields that if ignited could provide embers and firebrands that would ignite dry fuels surrounding these homes. In addition, the private roads would be difficult for fire suppression equipment to traverse in order to access the BLM and US Forest Service lands located to the west and north. The roadway is partially eroded from inadequate drainage structures. It is narrow and has many tight turns with limited turnouts. This road is a primary access point to fight wildfires located north of I-90. Any fire in this location would likely threaten homes in Terror Gulch and Sunnyslope. Because of these factors, it is highly recommended that Shoshone County and the landowners in this area cooperate to improve the running surface of this road.

The homeowners in Terror Gulch are mostly located near the stream with access provided across private bridges. These bridges should be evaluated and rated with weight limits posted onsite and kept on record at the Shoshone County Fire District №1 office. These homes are at a low to moderate fire risk, but they would still benefit from the creation of defensible space.

Within Sunnyslope, the risk factors are generally moderate. The forest surrounding this community is dominated by young ponderosa pine with an understory of grasses and forbs. While most of the homes are surrounded by green lawns or paved road surfaces, some are adjacent to the forest type fuels. A defensible zone around this community could be created by pruning trees along the perimeter of the community. The few homes surrounded by flammable materials on all sides would benefit from defensible space treatments, improved access, and reduced home site risk factors.

Pinehurst

Fuels Assessment – 1 mile from home sites

Pinehurst is located just 4 miles within the western boundary of Shoshone County. This community is one of only two that has fairly flat terrain, gentle slopes, and a dispersed neighborhood of homes. The forests in this area are a mixture of ponderosa pine, Douglas-fir, and western larch, with wetter site species scattered mostly on north or east aspects. These forests experience fire spread primarily through the fine herbaceous fuels. This type of surface fires where the herbaceous material, in addition to litter and dead-down stemwood from the open shrubs and tree branches, contribute to the intensity.

The homes in this community are concentrated around the downtown area, south of the golf course, and in Pine Creek.

Fuels Assessment – 3 miles from community center

Private, BLM, and US Forest Service owners are well represented in this area. However, unlike most of the I-90 corridor, these properties are not bounded by the high ridges characteristic of the Silver Valley. Instead, slowly climbing river valleys dominate. The management on these lands is highly varied with some parcels showing evidence of logging and effective forest management for reducing fire risk in the wildland-urban interface, particularly in the French Creek drainage.

Community Risk Assessment

Pinehurst reported a population of 1,722 residents during the 2000 Census, earning it the distinction as the second largest community in the County. When considering an area about 1 mile beyond the city center, there are approximately 724 structures. The downtown area has a low risk to wildfire. The structures along the community perimeter and scattered in the drainages, on the hillsides, and in the forestlands total 269 structures that have a high risk to wildfire loss.

This area receives structural fire protection from Shoshone County Fire District №2 with a station in Pinehurst. Wildland fire protection is provided by the Idaho Department of Lands.

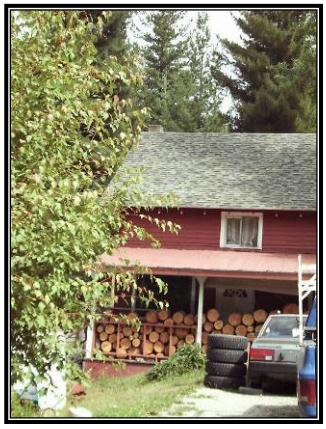
Downtown

The downtown area of Pinehurst has many large trees, mostly ponderosa pine. Homes are concentrated into a continuous block with the outer perimeter directly flanking forest type fuels. While some of these trees are young, most are mature with a continuous underbrush layer. To further complicate matters, many of the outer perimeter homes show risk factors such as wooden

decks, firewood stacked against the homes, cured and tall grasses near the homes, and other factors that increase structural ignitability.

As with many communities in the county, Pinehurst will benefit greatly from the creation of a community defensible zone such as a shaded fuel break or greenbelt. This type of treatment will be most effective along the southern border of the community. The western side of the community is flanked by Pine Creek and has ample hardwoods and wet site shrubs to provide a suitable defensible zone in all but the most extreme drought years.

Fairview Avenue



Fairview Avenue accesses a small area including Camas Street and Underwood Avenue on the east side of Pinehurst where just over a dozen homes are located. These homes are surrounded by tall shrubs, forbs, grasses, and mature trees. In addition, the majority of these homes exhibit risk factors such as firewood stacked on wooden decks against wood siding. Some have cedar shake roofs, and most are at high risk to wildfire loss. It is highly recommended that these homeowners reduce specific risk factors around their own homes and that a community defensible zone be created. The fuel break would be shaped like a horseshoe that is open to the west.

Country Club Lane

Country Club Lane crosses Little Pine Creek to access an area containing a few dozen homes. The fuels within the community are generally controlled as most of the residents keep green lawns and trimmed bushes around their homes. However, it is the perimeter of this neighborhood that provides concern from a wildfire control standpoint. Many of the outer perimeter homes are shrouded by tall trees and thick shrubs and exhibit many characteristics that increas structural ignitability. Residents along the perimeter should be encouraged to reduce specific site risk factors. A community buffer zone should be created to help protect the neighborhood from wildland fire.

Prichard, Eagle, Murray

Fuels Assessment – 1 mile from home sites

All communities in this area are characterized as a mostly flat river bottom transitioning to steep, timbered slopes. Forest fuels are fairly homogenous throughout the area even though topography is mixed.

Land along the river is mostly privately owned and is the location of almost all homes in the area. In all areas, the lighter fuels transition quickly to mature or over mature timber with a closed canopy. Where the canopy is open, ladder fuels are present.

A few structures are surrounded by large expanses of fields or grassy meadows. These are located in the lower most portions of the main river canyon and also in the Eagle Creek drainage. These areas have large greenbelts surrounding structures and are fairly defensible. Most area; however, have structures that are surrounded by timber. Structures are also built against the steep slopes.

Timbered fuels are almost universally mature or over mature, close canopied mixed conifer with a heavy component of down wood debris. On north slopes and in the draws, there is a cedar component in the forest structure. Only where residential or logging activity has occurred is there less ground fuel loading. Fire would spread rapidly through the grassy fuels particularly when cured and/or during windy conditions. If not stopped quickly, fires would transition into timber fuels. Forest type fuels tend to support a more intense fire and could include individual tree torching, crowning, and spotting. Because of the steepness of the canyons, structures adjacent to or within the forest would be at great risk should a crown fire occur.

The forests surrounding Murray have slightly different characteristics than the forests near Eagle and Prichard. This community is located at a slightly higher elevation with little to no open fields. The forests have a closed canopy with a component of dead or dying Douglas-fir on steep slopes. Some of these areas have been commercially thinned.

The Prichard-Murray Volunteer Fire Department has a station with 11 volunteers near Prichard to provide structural fire protection. Wildland fire protection is provided by the US Forest Service.

Murray

The Census of 2000 estimated that there were 100 residents living in Murray. There are approximately 65 buildings in this community all of which are considered to be at high risk to wildfire loss. The Prichard-Murray Volunteer Fire Department has a station with 5 volunteers in Murray to provide structural fire protection. Wildland fire protection is provided by the US Forest Service.

The homes are highly concentrated in the community of Murray. The forestlands to the north have been managed to differing degrees with a mixture of young and older forests. Forest health issues have been prevalent creating a large component of dead or dying trees surrounding the community. A community defensible zone where high risk fuels are removed will serve to greatly reduce the risk of casualty loss of homes in the event of a wildfire. In this zone, the removal of shrubs and ladder fuels should be a priority. A fire line around the perimeter should be created. Because of the forest habitat type and aspect, this defensible zone will have to be maintained into the future with periodic slashing of the shrubs and tree growth that will re-sprout after treatment. Maintenance needs should be evaluated every 5 years.

US Forest Service Development Road 939 begins in the center of Murray and extends in a northeasterly direction into the forestlands. There is a locked gate preventing access to this route. In the event of a wildfire evacuation and emergency access may be delayed because of this locked gate. The community should ensure the key to this gate is readily available in the case of an emergency.

Finally, many of the homes in Murray are at high risk to fire spread because of risk factors such as firewood stacked against homes, dry grasses and shrubs against structures, tires piled against homes, and needles or leaves on roofs. All of these factors and others combine to increase the chance that individual homes will ignite in the event of a wildfire that creates flying embers or spreads along the ground through cured grasses or shrubs. Individual homeowners should reduce

this risk by creating defensible space according to Firewise landscaping and construction standards.

Prichard & Eagle

Although the Census reports that there were only 20 individuals living in Prichard during 2000, this number does not represent the high number of recreational homes and the many individuals that receive their mail in other locale. There are approximately 164 structures within 3.25 miles of Prichard including those associated with the community of Eagle. These buildings are located primarily along the Coeur d'Alene River near paved roads. However, these building sites are also surrounded by dense forests with a high propensity for fire ignition and rapid fire spread. All of these buildings are at high-risk to wildfire loss. The Prichard-Murray Volunteer Fire Department has a station in Murray with 3 volunteers to provide structural fire protection. Wildfire protection is provided by the US Forest Service.

The homes of this region are at a high degree of risk because many of them are located in the forest with trees adjacent to and overhanging roofs and siding. Forest health issues have created a significant component of dead and dying trees. Standing dead and down wood will increase the intensity of a wildland fire.

It is strongly recommended that each sub-community in this area create home defensible space that includes the removal of understory shrubs and grasses and thinning and pruning nearby trees. Community defensible zones will be difficult to create due to the rough terrain and the influence of the North Fork of the Coeur d'Alene River.

Access to this area is provided by numerous paved roads that will serve as evacuation routes in all directions. However, because of the high recreational use, it is doubtful that all visitors in the area will know of these evacuation routes in the event of a wildfire. Therefore, these routes should be clearly signed. Access to some homes is provided by a bridge spanning the North Fork of the Coeur d'Alene River. The weight capacity of this bridge is unknown and should be evaluated and posted as soon as possible.

The homes in the community of Eagle have a low risk rating because of cattle grazing and forest management activities.

Smelterville

Fuels Assessment – 1 mile from home sites

The area around Smelterville is a superfund clean up site where forest vegetation is sparse and wildfire risk is low.

Community Risk Assessment

Smelterville had a population of 464 individuals reported during the 2000 Census. This is a small community with a concentration of buildings near the community center and a dispersion of structures in the surrounding hillsides and near the airport. There are approximately 369 structures within 1.25 miles of the community center. There are approximately 130 outlying structures that are at moderate risk to wildfire loss. Many of these structures are associated with mining activities. Structural fire protection for Smelterville is provided by Shoshone County Fire District №2 with stations in Pinehurst and Kellogg. Wildfire protection services are provided by the Idaho Department of Lands.

Wallace

Fuels Assessment – 1 mile from home sites

Wallace has a long history with wildland fires. During 1910 Fire, lives were lost and a portion of the community was burned. Today, Wallace is the county seat and home to over 1,000 people. However, the forests that fueled the 1910 Fire have grown back and are once again cause for concern.

North of the South Fork of the Coeur d'Alene River, south-facing hillsides still bear the scars of the 1910 and more recent wildfires. Forest vegetation has been slow to reclaim these sites leaving scattered trees, little underbrush. Although this is a reminder of the catastrophe the region experienced long ago, it also provides a natural buffer against a wildfire that might occur today. These areas have a low risk of rapid wildfire spread and require little in the way of fuel mitigation efforts.

The Canyon Creek drainage and the Nine Mile drainage lie north and east of Wallace. The fuels treatment recommendations for these watersheds are detailed in separate sections of this document.

The south side of the Coeur d'Alene River is forested with a diversity of tree species where forest health is generally good with a few isolated exceptions. These forests are young with a developing shrub layer that is not currently a high concern for wildfire spread except on the southern slope.

Fuels Assessment – 3 miles from community center

The land south of Wallace to the 3 mile buffer perimeter is a checkerboard of ownerships including the US Forest Service, the BLM, the State of Idaho, and private owners. Public access is provided on the Placer Creek Road (USFS Road #456). Various forest health conditions and use patterns have created a moderate to high fire danger in this drainage. Concerns in this area include damage caused by a severe microburst and insect and disease problems scattered throughout the valley. Recreational access has increased in recent years both on the main road and on trails.

Many legacy trees in this area bear the scars of past fires. Forests surrounding Wallace are dominated by Douglas-fir, ponderosa pine, western larch, grand fir, and other species. The slopes are predominately south facing. This area has a moderate to high risk for wildfire ignition due to the fuels, the southerly aspect, the potential for lightning strikes, and the potential for ignition from human sources.

A fuel break extending from both sides of Placer Creek Road from the edge of the BLM ownership to the summit at Moon Pass should be created. In this zone, trees should be thinned leaving only scattered fire-resistant mature trees such as ponderosa pine and western larch. Logging debris should be piled and removed, shrubs and non-merchantable trees should be cut to the ground, and trees left onsite should be pruned. This fuel break will allow resource managers a better opportunity to suppress a fire that starts to the south. The

resulting buffer will allow fire fighters a control point while also reducing the potential for human caused ignitions.

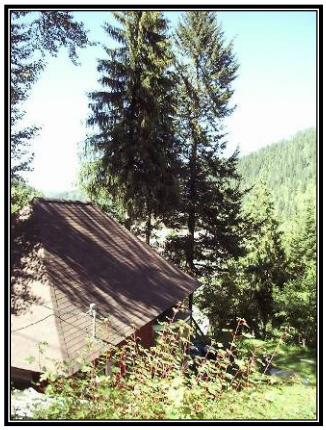
A number of areas in this valley have burned in the past creating a mosaic of forest conditions from mature forests to brushy hillsides. The US Forest Service and the BLM should consider prescribed burning in these brush fields in order to provide an opportunity for reforestation and to reduce the fire risk. This valley has been identified as a priority area for Shoshone County because of the existence of high risk fuels, intense recreational access, and increased potential for ignitions. In addition, Placer Creek is a municipal water source for Wallace and should be protected from the negative effects of a stand replacing wildland fire.

Community Risk Assessment

Wallace had a population of 1,010 reported in the 2000 Census. This community has approximately 394 buildings located within 1 mile of the community center. The downtown area is considered at low risk to wildfire loss; however, the perimeter of the community, especially along the southern edge, is at high risk to loss. Out of the nearly 400 buildings located around this community, approximately 164 have a high risk to wildland fire. The Shoshone County Fire Protection District №1 provides structural fire protection for homes in the city. The Idaho Department of Lands provides wildland fire protection.

South Hill

The south side of town, east of Placer Creek, climbs from the South Fork of the Coeur d'Alene River to a steep, forested ridge. Homes have been built on this hillside within thick stands of trees and herbaceous shrubs such as ninebark, ocean spray, snowberry, and others. Residents on this hillside have a very high risk to losses from a wildfire in the surrounding forestlands and from a structure fire igniting brush and timber within the neighborhood.



These many factors combine to create an increased risk to property and life safety. This area has a thick shrub layer, a high density of trees with branches extending to the ground, limited access, and tightly packed homes. The South Hill is closely situated above the downtown area of Wallace and below inaccessible forestlands. This neighborhood has a high risk of a structure fire spreading to the forest and subsequently threatening other homes. In order to reduce the risk of casualty loss in the event of a fire, this community should consider implementing the following mitigation techniques:

- Remove and chip underbrush from the immediate vicinity of homes and extending upslope.
- Prune all trees to a height at least 15 feet above the ground or roof tops.
- Greatly reduce or eliminate parked cars along the main streets as these hinder access by fire fighting equipment.
- Limit or restrict new home construction on the South Hill until fire access and basic risk mitigation has been addressed.
- Thin trees in the forestland above the neighborhood to eliminate ladder fuels and open up the canopy. Dispose of the slash and debris.

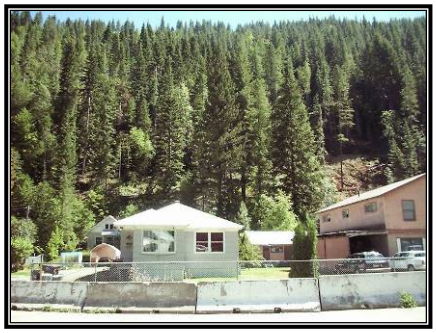
- Maintain this defensible zone by conducting maintenance activities at least every 5 years.

The South Hill is considered to have the highest risk to potential casualty loss in the event of a wildfire in Shoshone County.

Placer Creek Area

Placer Creek gained notoriety as the locale Edward Pulaski and his 45 man crew evaded the 1910 Fire by seeking refuge in a mine shaft. Although six members of that crew perished, the tale of the leadership that Pulaski exhibited is legendary. Placer Creek is important today for a variety of reasons including the location of the Wallace watershed, access to Moon Pass and other backcountry areas, and as a home for many residents of Wallace.

Most of the homes along Placer Creek have excellent access although some are restricted by an unrated private bridge. These bridges should be evaluated for weight loads, posted, and a record kept on file at the local fire station.



