2009

BLAINE COUNTY MULTI-JURISDICTION ALL HAZARD MITIGATION PLAN

SEPTEMBER 1, 2009

Preface

The Blaine County All Hazard Mitigation Plan was developed in early spring through late summer of 2008. It contains information relative to the hazards and vulnerabilities facing Blaine County. The jurisdictions participating in this Plan include Blaine County and the Cities of Sun Valley, Ketchum, Hailey, Bellevue, and Carey, St. Luke's Wood River Medical Center, and Friedman Memorial Airport in Hailey.

This Plan is designed to interface with the State of Idaho Multi-Hazard Mitigation Plan published in November, 2007.

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U.S. Department of Homeland Security
Region X
130 228th Street, SW
Bothell, WA 98021-9796

FEMA

December 3, 2009

Honorable Lawrence Schoen
Honorable Angenie McCleary
Honorable Tom Bowman
Blaine County Commissioners
County Courthouse
206 First Avenue South
Hailey, Idaho 83333

Dear Commissioners Schoen, McCleary, and Bowman:

The U.S. Department of Homeland Security's Federal Emergency Management Agency (FEMA) has approved the ***Blaine County Multi-Jurisdiction All Hazard Mitigation Plan*** as a multi-jurisdictional local plan as outlined in 44 CFR Part 201. With approval of this plan, the following entities are now eligible to apply for the Robert T. Stafford Disaster Relief and Emergency Assistance Act's hazard mitigation project grants through December 3, 2014:

Blaine County	**City of Bellevue**	**City of Hailey**
City of Ketchum	**City of Sun Valley**	

The plan's approval provides the above jurisdictions eligibility to apply for hazard mitigation projects through your State. All requests for funding will be evaluated individually according to the specific eligibility and other requirements of the particular program under which the application is submitted. For example, a specific mitigation activity or project identified in the plan may not meet the eligibility requirements for FEMA funding, and even eligible mitigation activities are not automatically approved for FEMA funding under any of the aforementioned programs.

Over the next five years, we encourage your communities to follow the plan's schedule for monitoring and updating the plan, and to develop further mitigation actions. The plan must be reviewed, revised as appropriate, and resubmitted for approval within five years in order to continue project grant eligibility.

If you have questions regarding your plan's approval or FEMA's mitigation grant programs, please contact our State counterpart, Idaho Bureau of Homeland Security, which coordinates and administers these efforts for local entities.

Sincerely,

Mark Carey, Director
Mitigation Division

cc: David Jackson, Idaho Bureau of Homeland Security

KM:bb

www.fema.gov

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BLAINE COUNTY IDAHO
MULTI-JURISDICTIONAL

ALL HAZARD MITIGATION PLAN

PROMULGATION OF ADOPTION

Be it known that the Blaine County Idaho Board of County Commissioners do hereby approve the Adoption of the Blaine County Idaho Multi-Jurisdictional All Hazard Mitigation Plan and direct its implementation through the Blaine All Hazard Mitigation Planning Committee.

Be it also known that the Board of County Commissioners hereby directs the Coordinator of Emergency Services, to continue to lead the implementation of this Plan as the Blaine County All Hazard Mitigation Committee Chair.

This Plan has been developed in the interest of providing all hazard mitigation protection to populations living in Blaine County and the incorporated Cities within its boundary. Through adoption of this Plan, all county and city agencies are requested to develop directives, Standard Operating Procedures, checklists or other supplemental guidance to insure its maximum effectiveness.

Blaine County Commissioner — Date: 8/11/2009

Blaine County Commissioner — Date: 8-11-2009

Blaine County Commissioner — Date

Attest:

Blaine County Clerk — Date: 8-11-09

Endorsed:
Charles Turner, Coordinator of Disaster Services — Date: 8/11/09

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Notice of Acceptance and Participation In the Blaine County Multi-Jurisdiction All Hazard Mitigation Plan

I, WAYNE WILLICH, Mayor for the City of Sun Valley agree to support and participate in the implementation of the Blaine County Multi-Jurisdiction All Hazard Mitigation Plan as it applies to the City of Sun Valley.

DATED this 12th day of August, 2009

CITY OF SUN VALLEY

By: _____

Mayor

Received by the City Clerk this 12th day of August 2009

Signature: _____

Clerk

KELLY EK NOTARY PUBLIC STATE OF IDAHO

Commission Expires 7/18/2012

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Notice of Acceptance and Participation In the Blaine County Multi-Jurisdiction All Hazard Mitigation Plan

I, Randy Hall, Mayor for the City of Ketchum agree to support and participate in the implementation of the Blaine County Multi-Jurisdiction All Hazard Mitigation Plan as it applies to the City of Ketchum.

DATED this 2nd day of September, 2009

CITY OF KETCHUM

By: _____

Mayor

Received by the City Clerk this 1st day of September 2009

Signature: Sandra E. Cady
Clerk

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Notice of Acceptance and Participation In the Blaine County Multi-Jurisdiction All Hazard Mitigation Plan

I, RICK DAVIS, Mayor for the City of Hailey agree to support and participate in the implementation of the Blaine County Multi-Jurisdiction All Hazard Mitigation Plan as it applies to the City of Hailey.

DATED this 24th day of AUGUST, 2009

CITY OF HAILEY

By: Rick Davis

Mayor

CITY OF HAILEY Seal BLAINE COUNTY, IDAHO

Received by the City Clerk this 24th day of August 2009

Signature:

Clerk – MARY CONE

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Notice of Acceptance and Participation In the Blaine County Multi-Jurisdiction All Hazard Mitigation Plan

I, Jan B. Anderson, Mayor for the City of Bellevue agree to support and participate in the implementation of the Blaine County Multi-Jurisdiction All Hazard Mitigation Plan as it applies to the City of Bellevue.

DATED this 1st day of September, 2009

CITY OF BELLEVUE

By: _____

Mayor

Received by the City Clerk this 1st day of Sept. 2009

Signature: Dorothy L. Barton
Clerk

CITY OF BELLEVUE SEAL BLAINE COUNTY IDAHO

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Notice of Acceptance and Participation In the Blaine County Multi-Jurisdiction All Hazard Mitigation Plan

I, _____, Mayor for the City of Carey agree to support and participate in the implementation of the Blaine County Multi-Jurisdiction All Hazard Mitigation Plan as it applies to the City of Carey.

DATED this _____ day of _____, 2009

CITY OF CAREY

By: _____

Mayor

Received by the City Clerk this _____day of _____ 2009

Signature:
Clerk

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Notice of Acceptance and Participation In the Blaine County Multi-Jurisdiction All Hazard Mitigation Plan

I, JoDee Hiveson, Administrator for the St. Luke's Wood River Medical Center agree to support and participate in the implementation of the Blaine County Multi-Jurisdiction All Hazard Mitigation Plan as it applies to the Medical Center.

DATED this 12th day of August, 2009

ST. LUKE'S WOOD RIVER MEDICAL CENTER

By: JoDee Hiveson, Pd

Administrator

Received this _____ day of _____ 2009

Signature:
Secretary of the Board

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Notice of Acceptance and Participation In the Blaine County Multi-Jurisdiction All Hazard Mitigation Plan

I, _____, Chairman of the Board for Friedman Memorial Airport agree to support and participate in the implementation of the Blaine County Multi-Jurisdiction All Hazard Mitigation Plan as it applies to the Airport

DATED this _____ day of _____, 2009

FRIEDMAN MEMORIAL AIRPORT

By: _____

Chairman of the Board

Received this _____day of _____ 2009

Signature:
Secretary of the Board

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Section 1 Planning Process

Introduction

Blaine County Idaho and the incorporated Cities that lie within the County boundaries are vulnerable to natural, technological, and man-made hazards that have the possibility of causing serious threats to the health, welfare, and security of its residents. The cost of response to and recovery from the potential disasters, in terms of potential loss of life or property, can be lessened when attention is turned to mitigating their impacts and effects before they occur or re-occur.

This All Hazard Mitigation Plan seeks to identify the County's and Cities' hazards, understand their impact on vulnerable populations and infrastructure. With that understanding the Plan sets forth solutions that if implemented, have the potential to significantly reduce threat to life and property. The Plan is based on the premise that hazard mitigation works! With increased attention to managing natural hazards, communities can reduce the threats to citizens, and through proper land use and emergency planning, to avoid creating new problems in the future. Many solutions can be implemented at minimal cost and social impact.

This is not an emergency response or management plan. Certainly, the Plan can be used to identify weaknesses and refocus emergency response planning. Enhanced emergency response planning is an important mitigation strategy. However, the focus of this Plan is to support better decision making directed toward avoidance of future risk, and the implementation of activities or projects that will eliminate or reduce the risk for those that may already have exposure to a natural hazard threat.

Plan Organization

- Section 1 of the Plan provides a general overview of the process, the scope, purpose, and overall goals of the plan.
- Section 2 of the Plan gives a general background or description of the County's demographic, economic, cultural, and physiographic characteristics.
- Section 3 documents the public involvement component of the Plan.
- Section 4, the Risk Assessment section, provides a brief definition for each natural and man-made hazard. All hazards identified as affecting the County will be analyzed at the County and incorporated City level and then summarized in a hazard profile.
- Section 5 provides a review of the County Land Use Ordinances and Comprehensive Plan and provides suggestions for integration between the AHMP and the Land Use Planning efforts in the County.
- Section 6 presents Mitigation Goals and Objectives along with selected Mitigation Alternatives with supporting project descriptions and a "roadmap" to implementation for the highest priority projects.

Plan Use

The Plan should be used to help County and City officials plan, design, and implement programs and projects that will help reduce the jurisdictions vulnerability to natural, technological, and man-made hazards. The Plan should also be used to facilitate inter-jurisdiction coordination and collaboration related to all hazard mitigation planning and implementation within the County and at the Regional level. Lastly, the Plan should be used to develop or provide guidance for local emergency response planning. If adopted, this Plan will achieve compliance with the Disaster Mitigation Act of 2000.

Hazard Mitigation

Hazard mitigation is defined as any cost-effective action(s) that has the effect of reducing, limiting, or preventing vulnerability of people, culture, property, and the environment to potentially damaging, harmful, or costly hazards. Hazard mitigation measures which can be used to eliminate or minimize the risk to life, culture and property, fall into three categories:

1) Keep the hazard away from people, property, and structures.
2) Keep people, property, or structures away from the hazard.
3) Reduce the impact of the hazard on victims, i.e., insurance.

Hazard mitigation measures must be practical, cost effective, and culturally, environmentally, and politically acceptable. Actions taken to limit the vulnerability of society to hazards must not in themselves be more costly than the anticipated damages.

The primary focus of hazard mitigation planning must be at the point at which capital investment and land use decisions are made, based on vulnerability. Capital investments, whether for homes, roads, public utilities, pipelines, power plants, or public works, determine to a large extent the nature and degree of hazard vulnerability of a community. Once a capital facility is in place, very few opportunities will present themselves over the useful life of the facility to correct any errors in location or construction with respect to the hazard vulnerability. It is for this reason that zoning and other ordinances, which manage development in high vulnerability areas, and building codes, which insure that new buildings are built to withstand the damaging forces of the hazards, are often the most useful tools in mitigation that a jurisdiction can implement.

Since the priority to implement mitigation activities is usually very low in comparison to the perceived threat, some important mitigation measures take time to implement. Mitigation success can be achieved, however, if accurate information is portrayed through complete hazard identification and impact studies, followed by effective mitigation management.

The Federal Emergency Management Agency has identified specific natural hazards to be analyzed by each jurisdiction, completing an All Hazard Mitigation Plan. The hazards analyzed in this Plan include those required and others as selected by the County AHMP Committee. The hazards analyzed are as follows:

Natural Hazards

- Weather: Drought
  - Extreme Heat
  - Extreme Cold
  - Severe Winter Storm
  - Lightning
  - Hail
  - Tornado
  - Straight Line Wind
- Flooding: Flash Flood
  - River Flooding
  - Dam Failure
- Geologic: Earthquake
  - Landslide/Mudslide
  - Avalanche
- Other: Wildfire
  - Biological
    - Pandemic/Epidemic
      - Bird Flu
      - SARs
      - West Nile
    - Hoof and Mouth Disease
    - Mad Cow Disease

Technological (Manmade) Hazards

- Structural Fire
- Nuclear Event
- Hazardous Material Event
- Riot/Demonstration/Civil Disorder
- Terrorism

Purpose

The purposes of this plan are:

- Fulfill Federal and local mitigation planning responsibilities;
- Promote pre and post disaster mitigation measures with short/long range strategies that minimize suffering, loss of life, impact on traditional culture, and damage to property and the environment resulting from hazardous, or potentially hazardous, conditions to which citizens and institutions within the County are exposed;
- Eliminate or minimize conditions which would have an undesirable impact on our people, our culture, our economy, environment, and the well being of the County at large.
- Aid in enhancing elected officials, departments, and the public awareness to the threat that hazards have on the community's way of life and what can be done to prevent or reduce the vulnerability and risk.

Scope

This plan covers the areas within Blaine County Idaho including the participating incorporated cities of Bellevue, Carey, Hailey, Ketchum, and Sun Valley.

Mission Statement

The Blaine County All Hazard Mitigation Plan sets forth public policy designed to protect citizens, critical facilities, infrastructure, private and public property, the local economy, and the environment from risks associated with natural and manmade hazards.

Goals

AHMP Goals describe the broad direction that Blaine County and Incorporated City agencies, organizations, and citizens will take to select mitigating projects which are designed specifically to address risks posed by natural and manmade hazards. The goals, specific to each hazard category are stepping-stones between the mission statement and the specific objectives developed for the individual mitigation projects.

Severe Weather

- Blaine County will develop methods to mitigate the losses due to severe weather in the County.

Flooding

- Blaine County will continue to participate in the National Flood Insurance Program and develop actions that will reduce the damage to County infrastructure due to flash and stream flooding.

Geological

- Blaine County will reduce potential damage to County infrastructure and structures through implementation of earthquake mitigation techniques.
- Blaine County will reduce the potential damage to property from Landslides and Avalanches by adopting codes and standards for construction in landslide prone areas.

Wildfire

- Blaine County will reduce the losses caused by wildfire by continuing the Wildland Urban Interface Mitigation Program.

Biological

- Blaine County will seek to reduce the exposure of humans and animals to the West Nile Virus.
- Blaine County will identify risks to livestock from potential biological threats.

Structural Fire

- Blaine County will seek to reduce losses from Structure fires through working with private property owners.

Nuclear Event

- Blaine County will examine the risks posed to the County from Nuclear Facilities.

Hazardous Material Event

- Blaine County will seek to identify hazardous material flows through the County.

Riot/Demonstration/Civil Disorder

- Blaine County will develop methods to identify and report Civil Disobedience activities.

Terrorism

- Blaine County will identify measures to protect critical County infrastructure and facilities from potential terror incidents.

Aircraft Incidents

- Blaine County will continue to work with the Friedman Memorial Airport to study relocation sites.

Participating Jurisdictions

City of Bellevue

Severe Weather

- Reduce the impact of long periods of extended cold, due to power outages, or interruption of other heating fuels.
- Reduce impacts from winter storms.

Flooding

- The City of Bellevue will continue to participate in the National Flood Insurance Program.
- Reduce Impacts from flooding to the City of Bellevue and prevent loss or failure of the only irrigation source (District 45 Canal) to the south county.

Geological

- Reduce the potential damage to City infrastructure and buildings in the event of a large earthquake

Wildfire

- Reduce the losses of life and property caused by Wildfire.

Biological – *Pandemic Flu*

- Be prepared to adequately respond to citizen's long-term needs during an extended outbreak of disease.

Hazardous Materials

- Protect the City residents from hazardous material transportation incidents.

Terrorism

- Reduce the impact of terrorism on the City.

Other

- Develop a viable Continuity of Government Plan

City of Hailey

Severe Weather

Extreme Cold

- Reduce the impact of long periods of extended cold, due to power outages, or interruption of other heating fuels.

Winter Storms

- Reduce impacts from winter storms.

Flooding

- Reduce impacts from flooding city-wide, and prevent structures from being constructed in flood prone areas.
- Continue to participate in the NFIP

Geological

Earthquake

- Reduce potential damage to city infrastructure and structures.

Avalanche/Landslides

- Reduce the potential of deaths or injury by prohibiting construction of structures on "Red Zone" areas and limiting development in "Blue Zone" avalanche areas.
- Increased awareness of avalanche/landslide areas through informational programs and signage is recommended.

Wildfire

- Reduce the losses caused by wildfires, and their impact on persons affected by them.

Biological

Pandemic Flu

- Be prepared to adequately respond to citizen's long-term needs during an extended outbreak of disease or famine.

Terrorism

- reduce the impact of terrorism or vandalism

Other

Continuity of Government Planning

- Develop a viable Continuity of Government Plan

City Sun Valley

Severe Weather

Power Outages

- To provide for a secondary power line from the substation to the south, to assure we can provide for our guests and residents alike in the event of a long term power outage

Winter Storm

- Reduce impacts from large winter storms.

Extreme Cold

- Reduce the impact of long periods of extended cold, due to power outages, or interruption of any other heating sources.

Flooding

- Reduce impact from flooding in the city of Sun Valley and prevent a collapse of the Sun Valley Lake Dam.
- Continue to participate in the NFIP.

Geological

Earthquake

- Reduce the potential damage to city infrastructure and buildings in the event of a large earthquake.

Wildfire

- Reduce losses of life and property caused by wildfires.

Biological

Pandemic Flu

- Assure we are prepared to respond to citizen's long-term needs during an extended outbreak of disease.

Hazardous Materials

- Be able to deal with and contain a leak or spill from the Ice Rink Anhydrous Ammonia plant, and to warn all occupants of the resort and the cities of Ketchum and Sun Valley.

Terrorism

- Reduce impact of acts of terrorism at the Resort and our City in general.

Other

Continuity of Government

- Develop a viable Continuity of Government Plan

City of Carey

Flood

- The City of Carey will continue to participate in the National Flood Insurance Program and develop actions that will reduce the damage to City property and infrastructure due to flooding.
- The City of Carey will protect citizens from losses due to flash flooding

Geological

- The City of Carey will reduce potential damage to City infrastructure and structures through implementation of earthquake mitigation techniques.

City of Ketchum

Flood

- The City of Ketchum will continue to participate in the National Flood Insurance Program and develop actions that will reduce the damage to City property and infrastructure due to flooding.

Geological

- The City of Ketchum will reduce potential damage to City infrastructure and structures through implementation of earthquake mitigation techniques.

Structure Fire

- The City of Ketchum will seek to reduce losses from Structure fires.

Blaine All Hazard Mitigation Planning Committee

The Blaine All Hazard Mitigation Planning Committee was formed on October 9, 2008. Committee membership is comprised of representatives from the Blaine County Local Emergency Planning Committee, Blaine County Department heads, representatives from the Transportation Districts and the incorporated cities, representatives from the major utility providers, interested media, and members of the public. Minutes of the committee meetings are provided in Attachment 1.

The Committee Roster is provided below:

All Hazard Planning Committee Members

Agency	Representative	Position	E-mail
Bureau of Homeland Security	Gary Davis	Central Area Field Officer	gdavis@bhs.idaho.gov
Ketchum Fire	Mike Elle	Fire Chief	melle@ketchumfire.org
Wood River Fire	Bart Lassman	Fire Chief	blassman@wrfr.com
Sun Valley Police	Cam Daggett	Chief	cdaggett@svidaho.org
Blaine County Sheriff's Office	Gene Ramsey	Chief Deputy	gramsey@co.blaine.id.us
Blaine County Road & Bridge	Craig Vaugh	Supervisor	cvaughn@co.blaine.id.us
Blaine County Administration	Derek Voss	Administrator	dvoss@co.blaine.id.us
Blaine County Planning and Zoning	Tom Bergin	Building Official	tbergin@blaine.id.us
Blaine County Commissioners	Tom Bowman	Commissioner	tbowman@co.blaine.id.us
City of Hailey	Tom Hellen	Public Works Director	tom.hellen@haileycityhall.org
City of Ketchum	Brian Christiansen	Public Works Director	bchristiansen@ketchumidaho.org
Ketchum Police Department	Steve Harkins	Chief	sharkins@ketchumpolice.org
Blaine County School District	Rex Squires	Transportation Supervisor	rsquires@blaineschools.org
Blaine County Communications	Beth English	Supervisor	benglish@co.blaine.id.us
Friedman Memorial Airport	Pete Kramer	Representative	pk@flyfma.com
Blaine County Flood District	Bob Simpson	Representative	watermaster37@aol.com
Blaine County Flood District	Bruce Tidwell	Representative	bmts@woodriverlandtrust.org
Wood River Land Trust	Kathryn Goldman	Representative	kgoldman@woodriverlandtrust.org
Saint Luke's Wood River Medical Center	JoDee Alverson	Administrator	alversoj@slwrmc.org
Sun Valley Fire Department	Jeff Carnes	Fire Chief	jcarnes@svidaho.us

Hailey Fire Department	Mike Chapman	Fire Chief	mchapman2@cox-internet.com
Sun Valley Company	Cory Lovoi	K E Rink Manager	clovoi@sunvalley.com
Blaine County	Char Nelson	Operations	cnelson@co.blaine.id.us
Sun Valley Fire Department	Ray Franco	Assistant Chief	rfranco@svidaho.org
	Cindy Jesinger		cindyjesinger@gmail.com
South Central Public Health District	Karyn Goodale	Manager	kgoodahl@phd5.idaho.gov
Blaine County Disaster Services	Chuck Turner	Coordinator	twodogs2@mindspring.com
City of Sun Valley	Sharon Hammer	Administrator	shammer@SVIdaho.org
City of Ketchum	Sid Rivers	Planning and Zoning Planner	srivers@ketchumidaho.org
City of Hailey	Tom Hellen	Public Works Director	tom.hellen@haileycitybuilding
City of Bellevue	Craig Eckles	Planning Director FEMA Administration	ceckles@bellevue.idaho.us
Keller Associates	Susan Burnham	Civil Engineer	sburnham@kellerassociates.com
Idaho Power	Jim Bell	District Manager	jimbell@Idahopower.com
Sawtooth North Fire	Bill Murphy	North Zone FMO	bgmurphy@fs.fed.us
Blaine County School Department #61	Howard Royal	Facilities Director	hroyal@blaineschools.org
Blaine County	Angenie McCleary	Commissioner	amccleary@co.blainie.id.us
Blaine County School	Katie Palmer	Human Resources	katie@blaineschools.org
Blaine County School	Mal Prior	Building Mgr	mprior@blaineshcools.org
Sun Valley Streets	Bill Whitesell	Street Superintendent	bwhitesell@svidaho.org
Sun Valley Water & Sewer	Pat McMahon	Manager	pat@svwsd.com
Hailey City Council	Carol Brown	Council Member	carol.brown@haileycityhall.org
Blaine County	Bill Dyer	Building Official	bdyer@co.blaine.id.us
City of Sun Valley	Eric Adams	Building Official	eadams@svidaho.org
Ketchum Fire	Robbie Englehart	Assistant Chief	renglehart@ketchumfire.org
Blaine County Firewise	Karly Maratea	Assistant	karlymarateais@gmail.com
Blaine County Firewise	Angie Grant-Kettleband	Coordinator	angelahgrant@hotmail.com
Hailey Police	Dave Stellers	Assistant Chief	dave.stellars@haileycityhall.org
Hailey Fire	Mike Baledge	Captain	mike.baledge@haileycityhall.org
Wood River Fire	Jeff Nevins	Assistant Chief	jnevins@wrfr.com

Sun Valley Fire Department	Ray Franco	Assistant Chief	rfranco@svidaho.org
City of Sun Valley	Wayne Willich	Mayor	wwillich@svidaho.org
City of Sun Valley	Nils Ribi	Council President	nils@nilsribi.com
LEPC	Kim Rogers	Public Information Officer	kimmrogers@cox.net
Sun Valley Police Department	Kim Orchard	Sergeant	korchard@svidaho.org
Bellvue Fire	Greg Beaver	Fire Chief	gbeaver@bellvue.id.us
LWID/Carey City Offices	Bob Simpson	Manager	watermaster37n@aol.com

Planning Process

One of the key, necessary steps of this Planning Process was the organization of a Blaine County Hazard Mitigation Committee. The Committee was established under the direction of the Blaine County Coordinator of Disaster Services. Figure 1.1 illustrates the Fifteen Step Planning Process that was used in the development of the Blaine AHMP.

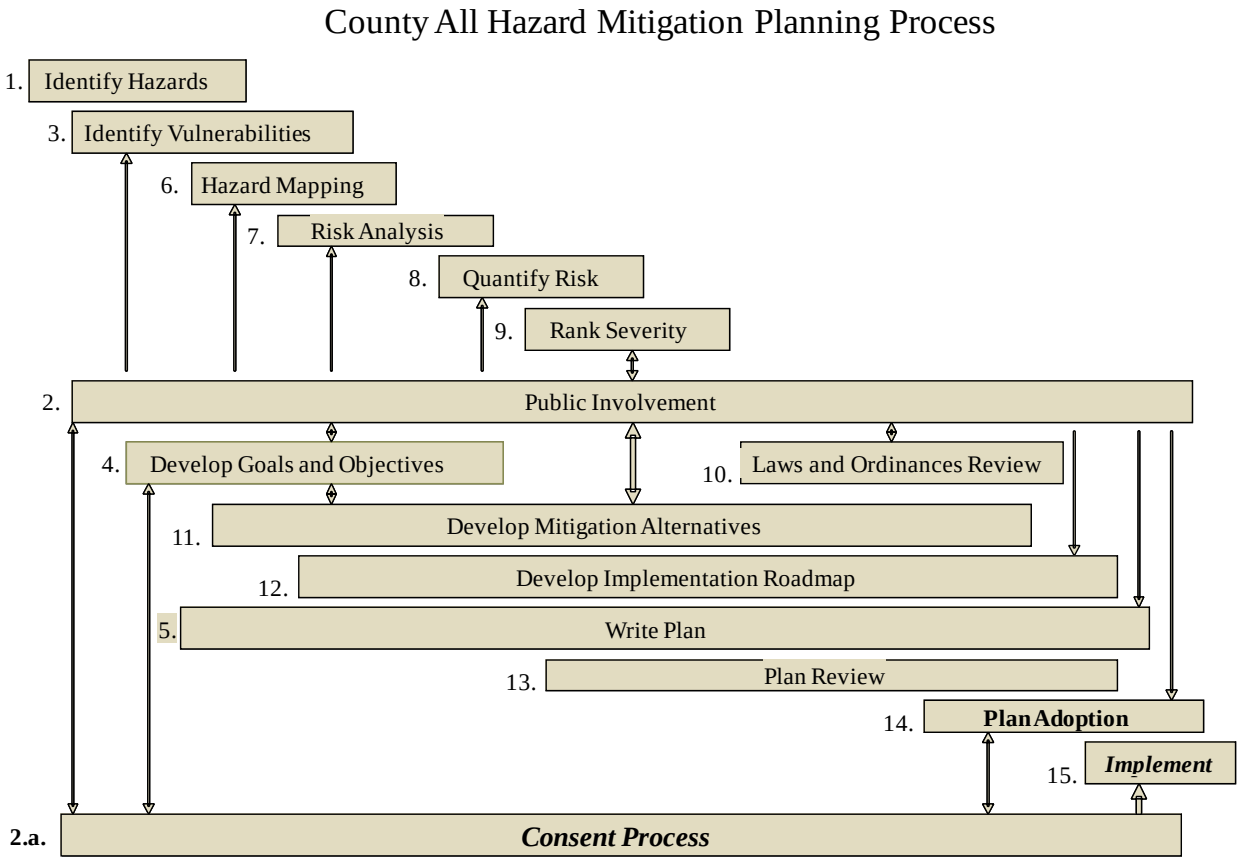

Figure 1.1 AHMP Planning Process

Step 1 Identify Hazards

Blaine County hazards were identified and their frequency of occurrence evaluated using a number of resources including:

- Hazard planning documents developed by State, Federal and private agencies,
- National Weather Service weather data from the past 50 years, and
- Data from the United States Geological Survey (USGS) and the Idaho State Geological Survey (ISGS).

To determine frequency of occurrence the historical analysis of hazardous event was conducted. One of the difficult tasks facing hazard mitigation professionals is the determination of the potential frequency of a natural hazard occurrence. Comparing historical facts against technically determined probability allows one to establish confidence, or not, in published

scientific predictions. The process whereby the frequency is determined and then expressed in an expected reoccurrence interval, (see Figure 1.2 below for an illustration) is based on research conducted at the University of South Carolina.

Location	No. of Years	No. of Events	Reoccurrence Interval
County	23	17	1.35

Figure 1.2 Example of Reoccurrence Interval

The estimated occurrence of the hazard is a useful element in the hazards assessment so one can distinguish between infrequent hazards like hurricanes from frequent hazards such as flooding. This calculation provides a useful indicator of the relative importance of each of the hazards that affect the jurisdictions, individually or collectively. The frequency of occurrence is a straight-forward calculation from the historical data and the length of that record in years. The number of hazard occurrences is divided by the number of years in the record. This yields the probability of the event occurring in any given year. For instance, if a hypothetical hazard "A" occurred 17 times in the county over the past 23 years, the probability of occurrence for that hazard would be in a given year would be 17 / 23 = .739, or 73.9%. The reverse of this equation results in a reoccurrence interval in years. For example, the reoccurrence interval of this hazard is calculated as 23 / 17 = 1.35. Hazard "A" can be expected to occur every 1.35 years. These frequencies are then correlated with magnitude to define the risk of a given hazard.

In addition, part of the Public Involvement process described in Step 2 provides valuable specific information regarding how hazards affect local communities. For example, local residents are very willing to provide information regarding annual flooding hazards that are not available in larger scope formalized assessments such as FEMA produced Flood Insurance Rating Maps (FIRM). Therefore public questionnaire and public meetings are often very critical to identifying small repetitive losses from natural hazards.

A community survey was mailed to 300 residents of Blaine County. A copy of the Survey and results is located in Attachment 2 and summarized in Section 3. In addition, the members of the AHMP Committee were requested as private citizens to provide, through a short worksheet instrument, their opinions regarding risks posed to the County. This was done at the first AHMP Committee meeting.

A local mitigation workshop was held. Those that were invited included all members of the AHMP Committee as well as members of City Councils and other appropriate City Agency Heads. The meeting was also held as an open public meeting and announced in the local news media.

Step 3 Identify Vulnerabilities

The Committee examined the effects of the raw hazard list on the County by identifying vulnerable populations, infrastructure, critical services, facilities, and environment. Vulnerabilities will be geographically identified using Geographical Information System (GIS) technology and then linked to a GIS data base, describing the vulnerable target including potential damage and estimates of losses.

Step 4 Develop Goals and Objectives

FEMA requires that the planning effort be centered on community supported hazard reduction goals, and that those goals be implemented and evaluated based on measurable objectives. Mitigation projects are then assessed against the established goals and objectives to insure that the selected projects reduce risk as desired

Step 5 Write Plan

The Plan outline meets and in some instances exceeds the requirements set forth by FEMA in the FEMA PDM Criteria Crosswalk. Plan drafts were presented in hard and electronic copy as requested by the Committee. The finished Plan includes information on Plan adoption, including a promulgation page for the County and an agreement to endorse and participate for each incorporated City.

Step 6 Hazard Mapping

As described in Steps 1 and 4, hazard maps were extremely important in illustrating hazard and vulnerability locations. In addition, information used to conduct the risk assessment and the loss estimates was linked electronically to the maps using GIS technology. The electronic versions of these maps were provided to the Committee and other reviewing agencies.

Step 7 Hazard Analyses

A risk analysis was conducted using the information gathered in Steps 1-4 and 6. For each hazard, two kinds of information are required in order to assess risk; information concerning the potential amount of damage a hazard event can cause (hazard magnitude), and that pertaining to how frequently such events are likely to occur (hazard frequency). To the extent that such data can be obtained quantitatively, risk may then be determined as the product of the hazard's magnitude and its frequency. In practice, precise quantitative data of both kinds is often difficult or impossible to obtain.

Frequency of occurrence for a given hazard may be estimated using historical records. The value of frequency estimates obtained in this way is subject to the existence of such records, their availability, and their accuracy. Even with good historical records, however, projections of future frequency may not be valid because of changing conditions. Long- and short-term climate cycles (among other factors) affect weather events, economic conditions and technical advances affect man-made hazards, land use and the passage of time affect geological hazards, etc. For this reason, scientific projections, when available, are also used to modify, enhance or replace those made from historical data. For any given location, however, historical records are often scarce and/or unreliable, and scientific projection methods either do not exist or require data that has not been, or cannot be gathered. Thus, a third source of frequency data is utilized in this Plan; the subjective judgments of the location's inhabitants. While semi-quantitative at best, and subject to biases, data of this sort may well be as reliable as any other. It reflects, in any event, the perceived needs of those for whom the planning is being done. Frequency projection data from all three sources was used, as appropriate in this plan.

Table 1.1 Frequency Level Criteria

Frequency of Hazard	
Ranking	**Description**
HIGH	Multiple Times a Year to 5 Years
MEDIUM	5 to 25 Years
LOW	25 Years to Hasn't Happened

Because all are subject to considerable uncertainty, the composite data was examined and assigned a relative level based on the criteria shown in Table 1.1.

Repetitive Loss designation**s** are used to eliminate or reduce the damage to property and the disruption of life caused by repeated damage of the same properties. The criteria to determine repetitive loss includes the following:

- Four or more losses of more than $1,000 each in a 5 year period; or
- Two losses within a 10-year period that, in the aggregate, equal or exceed the current value of the insured property; or
- Three or more paid losses that, in the aggregate, equal or exceed the current value of the insured property.

Hazard magnitude estimates, too, must rely on data gathered from a number of sources, none of which may be precise. Historical data, scientific projections, and inhabitants' subjective judgments are, again, used for this purpose. Magnitude estimates are generally based on the severity of potential impact on three critical vulnerabilities: human life, property, and the environment. FEMA has, however, recognized that there are other issues tied to community support of risk mitigation including social, cultural, and economical issues. Composite data from all sources including the vulnerabilities identified in Section 4.6 have been utilized to assign a quantitative magnitude for each hazard for the County and for each local jurisdiction, based on the criteria shown in Table 1.2.

Magnitude of Hazard						
Value	**Reconstruction Assistance From**	**Geography (Area) Affected**	**Expected Bodily Harm**	**Loss Estimate Range**	**Population Sheltering Required**	**Warning Lead Times**
1	Family	Parcel	Little to No Injury / No Death	$1000s	No Sheltering	Months
2	City	Block or Group of Parcels	Multiple Injuries with Little to No Medical Care / No Death	$10,000s	Little Sheltering	Weeks
2	County	Section or Numerous Parcels	Major Medical Care Required / Minimal Death	$100,000s	Sheltering Requiring Neighboring Counties Help	Days
4	State	Multiple Sections	Major Injuries / Requires Help from Outside County / A Few Deaths	$1,000,000s	Long Term Sheltering Effort	Hours
8	Federal	County Wide	Massive Casualties / Catastrophic	$10,000,000s	Relocation Required	Minutes

Table 1.2 Hazard Magnitude Criteria

A hazard's total magnitude is the sum of the values for each of the six categories. Thus, a hazard event that is expected to require Reconstruction Assistance from the State government (Value = 4), affect an area consisting of Multiple Sections (Value = 4), cause Little to No Injury and No Deaths (Value = 1), Require Little Sheltering (Shelter = 2) or cause Some Economic Loss (Value = 2), and have a Warning Lead Time of Hours (Value = 4), would be assigned a magnitude value of 17 (4+4+1+2+2+4=17).

Risk assessment methods included the use of FEMA's HAZUS Risk Assessment software. Risk assessment activities also included the mapping of hazard occurrences, at-risk structures including critical facilities, and repetitive flood loss structures, land use, and populations.

Step 8 Quantify Risk

Once a hazard's magnitude and its frequency have been evaluated, a picture of the over-all risk severity associated with that hazard emerges. Because the values are necessarily imprecise and subjective, the risk is visualized by plotting them as shown in Figure 1.2. Here, the frequency is plotted on the vertical axis (Low at the top to High at the bottom), and magnitude is on the horizontal axis (Low = 6 to 12, Medium = 13 to 20, and High = 21 to 48). Hazards with the most severe associated risk, therefore, appear toward the lower right while lowest severity risk hazards appear near the upper left.

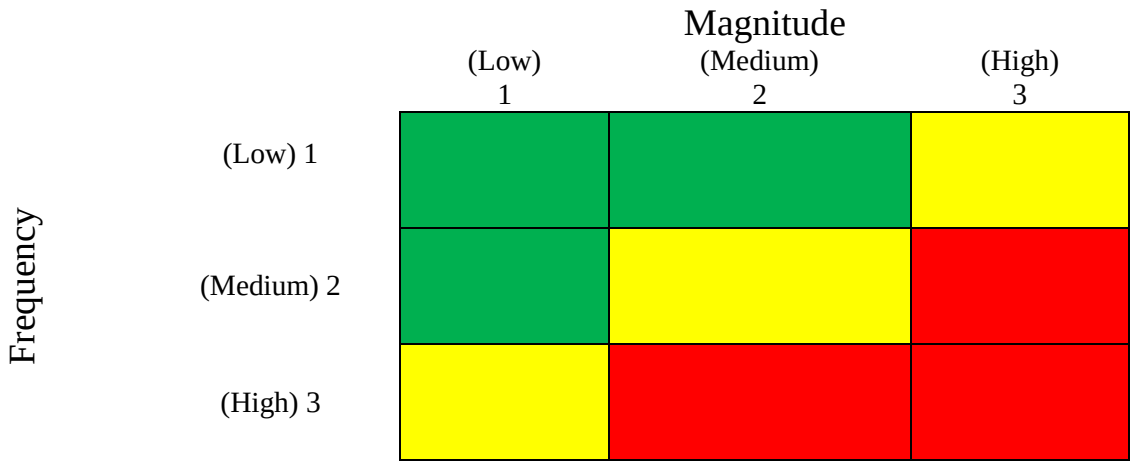

Figure 1.3 Risk Ranking Plot

Step 9 Rank Severity

To assist in prioritizing mitigation activities, the severities of all hazards considered in the Plan are ranked relative to one another using the above plotting scheme. Prioritization is also based on goals and objectives developed and approved by the Blaine County Board of County Commissioners.

Step 10 Laws and Ordinances Review

The Blaine Comprehensive Plan and land use ordinances were reviewed against the list of ranked hazards to determine if there were any restrictions or enabling powers that affect possible hazard mitigation alternatives. A report of this action is provided in Section 5, Land Use Planning.

Step 11 Develop Mitigation Alternatives

Potential projects to address identified risk were developed and listed in Section 6. The project descriptions and associated roadmap address approximate costs, possible returns on investments, environmental, and socio-economic benefits. Engineering cost estimates based on the conceptual design will be included if provided by the County.

Step 12 Develop Implementation Roadmap

Roadmapping is essentially the development of a high level project schedule. The Mitigation Roadmap in Section 6 of the Plan provides the necessary steps to be taken and the order in which they should occur to insure project implementation. The Implementation Roadmap addresses the four highest priority mitigation projects identified during the planning effort and includes possible funding options. Other possible mitigation projects were identified in list form linking them to the Plan Goals and Objectives, desired outcome, and assigned agency or department.

Step 13 Plan Review

Plan review occurred at two distinctly different times. The initial plan review was conducted by the Coordinator during development. Once the Plan is completed, it will be submitted along with the completed FEMA PDM Criteria Cross Walk to the Idaho Bureau of Homeland

Security's Hazard Mitigation Officer, and then to FEMA Region 10's Hazard Mitigation Officer for review. The Blaine County Board of County Commissioners also reviewed the Plan in a parallel time frame.

Step 14 Plan Adoption

The Coordinator will make a formal public presentation to the Blaine County Board of County Commissioners seeking their approval of the Plan. A letter of Promulgation is provided in the Plan. In addition, each participating jurisdiction will be requested to adopt the Plan by resolution with the respective mayors signing the appropriate multi-jurisdiction participation document.

Step 15 Implement

By using this process, the Blaine County AHMP Committee has developed a fully implementable Multi-Jurisdiction All Hazard Mitigation Plan to be presented for approval to the County Board of Commissioners and to the Mayors of the incorporated cities of the County. Upon approval of the Plan, the implementation process can and should begin.

Plan Maintenance

The Blaine County AHMP maintenance process includes monitoring and evaluating the programmatic outcomes established in the Plan annually and producing a Plan revision every five years.

Formal Review Process

The Plan will be evaluated on an annual basis to determine the effectiveness of programs and to reflect changes that may affect mitigation priorities. The evaluation process includes an annual meeting with identified local agencies and organizations. The Coordinator of Disaster Services or designee will be responsible for contacting the Mitigation Committee members and organizing the annual review. Committee members will be responsible for monitoring and evaluating the progress of the mitigation strategies in the Plan.

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

The Coordinator will be responsible to ensure that updates to the Plan are published within three months of the Committee's review. The Coordinator will also notify all holders of the County AHMP and affected stakeholders when changes have been made. Every five years the updated plan will be submitted to the State of Idaho Bureau of Homeland Security's Mitigation Program and the Federal Emergency Management Agency for review.

Continued Public Involvement

Blaine County Disaster Services is dedicated to involving the public directly in the review and update of the Plan. The Coordinator is responsible for the annual review and update of the 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 Coordinator. 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 County resources to publicize the annual public meetings and maintain public involvement.

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Section 2 Blaine County Description

Blaine County ranks 15th among Idaho counties in population and 7th in area. It is home to the Sun Valley Resort and relies heavily on recreation and tourism to create employment. Blaine County also has a strong agricultural industry and has an ideal climate for growing Barley of the highest quality. Other agricultural commodities include: alfalfa, wheat, oil seed, seed potatoes, sheep, horses, and cattle. Incorporated cites include Bellevue, Carey, Hailey, Ketchum and Sun Valley. Unincorporated areas include: Barite, Boulder, Broadford, Cathedral Pines, Clarendon Hot Springs, Cream Can Junction, DeWoff, Doniphan, Easley Hot Springs, Galena, Gannett, Gimlet, Hawley, Magic City, Magic Resort, Picabo, Sawtooth City, Smith Springs, Tikura, Triumph and Wapi. The odd shape of Blaine County, with its projection south to the Snake River, was established in 1890 so that the mainline of the Union Pacific Railroad would pass through the County in an effort to send tax revenue into the County.

Location

Blaine County is located in south central Idaho. The northern portion of the County is in the Sawtooth National Forest and Sawtooth National Recreation Area. Surrounding counties include Butte and Custer on the north; Camas on the west; Lincoln, Minidoka, and Cassia on the south; and Bingham and Power on the east.

Topography and Geography

Topography in Blaine County varies greatly from the scenic high alpine country in the north to the desolate lava plains and desert mountains in the south. The Boulder and Smokey Mountains are in the northern portion of the County. The Smokey Mountains sit along the Blaine/Camas County border on the west. The Boulder Mountains sit along the Blaine/Custer County border on the east. The very southern reaches of the Sawtooth Valley are at the northern most tip of Blaine County. The Pioneer Mountains are south of the Boulder Mountains and sit along the Blaine/Custer/Butte County borders. The Wood River Valley sits between the Smokey and Boulder Mountains in the northern half of the County.

The Great Rift in the southeast portion of the County has unique lava formations similar to a lunar landscape. The Picabo Hills and Lava Hills are both located in southern Blaine County near US Highway 20.

Elevation in Blaine County ranges from 3,100 feet above sea level to 11,900 feet above sea level. Most of the populated areas are between 4,000 and 6,000 feet[1].

[1] Blaine County Fire Mitigation Plan, 2004

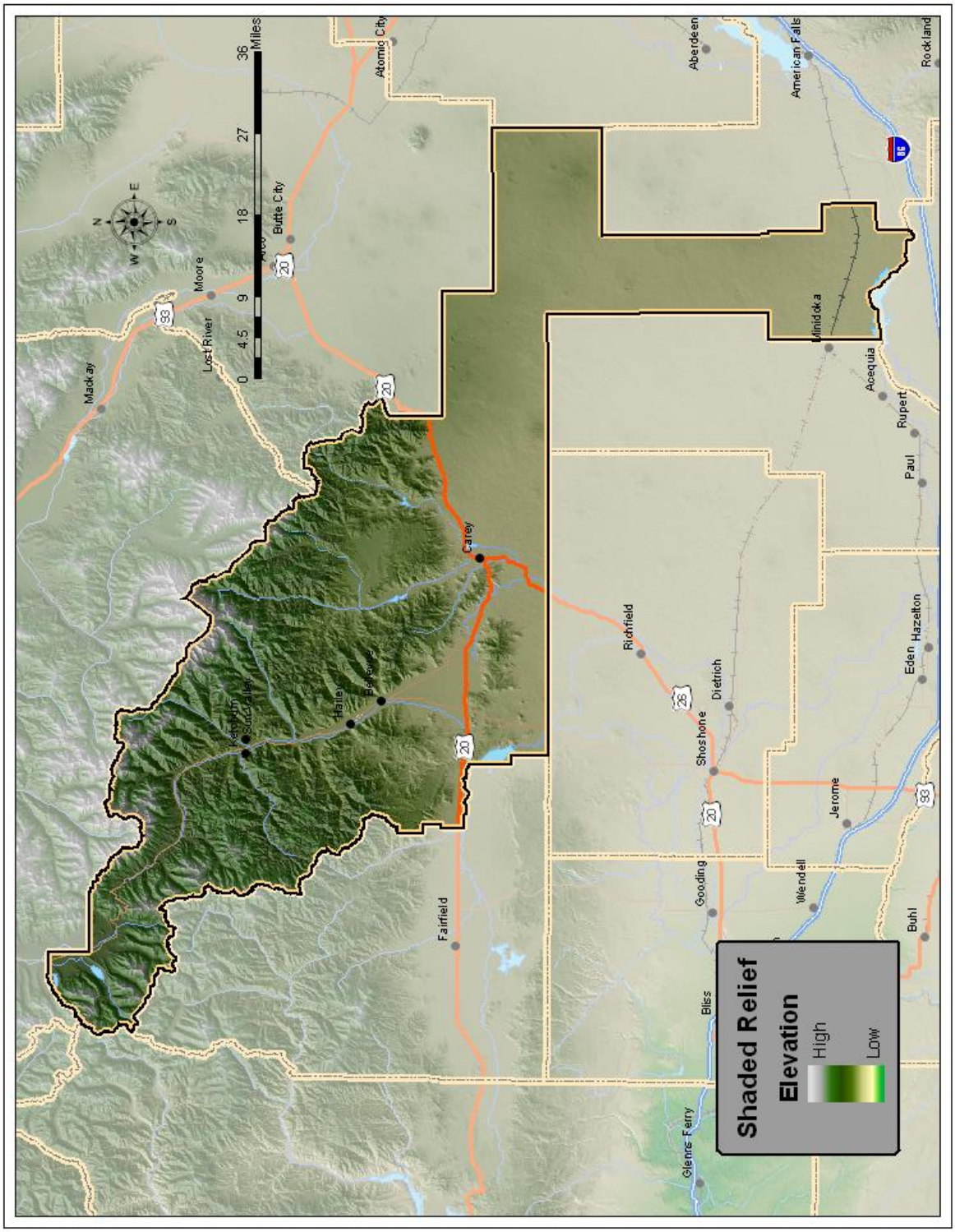


Figure 2.1
Blaine County Topography Map

Vegetation

Vegetation types in Blaine County are predominantly sage brush steppe, coniferous forest stands including Douglas fir and Lodgepole pine, scattered aspen stands associated with conifer stands, and cottonwood, willow and alder riparian zones [2].

Geology

Geology in northern Blaine County is very mixed. The Pioneer Mountains contain a core of gneiss overlain by younger Proterozoic and Paleozoic metamorphic rocks. The Pioneer Mountains were uplifted along the Wildhorse detachment fault during the Eocene and Oligocene, during and after eruption of the Challis volcanic, which occupy much of the southern Boulder Mountains in the Little Wood River drainage. The upper plate of the detachment fault forms the bulk of the Pioneer Mountains and contains dark colored sand stone.

The Smokey Mountains, west of the Big Wood River, contain Paleozoic sedimentary rock of the Sun Valley group, intruded by the Cretaceous Idaho batholiths, and Eocene Challis granites. Lava flows from the Challis volcanic make up much of the Smoky Mountains west of Hailey and northwest of Ketchum.

The Boulder Mountains have Eocene pink granite at the base overlain by sedimentary rocks and lava from the Challis volcanic. They were uplifted on a west-dipping normal fault which forms the scarp from Galena Summit to the Sawtooth National Recreation Area. [3]

On the Snake River Plain in very southern Blaine County are Quaternary and Recent basalt flows. In southwestern Blaine County is the Magic Reservoir volcanic, a Miocene rhyolitic eruptive center. The Big Wood River runs through this area.

Geothermal activity in the form of natural hot springs is present in various areas of Blaine County.

The extent to which geothermal activity occurs in the area also suggests the possibility of additional geothermal sites as yet undiscovered. Utilization of these sites as an energy source may be of major importance to the area in the future.

[2] Blaine County Fire Mitigation Plan, 2004
[3] http://imnh.isu.edu/digitalatlas/counties/blaine/geomap.htm

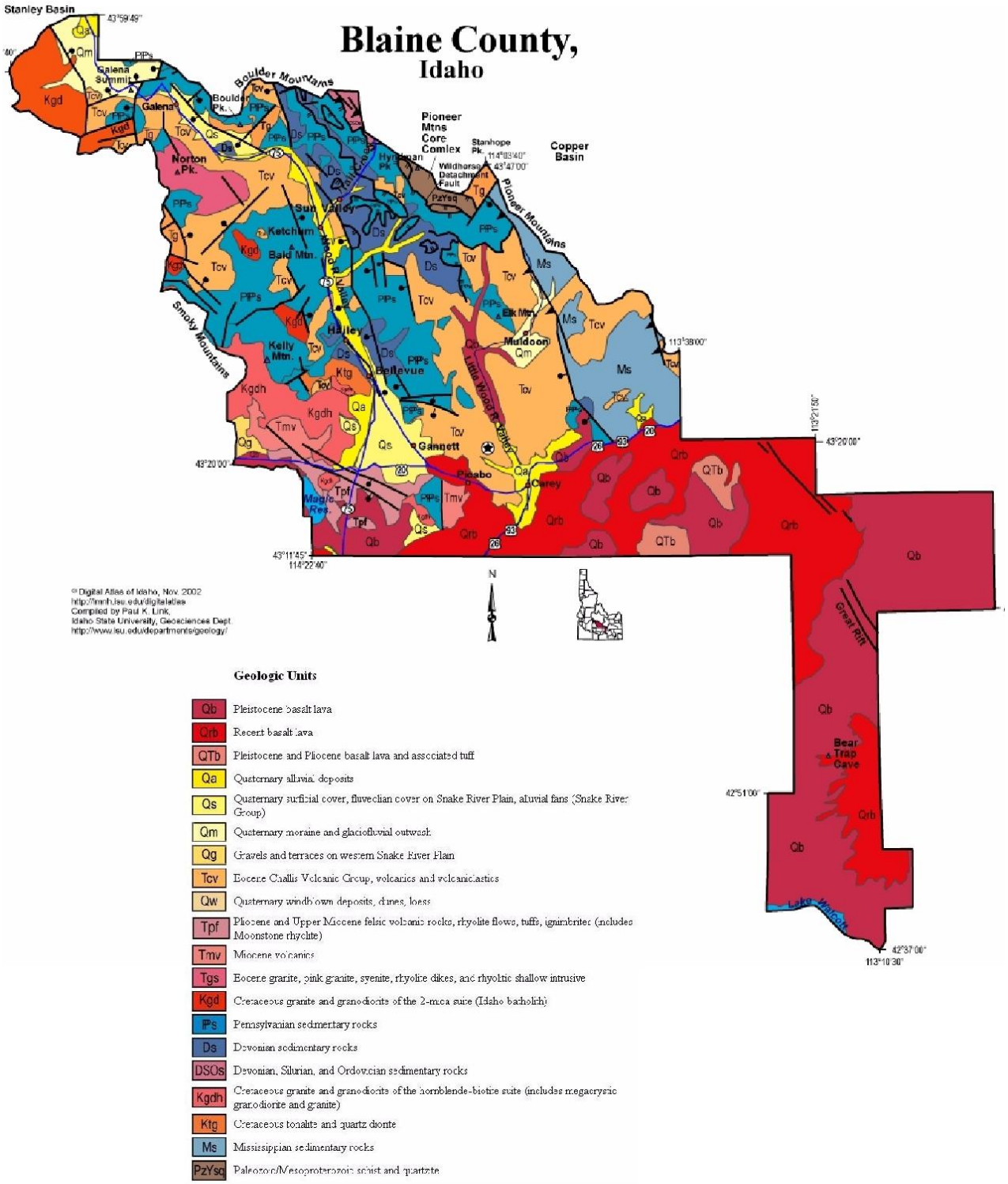


Figure 2.2
Blaine County Geology Map

Guyer Hot Springs, West of Ketchum, was developed in 1929. Still in use today, this system is utilized to heat homes and domestic water. To a lesser extent the Hailey Hot Springs West of Hailey has been developed for similar use. Clarendon, Easley, and other springs are or have been developed for public and private recreational use. In most cases the full resource potential of these sites has not been realized.

Given the recreational orientation of the area and the potential need for additional energy sources, known and potential geothermal sites constitute a secondary natural resource[4].

Climate

Blaine County has a 4-season climate. Summers have mild nights and warm days; winter has cold temperatures and snow. A plant killing freeze is received in the upper Wood River Valley by July 4 and again by August 20. Precipitation levels generally decrease from the higher mountain regions to the lower desert regions.

The following tables list the average maximum and minimum monthly temperatures as well as monthly precipitation and snowfall for two weather stations in Blaine County; Hailey and Galena Summit.

Average Maximum Temperature												
Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Annual
30.2	36.5	42.0	55.2	65.5	74.4	84.8	83.6	74.1	61.5	44.4	33.0	57.1
Average Minimum Temperature												
Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Annual
7.8	12.7	18.8	28.8	36.6	42.8	48.9	47.4	39.3	31.2	21.0	11.3	28.9
Average Total Precipitation												
Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Annual
2.58	1.82	1.23	1.05	1.49	1.31	0.43	0.63	0.75	0.72	1.57	2.30	15.89
Average Total SnowFall												
Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Annual
25.4	15.1	7.9	1.1	0.8	0.0	0.0	0.0	0.1	0.8	7.5	22.5	81.1

Table 2.1 Hailey Climate
Source: http://www.wrcc.dri.edu/summary/Climsmsid.html

Average Maximum Temperature												
Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Annual
31.6	34.5	38.8	44.9	56.8	65.5	76.3	76.4	66.8	55.3	39.0	29.5	51.3
Average Minimum Temperature												
Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Annual
4.4	4.4	9.0	17.4	25.7	31.5	34.7	34.1	27.0	21.5	11.1	2.2	18.6
Average Total Precipitation												
Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Annual
3.56	2.42	2.73	1.73	1.55	2.02	0.95	0.99	1.12	1.37	2.60	3.70	24.74
Average Total SnowFall												
Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Annual
29.8	30.0	35.0	10.8	1.3	0.7	0.0	0.0	0.6	7.1	22.6	44.9	182.8

Table 2.2 Galena Summit Climate
Source: http://www.wrcc.dri.edu/summary/Climsmsid.html

[4] Blaine County Comprehensive Plan, 1994\

The map in Figure 2.3 shows average annual precipitation for Blaine County. Some portions of Northern Blaine County receive as much as 40 inches of rain annually while southern Blaine County receives approximately 8-14 inches annually.