Limited forest management activities on the east side of Placer Creek have removed high risk fuels. These activities will enhance a neighborhood defensible space that should be created around homes along Placer Creek. This fuel break should extend from Pearl Street south and southwesterly along Placer Creek Road to the end of the home sites.

The area adjacent to Placer Creek in the northwestern reaches of Wallace appear to have a slight to moderate risk to loss from wildfire but would benefit from homeowners on the perimeter creating a fire-resistant buffer along the west side of the community.

Chapter 6

Mitigation Recommendations

Critical to implementation of this Community Wildfire Protection Plan are the identification and implementation of an integrated schedule of action items targeted at achieving a reduction in the number of human caused fires and the impact of wildland fires in Shoshone County. This section of the plan identifies and prioritizes potential mitigation actions, including treatments that can be implemented in the county to pursue that goal. As there are many land management agencies and thousands of private landowners in Shoshone County, it is reasonable to expect that differing schedules of adoption will be made and varying degrees of compliance will be observed across various ownerships.

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

Shoshone County encourages the building of disaster resistance in normal day-to-day operations. By implementing plan activities through existing programs and resources; the cost of mitigation is often a small portion of the overall cost of a project's design or program.

All risk assessments were made based on the conditions existing during 2010. Therefore, the recommendations in this section have been made in light of those conditions. However, the components of risk and the preparedness of the county's resources are not static. It will be necessary to fine-tune this plan's recommendations regularly to adjust for changes in the components of risk, population density changes, infrastructure modifications, and other factors.

Maintenance and Monitoring

As part of the policy of Shoshone County, the Community Wildfire Protection Plan will be reviewed at least annually at special meetings of the WUI planning committee, open to the public and involving all municipalities/jurisdictions, where action items, priorities, budgets, and modifications can be made or confirmed. Amendments to the plan should be documented and attached to the formal plan as an amendment. Re-evaluation of this plan should be made on the 5th anniversary of its acceptance, and every 5-year period following.

Prioritization of Mitigation Activities

The action items recommended in this chapter were prioritized through a group discussion and voting process. The action items in Tables 6.1 – 6.4 are ranked as "High", "Moderate", or "Low" priorities for Shoshone County as a whole. The CWPP committee does not want to restrict funding to only those projects that are high priority because what may be a high priority for a specific community may not be a high priority at the county level. Regardless, the project may be just what the community needs to mitigate disaster. The flexibility to fund a variety of diverse projects based on varying criteria is a necessity for a functional mitigation program at the county and community level.

Policy and Planning Efforts

Wildfire mitigation efforts must be supported by a set of policies and regulations at the county level that maintain a solid foundation for safety and consistency. The recommendations enumerated here serve that purpose. Because these items are regulatory in nature, they will not necessarily be accompanied by cost estimates. These recommendations are policy related and therefore are recommendations to the appropriate elected officials; debate and formulation of alternatives will serve to make these recommendations suitable and appropriate.

Table 6.1. Action Items in Safety and Policy.

Action Item	Goals Addressed (see page 3)	Responsible Organization	Timeline	2010 Status
6.1.a: Improve address and road signage to include address block numbers on street signs within cities and rural address numbers along the nearest public access road. Establish and enforce a penalty for non-compliance.	**CWPP Goal #5** Priority Ranking: High	**Lead:** Shoshone County Commission **Support:** Shoshone County Emergency Management	2011-2013	New project from Multi-Hazard Plan
6.1.b: Develop Shoshone County Planning and Zoning policy to encourage or require new developments in the wildland urban interface to create a wildfire defensible space around new structures.	**CWPP Goal #5** Priority Ranking: High	**Lead:** Shoshone County Commission and city councils **Support:** Shoshone County Emergency Management, Planning & Zoning, and Building	2011	New project from Multi-Hazard Plan
6.1.c: Develop a Shoshone County Evacuation Plan to include recommended escape routes, provide signage to indicate where the routes are, and add these routes to the County's sign maintenance program.	**CWPP Goal #5** Priority Ranking: Moderate	**Lead:** Shoshone County Commission **Support:** Shoshone County Emergency Management and Road Department	2015	New project
6.4.d: Develop a Shoshone County ordinance or WUI code that establishes adequate road and bridge standards, structural water supply, and prohibits building on inaccessible sites.	**CWPP Goal #5** Priority Ranking: High	**Lead:** Shoshone County Planning & Zoning **Support:** Shoshone County Fire Districts and Fire Chief's Association	2015	New project
6.4.e: Establish a mechanism that will ensure Shoshone County receives additional tax revenues to compensate for coverage provided to new construction.	**CWPP Goal #5** Priority Ranking: Moderate	**Lead:** Shoshone County Commission **Support:** City governments	2020	New project

Fire Prevention and Education Projects

The protection of people and structures will be tied together closely because the loss of life in the event of a wildland fire is generally linked to a person who could not, or did not, flee a structure threatened by a wildfire or to a firefighter combating that fire. Many of the recommendations in

this section involve education and increasing wildfire awareness among Shoshone County residents.

Residents and policy makers of Shoshone County should recognize certain factors that exist today, the absence of which would lead to increased risk of wildland fires in Shoshone County. The items listed below should be acknowledged and recognized for their contributions to the reduction of wildland fire risks:

Forest Management has a significant impact on the fuel composition and structure in Shoshone County. The forest management programs of the Idaho Department of Lands, federal agencies, and several industrial forestland companies in the region have led to reduction of wildland fuels. Hazardous fuels generated from forest practices on state and private land are treated in accordance with regulations in Idaho Code and Administrative Rules. Furthermore, forests are dynamic systems that will never be completely free from risk. Treated stands will need repeated treatments to reduce the risk to acceptable levels in the long term.

Industry has played a significant role in shaping the landscape of Shoshone County. Evidence of past mining and timber harvest activities as well as construction of the railroads is clearly evident in the Silver Valley and beyond. It has had a noticeable affect on the vegetation composition and growth patterns in many areas. Early industrial operations and settlement in Shoshone County required a significant amount of the nearby timber resource. Additionally, contamination of the soil by early mining practices has led to some species conversions and retarded the growth of most plants. Settlement of the area also brought in white pine blister rust, a disease that decimated the native populations of western white pine.

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

Table 6.2. Action Items for Fire Prevention and Education.

Action Item	Goals Addressed (see page 3)	Responsible Organization	Timeline	2010 Status
6.2.a: Continue to develop youth and adult wildfire education programs.	**CWPP Goal #4** Priority Ranking: High	**Lead:** Shoshone County Fire Prevention Cooperative **Support:** Shoshone County Fire Chief's Association	Annual	Ongoing
6.2.b: Continue to develop the County's Fire Mitigation department including the incorporation of the Firewise Communities/USA program.	**CWPP Goal #4** Priority Ranking: High	**Lead:** Shoshone County Commission and Fire Mitigation **Support:** Shoshone County Fire Districts	Annual	Ongoing

Infrastructure Enhancements

Critical infrastructure refers to the communications, transportation (road and rail networks), energy transport supply systems (gas and power lines), and water supply that service a region or a surrounding area. All of these components are important to northern Idaho and to Shoshone County specifically. These networks are, by definition, a part of the wildland urban interface in the protection of people, structures, infrastructure, and unique ecosystems. Without supporting infrastructure, a community's structures may be protected, but the economy and way of life lost. As such, a variety of components will be considered here in terms of management philosophy, potential policy recommendations, and mitigation recommendations.

Table 6.3. Action Items for Infrastructure Enhancements.

Action Item	Goals Addressed (see page 3)	Responsible Organization	Timeline	2010 Status
6.3.a: Improve resident and firefighter safety by conducting hazardous fuels reduction treatments along primary and secondary access routes.	**CWPP Goal #1 and 3** Priority Ranking: High	**Lead:** Shoshone County Fire Mitigation **Support:** US Forest Service, IDL, BLM, and private landowners	2015	New project
6.3.b: Identify and map potential fuels treatments near communication sites.	**CWPP Goal #1 and 2** Priority Ranking: High	**Lead:** Shoshone County Fire Mitigation **Support:** Utility Companies	2020	New project
6.3.c: Establish a program to inventory private bridges, assess their condition and weight rating, and work with owners to provide signage and improve substandard structures.	**CWPP Goal #5** Priority Ranking: Low	**Lead:** Shoshone County Planning & Zoning and Cities **Support:** Shoshone County Fire Districts and Departments	2020	New project
6.3.d: Continue to inventory and assess public bridges. Improve weight restriction signage on all types of public bridges and replace substandard structures where necessary.	**CWPP Goal #5** Priority Ranking: High	**Lead:** Shoshone County Planning & Zoning and Cities **Support:** Shoshone County Fire Districts and Departments	2020	New project
6.3.d: Conduct an assessment to identify road signage needs, obtain funding to install or replace missing signs countywide, and develop an up-to-date Shoshone County Road Map including road names and numbers.	**CWPP Goal #5** Priority Ranking: High	**Lead:** Shoshone County Planning & Zoning **Support:** Shoshone County Road Department	2012	New project
6.3.e: Install a second repeater in Shoshone County Fire District №2 on Killarney Peak to enhance communications coverage in western Shoshone County and eastern Kootenai County	**CWPP Goal #5** Priority Ranking: High	**Lead:** Shoshone County Fire District №2 **Support:** Shoshone County and Kootenai County	2015	New project

Table 6.3. Action Items for Infrastructure Enhancements.				
Action Item	**Goals Addressed (see page 3)**	**Responsible Organization**	**Timeline**	**2010 Status**
6.3.f: Work on reducing hazard trees along road corridors and near public facilities (e.g. hospital, schools, etc.) and infrastructure (e.g. communication sites, power lines, etc.).	**CWPP Goal #1, 2, and 4** Priority Ranking: Moderate	**Lead:** Shoshone County Fire Mitigation **Support:** Landowners	2015	New project
6.3.g: Identify, map, and conduct a wildfire hazard assessment of all the drinking water supplies and storage facilities countywide.	**CWPP Goal #4 and 5** Priority Ranking: High	**Lead:** Shoshone County Emergency Management **Support:** Shoshone County Fire Mitigation and landowners	2015	New project
6.3.h: Establish and maintain Moon Pass as an alternate escape route from the St. Joe River valley.	**CWPP Goal #5** Priority Ranking: Moderate	**Lead:** Shoshone County Public Works **Support:** US Forest Service	2015	New project
6.3.i: Establish communication capability in the Avery area that allows for their direct dispatch out of Shoshone County.	**CWPP Goal #5** Priority Ranking: High	**Lead:** Shoshone County Emergency Management **Support:** Citizens of Avery	2015	New project

Resource and Capability Enhancements

There are a number of resource and capability enhancements identified by the rural and wildland firefighting districts in Shoshone County. All of the needs identified by the districts are in line with increasing the ability to respond to emergencies and are fully supported by the Community Wildfire Protection Plan committee.

Specific repeated themes of needed resources and capabilities include:

- Retention and recruitment of volunteers
- Training and development of rural fire fighters in structure and wildland fire

Although additional, and specific, needs were enumerated by the districts in Shoshone County, these items were identified by multiple districts and in the public meetings. The implementation of each issue will rely on either the isolated efforts of the rural fire districts or a concerted effort by the county to achieve equitable enhancements across all of the districts. Given historic trends, individual departments competing against neighboring departments for grant monies and equipment will not necessarily achieve countywide equity. However, the Panhandle Lakes Conservation and Development Council, Inc. may be an organization uniquely suited to work with all of the districts in Shoshone County and adjacent counties to assist in the prioritization of needs across district and even county lines. Once prioritized, the Panhandle Lakes RC&D is in a position to assist these districts with identifying, competing for, and obtaining grants and equipment to meet these needs.

Table 6.4. Action Items for Resource and Capability Enhancements.

Action Item	Goals Addressed (see page 3)	Responsible Organization	Timeline	2010 Status
6.4.a: Upgrade radio communications between personnel, vehicles, and stations and allow interoperable (P25) communications with County, State, and Federal responders.	**CWPP Goal #4 and 5** Priority Ranking: High	**Lead:** Shoshone County Emergency Management **Support:** Fire districts, cities, and state and federal agencies	Ongoing	New project from Multi-Hazard Plan
6.4.b: Develop a strategy to establish structural fire protection in the communities of Clarkia and Avery including the necessary apparatus, facility, communications, and training.	**CWPP Goal #3 and 5** Priority Ranking: High	**Lead:** Shoshone County Emergency Management **Support:** IDL and USFS	2011	New project from Multi-Hazard Plan
6.4.c: Continue to improve training program and capabilities for firefighters.	**CWPP Goal #4 and 5** Priority Ranking: High	**Lead:** Shoshone County Fire Districts and Departments **Support:** US Forest Service, BLM, IDL, and Avista	Annual	Ongoing
6.4.d: Obtain funding to update PPE, hand tools, and other miscellaneous equipment for city and rural fire districts.	**CWPP Goal #4 and 5** Priority Ranking: High	**Lead:** Shoshone County Fire Districts and Departments **Support:** US Forest Service, BLM, and IDL	Annual	Ongoing
6.4.e: Enforce existing codes to establish onsite water sources such as dry hydrants or underground storage tanks in rural housing developments.	**CWPP Goal #4** Priority Ranking: Moderate	**Lead:** Shoshone County Commission **Support:** Shoshone County Planning & Zoning, Fire Districts, and city governments	2011	New project
6.4.f: Construct a new fire station for Shoshone County Fire District №2 in Kellogg to house equipment, personnel, and administrative offices.	**CWPP Goal #3 and 5** Priority Ranking: High	**Lead:** Shoshone County Fire District №2 **Support:**	2020	New project
6.4.g: Obtain funding to purchase a 100 foot aerial ladder for assist Shoshone County Fire District №2 with response calls in newly constructed 5 story multi-family housing units in Kellogg.	**CWPP Goal #3 and 5** Priority Ranking: High	**Lead:** Shoshone County Fire District №2 **Support:**	2015	New project
6.4.h Work on obtaining funding for equipment and other needs for the fire districts and departments referenced in Appendix 5.	**CWPP Goal #5** Priority Ranking: High	**Lead:** Shoshone County Fire District and Departments **Support:** IDL	2020	New project

Table 6.4. Action Items for Resource and Capability Enhancements.

Action Item	Goals Addressed (see page 3)	Responsible Organization	Timeline	2010 Status
6.4.i: Make IDL software program currently being used to issue burn permits accessible by Shoshone County Fire Districts.	**CWPP Goal #5** Priority Ranking: Low	**Lead:** IDL **Support:** Shoshone County Fire Districts and Departments	2013	New project
6.4.j: Obtain funding for mobile repeater stations with a backup power source.	**CWPP Goal #5** Priority Ranking: Low	**Lead:** Shoshone County Emergency Management **Support:** Shoshone County Fire Districts and Emergency Medical Services	2015	New project
6.4.k: Construct a new fire station for Shoshone County Fire District №1 in Osburn to house equipment, personnel, and administrative offices.	**CWPP Goal #3 and 5** Priority Ranking: High	**Lead:** Shoshone County Fire District №1 **Support:**	2015	New project
6.4.l: Obtain funding to update Clearwater-Potlatch Timber Protective Association's communication equipment to the new standards.	**CWPP Goal #5** Priority Ranking: Low	**Lead:** Clearwater-Potlatch Timber Protective Association **Support:** IDL	2013	New Project
6.4.m: Coordinate with the West End Fire District, Shoshone County Fire District №3, and local state and federal agencies to determine who does or does not have structural and wildland fire protection responsibilities at the Lookout Ski Area.	**CWPP Goal #3 and 5** Priority Ranking: High	**Lead:** Shoshone County Emergency Management **Support:** Shoshone County Fire District №3, IDL, and US Forest Service	2011	New Project

Proposed Project Areas

The following project areas were identified by the CWPP planning committee as having multiple factors contributing to the potential wildfire risk to residents, homes, infrastructure, and the ecosystem. Treatments within the project areas will be site specific, but will likely include homeowner education, creation of a wildfire defensible space around structures, fuels reduction, and access corridor improvements. All work on private property will be performed with consent of, and in cooperation with the property owners. Specific site conditions may call for other types of fuels reduction and fire mitigation techniques as well. Defensible space projects may include, but are not limited to commercial or precommercial thinning, pruning, brush removal, chipping, prescribed burning, installation of greenbelts or shaded fuel breaks, and general forest health improvements.

5-Year Fuels Reduction Project Plan

5-Year Plan projects were initially ranked by the number of structures, or the value of resources, at risk based on the following thresholds:

- High Priority = ≥50 structures

- Medium Priority = 10 to 49 structures
- Low Priority = < 10 structures

Once these priorities were established, the planning committee reviewed the rankings and made changes based on the presence of critical infrastructure or other extenuating circumstances that they felt justified a high or lower ranking.

The planning committee does not want to restrict funding to only those projects that are high priority because what may be a high priority for a specific community may not be a high priority at the county or agency level. Regardless, the project may be just what the community needs to mitigate disaster. The flexibility to fund a variety of diverse projects based on varying criteria, landowner participation, and available dollars is a necessity for a functional mitigation program at the county and community level.

Table 6.5. Proposed 5- Year Fuels Reduction Project Areas.

Map Id#	Project Name	# of Acres	# of Structures	Project Work Order	Priority Ranking
46	Wallace 46	113	113	1	High
49	Canyon Creek	598	138	2	High
36	South Kingston	1,198	217	3	High
27	Pine Creek	471	171	4	High
5	Drummond Peak	122	2	5	Moderate
6	French Gulch	119	0	6	High
50	Nine Mile	887	112	7	High
8	Hunt Gulch	145	0	8	High
9	Kellogg Golf Course	326	1	9	High
10	Kingston 10	80	18	10	Moderate
11	Kingston 11	18	22	11	Moderate
35	Silverton	125	65	12	High
29	Pinehurst 29	113	58	13	High
23	North Kingston	269	58	14	High
15	Mullan 15	32	20	15	Moderate
16	Mullan 16	21	52	16	High
17	Mullan 17	21	0	17	Low
18	Mullan 18	66	0	18	Low
19	Mullan 19	15	2	19	Low
20	Mullan 20	18	15	20	Moderate
21	Mullan 21	14	11	21	Moderate
22	Murray	163	95	22	High
14	McPhee Gulch 14	188	13	23	Moderate
24	Osburn 24	21	24	24	Moderate
25	Osburn 25	313	73	25	High

Table 6.5. Proposed 5- Year Fuels Reduction Project Areas.

Map Id#	Project Name	# of Acres	# of Structures	Project Work Order	Priority Ranking
26	Page Fuel Break	35	12	26	Moderate
4	Deadmans Eddy	197	26	27	Moderate
28	Pinehurst 28	14	11	28	Moderate
13	McPhee Gulch 13	57	1	29	Low
30	Pinehurst 30	72	43	30	Moderate
31	Pinehurst 31	20	2	31	Low
32	Pinehurst 32	85	39	32	Moderate
33	Pinehurst 33	84	16	33	Moderate
34	Placer Creek	443	0	34	Low
12	Lucky Friday Avista Line	1,124	1	35	Low
3	Cataldo 3	74	25	36	Moderate
37	St Joe Calder	14	0	37	Low
38	St Joe Herrick	133	5	38	Low
39	St Joe Hoyt	13	5	39	Low
40	St Joe Huckleberry Flat	9	2	40	Low
41	St Joe Marble Creek 41	2	1	41	Low
42	St Joe Marble Creek 42	14	1	42	Low
43	St Joe Mica Creek	163	9	43	Low
44	St Joe Trout Creek	52	16	44	Moderate
45	Sunnyslope	90	33	45	Moderate
1	Avery	143	98	46	High
47	Wallace 47	95	0	47	Low
48	Wallace 48	11	36	48	Moderate
2	Cataldo 2	213	5	49	Low
7	Gold Ridge	237	7	50	Low
51	BLM Denver Creek	45	0	51	Low
52	BLM Mullan Units	246	0	52	Low
53	BLM Pinehurst RX 1	75	0	53	Low
54	BLM Pinehurst RX 2	13	0	54	Low
55	BLM Pinehurst Thinning	45	0	55	Low
56	BLM Tiger Gulch	323	0	56	Low
57	USFS Beaver Creek	28,189	63	57	High
58	USFS Blue Alder	13,800	0	58	Low
59	USFS Joe Cat	2,301	0	59	Low
60	USFS MnM	11,080	293	60	High
61	USFS Prichard Murray	25,072	410	61	High

Table 6.5. Proposed 5- Year Fuels Reduction Project Areas.

Map Id#	Project Name	# of Acres	# of Structures	Project Work Order	Priority Ranking
62	USFS Pulaski Peak	9,981	147	62	High
63	USFS Rolling Hills	3,955	0	63	Low
64	USFS Runt Ski	530	1	64	Low
65	USFS Two Mile	7,600	484	65	High
66	USFS Teratoid Teepee	22,778	23	66	Moderate
67	BLM South Wallace	1,275	0	67	Low
68	Avista ROW Clearing 68	198	4	68	Moderate
69	Avista ROW Clearing 69	295	54	69	Moderate
70	Avista ROW Clearing 70	310	57	70	Moderate

The Shoshone County Fire Mitigation program is responsible for implementation of non-agency projects. Project boundaries were purposely drawn without regard to land ownership in order to capture the full breadth of the potential wildland fire risk. Coordination and participation by numerous landowners will be required for the successful implementation of the identified projects.

The Idaho Department of Lands, Bureau of Land Management, and US Forest Service have also delineated fuels reduction projects in their 5-year planning horizon. Projects on state or federal ownerships will be administered by the appropriate agency. Nevertheless, projects delineated by the land management agencies were included in the prioritization of projects in Shoshone County as a way for the planning committee and Shoshone County residents to express their concerns and influence how each agency ranks these types of projects within their respective management regimes and forest planning documents.

The Shoshone County Forest Health Collaborative will also be working on developing project areas that meet their program goals and objectives. These projects will also have positively effect the wildland fire risk by reducing fuel loading and improving overall forest health. The Forest Health Collaborative-designated project areas will be incorporated into the Shoshone County Community Wildfire Protection Plan's 5-Year Fuels Reduction Plan as they are developed.

Figure 6.1. Map of Proposed 5-Year Project Plan – East Silver Valley.

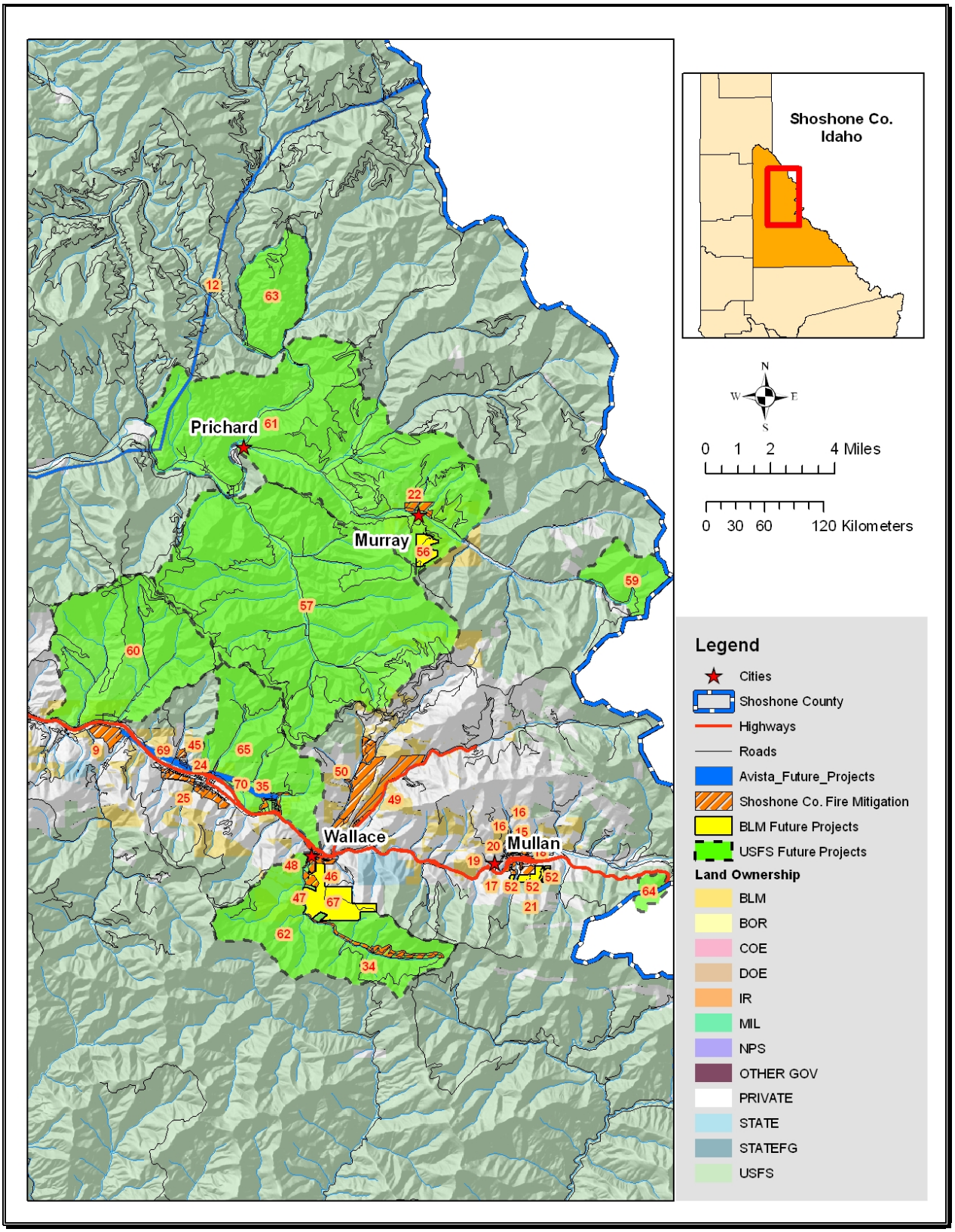


Figure 6.2. Map of Proposed 5-Year Project Plan – West Silver Valley.

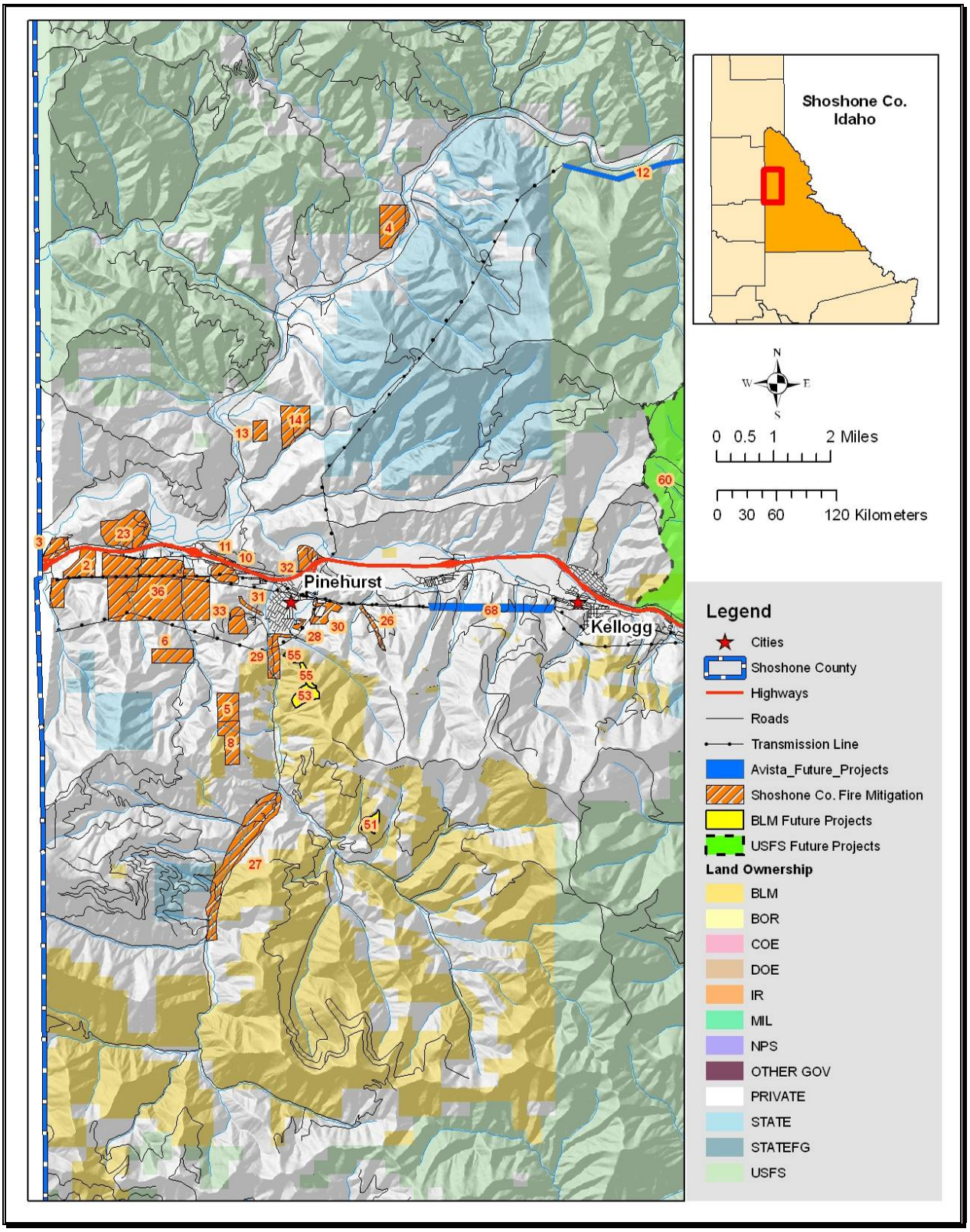


Figure 6.3. Map of Proposed 5-Year Project Plan – Avery.

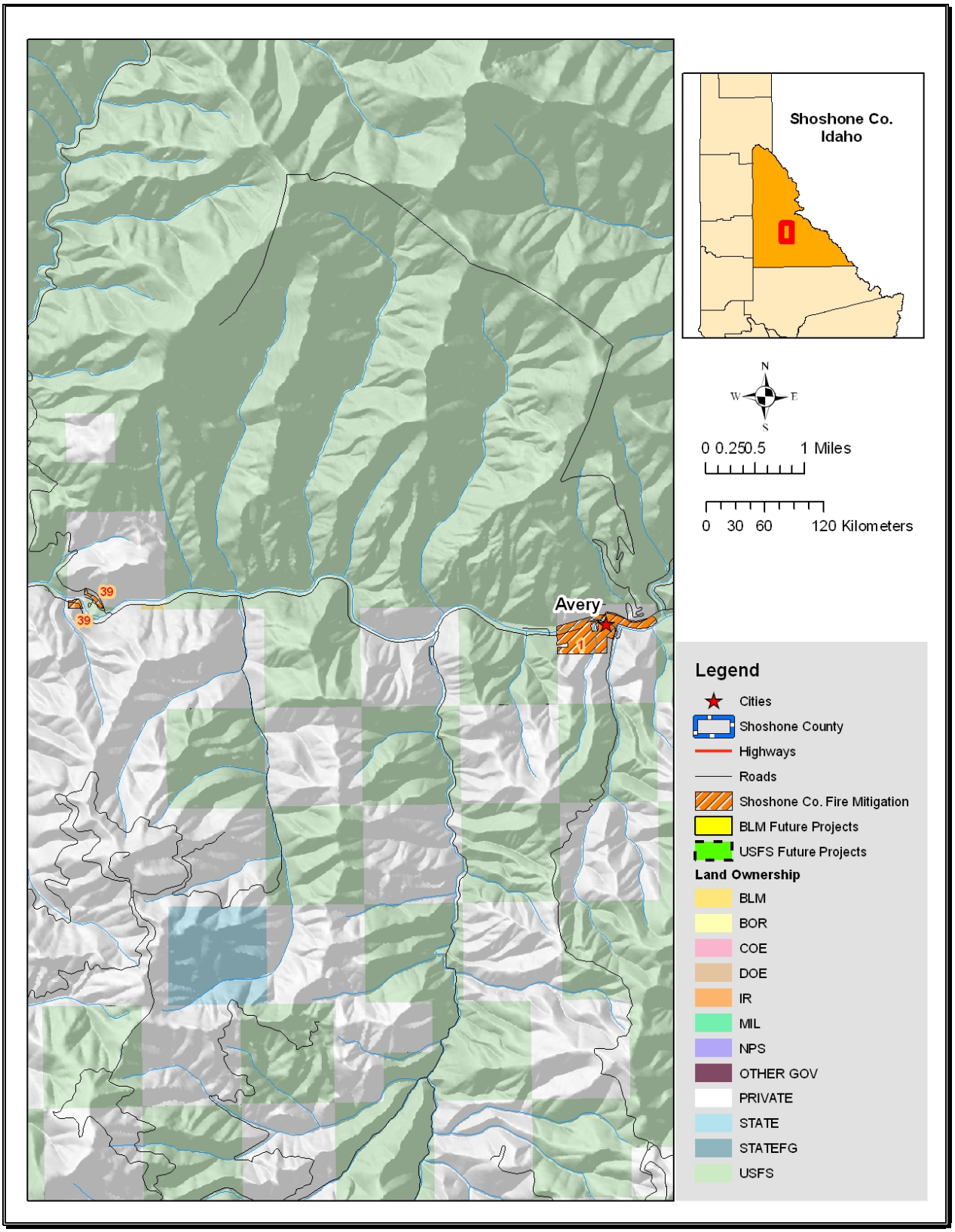
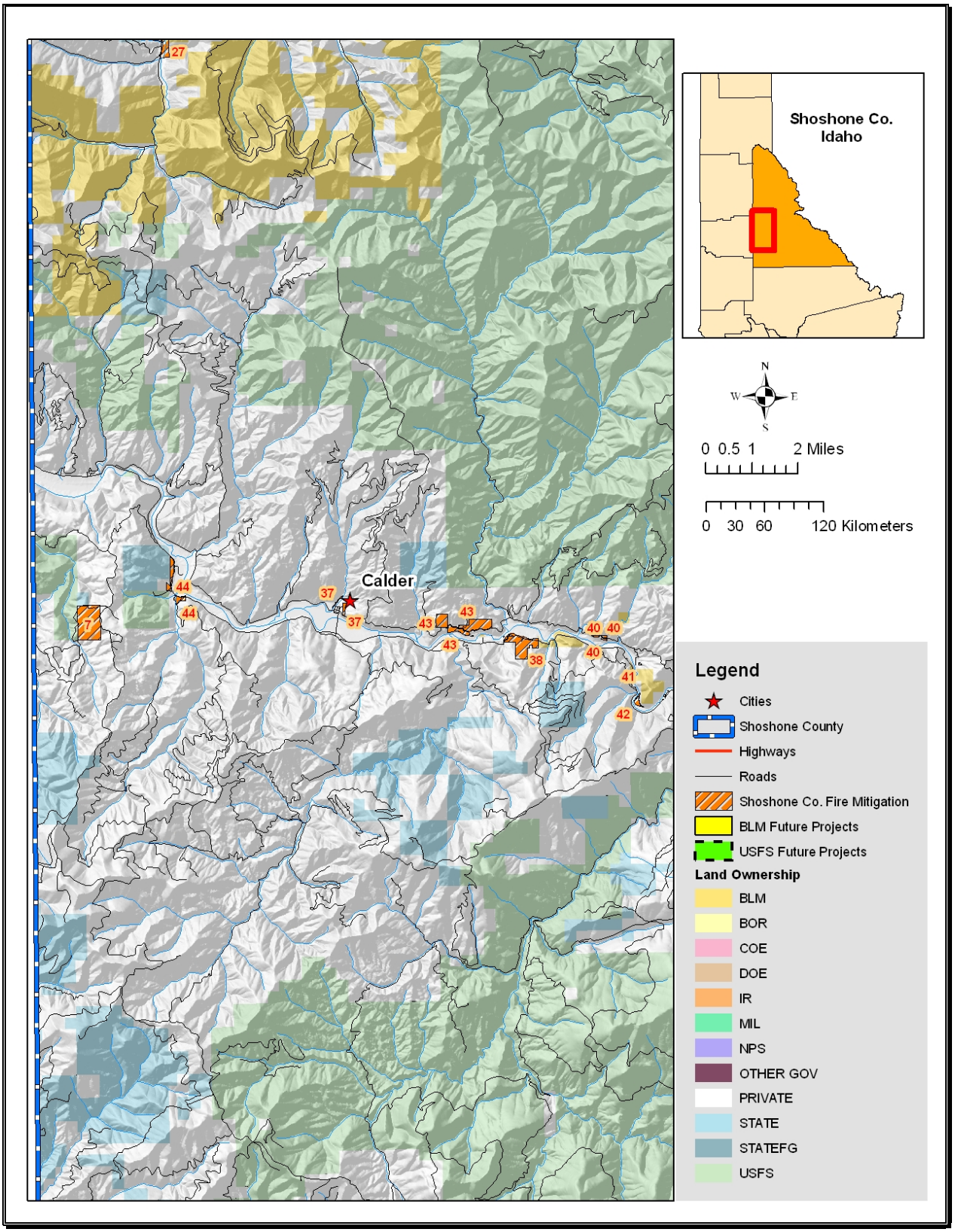