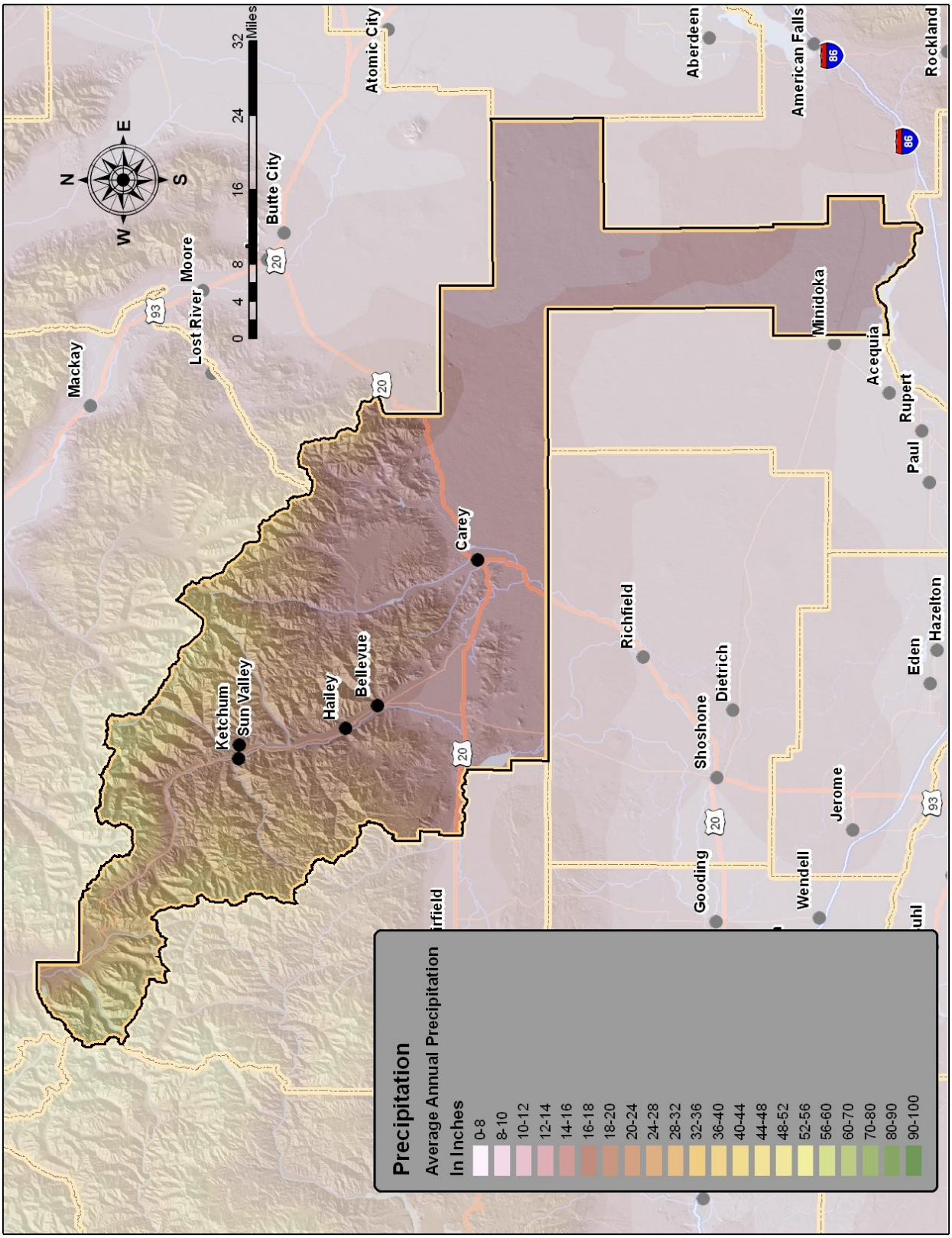


Figure 2.3
Blaine County Precipitation Map

Land Ownership

Blaine County contains approximately 1,699,200 acres. The federal government owns approximately 78% of land in Blaine County. The US Forest Service owns land in northern Blaine County. The National Park Service owns Craters of Moon National Monument and Preserve in Southern Blaine County. The Bureau of Land Management owns land in central and southern Blaine County. The BLM and the NPS jointly manage the area of Craters of the Moon National Park and Preserve. The State of Idaho owns approximately 4% of Blaine County mostly in Central and Southern Blaine County scattered throughout BLM lands. Private lands consist of approximately 19% of Blaine County and are concentrated in the Wood River Valley and southern Blaine County.

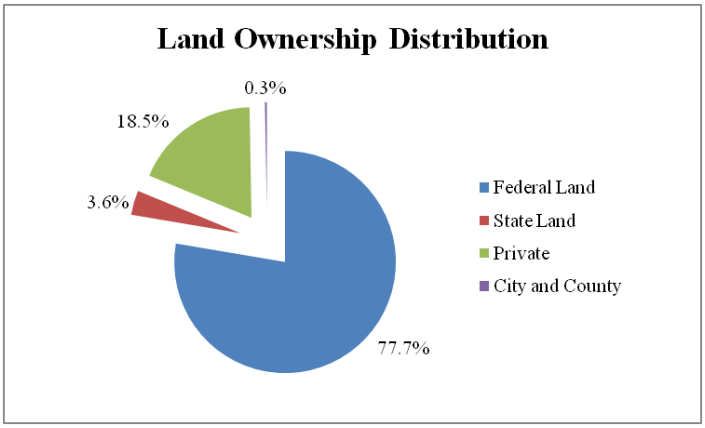


Figure 2.4
Blaine County Land Ownership Distribution
Source: Idaho Department of Labor

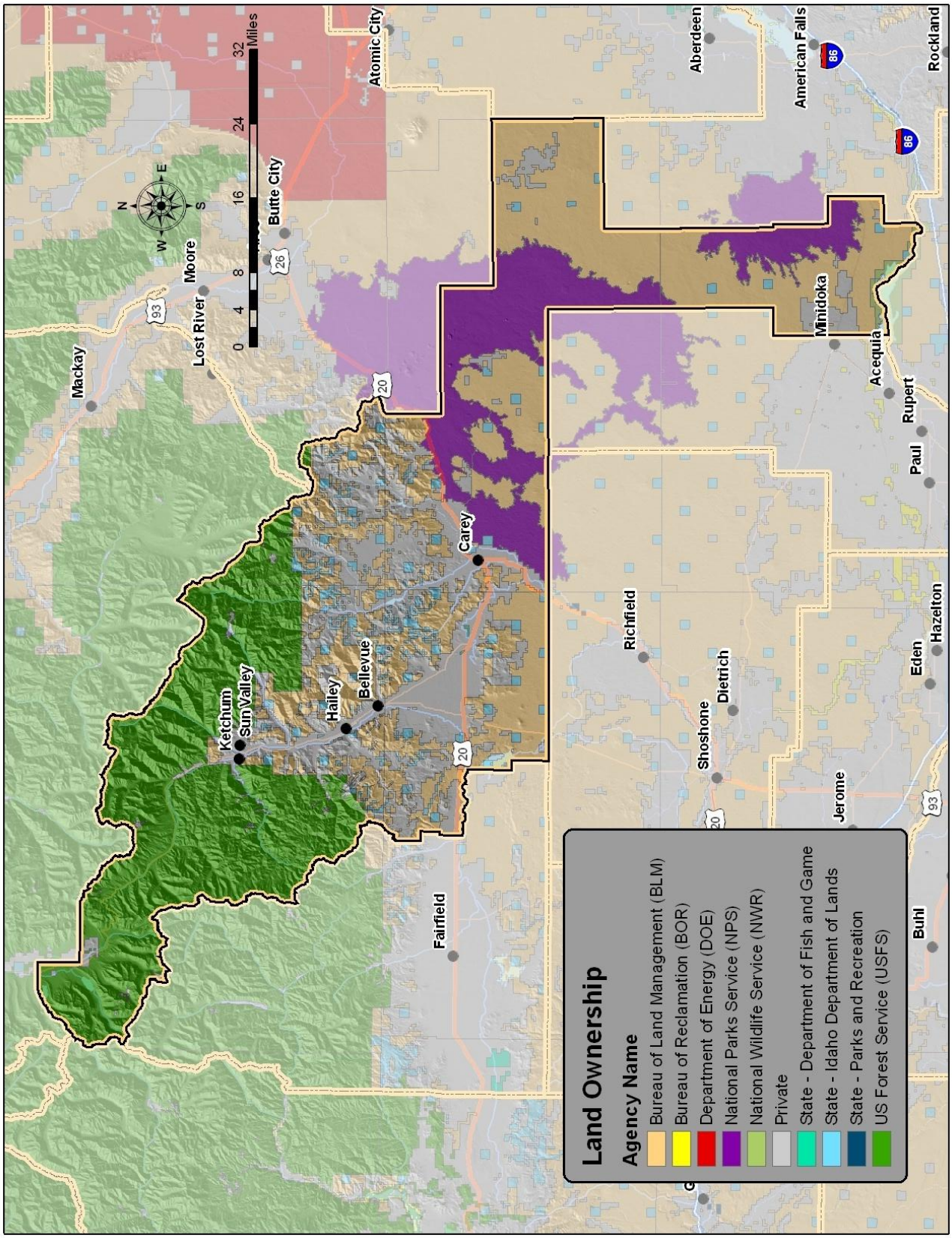


Figure 2.5
Blaine County Land Ownership Map

Land Use and Natural Resources

Land use in Blaine County is dominated by Rangeland and Forest land. Agricultural land only makes up 5.8 percent of land use. Barren land makes up 18.6 percent of Blaine County and is mostly found in the lava fields of southern Blaine County.

Although not shown on the land use type table, recreation is another important land use in Blaine County. The large amounts of federal land and the private recreation establishments attract a large number of visitors each year.

Historically, mining was a significant natural resource to Blaine County. The Idaho Geological Survey has over 400 mines listed for Blaine County on their Mines and Prospects Database.

Land Use Types		
	Acres	**Percent of Total**
Urban Land	3,000	0.2%
Agricultural	99,700	5.8%
Rangeland	1,035,800	60.7%
Forest	238,600	14.0%
Water	12,000	0.7%
Wetland	0	0.0%
Barren Land	318,400	18.6%

Table 2.3 Blaine County Land Use Types

Source: Idaho Department of Labor

History

Prospectors first entered the Wood River area soon after the beginning of the 1862 Boise Basin mining Boom. The County saw its first settlers in 1879 when farmers arrived in the Spring Creek area. The 1880 Wood River mining boom brought in a large influx of people including a significant number of Irish, Welsh, German and Chinese immigrants. Towns like Bellevue and Hailey grew overnight in the frantic scramble for gold, silver and lead. A smelting plant was constructed in Hailey in 1881 and smelting operations followed in other towns including Ketchum. The railroad arrived in 1884 and the mining boom reached its peak soon after. The boom began to lose its momentum when silver prices fell in the late 1880's and early 1890's. In 1895 established by combining Alturas and Logan Counties and later that same year Lincoln County was created out of Blaine County. Hailey was established as the county seat of Blaine County. During the early 1880's the communities of Bellevue, Carey, Picabo and Gannet were also established.

During the 1880's Blaine County had a significant sheep industry as well. By 1900 more than two million sheep had been raised or trailed through the Wood River Valley. Between 1910 and 1920 more than one million head of sheep a year were trailed through the area. During this time Ketchum was one of the largest sheep shipping centers in the United States.

Later, when prices for metals stabilized, the North Star, Triumph, Muldoon, and Broadford mines once again became the largest employers of the county's male population. This remained true until the years of the Great Depression, which closed most of the area's major mines. The late 1930's and early World War II years saw a return of the mining prosperity. However, by 1957 many mines were closed and in 1970 the last major ore producer, The Silver Star Queen in the Broadford area closed.

Sun Valley resort was constructed in 1936 by the Union Pacific Railroad as an attempt to increase traffic on the passenger line. Steve Hannagan, UPRR publicist, launched a publicity campaign and people including celebrities from Hollywood began to pour into the Wood River

Valley. This was the start of the recreation boom for Blaine County which has continued to the present.

Since the original Sun Valley Resort opened, the County has become an important summer and winter recreation resort and year round convention facility, as well as a much-desired place to live[5].

Demographics

Blaine County has experienced strong, steady growth over the last decade. The population increased from 17,707 in 1996 to 21,501 in 2006. This is a ten (10) year increase of 21.4 percent, making Blaine County the fastest growing county in south central Idaho for the last decade. The chart in Figure 2.6 shows the population growth between 1980 and 2006. The outlook for Blaine County is for continued growth, but at a somewhat slower rate due to congestion in traffic and lack of affordable housing[6].

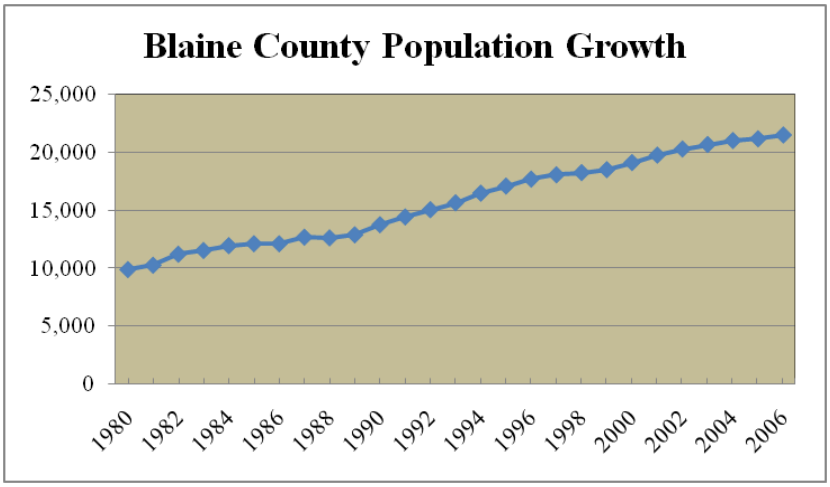


Figure 2.6
Blaine County Population Growth
Source: Bureau of Economic Analysis

Table 2.4 shows the population trends for the County as well as each incorporated city and unincorporated Blaine County (shown as "rest of County")

Between 1990 and 2000, the County experienced a 40.1% increase in population. Sun Valley, Hailey and Bellevue increased faster than the County with Hailey showing the most increase at 73.4%. Ketchum showed the least increase at 19.0%. During 2000-2006 the County increased by 13.2 %. Bellevue and Hailey both increased

	1990	2000	2006	Percent Change 1990-2000	Percent Change 2000-2006
County	13,552	18,991	21,501	40.1%	13.2%
Bellevue	1,275	1,876	2,190	47%	16.7%
Carey	427	513	508	20.1%	(1.0)%
Hailey	3,575	6,200	7,751	73.4%	25.0%
Ketchum	2,523	3,003	3,226	19.0%	7.4%
Sun Valley	938	1,427	1,452	52.1%	1.8%
Rest of County	4,814	5,927	6,284	23.1%	6.0%

Table 2.4 Population trends for Blaine County
Source: Idaho Department of Labor

[5] Blaine County Comprehensive Plan, 1994
[6] Idaho Department of Labor, Blaine County Work Force Trends, 2008

faster than the County with Hailey again showing the most increase at 25.0%. Sun Valley and the "rest of the County" showed small increases of 1.8% and 6.0% respectively. Carey decreased by 1.0%. In 1990, 35% of the County was living in an unincorporated area; in 2006 only 29% of the population was living in an unincorporated area.

The population in Blaine County is aging. In 1990, the median age was 33.3 and by 2006 had risen to 39.7. The chart in Figure 2.7 shows the changes in age distribution in 1990, 2000 and 2006. The 65+ age group shows the most change. In 1990, 6% of the population was in the 65+ age group and in 2006 7.8% were in the same age group.

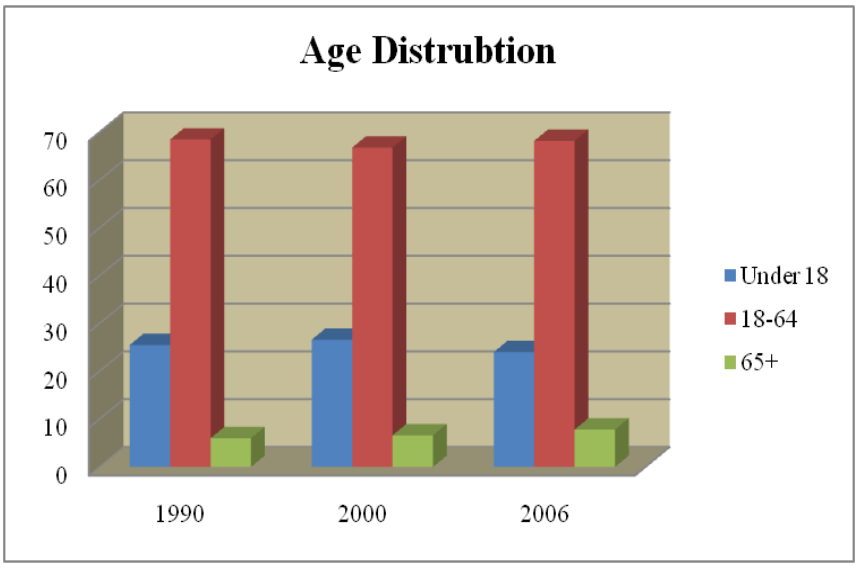


Figure 2.7
Age Distribution for Blaine County
Source: Idaho Department of Labor

Racial and Ethnic Distribution for Blaine County	
White persons	96.7%
Black persons	0.5%
American Indian and Alaska Native	0.5%
Asian persons	1.2%
Native Hawaiian Pacific Islander	0.1%
Persons reporting 2 or more races	1.0%
Persons of Hispanic or Latino Origin	16.8%
White persons, not Hispanic	81.0%

Table 2.6 Blaine County Racial and Ethnic Distribution
Source: US Census

The racial and ethnic distribution according to the US Census Bureau for 2006 is shown in Table 2.6 Blaine County is fairly homogenous with 96.7% of the County indicating themselves as "White Persons".

Economic Profile

Tourism, recreation, agriculture and mining have historically been the primary contributors to Blaine County's economy, however; the economic importance of mining has diminished dramatically in the past four (4) decades. Although construction and the services sectors have become increasingly important during the past twenty years, tourism, recreation and agriculture have become the major portion of the County's economic base[7]. The influence of tourism in the County has spread growth in other sectors as well. Real estate development and construction are growing rapidly to accommodate the population growth due to the popularity of the recreational areas of the County. Goods and services are growing and expanding to provide for the visitors that utilize recreational facilities. Visitor spending is a significant component of the local economy. The total impact of visitor spending in 2000 generated about 5,980 jobs and $120 million in earnings. This represents 37 % of all employment and 29 percent of all earnings in the County. Sales tax generated by the County is about 58 percent visitor related. [8]

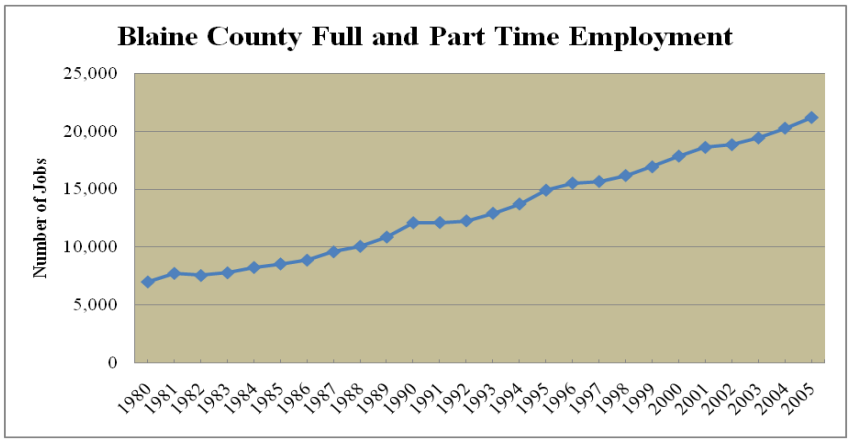


Figure 2.8
Blaine County Job Growth
Source: Bureau of Economic Analysis

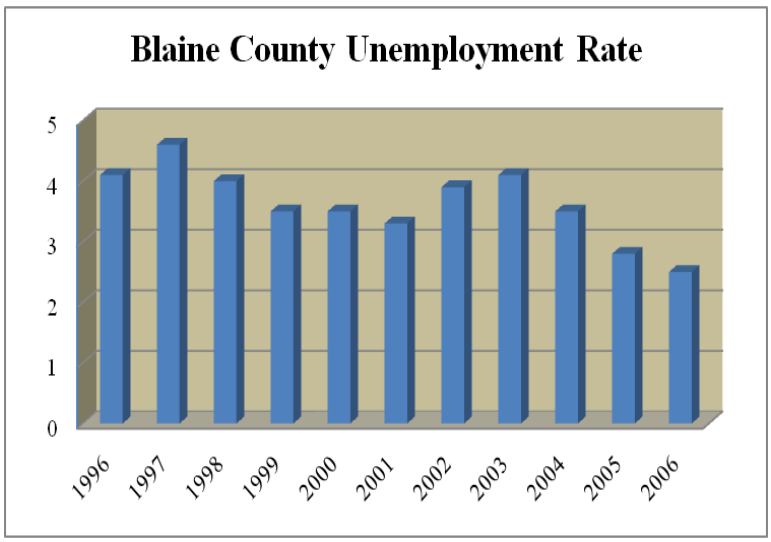


Figure 2.9 Blaine County Unemployment Rate
Source: Idaho Department of Labor

Job growth in Blaine County has been strong and steady in the past two decades. Between 1980 and 2005, the County added 14,169 jobs. This growth in jobs has had a positive effect on the unemployment rate in the County. The unemployment rate peaked in 1997 at 4.6 percent but by 2006 was a low 2.5 percent, the lowest in the State[9]. Seasonally, the months of April and May have the highest unemployment indicating that many jobs depend on the seasonal influx of recreational visitors,

[7] Blaine County Comprehensive Plan, 1994
[8] Runyan Associates, 2001. Economic Analysis Blaine County Idaho
[9] Idaho Department of Labor Blaine County Work Force Trends

construction workers and landscaping employees[10].

The charts in Figures 2.10 and 2.11 show how each industry contributes to the economy of Blaine County and how that has changed over the last (10) years. Figure 2.10 shows employment by industry. Mining was the only industry to be unchanged. All other sectors grew with construction, and Leisure and Hospitality providing the most employment.

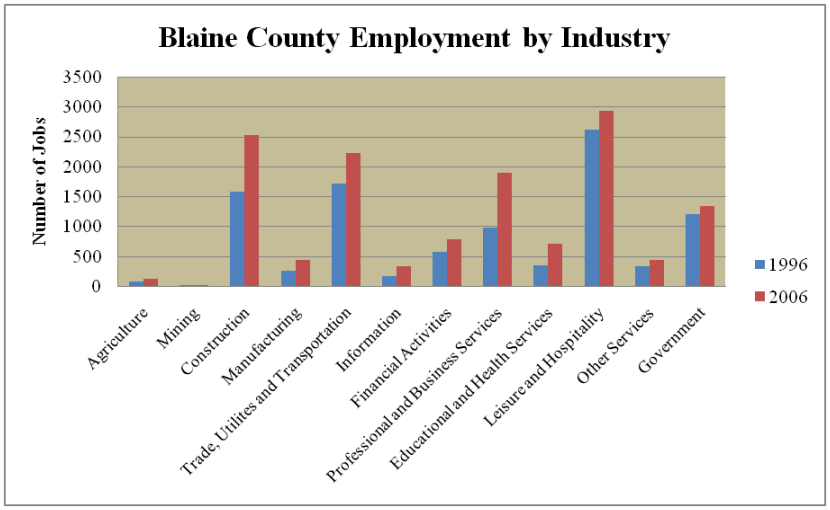


Figure 2.10
Blaine County Employment by Industry
Source: Bureau of Economic Analysis

Figure 2.11 shows average wage by industry for Blaine County. All sectors increased except Professional and Business services. Manufacturing provides the highest average wage, but only provides a small percentage of jobs in Blaine County. Leisure and Hospitality provide a high number of jobs, but the average wage is low. There is a worker shortage in service sectors such as leisure and hospitality because of the lack of affordable housing. Many of the local entities are designing programs to fill this housing gap[11].

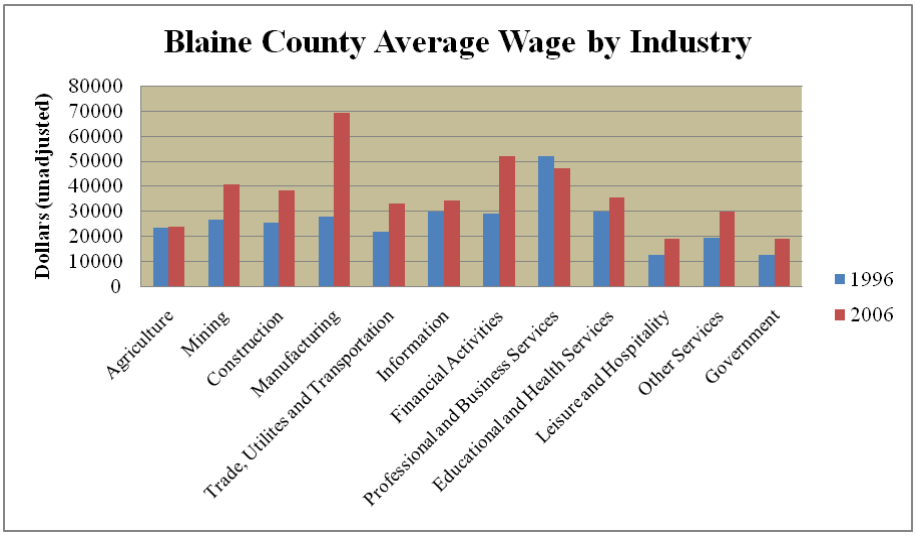


Figure 2.11
Blaine County Average Wage by Industry
Source: Bureau of Economic Analysis

[10] Blaine County Comprehensive Plan, 1994
[11] Idaho Department of Labor Blaine County Work Force Trends, 2008

In 2006 Blaine County had a per capita personal income (PCPI) of $59,939. This PCPI ranked 1st in the state and was 200 percent of the state average, $29,920, and 163 percent of the national average, $36,714. In 1996 the PCPI of Blaine County was $33,091 and ranked 1st in the state. The 1996-2006 average annual growth rate of PCPI was 6.1 percent. The average annual growth rate for the state was 4.0 percent and for the nation was 4.3 percent. [12] Average earnings per Job are lower than PCPI and have grown at a slower rate. However, average earnings are still approximately 34 percent higher than those in the rest of South Central Idaho; they are not adequate for most workers to live in the area. Therefore, a large number of Blaine County workers commute from other areas, specifically from Shoshone in Lincoln County to the south. [13]

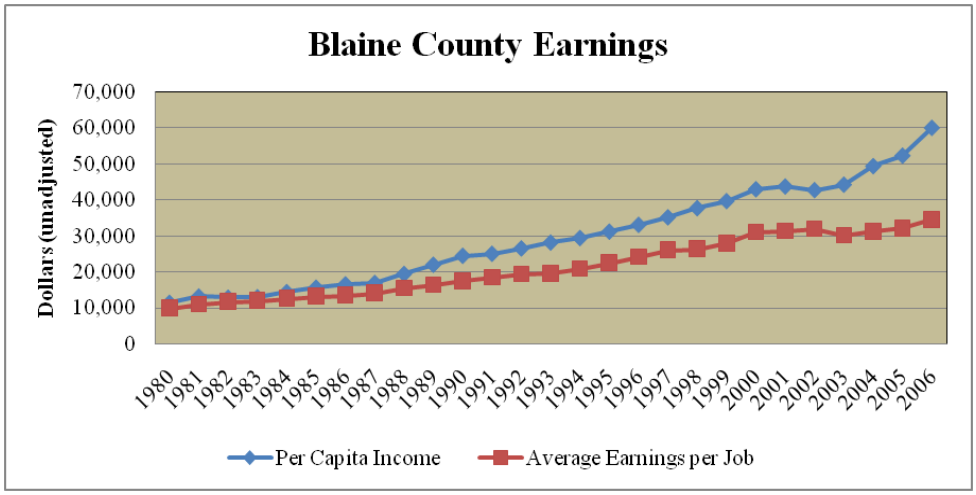


Figure 2.12
Blaine County Earnings
Source: Bureau of Economic Analysis

In 2006 Blaine County had a total personal income (TPI) of $1,283,347,000. This TPI ranked 7th in the State and accounted for 2.9 percent of the state total. In 1996 the TPI of Blaine was $585,936,000 and ranked 10th in the state. The 1996-2006 average annual growth rate of TPI was 8.2 percent. The average annual growth rate for the state was 6.0 percent and for the nation was 5.4 percent. Total personal income includes net earnings by place of residence; dividends, interest, and rent; and personal current transfer receipts received by the residents of Blaine County. In 2006 net earnings accounted for 53.4 percent of TPI (compared with 56.9 in 1996); dividends, interest, and rent were 41.6 percent (compared with 38.0 in 1996); and personal current transfer receipts were 5.0 percent (compared with 5.1 in 1996). From 1996 to 2006 net earnings increased on average 7.5 percent each year; dividends, interest, and rent increased on average 9.1 percent; and personal current transfer receipts increased on average 7.8 percent.

[12] Bureau of Economic Analysis
[13] Idaho Department of Labor, Blaine County Work Force Trends, 2008

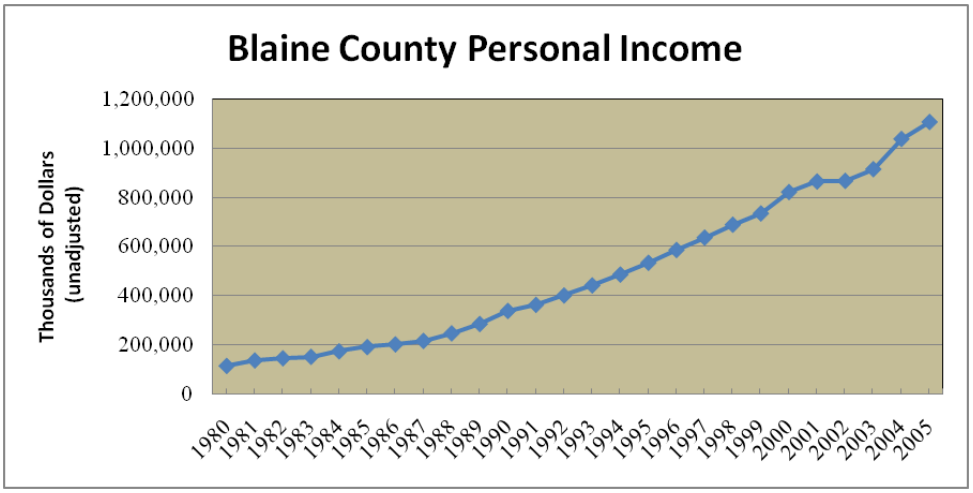


Figure 2.13
Blaine County Personal Income
Source: Bureau of Economic Analysis

Because of the growth in second homes there is an increased demand for a limited number of potential home sites particularly in the middle and northern sections of the County, which increases the value of the land. Therefore, affordable housing in the Wood River Valley is scarce and a growing number of the workforce is commuting from Carey, Fairfield and areas further south to jobs in the Wood River Valley. Home prices increased twice as fast as average earnings during the 1990's.[14] The average sale price of a new home in the Sun Valley/Ketchum area in 2000 was over $1 million, $715,000 south of Ketchum, and $218,000 in Hailey/Bellevue.

In 2004, 5.9% of the population was living below poverty, which is lower than the state at 11.5%. [15]

[14] Runyan Associates, 2001. Economic Analysis Blaine County Idaho
[15] US Census Bureau

Section 3 Public Involvement

Public Involvement

Public Involvement in the All Hazard Mitigation Process is used for three distinct purposes. The first is risk perception. Risk perception is used to develop a subjective measure of how the public believes the risks impact their community. The second is development of the requirements for risk reduction projects. The third is to solicit support to the elected and appointed officials as they seek to implement the mitigation actions identified in the AHMP.

Risk Perception:

Risk perception is the subjective judgment that people make about the characteristics and severity of a risk. The phrase is most commonly used in reference to natural hazards and threats to the environment or health, such as nuclear power. Several theories have been proposed to explain why different people make different estimates of the dangerousness of risks. Risk Perception is a significant part of the Public Involvement Section of the Blaine County All Hazard Mitigation Planning Process. Two distinct tools were used to gather public input and to measure, at least subjectively, the public attitudes towards the risk posed by the hazards in Blaine County.

Committee Perception Tool

Members of the All Hazard Mitigation Committee in reality play two important roles; first they represent the agency from which their assignment was derived. That representation brings with it certain roles, ensuring the interests of the agency are expressed and included in the planning process, acting as a subject matter expert on issues and matters managed by the agency, and in identifying methods to reduce or mitigate the risk. Second, each individual on the committee brings to the table certain expertise, but also certain attitudes, knowledge, and bias. These attributes, brought into the process also qualifies them as excellent "expressers" of public perception. A Risk Perception Tool was used in the first committee meeting to measure the committee, as individuals, perception of the hazards posed and their perception of the severity of the impact

	What is the probability (%) that the hazard event will occur in the County in the next ten years? (Mark 1 for each hazard)										What would be the impact or Consequence if the hazard event did Occur? (Mark 1 for each hazard)				
	<10	20	30	40	50	60	70	80	90	100	Low		Med		High
Biological	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Dam failures	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Droughts	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Earthquakes	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Extreme heat	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Fires	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Floods	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Hazardous materials events	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Landslides/Mudslides	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Nuclear accidents	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Rioting or Large demonstrations	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Sever winter storms	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Snow avalanches	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Terrorism	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Thunderstorms, Hailstorms, Lightening, High Winds and Tornadoes	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Volcanoes	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Wildland fires	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

[1] Low = Little or no impact to life or property. Mod = Some property damage or impact to health. High = Significant property damage or loss of life.

from those hazards upon their personal life situations. An example of the Perception Tool is illustrated above.

Hazard Type	Probability of Occurrence in Next 10 Years By Percentage	Level of Impact if Event Occurred
Biological	Medium	Med-High
Dam Failure	Low	Medium
Droughts	Med-High	Med-High
Earthquakes	Medium	Medium
Fire (Structure)	High	High
Extreme Heat	Med-High	Medium
Floods	High	High
Hazardous Materials Events	Medium	Med-High
Landslides/Mudslides	Medium High	Medium
Nuclear Accidents	Low	Medium
Rioting or Large Demonstrations	Low	Medium
Severe Winter Storm	High	Med-High
Snow Avalanches	High	Medium
Terrorism	Med-Low	Med-High
Severe Weather	Med-High	Medium
Volcanoes	Low	Low
Wildfire	High	High

Table 3.1
AHMP Committee Perceptions of Hazards

The results from the applications of this tool are in Attachment 1 Meeting Minutes. The following table demonstrates the perceptions held by the committee.

The Committee's (five highest) perceptions of the probability of hazard occurrence were expressed as follows:

1. Wildland Fire
2. Snow Avalanches
3. Severe Weather
4. Structure Fire
5. Flood

The Committee's (five highest) perceptions of how the hazards would impact the community were expressed as follows:

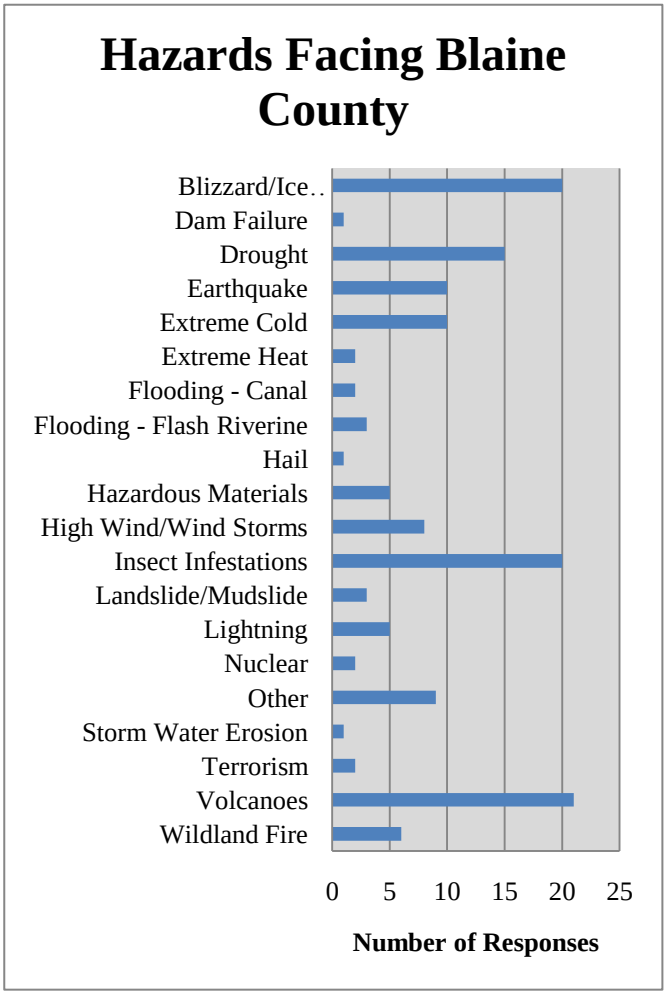
1. Wildfire
2. Structure Fire
3. Floods
4. Biological
5. Hazardous Materials

Public Questionnaire

A public questionnaire was provided to two hundred residents of the County. Of the two hundred mailed 38 were returned for a return rate of 19 percent, 0.5 percent were returned as undeliverable. The following is a sampling of the results.

Please select the five (5) highest hazards facing your neighborhood

1. Volcano
2. Winter Storm
3. Insect Infestation
4. Drought
5. Earthquake / Extreme Cold



Whisper Mountain
Professional Services, Inc

Blaine County Holds Local Community Hazard Mitigation Workshop

Press Release

Blaine County Disaster Services will be hosting a local community hazard mitigation workshop on Thursday April 9, 2009 from 10 am to noon at the Elkhorn Fire Station. The workshop, as scheduled, will be the culminating event of the County's Multi-jurisdiction All Hazard Mitigation Planning Project which began in the fall of 2008. Expected attendees at the workshop include the commissioners, City Council members from Sun Valley, Ketchum, Hailey, Bellevue, and Carey, the Mayors of all of these Cities, and representatives from County and City Planning and Zoning, Road & Bridge, Public Works, and Community Development departments. The public is also invited to attend.

Whisper Mountain Professional Services, Inc., the County's Emergency Management Consultant, will be facilitating the workshop. Whisper Mountain will present the hazard profiles completed for the County along with potential impacts to county, city, and private property. Each jurisdiction will then be requested to identify goals and objectives to lessen impacts on the community from the risks posed by the hazards. The overall goal of hazard mitigation is to save lives and reduce property damage. Hazards identified in the County, such as earthquake, flood, and wildfire will be examined and goals established which when implemented will reduce the risk to the greater Blaine County communities.

A draft of the Blaine County Multi-jurisdiction All Hazard Mitigation Plan can be found on the Whisper Mountain website at:

http://www.whispermountain.net/BlaineCountyAHMP.pdf.

Public Meetings and Involvement

As a part of the planning process, public meetings were held at the Elkhorn Fire Station. The meetings included a briefing on the overall AHMP Process. Participants were asked to fill out the perception tool and were briefed on the Community AHMP Survey. (See Attachment 1 for the meeting minutes and attendance rosters)

In addition, Blaine County Disaster Services hosted a local community hazard mitigation workshop on Thursday April 9, 2009 from 10 am to noon at the Elkhorn Fire Station. This workshop was the culminating event of the County's Multi-Jurisdiction All Hazard Mitigation Planning Project which began in the fall of 2008. Those invited to the workshop included Commissioners, Mayors and City Council members from all of the County's incorporated cities. The public was also invited, as were members of the City and County Planning and Zoning Departments and the Public Works Departments. Whisper Mountain Professional Services, Inc., the County's Emergency Management Consultant, facilitated the workshop.

The County's hazard profiles and the potential impacts of those hazards were presented. Each jurisdiction was then asked to identify goals and objectives for actions to lessen these impacts. Participants were reminded that the overall goal of hazard mitigation is to save lives and reduce property damage. Hazards identified as affecting the County, including earthquake, flood, and wildfire, were examined and goals were established that, when implemented, will reduce the risk to Blaine County communities.

A draft of the Blaine County All Hazard Mitigation Plan was posted for community review (see Sidebar for the announcement) on the internet at: http://www.whispermountain.net/BlaineCountyAHMP.pdf. Comments were received and considered during subsequent revisions.

Section 4 Risk Assessment

Hazards that pose a threat to human life, health, and well-being are myriad and no attempt is made here to compile an exhaustive list. Those that are addressed in disaster planning are generally categorized as "natural" or "technological" (sometimes "manmade"). The FEMA website[16] contains a thorough discussion of hazards in the section entitled "FEMA's Multi-Hazard Identification and Risk Assessment (MHIRA)"[17]. Some hazards are a threat to all geographic areas while others (e.g. Tsunami in coastal regions) are more limited in their extent. Studies were conducted to determine which hazards are of concern in Blaine County. Hazards that have been identified as significant in this County and that will be considered in this plan are:

Natural Hazards

- Weather: Drought
  - Extreme Heat
  - Extreme Cold
  - Severe Winter Storm
  - Lightning
  - Hail
  - Tornado
  - Straight Line Wind
- Flooding: Flash Flooding
  - River Flooding
  - Dam Failure
- Geologic: Earthquake
  - Landslide/Mudslide
  - Snow Avalanche
- Other: Wildfire
  - Biological
    - Communicable Disease
      - Bird Flu
      - SRS
      - West Nile

Technological (Manmade) Hazards

- Structural Fire
- Nuclear Event
- Hazardous Material Event
- Riot/Demonstration/Civil Disorder
- Terrorism
- Air Craft Accident/Friedman Memorial Airport

[16] http://www.fema.gov/index.shtm
[17] http://www.fema.gov/plan/prevent/fhm/ft_mhira.shtm

Section 4.1 Weather Hazards

The impact of weather hazards may be widespread (drought) or more localized (lightning), but all have the potential to be severe and directly life-threatening. Historical weather data is generally available in good detail over long time periods, allowing for reasonably accurate risk assessment for planning purposes.

Drought

Description

Drought is an expected phase in the climactic cycle of almost any geographical region. Certainly that is the case in the State of Idaho. Objective, quantitative definitions for drought exist but most authorities agree that, because of the many factors contributing to it and because its onset and relief are slow and indistinct, none is entirely satisfactory. According to the National Drought Mitigation Center, drought "originates from a deficiency of precipitation over an extended period of time, usually a season or more. This deficiency results in a water shortage for some activity, group, or environmental sector." What is clear is that a condition perceived as "drought" in a given location is the result of a significant decrease in water supply relative to what is "normal" in that area.

It should be noted that water supply is not only controlled by precipitation (amount, frequency, and intensity), but also by other factors including evaporation (which is increased by higher than normal heat and winds), transpiration, and human use. According to the NOAA National Climactic Data Center, much of the State of Idaho most recently experienced moderate to extreme drought conditions from the years 2000 through 2005. Drought Emergency Declarations were issued for various counties by the Idaho Department of Water Resources in the years 2002 through 2005. Idaho's only Federal Drought Emergency Declaration was issued in 1977.

Figure 4.1.1 and 4.1.2 illustrate the precipitation conditions for Blaine County using the Palmer Modified Drought Index (PMDI). PMDI is measured by climate divisions. Blaine County is a part of the Upper Snake River Plains Division and the Central Mountains Division. The division boundary is approximately US Highway 20. North of Highway 20 is the Central Mountain Division; South of Highway 20 is the Upper Snake River Plain Division. The data depicted is from the National Weather Service (NWS) and covers the years 1970 to the present. The Palmer Modified Drought Index (PMDI) is a means of quantifying drought in terms of moisture demands versus moisture supply. Moisture demands include plant

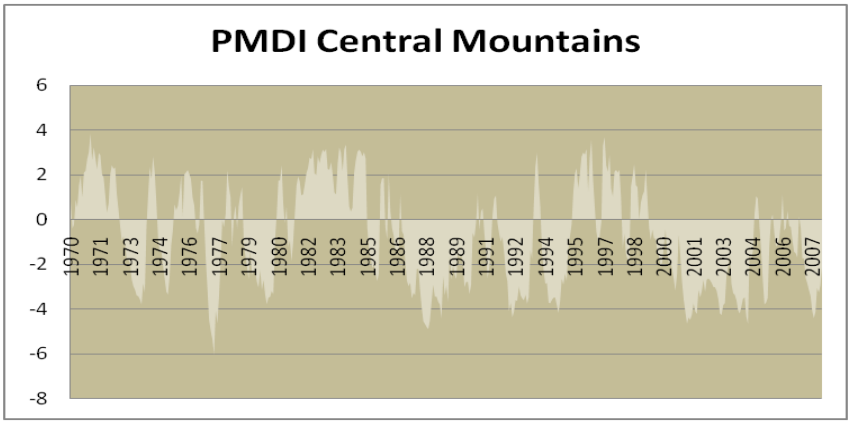


Figure 4.1.1 – PMDI Central Mountains
Source: http://www7.ncdc.noaa.gov/CDO/CDODivisionalSelect.jsp

requirements and water needed for recharge of soil moisture supplies. An allowance is also included for runoff amounts necessary for recharging both ground water and surface water supplies such as rivers, lakes, aquifers and reservoirs. The PMDI balances the moisture demands against the moisture supply available.

The PMDI expresses this comparison of moisture demand to moisture supply on a numerical scale that usually ranges from positive six to negative six. Positive values reflect excess moisture supplies while negative values indicate moisture demands in excess of supplies.

Approximate Cumulative Frequency %	Range PDMI	Category
> 96	> 3.50	Extreme Wetness
90-95	2.50 – 3.49	Severe Wetness
73 – 89	1.00 – 2.49	Mild to Moderate Wetness
28 – 72	-1.24 - .099	Near Normal
11 -27	-1.25 - -1.99	Mild to Moderate Drought
5 – 10	-2.00 – 2.74	Severe Drought
1 – < 4	< -2.75	Extreme Drought

Table 4.1.2
PMDI Classes for Wet and Dry Periods

Figure 4.1.3 Idaho Climate Divisions

Historical Frequencies

The Idaho Department of Water Resources reports that meteorological drought conditions (a period of low precipitation) existed in the State approximately 30% of the time during the period 1931-1982. Principal drought in Idaho, indicated by stream flow records, occurred during 1929-41, 1944-45, 1959-61, 1977, and 1987-92. The most prolonged drought in Idaho was during the 1930s. For most of the State, that drought lasted for 11 years (1929-41) despite greater than average stream flows in 1932 and 1938. In 1977, the worst single year on record, a severe water shortage occurred throughout Idaho and the West. Stream flows were below normal from 1979 to 1981. A Federal Declaration was issued in 1977 for the State of Idaho as well as Blaine County[18].

According to the Idaho Department of Water Resources (IDWR) the following Drought Emergency Declarations were issued for Blaine County since 2002:

- May 8, 2002
- May 27, 2003
- May 13, 2004
- May 19, 2005
- June 6, 2007

Impacts

Drought is agriculture's most expensive, frequent, and widespread form of natural disaster. The current drought in the interior West is part of a multi-year drought that began in 1999, worsened in 2000, and has continued, with some interruptions thus far into 2004. As a result, the drought in the West was slow to develop, and likewise, will be slow to recede.

Drought produces a complex web of impacts that spans many sectors of the economy and reaches well beyond the area experiencing physical drought. This complexity exists because water is integral to our ability to produce goods and provide services.

Impacts are commonly referred to as direct or indirect. Reduced crop, rangeland, and forest productivity; increased fire hazard; reduced water levels; increased livestock and wildlife mortality rates; and damage to wildlife and fish habitat are a few examples of direct impacts. The consequences of these impacts illustrate indirect impacts. For example, a reduction in crop, rangeland, and forest productivity may result in reduced income for farmers and agribusiness, increased prices for food and timber, unemployment, reduced tax revenues because of reduced expenditures, increased crime, foreclosures on bank loans to farmers and businesses, migration, and disaster relief programs. Direct or primary impacts are usually biophysical. Conceptually speaking, the more removed the impact from the cause, the more complex the link to the cause. In fact, the web of impacts becomes so diffuse that it is very difficult to come up with financial estimates of damages. The impacts of drought can be categorized as economic, environmental, or social.

Many economic impacts occur in agricultural and related sectors because of the reliance of these sectors on surface and subsurface water supplies. In addition to obvious losses in yields in crop and livestock production, drought is associated with increases in insect infestations, plant

[18] Idaho State Hazard Mitigation Plan 2004 http://www.bhs.idaho.gov/bhslibrary/SHMP2004.pdf

disease, and wind erosion. Droughts also bring increased problems with insects and diseases to forests and reduced growth. The incidence of forest and range fires increases substantially during extended droughts, which in turn places both human and wildlife populations at higher levels of risk.

Loss Estimates

Income loss is another indicator used in assessing the impacts of drought because so many sectors are affected. Reduced income for farmers has a ripple effect. Retailers and others who provide goods and services to farmers face reduced business. This leads to unemployment, increased credit risk for financial institutions, capital shortfalls, and loss of tax revenue for local, State, and Federal government. Less discretionary income affects the recreation and tourism industries. Prices for food, energy, and other products increase as supplies are reduced. In some cases, local shortages of certain goods result in the need to import these goods from outside the stricken region. Reduced water supply impairs the navigability of rivers and results in increased transportation costs because products must be transported by rail or truck. Hydropower production may also be curtailed significantly.

The following charts in figures 4.1.4 and 4.1.5 illustrate the net income for both individual as well as corporate farms in Blaine County from 1970 through 2006. Note the income drops during the late 1970's when Idaho declared a drought disaster. There are also significant income drops beginning in the early to mid 1990's and again in 2001 when a severe drought hit most of central and southern Idaho.

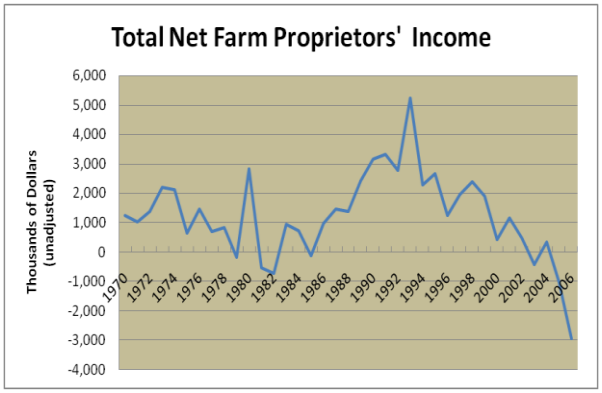


Figure 4.1.4
Net Farm Proprietor's Income
Source: http://www.bea.gov

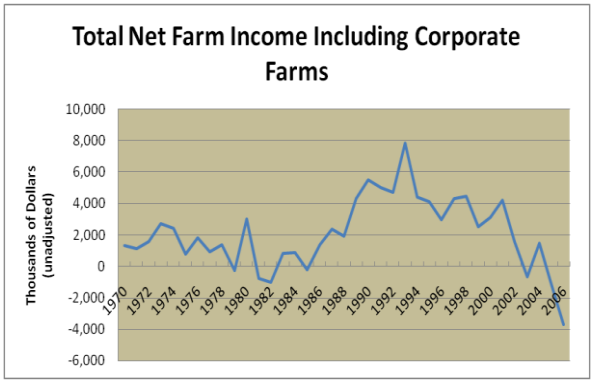
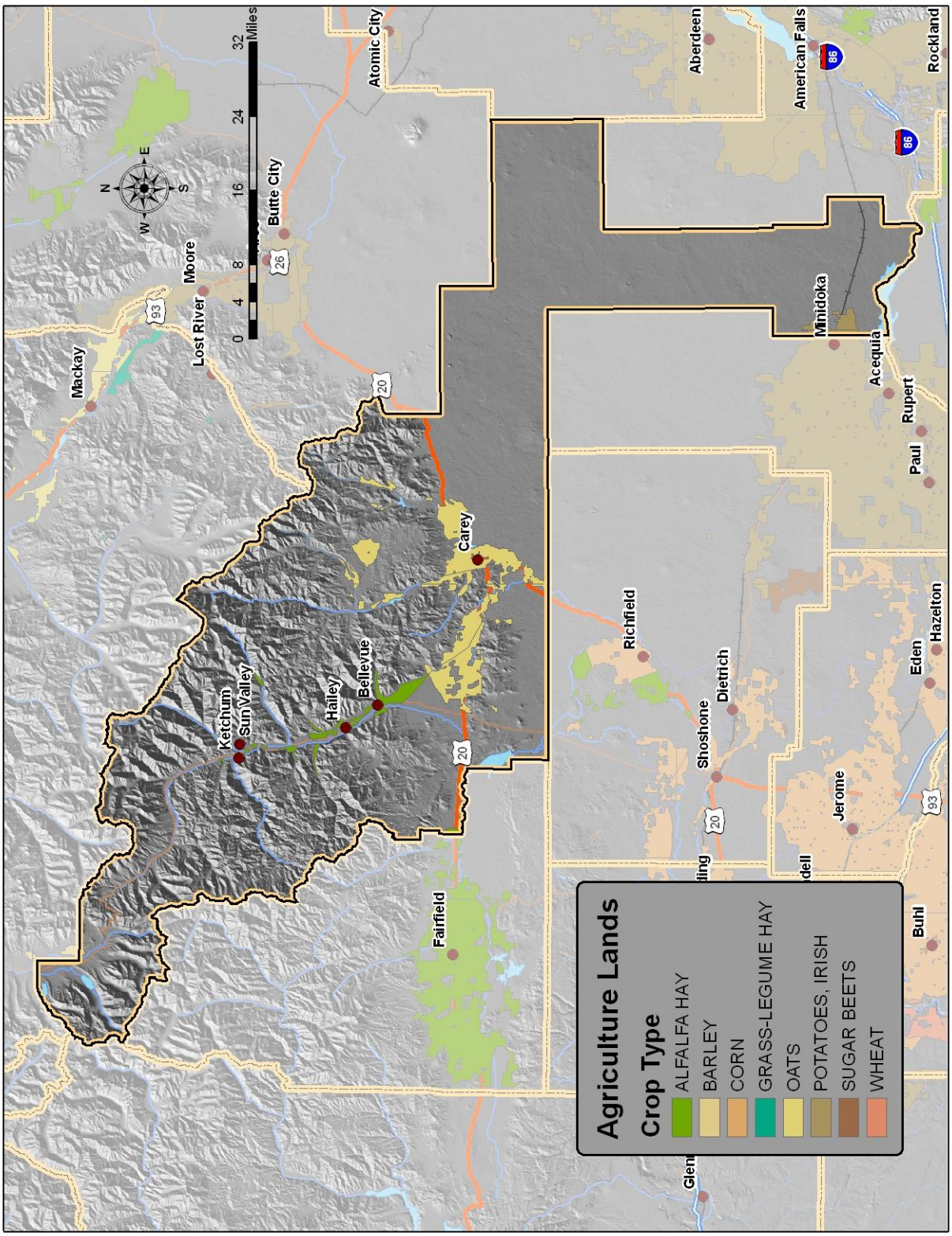


Figure 4.1.5
Net Farm Income Including Corporate Farms
Source: http://www.bea.gov

Figure 4.1.6 Blaine County Agricultural Lands Map



Hazard Evaluation

Drought risk is based on a combination of the frequency, severity, and spatial extent of drought (the physical nature of drought) and the degree to which a population or activity is vulnerable to the effects of drought. The degree of a region's vulnerability depends on the environmental and social characteristics of the region and is measured by their ability to anticipate, cope with, resist, and recover from drought.