Figure 6.4. Map of Proposed 5-Year Project Plan – Calder.



10-Year Fuels Reduction Project Plan

In an effort to develop a coordinated and sustainable hazardous fuels mitigation program in Shoshone County, the planning committee has identified several long range planning issues. The committee knows these items are on the horizon, but are either a lower priority or have not fully manifested yet.

1. Continue to develop a landscape level approach to hazardous fuels reduction treatments by focusing on linking existing project areas.
2. Reevaluate completed project areas to determine maintenance needs and continue to utilize Shoshone County's weed program to assist with maintenance projects.
3. Evaluate the wildland fire risk to all types of critical infrastructure and develop an appropriate mitigation activity.
4. Address wildland fire risk issues in all new developments and apply Firewise landscaping and construction measures where necessary.
5. Evaluate development plans for the Silver Mountain Resort and the surrounding area, particularly south of Kellogg and ensure wildland fire risk is addressed as these projects move forward.
6. Evaluate the wildfire risk and prevention measures along the two major trail systems in Shoshone County; the Route of the Hiawatha and the Trail of the Coeur d'Alenes.

Shoshone County Forest Health Collaborative

The Shoshone County Forest Health Collaborative's Forest Health Working Group has been charged with developing an on-the-ground project before the end of the 2011 field season. After in-depth consideration of sensitive ecosystem, logistical, and economical components such as soils, access, threatened and endangered species, cultural resources, floodplains, wildfire hazard, proximity to communities, and old growth timber types, the Forest Health Working Group selected the Bureau of Land Management's Mullan South project area as the Collaborative's pilot project. The Working Group also identified the following areas as potential projects for future consideration:

- Beacon Light
- Terror Gulch
- Jacobs Gulch
- Wardner Peak
- Pinehurst South
- Beaver Creek
- Murray
- Prado on the North Fork

Regional Land Management Recommendations

Wildfires will continue to ignite and burn depending on the weather conditions and other factors enumerated earlier. However, active land management that modifies fuels, promotes healthy

forestland conditions, and promotes the use of natural resources (consumptive and non-consumptive) will ensure that these lands have value to society and the local region. The Idaho Department of Lands, U.S. Forest Service, industrial forestland owners, private forestland owners, and all agricultural landowners in the region should be encouraged to actively manage their wildland-urban interface lands in a manner consistent with reducing fuels and risks in this zone.

Chapter 7

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Signature Pages

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

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RESOLUTION 2011-04

A RESOLUTION OF THE SHOSHONE COUNTY BOARD OF COMMISSIONERS DECLARING COUNTY SUPPORT AND ADOPTION OF THE 2011 SHOSHONE COUNTY COMMUNITY WILDFIRE PROECTION PLAN

WHEREAS, the Shoshone County Board of Commissioners supports the Shoshone County Community Wildfire Protection Plan; and

WHEREAS, the Shoshone County Community Wildfire Protection Plan will be utilized as a guide for planning as related to the Multi-Jurisdictional All Hazard Plan, the National Fire Plan, the Healthy Forest Restoration Act, and other purposes as deemed appropriate; and

WHEREAS, the Shoshone County Community Wildfire Protection Plan will serve as a vehicle for planning hazardous fuels and biomass reduction projects for the benefit of Shoshone County as deemed appropriate.

THEREFORE BE IT RESOLVED, that the Shoshone County Board of Commissioners do hereby adopt and will facilitate the implementation of the Shoshone County Community Wildfire Protection Plan.

DATED this 18th day of January 2011.

BOARD OF COUNTY COMMISSIONERS

Vince Rinaldi, Chairman

Jon Cantamessa, Commissioner

Larry Yergler, Commissioner

ATTEST:

Susan K. Hendrixson, Deputy Clerk

Signatures of Participation by Shoshone County Fire Districts and Departments

This Community Wildfire Protection Plan and all of its components identified herein were developed in close cooperation with the participating entities listed. These members of the CWPP planning committee formally recommended that this document be adopted by the Shoshone County Board of Commissioners.

By: Jim Walcker, Chief
Shoshone County Fire District №1

Date: 01/12/11

By: Dale Costa, Chief
Shoshone County Fire District №2

Date: 01-26-11

By: Bruce VanBroeke, Chief
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Date: 01-26-11

By: Tim Powell, Chief
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Date: 1/31/11

By: Steve Coyle, Chief
Prichard-Murray Volunteer Fire Department

Date: 1-18-11

Signatures of Participation by other Shoshone County Entities

This Community Wildfire Protection Plan and all of its components identified herein were developed in close cooperation with the participating entities listed. These members of the CWPP planning committee formally recommended that this document be adopted by the Shoshone County Board of Commissioners.

By: Kurt Pavlat, ~~Acting~~ Field Manager
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Date

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Date

By: Henry Nipp, Coordinator
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1-19-11

By: Tera King, Project Manager
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January 12th, 2011
Date

This plan was developed by Northwest Management, Inc. under contract with Shoshone County.

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King, Tera R. and V. Bloch. *Lead Authors.* Shoshone County, Idaho Community Wildfire Protection Plan Appendices. 2011 Revision. Northwest Management, Inc., Moscow, Idaho. January 2010. Pp 51.

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APPENDIX H. MITIGATION ACTION WORKSHEETS

This appendix contains the completed worksheets for newly added mitigation actions.

APPENDIX I. HAZARD PROFILES

This appendix contains complete hazard profiles that did not have associated mitigation actions. These hazard profiles are to be reviewed, evaluated, and updated based on hazard occurrence and risk amplification on an regular basis throughout the plan's life.

Contents

1. Civil Disturbances
2. Communicable Disease
3. Cyber Disruption
4. Drought
5. Volcanic Eruption

Civil Disturbances

Overview

Civil disturbances can occur in all communities given the myriad of reasons that often drive civil unrest, protest, and terrorism. The former plan did not include civil disturbances. The 2017 plan update incorporated a profile on civil disturbances.

Civil unrest and terrorism summary

	Before 2009	2009-2016	Total
Occurrences	-	-	-
Disaster Declarations	-	-	-
Casualties	-	-	-
Property Damage*	-	-	-
Repetitive Losses	-	-	-

*Statistics not available

Hazard Description

The term 'civil disturbance' includes a number of intentional action designed to disrupt or influence society, government, or the economy. These include terrorism, violence, labor strikes, civil disobedience, demonstrations, riots, and open rebellion. Civil disturbance ranges from localized and small-scale (e.g., domestic violence) to regional or global and large-scale (e.g., mass riots and terrorism).

Civil disturbance is often spontaneous, and can involve large numbers of individuals incited to civil disobedience and protest. Such disturbance is driven by political and socioeconomic marginalization, grievances, conflict, and shortages of food and other vital resources. Planned civil disturbance – such as terrorism – can be but carried out by few individuals driven by more narrow causes (e.g., religion). Uncontrolled, angry or emotion-driven, and non-organized masses of people are often termed a 'mob'. Mobs are typically associated with disorder, and includes riots, lynches, and vigilante groups.

The following are some of the known causes of civil unrest:

- Abortion
- Government policy, corruption, and action
- Nuclear energy and weapons
- Race and ethnicity
- Civil liberties and human rights

- Gun control
- Immigration
- War and peace movements
- Poverty, homelessness, and inequality
- Trade, globalization, and markets

Hazard Extent, Magnitude, & Probability

It is difficult to identify and quantify the extent, magnitude, and probability of civil disturbance due to the number of activities and actions classified as such, as well as the spontaneous nature of these events. Similarly, the hazard's extent can range from localized and small-scale to far-reaching and large-scale, making it difficult to capture within this plan. Government buildings and entities, transportation facilities, and utility facilities (notably high-potential loss facilities) are often primary targets of civil disturbances.

Civil disturbance is often classified into the following categories:

- Low Severity – Localized civil disturbances, such as property intrusion, that require police dispatch. These incidents sustain little to no property damage and minimal physical harm. These events are high probability (routine disturbance calls).
- Moderate Severity – Civil disturbance resulting in business disruption and property damage but that do not require the use of physical force are classified as moderate severity. Physical harm is more substantive. These events are uncommon to rare, depending on location, culture, and socioeconomic status.
- High Severity – Highly contentious, requires the use of physical or chemical agents to restore order, and endanger the lives of residents and responders. This classification entails significant property damage or business interruption. These events are rare.

Civil disturbances will continue to occur in the future. Often, forewarning and prediction to some level is possible given known catalysts of civil disturbances, such as race riots, demonstrations, and mobs. Other forms of civil disturbance, such as terrorism, are more difficult to predict.

Hazard Occurrences

There are no known recorded instances of civil disturbance in Shoshone County.

Hazard Exposure & Vulnerability

Homes, businesses, and critical facilities can all be exposed to civil disturbances. Essential facilities, such as police stations and courthouses, as well as high-potential loss facilities are often targeted during civil disobedience, riots, and mobs. These locations are also terrorist targets. Businesses – notably those in contentious industries, such as chemical manufacturing and natural resource extraction – are known targets for disruption.

To date, no detailed vulnerability assessment of civil disruption is available in the State of Idaho. A socioeconomic vulnerability assessment employing the SERV model was not conducted, due to the spontaneity and difficulty in modeling civil disruption.

Land Use & Future Development

Although civil disturbance can occur anywhere in the county, it is likely that events will be constrained to populated areas or areas proximate to government, including federal lands, and other critical facilities. Land use and future development is unlikely to directly impact civil disturbances.

Communicable Disease

Overview

Communicable diseases can significantly disrupt Shoshone County's continuity, and understanding the risks and potential impacts are vital to mitigation. The former plan did not include communicable diseases. The 2017 plan update incorporated a profile on communicable diseases.

Communicable disease summary

	2002-2008	2009-2016	Total
Occurrences	368	521	889
Disaster Declarations	-	-	-
Casualties*	-	-	-
Property Damage	-	-	-
Repetitive Losses	-	-	-

*Mortality statistics not available for this time period.

Hazard Description

Communicable diseases – sometimes called infectious diseases – are illnesses caused by organisms such as bacteria, viruses, fungi and parasites. Sometimes the illness is not due to the organism itself, but rather a toxin that the organism produces after it has been introduced into a human host. Communicable diseases are transmitted through various methods, including between people, animal to human, animal to animal, or from an inanimate object (e.g., doorknobs, table tops, etc.) to an individual. An epidemic is a communicable disease affecting a greater-than-average number of people than normal for a locality.

An epidemic poses devastating impacts to the population and economy of Shoshone County. Epidemics often result in hospital admissions and deaths that exceed local capabilities, and can result in quarantines and mass fatalities with the potential to significantly interrupt everyday life in the county. Health care providers, laboratories, and hospital administrators are required by Idaho rules and regulations to report confirmed or suspected communicable diseases and conditions to their local health district or the State of Idaho Office of Epidemiology within three working days of identification or suspicion. The Panhandle Health District maintains a Public Health Response and Response Plan for communicable disease and pandemic outbreaks.

The following is a list and brief description of communicable diseases that pose a threat:

- Campylobacteriosis – An infectious disease caused by bacteria of the genus *campylobacter*. Most people who become ill with campylobacteriosis get diarrhea, cramping, abdominal pain, and fever within two to five days after exposure to the organism. In persons with compromised immune systems, campylobacter occasionally spreads to the bloodstream and causes a serious life-threatening infection. The vast majority of cases occur as isolated, sporadic events, not as part of recognized outbreaks. Active surveillance indicates that about 13 cases are diagnosed each year for each 100,000 persons. Most cases are associated with eating raw or undercooked poultry meat or from cross-contamination of other foods by these items. Infants may get the infection by contact with poultry packages in shopping carts. Outbreaks of campylobacter are usually associated with unpasteurized milk or contaminated water.
- Cryptosporidium – A diarrheal disease caused by a microscopic parasite, cryptosporidium. The parasite is protected by an outer shell that allows it to survive outside the body for long periods of time and makes it very resistant to chlorine disinfection. While this parasite can be transmitted in several different ways, water is a common method of transmission and cryptosporidium is one of the most frequent causes of waterborne disease (drinking water and recreational water) among humans in the United States. Cryptosporidium can be spread by swallowing water that can be contaminated with sewage or feces from humans or animals, by accidentally swallowing something that has come in contact with the stool of a person or animal infected with cryptosporidium.
- Gardiasis – A diarrheal illness caused by a microscopic parasite, giardia intestinalis. Once a person or animal has been infected with giardia, the parasite lives in the intestine and is passed in feces. Because the parasite is protected by an outer shell, it can survive outside the body and in the environment for long periods of time (i.e., months). During the past two decades, giardia infection has become recognized as a common cause of waterborne disease in humans in the United States. Giardia is found on surfaces or in soil, food, or water that has been contaminated with the feces from infected humans or animals. Infection can occur accidentally swallowing the parasite; you cannot become infected through contact with blood. Giardia infection can cause a variety of intestinal signs or symptoms, which include diarrhea, stomach or abdominal cramps, upset stomach or nausea. These symptoms may lead to weight loss and dehydration.
- HIV & AIDS – Abbreviations for human immunodeficiency virus and acquired immunodeficiency syndrome, respectively. HIV and AIDS weakens an individual's immune system, and are transmitted by sexual intercourse, contaminated blood transfusions, or from infected mother to child during pregnancy or breastfeeding that. This disease is recent compared to other pandemics, and was first recognized by the Centers for Disease Control and Prevention in 1981. No current cure exists although breakthroughs in research are promising.