Society's vulnerability to drought is determined by a wide range of factors, both physical and social, such as demographic trends and geographic characteristics.

The Blaine County Agricultural Land Map in Figure 4.1.6 shows relatively small portions of crop land that would be affected by drought conditions. However, over half the County is used for rangeland. This practice would also be affected by drought conditions as lack of water would limit vegetative growth as well as water available for livestock. Blaine County's economy is also dependent on recreation, particularly the ski season which is impacted by drought conditions as well.

Repetitive Loss

Blaine County experiences repetitive loss due to drought. Losses are related primarily to the crop production loss and the associated economics. Other losses are linked to a loss of grazing capacity on public lands.

Magnitude of Drought Hazard						
Value	**Reconstruction Assistance From**	**Geography (Area) Affected**	**Expected Bodily Harm**	**Loss Estimate Range**	**Population Sheltering Required**	**Warning Lead Times**
1	Family	Parcel	Little to No Injury / No Death	$1000s	No Sheltering	Months
2	City	Block or Group of Parcels	Multiple Injuries with Little to No Medical Care / No Death	$10,000s	Little Sheltering	Weeks
2	County	Section or Numerous Parcels	Major Medical Care Required / Minimal Death	$100,000s	Sheltering Requiring Neighboring Counties Help	Days
4	State	Multiple Sections	Major Injuries / Requires Help from Outside County / A Few Deaths	$1,000,000s	Long Term Sheltering Effort	Hours
8	Federal	County Wide	Massive Casualties / Catastrophic	$10,000,000s	Relocation Required	Minutes

Frequency of Hazard	
Ranking	**Description**
HIGH	Multiple Times a Year to 5 Years
MEDIUM	5 to 25 Years
LOW	25 Years to Hasn't Happened

Drought has a magnitude score of 13.

Magnitude/Frequency Scoring Rationale

By its nature, drought develops slowly (Warning Lead Times = 1), and affects wide geographical areas (Geography Affected = 4), but is the direct cause of little or no death or injury (Bodily Harm = 1). Because agriculture is a large component of Blaine County's economy, some economic loss could be sustained (Economic Loss = 2). The County receives drought disaster assistance through the State of Idaho via a Drought Declaration facilitated by the Idaho Department of Water Resources (Reconstruction Assistance = 4). Drought does not necessitate sheltering or relocation of individuals (Sheltering = 1). The total Magnitude score is, therefore, thirteen (13) which, for Blaine County, is in the "medium" range. Historical records for drought are available and reliable, indicating that drought occurs in the five to twenty-five year range in Blaine County (Frequency = Medium).

Extreme Heat

Description

The term "extreme heat," sometimes called "heat wave," is to some extent a relative one describing a period when weather conditions include temperatures and humidity significantly higher than those usual for a particular geographic area. The National Weather Service (NWS) issues alerts to the public based on its Heat Index which takes both temperature and humidity into account (see Figure 4.1.7). The NWS will initiate alert procedures when the High is expected to exceed 105°- 110°F (depending on local climate) for at least two consecutive days. The effects of extreme heat are often exacerbated in large urban areas due to the heat island effect and because stagnant atmospheric conditions may trap pollutants. Extreme heat conditions are not common to Idaho where, in general, humidity is low and weather patterns variable.

NOAA's National Weather Service Heat Index

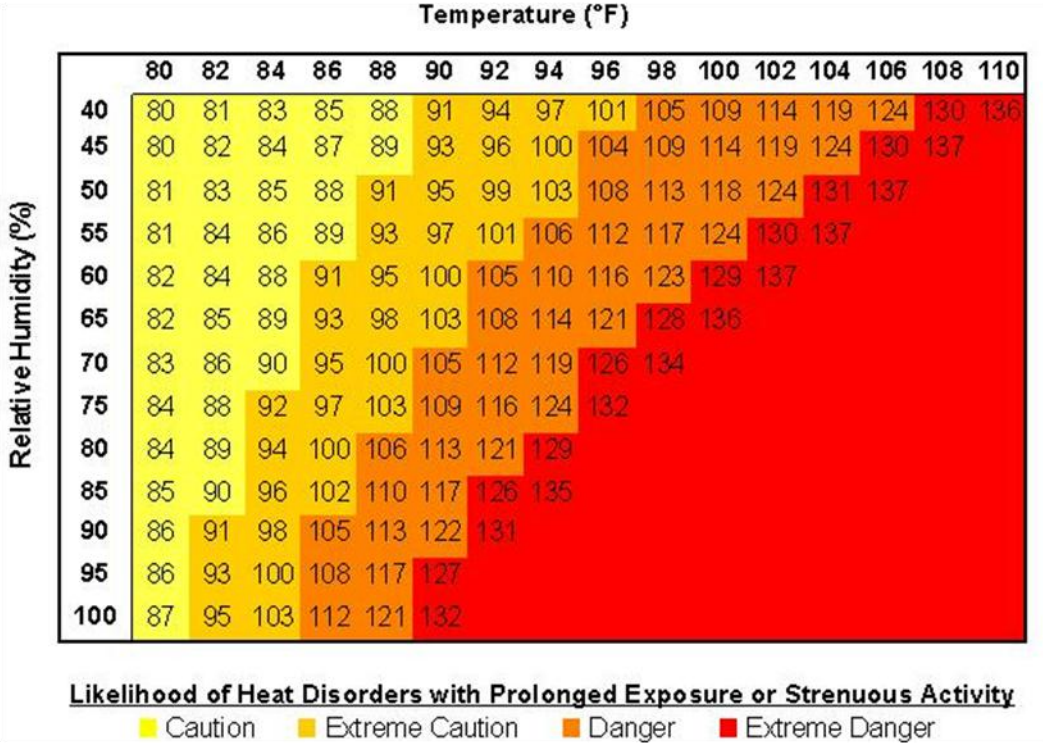


Figure 4.1.7
National Weather Service Heat Index Chart
Source: http://www.nws.noaa.gov/om/heat/index.shtml)

Historical Frequencies

There have been no recorded days in which the temperature in Blaine County has reached or exceeded 105 degrees Fahrenheit.

Impacts

The primary impact of extreme heat is on human health causing such disorders as sunstroke, heat exhaustion, and heat cramps. Particularly susceptible are the elderly, small children, and persons with chronic illnesses. There are also undoubtedly indirect and chronic health effects from extreme heat the magnitude of which are difficult or impossible to estimate. Environmental effects can include loss of wildlife and vegetation and increased probability of wildfires.

Loss Estimates

Extreme heat places high demands on electrical power supplies that can lead to blackouts or brownouts. Economic impacts result from such factors as increased energy prices, loss of business as people avoid leaving their homes to avoid the heat, and agricultural losses. The magnitude of these and other, more indirect impacts is, again, difficult to assess but for severe heat waves have been estimated to be in the billions to hundreds of billions of dollars.

Hazard Evaluation

The magnitude of the effects of extreme heat is centered on the individual citizen. Shelters might be opened for the elderly and/or homeless who do not have a means of relief from the heat. Heat related illnesses could cause death if shelter and hydration are not provided. Because the higher elevations are typically five to ten degrees cooler than the valley, extreme heat would most likely affect only that portion of the County at the lower elevations. Economic loss would primarily be related to the cost of energy consumption and to agricultural impacts. Extreme heat would exacerbate drought conditions and make response to wildfire more hazardous.

Repetitive Loss – None

Magnitude of Extreme Heat Hazard						
Value	**Reconstruction Assistance From**	**Geography (Area) Affected**	**Expected Bodily Harm**	**Loss Estimate Range**	**Population Sheltering Required**	**Warning Lead Times**
1	Family	Parcel	Little to No Injury / No Death	$1000s	No Sheltering	Months
2	City	Block or Group of Parcels	Multiple Injuries with Little to No Medical Care / No Death	$10,000s	Little Sheltering	Weeks
2	County	Section or Numerous Parcels	Major Medical Care Required / Minimal Death	$100,000s	Sheltering Requiring Neighboring Counties Help	Days
4	State	Multiple Sections	Major Injuries / Requires Help from Outside County / A Few Deaths	$1,000,000s	Long Term Sheltering Effort	Hours
8	Federal	County Wide	Massive Casualties / Catastrophic	$10,000,000s	Relocation Required	Minutes

Extreme Heat has a magnitude score of 11.

Frequency of Hazard	
Ranking	**Description**
HIGH	Multiple Times a Year to 5 Years
MEDIUM	5 to 25 Years
LOW	25 Years to Hasn't Happened

Magnitude/Frequency Scoring Rationale

Warning times for extreme heat are subject to the limitations of short-term weather forecasting (Warning Lead Times = 2). The geographical areas affected are somewhat limited (Geography Affected = 4) and while injuries may occur, deaths are not expected in Blaine County (Bodily Harm = 1). Because the duration of extreme heat events is usually only a few days, agriculture is seldom significantly affected and economic loss is usually small (Economic Loss = 1). Because extreme heat usually affects a few, scattered individuals, assistance is seldom required or available from governmental entities but relocation or sheltering of individuals who are affected by the heat may be required (Reconstruction Assistance = 1, Sheltering = 2). The total Magnitude score is, therefore, eleven

(11) which, for Blaine County, is in the "Low" range. Historical records for extreme heat are available and reliable, indicating that no extreme heat event has occurred in Blaine County (Frequency = Low).

Extreme Cold

Description

"Extreme cold" is another of the terms describing hazards that must be defined relative to what is considered normal in a given locale. What might be considered extreme cold varies considerably in the State of Idaho where normal winter temperatures in the southwest are appreciably more moderate than those in the northwest and far north. Very cold temperatures become a particular hazard when accompanied by winds of 10 mph or greater. The NWS has developed a formula for calculating "wind chill" based on temperature and wind speed (see Figure 4.1.7) and in this region issues wind chill advisories when the wind chill temperature is predicted to be -10°F or less with winds of 10 mph or higher for one hour or more. Wind chill warnings are issued when wind chill temperature will be -20°F or less with winds of 10 mph or higher for one hour or more. As with extreme heat, extreme cold is of greatest concern when the condition persists for an extended period of time.

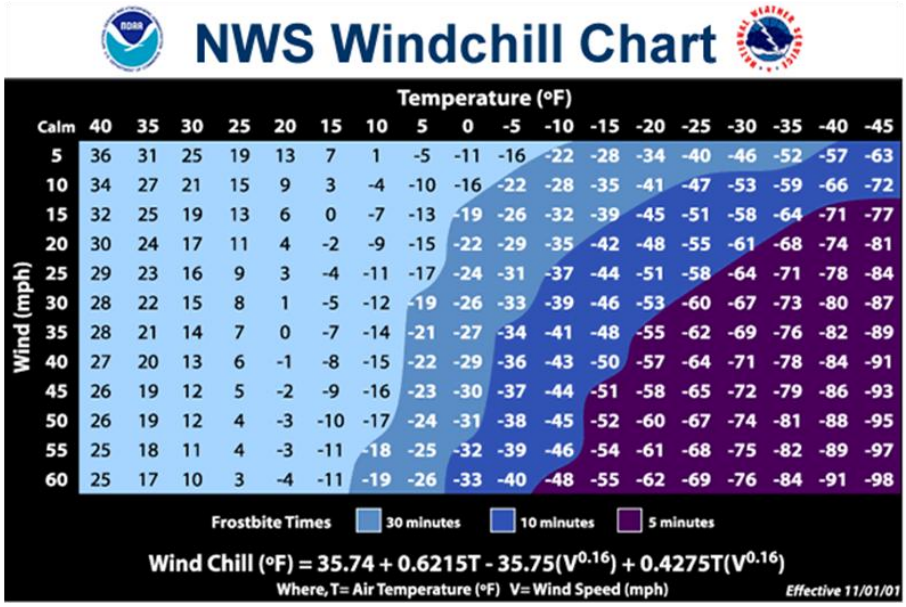


Figure 4.1.8
National Weather Service Windchill Chart
http://www.weather.gov/om/windchill/index.shtml

Historical Frequencies

Data from two NWS weather stations were analyzed in the frequency analysis. The station at Picabo recorded 68 days in which the temperature reached or fell below -20 degrees Fahrenheit (1958-1993). Ketchum recorded 26 days where the temperature was -20 degrees or colder (1973-1993). The chart in Table 4.1.2 shows the frequency of extreme cold events, which can be expected to occur at least every year.

Location	No. of Years	No. of Events	Frequency
Picabo	35	68	1.94
Ketchum	20	26	1.30

Table 4.1.2
Frequency of Extreme Cold Events

Though the historic frequency is over one event per year, the following chart (Figure 4.1.9) shows that extreme cold events happen in clusters. In years in which an extreme cold event occurs, it is likely that there will be more than one event that year. Because of the cluster factor the frequency of extreme cold events in Blaine County is 0.55, or one event every 2 years. When an event occurs, it will probably be closely followed by other events.

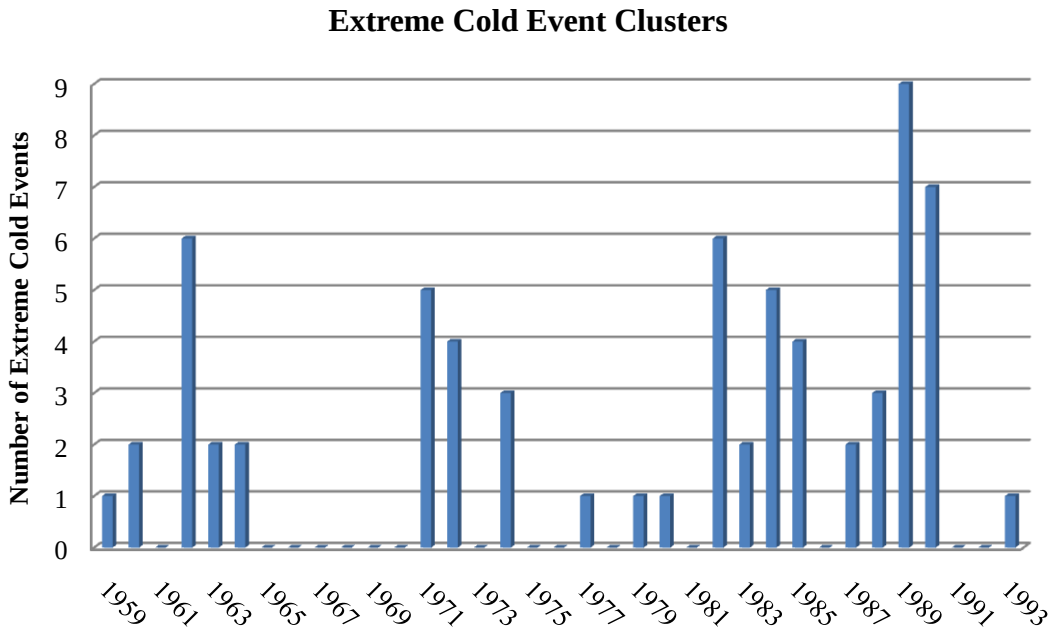


Figure 4.1.9 Number of Extreme Cold Events per Year in Picabo

Impacts

Health effects of exposure to extreme cold include hypothermia and frostbite, both of which can be life-threatening. Infants and the elderly are most susceptible. In the United States, nearly 700 deaths are directly attributed to hypothermia annually.

Loss Estimates

Extreme cold may cause loss of wildlife and vegetation, kill livestock and other domestic animals. Economic loss may result from flooding due to burst pipes, large demands on energy resources, and diminished business activity. River flooding may take place as a result of the formation of ice jams.

Hazard Evaluation

Extreme cold affects the individual, families, cities, and the County. Damage typically occurs to individual properties; however, city water systems are usually vulnerable to extreme cold. Repairs to water line freeze ups and breaks typically require the roadways to be excavated necessitating additional maintenance and repairs during the warmer months. As demonstrated in the historical frequency section, areas of the County can expect as much as 20 -25 degrees difference depending on elevation.

Extreme Cold can cause death and injury especially to those working or stranded outside for prolonged periods. Economic loss is related to private individuals, businesses, and government agencies in heating of homes and facilities. Additional losses can be expected to the livestock industry. During extreme cold periods the schools are closed to protect children traveling to and from school.

During the spring, summer and fall, temperatures can drop low enough to produce frost. While such temperatures are not low enough to damage infrastructure or require extra heating costs, it can be devastating to crops.

Warning lead times in Blaine County usually are a day or two based on forecasts made by the National Weather Service in Pocatello.

Repetitive Loss

Blaine County does experience repetitive loss related to extreme cold events. The losses are primarily associated with freezing and breaking municipal water lines. While there is some repetitive flooding caused by ice jams along the Big Wood River economic losses are not repetitive.

Magnitude of Extreme Cold Hazard						
Value	**Reconstruction Assistance From**	**Geography (Area) Affected**	**Expected Bodily Harm**	**Loss Estimate Range**	**Population Sheltering Required**	**Warning Lead Times**
1	Family	Parcel	Little to No Injury / No Death	$1000s	No Sheltering	Months
2	City	Block or Group of Parcels	Multiple Injuries with Little to No Medical Care / No Death	$10,000s	Little Sheltering	Weeks
2	County	Section or Numerous Parcels	Major Medical Care Required / Minimal Death	$100,000s	Sheltering Requiring Neighboring Counties Help	Days
4	State	Multiple Sections	Major Injuries / Requires Help from Outside County / A Few Deaths	$1,000,000s	Long Term Sheltering Effort	Hours
8	Federal	County Wide	Massive Casualties / Catastrophic	$10,000,000s	Relocation Required	Minutes

Extreme Cold has a magnitude score of 20.

Frequency of Hazard	
Ranking	**Description**
HIGH	Multiple Times a Year to 5 Years
MEDIUM	5 to 25 Years
LOW	25 Years to Hasn't Happened

Magnitude/Frequency Scoring Rationale

Warning times for extreme cold are subject to the limitations of short-range weather forecasting as provided by the National Weather Service in Pocatello (Warning Lead Times = 2). The geographical areas affected generally would include

the entire County (Geography Affected = 8). Because very cold weather is common during the winter in Blaine County, citizens are prepared; however, deaths due to extreme cold are probable (Bodily Harm = 2). The duration of extreme cold events is generally a few days, but some economic effects, particularly on infrastructure, might be expected depending on seasonal considerations (Economic Loss =2). The extent and severity of extreme cold is generally quite limited but may require some limited relocation or sheltering (Sheltering = 2). Damage due to extreme cold may be to the community at large. (Reconstruction Assistance = 4). The total Magnitude score is, therefore, twenty (20) which, for Blaine County, is in the "High" range. Historical records for extreme cold are available and reliable, and indicate that extreme cold events occur annually in Blaine County (Frequency = High).

Winter Storm

Description

The NWS describes "Winter Storm" as weather conditions that produce heavy snow or significant ice accumulations. For purposes of this analysis Severe Winter Storm is defined as any winter condition where the potential exists for a blizzard (winds >= 35mph and falling/drifting snow frequently reduce visibility < ¼ mile, for 2 hrs or more) heavy snowfall (valleys 6 inches or more snowfall in 24 hrs mountains 9 inches or more snowfall in 24 hrs), ice storm, and/or strong winds.

Historical Frequencies

The following table lists the frequency of heavy snow events (6 inches or more in a 24 hour period) for two weather stations in Blaine County;

Location	No. of Years	No. of Events	Return Interval
Picabo	35	64	.5 years
Ketchum	20	123	.16 years

Table 4.1.4
Heavy Snow Event Frequencies

Severe winter storms happen multiple times every year in Blaine County. The southern part of the county doesn't experience the number of storms that the northern portion does, but winter storms are still prevalent.

Impacts

The impacts of the very cold temperatures that may accompany a severe winter storm are discussed above. Other life threatening impacts are numerous. Motorists may be stranded by road closures or may be trapped in their automobiles in heavy snow and/or low visibility conditions. Bad road conditions cause automobiles to go out of control. People can be trapped in homes or buildings for long periods of time without food, heat and utilities. Those who are ill may be deprived of medical care by being stranded or through loss of utilities and lack of personnel at care facilities. Use of heaters in automobiles and buildings by those who are stranded may result in fires or carbon monoxide poisoning. Fires during winter storm conditions are a particular hazard because fire service response is hindered or prevented by road conditions

and because water supplies may be frozen. Disaster Services may also not be available if telephone service is lost. People who attempt to walk to safety through winter storm conditions often become disoriented and lost. Downed power lines not only deprive the community of electricity for heat and light, but pose an electrocution hazard. Death and injury may also occur if heavy snow accumulation causes roofs to collapse. Fatalities in Idaho due to winter storms are somewhat unusual with ten being reported during the ten year period from 1995 through 2004.

Loss Estimates

Economic impacts arise from numerous sources including: hindered transportation of goods and services, flooding due to burst water pipes, forced closing of businesses, inability of employees to reach the workplace, damage to homes and structures, automobiles and other belongings by downed trees and branches, loss of livestock and vegetation and many others.

Hazard Evaluation

Repetitive Loss - none

Magnitude of Winter Storm Hazard						
Value	**Reconstruction Assistance From**	**Geography (Area) Affected**	**Expected Bodily Harm**	**Loss Estimate Range**	**Population Sheltering Required**	**Warning Lead Times**
1	Family	Parcel	Little to No Injury / No Death	$1000s	No Sheltering	Months
2	City	Block or Group of Parcels	Multiple Injuries with Little to No Medical Care / No Death	$10,000s	Little Sheltering	Weeks
2	County	Section or Numerous Parcels	Major Medical Care Required / Minimal Death	$100,000s	Sheltering Requiring Neighboring Counties Help	Days
4	State	Multiple Sections	Major Injuries / Requires Help from Outside County / A Few Deaths	$1,000,000s	Long Term Sheltering Effort	Hours
8	Federal	County Wide	Massive Casualties / Catastrophic	$10,000,000s	Relocation Required	Minutes

Severe Winter Storms have a magnitude score of 20.

Frequency of Hazard	
Ranking	**Description**
HIGH	Multiple Times a Year to 5 Years
MEDIUM	5 to 25 Years
LOW	25 Years to Hasn't Happened

Magnitude/Frequency Scoring Rationale

Conditions leading winter storms are usually forecast at least 24 hours in advance. (Warning Lead Times =2). In Blaine County, the entire County is vulnerable to winter storms (Geography Affected = 8) and deaths and major injuries are possible (Bodily Harm = 2). The duration of a

winter storm is generally a few days or less and, while Blaine County generally takes harsh winter conditions into account in agricultural practices, losses and business interruptions are possible (Economic Loss = 2). With the closure of major roadways during severe winter storms there is some likelihood of the need to shelter stranded individuals (Sheltering = 4). Winter storms can, in some cases, necessitate somewhat extensive recovery and reconstruction requiring State resources (Reconstruction Assistance = 4). The total Magnitude score is, therefore, twenty (20) which, for Blaine County, is in the "high" range. Historical records for winter storms are available and reliable, indicating that they occur in the annual to five year range in Blaine County (Frequency = High).

Lightning

Description

Lightning is defined by the NWS as, "A visible electrical discharge produced by a thunderstorm. The discharge may occur within or between clouds, between the cloud and air, between a cloud and the ground or between the ground and a cloud." A lightning discharge may be over five miles in length, generate temperatures upwards of 50,000^{o}F, and carry 50,000 volts of electrical potential. Lightning is most often associated with thunderstorm clouds but lightning can strike as far as five to ten miles from a storm. Thunder is caused by the rapid expansion of air heated by a lightning strike. Cloud-to-ground lightning strikes occur with much less frequency in the northwestern U.S. than in other parts of the country.

Historical Frequencies

There are thousands of lightning strikes that occur in Blaine County in any given year, but only small percentage cause damage. Table 4.1.5 shows the number of lightning strikes that have caused wildland fires over a 19 year period. According to the historical frequency of this record one can expect at least 12 lightning caused fires per year.

Wildland Fires Caused by Lightning (1983-2002)			
Cause	**Number of Fires**	**Years in Record**	**Return Interval**
Lightning	232	19	.08 years 12.2 Fires/Yr

Table 4.1.5
Wildfires Caused by Lightning

Impacts

Lightning is the second most deadly weather phenomenon in the U.S., being second only to floods. On average, sixty to seventy deaths per year are attributed to lightning nationally and in Idaho the average is less than one per year. Despite the enormous energy carried by lightning, only about 10% of strikes are fatal. Injuries include central nervous system damage, burns, cardiac effects, hearing loss, and trauma. The effects of central nervous system injures tend to be long-lasting and severe, leading to such disorders as depression, alcoholism, and chronic fatigue and in some cases to suicide. Lightning also strikes structures causing fires and damaging electrical equipment. Wildland fires are often initiated by lightning strikes as are petroleum storage tank fires. About one third of all power outages are lightning-related.

Loss Estimates

The magnitude of economic losses is difficult to estimate. Government figures suggest annual national costs at around $30 million but some researchers find evidence that losses may be in the billions of dollars.

Hazard Evaluation

Repetitive Loss - none

Magnitude of Lightning Hazard						
Value	**Reconstruction Assistance From**	**Geography (Area) Affected**	**Expected Bodily Harm**	**Loss Estimate Range**	**Population Sheltering Required**	**Warning Lead Times**
1	Family	Parcel	Little to No Injury / No Death	$1000s	No Sheltering	Months
2	City	Block or Group of Parcels	Multiple Injuries with Little to No Medical Care / No Death	$10,000s	Little Sheltering	Weeks
2	County	Section or Numerous Parcels	Major Medical Care Required / Minimal Death	$100,000s	Sheltering Requiring Neighboring Counties Help	Days
4	State	Multiple Sections	Major Injuries / Requires Help from Outside County / A Few Deaths	$1,000,000s	Long Term Sheltering Effort	Hours
8	Federal	County Wide	Massive Casualties / Catastrophic	$10,000,000s	Relocation Required	Minutes

Lightning has a magnitude score of 10.

Frequency of Hazard	
Ranking	**Description**
HIGH	Multiple Times a Year to 5 Years
MEDIUM	5 to 25 Years
LOW	25 Years to Hasn't Happened

Magnitude/Frequency Scoring Rationale

Conditions leading lightning may arise quickly and unpredictably but the NWS usually predicts the occurrence with hours (Warning Lead Times =4). Lightning strikes are highly localized in Blaine County (Geography Affected = 1) and fatalities and injuries are rare (Bodily Harm = 1). Economic loss due to lightning is usually limited to a single structure (Economic Loss = 1). There is no need for public sheltering (Shelter = 1) and government resources are not available for reconstruction (Reconstruction Assistance = 1). The total Magnitude score is, therefore, ten (10) which, for Blaine County, is in the "Low" range. Historical records for lightning strikes are available and reliable, indicating that lightning events occur relatively frequently in Blaine County (Frequency = High).

Hail

Description

The NWS definition of "hail" is: Showery precipitation in the form of irregular pellets or balls of ice more than 5 mm in diameter, falling from a cumulonimbus cloud. Its size can vary from the defined minimum, a little over a quarter of an inch, up to 4.5 inches or larger. "Severe hail" is defined as being 0.75 inches or more in diameter. The largest hailstones are formed in supercell thunderstorms because of their sustained updrafts and long duration. Hail and severe hail are relatively uncommon in Idaho. In the ten year period from 1986 to 1995 the national weather service recorded severe hail in Idaho on 113 occasions while in the same time period severe hail was recorded in Colorado nearly 1,400 times.[19]

Historical Frequencies

The following table details damaging hail events recorded by the National Weather Service from 1960 – 2005. There have been 5 events recorded over a 45 year period. The historical frequency is 0.11. There is an 11% chance that in a given year there will be a damaging hail event, or 1 event every 9 years.

Place	Date	Time	Event	Magnitude	Reported Damage
Blaine County	8/23/1975	1730	Hail	1.00 in.	Unk
Blaine County	8/14/1979	1400	Hail	1.75 in.	Unk
Blaine County	5/17/1991	1300	Hail	0.75 in.	Unk
Hailey	7/6/1995	1450	Hail	0.75 in.	Unk
Blaine County	7/6/1995	1600	Hail	0.75 in.	Unk

Table 4.1.6
Blaine County Hail Events

[19] http://www.ems.psu.edu/~nese/ch9web.htm

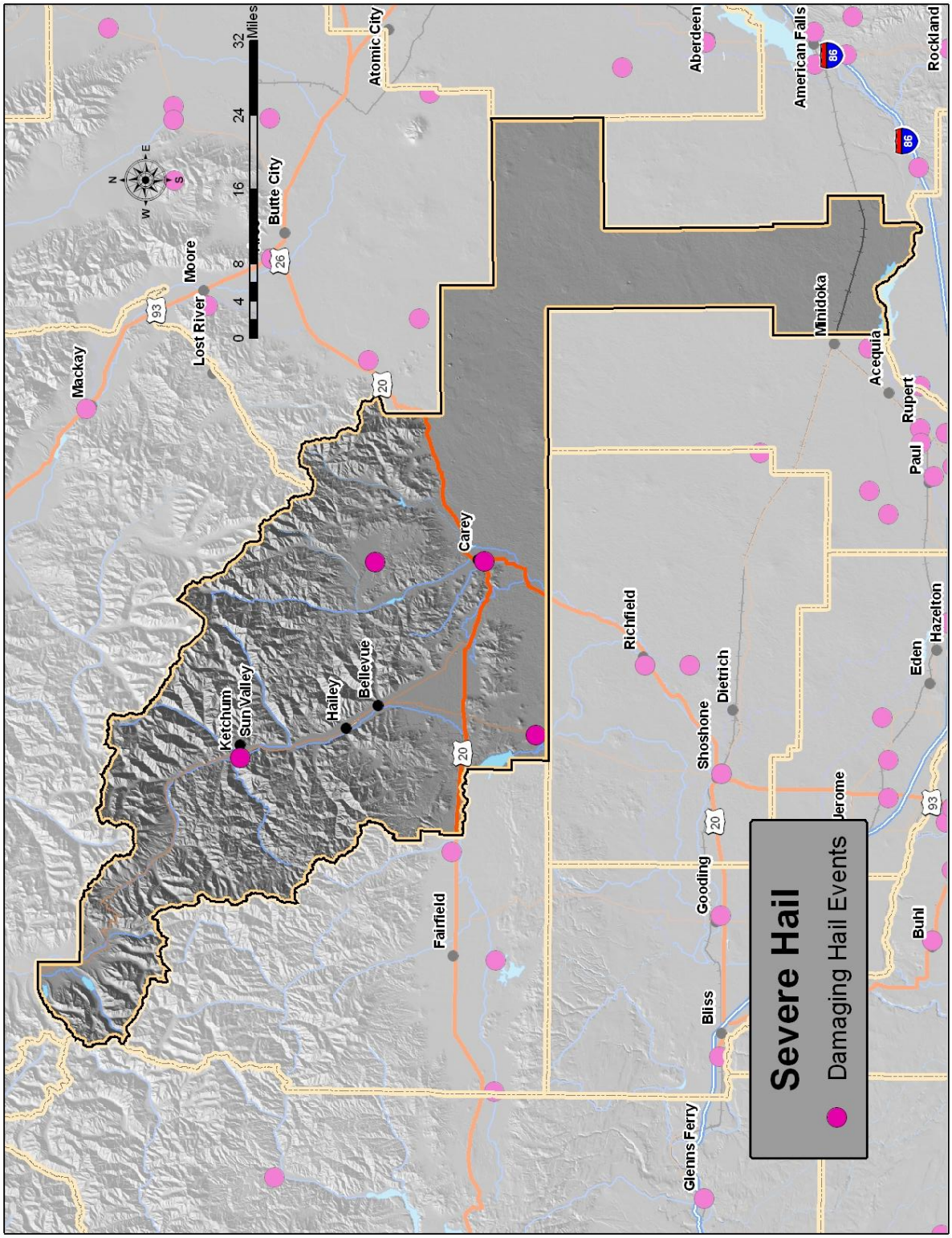


Figure 4.1.10
Blaine County Severe Hail Map

Impacts

Deaths and injuries do happen but are rare.

Loss Estimates

Economic loss can be extensive, especially to agricultural based economies. Hail is very damaging to crops. Severe hail may cause extensive property damage including damage to vehicle paint and bodywork, glass, shingles and roofs, plastic surfaces, etc. Hail loss nationally is estimated at over one billion dollars annually.

Hazard Evaluation

Repetitive Loss - none

Magnitude of Hail Hazard						
Value	**Reconstruction Assistance From**	**Geography (Area) Affected**	**Expected Bodily Harm**	**Loss Estimate Range**	**Population Sheltering Required**	**Warning Lead Times**
1	Family	Parcel	Little to No Injury / No Death	$1000s	No Sheltering	Months
2	City	Block or Group of Parcels	Multiple Injuries with Little to No Medical Care / No Death	$10,000s	Little Sheltering	Weeks
2	County	Section or Numerous Parcels	Major Medical Care Required / Minimal Death	$100,000s	Sheltering Requiring Neighboring Counties Help	Days
4	State	Multiple Sections	Major Injuries / Requires Help from Outside County / A Few Deaths	$1,000,000s	Long Term Sheltering Effort	Hours
8	Federal	County Wide	Massive Casualties / Catastrophic	$10,000,000s	Relocation Required	Minutes

Frequency of Hazard	
Ranking	**Description**
HIGH	Multiple Times a Year to 5 Years
MEDIUM	5 to 25 Years
LOW	25 Years to Hasn't Happened

Hail has a magnitude score of 11.

Magnitude/Frequency Scoring Rationale

Conditions leading to hail may arise quickly but the NWS can usually predict and provide a few hours warning for this kind of storm (Warning Lead Times = 4). Hail events are relatively localized (Geography Affected = 2) and when they occur, fatalities are very rare and injuries uncommon (Bodily Harm = 1). Economic loss due to hail has not been extensive in Blaine County (Economic Loss = 2), and reconstruction resources are generally left to individuals and families (Reconstruction Assistance = 1). There is no need for public sheltering (Shelter = 1). The total Magnitude score is, therefore, eleven (11) which, for Blaine County, is in the "Low" range. Historical records for hail storms are available

and reliable, indicating that such events occur in the five to twenty-five year frequently in Blaine County (Frequency = Medium).

Tornado

Description

The NWS describes tornado as, "a violently rotating column of air, usually pendant to a cumulonimbus, with circulation reaching the ground. It nearly always starts as a funnel cloud and may be accompanied by a loud roaring noise. On a local scale, it is the most destructive of all atmospheric phenomena." Like hail, most tornadoes are spawned by supercell thunderstorms. They usually last only a few minutes, although some have lasted more than an hour and traveled several miles. Wind speeds within tornadoes are estimated based on the damage caused and expressed using the Enhanced Fujita (EF) Scale (Table 4.1.10)

F scale	Class	Wind speed		Description
		mph	km/h	
F0	weak	65-85	105-137	Gale
F1	weak	86-110	138-177	Moderate
F2	strong	111-135	178-217	Significant
F3	strong	136-165	218-266	Severe
F4	violent	166-200	267-322	Devastating
F5	violent	> 200	> 322	Incredible

Table 4.1.10
Enhanced Fujita (EF) Scale for Estimation of Tornado Wind Speeds
http://www.srh.noaa.gov/srh/jetstream/mesoscale/tornado.htm

Historical Frequencies

The Table 4.1.11 below lists recorded Tornado and funnel cloud events in Blaine County. There have been 7 recorded tornado, or funnel cloud, events in Blaine County from 1957-2007. The probability of a tornado event in any given year is 14% or one tornado every 7.14 years.

Location	Date	Time	Event	Magnitude	Reported Damage
Blaine County	7/7/1988	1530	Tornado	F0	0
Blaine County	5/18/1991	1625	Tornado	F0	0
Magic Reservoir	6/5/1995	1839	Tornado	F0	0
Carey	6/8/1995	2130	Funnel Cloud	N/A	0
Carey	5/5/2005	6:47 PM	Tornado	F0	9K
Carey	5/5/2005	6:51 PM	Tornado	F0	110K
Picabo	10/4/2006	15:36 PM	Tornado	F0	0

Table 4.1.11
Blaine County Tornado Events

Funnel Clouds are associated with a rotating column of air extending from the base of a cloud. If a funnel cloud touches the ground it becomes a tornado. For this reason funnel cloud events were included in the frequency table.

Idaho has relatively few tornadoes, averaging three reported per year between 1953 and 2004. Tornadoes of F2 strength or greater are extremely rare in Idaho.

The following map in Figure 4.1.10 shows the density of reported tornadoes over the past 50 years. There is a hotspot for tornadoes just to the west of Carey. This is the area within the County that is most susceptible to tornadoes.

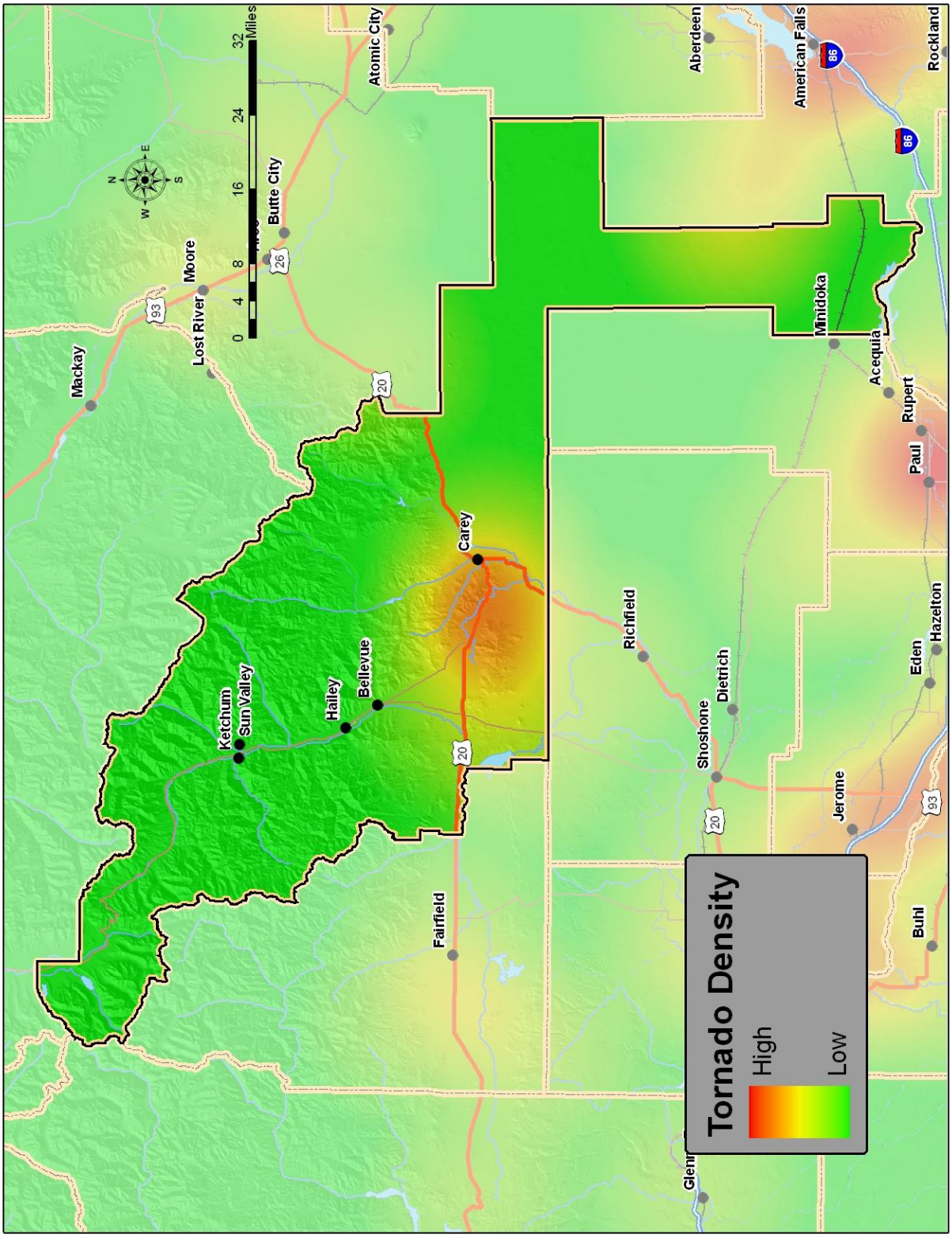


Figure 4.1.10
Blaine County Tornado Events Map

Impacts

Loss of utilities (primarily due to fallen trees) is common following tornadoes and, depending on circumstances, communities might be deprived of almost any kind of goods and services including food, water and medical care. Agriculturally, crop and livestock loss is also possible as is loss of timber production.

Loss Estimates

There has been $119,000 reported lost in the community from damage caused by Tornado activity.

Hazard Evaluation

Repetitive Loss - none

Magnitude of Tornado Hazard						
Value	**Reconstruction Assistance From**	**Geography (Area) Affected**	**Expected Bodily Harm**	**Loss Estimate Range**	**Population Sheltering Required**	**Warning Lead Times**
1	Family	Parcel	Little to No Injury / No Death	$1000s	No Sheltering	Months
2	City	Block or Group of Parcels	Multiple Injuries with Little to No Medical Care / No Death	$10,000s	Little Sheltering	Weeks
2	County	Section or Numerous Parcels	Major Medical Care Required / Minimal Death	$100,000s	Sheltering Requiring Neighboring Counties Help	Days
4	State	Multiple Sections	Major Injuries / Requires Help from Outside County / A Few Deaths	$1,000,000s	Long Term Sheltering Effort	Hours
8	Federal	County Wide	Massive Casualties / Catastrophic	$10,000,000s	Relocation Required	Minutes

Tornados have a magnitude score of 14.

Frequency of Hazard	
Ranking	**Description**
HIGH	Multiple Times a Year to 5 Years
MEDIUM	5 to 25 Years
LOW	25 Years to Hasn't Happened

Magnitude/Frequency Scoring Rationale

Conditions leading to tornado events may arise quickly but the NWS can generally predict such storms and provide a few hours warning (Warning Lead Times = 4). The path of a tornado is usually relatively localized (Geography Affected = 2) and, given the historically low F-scale magnitude in Blaine County, fatalities and injuries are unlikely (Bodily Harm = 1). Economic loss due to structural damage is possible (Economic Loss = 4), but only County resources would be required for reconstruction (Reconstruction Assistance = 2). Public Sheltering would not be required for the low-magnitude

events expected in Blaine County (Shelter = 1). The total Magnitude score is, therefore, fourteen (14) which, for Blaine County, is in the "Medium" range. Historical records for tornadoes are available and reliable, indicating that tornadoes occur in the five to twenty-five year range in Blaine County (Frequency = Medium).

Straight Line Winds

Description

The term "straight line wind" is used to describe any wind not associated with rotation, particularly tornadoes. Of concern is "high wind," defined by the NWS as, "Sustained wind speeds of 40 mph or greater lasting for 1 hour or longer, or winds of 58 mph or greater for any duration." Like tornadoes, strong, straight line winds are generated by thunderstorms and they can cause similar damage. Straight line wind speeds can approach 150 mph, equivalent to those in an F3 tornado.

Historical Frequencies

From 1957 to 2007 18 damaging wind events were reported by the National Weather Service. From this data there is a 36% chance of a damaging wind event per year, or an occurrence once every 2.7 years.

The location of these events is clustered to the West of the city of Carey, and along the Highway 77 corridor from Bellevue to Ketchum. This pattern is highlighted in Figure 4.1.11.

Impacts

The impacts of straight line winds are virtually the same as those from tornadoes with similar wind speeds. The damage is distinguishable from that of a tornado only in that the debris is generally deposited in nearly parallel rows. Downbursts are particularly hazardous to aircraft in flight.

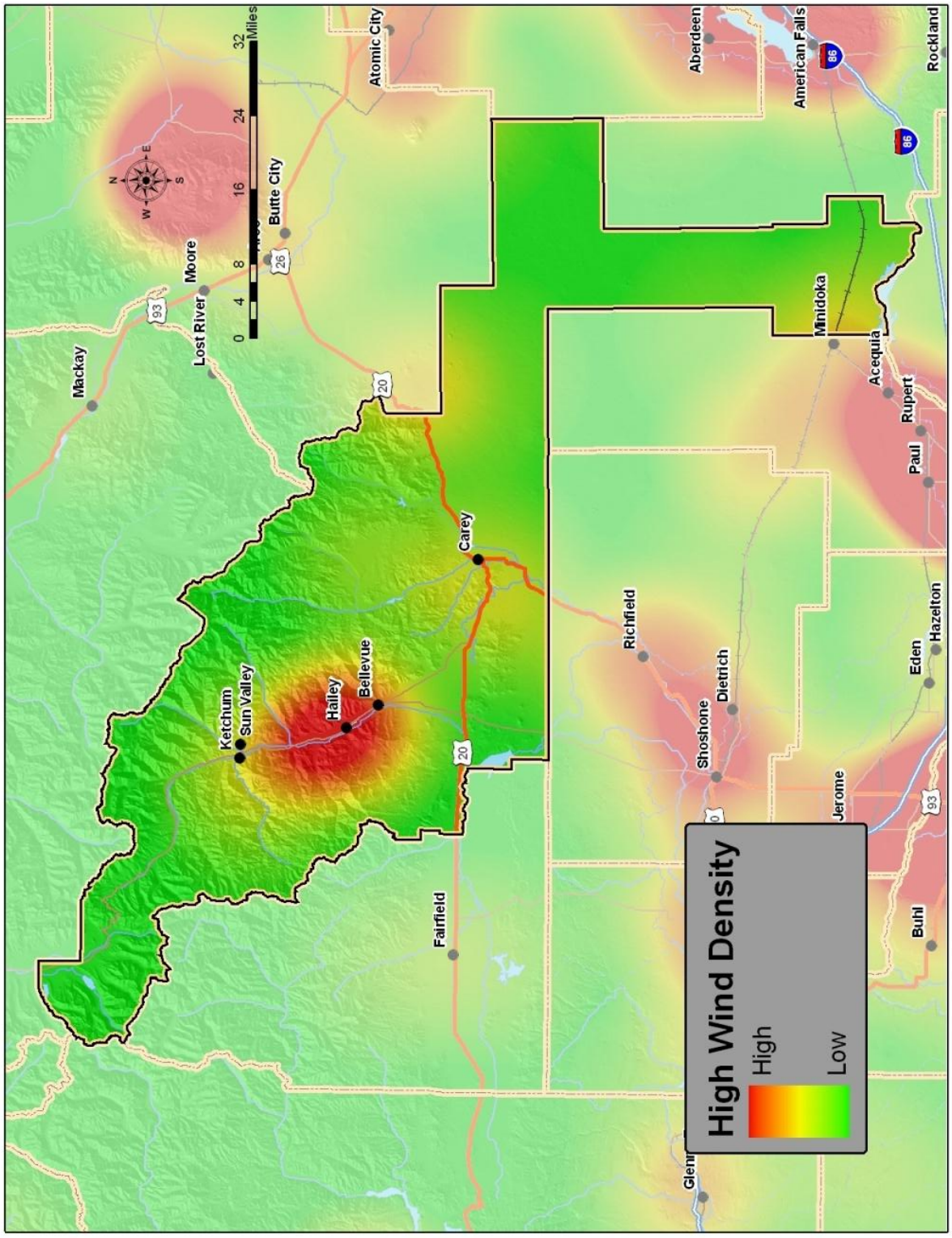


Figure 4.1.12
Blaine County High Wind Event Map

Loss Estimates

Since 1916 there has been some reported damage due to straight line or downburst damage in Blaine County, but no estimates were given.

Hazard Evaluation

Repetitive Loss - none

Magnitude of Straight Line Wind Hazard						
Value	**Reconstruction Assistance From**	**Geography (Area) Affected**	**Expected Bodily Harm**	**Loss Estimate Range**	**Population Sheltering Required**	**Warning Lead Times**
1	Family	Parcel	Little to No Injury / No Death	$1000s	No Sheltering	Months
2	City	Block or Group of Parcels	Multiple Injuries with Little to No Medical Care / No Death	$10,000s	Little Sheltering	Weeks
2	County	Section or Numerous Parcels	Major Medical Care Required / Minimal Death	$100,000s	Sheltering Requiring Neighboring Counties Help	Days
4	State	Multiple Sections	Major Injuries / Requires Help from Outside County / A Few Deaths	$1,000,000s	Long Term Sheltering Effort	Hours
8	Federal	County Wide	Massive Casualties / Catastrophic	$10,000,000s	Relocation Required	Minutes

Straight Line wind has a magnitude score of 11.

Frequency of Hazard	
Ranking	**Description**
HIGH	Multiple Times a Year to 5 Years
MEDIUM	5 to 25 Years
LOW	25 Years to Hasn't Happened

Magnitude/Frequency Scoring Rationale

Conditions leading to straight line winds may arise quickly, but typically have days of warning (Warning Lead Times = 2). As with other thunderstorm-related events geographical area affected is somewhat limited (Geography Affected = 4). Death or injury is rare in Blaine County (Bodily Harm = 1) but some economic loss due to structure damages can occur (Economic Loss = 2). Reconstruction from such damage is left to the individual or family (Reconstruction Assistance = 1). There would be no need for public sheltering (Shelter = 1). The total Magnitude score is, therefore, eleven (11) which, for Blaine County, is in the "Low" range. Historical records for straight line winds are available and reliable, indicating that they occur yearly to several times a year in Blaine County (Frequency = High).

Section 4.2 Flooding

Flooding is defined by NWS as "the inundation of normally dry areas as a result of increased water levels in an established water course." River flooding, the condition where the river rises to overflow its natural banks, may occur due to a number of causes including prolonged, general rainfall, locally intense thunderstorms, snowmelt, and ice jams. In addition to these natural events, there are a number of factors controlled by human activity that may cause or contribute to flooding. These include dam failure, levee failure, and activities that increase the rate and amount of runoff such as paving, reducing ground cover, and clearing forested areas. Flooding is a periodic event along most rivers with the frequency depending on local conditions and controls such as dams and levees. The land along rivers that is identified as being susceptible to flooding is called the floodplain. The Federal standard for floodplain management under the National Flood Insurance Plan (NIFP) is the "100-year floodplain." This area is chosen using historical data such that in any given year there is a one percent chance of a "Base Flood" (also known as "100-year Flood" or "Regulatory Flood"). A Base Flood is one that covers or exceeds the 100-year floodplain. In Idaho, flooding most commonly occurs in the spring of the year and is caused by snowmelt. Floods occur in Idaho every one to two years and are considered the most serious and costly natural hazard affecting the State. In the twenty-five years from 1976 to 2000 there were five Federal and twenty-eight State disaster declarations due to flooding. The amount of damage caused by a flood is influenced by the speed and volume of the water flow, the length of time the impacted area is inundated, the amount of sediment and debris carried and deposited, and the amount of erosion that may take place.

Flooding is a dynamic natural process. Along rivers, streams and coastal bluffs a cycle of erosion and deposition is continuously rearranging and rejuvenating the aquatic and terrestrial systems. Although many plants, animals and insects have evolved to accommodate and take advantage of these ever-changing environments, property and infrastructure damage often occurs when people develop coastal areas and floodplains and natural processes are altered or ignored.

Flooding can also threaten life, safety and health and often results in substantial damage to infrastructure, homes, and other property. The extent of damage caused by a flood depends on the topography, soils and vegetation in an area, the depth and duration of flooding, velocity of flow, rate of rise, and the amount and type of development in the floodplain.

Flood Terminology

A number of flood-related terms are frequently used in this plan and are defined below.

Flood Insurance Study (FIS): A *Flood Insurance Study* is the official report provided by the Federal Insurance Administration, which provides flood profiles, the flood boundary-floodway map, and the water surface elevation of the estimated 100-year base flood.

Flood Insurance Rate Map (FIRM): The Flood Insurance Rate Maps (FIRM) are the official maps on which the Federal Insurance Administration has delineated both the areas of special flood hazards and the risk premium zones applicable to the community.

100-year Base Flood: Base Flood means the flood having a 1% chance of being equaled or exceeded in any given year. (Also referred to as the "100-year flood".)

Floodplain: A floodplain is land adjacent to a lake, river, stream, estuary or other water body that is subject to flooding. If left undisturbed, the floodplain serves to store and discharge excess floodwater. In riverine systems, the floodplain includes the floodway.

Floodway: "Floodway" means the channel of a river or other watercourse and the adjacent areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than one foot.

Types of Flooding

Flooding can occur in a number of ways, and many times are not independent of each other and can occur simultaneously during a flood event: The Types of Flooding considered for this Plan include:

- heavy rainfall;
- urban storm water overflow;
- rapid snowmelt;
- rising ground-water (generally in conjunction with heavy prolonged rainfall and saturated conditions);
- riverine ice jams;
- flash floods;
- fluctuating lake levels;
- alluvial fan flooding

Floodplain Management

Blaine County participates in the National Flood Insurance Program as well as the Cities of Sun Valley, Ketchum, Hailey, Bellevue and Carey.

There are 254 NFIP Policies in the County, with the majority (231) being in the City of Ketchum. The City of Hailey has 116 policies, while Bellevue has 32 and Sun Valley has 27 NFIP Policies in their community. The City of Carey has only two policies. Of the total policies there have been 30 claims paid in the County totaling $134,200. None of these claims were for substantial damage.