- Influenza – A serious disease caused by viruses that infect the respiratory tract. Pandemic flu is a virulent human flu that causes a global outbreak, or pandemic, of serious illness. Because there is little natural immunity, the disease can spread easily from person to person. AI (Avian flu) viruses occur naturally among wild birds. Low pathogenic AI is common in birds and causes few problems. Highly pathogenic form (HPAI) is extremely infectious among humans. The rapid spread of HPAI, with outbreaks occurring at the same time, is of growing concern for human health as well as for animal health. Spanish influenza caused several waves of pandemic in 1918 through 1919, resulting in 20 to 50 million deaths worldwide. Officials reported that in Sandpoint, all public gatherings were prohibited even as the local paper maintained that there was no cause for alarm. The disease simply ran its course, unchecked by actions taken by state, local or federal officials. A pandemic of Asian flu (Influenza A [H2N2]) occurred in 1957-58 where it caused about 70,000 deaths.
- Lyme disease – Caused by the bacterium *borrelia burgdorferi* and is transmitted to humans by the bite of infected blacklegged ticks. Typical symptoms include fever, headache, fatigue, and a characteristic skin rash. If left untreated, infection can spread to joints, the heart, and the nervous system. Lyme disease is diagnosed based on symptoms, physical findings, and the possibility of exposure to infected ticks; laboratory testing is helpful in the later stages of disease. Most cases of Lyme disease can be treated successfully with a few weeks of antibiotics.
- Pertussis – Also known as whooping cough, pertussis is a very contagious disease caused by a type of bacteria called *bordetella pertussis*. Pertussis is one of the most common vaccine-preventable childhood diseases in the US. The disease starts like the common cold, with runny nose or congestion, sneezing, and maybe mild cough or fever. But after one to two weeks, severe coughing begins. Children with the disease cough violently and rapidly, until the air is gone from their lungs and they're forced to inhale with a loud "whooping" sound. People with pertussis usually spread the disease by coughing or sneezing while in close contact with others, who then breathe in the pertussis bacteria.
- Salmonellosis – A group of bacteria that can cause diarrheal illness in humans. Most persons infected with Salmonella develop diarrhea, fever, and abdominal cramps 12 to 72 hours after infection. The illness usually lasts 4 to 7 days, and most persons recover without treatment. The elderly, infants, and those with impaired immune systems are more likely to have a severe illness. Salmonella are usually transmitted to humans by eating foods contaminated with animal feces. Contaminated foods usually look and smell normal. Contaminated foods are often of animal origin, such as beef, poultry, milk, or eggs, but any food, including vegetables, may become contaminated. Thorough cooking kills salmonella. Food may also become contaminated by the hands of an infected food handler who did not wash hands with soap after using the restroom. Salmonella may also be found in the feces of pets with diarrhea, and people can become infected if they do not wash their hands after contact.

- West Nile Virus – Often mosquito-transmitted, West Nile virus can result in minor symptoms to death. West Nile virus is a flavivirus, the same family responsible for dengue and yellow fever. About 80% of individuals infected with West Nile do not show any symptoms, while the 20% develop West Nile fever. Symptoms include fever, headache, fatigue, aches, nausea, and vomiting. Severe symptoms include headache, high fever, stupor, coma, tremors, convulsions, and paralysis. Inflammation of the spinal cord and brain can also develop and cause death. West Nile is viewed as a seasonal epidemic that flares up in the summer and continues in the fall, coincident with increased mosquito populations and activity.

Understanding and predicting the transmission of communicable diseases coincident with climate change remains a challenge; however, given that many infectious agents (e.g., ticks and mosquitoes) are linked to climate, it is important to acknowledge climate change will drive changes in the distribution and impact of communicable diseases. Certain pathogens and infectious agents will be limited by climate change, while others will find more favorable conditions. The effect climate change will have on communicable disease risk in Shoshone County is dependent on the projected temperature increase, the thermal tolerance of pathogens and infectious agents, and human movement and development patterns. To-date, no conclusive study on the county's risk exists, and further research is needed to assess climate change impacts on communicable diseases in the county.

Hazard Extent, Magnitude, & Probability

The extent and magnitude of communicable diseases ranges widely. Some communicable diseases (e.g., the common cold) can infect a large number of people, while the magnitude of such diseases rank low relative to diseases with more devastating impacts (e.g., Spanish Flu). Given the wide range of communicable diseases, it is difficult to provide measures of extent and magnitude. Future occurrences of epidemics and pandemics are expected to continue and possibly increase in rate of occurrence and infection. Reasons for these increased include the overuse of antibiotics, global travel patterns and population dispersion, and the continual evolution of viruses and bacteria.

Hazard Occurrences

IDHW collects, analyzes, and disseminates health data regarding certain diseases across the state at both the public health district and county level. This data is available between 2002 and 2014. The table below summarizes the reported diseases within the county.

Disease occurrences

	'02	'03	'04	'05	'06	'07	'08	'09	'10	'11	'12	'13	'14
Bld Lead => 10	15	10	11	12	6	42	35	37	53	44	50	18	24

	'02	'03	'04	'05	'06	'07	'08	'09	'10	'11	'12	'13	'14
Campylobacteriosis	-	1	-	-	-	-	2	-	1	-	-	1	-
Chlamydia	8	17	29	15	12	6	24	24	21	47	30	45	50
Cryptosporidiosis	-	-	-	-	1	-	1	-	-	-	-	-	-
E. coli, shiga	-	-	-	-	-	-	-	-	-	-	1	-	-
Giardiasis	2	1	2	-	-	1	-	-	1	3	-	1	1
Gonorrhea	-	1	1	-	2	2	1	1	1	-	-	2	-
H. influenza	-	-	-	-	-	-	-	1	-	1	1	-	-
Hepatitsi B AB	1	1	2	-	-	-	-	-	-	-	-	-	-
Hepatitis B Acute	-	1	1	1	1	3	1	-	1	-	3	-	1
Hepatitis B Chronic	-	2	1	-	-	4	-	-	-	-	-	-	-
Hepatitis C AB	18	9	13	-	-	-	-	-	-	-	-	-	-
Hepatitis C Acute	-	-	-	-	1	-	-	-	-	2	-	-	-
Hepatitis C Chronic or resolved	-	-	-	10	8	8	-	-	-	-	-	-	-
Legionella	-	-	-	-	-	-	-	-	-	-	-	-	1
Meningitis, aspect	-	-	-	-	2	-	-	-	-	-	-	-	-
Norovirus	-	-	-	-	-	-	-	-	-	-	-	1	-
Novel influenza A	-	-	-	-	-	-	-	3	-	-	-	-	-
Pertussis	-	4	-	-	5	-	-	1	-	-	-	5	-
Rabies (Bats)	-	-	-	-	-	-	-	-	1	-	-	-	-
Rabies (PEP)	-	-	-	-	-	-	-	1	3	-	-	-	-
Respiratory syncytial virus (RSV)	-	-	-	-	-	-	-	3	3	1	2	4	5
Salmonellosis	1	1	3	-	-	-	-	1	1	-	3	-	-
S. aureus (MRSA), invasive	-	-	-	-	-	-	1	1	-	5	1	4	2
Strep A, invasive	-	-	-	-	-	1	-	-	-	-	-	-	-
Syphilis	1	-	-	-	-	-	-	-	-	-	-	-	-
Tuberculosis	-	-	-	1	1	-	-	-	-	1	1	1	-
Yersiniosis	-	-	-	-	-	1	-	-	-	-	-	-	-
Total	**46**	**48**	**63**	**39**	**39**	**68**	**65**	**73**	**86**	**104**	**92**	**82**	**84**

Hazard Exposure & Vulnerability

The Centers for Disease Control (CDC)-developed FluSurge model was used to assess the county's risk to pandemic influenza. FluSurge estimates the number of hospitalizations and deaths for a percentage of the county population assumed to become clinically ill over a set duration with influenza during the next pandemic, taking into account susceptible factors such as the age characteristics of the county.

For this risk assessment, 15 percent, 25 percent, and 35 percent of the county's population (referred to as a 15 percent attack rate, 25 percent attack rate, and 35 percent attack rate) was assumed to be infected over a 12-week duration. Three different scenarios are generated to allow for responsive planning: minimum (which estimates the fewest possible number of hospital admissions and deaths); most likely (which estimates the average number of hospital admissions and deaths); and maximum (which estimates the worst case scenario of hospital admissions and deaths). Finally, two pandemic influenza strains were modeled: the 1918 strain (also known as Spanish Flu), and the 1968 strain.

FluSurge model results

			Attack Rate		
			15%	**25%**	**35%**
1918 PanFlu	Hospital Admissions	Minimum	115	191	267
		Most Likely	325	541	757
		Maximum	613	1,022	1,431
	Deaths	Minimum	44	73	103
		Most Likely	103	171	240
		Maximum	183	306	428
1968 PanFlu	Hospital Admissions	Minimum	14	23	33
		Most Likely	30	50	70
		Maximum	39	65	91
	Deaths	Minimum	4	7	10
		Most Likely	6	11	15
		Maximum	10	17	23

Note that although the number of hospital beds represent the total current capacity, hospital capacity fluctuates and some capacity must always be reserved for patients other than those affected by communicable diseases (e.g., maternity, trauma). Actual capacity will be less than the total capacity, although adjustments through opening emergency or temporary wards can alter capacity.

Critical infrastructure including medical care facilities, hospitals, pharmacies, and ambulatory services can be strained from the impact of a communicable disease on a county and its communities. Emergency rooms and ambulance transport can reach capacity, and social services and support (such as shelters and health departments) can close due to infection of responders and workers or unwilling to expose themselves.

Often, the most vulnerable populations to communicable disease are children, pregnant women, seniors, special needs populations, and predisposed populations (e.g., genetics). Although a socioeconomic vulnerability assessment was not conducted for this hazard given the difficulty in assessing the spatial pattern of spread of the many possible communicable diseases, the sensitivity of the county's population might elucidate those areas more vulnerable to communicable disease.

Land Use & Future Development

There are no foreseen land use impacts associated with communicable diseases. Development can increase the rate of infection of a communicable disease due to the coincident increase in population and population density; however, development in the county is unlikely to significantly impact the rate of infection.

Cyber Disruption

Overview

Cyber disruption includes any hazard posing a threat to cyberinfrastructure, network systems, databases, and all other forms of electronic equipment vital to the everyday functioning of Shoshone County. The former plan did not include cyber hazards, but the increasing reliance on cyberinfrastructure coincident with more frequent and devastating disruptions necessitates its inclusion. The 2017 plan update incorporated a profile on cyber hazards.

Cyber disruption summary

	Before 2009	2009-2016	Total
Occurrences*	-	-	-
Disaster Declarations*	-	-	-
Casualties*	-	-	-
Property Damage*	-	-	-
Repetitive Losses*	-	-	-

*Data not available.

Hazard Description

The everyday operations of communities, critical infrastructure such as power and water, and emergency response are all reliant on cyberinfrastructure. Cyberinfrastructure is composed of the computing systems, data repositories, virtual environments, and all other electronic devices that are linked to create a network. Cyberinfrastructure also entails the people and institutions designed to maintain, update, and advance electronic systems. Due to the relative newness and increasing advancement of cyber infrastructure, cyber hazards are increasingly a threat and risk to even smaller and more rural counties.

Cyber hazards are natural or deliberate action that interrupts cyberinfrastructure, limiting communications, processing, and data storage ability. Cyber hazards are varied and include events such as solar flares, power loss, and cyber threats such as cyber terrorism. Geomagnetic storms are disturbances in the earth's geomagnetic field caused by changes in solar wind. Global Positioning Systems (GPS)-reliant technology, power transformers, and other segments of the power grid can all be affected by geomagnetic storms, including loss of service, signal interruption, and loss of use. Cyber terrorism is an act of computer-to-computer attack with the intention to expose and take advantage of vulnerable digital systems to access confidential records, destabilize digital systems and networks, and cause harm. Cyber disruptions include criminal activity for profit, extortion, and theft. Both state

and non-state actors act to cause cyber disruption, and attacks can be singular in nature or part of a larger network of cyber disruptions. Threat groups include the following:

- Hacktivists – An amalgamation of hacker and activist, hacktivists attempt to further an ideology or political agenda through cyber disruption.
- State Actors – State-sponsored military or intelligence services, groups, and individuals acting on behalf of foreign governments. These actors often pose a threat to law enforcement and critical infrastructure.
- Terrorist Organizations – Non-state terrorist organizations utilize the internet to radicalize, recruit, fundraise, and plan for and conduct deliberate attacks on individuals, agencies, and infrastructure.
- Criminal Organizations – Due to the anonymity of the internet, low physical risk, and global opportunities, criminal organizations utilize the internet to conduct criminal activity. With specific regards to cyberinfrastructure, criminal organizations can ransom vital, private, and valuable data stolen from unprotected or inadequately protected databases, such as medical records, communication logs, and GPS tracks.
- Purposeful or Accidental Insider – Employees, contractors, or other individuals with access to internal systems who purposefully cause harm, or those unaware of damage caused by weak security, victims of social engineering, or phishing.
- Individuals – Acting alone, individuals with skills or access to tools can act as cyber disruptions for personal gain.

Motives behind cyber-attacks vary, and can be any one of the following:

- Disabling websites
- Release information
- Espionage
- Interfere with law enforcement
- Sabotage
- Defacing to cause embarrassment or retaliate
- Retribution
- Profit
- Notoriety
- Disinformation

Previously, cyber security focused on preventing initial entry into computers and networks. Over the past years, this focused shifted to limiting damage once a system was compromised. In Idaho, a state cyber security group is working to address risks to state systems. Centralized systems, such as the Supervisory Control and Data Acquisition (SCADA) that controls infrastructure such as communications, utilities, transportation, medical facilities, law enforcement, and financial systems, are at risk of disruption from cyber disruptions.

Climate change can increase the risk of cyber hazards. Increased loads on energy infrastructure during the winter and summer months due to more extreme temperatures can result in brownouts, and more extreme storms can down powerlines and cause cyber disruptions.

Hazard Extent, Magnitude, & Probability

Any electronic device connected to the internet, operates on radio frequencies, or that an individual can gain unauthorized access to, are vulnerable to hacking.

Hazard Occurrences

Cyber disruptions across the US increased after 2005, notably with regards to cyberattacks on the energy, banking, and finance sectors. In Shoshone County, power outages have resulted in disruption of the county's cyberinfrastructure. There are no reported incidents of malicious cyber disruptions.

Hazard Exposure & Vulnerability

Vulnerabilities within cyberinfrastructure are many. Cyber vulnerabilities include the following:

- Personnel – Employees, contractors, and other individuals are often the greatest vulnerability in terms of cyber hazards. Accidental insiders can cause cyber disruptions through unintentional actions or part of a social engineering scheme. Purposeful insiders intentionally cause cyber disruptions, and can be particularly devastating given advanced levels of internal knowledge regarding cyberinfrastructure.
- Organizational Barriers – Lack of managerial and executive support (notably in law enforcement, medical, and other sensitive fields) can amplify vulnerability to cyber disruption due to lack of resources, training, and policy to train and maintain cyber security. Organizational culture can likewise create cyber vulnerabilities, as organizations with weak cyber culture are likely to lack the technical and administrative agency to institute strong cyber policies. Finally, training and technical personnel are vital to reducing cyber vulnerability.
- Information Networks & Systems – These systems must be proactively secured to reduce cyber threats and vulnerabilities. Without proper and continual security procedures and actions, these networks and systems become vulnerable to both human and natural cyber hazards. Vulnerabilities can be found in systems access, file access, internal and external networks, internet-based storage and processing (e.g., cloud storage), software, and data files.

- Public-Facing Websites – Websites viewable by anybody on the internet are often vulnerable to cyber disruption. Denial of service attacks can overwhelm websites, preventing use by others by taking it offline.
- Data Storage Devices – Devices such as portable USB drives, hard drives, and smartphones can be stolen or compromised.
- Communications Centers, Systems, Equipment, & Applications – Communications are essential in emergency and disaster events, yet are vulnerable to cyber hazards. If emergency personnel are reliant on smartphones for communication, cyber disruptions can severely limit effective response and coordination.
- Facility Systems & Physical Infrastructure – Heating, ventilation, air conditioning, water systems, elevators, parking garages, lighting systems, and more are vulnerable to cyber disruption.

Land Use & Future Development

There are no foreseen land use impacts associated with cyber disruption and hazards. Development, however, can increase the number of targets of cyber terrorism and the impact of cyber disruption.

Drought

Overview

Drought is caused by a myriad of factors that act across time and space, making predictions difficult. However, drought can have widespread impact on private and public water sources, agriculture, and other natural resource-based economic sectors, and understanding the risk is vital to mitigation. The 2017 update added a hazard profile on drought in order to better assess the county's drought risk.