The Blaine County Flood Plain Coordinator is the Planning and Zoning Department Administrator. Each of the incorporated communities of Bellevue, Carey, Hailey, Ketchum and Sun Valley has designated floodplain managers/coordinators. All of these are auxiliary duty positions with no Certified Floodplain Manager on staff in any of the jurisdictions.

NFIP administration services in each community include review of building plans against city ordinances and review of surveyor submitted elevation certificates.

All of the communities listed the barriers to running an effective NFIP Program as both limited time and staff, or workload.

Blaine County has no communities within the 100 year flood plain hazard area that is not participating in the NFIP. Blaine County has no communities under suspension or

revocation of participation in the NFIP[20]. The City of Bellevue has not had a Community Assistance Visit (CAV). The City of Hailey's last CAV was in 2006, while Ketchum's most recent CAV was in 2008 and Sun Valley has an annual CAV. There are no CAV's scheduled for Hailey, Ketchum or Sun Valley.

The following table details the participation of jurisdictions in the NFIP. It is noted that there are 2 repetitive loss properties in the City of Hailey.

Figure 4.2.2 NFIP Participation Detail

Community	Number of properties in the community	Date Participating in Regular Phase of NFIP	Participating in CRS (class)	Date of current FIRM	Number of NFIP Policies	Insurance in Force (Total coverge)
Blaine County	24,856	3/16/1981	8	4/20/2000	254	$78,978,500
Bellevue, city of	1,370	8/1/1978	N/A	7/20/1988	32	$9,034,500
Carey, city of	519	3/22/2006	N/A	NBM	2	$455,000
Hailey, city of	4,077	4/17/1978	8	3/17/1997	116	$29,133,600
Ketchum, city of	4,597	6/15/1978	9	3/17/1997	231	$56,956,100
Sun Valley, city of	3,155	4/17/1978	8	3/17/1997	27	$10,637,100

Community	Total Premiums	Number Claims Paid	$ Total Claims Paid	# Substantial Damage Claims	Rep Loss Properties	Severe Rep Loss Properties
Blaine County	$188,777	30	$134,200	0	0	0
Bellevue, city of	$21,633	0	$0	0	0	0
Carey, city of	$633	0	$0	0	0	0
Hailey, city of	$57,255	28	$275,587	0	2	0
Ketchum, city of	$139,397	30	$144,387	0	0	0
Sun Valley, city of	$17,501	2	$55,225	0	0	0

All of the communities in Blaine County have Floodplain Ordinances that exceed the FEMA or State minimum requirements. The City of Bellevue's permitting process includes a FEMA elevation certificate for all structures built or added onto in the floodplain. In the City of Hailey floodplain development permits are included with building permit applications. Applications are reviewed by Engineering, Planning and Building Departments. Floodplain permits are usually issued with conditions. In the City of Ketchum the permitting process includes waterways design review in new development in a floodplain and adjacent to any waterway. The floodplain development permit is required only for development in the floodplain. In Sun Valley the floodplain is completely built out and there will be no more development allowed in the floodplain. Requests to remodel an existing structure within the floodplain would require review as part of the building permit application. Permitting processes and floodplain permits for each of these communities are included in Attachment 5.

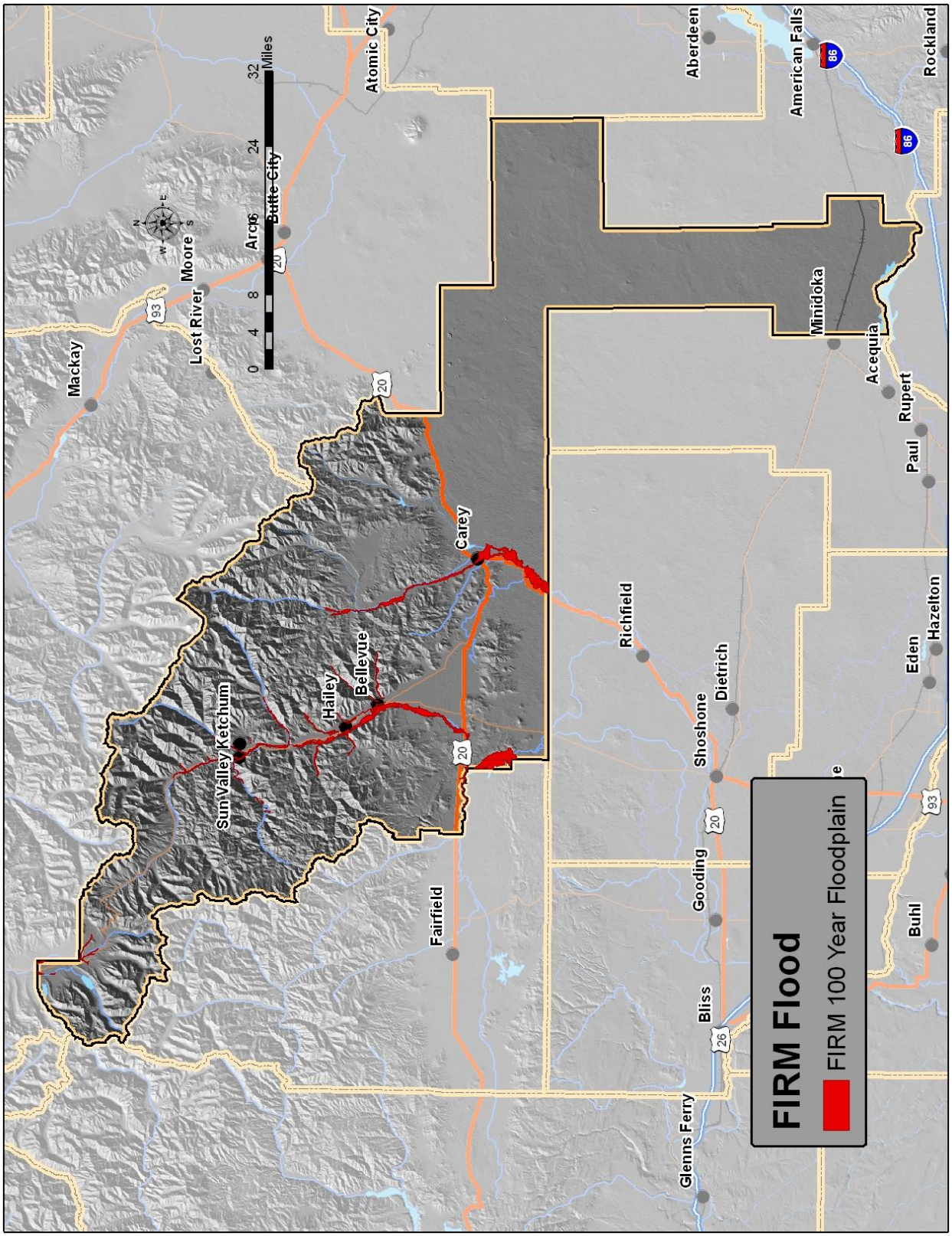
[20] IDWR 2004

An important part of being an NFIP community is the availability of low cost flood insurance for those homes and business within designated floodplains, or in areas that are subject to flooding, but that are not designated as Special Flood Hazard Areas.

As evidenced in the Community Questionnaire, overall participation by individuals and businesses in the NFIP appears to be low. Potential reasons for continuing low participation in the program are:

- Current cost of insurance is prohibitive.
- A lack of knowledge about the existence of the availability of low cost flood insurance.
- Home and business owners unaware of their vulnerability to flood events.

The last two reasons can be addressed through public education. The first could be addressed by all communities in the County taking advantage of the Community Rating System (CRS). The Cities of Hailey, Ketchum, and Sun Valley are participating in the CRS Program, as is Blaine County, while the communities of Bellevue and Carey do not participate. To encourage communities to go beyond the minimum requirements and further prevent and protect against flood damage, the NFIP established the CRS. To qualify for CRS, communities can do things like make building codes more rigorous, maintain drainage systems, and inform residents of flood risk. In exchange for becoming more flood ready, the CRS community's residents are offered discounted premium rates. Based on the community's CRS ratings, they can qualify for up to a 45% discount of annual flood insurance premiums. Improvement in CRS ratings could take place if the jurisdictions would require their floodplain managers to become certified.


FIRM Flood
FIRM 100 Year Floodplain
Miles
0
4
8
16
24
32
Atomic City
Aberdeen
American Falls
Rockland
Butte City
Arco
Moore
Lost River
Mackay
Minidoka
Acequia
Rupert
Paul
Carey
Richfield
Shoshone
Dietrich
Eden
Hazelton
Hailey
Bellevue
Ketchum
Sun Valley
Fairfield
Gooding
Bliss
Buhl
Glenns Ferry
20
26
93
86

Spet

Flash Flood

Description

Flash flood is defined by NWS as, "A rapid and extreme flow of high water into a normally dry area, or a rapid water level rise in a stream or creek above a predetermined flood level, beginning within six hours of the causative event (e.g., intense rainfall, dam failure, ice jam). Ongoing flooding can intensify to flash flooding in cases where intense rainfall results in a rapid surge of rising flood waters." Flash floods differ from floods (discussed below under River Flooding) in the rapidity with which they develop. Floods generally develop over a period of several days, providing more warning time and time for preparation and evacuation. Flash floods occur with little or no warning. They may occur during thunderstorms due to rapid runoff from steep terrain, from areas where the soil is already saturated, or in urban areas where vegetation has been removed and pavement has replaced exposed soil. Flash floods may also arise as the result of dam failure (discussed below) or the breakup of ice jams.

Historical Frequencies

There is a lack of reporting of flash floods. Many times this is due to localized personal damage, rather than a widespread costly disaster. For this reason high precipitation events (.75 inches or more in a 24 hour period) are used for the frequency of potential flash floods. The frequencies for Ketchum and Picabo are captured in the following table. Heavy precipitation events can be expected to occur multiple times in Blaine County each year.

Heavy Precipitation Events			
Location	**No. of Events**	**No. of Years**	**Return Interval**
Ketchum	79	20	3.95 years
Picabo	62	35	1.77 years

Table 4.2.1 Precipitation over 0.75 inches in a 24 hour period

The following figure (Figure 4.2.3) shows the relative flash flood potential for each basin in Blaine County. This map demonstrates an aggregation of soil infiltration rates, slope, landcover, and canopy density.

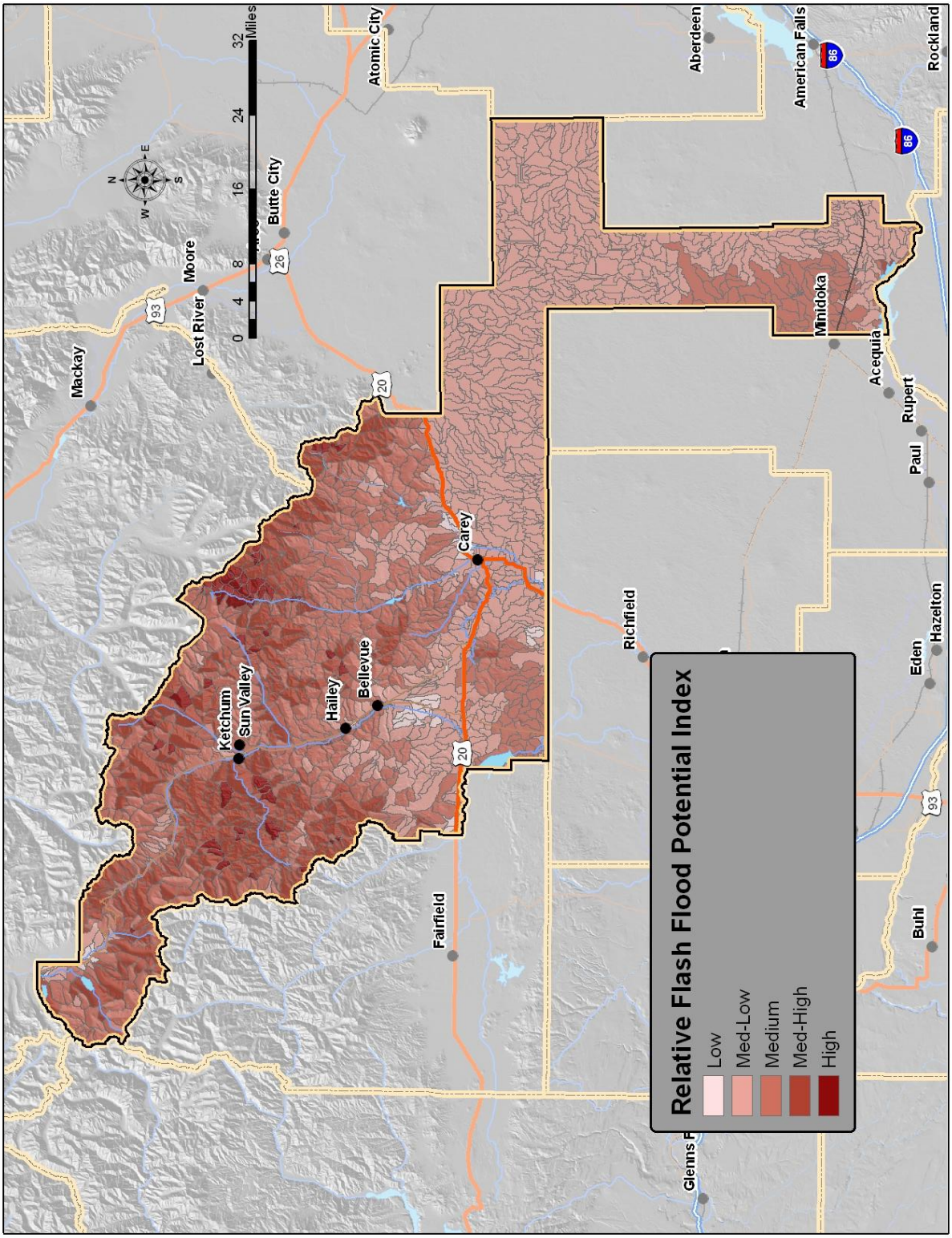


Figure 4.2.3
Relative Flash Flood Potential Index

Impacts

Because flash floods develop so rapidly, people on foot or in automobiles may be stranded or may be swept away and injured or drowned. They are characterized by high velocity water flow and large amounts of debris, both of which cause damage to or destroy structures and other objects in their path. Other impacts are discussed below under River Flooding.

Loss Estimates

A GIS overlay operation was used to determine the number and value of land parcels that lie within basins with a medium-high to high flash flood potential. The following table represents the results of that analysis:

Hazard	No of Parcels Affected	Value of Affected Parcels
Flash Flood	3,687	1,168,953,895

Hazard Evaluation

Repetitive Loss - none

Magnitude of Flash Flood Hazard						
Value	**Reconstruction Assistance From**	**Geography (Area) Affected**	**Expected Bodily Harm**	**Loss Estimate Range**	**Population Sheltering Required**	**Warning Lead Times**
1	Family	Parcel	Little to No Injury / No Death	$1000s	No Sheltering	Months
2	City	Block or Group of Parcels	Multiple Injuries with Little to No Medical Care / No Death	$10,000s	Little Sheltering	Weeks
2	County	Section or Numerous Parcels	Major Medical Care Required / Minimal Death	$100,000s	Sheltering Requiring Neighboring Counties Help	Days
4	State	Multiple Sections	Major Injuries / Requires Help from Outside County / A Few Deaths	$1,000,000s	Long Term Sheltering Effort	Hours
8	Federal	County Wide	Massive Casualties / Catastrophic	$10,000,000s	Relocation Required	Minutes

Flash Flood has a magnitude score of 17.

Frequency of Hazard	
Ranking	**Description**
HIGH	Multiple Times a Year to 5 Years
MEDIUM	5 to 25 Years
LOW	25 Years to Hasn't Happened

Magnitude/Frequency Scoring Rationale

Conditions leading to flash flooding may arise quickly but NWS forecasts usually provide a few hours warning. (Warning Lead Times =

4). The vulnerability to flash flooding in Blaine County is reasonably limited (Geography Affected = 4). Fatalities and injuries are improbable (Bodily Harm = 3) but significant economic loss due to structural damage is possible (Economic Loss = 4) and may be extensive enough to require County resources for reconstruction (Reconstruction Assistance = 2). Limited public sheltering would be required (Shelter = 2). The total Magnitude score is, therefore, seventeen (17) which, for Blaine County, is in the "Medium" range. Historical records for flash flooding are available and reliable, indicating that flash floods occur rather frequently in Blaine County (Frequency = High).

River or Stream Flooding

Description

River flooding, the condition where the river rises to overflow its natural banks, may occur due to a number of causes including prolonged, general rainfall, locally intense thunderstorms, snowmelt, and ice jams.

Historical Frequencies

The National Weather Service recognized flood level for the Little Wood River at Carey is 1,500 cubic feet per second (cfs). The USGS stream gage at that location has recorded 39 days in which the flow has reached or exceeded flood stage. Table 4.2.2 shows the duration of each flood event at Carey. Though there has been 39 days in which a flood occurred, there have only been 6 actual flood events of varying durations.

Year	Month	Duration (Days)
1938	April	12
1943	May	4
1952	April	13
1958	May	2
1983	June	4
2005	May	4

Table 4.2.2
Flood Event Durations for Carey

The NWS recognized flood level for the Big Wood River at Hailey is 3,500 cfs. The USGS stream gage at that location has recorded 169 days in which the flow has reached or exceeded flood stage. Table 4.2.3 shows the duration of each flood event at Hailey. There have been 23 recorded flood events.

Year	Duration (Days)
1917	1
1921	4
1922	2
1938	13
1943	1
1952	2

Year	Duration (Days)
1956	12
1957	4
1958	11
1965	8
1967	6
1969	10
1972	7
1974	10
1982	11
1983	19
1984	1
1986	9
1995	7
1997	14
2003	2
2005	1
2006	15

Table 4.2.3
Flood Event Duration for Hailey

Table 4.2.4 below shows the calculated flood frequencies for the Little and Big Wood Rivers. There is a 7% chance each year that the Little Wood River will flood at Carey, and a 26% chance that the Big Wood River will flood at Hailey. Hailey can expect one event at least every four years and Carey can expect an event every 13.5 years.

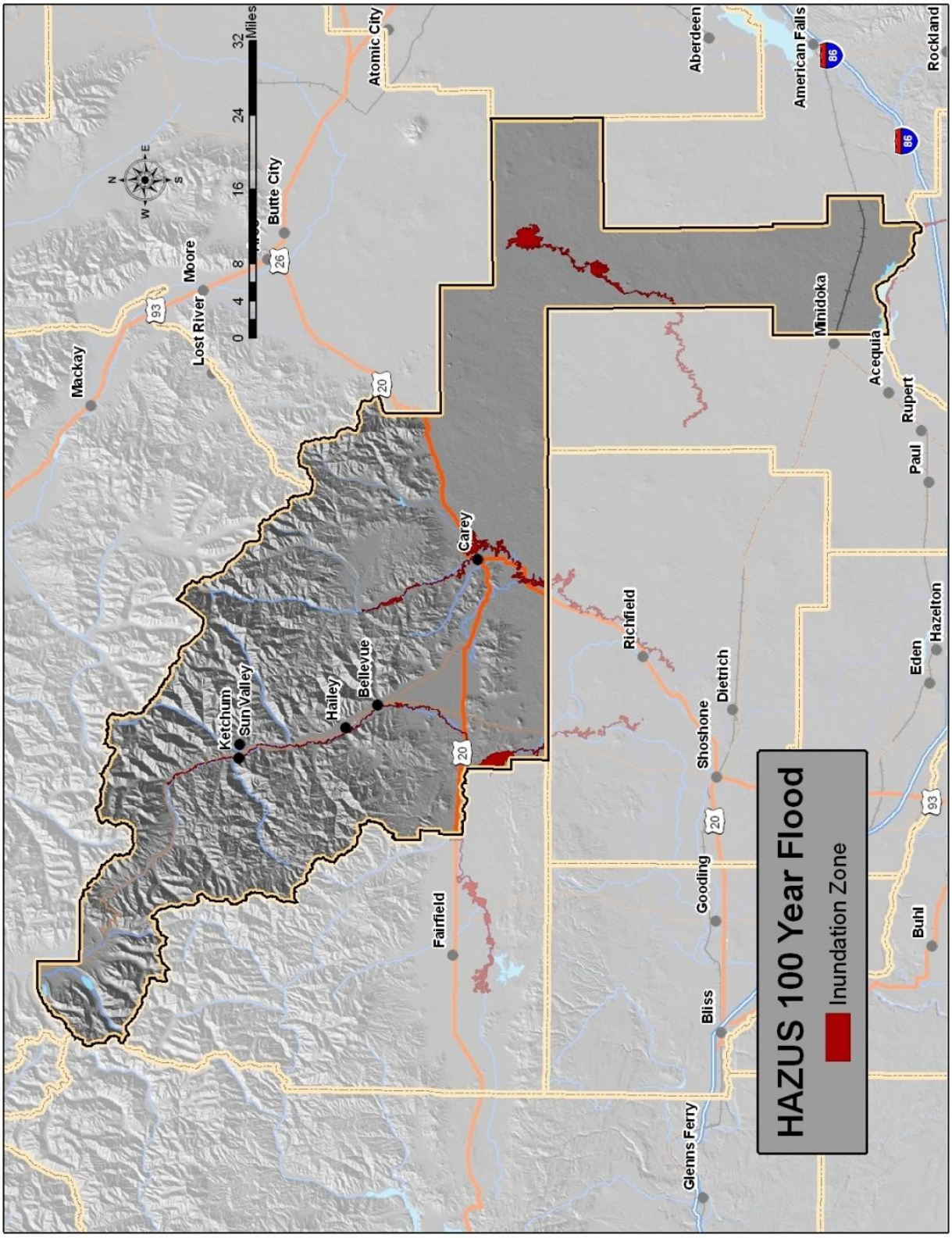


Figure 4.2.4
HAZUS 100 Year Floodplain

Flood Events			
Location	**No. of Events**	**No. of Years**	**Return Interval**
Carey (Little Wood River)	6	82	13.7 Years
Hailey (Big Wood River)	23	89	3.9 Years

Table 4.2.4 Flood Events

Impacts

Human death and injury sometimes occur as a result of river flooding but are not common. Human hazards during flooding include drowning, electrocution due to downed power lines, leaking gas lines, fires and explosions, hazardous chemicals and displaced wildlife. Economic loss and disruption of social systems are often enormous. Floods may destroy or damage structures, furnishings, business assets including records, crops, livestock, roads and highways, and railways. They often deprive large areas of electric service, potable water supplies, wastewater treatment, communications, and many other community services including medical care, and may do so for long periods of time.

Loss Estimates

A GIS overlay operation was used to determine the number and value of land parcels that lie within the HAZUS 100 year floodplain. The following table represents the results of that analysis:

Hazard	No of Parcels Affected	Value of Affected Parcels
Flood	1,226	$787,282,261

Based on a 2 foot average flood depth in the total HAZUS floodplain the loss for structures would be ~ $157,456,400. The loss to contents would be ~ $236,184,600 for a total loss estimate of ~ $393,641,000.

Hazard Evaluation

Repetitive Loss –City of Hailey has two repetitive flood loss properties.

Magnitude of River Flooding Hazard						
Value	**Reconstruction Assistance From**	**Geography (Area) Affected**	**Expected Bodily Harm**	**Loss Estimate Range**	**Population Sheltering Required**	**Warning Lead Times**
1	Family	Parcel	Little to No Injury / No Death	$1000s	No Sheltering	Months
2	City	Block or Group of Parcels	Multiple Injuries with Little to No Medical Care / No Death	$10,000s	Little Sheltering	Weeks
2	County	Section or Numerous Parcels	Major Medical Care Required / Minimal Death	$100,000s	Sheltering Requiring Neighboring Counties Help	Days
4	State	Multiple Sections	Major Injuries / Requires Help from Outside County / A Few Deaths	$1,000,000s	Long Term Sheltering Effort	Hours
8	Federal	County Wide	Massive Casualties / Catastrophic	$10,000,000s	Relocation Required	Minutes

Flooding has a magnitude score of 25

Frequency of River Flooding Hazard	
Ranking	**Description**
HIGH	Multiple Times a Year to 5 Years
MEDIUM	5 to 25 Years
LOW	25 Years to Hasn't Happened

Magnitude/Frequency Scoring Rationale
Conditions leading to river/stream flooding usually develop over a period of days (Warning Lead Times = 2). In Blaine County, such flooding is usually fairly localized, (Geography Affected = 4) and is expected not to cause death or injury (Bodily Harm = 1). Extreme economic loss may be expected from river/stream flooding (Economic Loss = 8) and recovery is managed at the Federal level (Reconstruction Assistance = 8). Some public sheltering would be required (Shelter = 2). The total Magnitude score is, therefore, twenty-five (25) which, for Blaine County, is in the "High" range. Historical records for river/stream flooding are available and reliable, indicating that flooding occurs frequently within Blaine County (Frequency = Medium).

Dam Failure

Description

Dam failure is the unintended release of impounded waters. Dams can fail for one or a combination of the following reasons:

- Overtopping caused by floods that exceed the capacity of the dam.
- Deliberate acts of sabotage.
- Structural failure of materials used in dam construction.
- Poor design and/or construction methods.

- Movement and/or failure of the foundation supporting the dam.
- Settlement and cracking of concrete or embankment dams.
- Piping and internal erosion of soil in embankment dams.
- Inadequate maintenance and upkeep.

Failures may be categorized into two types; component failure of a structure that does not result in a significant reservoir release, and uncontrolled breach failure that lead to a significant release. With an uncontrolled breach failure of a manmade dam there is a sudden release of the impounded water, sometimes with little warning. The ensuing flood wave and flooding have enormous destructive power. The Idaho Department of Water Resources (IDWR) is responsible for dam safety in this State. The program is described as follows (from the "Dam Safety Program," IDWR web site)[21].

Dams 10 feet or higher or which store more than 50 acre feet of water are regulated by the Idaho Department of Water Resources (as are mine tailings impoundment structures). Idaho currently has 546 water storage dams and 21 mine tailings structures that are regulated by IDWR for safety. The Dam Safety Section inspects these dams or tailing structures every other year unless one has a particular problem. Copies of all inspection reports for each of the dams and tailing structures are available at the IDWR State Office in Boise. Inspection reports are also available at the four IDWR Regional Offices for dams and tailing structures located in their specific regions.

Dam Classifications

Each dam inspected by Idaho Water Resources is given both a size and risk classification.

Size Classification

Small – 3: Twenty (20) feet high or less and a storage capacity of less than one hundred (100) acre feet of water.

Intermediate – 2: More than twenty (20) but less than forty (40) feet high or with a storage capacity of one hundred (100) to four thousand (4,000) acre feet of water.

Large – 1: Forty (40) feet high or more or with a storage capacity of more than four thousand (4,000) acre feet of water.

Risk Classification

This classification is used by IDWR to classify potential losses and damages anticipated in down-stream areas that could be attributable to failure of a dam during typical flow conditions.

Low Risk – 3: No permanent structures for human habitation; Minor damage to land, crops, agricultural, commercial or industrial facilities, transportation, utilities or other public facilities or values.

Significant Risk – 2: No concentrated urban development, one (1) or more permanent structures for human habitation which are potentially inundated with flood water at a depth of two (2) ft. or less or at a velocity of two (2) ft. per second or less. Significant damage to land, crops, agricultural, commercial or industrial facilities, loss of use and/or damage to transportation, utilities or other public facilities or values.

[21] http://www.idwr.state.id.us/water/stream_dam/dams/dams.htm

High Risk – 1: Urban development, or any permanent structure for human habitation which are potentially inundated with flood water at a depth of more than two (2) ft., or at a velocity of more than two (2) ft. per second. Major damage to land, crops, agricultural, commercial or industrial facilities, loss of use and/or damage to transportation, utilities or other public facilities or values.

Purposes Categories:

N-Industrial, B-Mining, O-Other, C-Commercial, P-Power, D-Domestic, Q-Fire Protection, E-Erosion Control, F-Flood Control, S-Stockwater, G-Wildlife Protection, T-Mine Tailings, H-Fish Propagation, I-Irrigation, J-Stockwater and Irrigation, K-Domestic, Stock and Irrigation, L-Domestic and Irrigation, M-Municipal Supply

Dam Type

Earth- Earth Fill, Rock- Rock Filled, CNGRV- Concrete Gravity, CNAR-Concrete Arch, MCNAR-Multiple Concrete Arch, TMCRB-Timber Crib, SLBT-lab and Buttress, RKMAS-Rock Masonry, Metal-Metal Sheet Pile, AUXDAM-Auxillary Dam

Name	Stream	Purpose	Risk Category	Size Category	Type	Storage Capacity (Acre Ft.)	Height (Ft.)
Trail Creek	Trail Creek	HR	1	3	TMCRB	81	18
Stanislaw Waterski Lake	Big Wood River (OS)	IR	2	3	EARTH	70	10
Magic	Big Wood River	IP	1	1	EARTH	191,500	113
Campbell	TR-Little Wood River	J	3	2	EARTH	550	13.3
Sonner	Canyon Creek	SG	3	2	EARTH	300	7
Little Wood	Little Wood River	I	1	1	EARTH	30,000	117
Quigley Creek	Quigley Creek	I	3	3	EARTH	20	12
Gimlet	TR-Big Wood River	A	2	3	EARTH	16	19.9
Indian Creek	Indian Creek	I	2	3	EARTH	19	14
Fish Creek	Fish Creek	I	1	1	MCNAR	12,743	88

Table 4.2.5
Dams in Blaine County
Source http://www.idwr.idaho.gov/water/stream_dam/dams/Dams.pdf

Historical Frequencies

There has been one recorded dam failure in Blaine County. On April 26, 1982 two small earthen dams collapsed under high spring runoff, flooding the area around Carey with two feet of water. 100 acres of farmland and over 24 homes and businesses were flooded, and bridge abutments

had to be shored up after floodwaters ate away part of the stream bank[22]. It is also reported that the Quigley Dam failed in the early to mid 1960's which impacted the City of Ketchum; losses were not given for the event[23].

Impacts

A failure of Little Wood River Dam would cause flooding in the Carey area.

Loss Estimates

A failure on the Little Wood River Dam would have devastating consequences in Blaine County and the City of Carey. According to the Bureau of Reclamation maps there would only be 1.6 hours of warning time before the first flood wave reached the City of Carey. The following loss estimates were derived from a GIS overlay of the inundation zone and the County parcel layer. There is a total of 823 land parcels in the inundation zone with a combined market value of $77,623,161.

Assuming a 2 foot average flood depth the loss to structures in the inundation zone would be $15,524,600 the contents loss would be $23,286,900 for a total estimated loss of $38,811,500.

A failure of the Magic Reservoir Dam would have minimal consequences in Blaine County, but would greatly impact neighboring counties. Only two private parcels are located in the inundation zone. The following loss estimates were derived from a GIS overlay of the inundation zone and the County parcel layer. There is a total of 12 land parcels in the inundation zone with a combined market value of $190,420.

Assuming a 2 foot average flood depth the loss to structures in the inundation zone would be $38,084 the contents loss would be $57,126 for a total estimated loss of $95,210.

[22] Idaho Statesman 3/1/1986
[23] Recollection by the P&Z Administrator.

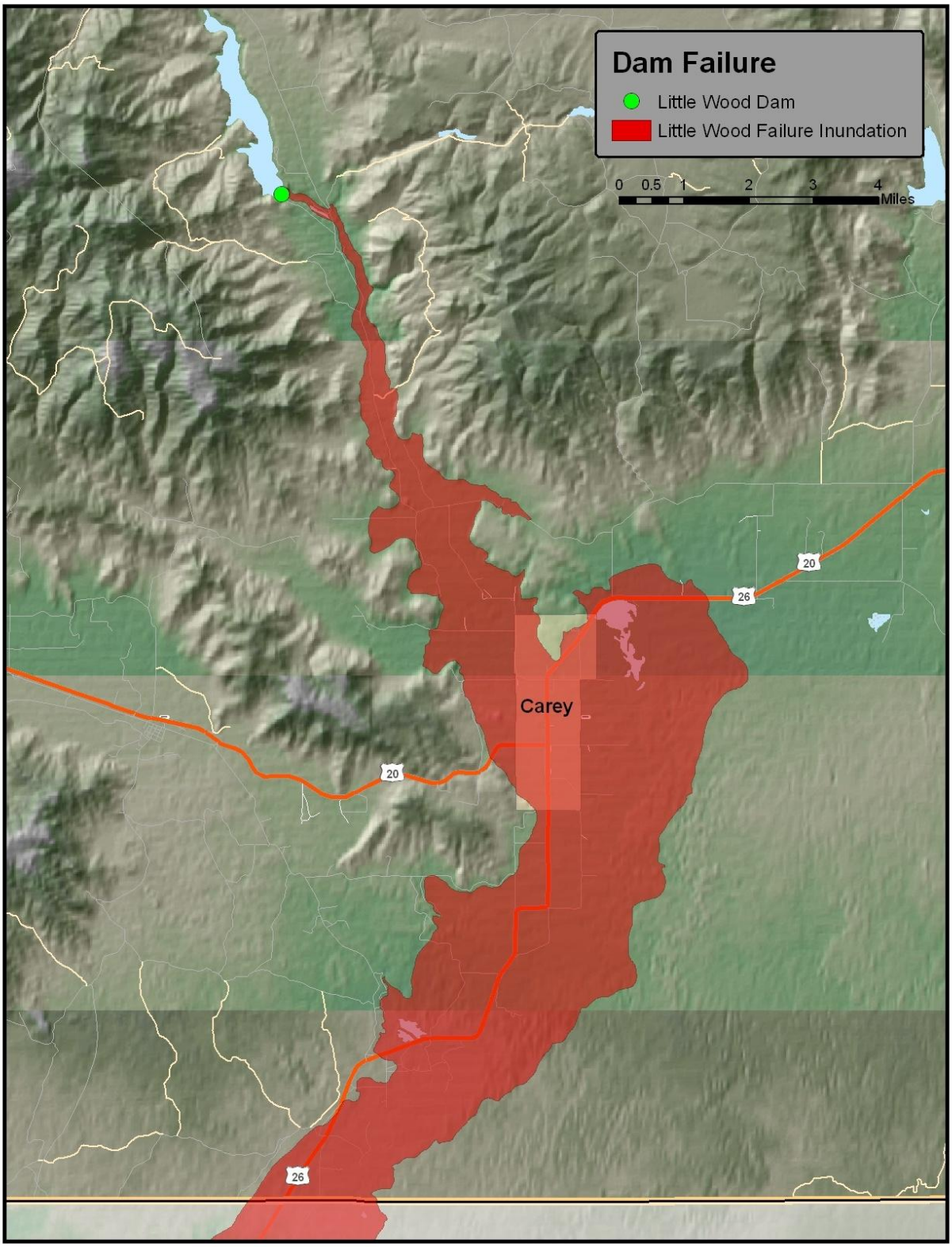


Figure 4.2.5
Little Wood Dam Failure Inundation Map

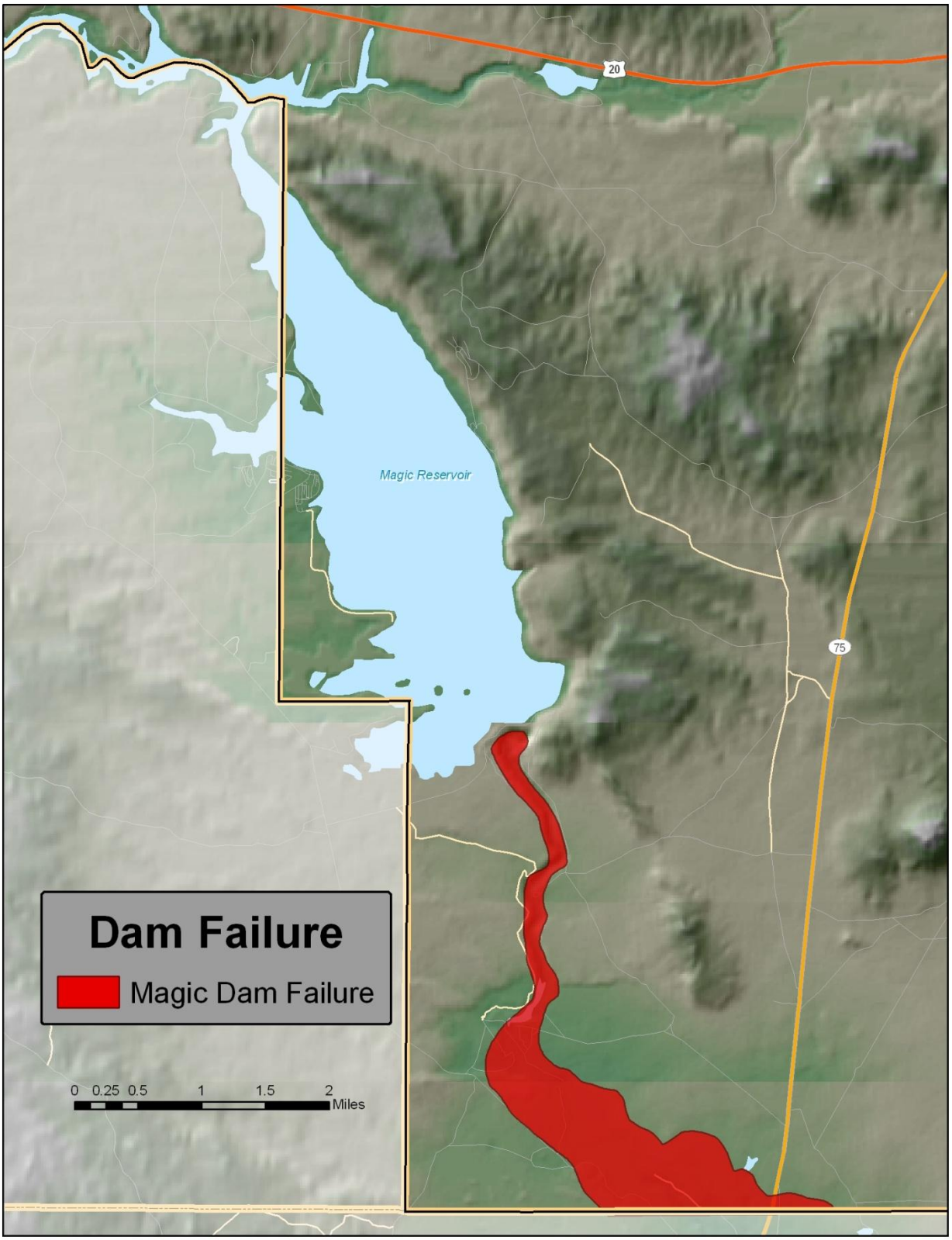


Figure 4.2.6
Magic Dam Failure Inundation Map

Hazard Evaluation

Repetitive Loss - none

Magnitude of Dam Failure Hazard						
Value	**Reconstruction Assistance From**	**Geography (Area) Affected**	**Expected Bodily Harm**	**Loss Estimate Range**	**Population Sheltering Required**	**Warning Lead Times**
1	Family	Parcel	Little to No Injury / No Death	$1000s	No Sheltering	Months
2	City	Block or Group of Parcels	Multiple Injuries with Little to No Medical Care / No Death	$10,000s	Little Sheltering	Weeks
2	County	Section or Numerous Parcels	Major Medical Care Required / Minimal Death	$100,000s	Sheltering Requiring Neighboring Counties Help	Days
4	State	Multiple Sections	Major Injuries / Requires Help from Outside County / A Few Deaths	$1,000,000s	Long Term Sheltering Effort	Hours
8	Federal	County Wide	Massive Casualties / Catastrophic	$10,000,000s	Relocation Required	Minutes

Dam Failure has a magnitude score of 36

Frequency of Hazard	
Ranking	**Description**
HIGH	Multiple Times a Year to 5 Years
MEDIUM	5 to 25 Years
LOW	25 Years to Hasn't Happened

Magnitude/Frequency Scoring Rationale

Warning time for dam failure is generally relatively short and, in the case of a Little Wood dam failure would be only a matter of minutes (Warning Lead Times = 8). Multiple sections would be vulnerable (Geography Affected = 4) and, because of this widespread vulnerability, deaths and serious injuries would be expected (Bodily Harm = 4) along with extensive economic loss (Economic Loss = 8). Federal level reconstruction assistance would be required (Reconstruction Assistance = 8), as would long term sheltering of large populations, at least during the rebuilding phase of the recovery (Shelter = 4). The total Magnitude score is, therefore, thirty-six (36) which, for Blaine County, is in the "High" range. Historical records for dam failure are available and reliable, indicating that such events have occurred in the County but that significant failures are very infrequent (Frequency = Low).

Section 4.3 Geologic Hazards

Geologic hazards are adverse conditions capable of causing loss of life and damage to property that involve the movement of geologic features or elements of the surface of the earth. There are a wide variety of such hazards that may be categorized as either sudden or slow phenomena. Slowly developing geologic hazards include soil erosion, sinkholes and other ground subsidence, and migrating sand dunes. Only sudden geologic hazards will be considered in this planning and will be limited to: earthquake, landslide/mudslide, and snow avalanche.

Earthquake

Description

The U.S. Geological Survey (USGS) defines earthquake as: "Ground shaking caused by the sudden release of accumulated strain by an abrupt shift of rock along a fracture in the Earth or by volcanic or magmatic activity, or other sudden stress changes in the Earth." The hazards associated with earthquake are essentially secondary to ground shaking (also called seismic waves) which may cause buildings to collapse, displacement or cracking of the earth's surface, flooding as a result of damage to dams or levees, and fires from ruptured gas lines, downed power lines and other sources. Earthquakes cause both vertical and horizontal ground shaking which varies both in amplitude (the amount of displacement of the seismic waves) and frequency (the number of seismic waves per unit time), usually lasting less than thirty seconds. Earthquakes are measured both in terms of their inherent "magnitude" and in terms of their local "intensity."

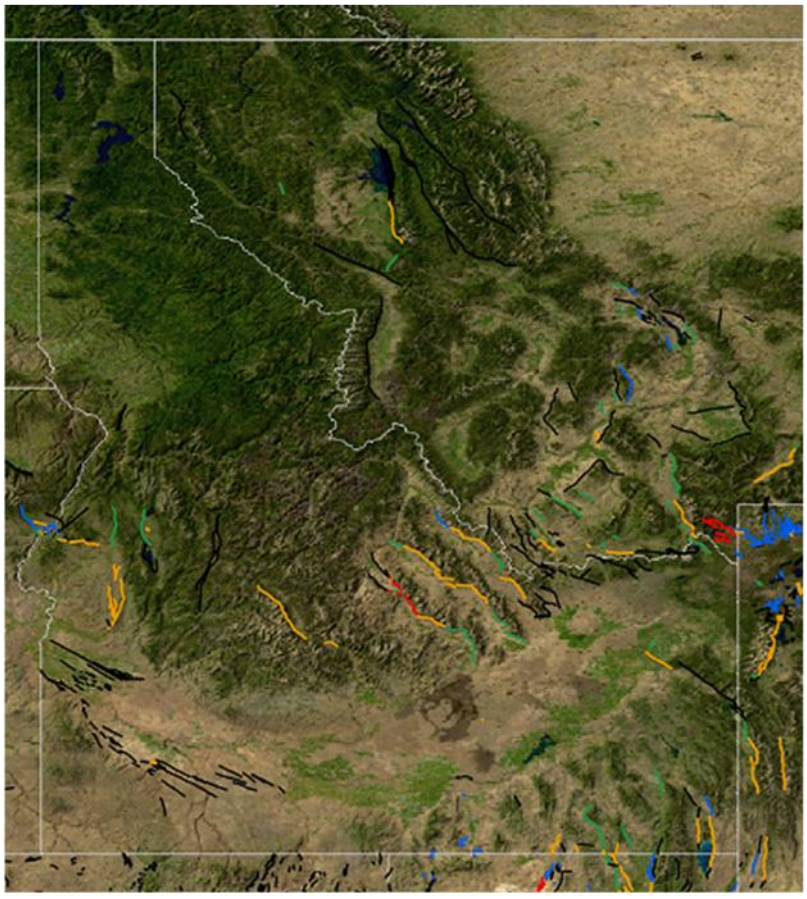


Figure 4.3.1
Idaho Faults Map

The magnitude of an earthquake is essentially a relative estimate of the total amount of seismic energy released and may be expressed using the familiar "Richter Scale" or using the "moment magnitude scale" now favored by most technical authorities. Both the Richter Scale and the moment magnitude scale are based on logarithmic formulae meaning that a difference of one unit on the scales represents about a thirty-fold difference in amount of energy released (and, therefore, potential to do damage). On either scale, significant damage can be expected from earthquakes with a magnitude of about 5.0 or higher. What determines the amount of damage

that might occur in any given location, however, is not the magnitude of the earthquake but the intensity at that particular place. Earthquake intensity decreases with distance from the earthquake's "epicenter" (its focal point) but also depends on local geologic features such as depth of sediment and bedrock layers. Intensity is most commonly expressed using the "Modified Mercalli Intensity Scale." This measure describes earthquake intensity on an arbitrary, descriptive, twelve degree scale (expressed as Roman numerals from I to XII) with significant damage beginning at around level VII. Mercalli intensity is assigned based on eyewitness accounts. More quantitatively, intensity may be measured in terms of "peak ground acceleration" (PGA) expressed relative to the acceleration of gravity (g) and determined by seismographic instruments.

While Mercalli and PGA intensities are arrived at differently, they correlate reasonably well. While the locations most susceptible to earthquakes are known, there is little ability to predict an earthquake in the short term.

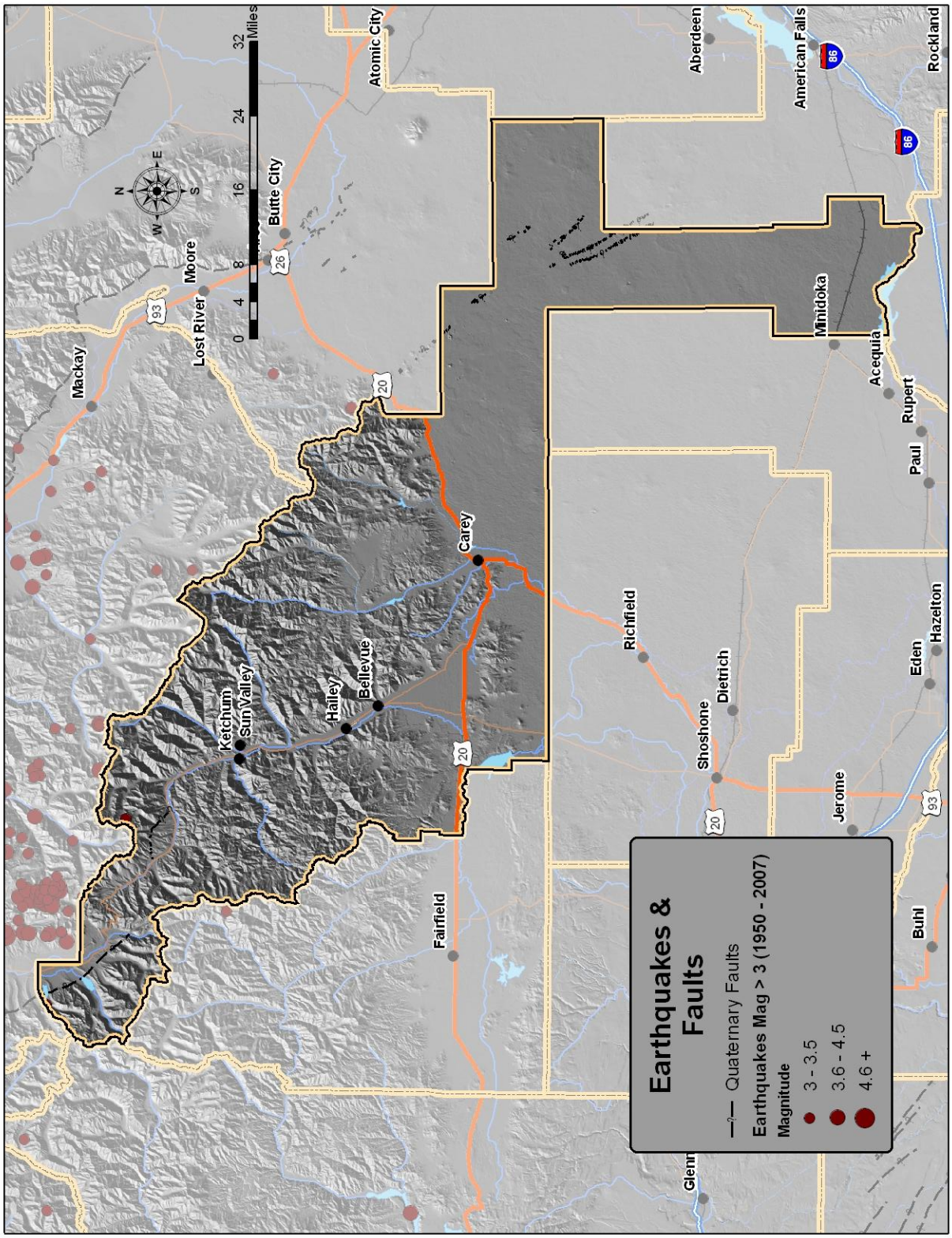


Figure 4.3.1
Earthquakes and Quaternary Faults

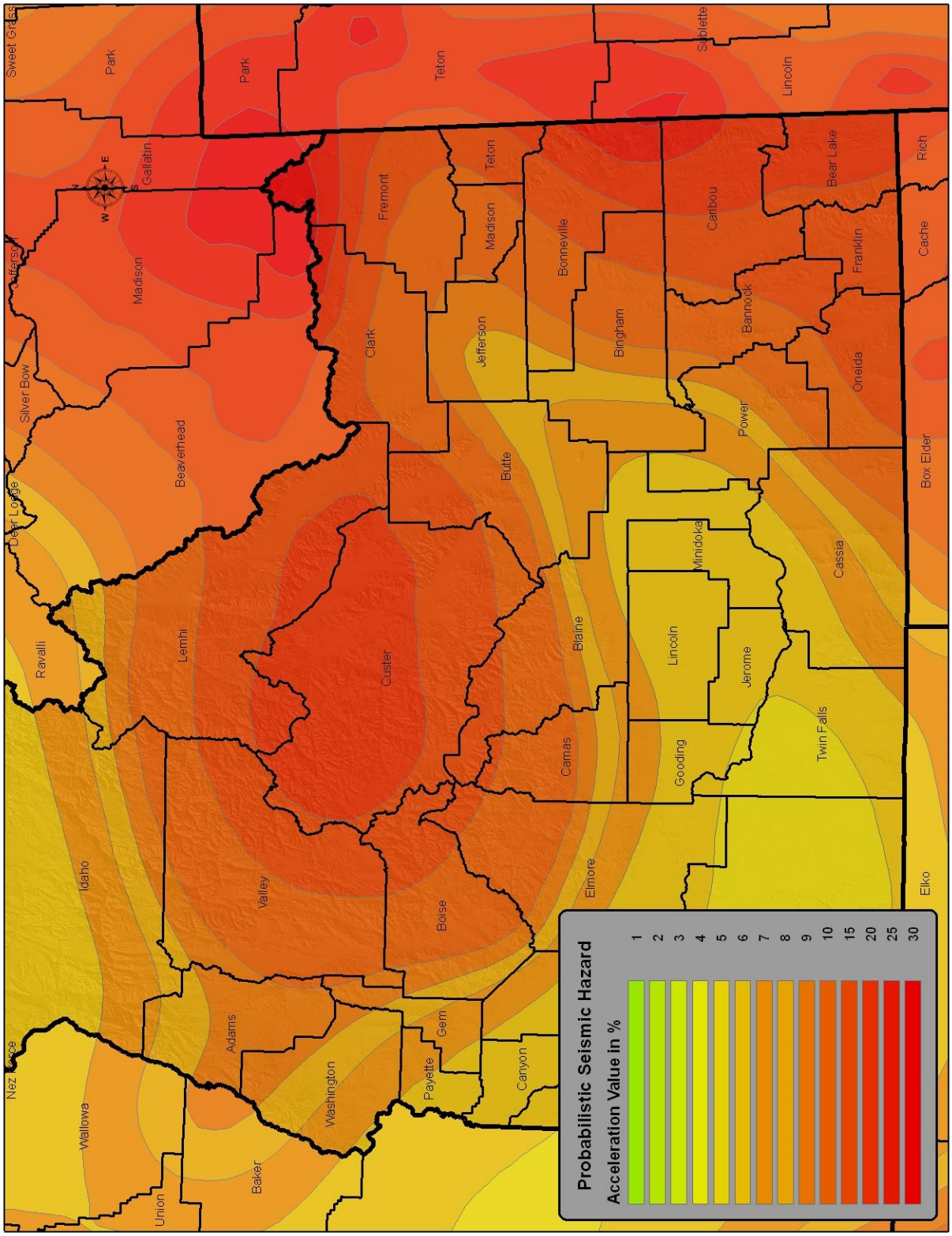


Figure 4.3.2
Blaine County Seismic Potential Map

Historical Frequencies

The following table lists earthquakes that have been felt in Blaine County from 1900 to 1985. There have been 19 earthquakes felt in Blaine County over a period of 85 years. There is a 22.3% chance of an earthquake felt in Blaine County, and a reoccurrence interval of 4.47 years.

Earthquake Location	Date	Magnitude	Mercalli Intensity
Unknown	1916/9/10	Unk	5
Clarkston Valley, MT	1925/6/28	6.80	2
Kosomo, UT	1934/3/12	6.6	4
Helena, MT	1935/10/19	6.30	3
Helena, MT	1935/10/31	6.00	3
Sheep Mountain, ID	1944/7/12	6.1	6
25 Miles WNW of Custer, ID	1945/2/14	6.0	4
Southwest Montana	1947/11/23	6.30	6
Fairview Peak, NV	1954/12/16	7.1	Unk
Unknown	1956/8/7	Unk	3
Hebgen Lake, MT	1959/8/18	7.10	6
Cache Valley, UT	1962/8/30	5.70	3
Clayton, ID	1963/1/27	6.0	5
Near Ketchum, ID	1969/4/26	4.9	6
Rigedale Area, SE Idaho	1975/3/28	6.10	5
Unknown	1978/10/29	5	4
Borah Peak	1983/10/28	7.30	6
Challis Area, Idaho	1984/8/22	5.80	2
15 Miles E-SE of Alpine, Wy	1985/9/7	4.60	2

Table 4.3.1
Earthquakes felt in Blaine County
1900-1985

Impacts

Earthquakes are capable of catastrophic consequences, especially in urban areas. Worldwide, earthquakes have been known to cost thousands of lives and enormous economic and social losses. In minor earthquakes, damage may be done only to household goods, merchandise, and other building contents and people are occasionally injured or killed by falling objects. More violent earthquakes may cause the full or partial collapse of buildings, bridges and overpasses, and other structures. Fires due to broken gas lines, downed power lines, and other sources are common following an earthquake and often account for much of the damage. Economic losses arise from destruction of structures and infrastructure, interruption of business activity, and innumerable other sources. Utilities may be lost for long periods of time and all modes of transportation may be disrupted. Disaster Services including medical may be both disabled and overwhelmed. In addition to broken gas lines, other hazardous materials may be released.

Loss Estimates

HAZUS was used to estimate losses for a probabilistic magnitude 7 earthquake that affects Blaine County. The model estimates that about 84 buildings will be at least moderately damaged. This is over 1.00 % of the total number of buildings in the region. There are an estimated 0 buildings that will be damaged beyond repair.

HAZUS estimates the number of households that are expected to be displaced from their homes due to the earthquake and the number of displaced people that will require accommodations in temporary public shelters. The model estimates 1 household to be displaced due to the earthquake. Of these, 0 people (out of a total population of 18,991 will seek temporary shelter in public shelters.

The total building-related losses were $3.88M (millions of dollars); 18 % of the estimated losses or $.71M was related to the business interruption of the region. Total loss to structures is estimated to be $3.17M.By far, the largest loss was sustained by the residential occupancies which made up over 66 % of the total loss.

HAZUS estimates that there will be a $1.7M loss to the transportation systems.

Hazard Evaluation

Repetitive Loss - none

Magnitude of Earthquake Hazard						
Value	**Reconstruction Assistance From**	**Geography (Area) Affected**	**Expected Bodily Harm**	**Loss Estimate Range**	**Population Sheltering Required**	**Warning Lead Times**
1	Family	Parcel	Little to No Injury / No Death	$1000s	No Sheltering	Months
2	City	Block or Group of Parcels	Multiple Injuries with Little to No Medical Care / No Death	$10,000s	Little Sheltering	Weeks
2	County	Section or Numerous Parcels	Major Medical Care Required / Minimal Death	$100,000s	Sheltering Requiring Neighboring Counties Help	Days
4	State	Multiple Sections	Major Injuries / Requires Help from Outside County / A Few Deaths	$1,000,000s	Long Term Sheltering Effort	Hours
8	Federal	County Wide	Massive Casualties / Catastrophic	$10,000,000s	Relocation Required	Minutes

Frequency of Hazard	
Ranking	**Description**
HIGH	Multiple Times a Year to 5 Years
MEDIUM	5 to 25 Years
LOW	25 Years to Hasn't Happened

Earthquake has a magnitude score of 36.

Magnitude/Frequency Scoring Rationale

Predictive methodology for earthquakes is not capable of providing warning for specific events which usually occur suddenly, with no warning (Warning Lead Times = 8). Earthquakes affect wide areas (Geography Affected = 8). In Blaine County, such an event is expected to cause some injuries and deaths (Bodily Harm = 2). Major structural and infrastructure damage is possible in the event of a strong earthquake, interrupting business activities and requiring reconstruction (Economic Loss = 8). Some sheltering assistance from neighboring Counties could be required (Shelter = 2). Recovery assistance at the Federal level would be required (Reconstruction Assistance = 8). The total Magnitude score is, therefore, thirty-six (36) which, for Blaine County, is in the "High" range. Historical records for earthquake are available and reliable, indicating that earthquakes occur on the five to twenty five year range in Blaine County (Frequency = Medium).

Landslide/Mudslide

Description

The term "landslide" encompasses several types of occurrence (including mudslides) in which slope-forming materials such as rock and soil move downward under the influence of gravity. Such downward movement may occur as the result of an increase in the weight of slope-forming materials, an increase in the gradient (angle) of the slope, a decrease in the forces resisting downward motion (friction or material strength) or a combination of these factors. Factors that may trigger a landslide include: weather related events such as heavy rainfall (one of the most common contributors), erosion, and freeze-thaw weakening of geologic structures, human causes such as excavation and mining, deforestation, and vibration from explosions or other sources, and such geologic causes as earthquake, volcanic activity, and shearing or fissuring. The speed of descent ranges from sudden and rapid to an almost imperceptibly slow creep where effects are only observable over a period of months or years.

2009 Mudslides in the Warm Springs Road area,
caused by heavy rain in the areas impacted by the
2007 Castle Rock Wildfire

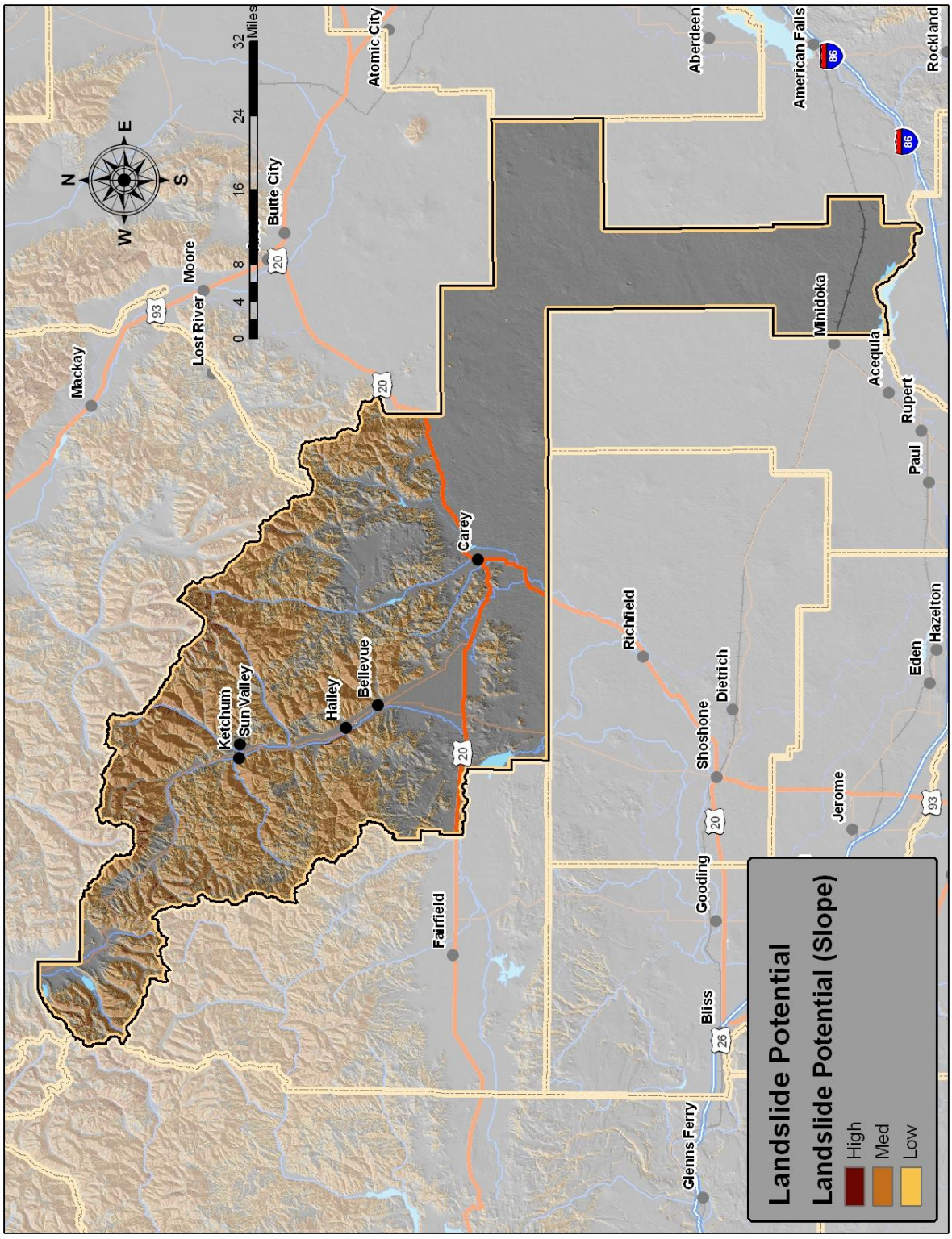


Figure 4.3.3
Blaine County Landslide Potential Map

Historical Frequencies

Since the Castle Rock wildfire occurred in 2007 there have been several reports of damaging mudslides in Blaine County. According to the landslide potential map (Figure 4.3.4) above there is a potential for landslides in various parts of the County. The potential for wildfire in these areas exacerbates this hazard. It is apparent that landslides are underreported in Blaine County because the impact doesn't require outside assistance.

Impacts

Some of the many direct and indirect impacts of landslides are:

- Human and animal deaths and injuries and resulting productivity losses
- Damage or destruction of structures
- Destruction or blockage of roadways and resulting transportation interruption
- Loss of, or reduced land usage
- Loss of industrial, agricultural and forest productivity
- Reduced property values in areas threatened by landslide
- Loss of tourist revenues and recreational opportunities
- Damage or destroyed infrastructure and utilities
- Damming or alteration of the course of streams and resulting flooding
- Reduced water quality

Loss Estimate

Losses due to Landslide events are generally tied to the repair of roadways or the removal of all debris on roadways.

Blaine County has 231.6 miles of roadway that could be potentially impacted or damaged in some manner by landslides. Most of these roads are in the back county. The County estimates that back county replacement value is $750,000 per mile. The total vulnerability based on that estimate would be $173.7 Million however, landslides are usually considered a local event and thus it is difficult to predict the actual repair or replacement costs for a single event.

Hazard Evaluation

Repetitive Loss - none

Magnitude of Landslide Hazard						
Value	**Reconstruction Assistance From**	**Geography (Area) Affected**	**Expected Bodily Harm**	**Loss Estimate Range**	**Population Sheltering Required**	**Warning Lead Times**
1	Family	Parcel	Little to No Injury / No Death	$1000s	No Sheltering	Months
2	City	Block or Group of Parcels	Multiple Injuries with Little to No Medical Care / No Death	$10,000s	Little Sheltering	Weeks
2	County	Section or Numerous Parcels	Major Medical Care Required / Minimal Death	$100,000s	Sheltering Requiring Neighboring Counties Help	Days
4	State	Multiple Sections	Major Injuries / Requires Help from Outside County / A Few Deaths	$1,000,000s	Long Term Sheltering Effort	Hours
8	Federal	County Wide	Massive Casualties / Catastrophic	$10,000,000s	Relocation Required	Minutes

Landslide has a magnitude score of 14.

Frequency of Hazard	
Ranking	**Description**
HIGH	Multiple Times a Year to 5 Years
MEDIUM	5 to 25 Years
LOW	25 Years to Hasn't Happened

Magnitude/Frequency Scoring Rationale

Conditions leading to landslide/mudslide may develop quickly, providing little warning time (Warning Lead Times = 4). Vulnerabilities in Blaine County are minimal (Geography Affected = 2) and there is little potential for death or injury (Bodily Harm = 1) and economic loss could be significant (Economic Loss = 4). Because of impacts to would be primarily to County and Forest Service Roads recovery would be managed at the County level for County Roads (Reconstruction Assistance = 2). There would be no need for public sheltering (Shelter = 1). The total Magnitude score is, therefore, fourteen (14) which, for Blaine County, is in the "Medium" range. Historical records for landslide/mudslide are available and reliable, indicating that events occur infrequently in Blaine County (Frequency =Medium).

Snow Avalanche

Description

Snow avalanches are common in mountainous terrain where heavy snowfall accumulates on steep slopes. Avalanches generally occur on slopes between 30 and 45 degrees with 38 degrees being the "ideal" slope for development of avalanche conditions. They are often categorized as either "loose snow" or "slab" types. While the exact moment of an avalanche cannot be predicted, avalanche conditions are readily recognizable and avalanches tend to recur on the same slopes year after year.

Historical Frequencies

Place	Date	Time	Event	Details	Reported Damage
Galena Pass	1/5/1996				2 snowboarders killed
Ketchum	2/10/1996		Avalanche	Possibly a natural trigger that caused several avalanches in the area.	Skier buried and killed
Sun Valley	1/15/1998		Avalanche	Triggered by skier	Skier buried, recovered and minor injuries
Mormon Hills	2/22/1998		Avalanche	Triggered by snowmobile	Snowmobiler killed
Hailey	2/9/1999		Avalanche	Rapid loading, warm temps and high winds	3 houses damaged
Hailey	2/10/1999		3 Avalanches	Possibly triggered by deer	Snow damaged a picnic shelter, two tables and at least one tree in Heagle Park; killed 20 deer; dammed river near Croy Creek; killed fish in River.
Smokey Mountains	1/28/2000	1:15 PM	Avalanche	Triggered by skier	Skier buried, but recovered and uninjured
Apollo Creek	2/28/2004		Avalanche	Triggered by snowmobile	Snowmobiler killed
Galena Summit	3/25/2005		Avalanche	Triggered by skier	Skier injured
Brodie Gulch/Baker Creek	4/1/2005	2:10 PM	Avalanche	Triggered by snowmobile	Snowmobiler died
Antelope Creek	3/1/2006	2:00 PM	Avalanche	Triggered by snowmobile	Snowmobiler died
Apollo Creek	3/10/2007	3:00 PM	Avalanche	Triggered by snowmobiler. Avalanche occurred on a northeast facing slope next to a slide that had been triggered the week before	Snowmobiler injured

Table 4.3.2
Blaine County Avalanche events

Impacts

It is common for avalanche impacts to be somewhat limited. Because avalanches usually occur in remote areas, the most frequent victims are recreational users of the slopes on which they occur. Of those who die in avalanches, approximately one third of the deaths are as a result of trauma while the remaining two thirds are from suffocation. Trauma may be the result of being carried into obstructions such as boulders and trees or over cliffs, or from rocks, trees or large chunks of snow being carried downward at high speed. Avalanches may also damage or destroy structures, break power lines, block roadways and railroads, and damage trees and vegetation.

Loss Estimates

Snow Avalanches occur primarily in the back country of Blaine County. As with Landslides, losses from Snow Avalanches come from damage to roadways and the resulting snow and debris removal costs.

Hazard Evaluation

Repetitive Loss - none

Magnitude of Snow Avalanche Hazard						
Value	**Reconstruction Assistance From**	**Geography (Area) Affected**	**Expected Bodily Harm**	**Loss Estimate Range**	**Population Sheltering Required**	**Warning Lead Times**
1	Family	Parcel	Little to No Injury / No Death	$1000s	No Sheltering	Months
2	City	Block or Group of Parcels	Multiple Injuries with Little to No Medical Care / No Death	$10,000s	Little Sheltering	Weeks
2	County	Section or Numerous Parcels	Major Medical Care Required / Minimal Death	$100,000s	Sheltering Requiring Neighboring Counties Help	Days
4	State	Multiple Sections	Major Injuries / Requires Help from Outside County / A Few Deaths	$1,000,000s	Long Term Sheltering Effort	Hours
8	Federal	County Wide	Massive Casualties / Catastrophic	$10,000,000s	Relocation Required	Minutes

Snow Avalanche has a magnitude score of 28.

Frequency of Hazard	
Ranking	**Description**
HIGH	Multiple Times a Year to 5 Years
MEDIUM	5 to 25 Years
LOW	25 Years to Hasn't Happened

Magnitude/Frequency Scoring Rationale

Individual avalanche events occur with little or no warning in Blaine even though County vulnerable areas are monitored (Warning Lead Times = 8). Large areas in Blaine County are subject to avalanches (Geography Affected = 4)

offering potential for injuries or deaths (Bodily Harm = 4). Avalanches occur in remote areas and cause little economic loss (Economic Loss = 4) with recovery, where required, managed at the State level (Reconstruction Assistance = 4). There is little need for public sheltering (Shelter = 2). The total Magnitude score is, therefore, twenty-eight (28) which, for Blaine County, is in the "High" range. Historical records for avalanche show that events have occurred on the almost annually (Frequency = High).

Section 4.4 Other Natural Hazards

Wildfire

Description

Wildfire is defined by the USDA Forest service as, "A fire naturally caused or caused by humans, that is not meeting land management objectives."[24] It is generally thought of as an uncontrolled fire involving vegetative fuels occurring in wildland areas. Such fires are classified for hazard analysis purposes as either "Wildland" or "Wildland Urban Interface" fires. Wildland fires occur in areas that are undeveloped except for the presence of roads, railroads and power lines while Wildland Urban Interface fires occur where structures or other human development meets or is intermingled with the wildland or vegetative fuels. Wildland fire is currently considered a natural and necessary component of wildland ecology and, as such, is most often allowed to progress to the extent that it does not threaten inhabited areas or human interests and well-being. At the Wildland Urban Interface (WUI), vigorous attempts are made to control fires but this becomes an increasingly difficult challenge as more and more development for recreational and living purposes takes place in wildland areas. Some wildland fires are ignited naturally (almost exclusively by lightning) but most ignitions are a result of human activities, either careless or intentional. The rapidity with which a wildland fire spreads and the intensity with which it burns is controlled by a number of factors including:

- Weather - wind speed and direction, temperature, precipitation
- Terrain – fires burn most rapidly upslope
- Type of vegetation
- Condition of vegetation - dryness
- Fuel load – the amount and density of vegetation
- Human attempts to suppress

In Idaho, fire was once an integral function of the majority of ecosystems. 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[25]. The fires burned from 1 to 47 years apart, with most at 5- to 20-year intervals[26]. With infrequent return intervals, plant communities tended to burn more severely and be replaced by vegetation different in composition, structure, and age[27]. Native plant communities in this region developed under the influence of fire, and adaptations to fire are evident at the species, community, and ecosystem levels. Fire history data (from fire scars and charcoal deposits) suggest fire has played an important role in shaping the vegetation in the Columbia Basin for thousands of years[28].

[24] http://www.fs.fed.us/fire/fireuse/education/terms/fire_terms_pg5.html
[25] Johnson 1998
[26] Barrett 1979
[27] Barrett 1979
[28] Steele *et al.* 1986, Agee 1993

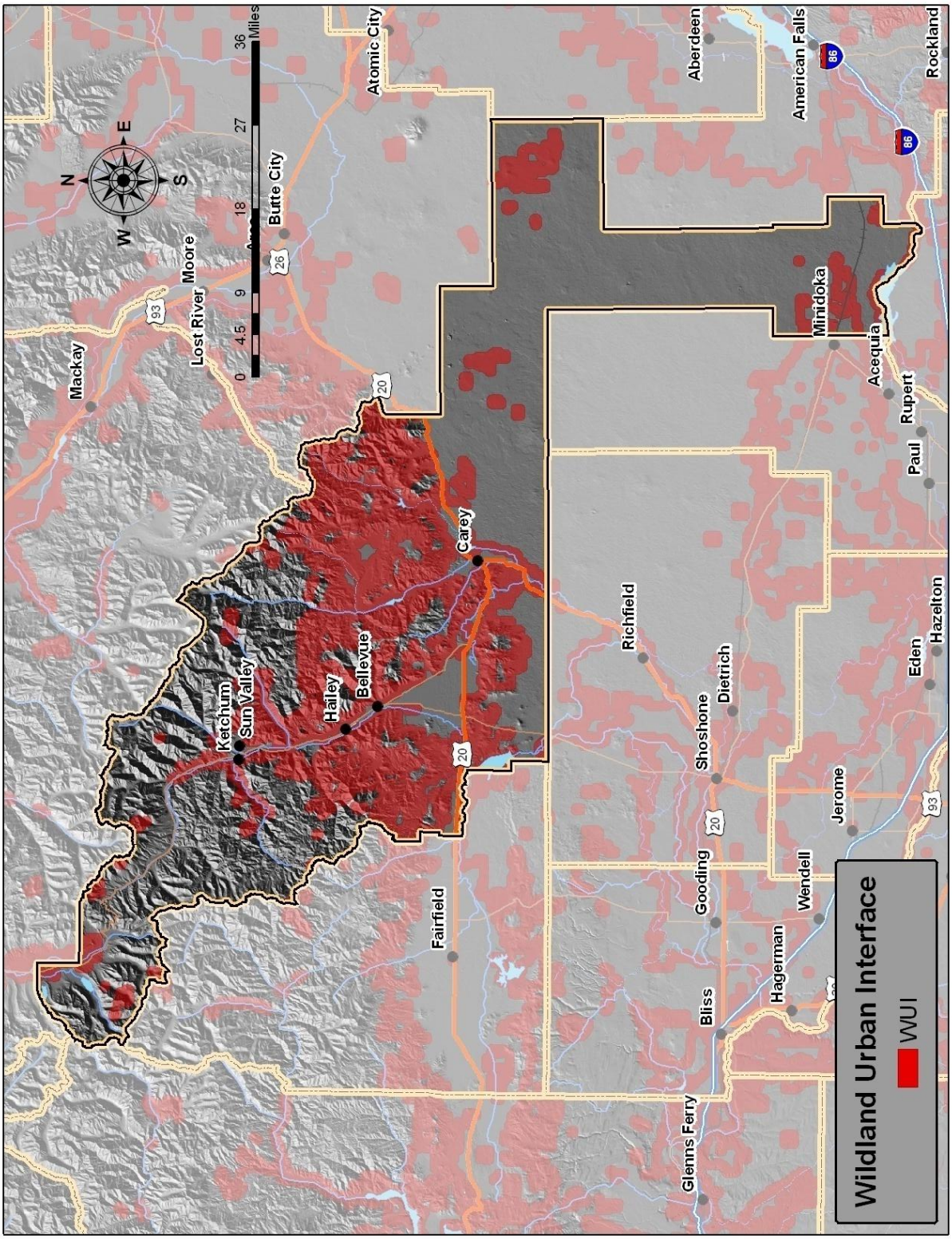


Figure 4.4.1
Blaine County WUI Map

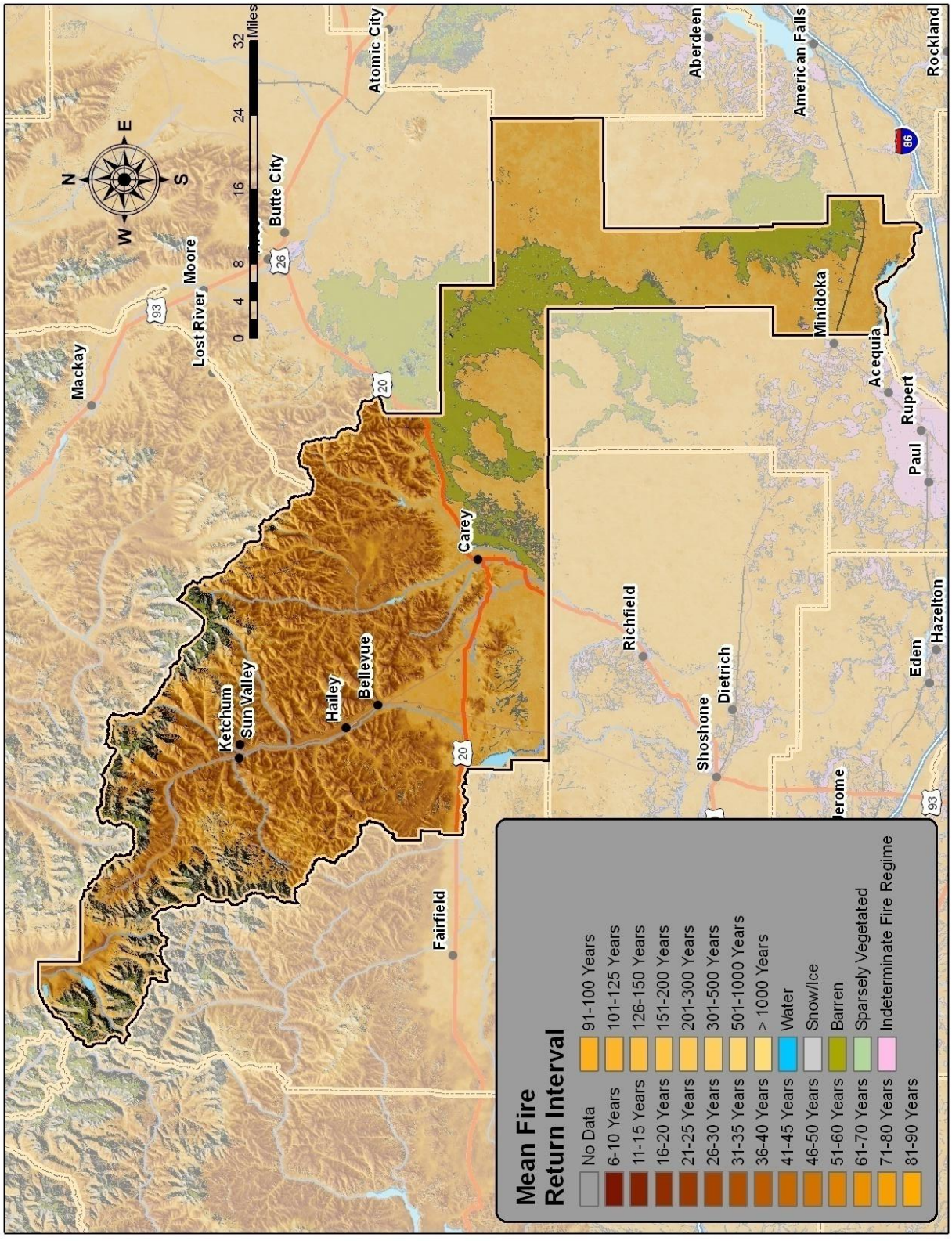


Figure 4.4.2
Blaine County Mean Fire Return Interval

The Blaine County Wildland Fire Mitigation Plan covers the Bellevue Fire Department, the Carey Rural Fire Protection District, the Smiley Creek Rural Fire Protection District, West Magic Fire Protection District and the remaining areas of private property in Blaine County that are not protected by an organized fire protection agency. Three other Fire Mitigation Plans have been created to interface with the County Plan. They are the ***Wood River and City of Hailey Fire Mitigation Plan*** and the ***Ketchum Rural Fire Mitigation Plan,*** and the ***City of Sun Valley Fire Department Fire Mitigation Plan***.

For additional information on Wildland Fire Mitigation see the Blaine County Wildland Fire Hazard Mitigation Plan 2004.

The Blaine County Wildland Fire Hazard Mitigation Plan is incorporated by Reference.

Historical Frequencies

Between the years 1983 and 2002 there were a total of 550 recorded wildfires in Blaine County. A breakdown of the number of fires per year in Blaine County is given in Table 4.4.1. Wildland fires occur multiple times per year in the county.

Year	Number of Fires	Acres Burned
1983	15	11,347
1984	7	220
1985	17	2,608
1986	19	6,270
1987	28	4,589
1988	32	5,371
1989	43	3,672
1990	29	10,793
1991	41	13,331
1992	39	48,733
1993	10	200
1994	35	22,466
1995	30	5,090
1996	34	247,007
1997	17	384
1998	24	268
1999	33	203,092
2000	30	859
2001	31	1,244
2002	36	3,964

Table 4.4.1
Blaine County Wildfires Since 1983

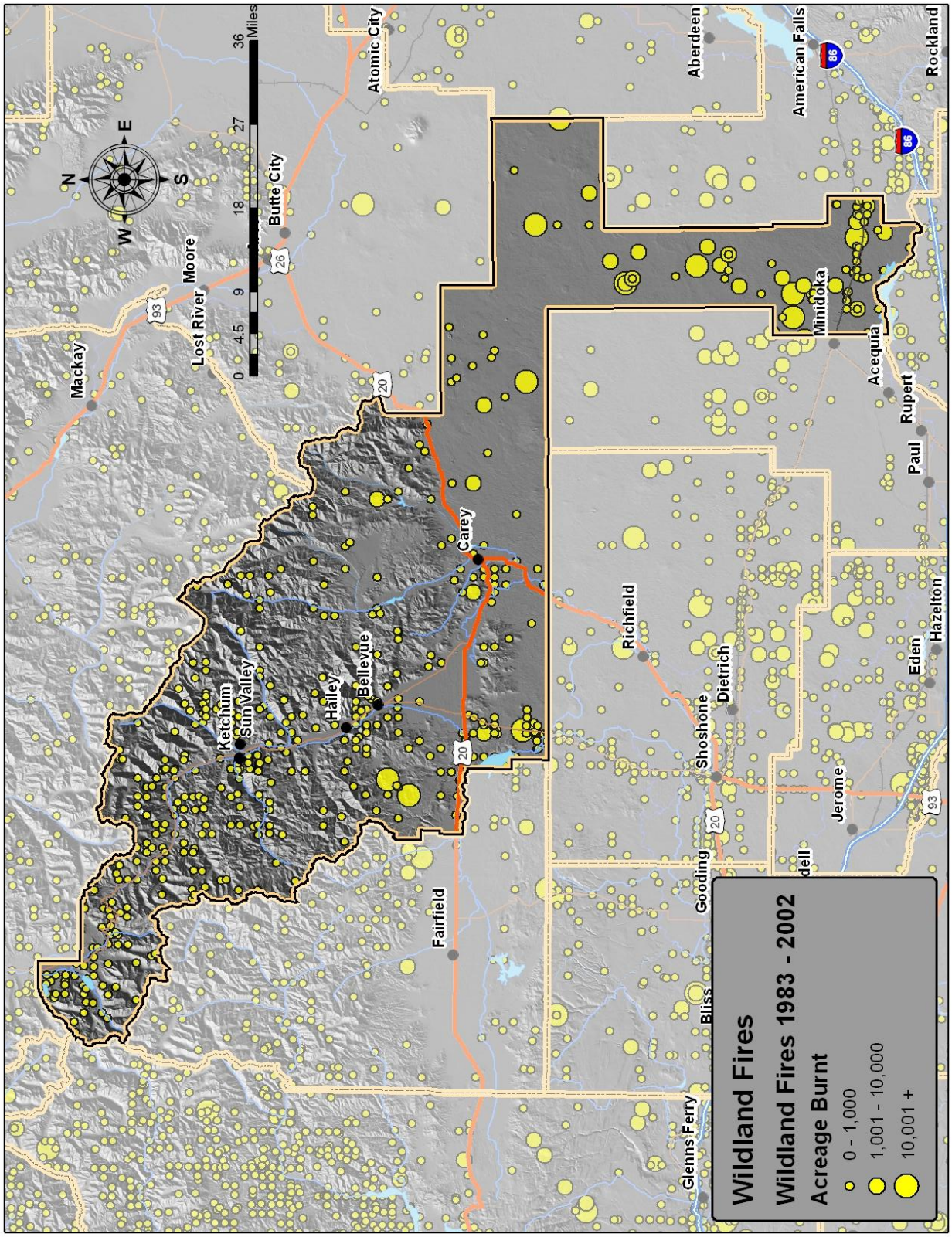


Figure 4.4.3
Blaine County Wildland Fire Map

Impact

Wildland fires threaten the lives of anyone in their path including hikers, campers and other recreational users and, where suppression efforts are made, firefighters. Enormous volumes of smoke and airborne particulate materials are produced that can affect the health of persons for many miles downwind. Nearer to the fire, smoke reduces visibility, disrupting traffic and increasing the likelihood of highway accidents. As a result of wildland fire there may be changes in water quality in the area and erosion rates may increase along with increased rainfall runoff and flash flood threat, and decreased rainfall interception and infiltration. Indirect impacts include losses to tourism, recreational and timber interests and loss of wildlife habitat. Wildland Urban Interface fires have most or all of the above impacts as well as those of structural fires including injury and loss of life, loss of structures and contents. Agricultural losses may also be sustained including livestock, crops, fencing and equipment.

Loss Estimates

A GIS overlay operation was used to determine the number and value of land parcels that lie within the wildland urban interface. The following table represents the results of that analysis:

Hazard	No of Parcels Affected	Value of Affected Parcels
Wildland Fire	15,651	$5,116,656,494

As experienced with the Castle Rock Fire, (2007) the losses cannot be based solely on private property loss but also the loss due to response, economic losses due to business and tourism interruption, and harvestable timber, to name a few.

Hazard Evaluation

Repetitive Loss - none

Magnitude of Wildland Fire Hazard						
Value	**Reconstruction Assistance From**	**Geography (Area) Affected**	**Expected Bodily Harm**	**Loss Estimate Range**	**Population Sheltering Required**	**Warning Lead Times**
1	Family	Parcel	Little to No Injury / No Death	$1000s	No Sheltering	Months
2	City	Block or Group of Parcels	Multiple Injuries with Little to No Medical Care / No Death	$10,000s	Little Sheltering	Weeks
2	County	Section or Numerous Parcels	Major Medical Care Required / Minimal Death	$100,000s	Sheltering Requiring Neighboring Counties Help	Days
4	State	Multiple Sections	Major Injuries / Requires Help from Outside County / A Few Deaths	$1,000,000s	Long Term Sheltering Effort	Hours
8	Federal	County Wide	Massive Casualties / Catastrophic	$10,000,000s	Relocation Required	Minutes

Wildland Fire has a magnitude score of 32.

Frequency of Hazard	
Ranking	**Description**
HIGH	Multiple Times a Year to 5 Years
MEDIUM	5 to 25 Years
LOW	25 Years to Hasn't Happened

Magnitude/Frequency Scoring Rationale

Even with rapidly developing wildfire there is usually only minutes to warn affected residents (Warning Lead Times = 8). Rather large areas in Blaine County are vulnerable to wildfire (Geography Affected = 4) but because these areas are remote, minimal deaths or and injuries are expected (Bodily Harm = 2). Blaine County has the potential to experience significant economic loss due to wildfire (Economic Loss = 8) and Federal recovery assistance might be required (Reconstruction Assistance = 8). Some public sheltering would be required (Shelter = 2). The total Magnitude score is, therefore, thirty-two (32) which, for Blaine County, is in the "High" range. Historical records are available and reliable, indicating that wildfires occur relatively frequently in the County, (Frequency =High).

Biological

Communicable Disease Outbreaks

Description

Communicable Disease Outbreaks are usually discussed in two ways, an epidemic and a pandemic. An "epidemic" is defined as a disease that appears as new cases in the human population at a rate, during a given time period and location, that substantially exceeds the number expected. It is, thus, a relative term and there is no quantitative criterion for designating a health crisis as an epidemic. In addition to its application to infectious diseases, the term is sometimes used to describe outbreaks of other adverse health effects including those stemming from chemical exposure, sociological problems, and psychological disorders. A "pandemic" is a worldwide epidemic while the term "outbreak" may be applied to more geographically limited medical problems as, for instance, in a single community rather than statewide or nationwide. The term "cluster" is often used with reference to noncommunicable diseases.

Three factors combine to produce an epidemic: an "agent" that causes the disease, a "host" that is susceptible to the disease, and an "environment" that permits the host to be exposed to the agent. The spread of an infectious disease depends on the chain of transmission: a source of the agent, a route of exit from the host, a mode of transmission between the susceptible host and the source, and a route of entry into another susceptible host. Modes of spread may involve direct physical contact between the infected host and the new host, or airborne spread, such as coughing or sneezing. Indirect transmission takes place through vehicles such as contaminated water, food, or intravenous fluids; inanimate objects such as bedding, clothes, or surgical instruments; or a biological vector such as a mosquito or flea.

Health agencies closely monitor for diseases with the potential to cause an epidemic and seek to develop immunizations and eliminate vectors. While this effort has been remarkably successful, there are many diseases of concern and the HIV/AIDS pandemic is still not controlled despite more than 25 years of effort since recognition of the disease in 1981.

Pandemic influenza versus annual influenza season

A flu pandemic has little or nothing in common with the annual flu season. Flu pandemic is caused by a new, much more serious and contagious virus to which humans have little or no natural resistance. And while, in general, a vaccine has been developed in anticipation of the annual flu season, no vaccine would be available at the onset of a pandemic. If such a new, highly contagious strain of influenza began to infect humans, it would probably cause widespread illness and death within a matter of months, and the outbreak could last up to two years. The Centers for Disease Control and Prevention (CDC) predict that as much as 25-30% of the U.S. population would become ill, that many of these would require hospitalization, and that many might die. Eastern Idaho Public Health District is currently working on a plan to limit the spread of a pandemic influenza and to maintain essential health care and community services if an outbreak should occur. In fact, governments all around the world are preparing for the possibility of a pandemic outbreak. Even so, it may not be possible to prevent a pandemic or to halt it once it begins to. A person infected with influenza may be contagious for 24 hours before symptoms appear and for seven days thereafter, making it extremely easy for the virus to infect large numbers of people.

Although the Federal government is stockpiling large quantities of medical supplies and antiviral drugs, no country in the world has enough antivirals to protect all of their citizens. Antivirals would be used to treat severe cases as long as there was a reasonable chance that the drugs might help save lives. Antivirals might also be reserved for people who work in areas that place them at high risk for exposure in an outbreak, such as health care workers. Other strategies for slowing the spread of a potentially deadly pandemic influenza virus might include temporarily closing of schools, sports arenas, theaters, restaurants, taverns, and other public gathering places and facilities.

H5N1 "Bird Flu"

Efforts are currently underway to develop a vaccine to protect humans from the H5N1 bird flu virus. While it has so far affected few humans, there is the danger that the bird flu virus may mutate into a new form of human flu that would be easily spread person to person. Some migratory waterfowl carry the H5N1 virus with no apparent harm, but transmit the virus to susceptible domestic poultry. The highly lethal H5N1 outbreak among domestic poultry is widespread and uncontrolled and has directly infected a small number of humans (Figure 4.4.8).

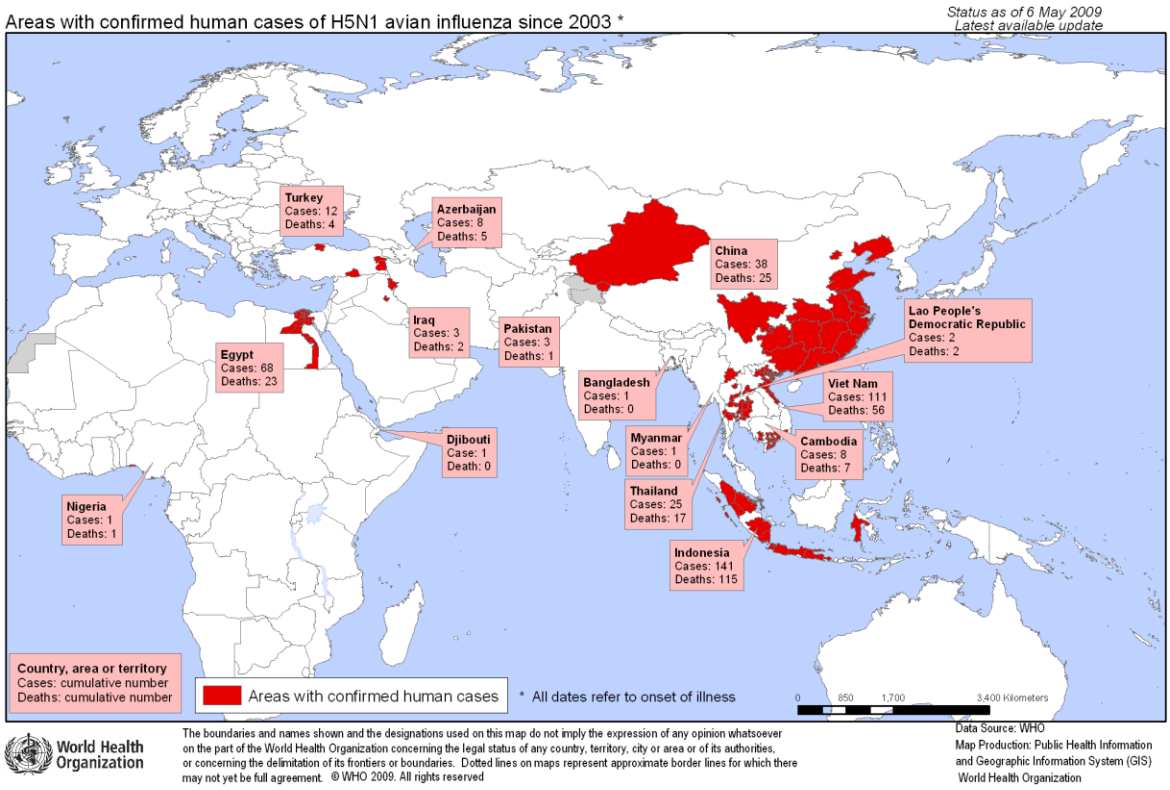


Figure 4.4.8 Reported Cases

People who have close contact with infected birds or with surfaces that have been contaminated with droppings from infected birds are at risk of becoming infected. In infected countries, poultry consumption has not been shown to be a risk factor if food is thoroughly

cooked, nor are travelers in these countries at increased risk of infection provided the person does not visit live poultry markets, farms or other environments where exposure to diseased birds may occur. More than 200 million birds in affected countries have either died from the disease or were killed in order to try to control the outbreak.

Many Asian countries are currently dealing with bird flu outbreaks. Bird flu continues to spread geographically from its original focus in Asia. Further spread of the virus along migratory routes of wild waterfowl is anticipated. So far, there has been no sustained person-to-person spread of the disease but a few isolated cases of apparent human-to-human spread between family members are currently under investigation.

The reported symptoms of bird flu in humans range from typical influenza-like symptoms (e.g., fever, cough, sore throat, and muscle aches), to eye infections (conjunctivitis), pneumonia, acute respiratory distress, viral pneumonia, and other severe and life threatening complications. Diarrhea, vomiting, abdominal pain, chest pain, and bleeding from the nose and gums have also been reported as early symptoms in some cases. In many cases, health deteriorates rapidly leading to a high percentage of death in those infected.

The following countries that have reported cases of bird flu infection since 2003:

-- Albania
-- Austria
-- Azerbaijan *(human cases confirmed)*
-- Bosnia and Herzegovina
-- Bulgaria
-- Burma
-- Cambodia *(human cases confirmed)*
-- Cameroon
-- China *(human cases confirmed)*
-- Croatia
-- Cyprus
-- Denmark
-- Egypt
-- France
-- Georgia
-- Germany
-- Greece
-- Hungary
-- India
-- Indonesia *(human cases confirmed)*
-- Iran
-- Iraq *(human cases confirmed)*
-- Italy
-- Japan
-- Kazakhstan
-- Kuwait
-- Laos
-- Malaysia
-- Mongolia
-- Niger
-- Nigeria
-- Poland
-- Pakistan
-- Romania
-- Russia
-- Serbia and Montenegro
-- Slovakia
-- Slovenia
-- South Korea
-- Sweden
-- Switzerland
-- Thailand *(human cases confirmed)*
-- Turkey *(human cases confirmed)*
-- Ukraine
-- Vietnam *(human cases confirmed)*

Humans Infected With Bird Flu
Azerbajan
Cases 7
Deaths 5
Cambodia
Cases 4
Deaths 4
China
Cases 15
Deaths 10
Indonesia
Cases 29
Deaths 22
Iraq
Cases 2
Deaths 2
Thailand
Cases 22
Deaths 14
Turkey
Cases 12
Deaths 4
Vietnam
Cases 93
Deaths 42

Total Cases 184
Total Deaths 103

(The H5N1 virus was first detected in Hong Kong, in 1997)[29]

Severe Acute Respiratory Syndrome (SARS)

Severe acute respiratory syndrome (SARS) is a viral respiratory illness caused by a coronavirus, called SARS-associated coronavirus (SARS-CoV). SARS was first reported in Asia in February 2003. Over the next few months, the illness spread to more than two dozen countries in North America, South America, Europe, and Asia before the SARS global outbreak of 2003 was contained. According to the World Health Organization (WHO), a total of 8,098 people worldwide became sick with SARS during the 2003 outbreak. Of these, 774 died. In the United States, only eight people had laboratory evidence of SARS-CoV infection. All of these people had traveled to other parts of the world where there were SARS outbreaks. SARS outbreaks did not occur in the United States.

In general, SARS begins with a high fever (temperature greater than 100.4°F [>38.0°C]). Other symptoms may include headache, an overall feeling of discomfort, and body aches. Some people also have mild respiratory symptoms at the outset. About 10 to 20 percent of patients have diarrhea. After 2 to 7 days, SARS patients may develop a dry cough. Most patients develop pneumonia.

It appears that SARS is spread mainly by close person-to-person contact. The virus that causes SARS is thought to be transmitted most readily by respiratory droplets (droplet spread) produced when an infected person coughs or sneezes. Droplet spread can happen when droplets from the cough or sneeze of an infected person are propelled a short distance (generally up to 3 feet) through the air and deposited on the mucous membranes of the mouth, nose, or eyes of persons who are nearby. The virus also can spread when a person touches a surface or object contaminated with infectious droplets and then touches the mouth, nose, or eye(s). It is also possible that the SARS virus is spread more broadly through the air (airborne spread) or by other means that are not now known.

[29] http://www.medicalnewstoday.com/articles/40062.php

Historic Communicable Disease Outbreak Events

The 1918 -1920 Spanish Flu:

The first cases of Spanish Flu were reported in Canyon County (northwest of Boise) on September 30, 1918. Within three weeks, the disease was raging all across the State. The numbers of deaths in the State and in Blaine County are unknown but it is estimated that 675,000 Americans died during the epidemic and that 20 to 40 million died worldwide.

Asian Flu 1957 -1958:

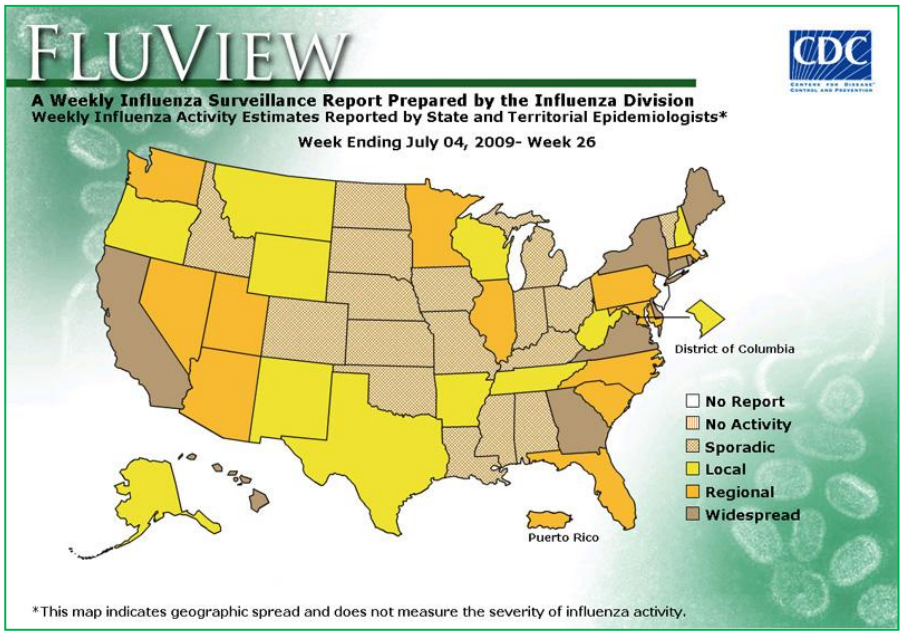
First identified in China, this virus caused roughly 70,000 deaths in the United States during the 1957-58 seasons. Because this strain has not circulated in humans since 1968, no one under 30 years old has immunity to this strain.

Hong Kong Flu 1968-1969:

First detected in Hong Kong in early 1968 and spread to the United States later that year. The Hong Kong Flu killed about 34,000 people in the United States and one million people worldwide.

Swine Flu – 2009

Novel influenza A (H1N1) is a new flu virus of swine origin that was first detected in April, 2009. The virus is infecting people and is spreading from person-to-person, sparking a growing outbreak of illness in the United States. An increasing number of cases are being reported internationally as well.



It's thought that novel influenza A (H1N1) flu spreads in the same way that regular seasonal influenza viruses spread; mainly through the coughs and sneezes of people who are sick with the virus.

It's uncertain at this time how severe this novel H1N1 outbreak will be in terms of illness and death compared with other influenza viruses. Because this is a new virus, most people will not have immunity to it, and illness may be more severe and widespread as a result. In addition, currently there is no vaccine to protect against this novel H1N1 virus.

Impacts

Characteristics and impacts of a Communicable Disease Outbreak are:

- Rapid Worldwide Spread
- Health Care Systems Overloaded
- Medical Supplies Inadequate
- Economic and Social Disruption

Loss Estimates

Historically, Communicable Disease Outbreaks have claimed far more lives than any other type of disaster. While modern epidemiology and medical advances make the decimation of populations much less likely, new forms of disease continue to appear. The potential, therefore, exists for Communicable Disease Outbreaks to cause widespread loss of life and disability, overwhelm medical resources and have tremendous economic impacts.

Hazard Evaluation

Repetitive Loss - none

Magnitude of Communicable Disease Outbreak Hazard						
Value	**Reconstruction Assistance From**	**Geography (Area) Affected**	**Expected Bodily Harm**	**Loss Estimate Range**	**Population Sheltering Required**	**Warning Lead Times**
1	Family	Parcel	Little to No Injury / No Death	$1000s	No Sheltering	Months
2	City	Block or Group of Parcels	Multiple Injuries with Little to No Medical Care / No Death	$10,000s	Little Sheltering	Weeks
2	County	Section or Numerous Parcels	Major Medical Care Required / Minimal Death	$100,000s	Sheltering Requiring Neighboring Counties Help	Days
4	State	Multiple Sections	Major Injuries / Requires Help from Outside County / A Few Deaths	$1,000,000s	Long Term Sheltering Effort	Hours
8	Federal	County Wide	Massive Casualties / Catastrophic	$10,000,000s	Relocation Required	Minutes

Communicable Disease Outbreak has a magnitude score of 19.

Frequency of Hazard	
Ranking	**Description**
HIGH	Multiple Times a Year to 5 Years
MEDIUM	5 to 25 Years
LOW	25 Years to Hasn't Happened

Magnitude/Frequency Scoring Rationale

Communicable Disease Outbreaks develop relatively slowly, usually providing at least weeks of warning (Warning Lead Times = 2). When Communicable Disease Outbreaks do occur, wide geographical areas are affected (Geography Affected = 8) and deaths and injuries are likely to occur (Bodily Harm = 4). Business interruption and some economic loss are likely (Economic Loss = 2) but recovery is left to individuals and families (Reconstruction Assistance = 1). Some public relocation of individuals to protect them from the virus may be required (Shelter = 2).The total Magnitude score is, therefore, nineteen (19) which, for Blaine County, is in the "Medium" range. Historical records for Communicable Disease Outbreaks are available and reliable, indicating that such events are rare (Frequency = Low).

West Nile Virus

Description

West Nile virus (WNV) is transmitted to people, birds and other animals by the bite of an infected mosquito. This virus can cause serious illness in people of any age, but especially in people over the age of 50 or those with other underlying medical conditions. The best form of protection is by avoiding mosquito bites.

West Nile virus infections occur in the summer and fall in Idaho, when mosquitoes are active. WNV does not occur in northern states when it is too cool for mosquitoes to survive. In southern states with warmer climates and mosquitoes present year-round, the risk of infection may still be present in the winter months.

Historical Frequencies

Locally-acquired mosquito-borne human infections were first recorded in Idaho in 2004. In 2006, Idaho led the nation in reports of human illness associated with WNV with 996 cases being reported to the State Health Department. In addition to people, WNV was also detected in 338 horses, 127 birds and numerous mosquitoes.

Date	Human	Horse/other mammal	Bird	Mosquitoes
2005	0	4	0	Not Tested
2006	10	4	1	Not Tested
2007	0	0	0	Not Tested
2008	0	0	0	Not Tested

Table 4.3.4
Reported Cases of WNV in Blaine County
Source - http://www.healthandwelfare.idaho.gov/site/4278/default.aspx

Impacts

West Nile fever may include a fever, headache, body aches, a rash and swollen glands. The symptoms of West Nile fever may last for days or linger for weeks to months. Serious illness infecting the brain or spinal cord can occur in some individuals, and although anyone can experience the more severe form of the disease, it tends to occur in people over the age of 50 or those with other underlying medical conditions or weakened immune systems. The severe

symptoms may include high fever, headache, neck stiffness, stupor, disorientation, coma, tremors, convulsions, muscle weakness, vision loss, numbness and paralysis. These symptoms may last several weeks or more, and neurological effects may be permanent. Usually, symptoms occur from 5 to 15 days after the bite of an infected mosquito. There is no specific treatment for infection, but hospitalization and treatment of symptoms may improve the chances of recovery for severe infections. There is no vaccine available for humans.

Loss Estimates

Losses brought about by the effects of West Nile virus are centered on loss of income for those affected by the virus as well as a loss of productivity by businesses. Death has occurred in Idaho from the West Nile virus both in humans and animals.

Hazard Evaluation

Repetitive Loss - none

Magnitude of West Nile Virus Hazard						
Value	**Reconstruction Assistance From**	**Geography (Area) Affected**	**Expected Bodily Harm**	**Loss Estimate Range**	**Population Sheltering Required**	**Warning Lead Times**
1	Family	Parcel	Little to No Injury / No Death	$1000s	No Sheltering	Months
2	City	Block or Group of Parcels	Multiple Injuries with Little to No Medical Care / No Death	$10,000s	Little Sheltering	Weeks
2	County	Section or Numerous Parcels	Major Medical Care Required / Minimal Death	$100,000s	Sheltering Requiring Neighboring Counties Help	Days
4	State	Multiple Sections	Major Injuries / Requires Help from Outside County / A Few Deaths	$1,000,000s	Long Term Sheltering Effort	Hours
8	Federal	County Wide	Massive Casualties / Catastrophic	$10,000,000s	Relocation Required	Minutes

West Nile Virus has a magnitude score of 9.

Frequency of West Nile Virus Hazard	
Ranking	**Description**
HIGH	Multiple Times a Year to 5 Years
MEDIUM	5 to 25 Years
LOW	25 Years to Hasn't Happened

Magnitude/Frequency Scoring Rationale

Outbreaks of West Nile Virus, like other epidemics, develop relatively slowly, usually providing months of warning (Warning Lead Times = 1). When an outbreak does occur, wide geographical areas can be affected but, while Blaine County is largely urban, the urban population density is much lower than that of most large cities.

(Geography Affected = 1). Major medical care is required with the potential for death. (Bodily Harm = 4). Little or no economic loss is likely (Economic Loss = 1) and recovery is left to individuals and families (Reconstruction Assistance = 1). Public Sheltering would not be required (Shelter = 1). The total Magnitude score is, therefore, nine (9) which, for Blaine County, is in the "Low" range. Historical records are available and reliable, indicating that instances of West Nile Virus occur yearly (Frequency = High).

Hoof and Mouth Disease

Description

Hoof-and-mouth or foot-and-mouth disease is a severe, highly communicable viral disease of cattle and swine. It also affects sheep, goats, deer, and other cloven–hoofed ruminants. Symptoms of FMD include blisters around the mouth or on the feet, excessive drooling, reduced appetite, and lameness. Animals may attempt to walk on their knees. The disease itself is characterized by fever and blister-like lesions followed by erosions on the tongue and lips, in the mouth, on the teats, and between the hooves. Many animals recover, but the disease leaves them debilitated. It causes severe losses in production of meat and milk. Because it spreads widely and rapidly and because it has grave economic and clinical consequences, FMD is one of the animal diseases that livestock owners dread most.[30]

Historical Frequencies

The U.S. has been free of FMD since 1929. Figure 4.4.5 illustrates outbreaks of the disease in locations throughout the world.