Drought summary

	Before 2009	2009-2016	Total
Occurrences*	-	-	-
Disaster Declarations	-	-	-
Casualties	-	-	-
Property Damage	-	-	-
Repetitive Losses	-	-	-

*SHELDUS, NWS, IDWR

Hazard Description

Defined concisely, drought is the physical shortage of water. A broader definition of drought is a deficiency of precipitation over an extended period of time, resulting in shortages of water resources vital to community and ecosystem continuity. Often, drought is simply perceived as a period of unusually dry weather; however, it is important to distinguish between the types of droughts:

- Meteorological Drought – Defined as below-normal precipitation over a set period of time. Often this type of drought is region-specific based on regional climatology. This drought type is often what is thought of as 'drought'.
- Agricultural Drought – This type of drought occurs when a reduction in soil moisture results in unmet demand for crops. This drought type is region-, crop-, and time-specific, and usually occurs after meteorological droughts. Agricultural drought can cause significant crop losses and economic disruption for agriculture-dependent communities.
- Hydrological Drought – This type of drought is driven by a deficiency of surface and subsurface water resources, often indicated by reduced streamflow, lake or reservoir water levels, and groundwater table heights. Due to the complex hydrological network that feeds surface and subsurface water resources, hydrological drought occurs after meteorological drought.
- Socioeconomic Drought – This type of drought occurs when individuals or communities are impacted by physical water shortages. Socioeconomic drought impacts can vary according to an individual's or community's ability to adapt or mitigate.

Drought is a complex hazard, given the many interrelated factors that determine and influence water supply, such as the amount, frequency, and intensity of precipitation, evapotranspiration from vegetation and surface water, and human use such as groundwater withdrawals. Drought can also drive other hazards, such as wildfire, insect infestation, and vegetation disease and mortality. Drought is also a special type of hazard because it does not often require evacuation or often constitute an immediate threat to life or property. People are not suddenly rendered homeless or without food and clothing. The general effect of a drought is economic hardship, but it can resemble other types of disasters in that those impacted are deprived of their livelihoods, and communities can suffer economic decline. This is notably so for communities reliant on agriculture or water resources as economic drivers.

Empirical studies over the past century across the globe showed that drought is often caused by a multiple of factors, often synergistic in nature. These factors span local to global, and include groundwater levels, streamflow, soil moisture, vegetation, and large-scale global weather patterns. Climate teleconnections, such as El Nino and La Nina, can significantly influence drought frequency and magnitude. Due to the complexity of drought, no cohesive or comprehensive model exists to date to project drought beyond a short timeframe. Currently, the US Drought Monitor is updated weekly and widely used by planners, policymakers, and scientists, and should be the go-to source for drought information. Additionally, the NWS Climate Prediction Center produces seasonal drought outlooks which can also be employed in the near-term.

Drought in Idaho is often associated with warm winters with reduced snowfall and snowpack. Mountain snowpack feeds a significant portion of Idaho's water supply, and low snowpack results in low streamflow and groundwater recharge. Above-normal winter and spring temperatures further impact snowpack and can cause drought. The Idaho Drought Plan was last revised in 2001, and provides historic information, guidance, and a framework for management of water shortage situations. The Idaho Drought Plan is designed as a resource and educational tool to be used when future water shortages occur.

Hazard Extent, Magnitude, & Probability

The extent and magnitude of drought can vary widely through time and space. The US Drought Monitor classifies drought into five magnitudes based on numerous metrics, such as the Palmer Drought Severity Index, CPC Soil Moisture Model, USGS Weekly Streamflow, and more:

- Abnormally Dry (D0) – If the county is entering a drought, possible impacts include short-term dryness that can slow planting or the growth of crops and pastures. If coming out of drought, impacts can include lingering water deficits and crops or pastures unable to recover.
- Moderate Drought (D1) – Potential impacts include some damage to crops and pastures; the development of water shortages due to reduced streamflow, reservoir recharge, and low wells.
- Severe Drought (D2) – Potential impacts likely include crop and pasture losses, common water shortages, and water restrictions.
- Extreme Drought (D3) – Potential impacts include major crop and pasture losses, and widespread water shortages and restrictions.
- Exceptional Drought (D4) – Significant and widespread crop and pasture losses, and water emergencies resulting from minimal reservoir storage, streamflow, and groundwater levels.

Losses associated with the more significant droughts can include:

- Crop, dairy and livestock, timber, and fishery production losses.
- Recreation losses.
- Losses associated with increased energy costs resulting from increased energy demand and reduced hydroelectric generation capacity.
- Losses associated with reduced tax revenue.
- Losses from non-navigable waterways.
- Loss of long-term economic growth and development.

The extent of drought can be localized, especially in mountainous areas with numerous microclimates. However, cumulative drought impacts can span the entire county, impacting all watersheds, waterways, aquifers, and more. Temporally, drought can be both short- and long-term.

Short-term drought is normally defined as drought conditions lasting six or less months. Short-term droughts impact those ecosystem services reliant on precipitation, groundwater, and meteorological conditions, such as agriculture and grasslands. In contrast, long-term drought is typically defined as drought conditions lasting more than six months, with impacts on ecosystem services such as hydrology, long-term water storage, and more.

Forecasting drought is difficult due to the number of contributing factors. However, drought is a naturally occurring climatic phenomena, and is an expected phase of almost all geographic regions in the state. Climate change can reduce snowfall, change precipitation patterns and extremes, and result in significantly reduced or modified streamflow magnitude, timing, and spatial distribution. These climate impacts can result in increased drought occurrence and severity.

Hazard Occurrences

Given the many types of drought and the difficulty in measuring drought, it is often difficult to report every drought occurrence, and no singular comprehensive database recording drought occurrence and impacts exists. Shoshone County has no IDWR drought declarations, and there are no recorded drought observations from the Drought Risk Atlas.

Hazard Exposure & Vulnerability

Drought can affect all economic sectors, with particular significance on the energy, agriculture, and natural resource sectors (e.g., timber). Because precipitation is variable across both time and space, classifying drought exposure and vulnerability is difficult. Drought exposure can be both local and statewide, with similar variable impacts. Dryland agriculture and water-related recreational businesses are the most drought vulnerable sectors. If impacted, Shoshone County and its communities could experience long-term economic consequences (see 5.9.3). A socioeconomic vulnerability assessment using the SERV model was not completed given the difficult in classifying drought and its impacts on non-agriculture populations.

Land Use & Future Development

Development in Shoshone County can increase both the risk and severity of drought occurrence. Development on residential, commercial, industrial and agricultural lands throughout the county can increase water usage from both surface water and groundwater sources, which can result in reduced surface flow and groundwater tables. Reductions in both surface flow and groundwater resources can result in more frequent drought occurrences. Private and public wells, irrigated agriculture, and hydroelectric utilities can be significantly affected.

Volcanic Eruption

5.15.1 Overview

Although volcanoes are a low-probability hazard, Shoshone County can be affected by distant volcanos such as Mt. St. Helens. The 2017 update included a hazard profile for volcanoes, which was omitted in the former plan.

Volcanic eruption summary

	1950-2008	2009-2016	Total
Occurrences	1	-	1
Disaster Declarations	1 Federal	-	1 Federal
Casualties	-	-	-
Property Damage	-	-	-
Repetitive Losses	-	-	-

Hazard Description

A volcanic eruption is the spewing of lava, gas, and debris from the earth's interior through a vent in the earth's crust. Volcanic eruptions have both proximal and distal impacts, with proximal impacts classified within 30 miles or less of the vent, and distal impacts classified as those impacts affecting areas more than 30 miles away. Distal impacts can be far-ranging, and the most severe eruptions affect global climate patterns and weather. Proximal impacts include the following:

- Lava Flows – Channels of magma that reach the earth's surface, characterized by their flow movement. Lava flows destroy all structures in their paths, and have significant environmental impacts. These flows are known to cause forest fires, render productive and developable lands sterile and unworkable, and cause flood hazards by damming and diverting streams.
- Pyroclastic Flows – Mass movements of gas, ash, and rock down the slopes of a volcano following an explosive eruption or lava dome collapse. The temperature of these flows can reach 1,500 degrees F, moving speeds at up to 100 to 150 mph. Similar to lava flows, pyroclastic flows destroy and incinerate all structures, infrastructure, and vegetation in their paths, though pyroclastic flows tend to follow valleys and channels.
- Lahars & Debris Avalanches – Mud and debris flows composed mostly of volcanic materials occurring on the flanks of volcanos. These flows move at speeds up to 20 to 40 mph, but unlike pyroclastic flows can cover large distances. Debris avalanches are rapid downslope movement of rock, snow, and/or ice, ranging from small movements to massive collapses of the entire summit or side of a volcano.
- Volcanic Gases – Gases emitted before, during, and after an eruption. Although the majority of volcanic gases are water vapor, volcanic gases can be toxic with short- and long-term negative impacts on human populations and the natural environment. Such gases include carbon dioxide, sulfur dioxide, hydrogen sulfide, and fluorine.
- Tephra – Rock fragments (either solid or molten) ejected and falling within some distance of the vent. Tephra ranges in size from over three feet in diameter to fine dust. Deposits of tephra create hazards such as reduced visibility, electrical disruption, and clogging of critical infrastructure. Tephra clouds can also generate lightning, interfering communication and electrical systems, and can start fires. Fine dust tephra creates a respiratory health hazard, especially in small children and the elderly.

Distal impacts include the following:

- Ash – Ash from a volcanic eruption is abrasive, corrosive, and comprised of hard fragments of volcanic glass, minerals, and rock that fall to the surface, known as *ashfall*. The impacts of ashfall are similar to that of tephra (as ash is a form of tephra); however, ashfall can impact communities hundreds of miles away from an eruption, pose serious hazards to aviation; and

can collapse buildings due to the weight of ash deposits. The distribution of ash is a function of weather, particularly wind direction and speed and atmospheric stability, and the duration of the eruption.

- Eruption Columns & Clouds – Small fragments of materials (including volcanic glass, minerals, and rock) are ejected from a volcanic eruption and rise high into the atmosphere. Eruption columns can grow rapidly and reach more than 12 miles above the volcano, forming an eruption cloud that can extend hundreds of miles downwind. Eruption clouds can cause ashfall, and similar to the hazards of ashfall, create aviation hazards, affect local weather conditions, and persist for weeks.

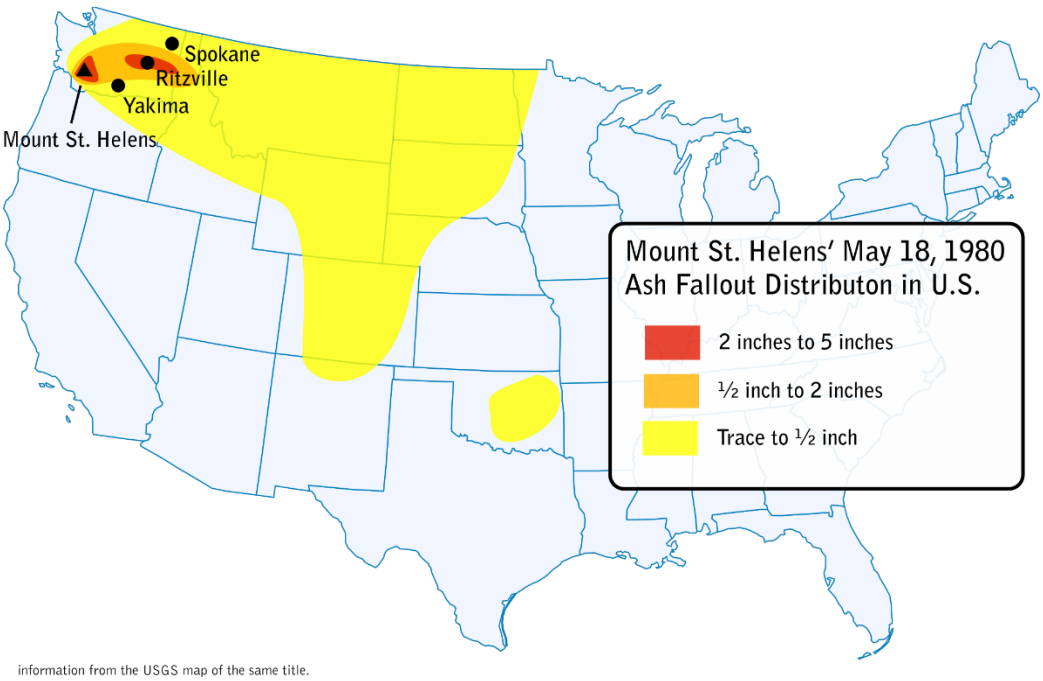
Hazard Extent, Magnitude, & Probability

Northern Idaho is at risk of volcanic eruption impacts from the Cascade Range of Washington, Oregon, and California, and the Yellowstone Caldera in Wyoming and eastern Idaho. Volcanic eruptions in the Cascade Mountains are more likely to impact Shoshone County than a Yellowstone eruption based on the historic trends of past eruptions and normal wind directionality.

Volcanic eruptions are generally not a major concern in Shoshone County due to the relatively low probability of events in any given year.

Hazard Occurrences

The only significant volcanic event impacting Shoshone County during recorded history was ashfall from the eruption of Mount St. Helens, resulting in a Federal disaster declaration



Mount St. Helen's ashfall map

The following is a brief summary of the declaration:

- Idaho Volcanic Eruption, Mt. St. Helens (DR-624)
    - Incident Period: May 22, 1980
      Major Disaster Declaration declared on May 22, 1980
    - Affected Areas: Benewah County, Bonner County, Boundary County, Clearwater County, Kootenai County, Latah County, Nez Perce County and Shoshone County
    - https://www.fema.gov/disaster/624

The following account briefly describes the event:

- May 18, 1980 – Mount St. Helens in western Washington erupted, killing 57 and causing over one billion dollars of damage in the Northwest. The eruption followed two months of earthquakes and minor eruptions, and this warning allowed most people in the proximal hazard area to evacuate prior to the eruption. Ashfall from the eruption impacted northern Idaho, covering roads, affecting crops, machinery and vehicles, and creating health issues (IBHS, 2007). The damage resulted in a Federal Disaster Declaration that included Shoshone County.

Hazard Exposure & Vulnerability

The primary effect of Cascade volcanic eruptions on Shoshone County would be ashfall – given the prevailing wind direction from west to east, ash from a volcanic eruption in the Cascade Range can be

carried across northern Idaho and deposited in Shoshone County. The entirety of the county's population would be exposed to ashfall from a distant volcanic given favorable wind direction.

No vulnerability assessment was undertaken due to the hazard's low probability and limited impacts.

Land Use & Future Development

Given the distance of Shoshone County to volcanic hotspots, it is unlikely that future development and land use will increase the county's exposure or vulnerability to the hazard.

APPENDIX J. RESOURCES

This appendix contains available resources located within the county that can be used in implementing mitigation actions.