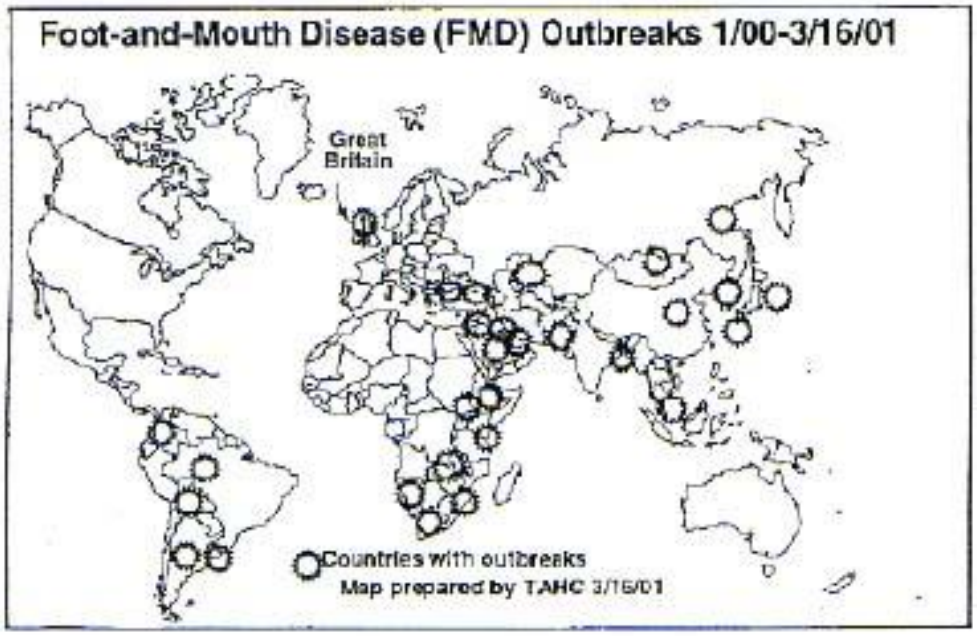


Figure 4.4.5 Foot and Mouth Breakouts Worldwide

[30] http://www.livestocktrail.uiuc.edu/biosecurity/hmd/index.htm

Impacts

FMD is one of the most difficult animal infections to control. Because the disease occurs in many parts of the world, there is always a chance of its accidental introduction into the U.S. That chance has been heightened recently by a major outbreak in the United Kingdom that has already spread to continental Europe. The European Union is a major U.S. trading partner.

If an outbreak occurred in the U.S., this disease could spread rapidly to all sections of the country by routine livestock movements unless it was detected early and eradicated immediately. Livestock producers are key to early detection and eradication.

The disease is caused by a virus that can persist in contaminated fodder and the environment for up to one month, depending on the temperature and pH conditions. There are at least seven separate types and many subtypes of the FMD virus. Immunity to one type does not protect an animal against other types.

Loss Estimates

There is an indemnity program to compensate producers for infected animals, products (cheese, milk, etc.) and property (feed, seed, wooden fences or buildings, etc.). Federal statutes for FMD eradication mandate that all animals and properties be appraised before the government destroys them. The appraisal of animals is based on their fair market value or replacement value within limits to be established during each outbreak. A team of appraisers, including Federal and State government representatives and the producer will be responsible for the appraisal and signed paperwork for each item.

Hazard Evaluation

Repetitive Loss - none

Magnitude of Natural Disasters						
Value	**Reconstruction Assistance From**	**Geography (Area) Affected**	**Expected Bodily Harm**	**Loss Estimate Range**	**Population Sheltering Required**	**Warning Lead Times**
1	Family	Parcel	Little to No Injury / No Death	$1000s	No Sheltering	Months
2	City	Block or Group of Parcels	Multiple Injuries with Little to No Medical Care / No Death	$10,000s	Little Sheltering	Weeks
2	County	Section or Numerous Parcels	Major Medical Care Required / Minimal Death	$100,000s	Sheltering Requiring Neighboring Counties Help	Days
4	State	Multiple Sections	Major Injuries / Requires Help from Outside County / A Few Deaths	$1,000,000s	Long Term Sheltering Effort	Hours
8	Federal	County Wide	Massive Casualties / Catastrophic	$10,000,000s	Relocation Required	Minutes

Hoof and Mouth Disease has a magnitude score of 23.

Frequency	
Ranking	**Description**
HIGH	Multiple Times a Year to 5 Years
MEDIUM	5 to 25 Years
LOW	25 Years to Hasn't Happened

Magnitude/Frequency Scoring Rationale

Outbreaks of Hoof and Mouth, like other epidemics, develop relatively slowly, usually providing months of warning (Warning Lead Times = 1). When an outbreak does occur, limited geographical areas can be affected, but in Blaine County large ranches could be affected (Geography Affected = 4). Major medical care would not be required for humans. (Bodily Harm = 1). Significant economic loss to ranchers is likely (Economic Loss = 8). As per Federal Law recovery assistance could come from the Federal Government (Reconstruction Assistance = 8). Public Sheltering would not be required (Shelter = 1). The total Magnitude score is, therefore, twenty-three (23) which, for Blaine County, is in the "High" range. Historical records are available and reliable, indicating that instances of Hoof and Mouth Disease have not occurred in the United States since 1929 (Frequency = Low).

Mad Cow Disease

Description

BSE (bovine spongiform encephalopathy) is a fatal disease that causes progressive neurological degeneration in cattle. Similar to BSE, Creutzfeldt-Jakob disease (CJD) is a rare disease that occurs in humans. In 1996, following outbreaks of BSE among British cattle, scientists found a possible link between BSE and a new variant of CJD (vCJD). While it is not certain how BSE may be spread to humans, evidence indicates that humans may acquire vCJD after consuming BSE-contaminated cattle products.

BSE was first reported among cattle in the United Kingdom (U.K) in November 1986. The source of the BSE outbreak is uncertain, but it is thought to have been amplified by feeding cattle with meat-and-bone meal from BSE-infected cattle. To contain the disease, the British government took a number of steps, including the institution of a feed ban prohibiting the use of meat-and-bone meal and slaughtering all cattle believed to be infected.[31]

Historical Frequencies

Neither BSE among cattle, nor the new human variant of CJD, have been found in the United States.

Some cases of BSE have been identified among cattle in other European countries. Between 1989 and 2000, at least 1,642 cases of BSE have been identified among cattle in Belgium, Denmark, France, Germany, Ireland, Italy, Liechtenstein, the Netherlands, Portugal, Spain and Switzerland.

Among humans, the total worldwide number of known vCJD cases is 92, including 88 in the U.K., three in France and one in Ireland.

A United States Department of Agriculture (USDA) BSE investigation was initiated on Dec. 23, 2003 when a cow in Washington State was thought to have contracted BSE. By the time the investigation was completed in February 2004, the USDA had examined the identification tags and other devices on 75,000 cattle in three states--Washington, Oregon, and Idaho--and had humanely slaughtered 255 adult cattle and tested them for BSE.

Previously, in May 2003, Canadian authorities had reported finding the first native BSE cow in North America. Records indicated that this cow and the one found in Washington were more than six years old and born prior to the feed ban in the United States and Canada[32].

Since the first case of BSE was reported in 2003, the number of cattle tested for the disease has increased substantially. Still, only about 650,000 of the total US herd (some 35 million slaughtered annually) have been tested - a rate far lower than the percentage tested in Europe or Japan.

Of those tested, two have turned up positive for BSE. That is "evidence that the prevalence of this disease in the United States is extremely low," says Terry Stokes, chief executive officer of the National Cattlemen's Beef Association.[33]

[31] http://www.hhs.gov/news/press/2001pres/01fsbse.html
[32] http://www.fda.gov/fdac/features/2004/304_cow.html
[33] http://www.csmonitor.com/2006/0315/p02s01-uspo.html

Impacts

BSE among cattle was first described in the U.K. in November 1986. Epidemiological evidence established that the outbreak of BSE was related to the production and use, over many years, of contaminated meat-and-bone meal. The source of the BSE outbreak is uncertain. There is strong evidence and general agreement that the outbreak was amplified by feeding rendered bovine meat-and-bone meal to young calves[34].

Loss Estimates

In 2003, the U.S. ban on Canadian beef and cattle, coupled with already tight U.S. supplies and strong demand, had driven up U.S. beef and cattle prices substantially. After the December 2003 BSE case was announced, cattle prices fell. However, they had stabilized by early January 2004. Industry analysts reported that U.S. domestic demand (both retail and restaurant, including fast-food hamburger sales) appeared to be holding steady. That combined with lower U.S. cattle inventories due in part to widespread drought in cattle country, kept cattle and beef prices high during 2004, helping to offset the effects of the BSE-related foreign bans.

USDA has reported that average U.S. fed steer (i.e., slaughter-ready cattle) prices were nearly $85 per cwt. for all of 2004, compared with an earlier 2004 prediction of $72-$77; this is near the lower end of a USDA forecast, made just before the BSE case, of $84-$91 per cwt. The 2005 price forecast (as of early 2005) was $80-$85. Average fed steer prices were $85 in 2003 and $67 in 2002.

Nonetheless, foreign import bans mean the domestic market has had to absorb some 23 million more pounds of beef weekly or 1.2 billion pounds for the year due to lost exports, according to Cattle-Fax. Exports of by-products like collagen, sausage casings, brains, other organs, tongue, tails, and tendons (all adding value to each animal) also have been affected by the bans on U.S. beef products. USDA has estimated that U.S. beef and veal exports globally reached only 434 million pounds in 2004, or 17% of the 2003 level of 2.523 billion pounds, even with the partial reopening of Canada and Mexico. USDA predicted that unless more markets reopen, exports would reach only 640 million pounds in 2005.[35]

[34] http://www.hhs.gov/news/press/2001pres/01fsbse.html
[35] http://www.law.umaryland.edu/marshall/crsreports/crsdocuments/RS2170901192005.pdf

Hazard Evaluation

Repetitive Loss - none

Magnitude of Natural Disasters						
Value	**Reconstruction Assistance From**	**Geography (Area) Affected**	**Expected Bodily Harm**	**Loss Estimate Range**	**Population Sheltering Required**	**Warning Lead Times**
1	Family	Parcel	Little to No Injury / No Death	$1000s	No Sheltering	Months
2	City	Block or Group of Parcels	Multiple Injuries with Little to No Medical Care / No Death	$10,000s	Little Sheltering	Weeks
2	County	Section or Numerous Parcels	Major Medical Care Required / Minimal Death	$100,000s	Sheltering Requiring Neighboring Counties Help	Days
4	State	Multiple Sections	Major Injuries / Requires Help from Outside County / A Few Deaths	$1,000,000s	Long Term Sheltering Effort	Hours
8	Federal	County Wide	Massive Casualties / Catastrophic	$10,000,000s	Relocation Required	Minutes

Mad Cow Disease has a magnitude score of 23.

Frequency	
Ranking	**Description**
HIGH	Multiple Times a Year to 5 Years
MEDIUM	5 to 25 Years
LOW	25 Years to Hasn't Happened

Magnitude/Frequency Scoring Rationale

Mad Cow Disease, like other epidemics, develop relatively slowly, usually providing months of warning (Warning Lead Times = 1). When an outbreak does occur, limited geographical areas can be affected, but in Blaine County large ranching operations could be affected (Geography Affected = 4). Major medical care would not be required for humans. (Bodily Harm = 1). Significant economic loss to ranchers is likely (Economic Loss = 4) and recovery currently is left to individuals and families (Reconstruction Assistance = 1). Public Sheltering would not be required (Shelter = 1). The total Magnitude score is, therefore, twenty-three (23) which, for Blaine County, is in the "High" range. Historical records are available and reliable, indicating that instances of Mad Cow Disease have not occurred in the United States since 2003 and has never occurred in Blaine County (Frequency = Low).

Section 4.5 Technological (Manmade) Hazards

Structural Fire

Description

Structural fires produce high heat, toxic gases, and particulate material as smoke and soot. The heat produced or burning debris can, in turn, cause additional fires. Toxic gases and smoke are extreme hazards in the interior of burning structures and may also be a threat downwind of the structure. Where the building contents include toxic materials, the downwind threat can extend a mile or more. Burning structures may collapse injuring persons inside or nearby and floors or roofs may give way beneath those walking on them. Burning structures present electrical, explosion and flashover hazards, and partially burned structures may, themselves, be physical hazards even after the fire is extinguished.

Historical Frequencies

Structure fires are extremely common in Blaine County as they are across the nation. As an example of frequency Table 4.5.1 gives the number of fire calls and the total number of calls responded to by the Blaine County Fire Departments for 2008 according to each department. This information is provided to illustrate the frequency of structure fire calls.

Structure Fire History For Blaine County Fire Department 2008	
Department name	**Fire Calls**
Bellevue FD	1
Carey Rural FPD	unk
Hailey FD	3
Ketchum FD	6
Sun Valley FD	6
Wood River FPD	4

Table 4.5.1- Blaine County Structure Fire History
Source: Fire in Idaho 2006 State Fire Marshall Annual Report

Impacts

Indirect dollar losses, as is often the case, may be much larger than direct losses. Costs also include those for development and enforcement of fire codes and maintaining fire response capabilities. Firefighters are, additionally, at risk from such hazards as physical exhaustion and cardiac stresses, heat exhaustion or heat stroke, acute and chronic health effects from toxic exposures, hearing damage, and injuries from many sources.

Loss Estimates

As an example of the loss potential in Blaine County from Structure Fires the State of Idaho Fire Marshall reported total fire loss in 2006 of $1,855,210, in 2007 of $1,086,060, and 2008 of $3,116,920.[36]

[36] http://www.doi.idaho.gov/SFM/08annrep.pdf

Hazard Evaluation

Repetitive Loss - none

Magnitude of Structural Fire Hazard						
Value	**Reconstruction Assistance From**	**Geography (Area) Affected**	**Expected Bodily Harm**	**Loss Estimate Range**	**Population Sheltering Required**	**Warning Lead Times**
1	Family	Parcel	Little to No Injury / No Death	$1000s	No Sheltering	Months
2	City	Block or Group of Parcels	Multiple Injuries with Little to No Medical Care / No Death	$10,000s	Little Sheltering	Weeks
2	County	Section or Numerous Parcels	Major Medical Care Required / Minimal Death	$100,000s	Sheltering Requiring Neighboring Counties Help	Days
4	State	Multiple Sections	Major Injuries / Requires Help from Outside County / A Few Deaths	$1,000,000s	Long Term Sheltering Effort	Hours
8	Federal	County Wide	Massive Casualties / Catastrophic	$10,000,000s	Relocation Required	Minutes

Structural Fire has a magnitude score of 16.

Frequency of Hazard	
Ranking	**Description**
HIGH	Multiple Times a Year to 5 Years
MEDIUM	5 to 25 Years
LOW	25 Years to Hasn't Happened

Magnitude/Frequency Scoring Rationale

Structural fires develop rapidly with little or no warning (Warning Lead Times = 8). Structural fire almost invariable affects only one or a very few structures (Geography Affected = 1) but limited death and injury does occur (Bodily Harm = 2). Some economic loss occurs (Economic Loss = 4) but recovery is left to individuals and families (Reconstruction Assistance = 1). Sheltering of the residents may be required (Shelter = 2). The total Magnitude score is, therefore, sixteen (16) which, for Blaine County, is in the "Medium" range. Historical records are available and reliable, indicating that structural fires are relatively frequent (Frequency = High).

Nuclear Event

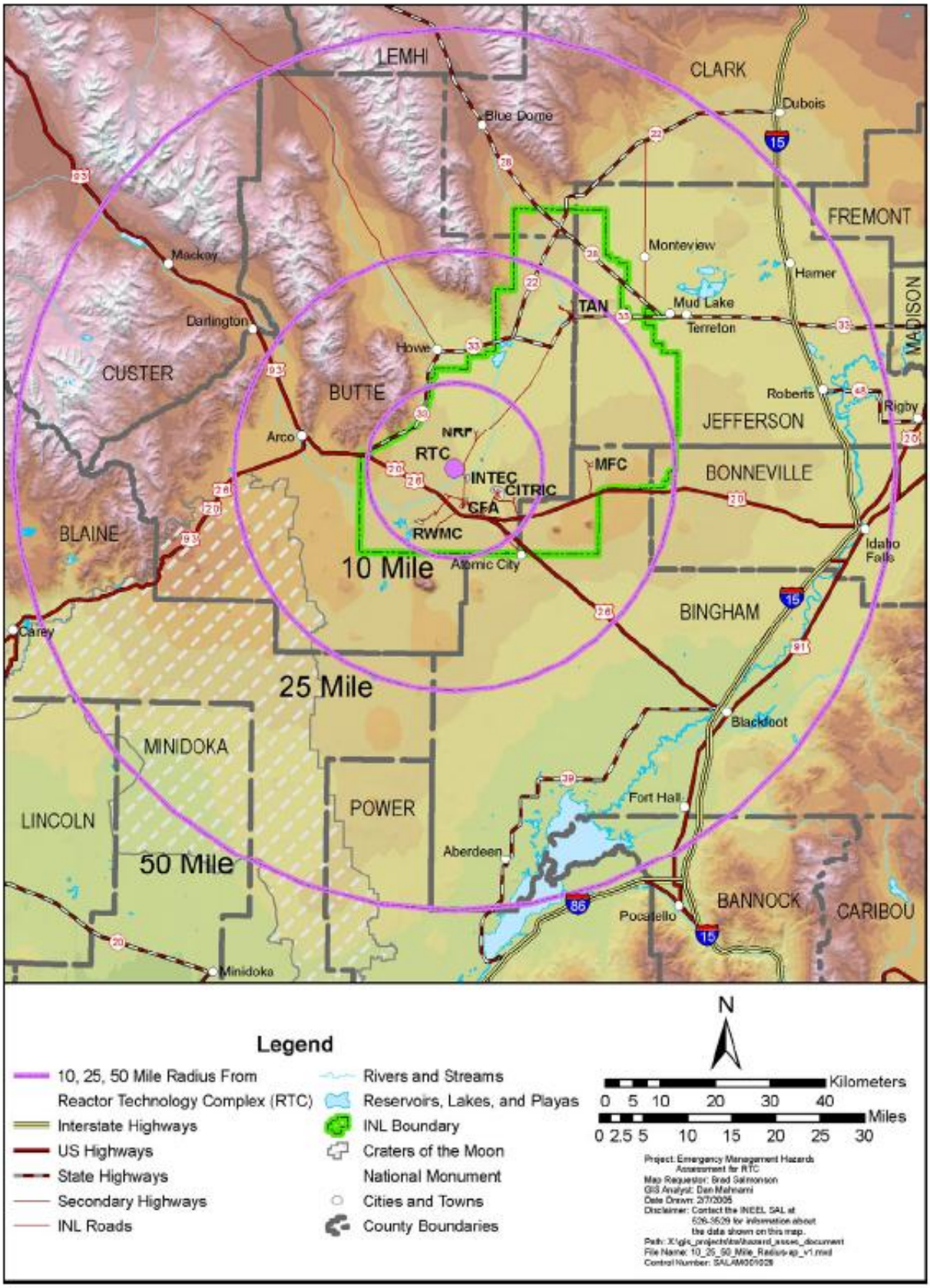
Description

A "nuclear event" is defined as an incident involving a nuclear reaction; nuclear fission or nuclear fusion. Nuclear fusion, at present, only takes place during the detonation of a nuclear weapon (the so-called H-bomb) and is highly improbable. Much more common is nuclear fission which must involve "fissionable" materials, defined as materials containing isotopes with nuclei capable of splitting. Further, the most probable incidents involve "fissile" materials, defined as materials containing isotopes capable of sustaining a nuclear fission chain reaction. Such reactions release heat, radiation, and radioactive contamination in extremely large quantities relative to the amount of material reacting. Examples of nuclear events include nuclear weapons detonations, nuclear reactor incidents, and nuclear (fissile) material production, handling or transportation incidents. A nuclear detonation as a part of an attack scenario is, perhaps, the ultimate technological disaster. The hazards are well-known and vividly described in FEMA publications[37]. They include shock wave, enormous heat, and the spread of fallout (radioactive contamination). Other nuclear events would not involve a nuclear blast, but still have the potential to produce widespread and long-term consequences as exemplified by the 1986 Chernobyl accident[38]. Of primary concern is the release of radioactive contamination in the form of airborne gases and particulate material. This radioactive material has the potential to travel great distances and particulate material eventually is deposited in the environment and incorporated into the food chain. Such contamination may remain hazardous for many years. Direct radiation exposure is also a hazard in relatively close proximity to a nuclear event as is exposure to high thermal energy. Nuclear events are virtually always caused by intentional or unintentional human actions.

The Idaho National Laboratory poses a credible hazard to Blaine County. The locations of the INL and of the RTC facility within the Site boundary are shown in Figure 4.5.1. As shown in Table 4.5.4, the Protective Action Distance for a radiological release from the RTC facility is 115 km (approximately 69 miles). This indicates a threat to crops and grazing lands in the eastern portions of Blaine County.

[37] http://www.fema.gov/areyouready/nuclear_blast.shtm
[38] http://www.iaea.org/NewsCenter/Focus/Chernobyl/index.html

Figure 4.5.1
Idaho National Laboratory Site Map



INL Hazards Assessment Maximum Protective Action Distances (PAD)		
Facility	**Non-Rad PAD**	**Rad PAD**
Research Center (IRC)	0.1 km	None
Radioactive Waste Management Complex (RWMC)	None	15 km
Reactor Technology Complex (RTC)	7.8 km	115 km
Idaho Nuclear Technology and Engineering Center (INTEC)	1.6 km	16 km
Central Facilities Area (CFA)	0.5 km	None
Transportation	*	*
Materials and Fuels Complex (MFC)	1.7 km	4.5 km
Area North (TAN)	**	0.03 km

* INL asserts that associated transportation activity is within "normal" limits for highway traffic and uses the DOT ERG for its planning basis.
** Unclear but well within INL Site boundary

Table 4.5.4
INL Hazards Assessment Maximum Protective Action Distances
Source – U. S. Department of Energy Idaho Operations Office

Historical Frequencies

There have been no recorded nuclear events in Blaine County

Impacts

A portion of eastern Blaine County lies within the 69-mile ingestion pathway planning zone of the INL Reactor Technology Complex. In this zone, direct, human radiological and contamination exposure is not a serious concern. There is, however, a long-term threat to the food supply because vegetables, fruit, trees, and grains may take up radionuclides from the soil. Radionuclides may also be ingested by livestock, wild game and fish that may then enter the human food chain. In the event of a serious radiological release from that facility, food production, processing and marketing facilities within the planning zone could be affected.

There are two types of responses intended to prevent or limit public exposure in the ingestion pathway:[39]

- Preventive protective actions are those taken by farmers to prevent contamination of milk, water and food products (e.g., sheltering dairy animals and placing them on stored feed and covered water).
- Emergency protective actions are those taken by public officials to address contaminated milk, water and food products, and divert such products from animal and human consumption (i.e., embargoes).

Loss Estimates

Indirect costs due to a nuclear event would almost certainly exceed those of clean-up. These would include costs attributable to the stigma associated with radiation and radioactive material in the mind of the public. Because of this stigma, the social and political impacts of a nuclear event may greatly exceed any justifiable limits. There have been instances where the public has avoided radiologically contaminated areas and shunned affected businesses and their products long after any credible health threat has been eliminated.

[39] http://www.hsem.state.mn.us/uploadedfile/dir_hand/EMDH_C- 13_RadiologicalEmergencyPreparednessProgram.pdf

Hazard Evaluation

Magnitude of Nuclear Hazard						
Value	**Reconstruction Assistance From**	**Geography (Area) Affected**	**Expected Bodily Harm**	**Loss Estimate Range**	**Population Sheltering Required**	**Warning Lead Times**
1	Family	Parcel	Little to No Injury / No Death	$1000s	No Sheltering	Months
2	City	Block or Group of Parcels	Multiple Injuries with Little to No Medical Care / No Death	$10,000s	Little Sheltering	Weeks
2	County	Section or Numerous Parcels	Major Medical Care Required / Minimal Death	$100,000s	Sheltering Requiring Neighboring Counties Help	Days
4	State	Multiple Sections	Major Injuries / Requires Help from Outside County / A Few Deaths	$1,000,000s	Long Term Sheltering Effort	Hours
8	Federal	County Wide	Massive Casualties / Catastrophic	$10,000,000s	Relocation Required	Minutes

Nuclear has a magnitude score of 21.

Frequency of Nuclear Hazard	
Ranking	**Description**
HIGH	Multiple Times a Year to 5 Years
MEDIUM	5 to 25 Years
LOW	25 Years to Hasn't Happened

Magnitude/Frequency Scoring Rationale

Nuclear events might arise under a number of scenarios, each providing a different lead time, but the most likely would provide at least a day of warning (Warning Lead Times = 2). A portion of Blaine County could be affected by a nuclear event at the INL (Geography Affected = 4) but deaths and injuries are highly unlikely (Bodily Harm = 1). Business interruption and agricultural economic loss would occur within the ingestion pathway (Economic Loss = 4) and recovery assistance would be provided by the Federal Government (Reconstruction Assistance = 8). Sheltering of livestock may be required in the ingestion pathway (Shelter = 2). The total Magnitude score is, therefore, twenty-one (21) which, for Blaine County, is in the "High" range. No nuclear event has occurred in Blaine County and the likelihood of an occurrence is very low (Frequency = Low).

Hazardous Material Event

Description

Substances that, because of their chemical or physical characteristics, are hazardous to humans and living organisms, property, and the environment, are regulated by the U.S. Environmental Protection Agency (EPA) and, when transported in commerce, by the U.S. Department of Transportation (DOT). EPA regulations address "hazardous substances" and "extremely hazardous substances".

EPA chooses to specifically list hazardous substances and extremely hazardous substances rather than providing objective definitions. Hazardous substances, as listed, are generally materials that, if released into the environment, tend to persist for long periods and pose long-term health hazards for living organisms. They are primarily chronic, rather than acute health hazards. Regulations require that spills of these materials into the environment in amounts at or above their individual "reportable quantities" must be reported to the EPA. Extremely hazardous substances, on the other hand, while also generally toxic materials, are acute health hazards that, when released, are immediately dangerous to the life of humans and animals as well as causing serious damage to the environment. There are currently 355 specifically listed extremely hazardous substances listed along with their individual "threshold planning quantities" (TPQ). When facilities have these materials in quantities at or above the TPQ, they must submit "Tier II" information to appropriate state and/or local agencies to facilitate emergency planning.

DOT regulations provide the following definition for the term "hazardous material":

> *Hazardous material* means a substance or material that the Secretary of Transportation has determined is capable of posing an unreasonable risk to health, safety, and property when transported in commerce, and has designated as hazardous under section 5103 of Federal hazardous materials transportation law (49 U.S.C. 5103). The term includes hazardous substances, hazardous wastes, marine pollutants, elevated temperature materials, materials designated as hazardous in the Hazardous Materials Table (see 49 CFR 172.101), and materials that meet the defining criteria for hazard classes and divisions in part 173 of subchapter C of this chapter.

When a substance meets the DOT definition of a hazardous material, it must be transported under safety regulations providing for appropriate packaging, communication of hazards, and proper shipping controls.

In addition to EPA and DOT regulations, the National Fire Protection Association (NFPA) develops codes and standards for the safe storage and use of hazardous materials. These codes and standards are generally adopted locally and include the use of the NFPA 704 standard for communication of chemical hazards in terms of health, fire, instability (previously called "reactivity"), and other special hazards (such as water reactivity and oxidizer characteristics). Diamond-shaped NFPA 704 signs ranking the health, fire and instability hazards on a numerical scale from zero (least) to four (greatest) along with any special hazards, are usually required to be posted on chemical storage buildings, tanks, and other facilities. Similar NFPA 704 labels may also be required on individual containers stored and/or used inside facilities.

While somewhat differently defined by the above organizations, the term "hazardous material" may be generally understood to encompass substances that have the capability to harm humans

and other living organisms, property, and/or the environment. There is also no universally accepted, objective definition of the term "hazardous material event." A useful working definition, however, might be framed as: Any actual or threatened uncontrolled release of a hazardous material, its hazardous reaction products, or the energy released by its reactions that poses a significant risk to human life and health, property and/or the environment.

There are 10 facilities in Blaine County that submitted Tier II information. Figure 4.5.1 shows these Tier II facilities along with their Protective Action Distances (PAD) (See Attachment 4). These PADs are based on a hypothetical worst-case scenario where the total quantity of the material explodes or is released directly into the air. Hazardous materials are also very commonly stocked and used by businesses in smaller quantities than those required to submit Tier II reports, as well as by private individuals. Thus, it is reasonably safe to consider the entire County and its inhabitants to be exposed to risk from hazardous materials. In spite of their widespread use, however, hazardous materials events are relatively rare and even more rarely cause death, injury or large-scale property damage. To some extent this is due to the fact that such hazards are very effectively addressed by inspections, regulations, codes and safety procedures, as well as by specialized emergency response training.

Table 4.5.4 lists Tier II facilities in Blaine County and their respective PADs.

Facility	Address	City/Zip	Product	PAD (feet)
Idaho Concrete Company - Bellevue	10716 highway 75	Bellevue	Diesel Fuel Oil	2640
Amerigas Propane	11731 Hwy 75	Hailey	Liquefied Petroleum Gas	5280
Franklin United Inc. dba United Oil	118 South 5th Street	Hailey	Diesel Fuel	2640
Horizon Air	Airport Way-Friedman Airport	Hailey	Propylene Glycol	0
Qwest -Ketchum Central Office (360231)	205 East Avenue North	Ketchum	Sulfuric Acid	150
Idaho concrete company - Ketchum	826 n Washington	Ketchum	calcium chloride	0
Qwest -Ketchum Central Office (360231)	205 East Avenue North	Ketchum	Sulfuric Acid	150
Sun Valley Mountain Operations	420 Serenade Lane	Ketchum	Diesel Fuel	2640
Level 3 Communications - MNDKID1T - 5B	Bear Trap Cave Rd	Near Minidoka	Sulfuric Acid	150
Sun Valley Ice Rink Plant	1 Sun Valley Road	Sun Valley	Ammonia (ANHYDROUS)	7392

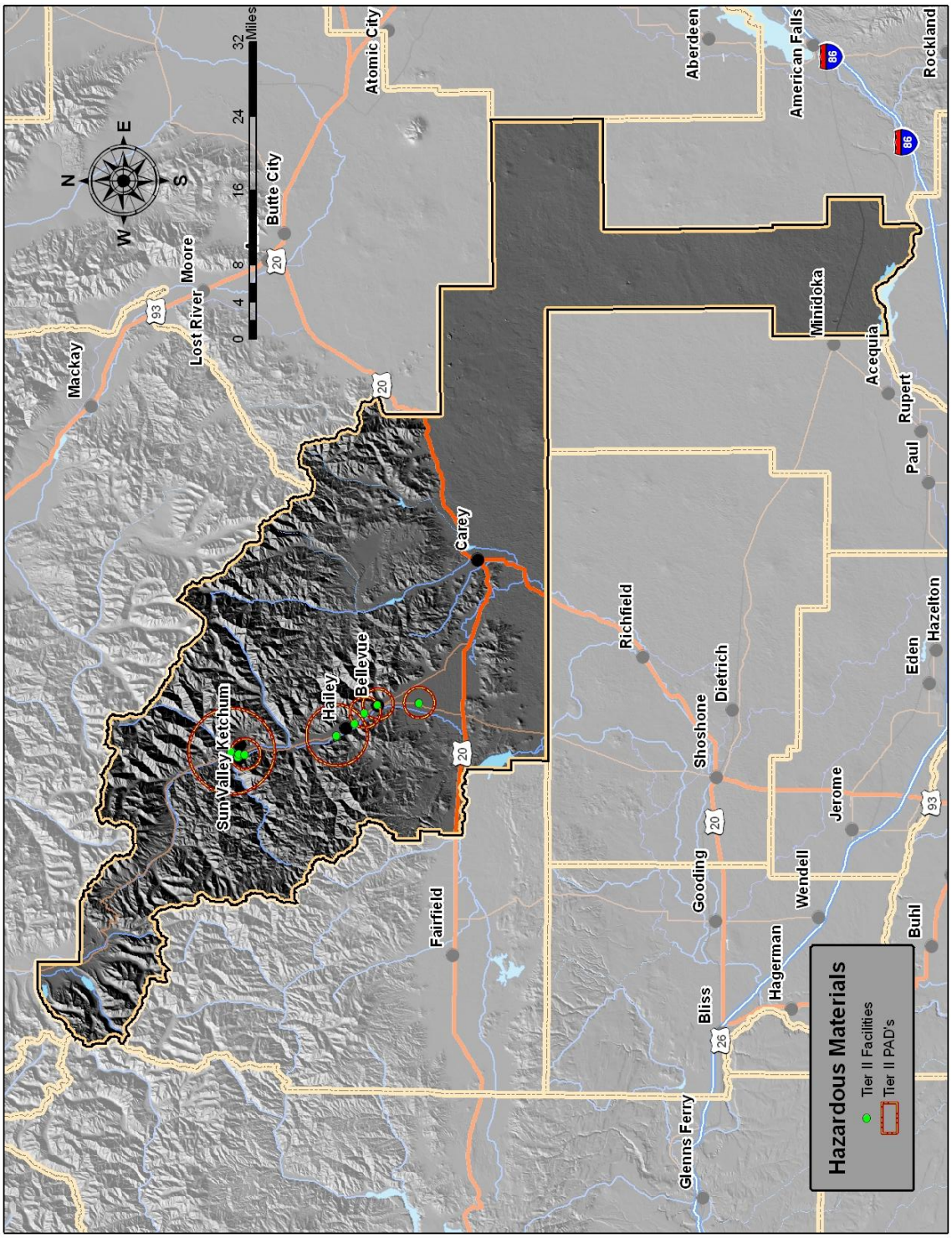


Figure 4.5.1 Tier II Facilities and PAD

Historical Frequencies

The following table lists hazardous material events in Blaine County responded to by the Central Idaho Regional Hazardous Materials Emergency Response Team for the year 2007.

Place	Date	Chemical	Classification
Blaine	3/14/2007	Suspected BioHazard	Level I
Blaine	9/21/2007	Explosive Material	Level II
Blaine	10/5/2007	Diesel	Level I

Table 4.5.5
Blaine County Hazardous Material Events

***State of Idaho Hazardous Materials Response Classification Levels –**

Level I – An incident involving any response, public or private to an incident involving hazardous materials that can be contained, extinguished, and/or abated using resources immediately available to the responders having jurisdiction.

Level II – An incident involving hazardous materials that is beyond the capabilities of the first responders on the scene, and may be beyond the capabilities of the public sector response agency having jurisdiction. Level II incidents may require the services of the State of Idaho Regional Response Team, or other State/Federal Assistance.

Level III – An incident involving weapons of mass destruction/hazardous materials that will require multiple State of Idaho Regional Response Teams or resources that do not exist within the State of Idaho. These incidents may require resources from State and Federal agencies and/or private industry.

Impacts

Because hazardous materials are so widely used, stored and transported, a hazardous material event could take place in almost anywhere. Further, many hazardous materials are used, stored and transported in very large quantities so that the impacts of an event may be widespread and powerful. Regulations and safety practices make such large scale events unlikely, but smaller scale incidents may have severe impacts including:

- Human deaths, injuries, and permanent disabilities
- Livestock/animal deaths
- Destruction of vegetation and crops
- Property damage and destruction
- Pollution of groundwater, drinking water supplies, and the environment
- Contamination of foodstuffs, property, land and structures
- Temporary or long-term closure of transportation routes and/or facilities
- Loss of business and industrial productivity
- Utility outages
- Clean-up and restoration costs
- Losses and inconvenience due to evacuation
- Loss of valuable chemical product

Loss Estimates

Losses due to the release of Hazardous Materials is linked specifically to two (2) areas; 1) Response, including evacuation, and 2) Clean Up. Blaine County has not had a significant hazardous materials incident however; releases of hydrocarbon fuels are a constant threat. Clean up of these releases is the responsibility of the spiller. Response to releases is reimbursed to the responding jurisdiction by the Idaho Bureau of Homeland Security Hazardous Materials Division.

Affected Population Based on 2000 Census			
Population	**Households**	**Avg. Persons per Household**	**% of Total County Population**
16,665	6,915	2.41	87.75%

Hazard Evaluation

Repetitive Loss - none

Magnitude of Natural Disasters						
Value	**Reconstruction Assistance From**	**Geography (Area) Affected**	**Expected Bodily Harm**	**Loss Estimate Range**	**Population Sheltering Required**	**Warning Lead Times**
1	Family	Parcel	Little to No Injury / No Death	$1000s	No Sheltering	Months
2	City	Block or Group of Parcels	Multiple Injuries with Little to No Medical Care / No Death	$10,000s	Little Sheltering	Weeks
2	County	Section or Numerous Parcels	Major Medical Care Required / Minimal Death	$100,000s	Sheltering Requiring Neighboring Counties Help	Days
4	State	Multiple Sections	Major Injuries / Requires Help from Outside County / A Few Deaths	$1,000,000s	Long Term Sheltering Effort	Hours
8	Federal	County Wide	Massive Casualties / Catastrophic	$10,000,000s	Relocation Required	Minutes

Hazardous Materials has a magnitude score of 20.

Frequency of Hazard	
Ranking	**Description**
HIGH	Multiple Times a Year to 5 Years
MEDIUM	5 to 25 Years
LOW	25 Years to Hasn't Happened

Magnitude/Frequency Scoring Rationale

Hazardous materials events often occur suddenly and with little or no warning (Warning Lead Times = 8). Such events usually affect a relatively limited area (Geography Affected = 2) and injuries but minimal deaths may occur (Bodily Harm = 2). Business interruption and economic

losses are limited (Economic Loss = 2) and recovery assistance is provided locally by the State of Idaho Regional Hazardous Materials Response Team from the Magic Valley (Reconstruction Assistance = 4). Some sheltering of the general public may be required (Shelter = 2). The total Magnitude score is, therefore, twenty (20) which, for Blaine County, is in the "High" range. Historical records for hazardous material events are available and reliable, indicating that significant hazardous materials events occur annually (Frequency = High).

Riot/Demonstration/Civil Disorder

Description

State of Idaho statutes define "riot" as follows (Idaho Statute 18-6401 – RIOT DEFINED):

> Any action, use of force or violence, or threat thereof, disturbing the public peace, or any threat to use such force or violence, if accompanied by immediate power of execution, by two (2) or more persons acting together, and without authority of law, which results in:
>
> (a) physical injury to any person; or
> (b) damage or destruction to public or private property; or
> (c) a disturbance of the public peace;
>
> is a riot.

Also defined in the statutes (Idaho Statute 18-8102 – DEFINITIONS) is "civil disorder":

> "Civil disorder" means any public disturbance involving acts of violence by an assemblage of two (2) or more persons which acts cause an immediate danger of or result in damage or injury to the property or person of any other individual.

The term "demonstration" is not defined in this context in the Idaho statutes but the following is given for "unlawful assembly" (Idaho Statute 18-6404 - UNLAWFUL ASSEMBLY DEFINED):

> Whenever two or more persons assemble together to do an unlawful act, and separate without doing or advancing toward it, or do a lawful act in a violent, boisterous or tumultuous manner, such assembly is an unlawful assembly.

Riots are generally thought of as being spontaneous, violent events whereas demonstrations are usually planned events and are usually intended to be non-violent. Riots seem often to be motivated by frustration and anger, usually over some real or perceived unfair treatment of some group. There are instances, however, where riots have begun during celebrations and other events where the only initiating factor seems to have been the gathering of a crowd of people. The potential for rioting, then, exists any time people gather but a number of factors are associated with the increased probability one will occur including:

- Drug and alcohol use
- Youth of crowd members
- Low socio-economic status of members
- High level of emotions
- A history of rioting on the same or similar previous occasions
- Initiating event, person, or persons

Once violent or illegal activity is initiated, it escalates, possibly at least partly because of the perception that, because all are acting together, there is little probability that any given individual will be arrested or otherwise suffer consequences. Riots may range in scope from a very few people in a small area to thousands over an entire city. Once initiated, large riots are very difficult to suppress, particularly in the United States where law enforcement is constrained by constitutional guarantees as well as personnel limits. Early and decisive action by law enforcement may be effective in suppressing a riot, but police actions may also lead to further escalation.

Historical Frequencies

There are no recorded riot events in Blaine County.

Impacts

Riots may result in loss of life, injury and permanent disability (participants, bystanders, and law enforcement personnel) as well as looting, vandalism, setting of fires and other property destruction. Law enforcement, emergency medical services and medical facilities and personnel, firefighting and other community resources may be overwhelmed and unavailable to the community at large. Transportation routes may be closed, infrastructure and utilities damaged or destroyed, and public buildings attacked, damaged or destroyed. Social and psychological effects may also cause great impacts. Lingering fear and resentment can be long-lasting and can greatly impair the ability of a community to function politically, socially and economically.

Loss Estimates

Losses from Riot/Demonstration/Civil Disobedience comes primarily damage to community and private property. It is difficult to estimate specific losses however; losses would be consistent with losses due to structure fires and similar incidents.

Hazard Evaluation

Repetitive Loss - none

Magnitude of Natural Disasters						
Value	**Reconstruction Assistance From**	**Geography (Area) Affected**	**Expected Bodily Harm**	**Loss Estimate Range**	**Population Sheltering Required**	**Warning Lead Times**
1	Family	Parcel	Little to No Injury / No Death	$1000s	No Sheltering	Months
2	City	Block or Group of Parcels	Multiple Injuries with Little to No Medical Care / No Death	$10,000s	Little Sheltering	Weeks
2	County	Section or Numerous Parcels	Major Medical Care Required / Minimal Death	$100,000s	Sheltering Requiring Neighboring Counties Help	Days
4	State	Multiple Sections	Major Injuries / Requires Help from Outside County / A Few Deaths	$1,000,000s	Long Term Sheltering Effort	Hours
8	Federal	County Wide	Massive Casualties / Catastrophic	$10,000,000s	Relocation Required	Minutes

Riot/Demonstration/Civil Disorder has a magnitude score of 11.

Frequency	
Ranking	**Description**
HIGH	Multiple Times a Year to 5 Years
MEDIUM	5 to 25 Years
LOW	25 Years to Hasn't Happened

Magnitude/Frequency Scoring Rationale

Riot/Demonstration/Civil Disorder events usually provide less than a day of warning (Warning Lead Times = 4). Very limited geographical areas would be affected (Geography Affected = 2) and no deaths and injuries would be expected (Bodily Harm = 1). Business interruption and economic loss are likely to be quite limited (Economic Loss = 1) and any recovery assistance would be provided at the local level (Reconstruction Assistance = 2). No public sheltering would be expected (Shelter = 1). The total Magnitude score is, therefore, eleven (11) which, for Blaine County, is in the "Low" range. Historical records are available and reliable, indicating that no such events have occurred in Blaine County (Frequency = Low).

Terrorism

Description

Terrorism is an unlawful act under both Federal and State of Idaho statutes. Definitions are as follows:

U.S. Code : Title 18 : Section 2331. Definitions

(5) the term "domestic terrorism" means activities that -
- (A) involve acts dangerous to human life that are a violation of the criminal laws of the United States or of any State;
- (B) appear to be intended -
  - (i) to intimidate or coerce a civilian population;
  - (ii) to influence the policy of a government by intimidation or coercion; or
  - (iii) to affect the conduct of a government by mass destruction, assassination, or kidnapping; and
- (C) occur primarily within the territorial jurisdiction of the United States.

Idaho Statute 18-8102 – DEFINITIONS

(5) "Terrorism" means activities that:
- (a) Are a violation of Idaho criminal law; and
- (b) Involve acts dangerous to human life that are intended to:
  - (i) Intimidate or coerce a civilian population;
  - (ii) Influence the policy of a government by intimidation or coercion; or
  - (iii) Affect the conduct of a government by the use of weapons of mass destruction, as defined in section 18-3322, Idaho Code.

The Federal Emergency Management Agency gives the following as general information on terrorism[40]:

"Terrorism is the use of force or violence against persons or property in violation of the criminal laws of the United States for purposes of intimidation, coercion, or ransom.

Terrorists often use threats to:

- Create fear among the public.
- Try to convince citizens that their government is powerless to prevent terrorism.
- Get immediate publicity for their causes.

Acts of terrorism include threats of terrorism; assassinations; kidnappings; hijackings; bomb scares and bombings; cyber attacks (computer-based); and the use of chemical, biological, nuclear and radiological weapons.

High-risk targets for acts of terrorism include military and civilian government facilities, international airports, large cities, and high-profile landmarks. Terrorists might also target large public gatherings, water and food supplies, utilities, and corporate centers. Further, terrorists are capable of spreading fear by sending explosives or chemical and biological agents through the mail."

[40] http://www.fema.gov/hazard/terrorism/info.shtm

Acts of terrorism, then, are essentially the intentional initiation of the sorts of hazard events that have been discussed in previous sections.

Historical Frequencies

There are no recorded terrorism events in Blaine County.

Impacts

Since the events of September 11, 2001, no citizen of the United States is unaware of the enormous potential impacts of terrorist acts. The emotional impacts; fear, dread, anger, outrage, etc., serve to compound the enormous physical, economic, and social damage. The continuing terrorist threat itself has a profound impact on many aspects of everyday life in this country and on the U.S. economy.

Loss Estimates

Specific loss estimates are not provided due to security policies.

Hazard Evaluation

Repetitive Loss - none

Magnitude of Natural Disasters						
Value	**Reconstruction Assistance From**	**Geography (Area) Affected**	**Expected Bodily Harm**	**Loss Estimate Range**	**Population Sheltering Required**	**Warning Lead Times**
1	Family	Parcel	Little to No Injury / No Death	$1000s	No Sheltering	Months
2	City	Block or Group of Parcels	Multiple Injuries with Little to No Medical Care / No Death	$10,000s	Little Sheltering	Weeks
2	County	Section or Numerous Parcels	Major Medical Care Required / Minimal Death	$100,000s	Sheltering Requiring Neighboring Counties Help	Days
4	State	Multiple Sections	Major Injuries / Requires Help from Outside County / A Few Deaths	$1,000,000s	Long Term Sheltering Effort	Hours
8	Federal	County Wide	Massive Casualties / Catastrophic	$10,000,000s	Relocation Required	Minutes

Terrorism has a magnitude score of 24.

Frequency of Hazard	
Ranking	**Description**
HIGH	Multiple Times a Year to 5 Years
MEDIUM	5 to 25 Years
LOW	25 Years to Hasn't Happened

Magnitude/Frequency Scoring Rationale

Terrorism events may occur with little or no warning (Warning Lead Times = 8). Numerous scenarios are possible, many of which could affect a moderately large area (Geography Affected

= 2) but most of which would cause injuries but few deaths (Bodily Harm = 2). Business interruption and economic loss, under most scenarios, are likely to be moderate (Economic Loss = 2) but Federal recovery assistance would probably be available (Reconstruction Assistance = 8). Some sheltering of those in the immediate area may be required (Shelter = 2). The total Magnitude score is, therefore, twenty-four (24) which, for Blaine County, is in the "High" range. Historical records are available and reliable, indicating that such events have never occurred in Blaine County and the likelihood is considered to be extremely low (Frequency = Low).

Air Craft/Friedman Memorial Airport Incidents

Description

Friedman Memorial Airport, owned by the City of Hailey and Blaine County, is a public-use airport located one nautical mile (2 km) southeast of the central business district of Hailey. The airport is operated by the Friedman Memorial Airport Authority under a Joint Powers Agreement between the City of Hailey and Blaine County. It serves Sun Valley and the surrounding areas in the Wood River Valley.

Friedman Memorial Airport (SUN) covers an area of 211 acres at an elevation of 5,318 feet (1,621 m) above mean sea level. It has one asphalt paved runway designated 13/31 which measures 7,550 by 100 feet (2,301 x 30 m).

For the 12-month period ending May 31, 2007, the airport had 68,540 aircraft operations, an average of 187 per day: 58% general aviation, 38% air taxi, 3% scheduled commercial and <1% military. At that time there were 150 aircraft based at this airport: 67% single-engine, 25% multi-engine, 5% jet, 1% helicopter, and 1% ultralight.[41]

Historical Usage

Enplanements at SUN have increased from 34,286 enplaned passengers in 1990 to 67,143 enplaned passengers in 2007 with a peak at 74,505 enplanements in 2003. Horizon was the largest carrier at SUN for the first half of the 1990s, offering twice the capacity provided by Skywest. During this period Skywest upgraded its fleet from 19-seat turboprops to 30-seat Embraer 120s. The following decline in enplanements in the late 1990s reflects the decline in Horizon's traffic at SUN from 66 weekly flights in 1990 to only 15 weekly flights in 1998. The decline in Horizon activity was partially balanced by an increase in Skywest activity, from 30 weekly flights in 1990 to 68 in 2002. Horizon upgraded its fleet from a 37-seat turboprop to a 74-seat turboprop in 2001.[42]

Severe Weather Impacts

The current location of SUN makes it vulnerable during adverse weather conditions, especially during the winter season. This vulnerability often translates into flight diversions to neighboring Twin Falls (TWF) and Boise (BOI) or flight cancellations. Data were gathered from several sources such as the Official Airline Guide (OAG), the Bureau of Transportation Statistics (BTS), the FAA Airline Service Quality Performance (ASQP), and the FAA Enhanced Traffic Management System Counts (ETMSC) for the June 2003 to May 2008 time period.

[41] FAA Airport Master Record for SUN (Form 5010 PDF), effective 2008-06-05
[42] http://www.airportsites.net/SUN-EIS/images/SUN%20EIS%20Forecast%2020080919%20ALL.pdf

Over the last five years, most scheduled flights (over 98 percent) were accommodated during the late spring to early fall period (May to October). During these months, cancellations and diversions historically have ranged from less than one percent to 3.7 percent of scheduled arrivals. However, during the winter season (November to March), cancellations have averaged 4.6 percent of all scheduled arrivals compared to 2.1 percent for the rest of the year (April to October). Diversions during the winter season have averaged 14.7 percent of all scheduled arrivals versus less than one percent of scheduled arrivals during the non-winter season. Over the years analyzed, January and April have the highest proportion of canceled flights (an average of 7.8 percent of scheduled arrivals). Diversions are particularly significant during the months of December and January, reaching an average of 21 percent of scheduled arrivals at SUN.

Over the June 2003 to May 2008 time period, an average of 392 flights have been either cancelled or diverted annually due to weather constraints at the airport. Assuming an average of 19 passengers per flight, this is equivalent to a penalty of over 7,400 enplanements every year.

Impacts on Community

The hazard potential to the community from the continued location of the Friedman Memorial Airport are currently being debated and studied as part of a site study for a new regional airport facility. The potential for an incident involving aircraft in the vicinity of an active airport is always of a concern to the public safety officials. The concern regarding Friedman is compounded by the geographical location of the airport in the valley as well as the increased air traffic over the past decade.

Historical Frequencies

The Federal Aviation Administration (FAA) maintainers a database of aviation incidents and accidents, which records accidents from 1964 to the present[43]. That data for Hailey was surveyed and summarized to determine the frequency of aviation incidents and accidents at in the area of the Friedman Memorial Airport. Note that there is no information provided for the individual airports by the FAA but rather by city area. The following table summarizes the frequency and return interval of aviation accidents in Hailey and Sun Valley as an example.

Reporting Location	Investigation Type	No. of Events	No. of Years	Return Interval
Hailey Idaho	Incident	24	43	1.79 Years
Hailey Idaho	Accidents	29	43	1.48 Years
Sun Valley	Incidents	1	43	43 Years
Sun Valley	Accidents	4	43	10.75 Years

Table 4.5.6
Aviation Incident/Accident Frequency Table

[43] The FAA Accident Database can be found at: http://www.ntsb.gov/ntsb/query.asp

Hazard Evaluation

Repetitive Loss - none

Magnitude of Natural Disasters						
Value	**Reconstruction Assistance From**	**Geography (Area) Affected**	**Expected Bodily Harm**	**Loss Estimate Range**	**Population Sheltering Required**	**Warning Lead Times**
1	Family	Parcel	Little to No Injury / No Death	$1000s	No Sheltering	Months
2	City	Block or Group of Parcels	Multiple Injuries with Little to No Medical Care / No Death	$10,000s	Little Sheltering	Weeks
2	County	Section or Numerous Parcels	Major Medical Care Required / Minimal Death	$100,000s	Sheltering Requiring Neighboring Counties Help	Days
4	State	Multiple Sections	Major Injuries / Requires Help from Outside County / A Few Deaths	$1,000,000s	Long Term Sheltering Effort	Hours
8	Federal	County Wide	Massive Casualties / Catastrophic	$10,000,000s	Relocation Required	Minutes

Aircraft Incident has a magnitude score of 28.

Frequency of Hazard	
Ranking	**Description**
HIGH	Multiple Times a Year to 5 Years
MEDIUM	5 to 25 Years
LOW	25 Years to Hasn't Happened

Magnitude/Frequency Scoring Rationale

Aircraft incident events may occur with little or no warning (Warning Lead Times = 8). Numerous scenarios are possible however; the area impacted would be relatively limited. (Geography Affected = 2) but most of which would cause injuries and deaths (Bodily Harm = 4). Business interruption and economic loss, under most scenarios, are likely to be significant (Economic Loss = 4) but Federal recovery assistance would probably be available (Reconstruction Assistance = 8). Some sheltering of those in the immediate area may be required (Shelter = 2). The total Magnitude score is, therefore, twenty-eight (28) which, for Blaine County, is in the "High" range. Historical records are available and reliable, indicating that such events occur frequently in Blaine County and the likelihood is considered to be high (Frequency = High).