Contents

1. Resources

Agency	Category	Type	Quantity	Description	Contact Name	County	Location	Address 1	Address 2	City	State	Zip	Phone	After Hrs Number	Dispatch Number	Email
Shoshone County Public Works	Aerial Lift – Truck Mounted	Type II	1		Forrest Greenfield	Shoshone	47.542780, -115.166550	Main Office - 700 Bank St, Wallace	District 2 - Smelterville, ID	Wallace	Idaho	83873	(208) 753-5475			fgreenfield@co.shoshone.id.us
City of Kellogg	Air Compressor	Type III	1	Atlas Copco	Craig Lewis	Shoshone	47.534640, -116.115060	405 E. Portland Ave		Kellogg	Idaho	83837	208-748-5595	208-661-4039		craig_lewis@suddenlinkmail.com
Shoshone County Fire District #1	Ambulance (Ground)	Type IV	1		182 Jim Walcker	Shoshone	47.472490, -115.922640	Station 1	921 E. Mullen	Osburn	Idaho	83849	208-752-1101	208-752-1101		jwalcker@yahoo.com
Prichard/Murray Volunteer Fire De	Ambulance (Ground)	Type II	1	A-582 - Intermediate Life Support	James Clevland	Shoshone	47.626750, -115.856580	6343 Prichard Creek Road	Station 52	Wallace	Prichard	83873	(208) 682-3952	(208) 682-4436		jclevland@pmfire.org
Prichard/Murray Volunteer Fire De	Ambulance (Ground)	Type II	1	Licensed as Intermediate Life Support	James Clevland	Shoshone	47.639580, -115.981320	21109 CDA River Rd.	Station 51	Wallace	Prichard	83873	(208) 682-3952	(208) 682-4436		jclevland@pmfire.org
Shoshone County Fire District #1	Brush Patrol. Firefighting (Type VI Engine)	Other	1	B141	Jim Walcker	Shoshone	47.502200, -115.991680	Station 1	921 E. Mullen	Osburn	Idaho	83849	208-752-1101	208-752-1101		jwalcker@yahoo.com
Shoshone County Fire District #2	Brush Patrol. Firefighting (Type VI Engine)	Other	1	B-241	Mark Aamodt	Shoshone	47.552920, -116.448920	Doyle Rd. Station	26502 Doyle Rd.	Kellogg	Idaho	83837	(208) 784-1188	(208) 784-1188		maamodt@shoshonefd2.com
Shoshone County Fire District #2	Brush Patrol. Firefighting (Type VI Engine)	Other	1	B-243	Mark Aamodt	Shoshone	47.538010, -116.234000	Pinehurst Station		Pinehurst	Idaho	83850	(208) 784-1188	(208) 784-1188		maamodt@shoshonefd2.com
Shoshone County Fire District #3	Brush Patrol. Firefighting (Type VI Engine)	Other	2	1352 and SCFD3-1	Terry Storjahann	Shoshone	47.471110, -115.774870	461 Friday Ave.	PO Box 422	Mullan	Idaho	83846	(208) 744-1157	(208) 744-1157		scfd3@mctvusa.tv
School District #391 Kellogg	Buses	Type I	22		Art Krulitz	Shoshone	47.540990, -116.167880	800 Bunker Ave.	Yard 797 Governmant Gulch,	Kellogg	Idaho	83837	208-784-0061			Art.Krulitz@ksd391.org
School District #391 Kellogg	Buses	Type III	4	1 with Handicap lift	Art Krulitz	Shoshone	47.540990, -116.167880	800 Bunker Ave.	Yard 797 Governmant Gulch,	Kellogg	Idaho	83837	208-784-0061			Art.Krulitz@ksd391.org
School District #392 Mullan	Buses	Type I	1		Kathy Anderson	Shoshone	47.472490, -116.922640	P.O Box 71		Mullan	Idaho	83846	208-784-1118	208-682-6028		cathya@mullanschools.com
School District #392 Mullan	Buses	Type II	1		Kathy Anderson	Shoshone	47.472490, -116.922640	P.O Box 71		Mullan	Idaho	83846	208-784-1118	208-682-6028		cathya@mullanschools.com
School District #393	Buses	Type I	10		Dr. Robert Ranells, Superinter	Shoshone	47.494380, -116.957510	104 Sather Field Rd.	Bus Barn	Wallace	Silverto	83867	208-753-4515 or 20	208-556-0285 or 208-		branells@wsd393
School District #393	Buses	Type II	3		Dr. Robert Ranells, Superinter	Shoshone	47.494380, -116.957510	104 7th St.	Bus Barn	Wallace	Silverto	87867	208-753-4515 or 20	208-556-0285 or 208-		branells@wsd393
Prichard/Murray Volunteer Fire De	Cots	Type IV	4		James Clevland	Shoshone	47.639580, -115.981320	21109 CDA River Rd.	Station 51	Wallace	Prichard	83873	(208) 682-3952	(208) 682-4436	208-556-1114	jclevland@pmfire.org
Shoshone County Resources	Critical Incident Stress Management Team	Type V	1		Jim Walcker	Shoshone				Pierce	Idaho		208-752-1101			
Mullan City Volunteer Fire Departn	Engine, Fire (Pumper)	Type I	1	Engine 1	Don Kotschevar	Shoshone	47.470320, -115.801790	112 Terrill Loop	P.O.Box 475	Mullan	Idaho	83846	(208) 512-1946	(208) 512-1946		donk@sd392.k12.id.us
Prichard/Murray Volunteer Fire De	Engine, Fire (Pumper)	Type I	1	E-511	James Clevland	Shoshone	47.639580, -115.981320	21109 CDA River Rd.	Station 51	Wallace	Prichard	83873	(208) 682-3952	(208) 682-4436		jclevland@pmfire.org
Prichard/Murray Volunteer Fire De	Engine, Fire (Pumper)	Type I	1	E-512	James Clevland	Shoshone	47.626750, -115.856580	6343 Prichard Creek Rd	Station 52	Wallace	Murray.	83873	(208) 682-3952	(208) 682-4436		jclevland@pmfire.org
Prichard/Murray Volunteer Fire De	Engine, Fire (Pumper)	Type IV	1	B-541	James Clevland	Shoshone	47.639580, -115.981320	21109 CDA River Rd.	Station 51	Wallace	Idaho	83873	(208) 682-3952	(208) 682-4436		jclevland@pmfire.org
Shoshone County Fire District #1	Engine, Fire (Pumper)	Type I	2	E113, E114	Jim Walcker	Shoshone	47.472490, -115.922640	Station 2	703 Ceder St.	Wallace	Idaho	83873	208-752-1101	208-752-1101		jwalcker@yahoo.com
Shoshone County Fire District #1	Engine, Fire (Pumper)	Type I	1	E111	Jim Walcker	Shoshone	47.502200, -115.991680	Station 1	921 E. Mullen	Osburn	Idaho	83849	208-752-1101	208-752-1101		jwalcker@yahoo.com
Shoshone County Fire District #2	Engine, Fire (Pumper)	Type I	1	E-212	Mark Aamodt	Shoshone	47.538010, -116.234000	Pinehurst Station		Pinehurst	Idaho	83850	(208) 784-1188	(208) 784-1188		maamodt@shoshonefd2.com
Shoshone County Fire District #2	Engine, Fire (Pumper)	Type I	1	E-211	Mark Aamodt	Shoshone	47.552920, -116.448920	Doyle Rd. Station	26502 Doyle Rd.	Kellogg	Idaho	83837	(208) 784-1188	(208) 784-1188		maamodt@shoshonefd2.com
Shoshone County Fire District #2	Engine, Fire (Pumper)	Type I	1	E-216	Mark Aamodt	Shoshone	47.533800, -116.122150	Kellogg Station	14 W. Market St	Kellogg	Idaho	83837	(208) 784-1188	(208) 784-1188		maamodt@shoshonefd2.com
Shoshone County Fire District #2	Engine, Fire (Pumper)	Type 1	1	E-217	Mark Aamodt	Shoshone	47.533800, -116.122150	Kellogg Station	14 W. Market St	Kellogg	Idaho	83837	(208) 784-1188	(208) 784-1188		maamodt@shoshonefd2.com
Shoshone County Fire District #3	Engine, Fire (Pumper)	Type I	1	508	Bruce Van Broeke	Shoshone	47.471110, -115.774870	461 Friday Ave.	PO Box 422	Mullan	Idaho	83846	(208) 744-1157	(208) 744-1157		scfd3@mctvusa.tv
Shoshone County Fire District #4	Engine, Fire (Pumper)	Type IV	1	2006 International	Sherm Hatley	Shoshone	47.276640, -116.188840	Station 1	53 1st.	St. Maries	Idaho	83808	208-248-5691	208-248-5691		shermwoos@smaazette.com
Shoshone County Resources	EOC Operations Section Chief	Other	1		Cory Foster	Shoshone				Wallace	Idaho	83873	208-512-4555			
Prichard/Murray Volunteer Fire De	Extrication Equipment	Type I	1	Carried on R531	James Clevland	Shoshone	47.639580, -115.981320	21109 CDA River Rd.	Station 51	Wallace	Prichard	83873	(208) 682-3952	(208) 682-4436	208-556-1114	jclevland@pmfire.org
Prichard/Murray Volunteer Fire De	Extrication Equipment	Type I	1	Carried on A582	James Clevland	Shoshone	47.626750, -115.856580	6343 Prichard Creek Road	Station 52	Wallace	Prichard	83873	(208) 682-3952	(208) 682-4436	208-556-1114	jclevland@pmfire.org
Shoshone County Fire District #2	Fire Truck- Aerial (Ladder or Platform)	Type II	1	A-251	Mark Aamodt	Shoshone	47.533800, -116.122150	Kellogg Station	14 W. Market St	Kellogg	Idaho	83837	(208) 784-1188	(208) 784-1188		maamodt@shoshonefd2.com
Shoshone County Resources	Generators	Other	1			Shoshone				Pierce	Idaho		208-753-5475			
City of Mullan	Grader w/Attachments	Type III	1		Tammy	Shoshone	47.470320, -115.801790	112 Terrill Loop	P. O. Box 475	Mullan	Idaho	83846	208-744-1515			cityofmullan@frontier.com
Shoshone County Public Works	Grader w/Attachments	Type II	4		Forrest Greenfield	Shoshone	47.509960, -115.996530	Main Office - 700 Bank St, Wallace	District 3 - 58834 Silver Valley	Wallace	Idaho	83873	(208) 753-5475			fgreenfield@co.shoshone.id.us
Shoshone County Public Works	Grader w/Attachments	Type II	2		Forrest Greenfield	Shoshone	47.542760, -115.166550	Main Office - 700 Bank St, Wallace	District 2 - Smelterville, ID	Wallace	Idaho	83873	(208) 753-5475			fgreenfield@co.shoshone.id.us
Shoshone County Public Works	Grader w/Attachments	Type II	2		Forrest Greenfield	Shoshone	47.627520, -115.860800	Main Office - 700 Bank St, Wallace	District 1 - 6338 Prichard Cr.	Wallace	Murray.	83874	(208) 753-5475			fgreenfield@co.shoshone.id.us
Shoshone County Public Works	Grader w/Attachments	Type II	2		Forrest Greenfield	Shoshone	47.249840, -116.138900	Main Office - 700 Bank St, Wallace	District 4 - Sieberts Old River	Wallace	Idaho	83873	(208) 753-5475			fgreenfield@co.shoshone.id.us
Shoshone County Resources	HazMat Entry Team	Other	1		Mike Fisher	Shoshone				Pierce	Idaho		208-784-1188			
Shoshone County Fire District #2	Water Tender, Firefighting (Tanker)	Type I	2	T-224	Mark Aamodt	Shoshone	47.552920, -116.448920	Doyle Rd. Station	26502 E. Doyle Rd.	Kellogg	Idaho	83837	208-784-1188			maamodt@shoshonefd2.com
Shoshone County Public Works	Hydraulic Excavator (Medium Mass Excavation 4 cy	Type III	1		Forrest Greenfield	Shoshone	47.509960, -115.996530	Main Office - 700 Bank St, Wallace	District 3 - 58834 Silver Valley	Wallace	Idaho	83873	(208) 753-5475			fgreenfield@co.shoshone.id.us
Shoshone County Public Works	Hydraulic Excavator (Medium Mass Excavation 4 cy	Type III	1		Forrest Greenfield	Shoshone	47.542760, -115.166550	Main Office - 700 Bank St, Wallace	District 2 - Smelterville, ID	Wallace	Idaho	83873	(208) 753-5475			fgreenfield@co.shoshone.id.us
Shoshone County Resources	Hydraulic Excavator (Medium Mass Excavation 4 cy	Type II	1		Forrest Greenfield	Shoshone		Main Office - 700 Bank St, Wallace, ID		Pierce	Idaho		208-753-5475			fgreenfield@co.shoshone.id.us
Shoshone County Resources	Mobile Communications Center	Other	1		Mitch Alexander	Shoshone		Main Office - 700 Bank St. Wallace. ID		Pierce	Idaho		208-556-1114			
Shoshone County Resources	Mobile Communications Unit (Law/Fire)	Type II	1		Cory Foster	Shoshone				Pierce	Idaho		208-512-4555			
Shoshone County Search and Res	Mountain Search and Rescue Team	Type IV	1		Jerre Chastain	Shoshone	47.471670, -115.921780	P. O. Box 542		Wallace	Idaho	83873	(208) 682-4518	(208) 682-4518		lamomo@suddenlink.com
Prichard/Murray Volunteer Fire De	Non Transport Medical Response Unit (QRV)	Type I	1	R531	James Clevland	Shoshone	47.639580, -115.981320	21109 CDA River Rd.	Station 51	Wallace	Prichard	83873	(208) 682-3952	(208) 682-4436	208-556-1114	jclevland@pmfire.org
Shoshone County Fire District #1	Non Transport Medical Response Unit (QRV)	Type II	1	R131	Jim Walcker	Shoshone	47.502200, -115.991680	Station 1	921 E. Mullen	Osburn	Idaho	83849	208-752-1101	208-752-1101		jwalcker@yahoo.com
Shoshone County Fire District #2	Portable Pump	Type II	2		Dale Costa	Shoshone	47.533800, -116.122150	Kellogg Station	14 W. Market St	Kellogg	Idaho	83837	(208) 784-1188	(208) 784-1188		maamodt@shoshonefd2.com
City of Kellogg	Road Sweeper	Type III	1	1999 Tennant 830II	Craig Lewis	Shoshone	47.534640, -116.115060	405 E. Portland Ave		Kellogg	Idaho	83837	208-748-5595	208-661-4039		craig_lewis@suddenlinkmail.com
City of Wallace	Road Sweeper	Type IV	1		Joanne McCov. Citv Clerk	Shoshone	47.472630, -116.921670	703 Ceder St.	83873-2309	Wallace	Idaho	83873-2309	208-752-1147			wallacecity@usamedia.tv
Shoshone County Public Works	Road Sweeper	Type I	1		Forrest Greenfield	Shoshone	47.509960, -115.996530	Main Office - 700 Bank St, Wallace	District 3 - 58834 Silver Valley	Wallace	Idaho	83873	(208) 753-5475			fgreenfield@co.shoshone.id.us
Shoshone County Public Works	Road Sweeper	Type IV	1		Forrest Greenfield	Shoshone	47.249840, -116.013890	Main Office - 700 Bank St, Wallace	District 4 - Sieberts Old River	Wallace	Idaho	83873	(208) 753-5475			fgreenfield@co.shoshone.id.us
Shoshone County Public Works	Road Sweeper	Type IV	1		Forrest Greenfield	Shoshone	47.627520, -115.860800	Main Office - 700 Bank St, Wallace	District 1 - 6338 Prichard Cr.	Wallace	Idaho	83873	(208) 753-5475			fgreenfield@co.shoshone.id.us
Shoshone County Public Works	Road Sweeper	Type IV	1		Forrest Greenfield	Shoshone	47.509960, -115.996530	Main Office - 700 Bank St, Wallace	District 3 - 58834 Silver Valley	Wallace	Idaho	83873	(208) 753-5475			fgreenfield@co.shoshone.id.us
Shoshone County Public Works	Snow Blower, Chassis Mounted	Type II	1		Forrest Greenfield	Shoshone	47.509960, -115.996530	Main Office - 700 Bank St, Wallace	District 3 - 58834 Silver Valley	Wallace	Idaho	83873	(208) 753-5475			fgreenfield@co.shoshone.id.us
Shoshone County Public Works	Track Dozer	Other	2		Forrest Greenfield	Shoshone	47.509960, -115.996530	Main Office - 700 Bank St, Wallace	District 3 - 58834 Silver Valley	Wallace	Idaho	83873	(208) 753-5475			fgreenfield@co.shoshone.id.us
Shoshone County Public Works	Track Dozer	Type III	1		Forrest Greenfield	Shoshone	47.249840, -116.013890	Main Office - 700 Bank St, Wallace	District 4 - Sieberts Old River	Wallace	Idaho	83873	(208) 753-5475			fgreenfield@co.shoshone.id.us
Shoshone County Resources	Track Dozer	Type II	3		Forrest Greenfield	Shoshone		Main Office - 700 Bank St. Wallace. ID		Pierce	Idaho		208-753-5475			Main Office - 700 Bank St. Wallace. ID
Shoshone County Public Works	Trailer, Dump (one type/example only)	Type I	1		Forrest Greenfield	Shoshone	47.627520, -115.860800	Main Office - 700 Bank St, Wallace	District 1 - 6338 Prichard Cr.	Wallace	Idaho	83873	(208) 753-5475			fgreenfield@co.shoshone.id.us
Shoshone County Resources	Trailer, Dump (one type/example only)	Type I	1			Shoshone				Pierce	Idaho		208-753-5475			fgreenfield@co.shoshone.id.us
City of Kellogg	Trailer, Equipment-Tag	Type III	1	Utility 24'	Craig Lewis	Shoshone	47.534640, -116.115060	405 E. Portland Ave		Kellogg	Idaho	83837	208-748-5595	208-661-4039		craig_lewis@suddenlinkmail.com
Shoshone County Public Works	Trailer, Equipment-Tag	Type I	1		Forrest Greenfield	Shoshone	47.509960, -115.996530	Main Office - 700 Bank St, Wallace	District 3 - 58834 Silver Valley	Wallace	Idaho	83873	(208) 753-5475			fgreenfield@co.shoshone.id.us
Shoshone County Public Works	Trailer, Equipment-Tag	Type I	1		Forrest Greenfield	Shoshone	47.627520, -115.860800	Main Office - 700 Bank St, Wallace	District 1 - 6338 Prichard Cr.	Wallace	Idaho	83873	(208) 753-5475			fgreenfield@co.shoshone.id.us
Shoshone County Public Works	Trailer, Equipment-Tag	Type II	2		Forrest Greenfield	Shoshone	47.542760, -115.166550	Main Office - 700 Bank St, Wallace	District 2 - Smelterville, ID	Wallace	Idaho	83873	(208) 753-5475			fgreenfield@co.shoshone.id.us
Shoshone County Public Works	Trailer, Equipment-Tag	Type II	2		Forrest Greenfield	Shoshone	47.509960, -115.996530	Main Office - 700 Bank St, Wallace	District 3 - 58834 Silver Valley	Wallace	Idaho	83873	(208) 753-5475			fgreenfield@co.shoshone.id.us
Shoshone County Public Works	Trailer, Equipment-Tag	Type III	1		Forrest Greenfield	Shoshone	47.249840, -116.013890	Main Office - 700 Bank St, Wallace	District 4 - Sieberts Old River	Wallace	Idaho	83873	(208) 753-5475			fgreenfield@co.shoshone.id.us
Shoshone County Public Works	Trailer, Flat Bed Truck (two types/example only)	Type I	2		Forrest Greenfield	Shoshone	47.249840, -116.013890	Main Office - 700 Bank St, Wallace	District 4 - Sieberts Old River	Wallace	Idaho	83873	(208) 753-5475			fgreenfield@co.shoshone.id.us
Shoshone County Public Works	Trailer, Flat Bed Truck (two types/example only)	Type II	1		Forrest Greenfield	Shoshone	47.509960, -115.996530	Main Office - 700 Bank St, Wallace	District 3 - 58834 Silver Valley	Wallace	Idaho	83873	(208) 753-5475			fgreenfield@co.shoshone.id.us
City of Kellogg	Truck, On Road, Dump	Type II	1	Freightliner	Craig Lewis	Shoshone	47.534640, -116.115060	405 E. Portland Ave		Kellogg	Idaho	83837	208-748-5595	208-661-4039		craig_lewis@suddenlinkmail.com
City of Kellogg	Truck, On Road, Dump	Type III	1	1979 Forn LN800	Craig Lewis	Shoshone	47.534640, -116.115060	405 E. Portland Ave		Kellogg	Idaho	83837	208-748-5595	208-661-4039		craig_lewis@suddenlinkmail.com
City of Kellogg	Truck, On Road, Dump	Type IV	3	1974 Ford F600, 1974 Ford, 1968 Chev.	Craig Lewis	Shoshone	47.534640, -116.115060	405 E. Portland Ave		Kellogg	Idaho	83837	208-748-5595	208-661-4039		craig_lewis@suddenlinkmail.com
City of Mullan	Truck, On Road, Dump	Other	1	1975 Ford	Tammy	Shoshone	47.470320, -115.801790	112 Terrill Loop	P. O. Box 475	Mullan	Idaho	83846	208-744-1515			cityofmullan@imbris.com
City of Osburn	Truck, On Road, Dump	Type III	1		Charles Moonev	Shoshone	47.509150, -116.008130	350 E. Mullan Ave.		Osburn	Idaho	83849	208-753-3611	208-512-0281		osburnshop@suddenlinkmail.com
City of Pinehurst	Truck, On Road, Dump	Type III	2	2007 Freightliner, 1971 Ford	Carla Ross	Shoshone	47.533010, -116.236920	106 N. Division		Pinehurst	Idaho	83850	208-682-3721	208-512-9346		crossko@msn.com
City of Smelterville	Truck, On Road, Dump	Type III	1		Norm Carpenter	Shoshone	47.542590, -116.181550	501 N.Main St.	P. O. Box 200	Smelterville	Idaho	93969	208-786-3351	208-786-3351		citvofsmelterville@usamedia.tv
Shoshone County Public Works	Truck, On Road, Dump	Type I	1		Forrest Greenfield	Shoshone	47.627520, -115.860800	Main Office - 700 Bank St., Wallace	District 1 - 6338 Prichard Cr.	Wallace	Murray.	83874	(208) 753-5475			jthomas@co.shoshone.id.us
Shoshone County Public Works	Truck, On Road, Dump	Type II	5		Forrest Greenfield	Shoshone	47.627520, -115.860800	Main Office - 700 Bank St, Wallace	District 1 - 6338 Prichard Cr.	Wallace	Murray.	83874	(208) 753-5475			fgreenfield@co.shoshone.id.us
Shoshone County Public Works	Truck, On Road, Dump	Type II	4		Forrest Greenfield	Shoshone	47.509960, -115.996530	Main Office - 700 Bank St, Wallace	District 3 - 58834 Silver Valley	Wallace	Idaho	83873	(208) 753-5475			fgreenfield@co.shoshone.id.us
Shoshone County Public Works	Truck, On Road, Dump	Type II	4		Forrest Greenfield	Shoshone	47.249840, -115.013890	Main Office - 700 Bank St, Wallace	District 4 - Sieberts Old River	Wallace	Idaho	83873	(208) 753-5475			fgreenfield@co.shoshone.id.us
Shoshone County Public Works	Truck, On Road, Dump	Type II	4		Forrest Greenfield	Shoshone	47.542760, -115.166550	Main Office - 700 Bank St, Wallace	District 2 - Smelterville, ID	Wallace	Idaho	83873	(208) 753-5475			fgreenfield@co.shoshone.id.us
Shoshone County Public Works	Truck, On Road, Dump	Type III	1		Forrest Greenfield	Shoshone	47.509960, -115.996530	Main Office - 700 Bank St, Wallace	District 3 - 58834 Silver Valley	Wallace	Idaho	83873	(208) 753-5475			fgreenfield@co.shoshone.id.us
Shoshone County Resources	Truck, On Road, Dump	Type II	19		Forrest Greenfield	Shoshone	47.509960, -115.996530	Main Office - 700 Bank St, Wallace, ID		Pierce	Idaho		208-753-5475			fgreenfield@co.shoshone.id.us
City of Wallace	Truck, Plow	Type III	2		Joanne McCov. Citv Clerk	Shoshone	47.472630, -116.921670	703 Ceder St.	83873-2309	Wallace	Idaho	83873-2309	208-752-1147			wallacecity@usamedia.tv
Shoshone County Public Works	Truck, Plow	Type II	6		Forrest Greenfield	Shoshone	47.542760, -115.166550	Main Office - 700 Bank St, Wallace	District 2 - Smelterville, ID	Wallace	Idaho	83873	(208) 753-5475			fgreenfield@co.shoshone.id.us
Shoshone County Public Works	Truck, Plow	Type II	2		Forrest Greenfield	Shoshone	47.527520, -115.860800	Main Office - 700 Bank St., Wallace	District 1 - 6338 Prichard Cr.	Wallace	Murray.	83874	(208) 753-5475			fgreenfield@co.shoshone.id.us
City of Kellogg	Truck, Sewer Flusher	Type I	1	Freightliner	Craig Lewis	Shoshone	47.534640, -116.115060	405 E. Portland Ave		Kellogg	Idaho	83837	208-748-5595	208-661-4039		craig_lewis@suddenlinkmail.com
Shoshone County Public Works	Truck, Tractor Trailer	Type II	1		Forrest Greenfield	Shoshone	47.509960, -115.996530	Main Office - 700 Bank St, Wallace	District 3 - 58834 Silver Valley	Wallace	Idaho	83873	(208) 753-5475			fgreenfield@co.shoshone.id.us
Shoshone County Public Works	Truck, Tractor Trailer	Type III	1		Forrest Greenfield	Shoshone	47.509960, -115.996530	Main Office - 700 Bank St, Wallace	District 3 - 58834 Silver Valley	Wallace	Idaho	83873	(208) 753-5475			fgreenfield@co.shoshone.id.us
Prichard/Murray Volunteer Fire De	Water Tender, Firefighting (Tanker)	Type I	1	T-521	James Clevland	Shoshone	47.639580, -115.981320	21109 CDA River Rd.	Station 51	Wallace	Idaho	83873	(208) 682-3952	(208) 682-4436		jclevland@pmfire.org
Shoshone County Fire District #1	Water Tender, Firefighting (Tanker)	Type I	1	T121	Jim Walcker	Shoshone	47.502200, -115.991680	Station 1	921 E. Mullen	Osburn	Idaho	83849	208-752-1101	208-752-1101		jwalcker@yahoo.com
Shoshone County Fire District #2	Water Tender, Firefighting (Tanker)	Type I	1	T-222	Mark Aamodt	Shoshone	47.538010, -116.234000	Pinehurst Station	10 N Division	Pinehurst	Idaho	83837	(208) 784-1188	(208) 784-1188		maamodt@shoshonefd2.com
Shoshone County Fire District #3	Water Tender, Firefighting (Tanker)	Type I	2	1474, 172	Terry Storjahann	Shoshone	47.471110, -115.774870	461 Friday Ave.	PO Box 422	Mullan	Idaho	83846	(208) 744-1157	(208) 744-1157		scfd3@mctvusa.tv
Shoshone County Fire District #4	Water Tender, Firefighting (Tanker)	Type I	1	WT-2	Sherm Hatley	Shoshone	47.251690, -116.027830	Station 2 (sub-station)	9275 North Side Rd.	St. Maries	Idaho	83808	208-248-5691	208-248-5691		shermwoos@smaazette.com
Shoshone County Fire District #4	Water Tender, Firefighting (Tanker)	Type I	2	WT-1, WT-3	Sherm Hatley	Shoshone	47.276640, -116.188840	Station 1	53 1st.	St. Maries	Idaho	83808	208-248-5691	208-248-5691		shermwoos@smaazette.com
City of Osburn	Water Truck (example only)	Type II	1		Charles Moonev	Shoshone	47.509150, -116.008130	350 E. Mullan Ave.		Osburn	Idaho	83849	208-753-3611	208-512-0281		osburnshop@suddenlinkmail.com
City of Pinehurst	Water Truck (example only)	Other	1	2007 Freightliner	Carla Ross	Shoshone	47.533010, -116.236920	106 N. Division		Pinehurst	Idaho	83850	208-682-3721	208-512-9346		crossko@msn.com
City of Wallace	Water Truck (example only)	Type I	1		Joanne McCov. Citv Clerk	Shoshone	47.472630, -116.921670	703 Ceder St.	83873-2309	Wallace	Idaho	83873-2309	208-752-1147			wallacecity@usamedia.tv
Shoshone County Public Works	Water Truck (example only)	Type I	1		Forrest Greenfield	Shoshone	47.249840, -116.013890	Main Office - 700 Bank St, Wallace	District 4 - Sieberts Old River	Wallace	Idaho	83873	(208) 753-5475			fgreenfield@co.shoshone.id.us
Shoshone County Public Works	Water Truck (example only)	Type I	1		Forrest Greenfield	Shoshone	47.542760, -115.166550	Main Office - 700 Bank St, Wallace	District 2 - Smelterville, ID	Wallace	Idaho	83873	(208) 753-5475			fgreenfield@co.shoshone.id.us
Shoshone County Public Works	Water Truck (example only)	Type I	1		Forrest Greenfield	Shoshone	47.627520, -115.860800	Main Office - 700 Bank St, Wallace	District 1 - 6338 Prichard Cr.	Wallace	Idaho	83873	(208) 753-5475			fgreenfield@co.shoshone.id.us
Shoshone County Resources	Water Truck (example only)	Type II	2		Forrest Greenfield	Shoshone		Main Office - 700 Bank St, Wallace, ID		Pierce	Idaho		208-753-5475			fgreenfield@co.shoshone.id.us
City of Osburn	Wheel Dozer	Type II	1		Charles Moonev	Shoshone	47.509150, -116.008130	350 E. Mullan Ave.		Osburn	Idaho	83849	208-753-3611	208-512-0281		osburnshop@suddenlinkmail.com
City of Kellogg	Wheel Loader Backhoe	Type IV	1	Ford 57SD	Craig Lewis	Shoshone	47.534640, -116.115060	405 E. Portland Ave		Kellogg	Idaho	83837	208-748-5595	208-661-4039		craig_lewis@suddenlinkmail.com
Shoshone County Public Works	Wheel Loader Backhoe	Type I	1		Forrest Greenfield	Shoshone	47.542760, -115.166550	Main Office - 700 Bank St, Wallace	District 2 - Smelterville, ID	Wallace	Idaho	83873	(208) 753-5475			fgreenfield@co.shoshone.id.us
Shoshone County Public Works	Wheel Loader Backhoe	Type II	2		Forrest Greenfield	Shoshone	47.249840, -116.013890	Main Office - 700 Bank St, Wallace	District 4 - Sieberts Old River	Wallace	Idaho	83873	(208) 753-5475			fgreenfield@co.shoshone.id.us
Shoshone County Public Works	Wheel Loader Backhoe	Type II	1		Forrest Greenfield	Shoshone	47.509960, -115.996530	Main Office - 700 Bank St, Wallace	District 3 - 58834 Silver Valley	Wallace	Idaho	83873	(208) 753-5475			fgreenfield@co.shoshone.id.us
Shoshone County Public Works	Wheel Loader Backhoe	Type IV	1		Forrest Greenfield	Shoshone	47.627520, -115.860800	Main Office - 700 Bank St., Wallace	District 1 - 6338 Prichard Cr.	Wallace	Murray.	83874	(208) 753-5475			fgreenfield@co.shoshone.id.us
Shoshone County Resources	Wheel Loader Backhoe	Type II	4			Shoshone				Pierce	Idaho		208-753-5475			
City of Mullan	Wheel Loaders (Large 41 cy to 8 cy)	Type III	1	Big John	Trisha Crandall	Shoshone	47.470320, -115.801790	112 Terrill Loop	P. O. Box 475	Mullan	Idaho	83846	208-744-1515			cityofmullan@frontier.com
City of Kellogg	Wheel Loaders (Medium 7 cy to 3 cy)	Type III	1	Cat Loader w/ 2 yd. bucket and 10' blade	Craig Lewis	Shoshone	47.534640, -116.115060	405 E. Portland Ave		Kellogg	Idaho	83837	208-748-5595	208-661-4039		craig_lewis@suddenlinkmail.com
City of Mullan	Wheel Loaders (Medium 7 cy to 3 cy)	Type I	1	JD-544J	Trisha Crandall	Shoshone	47.470320, -115.801790	112 Terrill Loop	P. O. Box 475	Mullan	Idaho	83846	208-744-1515			cityofmullan@frontier.com
City of Wallace	Wheel Loaders (Medium 7 cy to 3 cy)	Type IV	2		Joanne McCov. Citv Clerk	Shoshone	47.472630, -116.921670	703 Ceder St.	83873-2309	Wallace	Idaho	83873-2309	208-752-1147			wallacecity@usamedia.tv
Shoshone County Public Works	Wheel Loaders (Medium 7 cy to 3 cy)	Type III	2		Forrest Greenfield	Shoshone	47.509960, -115.996530	Main Office - 700 Bank St, Wallace	District 3 - 58834 Silver Valley	Wallace	Idaho	83873	(208) 753-5475			fgreenfield@co.shoshone.id.us

Shoshone County Public Works	Wheel Loaders (Medium 7 cy to 3 cy)	Type III	2		Forrest Greenfield	Shoshone	47.249840, -115.012890	Main Office - 700 Bank St. Wallace District 4 - Sieberts Old River	Wallace	Idaho	83873	(208) 753-5475		fgreenfield@co.shoshone.id.us
Shoshone County Public Works	Wheel Loaders (Medium 7 cy to 3 cy)	Type III	3		Forrest Greenfield	Shoshone	47.542760, -115.166550	Main Office - 700 Bank St. Wallace District 2 - Smelterville, ID	Wallace	Idaho	83873	(208) 753-5475		fgreenfield@co.shoshone.id.us
Shoshone County Public Works	Wheel Loaders (Medium 7 cy to 3 cy)	Type IV	2		Forrest Greenfield	Shoshone	47.627520, -115.860800	Main Office - 700 Bank St. Wallace District 1 - 6338 Prichard Cr.	Wallace	Murrav.	83874	(208) 753-5475		fgreenfield@co.shoshone.id.us
Shoshone County Resources	Wheel Loaders (Medium 7 cy to 3 cy)	Type III	9			Shoshone			Pierce	Idaho		208-753-5475		
City of Kellogg	Wheel Loaders, Skid Steer (Small)	Type III	1	New Holland LX 644 Turbo	Craig Lewis	Shoshone	47.534640, -116.115060	405 E. Portland Ave	Kellogg	Idaho	83837	208-748-5595	208-661-4039	craig_lewis@suddenlinkmail.com
City of Pinehurst	Wheel Loaders, Skid Steer (Small)	Type I	1	1999 New Holland L485	Carla Ross	Shoshone	47.533010, -116.236920	106 N. Division	Pinehurst	Idaho	83850	208-682-3721	208-512-9346	crossko@msn.com
Shoshone County Search and Res	Wilderness Search and Rescue Team	Type III	1		Jerre Chastain	Shoshone	47.471670, -115.921780	P. O. Box 542	Wallace	Idaho	83873	(208) 682-4518	(208) 682-4518	lamomo@suddenlink.com
Shoshone County Public Works	Wood Chipper	Type IV	1		Forrest Greenfield	Shoshone	47.542760, -115.166550	Main Office - 700 Bank St. Wallace District 2 - Smelterville, ID	Wallace	Idaho	83873	(208) 753-5475		fgreenfield@co.shoshone.id.us
Shoshone County Fire District #2	Water Tender, Firefighting (Tanker)	Type I	1	T-225	Mark Aamodt	Shoshone		Medimont Station 24329 S Whalen Road	Medimont	Idaho		208-784-1188	208-784-1188	maamodt@shoshonefd2.com