Section 4.6 Vulnerabilities

Critical Infrastructure

County Facilities

Address	Description	Value
206 1st Ave, Hailey	Courthouse	$3,151,000
	Courthouse Stairs and Balcony	$228,498
Hot Springs Parking Lot, Ketchum	Boat Dock Bldg	$25,000
E 1/2 lots 5,6,7,8, Blk 10	Carey County Shop	$25,000
SWSE, Sec 14, Hailey	County Shop	$400,000
1 S 21 E, Carey	Fire Station	$60,000
Glendale Road, Hailey	Glendale Shop	$300,000
Lots 13 Thru 22, Hailey	Hailey Courthouse & Sheriff Office	$792,000
Lots 4,5,6, Hailey	Hailey Judicial Building	$237,600
Lots 13&14, Hailey	Hailey McBride Building	$200,000
201 2nd Ave S, Hailey	Judical Building	$1,935,000
Ohio Gulch, Ketchum	Landfill Bldg	$90,000
	Landfill Recycle Building	$260,000
Blaine County, Hailey	Magic Sub Bldg	$20,000
302 1st Ave S, Hailey	McBride Bldg	$125,000
706 S Main Street, Hailey	Mobile Office	$50,000
	Blaine Manor/Clinic	$6,723,000
219 1st Ave South, Hailey	New County Courthouse	$4,500,000
210 1st Ave S, Hailey	Sheriff's Ofc & Jail	$1,756,000
Rota Run, Hailey	Warming Hut	$80,000
City of Carey	Road & Bridge Shop	$402,000
	Annex to Main Bldg & Bridge Bldg	$71,843
	Weed Bldg	$55,000
	Fair Exhibit 4H Bldg	$45,000
	Fair Exhibit Bldg #2	$128,000
	Fair Loafing Shed	$2,500
	Fair Stock Bldg #1	$20,000
	Fair Stock Bldg #2	$27,000
	Fair Storage Bldg	$5,000
	Weed Shop-Ofc Storage	$38,671
		$21,753,112

Table 4.6.1 - Blaine County Facilities

City of Ketchum Facilities

Address	Description	Value
480 East Ave N	City Hall	$1,972,000
110 River Ranch Rd	Admn Building/Utilities Dept	$250,000
	Aeration Basin/Utilities Dept	$1,500,000

Address	Description	Value
	Sludge Transfer Pump Bldg/Utilities Dept	$75,000
	Truck Loading Bldg/Utilities Dept	$780,000
	Bar Screen Bldg/Utilities Dept	$250,000
	UV Disinfection Bldg/Utilities Dept	$710,000
	Blower Bldg #2/Utilities Dept	$420,000
	Sewer Operations Bldg/Utilities Dept	$500,000
	Sewer Storage Bldg/Utilities Dept	$200,000
	Effluent Filters Building	$1,540,000
	Electrical Building	$920,000
	Influent Pump/Utilities Dept	$900,000
	Operations Bldg/Utilities Dept	$460,000
	Aeration Basin/Utilities Dept	$1,500,000
No address	Sludge Thickener Bldg/Utilities Dept	$540,000
River Ranch Rd	Submersible Pump Bldg/Utilities Dept	$142,000
1178 Warm Springs Rd	Pumphouse @ Parkwood/Utilities Dept	$250,000
120 River Rock Rd	Pumphouse @ Big Wood/Utilities Dept	$250,000
100 Park Circle West	Pumphouse @ Northwood Park/Utilities Dept	$250,000
1197 Warm Springs Rd	Pumphouse @ Rotary Park/Utilities Dept	$150,000
No address	Clarifier Bldg #1/Utilities Dept	$2,150,000
No address	Clarifier Bldg #2/Utilities Dept	$1,520,000
No address	Aerobic Digester Bldg/Utilities Dept	$750,000
122 Saddel Road	Bigwood Booster/Utilities Dept	$250,000
Trail Creek Well	Pumphouse @ Sun Valley/Utilities Dept	$250,000
No address	Blower Bldg #1/Utilities Dept	$500,000
1300 Warm Springs Rd	Water System Booster Station/Utilities Dept	$500,000
260 10th St	Ketchum Street Dept/Street Dept	$580,000
	New Street Dept Bldg/Street Dept	$2,369,000
991 Warm Springs Rd	Old Street Bldg/Street Dept	$614,000
531 5th Street	Bonning Cabin/Park Dept	$75,000
120 1st St E	Building-Forest Service/Park Dept	$150,000
Lewis ST	Church/ Park Dept	$250,000
191 River St	Garage/Warehouse/Park Dept	$45,000
580 Main ST	Memory Park/Park Dept	$0
500 East Ave N	Ore Wagon Museum/Park Dept	$230,000
120 First Ave S	Public Restroom FS/Parks Dept	$150,000
900 Third Ave N	Atkinson Park Bldg/Restroom	$591,000
171 River St	Bldg/Single Family Dwelling/Park Dept	$250,000
Atkinson Park	Pumphouse @ Atkinson Park/ Park Dept	$4,200
	Tennis Court/Equip/Parks Dept	$20,000
	Bleachers/Park Dept	$30,000

Address	Description	Value
	Picnic Shelter/Parks Dept	$4,000
900 Campus Way	Rental Dwlg/Dizzy's/Park Dept	$130,000
1173 Warm Springs Road	Rotary Park Picnic Shelter/Parks Dept	$12,000
	Rotary Park Restrooms/Parks Dept	$150,000
131 River ST	Single Family Dwelling	$150,000
180 First Street E	Ski Museum-FS/Parks Dept	$200,000
100 First Street E	Warehouse/FS/Parks Dept	$150,000
Total Value		**$25,633,200**

Table 4.6.2 - City of Ketchum Facilities

City of Hailey Facilities

Address	Description	Value
4297 Glenbrook Drive	Main Office/Lab	$500,000
	Old Woodside Sewer	$225,000
	New Woodside Sewer	$6,209,000
Northridge	Well Building	$100,000
Snowfly Drive	Lift Station (Pmp HS)	$20,000
N. Woodside	Pumphouse	$25,000
N. Woodside	Pumphouse n/Chlorine Contact Chamber	$40,000
3rd St South	Pumphouse	$15,000
Silver St/River St	Pumphouse	$30,000
War Eagle Dr	Pumping Station Riverside	$142,000
Buttercup Road	Regulator Station	$10,000
Indian Creek Road	Hydrogen and Bldg and Equipment	$100,000
Indian Springs Canyon	Storage Tank	$1,000,000
	Spring House	$20,000
115 Main Street	City Hall PD/Library	$3,017,177
N Main	Museum	$225,000
617 S 3rd Street	Fire Station	$440,000
Lawrence Heagle Park	2002 Playground Wood & Metal Structure	$75,000
	Restrooms/Pavilion Lion/eq.	$70,000
	Surplus Building	$50,000
Idaho Future Development	Balmoral Park	$0
Bullion & 8th Street	Curtis Park	$0
Bullion & River Road	Parking Lot	$0
Deerfield Park	Playground Equipment	$7,500
Eastridge & Buckhorn Dr	Foxmoor Park	$2,500

Address	Description	Value
Friedman Park Subd	Future Park	$0
Hwy 75 & Airport Way	Hailey Skate Park	$150,000
Hop Porter Park	Pavilion	$70,000
	Pavilion & Playground Eq Update	$20,000
	Restroom	$50,000
Lions Park	Pavilion, powerbox, playground equip	$15,000
Hwy 75 & 4th	Roberta McKercher Park (RV Dumps)	$2,000
Central Woodside	South Woodside Park	$0
1811 Merlin Loop	City Shop	$500,000
Airport Way Lot 9 Blk 9	City Shop	$0
Treaty Road	Turbine Tank	$803,000
Total Value		**$13,933,177**

Table 4.6.3 - City of Hailey Facilities

City of Bellevue Facilities

Address	Description	Value
Lower WR Meadows	Lift Station & Equipment	$10,000
S. Bell Business Park	Lift Station & Equipment	$10,000
75 Martin Lane	Maintenance Building	$70,000
117 Pine St	Marshall Office	$123,200
No address	Old City Hall	$150,000
Chestnut & 8th	Pumphouse	$24,000
Chantrelle Sub	Pumphouse & Equipment	$35,000
Hwy 75 & Riverview	Pumphouse & Equipment	$40,000
No address	Sewer Plant/Equipment	$700,000
No address	1 million gal water Tank	$1,800,000
115 Pine St	City Hall	$300,000
O'Donnell Park	Concession Stand	$16,000
75 Martin Way	Lift Station	$10,000
Total Value		**$3,288,200**

Table 4.6.4 City of Bellevue Facilities

City of Carey Facilities

Address	Description	Value
20482 Main Street	City Hall/Water District Office	$390,000
Section 3, Twp 2 S, R 21 E	Sewer House	$40,000
	Storage Bldg at Sewer Plant	$5,000
	Water Tank 165 gal	$200,000

Address	Description	Value
9 River Road	Water Tank 30,000 gal	$100,000
Section 2 Twp 2 S R 21 E	Well House #1	$5,000
9 River Lane	Well House #2	$100,000
Total Value		**$840,000**

Table 4.6.5 - City of Carey Facilities

City of Sun Valley Facilities

Address	Description	Value
81 Elkhorn Road	City Hall	$1,500,000
Morningstar & Arrowleaf	Elkhorn Fire Station	$2,000,000
	Fire Station and Storage	$2,000,000
Total Value		

Table 4.6.6 – City of Sun Valley Facilities

Public Service Facilities

Sewer and Water

Water and sewer systems in Blaine County are under the jurisdiction of the South Central Health District.

Communities which are currently served by municipal water systems include: Ketchum, Sun Valley/Elkhorn, Hailey/Woodside, Bellevue, Picabo and Carey. In addition to the municipal systems there are numerous community and non-community water systems serving trailer parks and subdivisions. Community water systems are those which serve at least ten (10) households or twenty-five residents. Non-community water systems serve less than ten (10) households or less than twenty-five (25) permanent residents. The majority of county residents use domestic wells for their water source.

Communities which are currently utilizing municipal sewage treatment plants include: Ketchum, Bellevue, Sun Valley/Elkhorn, Hailey/Woodside, and Carey area. In addition, Blaine County has several subdivisions, a major rest stop area at Timmerman junction, and trailer parks which are served by common underground sewage disposal fields or package plants[44].

Solid Waste Management

Blaine County currently operates landfills at Ohio Gulch near Hailey and a transfer station at Carey.

[44] Blaine County Comprehensive Plan, 1994

Fire Protection

The communities in Blaine County are served by a combination of paid and volunteer fire departments. Three (3) rural fire districts include the Ketchum Rural, Wood River Rural and the Carey area. These areas are serviced by equipment from Ketchum, Bellevue and Carey, respectively[45].

The City of Ketchum Fire Department, North County Ambulance District and the Ketchum Rural Fire District are presently consolidated by contract to provide fire protection and emergency medical services to the North County. The area protected within the Ketchum Rural Fire Protection District consists mainly of high value residential properties in a ***rural*** environment (less than 400 persons per square mile). There are several grand fathered non-conforming light industrial uses and a conforming hospital use. The area protected within the City of Ketchum consists of commercial and residential properties in a ***suburban*** environment (400-2000 persons per square mile) with a wildland urban interface and wildland urban intermix as defined in the National Fire Protection Association (NFPA) Standard 1143. The personnel of the district/department consist of 50 personnel operating out of three stations. Eleven of the personnel are fulltime career employees. The department also provides Emergency Medical Services (EMS) response and transport responsibilities to North Blaine County at the Paramedic Level. The Headquarters Station is located in the City of Ketchum. Station 3 is located north of Ketchum on Highway 75 near the entrance to the Hulen Meadows Subdivision. Station 2 is located south of Ketchum on Highway 75 across from the Greenhorn Gulch Road[46].

The City of Sun Valley Fire Department protects the City of Sun Valley which consists of 12 square miles. The department has a full time Fire Chief and Assistant Chief, who are on call 24 hours a day. The department also employs a full time Code Enforcement officer who works closely with the resort and all the activities that effect life safety and the safety of the public at large. Sun Valley Fire also has 29 paid on call Firefighters which includes 9 EMT's and 1st Responders who go to all emergency medical calls in the City in conjunction with Ketchum Fire Department who provides the ambulance service. Sun Valley Fire also has 3 Rescue Snow machines and patient sled that adapts with a 4 wheel drive Rescue vehicle for summer rescues as well. There are 3 certified operators for these machines that have had extensive training in off road use. Sun Valley Fire also provides KFD with members of the Backcountry Rescue team and avalanche rescue within the City. The City Council has funded one additional full-time position in the Fire Department (Training Officer/Records Management) which has not yet been filled.

The Hailey Fire Department provides the most comprehensive fire protection and rescue services possible, while maintaining a reasonable cost to its taxpayers. The mission of this department is to protect lives and property through rescue of trapped or injured persons, effective and efficient firefighting, and hazard mitigation; provide non-transport Emergency Medical Services within its jurisdiction; and to conduct appropriate fire prevention and education programs for its citizens. The Hailey Fire Department is a combination fire department. There are currently five full-time firefighter/EMT's providing administrative support to approximately 20 paid-per-call or volunteer" members. Seven volunteer members are also Basic EMTs. All members are paid to attend training sessions and when responding to emergency scenes.

[45] Blaine County Comprehensive Plan, 1994
[46] Blaine County Fire Mitigation Plan, 2004

The Hailey Department responds to approximately 450 emergency calls per year. Of these calls, about 60% are emergency medical calls. The remainder of the calls are a combination of structure fires, wildland fires, mutual aid assistance, vehicle fires, rescue situations and false alarms.

The full-time members of the Hailey Fire Department consist of a full time fire chief, a deputy fire chief, the City Fire Marshal, one full time fire inspector and a full time administrative assistant. There is also a paid-per-call assistant fire chief. The city currently has just one station located at 617 South Third Avenue. Department apparatus consists of three structural engines, two wildland engines, one command vehicle, one EMS response/rescue vehicle, one TSU Utility pick-up and a Multi-Casualty Incident response trailer that is available to respond to mass casualty incidents throughout the State.

The Wood River Fire Protection District provides fire protection to approximately 150 square miles of property in southern Blaine County. The boundaries of the District run roughly from the Greenhorn Bridge in the north to Baseline Road in the south excluding the cities of Hailey and Bellevue. The area protected within the rural fire district consists of high value and moderate value residential properties in a *rural* environment (less than 400 persons per square mile). There are numerous agriculture uses and farmlands in the district. The personnel of the district consist of 34 personnel operating out of three stations. Ten of the personnel are fulltime career employees. The department also provides EMS response and transport responsibilities to South Blaine County at the Paramedic Level. The location of the Headquarters Station and Station 2 are located in the City of Hailey. Station 3 is located south of Bellevue on Highway 75 and is shared with the Bureau of Land Management Fire Resources[47].

The Bellevue Fire District protects the City of Bellevue under the Bellevue Department of Public Safety. The area protected within the city consists of commercial and residential properties in a suburban environment (400-2000 people per square mile) with a wildland urban interface and wildland urban intermix as defined in National Fire Protection Association Standard 1143. The personnel of the department consist of approximately 11 volunteer personnel operating out of a central station. The department participates in the County Mutual Aid Plan and has an auto-aid agreement with the Wood River Fire Prevention District, the Carey Rural Fire District and the City of Hailey fire agencies. The location of the Headquarters Station is on Main Street in the city[48].

The Carey Fire District protects the City of Carey, Gannett, Picabo and the rural areas of the fire district with fire stations in Carey, Gannett and Picabo. The area protected within the city consists of commercial and residential properties in a *rural* environment (less than 400 persons per square mile) with a Wildland/Urban Interface and Wildland/Urban Intermix as defined in the National Fire Protection Association Standard 1143. The area protected within the rural fire district consists mainly of residential and agricultural properties in a *rural* environment (less than 400 persons per square mile). There are a few light industrial uses and mercantile uses. Much of the land protected involves or abuts the world-class fishing and avian habitat of the Silver Creek Preserve. The personnel of the department/district consist of 10-15 personnel operating out of three stations. All members are volunteers. The department also provides Emergency Medical Services Quick Response augmented by the transport service of the Wood River Fire District at

[47] Blaine County Fire Mitigation Plan, 2004
[48] Blaine County Fire Mitigation Plan, 2004

the paramedic level. The location of the Headquarters Station is in the City of Carey. Station 2 is located in Picabo and a third station is located in Gannett. (A recent fire destroyed the Gannett Fire Station and all its equipment)[49].

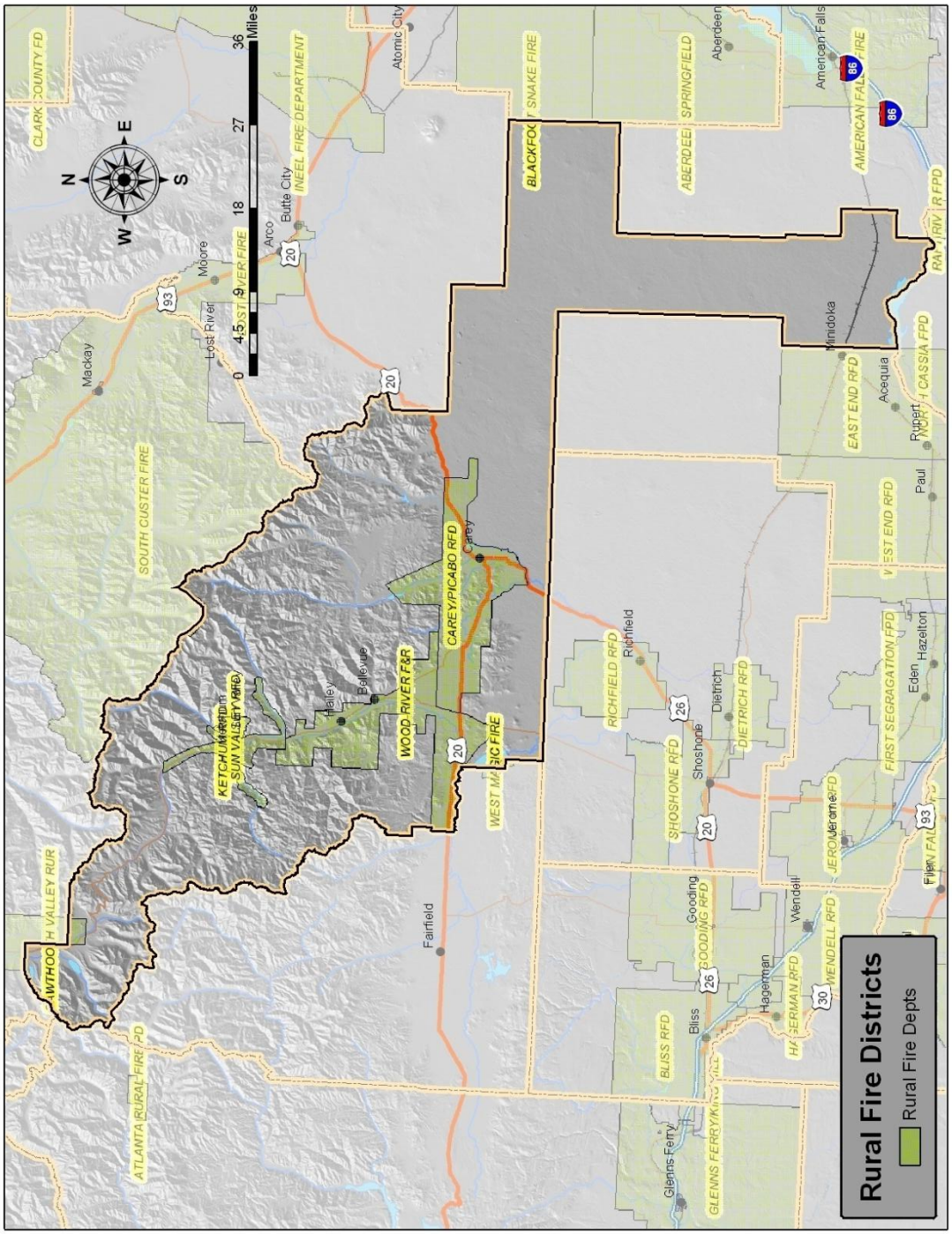


Figure 4.6.1 Blaine County Rural Fire Districts Map

[49] Blaine County Fire Mitigation Plan, 2004

The BLM and the Forest Service offer additional backup to local fire protection agencies. From June 1 to September 30 they provide initial attack and quick response to wildfires and search and rescue. The USFS Type 2 Helicopter is hangered in Hailey and is available to all departments on an emergency basis. The BLM helicopter is based in Shoshone[50].

Public Safety

The Blaine County Sheriff is the chief law enforcement officer in the County. The purpose of the Sheriff's Department is to patrol and control traffic throughout the county, backup city police departments, do criminal investigation, manage the jail, dispatch, drivers' license processing, search and rescue, disaster coordination, and civil processes.

The law enforcement building is located next to the County Courthouse in downtown Hailey. This facility also houses the County Jail and the Sheriff's Department.

The department has eleven (11) full-time "sworn" staff, including one chief, one chief deputy, one investigator, one deputy civil process server, one resident deputy to cover the South County, and six (6) deputies to patrol one hundred forty (140) miles of state highway. It uses seven (7) cars and one jail vehicle.

Because of the physical size of the county, the number of residents and visitors, and the pass-through traffic and transient work-force, the Sheriff's Department has to cover a vast area. Present work schedules sometimes provide only one officer per shift and response time must be allocated on a priority basis, with a thirty to forty (30-40) minute response time often likely. In order to provide prompter response time, more officers and vehicles are required[51].

The cities of Ketchum, Sun Valley and Hailey each have City Police Departments. Bellevue has a Marshall's office and is backed up by the County Sheriff's Department.

Search and Rescue is manned by volunteer deputies from the Sheriff's Department and civilian volunteers.

Disaster Services

Blaine County Sheriff is responsible for all disaster responses. The Sheriff's Office has developed Blaine County Disaster Services into more than just a response in case of an emergency. Disaster Services is responsible to access the situation, organize and coordinate responses of multiple agencies to floods, fires, hazardous materials events, mudslides and extreme snowfall. Disaster Services, under the Direction of Chuck Turner, is designed to be pro-active, members stay vigilant to situations which may result in emergencies and take steps to prevent or minimize the impact of an emergency and quickly bring a return to normalcy following critical disaster.

Health Care

St. Luke's Wood River Medical Center is located in Ketchum and reflects the special quality of life in Blaine County by providing quality medical care. St. Luke's Wood River Medical Center provided care to 1,600 inpatients in the year 2006-2007, with another 1,535 outpatient

[50] Blaine County Comprehensive Plan, 1994
[51] Blaine County Comprehensive Plane, 1994

procedures and 440 inpatient procedures. St. Luke's employs 300 staff members. St. Luke's emergency room saw 8,235 patients in the year 2006-2007.

The Blaine County Ambulance District was formed in 1986 to provided ambulance and emergency medical services to the residents and guest of the entire County. Their facility is located in a building near the County Courthouse in Hailey. The areas south of the bridge at Greenhorn Gulch are serviced from this location. The areas north of the bridge are serviced by the Ketchum Fire Department Ambulance Service, contracted by the county to service Ketchum, Sun Valley and the North County. This facility is shared with the Ketchum Police and Fire Departments and is located in the Ketchum City Hall building. Each location has two (2) ambulances[52].

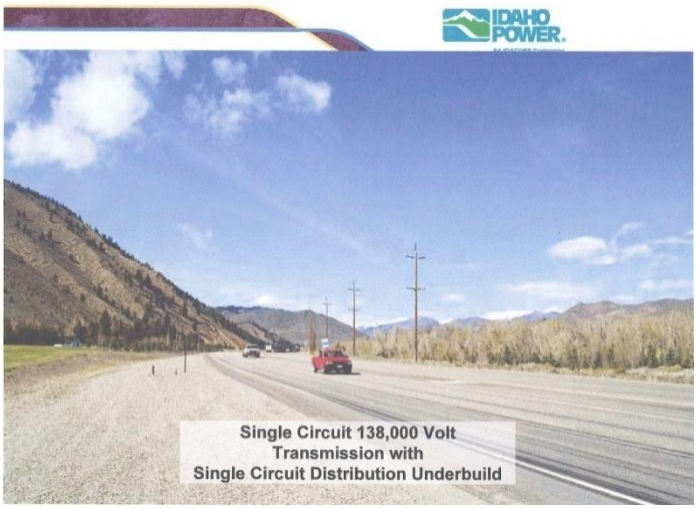
To review the hazard vulnerability analyses for St. Luke's Wood River Valley Medical Center's Hazard Vulnerability Analysis see Attachment 3.

Public Utilities

Intermountain Gas provides natural gas to residents and commercial customers in the Wood River Valley from the Sawtooth National Recreation Area on the north to Bellevue on the South.

Qwest provides telecommunications services for residents and commercial customers in the Wood River Valley and Picabo areas. **Citizens Telephone Company** provides telecommunications for residents and commercial customers in the Carey area. **Direct** Communications provides telecommunications for areas in the County south of Picabo. **Cox Communications** provides telecommunications in the Hailey area.

Idaho Power serves the residents and commercial customers of Blaine County, with the exception of the Stanley Basin, with electrical power. The Stanley Basin in the very northern tip of the County is served by the **Salmon River Power Cooperative**.

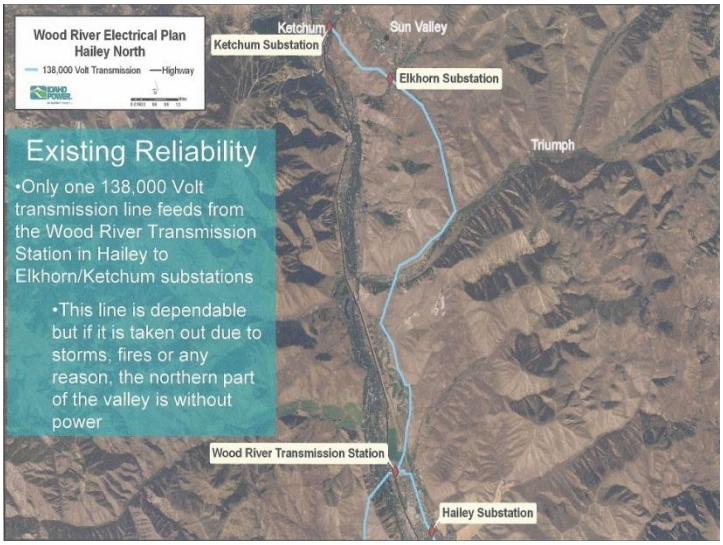


Power outages are an *extremely high concern* for Blaine County. Various natural and manmade disasters can and do affect the electrical infrastructure in the County. Currently there is no redundancy built into the major transmission lines that feed electricity into the County. To alleviate the consequences in the event of a power outage redundancy needs to be included in the overall structure the power grid. This will need to be done in cooperation with Idaho Power and the Salmon River Power Cooperative.

[52] Blaine County Comprehensive Plan, 1994

The following hazards pose a threat to the electrical infrastructure in Blaine County.

- Severe Winter Storm
- Lightning
- Hail
- Tornado
- Straight Line Wind
- Earthquake
- Landslide/Mudslide
- Avalanche
- Wildland Fire



Of the aforementioned hazards seven (7) are surface hazards; they occur above ground, and one (1), earthquake, occurs below ground, but affects infrastructure both above and below ground. The existing transmission lines are run above ground, which is a standard procedure.[53]

The southern half of the Wood River Valley, from Hailey south, is served by two transmission lines, giving it redundant power service a majority of the year. However, the northern part of the Valley is served by a single transmission line. When a storm, accident or brush fire damages the line, there is no alternative way to provide power to the Ketchum/Sun Valley area. Idaho Power maintains and patrols this single line to a much higher standard than most other transmission lines in its service territory for just this reason. The line is, however, over 45 years old and will require even greater care in the future.

The two transmission lines serving as far north as Hailey provide better dependability than would a single transmission line. Presently, the combination of these two lines can serve the most extreme peak usage in the Valley at any time. However, the lines individually do not have the capability to serve the entire valley load at winter peak. This means that if one of the lines was to be taken out-of-service during the winter when Valley loads are the highest, the remaining line would not be able to carry the entire Valley load. The load would have to be reduced through the use of rotational outages for the duration of the outage. Depending on the cause and extent of the damage that caused the line to go out-of-service, the rotational outages could extend for several days.

If the transmission line serving from the Wood River Transmission Station north to Ketchum/Sun Valley is taken out-of-service at any time of year, there would be no way to serve most of the load in the north end of the Valley. As mentioned before, because of the potential hardships an outage of this line could cause to the citizens and businesses of the north Valley. Idaho Power maintains and patrols this line to a significantly higher degree than it does most other transmission lines in the Idaho Power system. But as this line ages, it will become more

[53] Idaho Power, Wood River Electrical Plan. December 2007

and more difficult to maintain its dependability. The line was built in 1962 and as the years go by, it can be expected that more failures will occur. And no matter how much maintenance is done on this line, forces of nature can cause it to fail.

Historically power outages have been the most costly consequence of natural disasters in Blaine County. By exposing the transmission lines to natural hazards that may occur in the area would cause extenuating circumstances. An acceptable method of mitigation is to bury the transmission lines to protect them from events when they occur. This strategy has successfully been used in Jackson County, Missouri and in the City of Tallahassee in Leon County Florida to reduce risk to the electrical system. According to the Wood River Electrical Plan:

> "Idaho Power cannot construct underground facilities unless there are extenuating circumstances that would require it. These circumstances could include environmental issues, or land availability issues."[54]

Though it is not a common practice to construct underground facilities, because of extenuating circumstances, such as risk posed by natural hazards, this measure can be taken.

Water Resources

Surface Water

The two major rivers in Blaine County are the Big and Little Wood Rivers. The Big Wood River begins near Galena Summit and flows down the Big Wood River Valley through Ketchum, Hailey and Bellevue. The Little Wood River begins at the Blaine/Blaine border near Hyndman Peak. It flows down the Little Wood River Valley just east of the Big Wood River Valley. Smaller rivers and creeks include Camas Creek, Silver Creek and Fish Creek.

Blaine County has numerous alpine lakes and reservoirs. The largest lakes are Alturas Lake, Pettit Lake, and Alice Lake all found on the very northern tip of Blaine County. Large reservoirs include: Magic Reservoir at the confluence of Camas Creek and the Big Wood River, Carey Lake on the Little Wood River and Fish Creek Reservoir on Fish Creek.

Ground Water

The southern half of Blaine County is underlain by the Snake River Plain Aquifer. The area of the Big Wood River Valley is underlain by a valley-filled aquifer which is an unconsolidated aquifer that holds water in pore spaces between grains of sand and gravel. The Snake River Plain Aquifer is a consolidated aquifer that holds water in the cracks and pore spaces of solid basalt rock.

[54] Pg 15

Irrigation

Company Name	Irrigation Acres	Source
Little Wood River Irrigation District	9,549 Acres	Little Wood River Reservoir
Lake Creek Meadows Homeowners Assn Inc	96.98 Acres	
Baseline Canal Co.	3,469 Acres	
Fish Creek Reservoir Co. Inc.	10,328.3 Acres	Fish Creek Reservoir
American Falls Reservoir Dist. #2	403.6 Acres	American Falls Reservoir

Table 4.6.7
Blaine County Irrigation Companies

Transportation

Major routes through Blaine County include US Highway 93/26, US Highway 20 and Idaho State Highway 75. US Highway 93/26 is a north/south route that connects the County with Shoshone and Twin Falls to the south and Arco and Challis to the north via the City of Carey. US Highway 20 is an east/west route that connects the County to Mountain Home to the west and joins US 93/26 at Carey. State Highway 75 is a north/south route that connects the County to Shoshone to the south and Stanley to the north via the Big Wood River Valley.

Approximately 443 miles of local roads are maintained by the County of which approximately 85 are paved. Most of these county roads originally serviced the first settler's farms or mines. They primarily follow section lines dividing farms and ranches, or run up the canyons off the Big Wood River[55].

Roadways

	Local Roads	Seasonal Roads	State Highways	US Highways	Total
Miles	552	384	80	58	1,074

Table 4.6.8 Roadways in Blaine County

Bridges

Owner	Name	Bridge Class	Year Constructed	Value
City Highway Agency	STC2815;WARM SPRNG	HWB3	1972	$3,263.98
	BROADWAY BLVD	HWB3	1929	$2,993.76
	CITY STREET	HWB4	1995	$2,930.26
	ASPEN DRIVE	HWB4	1991	$2,358.72

[55] Blaine County Comprehensive Plan, 1994

Owner	Name	Bridge Class	Year Constructed	Value
Subtotal Value				**$11,546.71**
County Highway Agency	STC 2810	HWB4	1998	$1,439.86
	STC 2814	HWB3	1956	$1,083.46
	STC 2814	HWB3	1978	$4,604.20
	STC 2815	HWB3	1955	$1,945.30
	STC2816;BULLION ST	HWB3	1972	$4,839.91
	STC2818;TRIUMPH RD	HWB3	1974	$4,839.91
	STC 2822	HWB3	1965	$1,162.51
	STC 2822	HWB7	1998	$8,757.72
	STC 2822	HWB4	1998	$2,115.07
	CO.RD;PLNG#096B	HWB3	1952	$768.69
	CO RD;PLNG#078A	HWB3	1947	$767.88
	COUNTY ROAD	HWB4	2000	$1,222.13
	CO.RD;PLNG#0038	HWB3	1975	$2,760.48
	CO.RD;PLNG#069A	HWB5	1932	$4,282.47
	CO.RD;PLNG#079B	HWB3	1978	$855.36
	CO.RD;PLNG#096A	HWB3	1959	$824.90
	CO.RD;PLNG#038A	HWB3	1986	$2,388.20
	CO.RD;PLNG#071A	HWB3	1974	$4,032.67
	CO.RD;PLNG#096B	HWB3	1940	$767.88
	DRY CREEK ROAD	HWB3	1977	$2,735.21
	CO.RD;PLNG#0060	HWB3	1982	$5,790.04
	COUNTY ROAD	HWB4	1993	$716.04
	CO.RD;PLNG#088A	HWB3	1959	$824.90
	CO RD;PLNG # 044C	HWB4	1994	$1,285.96
	CO.RD;PLNG#093A	HWB3	1986	$2,084.94
	BROADFORD ROAD	HWB3	1985	$5,239.40
	COUNTY ROAD	HWB4	1995	$1,126.22
	CO.RD;PLNG#0023	HWB3	1974	$709.56
	CO.RD;PLNG#0083	HWB3	1977	$1,407.78
	CO. RD;OKBG#0092	HWB12	1989	$1,531.39
	STC 2814	HWB4	1991	$2,378.97
	CO.RD;PLNG#0083	HWB12	1978	$2,084.94
	CO.RD;PLNG#0099	HWB3	1954	$1,057.37
	CO.RD;PLNG#066C	HWB3	1935	$797.04
	CO.RD;PLNG#0049	HWB3	1945	$2,146.50
	CO.RD;PLNG#0074	HWB4	1992	$1,522.96
	CO RD;PLNG#0080	HWB3	1984	$1,170.45
Subtotal Value				**$84,068.28**
Other Local Agencies	CO.RD;PLNG#049A	HWB17	1964	$3,159.81
	SMILEY C AIRPORT R	HWB3	1950	$1,535.76

Owner	Name	Bridge Class	Year Constructed	Value
Subtotal Value				**$4,695.57**
State Highway Agency	US 26	HWB3	1979	$2,826.25
	US 26	HWB3	1987	$4,269.02
	US 26	HWB3	1987	$3,913.27
	US 26	HWB3	1987	$2,470.50
	US 26	HWB3	1977	$3,616.81
	US 26	HWB3	1977	$4,506.19
	US 20	HWB3	1971	$1,603.48
	US 20	HWB3	1971	$1,638.14
	US 20	HWB17	1979	$6,205.90
	US 20	HWB3	1979	$3,763.58
	US 20	HWB28	1991	$13,767.89
	SH 75	HWB5	1955	$4,927.07
	SH 75	HWB3	1931	$1,695.33
	SH 75	HWB5	1934	$7,212.24
	SH 75	HWB17	1982	$13,200.08
	SH 75	HWB4	1991	$6,473.52
	SH 75	HWB4	1991	$7,938.81
	SH 75	HWB5	1958	$5,809.32
	SH 75	HWB5	1953	$5,235.84
	SH 75	HWB3	1977	$2,796.44
	SH 75	HWB3	1974	$1,612.55
	SH 75	HWB3	1977	$2,061.61
	SH 75	HWB3	1974	$1,612.55
Suobtotal Value				**$109,156.41**
Town Highway Agency	BITTERROOT ROAD	HWB3	1965	$669.06
	SILVERWEED WAY RD	HWB3	1965	$980.10
	DOLLAR ROAD	HWB3	1988	$1,808.41
	OLD DOLLAR ROAD	HWB3	1960	$1,266.84
Subtotal Value				**$4,724.41**
US Forest Service	FDR	HWB3	1979	$1,010.88
	FDR	HWB3	1971	$651.24
	FDR	HWB3	1971	$651.24
	FDR	HWB3	1971	$592.92
	FDR	HWB3	1971	$592.92
Subtotal Value				**$3,499.20**
Total Value				**$220,620.83**

Table 4.6.9 Blaine County Bridges

Airports

Friedman Memorial, located in Hailey, serves Blaine County with both general aviation and commercial air carriers. It is the second busiest airport in the state. Twin Falls regional airport, located in Twin Falls, Idaho is currently used for diversions from Friedman Airport because of weather. Connections to major air carriers are available in Boise and Salt Lake City[56].

Friedman airport facilities include:

- Runway 13/31 for take-off and landing, six thousand six hundred feet (7550') long.
- A fourteen thousand seven hundred (14,700) square foot commercial airline terminal.
- Airport manager's office.
- Hangers leased to private individuals or companies. The ground under the buildings is leased from the airport.
- A contract non-federal airport Air Traffic Control Tower is operated by Midwest Air Traffic Control. Services are paid for by Friedman Memorial Airport which is reimbursed by the Federal Aeronautics Administration (FAA).
- Friedman Memorial Airport owns and operates two Aircraft Rescue Fire Fighting vehicles. There are 6 FAA certified individuals trained to operate them. The Airport is a signatory to the South Valley Auto Aid agreement.

Other small airports in the County include the Carey, Picabo, Magic Reservoir, and Smiley Creek Airports.

Rail

There is no rail service in Blaine County.

Housing

According to the United States 2007 Census data there are 14,400 housing units in Blaine County. Of these, 2,755 were renter occupied housing units and 6,715 were owner occupied housing units. Blaine County has a home-ownership of 68.9 percent. New residential construction has been substantial in Blaine County during the past decade, with the average sale price of a home increasing at a higher rate than earnings or personal income.

[56] Blaine County Comprehensive Plan, 1994

Educational Facilities

The Blaine County School District provides the following educational facilities: Bellevue Elementary (K-5), Carey School (K-12), Ernest Hemingway Elementary (K-5), Hailey Elementary (K-5), Silver Creek Alternative School (9-12), Woodside Elementary (K-5), and Wood River Middle School (6-8).

The County has two small private schools. The largest private school is the Community School in City of Sun Valley that serves grades K-12. The smaller private school is Wood River Christian School located in Hailey which serves students Pre-K through12th grade.

College of Southern Idaho, Blaine County Center is located in Hailey and provides Blaine County with higher education opportunities. Classes are held in the Fox Building in Hailey as well as local schools.

Recreation Areas

Blaine County has many outdoor recreational opportunities and is partially located in the Sawtooth National Recreation Area. Bald Mountain Ski Resort can be accessed by River Run on the south and Warm Springs on the north. Bald Mountain's ski runs stretch across 2,054 acres to the edge of the Sawtooth National Forest. The resort boasts 13 lifts and 65 varied runs on either side of Bald Mountain. Bald Mountain is referred to as the best single ski mountain in the world due to its constant-pitch terrain and substantial vertical drop, as well as absence of wind. The treeless Dollar Mountain is the "finest teaching mountain in the world" and caters to the beginning skier. The 2004 Blaine County Comprehensive Plan states that according to the Ketchum-Sun Valley Chamber of Commerce, Blaine County has 50,000 summer visitors and 70,000 winter visitors each year. The Sawtooth National Recreation Area north of Ketchum tabulates over 1,000,000 visitor days annually. (A visitor day is a 12 hour use period that account for both resident and nonresident use of SNRA Lands).

Rotarun Ski Resort in the Hailey area of Blaine County caters to the skiing/snowboarding enthusiasts. This resort includes an Alpine Ski Race Training area, as well as areas of differing ability levels. Both Dollar Mountain and Rotarun Resort offer an elementary school ski program.

Blaine County Museum on Main Street in Hailey is dedicated to the history of Blaine County. The museum is housed in a building built in 1882 and donated by the Friedman family for use as a museum for the area. The museum allows visitors the opportunity to explore Blaine County's pioneer past, research family history and view exhibits that show aspects of the life early inhabitants experienced.

The Ketchum/Sun Valley Heritage Ski Museum is located in Ketchum and is dedicated to the preservation of the natural heritage of the Upper Wood River Valley and the history of the ski industry. It offers exhibits that feature Ernest Hemingway as well as the ski industry. The first chair lift was used at Sun Valley Resort and is one of the items featured at the museum.

Cultural and Historic Sites

- **Bald Mountain Hot Springs** (added 1982 - **Building** - #82000320)
  Also known as **C. E. Brandt Residence, Tourist Cabins, Natatorium**
  Main and 1st St., Ketchum

- **Bellevue Historic District** (added 1982 - **District** - #82002506)
  Roughly bounded by U.S. 93, Cedar, 4th, and Oak Sts., Bellevue
- **Blaine County Courthouse** (added 1978 - **Building** - #78001050)
  1st and Croy Sts., Hailey
- **Cold Springs Pegram Truss Railroad Bridge** (added 1997 - **Structure** - #97000762)
  Over the Big Wood R. 0.5 mi. S of jct. of US 93 and ID 367, Ketchum
- **Emmanuel Episcopal Church** (added 1977 - **Building** - #77000457)
  101 2nd Ave., S., Hailey
- **Fish Creek Dam** (added 1978 - **Structure** - #78003437)
  NE of Carey, Carey
- **Fox, J. C., Building** (added 1983 - **Building** - #83000279)
  S. Main St., Hailey
- **Gimlet Pegram Truss Railroad Bridge** (added 1997 - **Structure** - #97000757)
  Over the Big Wood R. 0.5 mi. S of jct. of US 93 and E. Fork Wood River Rd., Ketchum
- **Hailey Historic District** (added 1982 - **District** - #82005191)
  Roughly bounded by Croy, Carbonate, and River Sts. and First Ave., Hailey
- **Hiawatha Hotel Site** (added 1986 - **Building** - #74000733)
  Also known as **Alturas Hotel Site,** First Ave. and Croy St., Hailey
- **Miller, Henry, House** (added 1975 - **Building** - #75000624)
  S of Bellevue off U.S. 93, Bellevue
- **Pound, Homer, House** (added 1978 - **Building** - #78001051)
  314 2nd Ave., S., Hailey
- **Proctor Mountain Ski Lift** (added 1980 - **Object** - #80001294)
  Also known as **Proctor Mountain,** Trail Creek, Sun Valley
- **Sawtooth City** (added 1975 - **District** - #75000625)
  Address Restricted, Sun Valley
- **St. Charles of the Valley Catholic Church and Rectory** (added 1982 - **Building** - #82000321) Also known as **Father Keys House**
  Pine and S. 1st Sts., Hailey
- **Sun Valley Historic District** (added 1989 - **District** - #88003122)
  ID 75, Sun Valley
- **Vienna** (added 1975 - **District** - #75002203)
  SW of Galena, Galena
- **Watt, W. H., Building** (added 1983 - **Building** - #83000281)
  Also known as **Bullwhacker Building,** 120 N. Main St., Hailey
- **Werthheimer Building** (added 1985 - **Building** - #85002160)
  101 S. Main St., Hailey

Blaine County Asset Inventory Summary

Asset Type	Asset	Quantity
General	Geographical Area	2,654.57 sq miles
	Households	7,780
	Population	18,991
	Housing Units	14,400
Essential Facilities	Hospitals	1
	Schools	11
	Fire Stations	4
	Police Stations	5
	Emergency Operations Facility	1
High Potential Loss Facilities	Dams	10
	Hazardous Materials Sites	10
Transportation Lifeline Systems	Highways	4
	Railways	0
	Bus	2
	Airports	1
Utility Lifeline Systems[4]	Potable Water	6
	Wastewater	4
	Natural Gas	0
	Electric Power	1
	Communications	3

Section 4.7 Risk Assessment

The Hazard Assessment Process conducted in sections 4.1 – 4.5 was used to establish a basis for determining the cost effectiveness and priority of implementing mitigation strategies. To this end, the following steps were carried out:

2. A list of hazards to be considered was developed.
3. Each hazard was profiled. Profiles include:
    a. A description of the hazard and, where possible, objective definitions including levels of severity,
    b. A description of the possible impacts of the hazard,
    c. A County profile and/or profiles of individual locations where the hazard event may occur, including levels of severity and probabilities of occurrence.
4. For each location, vulnerabilities that may be affected by a hazard event were identified. These vulnerabilities include but are not necessarily limited to:
    a. Human population
    b. Structures
    c. Structure contents
    d. Crops and livestock
    e. Other property
    f. Critical Infrastructure
    g. Economic assets and business activities
    h. Social systems
    i. Others
5. Possible losses due to a hazard event at each location and at the various levels of severity were estimated.

To complete the process of establishing the level of risk severity associated with the hazard each hazard was estimated based on estimated losses and the likelihood of a hazard event to provide the following risk summary.

The Team conducted a hazard analysis using the information gathered in steps 1-4 and 6. The risks associated with each hazard were based on historical occurrences and scientific projections. Hazard assessment activities include the use of FEMA's HAZUS, however, because of serious limitations with FEMA's HAZUS data Blaine County and the Planning Contractor used Blaine County's own up to date GIS property valuation data to generate loss estimates.

Hazard assessment activities include the mapping of hazards, at-risk structures including critical facilities, and repetitive flood loss structures, the location of at-risk structures, land use, and populations. These mapping activities were completed as part of a hazard assessment and linked to appropriate mitigation strategies which address requirements derived during the assessment process with the specific goal of reducing the risk.

Frequency	
Ranking	**Description**
HIGH	Multiple Times a Year to 5 Years
MEDIUM	5 to 25 Years
LOW	25 Years to Hasn't Happened

Table 4.7.1 Frequency Table

Risk was determined in part by the frequency of an event for various hazards as determined by looking at historical and scientific data and then balanced against perception of the AHMP Committee and scored using the criteria below.

Magnitude of Natural Disasters						
Value	**Reconstruction Assistance From**	**Geography (Area) Affected**	**Expected Bodily Harm**	**Loss Estimate Range**	**Population Sheltering Required**	**Warning Lead Times**
1	Family	Parcel	Little to No Injury / No Death	$1000s	No Sheltering	Months
2	City	Block or Group of Parcels	Multiple Injuries with Little to No Medical Care / No Death	$10,000s	Little Sheltering	Weeks
2	County	Section or Numerous Parcels	Major Medical Care Required / Minimal Death	$100,000s	Sheltering Requiring Neighboring Counties Help	Days
4	State	Multiple Sections	Major Injuries / Requires Help from Outside County / A Few Deaths	$1,000,000s	Long Term Sheltering Effort	Hours
8	Federal	County Wide	Massive Casualties / Catastrophic	$10,000,000s	Relocation Required	Minutes

Table 4.7.2 Magnitude Table

Quantification of the risk was based on the three critical issues: life safety, property damage, and environmental insult. In addition other issues tied to community support of risk mitigation including social, cultural, and economical issues were included.

Severity Ranking was then completed based on derived criteria compiled by the AHMP Committee from technical experts and the identified stakeholders. The severity ranking includes the determination of magnitude using the criteria below multiplied by the frequency score discussed above.

Risk Severity Ranking

Each hazard was scored as to magnitude and frequency of occurrence. Table 4.7.3 provides an overall ranking of the hazards by magnitude. Boxes highlighted in Red indicate the highest magnitude; boxes highlighted in yellow indicate the medium magnitude with green boxes signifying the lowest magnitude. Table 4.7.4 illustrates the severity ranking for the hazards facing Blaine County when magnitude is compared to frequency. For those hazards with a high magnitude score and a loss estimate greater than $100,000,000 the frequency score is replaced with an Ex or an extreme loss. Those with extreme loss potential are ranked as the highest hazards. The remaining risk rankings, as described in Section 1, based on frequency and magnitude. Repetitive loss is used specifically to aide in the prioritization projects identified for risk reduction. Risk reduction activities are based on the overall risks rankings which are

determined using processes described above. The hazards are placed in the risk ranking Table 4.7.2 on a comparative scale which is used to determine the priorities for risk reduction.

The highest score would be a high frequency and a high magnitude as depicted in the lower right hand box of each ranking table.

Hazard	Magnitude	Frequency
Earthquake	36	M
Dam Failure	36	L
Wildfire	32	H
Snow Avalanche	28	H
Aircraft Incident	28	H
River/Stream Flooding	25	M
Terrorism	24	L
Mad Cow	23	L
Hoof and Mouth	23	L
Nuclear	21	L
Extreme Cold	20	H
Hazardous Materials	20	H
Winter Storm	20	H
Communicable Disease	19	L
Flash Flood	17	H
Structure Fire	16	H
Landslide	14	M
Tornado	14	M
Drought	13	M
Hail	11	H
Extreme Heat	11	L
Straight Line Wind	11	H
Riot/Civil Disobedience	11	L
Lightning	10	H
West Nile Virus	9	H

Table 4.7.3 – Hazard Magnitude and Frequency Scoring

Ranges
48-20 High
19-13 Medium
12-0 Low

Frequency
Extreme – $100,000,000 in loss or greater
High – Yearly to Five Years
Medium – Five Years to 25 Years
Low - 25 Years to Never Happened

Frequency	Magnitude (Low) 1	Magnitude (Medium) 2	Magnitude (High) 3
(Low) 1	Extreme Heat Riot/Civil Disobedience/Demonstration	Communicable Disease	Dam Failure Terrorism Nuclear Mad Cow Disease Hoof and Mouth Disease
(Medium) 2		Landslide Tornado Drought	Earthquake River/Stream Flooding
(High) 3	Hail Straight Line Wind Lightning West Nile Virus	Flash Flood Structure Fire	Wildfire Snow Avalanche Extreme Cold Winter Storm Hazardous Materials Aircraft Incident ***Power Outage***

Table 4.7.4 Blaine County Hazard Severity Ranking

Repetitive Loss Summary

The City of Hailey has two repetitive loss properties. Additionally there have been areas in the County that flood repetitively however, very little damage occurs because of the controls placed by the County and the Cities on building in the floodplain and flood prone areas.
There is some repetitive loss due to landslides and avalanches. The losses are generally in the cost of repairs and cleanup on State and County roadways. There are also repetitive losses due to extreme cold. These losses are primarily associated with loss to water system infrastructure due to freezing pipes during extended cold weather periods.

The largest repetitive loss in Blaine County is due to ***power outages***. Therefore the *single most serious vulnerability* in Blaine County is power outages. Because of the remoteness of the Wood River Valley from other support services, the loss of commercial power due to a natural or man-made hazard has the potential to cause serious life safety issues to the residents of the community. Various natural and manmade disasters can and do affect the electrical infrastructure in the County. Currently there is no redundancy built into the major transmission lines that feed electricity into the County; of special concern are the areas north of Hailey, including the Cities of Ketchum and Sun Valley.

The following hazards pose a threat to the electrical infrastructure in Blaine County:

- Severe Winter Storm
- Lightning
- Hail
- Tornado
- Straight Line Wind

- Earthquake
- Landslide/Mudslide
- Wildland Fire

Of the aforementioned hazards seven (7) are surface hazards; they occur above ground, and one (1), earthquake, occurs below ground, but affects both above and below ground. The existing transmission lines are run above ground, which is a standard procedure.[57]

Type and Cause of Outage	*MPSN-WDRI*	*KING-WDRI*	*WDRI-KCHM*
Total Sustained Outages	**13**	**24**	**4**
Caused by Weather	8 (62%)	5 (21%)	1 (25%)
Caused by Range Fires	3 (23%)	1 (4%)	0
Caused by Maintenance	2 (15%)	18 (75%)	2 (50%)
Caused by Equipment Failure	0	0	1 (25%)
Total Momentary Outages	**26**	**46**	**4**
Caused by Weather	8 (31%)	12 (26%)	4 (100%)
Caused by Range Fires	0	2 (4%)	0
Caused by Maintenance	1 (4%)	20 (43%)	0
Unknown Cause	17 (65%)	12 (26%)	0

[57] Idaho Power, Wood River Electrical Plan. December 2007

Individual Jurisdictional Risk Rankings

The Blaine County All Hazard Mitigation Plan has been developed as a multi-jurisdictional plan therefore each jurisdiction risk must be ranked independently from the County and the other jurisdictions. The tables below provide a summary of the ranking for each jurisdiction.

City of Sun Valley

Magnitude/Frequency

	Low	**Medium**	**High**
Low	Tornado Extreme Heat Riot/Civil Disobedience/Demonstration	Communicable Disease Aircraft Incident Nuclear Mad Cow Disease Hoof and Mouth Disease	Dam Failure Terrorism
Medium		Landslide Drought	Earthquake River/Stream Flooding
High	Hail Straight Line Wind Lightning West Nile Virus	Flash Flood Structure Fire	Wildfire Snow Avalanche Extreme Cold Winter Storm Hazardous Materials ***(Power Outage)***

Table 4.7.5 City of Sun Valley
Risk Ranking

City of Ketchum

Magnitude/Frequency

	Low	**Medium**	**High**
Low	Tornado Extreme Heat Riot/Civil Disobedience/Demonstration	Communicable Disease Aircraft Incident Nuclear Mad Cow Disease Hoof and Mouth Disease	Terrorism
Medium	Dam Failure	Drought	Earthquake River/Stream Flooding
High	Hail Straight Line Wind Lightning West Nile Virus	Flash Flood Structure Fire	Wildfire Landslide Snow Avalanche Extreme Cold Winter Storm Hazardous Materials ***(Power Outage)***

Table 4.7.6 City of Ketchum
Risk Ranking

City of Hailey
Magnitude/Frequency

	Low	**Medium**	**High**
Low	Tornado Extreme Heat Riot/Civil Disobedience/Demonstration Dam Failure	Communicable Disease Nuclear Mad Cow Disease Hoof and Mouth Disease	Terrorism
Medium		Drought	Earthquake River/Stream Flooding
High	Hail Straight Line Wind Lightning West Nile Virus	Flash Flood Structure Fire	Wildfire Landslide Snow Avalanche Extreme Cold Winter Storm Hazardous Materials Aircraft Incident ***(Power Outage)***

Table 4.7.7 City of Hailey
Risk Ranking

City of Bellevue
Magnitude/Frequency

	Low	**Medium**	**High**
Low	Tornado Extreme Heat Riot/Civil Disobedience/Demonstration Dam Failure	Communicable Disease Nuclear Landslide Mad Cow Disease Hoof and Mouth Disease	Terrorism Aircraft Incident
Medium		Drought	Earthquake River/Stream Flooding
High	Hail Straight Line Wind Lightning West Nile Virus	Flash Flood Structure Fire	Wildfire Snow Avalanche Extreme Cold Winter Storm Hazardous Materials ***(Power Outage)***

Table 4.7.8 City of Bellevue
Risk Ranking

City of Carey
Magnitude/Frequency

	Low	**Medium**	**High**
Low	Extreme Heat Riot/Civil Disobedience/Demonstration Aircraft Incident Landslide Snow Avalanche	Communicable Disease Terrorism	Dam Failure Nuclear Mad Cow Disease Hoof and Mouth Disease
Medium		Tornado	Earthquake River/Stream Flooding Drought
High	Hail Straight Line Wind Lightning West Nile Virus	Flash Flood Structure Fire	Wildfire Extreme Cold Winter Storm Hazardous Materials ***(Power Outage)***

Table 4.7.9 City of Carey
Risk Ranking

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Section 5 Land Use Planning/Disaster Mitigation Integration

This section of the Blaine County Multi-Jurisdiction All Hazard Mitigation Plan examines the relationship between the County's Comprehensive Plan, Land Use or Zoning Ordinances, and the AHMP. Incorporating hazard mitigation practices into land use planning is extremely important as future developments are planned and constructed. Through proper planning within the individual jurisdictions risk to property owners can be reduced and future disaster related economic losses avoided. Land Use and Mitigation Planning Integration are seen as critical components of the mitigation program in Blaine County.

Blaine County

The Blaine County Comprehensive Plan was last updated in 1994. The Plan, as written, provides an excellent background on land use planning history in Blaine County and a basis for future land use decisions including the implementation of this All Hazard Mitigation Planning effort. The Plan's hazard section does not fully cover all of the hazards discussed in this planning effort and therefore should be updated to reflect the risk rankings and hazard severity described herein.

The Plan does an outstanding job setting policy for the management of the Floodplain hazard, the landslide and avalanche hazard, wildfire hazard, and other manmade hazards. There are a number of references to the Uniform Building Code that should be updated to reflect the adoption and use of the International Building Code. The Plan should also adopt the use of the International Building Code's Wildland Urban Interface requirements.

The Land Use Ordinances reflect the basic tenets of the Comprehensive Plan and are aligned with the basic tenets of the AHMP effort. It is recommended again, that the International Building Code be referenced as appropriate.

City of Sun Valley

The City of Sun Valley's Comprehensive Plan was last updated in 2005. The Plan, as written will support the implementation of the All Hazard Mitigation Planning effort. Supporting sections of the Plan include the Hillside Ordinance, the Avalanche overlay, the requirements for Wildland Urban Interface protection and related building requirements, and the floodplain. During the next revision of the Comprehensive Plan the hazard section should be updated to reflect the hazard potential identified as part of this effort.

The Development Code also supports the implementation of the AHMP as currently written with the addition of references to the International Building Code. The Development Code does an excellent job managing slopes and the floodplain, as well as wildfire protection.

City of Ketchum

The City of Ketchum's Comprehensive Plan was updated in March 2001. The Plan, very similar in quality and content to Sun Valley and the County will support the

implementation of the All Hazard Mitigation Planning effort. The Plan addresses most of the hazards facing the City however; the hazard section should be updated to reflect the hazard potential as set forth in the AHMP. The references to the Uniform Building Code should also be changed to reflect the adoption of the International Building Code.

The land use ordinances are outstanding. One item of note is the use of impact statements in the subdivision ordinance to examine new development from a safety, environmental, social, and economic impacts position. This is an excellent practice and will facilitate the implementation of some mitigation techniques.

City of Hailey

The City of Hailey's Comprehensive Plan, again is very similar in quality and content to the other Comprehensive Plans in the County. The Plan looks at hazards in a little different way. Instead of a standalone hazard section the Plan reflects the impacts of potential hazards throughout all planning sections. There may be a need however, to address the hazards in a more complete and comprehensive manner based on information provided as part of this planning effort. The Plan should also be updated to reflect the use of the International Building Code and should also reflect the use of the International Building Code's Wildland Urban Interface protection requirements.

The City has Land Use Ordinance's that support the implementation of the AHMP as written. The City uses both a floodplain overlay zone and a hillside overlay zone to manage growth in these two hazardous areas.

City of Bellevue

The City of Bellevue's Comprehensive Plan was updated in 2002. The Plan's hazard section is reflective of the County's Hazard Section and should be updated during the next revision. The Plan as developed will support the implementation of the AHMP.

The Land Use Ordinances also support implementation as written. The City has identified the hazards posed by living within the flight pattern of the Friedman Memorial Airport, but have not implemented ordinances to address that risk.

City of Carey

The City of Carey is in the process of developing a comprehensive plan and land use ordinances. Care will be taken to include those tenets of this planning effort in the development of the land use planning products.

Summary

Land Use Planning in Blaine County and the incorporated jurisdictions is well done and will be sufficient to support the implementation of the All Hazard Mitigation Planning actions. Land Use in Blaine County has out of necessity, been forward thinking and as currently practiced, sets standards for other resort type communities. The County and the Cities all address floodplain protection adequately and participate in the National Flood Insurance Program. Additionally there is good public policy regarding protection of the mountain slopes and building is not allowed on slopes that exceed 25% county wide which leads to protection from landslides and avalanches. The County and incorporated jurisdictions should update land use planning documents to ensure alignment with the hazard rankings and risk assessments completed herein.

Section 6 Implementation Roadmap

Hazard mitigation is defined as any cost-effective action(s) that has the effect of reducing, limiting, or preventing vulnerability of people, culture, property, and the environment to potentially damaging, harmful, or costly hazards. Hazard mitigation measures which can be used to eliminate or minimize the risk to life, culture and property, fall into three categories:

1) Keep the hazard away from people, property, and structures.
2) Keep people, property, or structures away from the hazard.
3) Reduce the impact of the hazard on victims, i.e., insurance.

This mitigation plan has identified key strategies that fall into all three categories.

Hazard mitigation measures must be practical, cost effective, and culturally, environmentally, and politically acceptable. Actions taken to limit the vulnerability of society to hazards must not in themselves be more costly than the anticipated damages.

The primary focus of the Blaine All Hazard Mitigation Plan has been to identify the point at which capital investment and land use decisions are made, based on vulnerability, or in other words where capital investments can be made to reduce the risk posed to the County from hazardous events. Capital investments for mitigation projects, whether for homes, roads, public utilities, pipelines, power plants, or public works, determine to a large extent the nature and degree of hazard vulnerability reduction in a community.

Previously, mitigation measures have been the most neglected programs within emergency management. Since the priority to implement mitigation activities is usually very low in comparison to the perceived threat, some important mitigation measures take time to implement. Mitigation success can be achieved, however, if accurate information is portrayed through complete hazard identification and impact studies, such as those presented in the previous sections followed by effective mitigation management. Hazard mitigation is the key to eliminating long term risk to people, cultures, and property.

Prioritization Process

Initial prioritization of the Mitigation Projects occurred at the Local Mitigation Workshop where representatives from the Counties and the participating Cities came together to approve the risks severity ranking, the goals, and associated projects. (See Attachment 1 for meeting minutes). The projects were selected based on the goals and related objectives of the Plan. The basic tenets of the process, as discussed in the scope and mission statement of this Plan, was life safety first, protection of critical infrastructure second, and reduction of repetitive loss third. Those projects that were selected and listed and then roadmapped as the four highest priority projects were selected based on the following criteria:

- Hazard Magnitude/Frequency
- Potential for repetitive loss reduction
- Benefit / Cost
- Vulnerability to the Community

- Population Benefit
- Property Benefit
- Economic Benefit
- Project Feasibility (environmentally, politically, socially)
- Potential project effectiveness and sustainability
- Potential to mitigate hazards to future development

The County Commissioners participating in the Workshop were given the final voice in the approval process.

Ongoing Prioritization Process

Differing prioritization processes will occur within the County and the participating Cities after the Plan is adopted and then becomes a living document with annual evaluation and updating.

The prioritization process will continue to be based on the three basic tenants of Mitigation Planning; 1) Save lives, 2) Protect critical infrastructure, and 3) Eliminate repetitive loss.

The process will reflect that a key component in funding decision is a determination that the project will provide an equivalent, or more, in benefits over the life of the project when compared with the costs. Projects will be administered by county and local jurisdictions with overall coordination provided by the County Emergency Services Coordinator.

County Commissioners, and the elected officials of all jurisdictions, may evaluate opportunities and establish their own unique priorities to accomplish mitigation activities where existing funds and resources are available and there is community interest in implementing mitigation measures. If no Federal funding is used in these situations, the prioritization process may be less formal. Often the types of projects that the County can afford to do on their own are in relation to improved codes and standards, department planning and preparedness, and education. These types of projects may not meet the traditional project model, selection criteria, and benefit-cost model. The County will consider all pre-disaster mitigation proposals brought before the County Commissioners by department heads, city officials, fire districts and local civic groups.

When Federal or State funding is available for hazard mitigation the requirements that establish a rigorous benefit-cost analysis as a guiding criterion in establishing project priorities will be followed. The County will understand the basic Federal grant program criteria which will drive the identification, selection, and funding of the most competitive and worthy mitigation projects.

Prioritization Scheme

The following numerical scoring system developed by Northwest Laboratories[58] may be helpful and used to prioritize projects. The system was modified slightly to represent the basic mitigation tenants chosen by Blaine County. This prioritization serves as a guide for the County when developing mitigation activities. This project prioritization scheme has been used in other Counties with the State of Idaho and is designed to rank projects

[58] Valley County, Idaho, All Hazards Mitigation Plan, pages 123-127

on a case by case basis. The County mitigation program does not want to restrict funding to only those projects that meet the high priorities because what may be a high priority for a specific community may not be a high priority at the County level. Regardless, the project may be just what the community needs to mitigate disaster. The flexibility to fund a variety of diverse projects based on varying reasons and criteria is a necessity for a functional mitigation program at the County and community level.

To implement this case by case concept, a more detailed process for evaluating and prioritizing projects has been detailed below. Any type of project, whether County or City specific, will be prioritized in this more formal manner.

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

The factors for the non-planning projects include:

- Hazard Magnitude/Frequency
- Potential for repetitive loss reduction
- Benefit / Cost
- Vulnerability to the Community
- Population Benefit
- Property Benefit
- Economic Benefit
- Project Feasibility (environmentally, politically, socially)
- Potential project effectiveness and sustainability
- Potential to mitigate hazards to future development

Since some factors are considered more critical than others, two ranking scales have been developed. A scale of 1-10, 10 being the best, has been used for hazard magnitude/frequency, potential for repetitive loss reduction, cost, and vulnerability to the community, population benefit and property benefit. Economic benefit, project feasibility, potential to mitigate hazards to future development, and potential project effectiveness and sustainability are all rated on a 1-5 scale, with 5 being the best. The highest possible score is 65.

The guidelines for each category are as follows:

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. The calculated score will be the percent of the population impacted positively multiplied by 10. In some cases, a project may not directly provide population benefits, but may lead to actions that do, such as in the case of a study. Those projects will not receive as high of a rating as one that directly effects the population, but should not be considered to have no population benefit.

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 and sustainability

Two important aspects of all projects are effectiveness and sustainability. For a project to be worthwhile, it needs to be effective and actually mitigate the hazard. A project that is questionable in its effectiveness will score lower in this category. Sustainability is the ability for the project to be maintained. Can the project sustain itself after grant funding is spent? Is maintenance required? If so, are or will the resources be in place to maintain the project. An action that is highly effective and sustainable will receive a ranking of 5. A project with effectiveness that is highly questionable and not easily sustained should receive a ranking of 1.

Final ranking

Upon ranking a project in each of these categories, a total score can be derived by adding together each of the scores. The project can then be ranked high, medium, or low based on the non-planning project thresholds of:

Project Ranking Priority Score

- High 40-65
- Medium 25-39
- Low 9-24[59]

[59] Valley County, Idaho, All Hazards Mitigation Plan, pages 123-127

Mitigation Projects

Listed below are the goals and objectives developed by the AHMP and the priority projects that were developed to address the risks posed. Included in the list are a cost estimate where established or a rough order of magnitude cost and an anticipated period for further investigation, project development and implementation.

Denotes WUI Mitigation Plan Project | **Denotes High Priority Project**

Severe Weather

Goal	Objective	Project	Responsible Entity	Order of Magnitude Cost & Planning Horizon
Blaine County will develop methods to mitigate the losses due to severe weather in the County.	Improve the Safety of County Roads and Bridges	Install temporary Windbreaks in areas where blowing snow occurs along Highway 75 between Bellevue and Sun Valley.	Road and Bridge	ROM - $150/000 2010 – Seek Funding to Purchase wind break fences 2010 – Deploy Fences along 3.5 Miles of Highway 77
		Install Seasonal Road Signage	Highway District	ROM - $50,000 2009 – Assess needed signage 2010 – Seek Funding and purchase signage & post signs.
	Improve Electrical Power Distribution	Implement the Wood River Electrical Plan	Idaho Power	Cost Estimate $200,000/Mile 2009 Begin Implementation

Flooding

Goal	*Objective*	*Project*	*Responsible Entity*	*Order of Magnitude Cost & Planning Horizon*
Blaine County will continue to participate in the National Flood Insurance Program and develop actions that will reduce the damage to County infrastructure due to flash and stream flooding.	Maintain the NFIP Requirements	Maintain CRS Status for the County	Floodplain Administrator	No Cost 2011 – Review CRS Requirements

Goal	*Objective*	*Project*	*Responsible Entity*	*Order of Magnitude Cost & Planning Horizon*
		Request Updates of the FIRM Maps	Floodplain Administrator	IN PROGRESS 2010/2011 Adopt Map Revisions
		Complete Floodplain Manager Certification Program	Floodplain Administrator	No Cost 2010 – Complete Training Program
		Construct Injection Capability for floodwaters on Big Wood River	Flood District	Cost Estimate - $316,500 2010 – Seek HMA Funding 2011 – Construct Injection System
		Conduct a study for recharge in flood prone areas	Recharge District	ROM - $50,000 2010 – Seek Funding for Study and Develop Scope of Work 2011- Conduct Study
		Install Culverts to protect roadways along HWY 26 in the Carey Area	Highway District	ROM – 150,000 2013- Conduct Engineering Design 2014 - Seek HMA Funding
	Improve Drainage Systems	Develop a Culvert Maintenance Program	Road and Bridge	ROM - $150,000 plus annual maintenance cost. 2010 – Develop a LHTAC Grant to evaluate all culverts in the County. Determine Priority Replacement. 2011 – Ongoing, Repair or Replace Damaged Culverts

Geological

Goal	*Objective*	*Project*	*Responsible Entity*	*Order of Magnitude Cost & Planning Horizon*
Blaine County will reduce potential damage to County infrastructure and structures through implementation of earthquake mitigation techniques.	Priority should be given to schools, public buildings, community evacuation and assessable sites.	Earthquake Protection or Hardening County facilities	Emergency Services	ROM - $250,000 2009- Seek Funding to conduct conceptual hardening designs. 2010 – Conduct Designs and Benefit Cost Analysis. Apply for HMA Funding 2011 – Protect Buildings as designed and funded.

Goal	*Objective*	*Project*	*Responsible Entity*	*Order of Magnitude Cost & Planning Horizon*
		Seismically Retrofit the Blaine County Court House	Commissioners	ROM - $4,000,000 2009 – Seek 2010 HMA Funding 2010 – Conduct Engineering 2011 – Retrofit Construction
		Retrofit Information Technology and Dispatch Electronic Equipment to Protect from Seismic Events	Sheriff	ROM - $100,000 2009 – Seek HMA Funding 2010 – Install Protection
		Ensure enforcement of seismic building code provisions in the International Building Code as adopted	Building Official	ROM – No Cost Continue to follow the guidelines in the adopted IBC.
		Develop a listing of schools and public buildings that need to be seismically retrofitted	Emergency Services/Building Official	ROM - $50,000 2009 – Seek Funding to evaluate structures. 2010 – Develop priorities list of buildings to be retrofitted.
	The media can raise awareness about earthquakes by providing important information to the community.	Publish a special section in newspapers with emergency information on earthquakes.	Emergency Services	NO COST 2009 – Obtain Information from BHS Mitigation Officer
Blaine County will reduce the potential damage to property from Landslides by adopting codes and standards for construction in landslide prone areas.	Document Damage	Develop a landslide damage documentation process	Emergency Services	ROM - $25,000 2010 - Seek HMA funding 2011 – Develop process

Wildfire

Goal	*Objective*	*Project*	*Responsible Entity*	*Order of Magnitude Cost & Planning Horizon*
Blaine County will reduce the losses caused by wildfire by continuing the Wildland Urban Interface Mitigation Program.	Improve Protection through the proper use of Ordinances and Codes	Develop a Wildland Fire Ordinance which establishes the road widths, access, water supply, and building regulations suitable to ensure new structures can be protected.	P & Z Administrator/Fire Districts	ROM - $10,000 2009 – Seek Funding from County to develop Ordinance 2010 – Develop Ordinance and Adopt
		Designate the WUI areas as a special land use category in the County Comprehensive Plan	P & Z Administrator	ROM - $2000 2010 – Incorporate in next Plan revision
	Improve access to areas prone to Wildland Fire	Develop a listing of roads, bridges, cattle guards, culverts, and other limiting conditions and incorporate improvements into the County Transportation Plan	Fire District/Road and Bridge	ROM - $150,000 plus annual maintenance cost. 2012 – Develop a LHTAC Grant to evaluate all roadways in the County. Determine Priority actions. 2013 – Ongoing: Repair or Replace damaged culverts, bridges etc.
		Determine Secondary Access for summer home areas	Emergency Services	ROM - $100,000 2010 – Determine Location of Access Road 2011 – Seek funding in County Budget to construct evacuation roadway 2012 – Construct Evacuation Roadway
	Improve Hazard Communications Tools	Use GIS Technology to Link Red Zone Data to Landowner Parcel Maps	Fire District	ROM - $5000 2009 – Seek Funding from BLM to integrate Red Zone data. 2010 – Integrate Data

Goal	*Objective*	*Project*	*Responsible Entity*	*Order of Magnitude Cost & Planning Horizon*
	Conduct Roadside Vegetation Treatments to reduce flammable fuels immediately adjacent to roads in high risk areas.	Develop a standard practice for roadside vegetation management.	Fire District	No Cost 2009 – Develop standard as part of WUI Planning ongoing effort.
Blaine County will reduce fuels in the Wildland Urban Interface	Implement a countywide fuels reduction program	Smiley Creek Fuel Reduction 10 Acres	Smiley Creek Fire Protection District	ROM - $13,000 2010 – Develop Project Requirements 2011 – Seek Funding
		Beaver Creek and Justus Ranch Fuel Reduction 25 Acres	Emergency Services / Fire District	ROM - $32,500 2010 – Develop Project Requirements 2011 – Seek Funding
		West of Little Wood Reservoir Road Fuel Reduction 350 Acres	Carey Fire Protection District	ROM - $455,000 2011 – Develop Project Requirements 2012 – Seek Funding
		Scott Road Fuel Reduction Project 33 Acres	Carey Fire Protection District	ROM - $42,900 2012 – Develop Project Requirements 2013 0 Seek Funding
		Fuel Reduction – North of Carey between Austin, Little Wood Reservoir, and Barton Roads. 175 Acres	Carey Fire Protection District	ROM - $227,500 2013- Develop Project Requirements 2014 – Seek Funding
		Fuel Reduction – Little Wood Reservoir road, South of the Reservoir 1,000 Acres	Carey Fire Protection District	ROM - $1,300,000 2014 – Develop Project Requirements 2015 – Seek Funding
		Fuel Reduction – Near Gannett and along Punkin Center Road 150 Acres	Carey Fire Protection District	ROM - $195,000 2013 0 Develop Project Requirements 2014 – Seek Funding
		Fuel Reduction – Near Picabo and along Picabo Desert Road 125 Acres	Carey Fire Protection District	ROM - $162,500 2015 – Develop Project Requirements 2016 – Seek Funding
		Fuel Reduction in the West Magic Area 5 Acres	West Magic Fire Protection District	ROM - $6,500 2015 – Develop Project Requirements 2016 – Seek Funding

Goal	*Objective*	*Project*	*Responsible Entity*	*Order of Magnitude Cost & Planning Horizon*
		Fuel Reduction – Beaver Creek and Sawtooth City Vicinity and North to County Line	Smiley Creek Fire District / County Building Official	ROM – Unable to Estimate Insufficient Data
	Ensure coordination of WUI Fire Mitigation Projects	Organize a group to jointly apply for grants and other funding avenues to implement WUI Fire Mitigation Actions.	Emergency Services	No Cost 2009 – WUI Working Group Task.
	Develop Additional Water Supplies for Fire Protection	Develop an agreement with developers and private landowners for access to and use of water sources for fire protection.	Fire District/P & Z Administrator	ROM - $5000 2008 – Seek Funding from BHS SHSP and develop standard agreement and requirements. 2010 – Execute Agreements
	Update and Improve Road Signing and Rural Addressing	Install Road Signs as prescribed by NFPA Standards	Road and Bridge	ROM - $50,000 2010 – Seek BLM or LTHAC Grant to purchase signs. 2011 – Install Signs

Biological

Goal	*Objective*	*Project*	*Responsible Entity*	*Order of Magnitude Cost & Planning Horizon*
Blaine County will seek to reduce the exposure of humans and animals to the West Nile Virus.	Build knowledge of West Nile Virus in the general public.	Maintain an active "fight the bite" public education program.	Health District/Emergency Management	No Cost 2008- Continue Program
	Identify risks to livestock from potential biological threats	Develop a plan & methodology to protect livestock from biological threats	Health District/Emergency Management	ROM - $50,000 2010 – Seek Funding to develop the plan.

Structural Fire

Goal	*Objective*	*Project*	*Responsible Entity*	*Order of Magnitude Cost & Planning Horizon*
Blaine County will seek to reduce losses from Structure Fires through working with private property owners.	Ensure that all structures have minimum detection and protection devices	Encouraging private property owners to install and maintain smoke detectors on all levels of residences and to place detectors in all bedrooms.	Fire Districts	ROM - $65,000 2010 – Seek Funding for the Assistance to Fire Fighters Safety Grant Program 2011 – Distribute Detectors
	Develop Additional Water Supplies for Fire Protection	Develop an agreement with developers and private landowners for access to and use of water sources for fire protection.	Fire Districts	$5000 2008 – Seek Funding from BHS SHSP and develop standard agreement and requirements. 2010 – Execute Agreements.

Hazardous Material Event

Goal	*Objective*	*Project*	*Responsible Entity*	*Order of Magnitude Cost & Planning Horizon*
Blaine County will seek to identify hazardous material flows through the County.	Protect citizens from releases of hazardous materials in transportation	Conduct a hazardous materials flow study for US and State Highways running through the County.	Emergency Services	Cost Estimate - $8000 2009 – Apply for an HMEP Grant and Conduct Study.
Blaine County will seek to identify Hazardous Facilities in the County	Protect citizens from the release of hazardous materials in fixed facilities	Develop a hazardous materials evacuation plan	Emergency Services	Cost Estimate - $20,000 2010 – Apply for an HMEP Grant and Develop plan.

Riot/Demonstration/Civil Disorder

Goal	*Objective*	*Project*	*Responsible Entity*	*Order of Magnitude Cost & Planning Horizon*
Blaine County will develop methods to identify and report Civil Disobedience activities.	Educate the Public on Civil Disobedience Reporting	Conduct a public education program to assist the citizens of the County in recognizing and reporting civil disobedience events to County Law Enforcement.	Sheriff's Office	ROM - $10,000 2009 – Apply for a Law Enforcement Grant to Conduct Public Education. 2010 – Conduct Program.

Terrorism

Goal	*Objective*	*Project*	*Responsible Entity*	*Order of Magnitude Cost & Planning Horizon*
Blaine County will identify measures to protect critical County infrastructure and facilities from potential terror incidents.	Identify and protect potential terrorism targets.	Conduct a County Terrorism assessment.	Emergency Services	No Cost 2009 – Work with LEPC to conduct assessment.
		Protect Critical Infrastructure based on the assessment.	Emergency Services	Insufficient Data to estimate cost. 2009 – Develop a listing of critical infrastructure to be protected. 2010 – Seek Funding to design and engineer protection alternatives. 2011 – Conduct Engineering 2012 – Seek Funding to Implement Solutions. 2013 – Begin Implementation

Other

Goal	*Objective*	*Project*	*Responsible Entity*	*Order of Magnitude Cost & Planning Horizon*
Blaine County will improve communication capabilities in remote areas of the County	Improve Communications and Warning	Continue Public Education to register with the Swift System	Sheriff/Emergency Services	ROM - $5,000 2009 – Seek funding from the 911 budget. 2010 – Build Education Campaign.
Blaine County will protect citizens from transportation incidents	Protect citizens from aviation incidents	Build a new airport in the southern end of the county	Friedman Memorial Airport / Emergency Services / P&Z	ROM – Unknown 2010 – Develop a committed to oversee the development of the project and secure funding.

City of Bellevue

Severe Weather

Goal	*Objective*	*Project*	*Responsible Entity*	*Order of Magnitude Cost & Planning Horizon*
Reduce the impact of long periods of extended cold, due to power outages, or interruption of other heating fuels.	Emergency Sheltering	Identify a community shelter and develop an MOU with the owner for use during an emergency.	Mayor & City Council	ROM $25,000 2010 – Develop Agreements 2011 – Finalize Agreements
		Develop informational programs and materials to educate the public about emergency heat sources and Food Storage	Mayor & City Council	ROM $50,000 2010 – Seek Funding 2011 – Implement Program
		Purchase an emergency generator for Bellevue Elementary School so this facility can used as the community shelter and EOC	Blaine County School District	ROM $30,000 2010 – Seek HMA Funding 2011 – Purchase Generator
Reduce impacts from winter storms.		Survey Critical Infrastructure to determine its snow load capacity. This project could conceivably be combined with the earthquake seismic assessment	City Engineer	ROM $50,000 2011 – Seek HMA Funding 2012 – Perform Survey
		Develop an Emergency Snow Removal Plan to keep roads clear and critical fire hydrants open during winter storms.	Public Works	ROM $20,000 2011 – Seek Funding in County Budget

Flooding

Goal	*Objective*	*Project*	*Responsible Entity*	*Order of Magnitude Cost & Planning Horizon*
The City of Bellevue will continue to participate in the National Flood Insurance Program.	Maintain the NFIP Requirements	Seek CRS Status for the City	Floodplain Administrator	No Cost 2011 – Complete CRS Requirements
		Complete Floodplain Manager Certification Program	Floodplain Administrator	No Cost 2010 – Complete Training Program
	Examine the floodplain for accuracy with NFIP requirements.	Map Floodplain and Flood Prone Areas in the City of Bellevue	City Engineer	ROM - $10,000 2009 – Seek Funding from FEMA 2010 – Conduct Mapping
Reduce Impacts from flooding to the City of Bellevue and prevent loss or failure of the only irrigation source (District 45 Canal) to the south county.	Reduce Flood Damage	Protect the Bradford Road Bridge	City Public Works	ROM - $250,000 2010 – Seek LHTAC Funding 2011 – Protect Bridge
		Install bank rehabilitation measures to reduce flooding on the Wood River at the head of District 45 Canal	City Public Works	ROM - $240,000 2010 – Seek HMA Funding 2011 – Implement Mitigation Action
		Remove gravel bar and debris buildup in the Big Wood River adjacent to City Limits	City Public Works	ROM - $350,000 2011 – Seek Agreement with ID Department of Lands to Remove Gravel 2012 – Remove Gravel

Geological

Goal	*Objective*	*Project*	*Responsible Entity*	*Order of Magnitude Cost & Planning Horizon*
Reduce the potential damage to City infrastructure and buildings in the event of a large earthquake	Protect Infrastructure	Perform a Structural Engineering Survey to identify City and public buildings that need to be seismically retrofitted.	City Engineer	ROM - $50,000 2010 – Seek HMA Funding 2011 – Perform Surveys
		Seismically retrofit critical buildings and infrastructure.	City Engineer	ROM – Depends on Survey 2011 – Seek HMA Funding 2012 – Implement Projects

Wildfire

Goal	*Objective*	*Project*	*Responsible Entity*	*Order of Magnitude Cost & Planning Horizon*
Reduce the losses of life and property caused by Wildfire.	Improve Wildland Urban Interface Planning	Fuel Reduction Projects on Wildland Urban Interface areas within and surrounding the City of Bellevue	Fire Department	ROM - $125,000 2010 – Seek BLM Funding 2011 – Implement Project
		Develop a GIS Based Fuel Model that can be used in Fire Response	Fire Department	ROM - $50,000 2010 – Seek Funding in County Budget 2011 – Develop Model
		Develop a Homeowner Education and Implementation Program focusing on defensible space and ignition resistant building materials.	Fire Department	ROM - $20,000 2011 – Seek BLM Funding 2012 – Develop Program

Biological – *Pandemic Flu*

Goal	*Objective*	*Project*	*Responsible Entity*	*Order of Magnitude Cost & Planning Horizon*
Be prepared to adequately respond to citizen's long-term needs during an extended outbreak of disease.	Improve Pandemic Preparedness	House adequate supplies for emergency workers in the event of a potentially infectious environment.	EMS District	ROM - $100,000 2010 – Seek ASPER Funding 2011 – Purchase Materials
		Store necessary health care supplies for citizens and guests of Bellevue, in a home care situation.	SCPHD	ROM - $150,000 2011 – Identify Funding Avenues 2012 – Apply for Funding 2013 – Purchase Supplies
		Develop a public education campaign about treatment and care options available in Blaine County during a pandemic event.	SCPHD	ROM - $25,000 2010 – Develop Program 2011 – Implement Program

Hazardous Materials

Goal	*Objective*	*Project*	*Responsible Entity*	*Order of Magnitude Cost & Planning Horizon*
Protect the City residents from hazardous material transportation incidents.	Improve Protection	Develop alternate routing for evacuation, medical care access, and response	Fire Department	ROM - $12,000 2011 – Apply for HMA Funding 2012 – Develop Plan
		Provide proper hazardous materials education, training, and equipment for all responders	Fire Department	ROM - $60,000 2010- Include in District Budget 2011 – Purchase Equipment and Conduct Training
		Implement the Community Right to Know Program.	LEPC	ROM – No Cost Implement EPCRA In City.

Terrorism

Goal	*Objective*	*Project*	*Responsible Entity*	*Order of Magnitude Cost & Planning Horizon*
Reduce the impact of terrorism on the City.	Protect Community Infrastructure	Develop methods to secure critical infrastructure.	Public Works	ROM – Insufficient Data to Estimate Cost 2011 – Identify Critical Infrastructure 2012 – Develop Mitigation Measures 2013 – Seek Funding 2014 – Implement Protection
		Formulate a comprehensive planning and security program for large events.	Law Enforcement	ROM - $5000 2010 – Fund as a SHSP Planning Project
		Improve data collection and communication on High Profile Visitors.	Law Enforcement	No Cost 2009 – Implement Emergency Operations Plan Annex F High Profile Visitors

Other

Goal	*Objective*	*Project*	*Responsible Entity*	*Order of Magnitude Cost & Planning Horizon*
Develop a viable Continuity of Government Plan	Improve Disaster Response	Develop a comprehensive Continuity of Government plan	Mayor / City Council	ROM - $5000 2009 – Include as a SHSP Planning Activity
		Subscribe to the WEB-EOC's crisis management system.	Emergency Services	ROM - $5,000 2010 – Seek BHS Funding 2011 – Install System

City of Carey

Flooding

Goal	*Objective*	*Project*	*Responsible Entity*	*Order of Magnitude Cost & Planning Horizon*
The City of Carey will continue to participate in the National Flood Insurance Program and develop actions that will reduce the damage to City property and infrastructure due to flooding.	Maintain the NFIP Requirements	Seek CRS Status for the City	Floodplain Administrator	No Cost 2011 – Complete CRS Requirements
		Complete Floodplain Manager Certification Program	Floodplain Administrator	No Cost 2010 – Complete Training Program
	Examine the floodplain for accuracy with NFIP requirements.	Map Floodplain and Flood Prone Areas in the City of Bellevue	City Engineer	ROM - $10,000 2009 – Seek Funding from FEMA 2010 – Conduct Mapping
The City of Carey will protect citizens from losses due to flash flooding	Dam Failure Evacuation Planning	Develop a warning system & evacuation for the failure of the Little Wood Dam	Mayor & City Council	ROM - $15,000 2009 – Seek Funding from FEMA 2010 – Develop Plan

Geological

Goal	*Objective*	*Project*	*Responsible Entity*	*Order of Magnitude Cost & Planning Horizon*
The City of Carey will reduce potential damage to City infrastructure and structures through implementation of earthquake mitigation techniques.	Protect Infrastructure	Harden city water supply against damage from Earthquakes.	Mayor/Public Works	ROM - $150,000 2012 – Develop Project, Conduct Engineering, and BCA 2013 – Apply for HMA Grant 2014 – Harden System

Goal	*Objective*	*Project*	*Responsible Entity*	*Order of Magnitude Cost & Planning Horizon*
		Harden city sewer system against damage from earthquakes.	Mayor/Public Works	ROM - $150,000 2013– Develop Project, Conduct Engineering, and BCA 2014 – Apply for HMA Grant 2015 – Harden System

City of Hailey

Severe Weather

Goal	*Objective*	*Project*	*Responsible Entity*	*Order of Magnitude Cost & Planning Horizon*
Reduce the impact of long periods of extended cold, due to power outages, or interruption of other heating fuels.	Emergency Sheltering	Identify a community shelter and develop an MOU with the owner for use during an emergency.	Mayor & City Council	ROM $25,000 2010 – Develop Agreements 2011 – Finalize Agreements
		Develop informational programs and materials to educate the public about emergency heat sources and Food Storage	Mayor & City Council	ROM $50,000 2010 – Seek Funding 2011 – Implement Program
Reduce impacts from winter storms.		Survey Critical Infrastructure to determine its snow load capacity. This project could conceivably be combined with the earthquake seismic assessment.	City Engineer	ROM - $50,000 2010 – Seek funding in City Budget 2011 – Perform Survey

Flooding

Goal	*Objective*	*Project*	*Responsible Entity*	*Order of Magnitude Cost & Planning Horizon*
Continue to participate in the National Flood Insurance Program	Examine the floodplain for accuracy	Map Floodplain and Flood Prone Areas in the City of Hailey	City Engineer	ROM - $10,000 2009 – Seek Funding from FEMA 2010 – Conduct Mapping

Goal	*Objective*	*Project*	*Responsible Entity*	*Order of Magnitude Cost & Planning Horizon*
Reduce impacts from flooding city-wide, and prevent structures from being constructed in flood prone areas		Continue enforcement of elevation requirements in the building permit process	Building Official	No Cost
		Complete Floodplain Manager Certification Program	Floodplain Administrator	No Cost 2010 – Complete Training Program
	Increase Protection	Improve information Dissemination in the event of flooding	Emergency Services	No Cost Implement Swift Reach as a Warning Device
		Perform a survey of all structures in the FIRM Floodplain to determine if the BFE's are up to code.	City Engineer	ROM - $50,000 2011 – Seek HMA Funding 2012 – Perform Survey
	Improve Drainage	Replace undersized culverts	City Engineer	ROM - $5000 2009 – Develop Ordinance and Adopt

Geological

Goal	*Objective*	*Project*	*Responsible Entity*	*Order of Magnitude Cost & Planning Horizon*
Reduce potential damage to city infrastructure and structures.	Protect Infrastructure	Perform a Structural Engineering Survey to identify City and public buildings that need to be seismically retrofitted.	City Engineer	ROM - $50,000 2010 – Seek HMA Funding 2011 – Perform Surveys
		Seismically retrofit critical buildings and infrastructure.	City Engineer	ROM – Depends on Survey 2011 – Seek HMA Funding 2012 – Implement Projects

Avalanche/Landslide

Goal	*Objective*	*Project*	*Responsible Entity*	*Order of Magnitude Cost & Planning Horizon*
Reduce the potential of deaths or injury by prohibiting construction of structures on "Red Zone" areas and limiting development in "Blue Zone" avalanche areas.	Avalanche/Landslide Protection	Perform a landslide identification study	City Engineer	ROM – $75,000 2010 – Seek Funding in City Budget 2011 – Perform Study
		Develop a public awareness campaign to increase the awareness of avalanche/landslide areas through informational programs and signage.	Mayor / City Council	ROM - $10,000 2011 – Seek Funding in City Budget 2012 – Develop Material 2013 – Disseminate Material

Wildfire

Goal	*Objective*	*Project*	*Responsible Entity*	*Order of Magnitude Cost & Planning Horizon*
Reduce the losses caused by wildfires, and their impact on persons affected by them.	Improve Wildland Urban Interface Planning	Maintain and update the current WUI Mitigation Plan	Fire Department	ROM - $50,000 2010 – Seek BLM Funding 2011 – Update Plan
		Develop a GIS Based Fuel Model that can be used in Fire Response	Fire Department	ROM - $20,000 2011 – Seek BLM Funding 2012 – Develop Model

Biological – *Pandemic Flu*

Goal	*Objective*	*Project*	*Responsible Entity*	*Order of Magnitude Cost & Planning Horizon*
Be prepared to adequately respond to citizen's long-term needs during an extended outbreak of disease or famine.	Improve Pandemic Preparedness	House adequate supplies for emergency workers in the event of a potentially infectious environment.	EMS District	ROM - $100,000 2010 – Seek ASPER Funding 2011 – Purchase Materials
		Store necessary health care supplies for citizens and guests of Bellevue, in a home care situation.	SCPHD	ROM - $150,000 2011 – Identify Funding Avenues 2012 – Apply for Funding 2013 – Purchase Supplies
		Develop a public education campaign about treatment and care options available in Blaine County during a pandemic event.	SCPHD	ROM - $25,000 2010 – Develop Program 2011 – Implement Program

Terrorism

Goal	*Objective*	*Project*	*Responsible Entity*	*Order of Magnitude Cost & Planning Horizon*
Reduce the impact of terrorism or vandalism	Protect Community Infrastructure	Develop methods to secure critical infrastructure.	Public Works	ROM – Insufficient Data to Estimate Cost 2011 – Identify Critical Infrastructure 2012 – Develop Mitigation Measures 2013 – Seek Funding 2014 – Implement Protection
		Formulate a comprehensive planning and security program for large events.	Law Enforcement	ROM - $5000 2010 – Fund as a SHSP Planning Project

Other

Goal	*Objective*	*Project*	*Responsible Entity*	*Order of Magnitude Cost & Planning Horizon*
Develop a viable Continuity of Government Plan	Improve Disaster Response	Develop a comprehensive Continuity of Government plan	Mayor / City Council	ROM - $5000 2009 – Include as a SHSP Planning Activity
		Subscribe to the WEB-EOC's crisis management system.	Emergency Services	ROM - $5,000 2010 – Seek BHS Funding 2011 – Install System

City of Ketchum

Flooding

Goal	*Objective*	*Project*	*Responsible Entity*	*Order of Magnitude Cost & Planning Horizon*
The City of Ketchum will continue to participate in the National Flood Insurance Program and develop actions that will reduce the damage to City property and infrastructure due to flooding.	Examine the floodplain for accuracy with NFIP requirements.	Map Floodplain and Flood Prone Areas in the City of Bellevue	City Engineer	ROM - $10,000 2009 – Seek Funding from FEMA 2010 – Conduct Mapping
		Complete Floodplain Manager Certification Program	Floodplain Administrator	No Cost 2010 – Complete Training Program
	Improve Drainage	Develop Ordinances to Manage Storm Water in Subdivisions	City Engineer	ROM - $5000 2009 – Develop Ordinance and Adopt

Geological

Goal	*Objective*	*Project*	*Responsible Entity*	*Order of Magnitude Cost & Planning Horizon*
The City of Ketchum will reduce potential damage to City infrastructure and structures through implementation of earthquake mitigation techniques.	Protect Infrastructure	Harden city water supply against damage from Earthquakes.	Mayor/Public Works	ROM - $150,000 2012 – Develop Project, Conduct Engineering, and BCA 2013 – Apply for HMA Grant 2014 – Harden System
		Harden city sewer system against damage from earthquakes.	Mayor/Public Works	ROM - $150,000 2013– Develop Project, Conduct Engineering, and BCA 2014 – Apply for HMA Grant 2015 – Harden System

Structure Fire

Goal	*Objective*	*Project*	*Responsible Entity*	*Order of Magnitude Cost & Planning Horizon*
The City of Ketchum will seek to reduce losses from Structure fires.	Ensure that all structures have minimum detection and protection devices	Encouraging private property owners to install and maintain smoke detectors on all levels of the residences and to place detectors in all bedrooms	Fire Department	ROM - $25,000 2009 – Seek Funding for the Assistance to Fire Fighters Safety Grant Program 2010 – Distribute Detectors

City of Sun Valley

Severe Weather

Goal	*Objective*	*Project*	*Responsible Entity*	*Order of Magnitude Cost & Planning Horizon*
Provide for a secondary power line from the substation to the south, to assure we can provide for our guests and residents alike in the event of a long term power outage	Improve Power Supply	Install the Secondary Power Supply to the City of Sun Valley	Idaho Power	ROM – $200,000/Mile
		Purchase an emergency power generator for the Elkhorn Fire Station.	Fire Department	ROM - $25,000 2010 – Seek HMA Funding 2011 – Purchase Generator
Reduce impacts from large winter storms.		Survey Critical Infrastructure to determine its snow load capacity. This project could conceivably be combined with the earthquake seismic assessment	City Engineer	ROM - $50,000 2010 – Seek funding in City Budget 2011 – Perform Survey
		Develop an Emergency Snow Removal Plan to keep roads clear and critical fire hydrants open during winter storms.	Public Works	ROM - $50,000 2011 – Seek Funding in City Budget 2012 – Develop Plan
		Develop public information on how to survive and stay safe with winter storms.	Mayor & City Council	ROM $50,000 2010 – Seek Funding 2011 – Implement Program
Reduce the impact of long periods of extended cold, due to power outages, or interruption of any other heating sources.	Emergency Sheltering	Identify a community shelter and develop an MOU with the owner for use during an emergency.	Mayor & City Council	ROM $25,000 2010 – Develop Agreements 2011 – Finalize Agreements

Flooding

Goal	*Objective*	*Project*	*Responsible Entity*	*Order of Magnitude Cost & Planning Horizon*
Continue to participate in the National Flood Insurance Program		Complete Floodplain Manager Certification Program	Floodplain Administrator	No Cost 2010 – Complete Training Program
Reduce impact from flooding in the City of Sun Valley and prevent a collapse of the Sun Valley Lake Dam.	Protect From Flash Flooding	Independent study on the stability of the Sun Valley Dam.	City Engineer	ROM - $80,000 2011 – Seek FMA Funding 2012 – Perform Study

Geological

Goal	*Objective*	*Project*	*Responsible Entity*	*Order of Magnitude Cost & Planning Horizon*
Reduce the potential damage to city infrastructure and buildings in the event of a large earthquake.	Protect Infrastructure	Perform a Structural Engineering Survey to identify City and public buildings that need to be seismically retrofitted.	City Engineer	ROM - $50,000 2010 – Seek HMA Funding 2011 – Perform Surveys
		Seismically retrofit critical buildings and infrastructure.	Building Official	ROM – Depends on Survey 2011 – Seek HMA Funding 2012 – Implement Projects

Wildfire

Goal	*Objective*	*Project*	*Responsible Entity*	*Order of Magnitude Cost & Planning Horizon*
Reduce losses of life and property caused by wildfires.	Perform Fuel Reduction Projects	Reduce the Fuels that border the City through a 400-500 foot Fire Line around the city	Fire Department	ROM - $200,000 2010 – Seek HMA Funding 2011 – Implement Project
		Clear the heavily wooded willow area in the center of the Elkhorn Subdivision	Fire Department	ROM - $75,000 2010 – Seek BLM Funding 2011 – Implement Project
	Improve Wildland Urban Interface Planning	Maintain an up to date WUI Mitigation Plan	Fire Department	ROM - $50,000 2010 – Seek BLM Funding 2011 – Update Plan
		Develop a GIS Based Fuel Model that can be used in Fire Response	Fire Department	ROM - $20,000 2011 – Seek BLM Funding 2012 – Develop Model

Biological – *Pandemic Flu*

Goal	*Objective*	*Project*	*Responsible Entity*	*Order of Magnitude Cost & Planning Horizon*
Assure we are prepared to respond to citizen's long-term needs during an extended outbreak of disease.	Improve Pandemic Preparedness	House adequate supplies for emergency workers in the event of a potentially infectious environment.	EMS District	ROM - $100,000 2010 – Seek ASPER Funding 2011 – Purchase Materials
		Store necessary health care supplies for citizens and guests of Bellevue, in a home care situation.	SCPHD	ROM - $150,000 2011 – Identify Funding Avenues 2012 – Apply for Funding 2013 – Purchase Supplies
		Develop a public education campaign about treatment and care options available in Blaine County during a pandemic event.	SCPHD	ROM - $25,000 2010 – Develop Program 2011 – Implement Program

Hazardous Materials

Goal	*Objective*	*Project*	*Responsible Entity*	*Order of Magnitude Cost & Planning Horizon*
Be able to deal with and contain a leak or spill from the Ice Rink Anhydrous Ammonia plant, and to warn all occupants of the resort and the cities of Ketchum and Sun Valley.		Develop a Tier II Evacuation Plan	Emergency Services	ROM – $35,000 2011 – Seek HMA Funding 2013 – Develop Plan
		Provide proper hazardous materials education, training, and equipment for all responders	Fire Department	ROM - $200,000 2010- Include in District Budget 2011 – Purchase Equipment and Conduct Training

Terrorism

Goal	*Objective*	*Project*	*Responsible Entity*	*Order of Magnitude Cost & Planning Horizon*
Reduce the impact of terrorism or vandalism	Protect Community Infrastructure	Develop methods to secure critical infrastructure.	Public Works	ROM – Insufficient Data to Estimate Cost 2011 – Identify Critical Infrastructure 2012 – Develop Mitigation Measures 2013 – Seek Funding 2014 – Implement Protection
		Formulate a comprehensive planning and security program for large events.	Law Enforcement	ROM - $5000 2010 – Fund as a SHSP Planning Project
		Improve data collection and communication on High Profile Visitors.	Law Enforcement	No Cost 2009 – Implement Emergency Operations Plan Annex F High Profile Visitors

Other

Goal	*Objective*	*Project*	*Responsible Entity*	*Order of Magnitude Cost & Planning Horizon*
Develop a viable Continuity of Government Plan	Improve Disaster Response	Develop a comprehensive Continuity of Government plan	Mayor / City Council	ROM - $5000 2009 – Include as a SHSP Planning Activity
		Subscribe to the WEB-EOC's crisis management system.	Emergency Services	ROM - $5,000 2010 – Seek BHS Funding 2011 – Install System

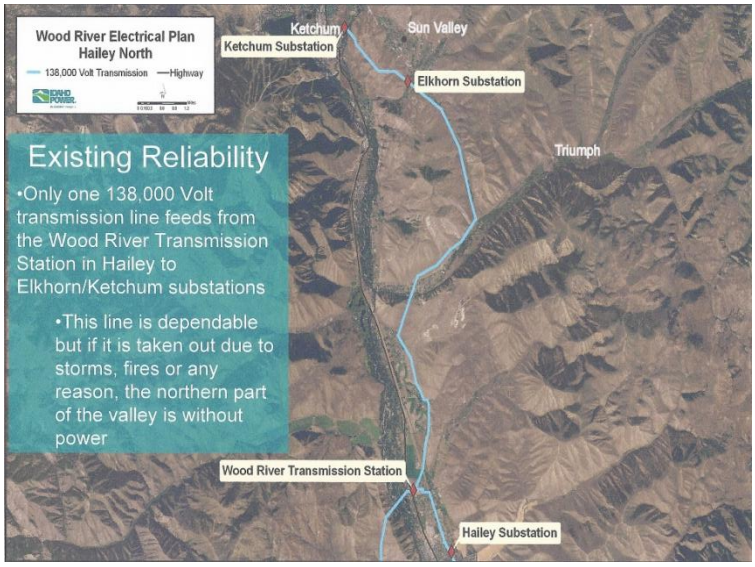
Blaine County High Priority Projects

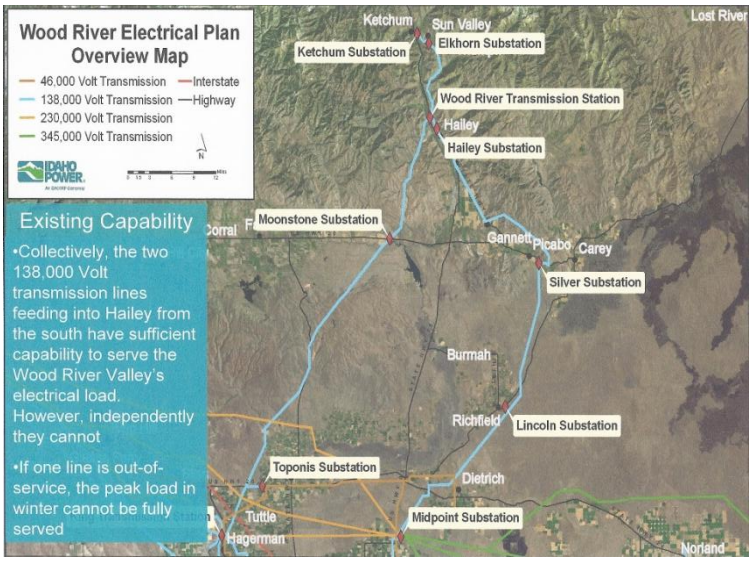
Improve Power Supply to Ketchum and Sun Valley

Need
The existing electrical delivery systems and infrastructure do not adequately meet the Valley's current or future needs for dependable and adequate power.

The system lacks sufficient dependability due to several factors:

- The electrical system serving the North Valley has only one line and provides no redundancy (two separate lines that can handle extreme peak loads alone without rotational power outages)
- The electrical system south of Hailey has two lines, but neither line has the capability to provide 100% of the electricity needed for extreme peak loads without rotational power outages





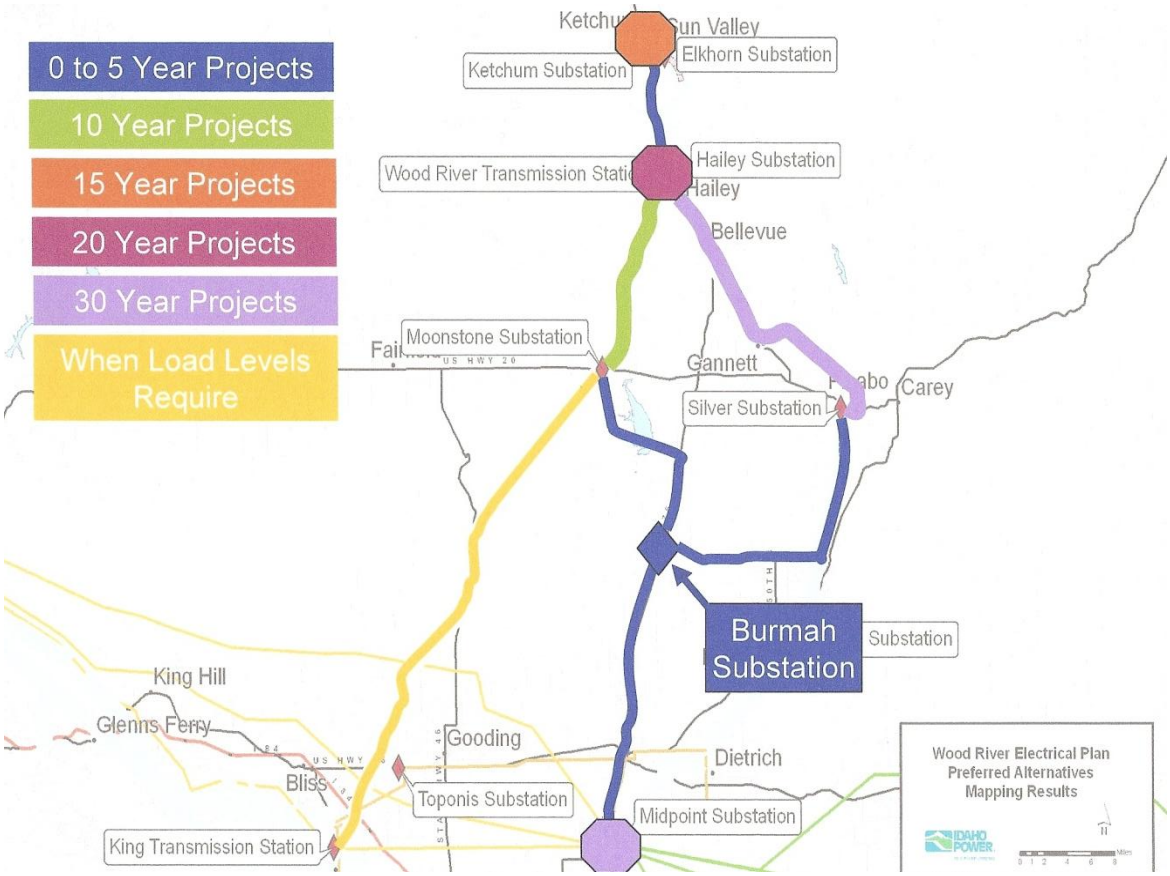
The system lacks sufficient capacity to satisfy projected electricity needs:

- Current power demands at peak load are approximately 99.5 MW and future demand at build out will be approximately 320 MW, using current usage patterns to project future use
- The current system capacity is about 120 MW
- The system needs 200 MW of increased capacity and delivery infrastructure to serve the Valley's build out needs

Project Description

Construct an additional 138,000-volt transmission line between Wood River Transmission Station (located in Hailey) and Ketchum Substation to increase the dependability of the electrical supply to the north end of the Valley. Today there is only one transmission line feeding north from Hailey to Ketchum. The committee recommended that this line run in parallel with Highway 75. This route was considered the most sensible option because it follows the Valley's main transportation corridor.

Though there was a preference that this line be placed underground, the committee as a whole did not specify whether this line should be installed overhead or underground.



Additional Priority Projects

Blaine County

1. Seismically the Blaine County Court House
2. Protect Information Technology Equipment and Dispatch Center from Seismic events.

City of Bellevue

3. Install Bank Protection on the Big Wood River upstream of the District 45 Canal Head.

City of Sun Valley

4. Construct a Fuel Reduction barrier around the perimeter of the City.

BLAINE COUNTY
COURTHOUSE
SEISMIC IMPROVEMENTS

November 11, 2009

PROJECT NO. 209002

PREPARED BY:

KELLER associates
131 SW 5TH AVENUE, SUITE A
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(T) 208 288 1992
(F) 208 288 1999

BLAINE COUNTY COURTHOUSE SEISMIC IMPROVEMENTS

EXISTING CONDITIONS

This project is located in the City of Hailey in Blaine County, Idaho. The Blaine County Courthouse (Figure 1) was constructed in Hailey around 1887. The building is a three-story masonry building located in the central part of town. In 1978 the building was placed on the National Register of Historic Places. The building has had numerous additions and modification over the years, but the majority of the original construction remains. The addition of a canopy in the front of the building and additional work on the rear of the building were done as free standing additions without being attached to the original structure. National Register requirements for modifications to historic structures dictate free standing additions.

Originally the building housed all county services, including the jail. Today the county jail is at a different location and the county annex building, across the street from the old courthouse, provide offices for many of the county services. The county clerk and recorder, as well as the district court, remain in the old building.

PROPOSED PROJECT

The stability of the old courthouse during an earthquake has been a concern for many, particularly since eastern and central Idaho are in a higher earthquake hazard area than other areas of the state. Hailey is located in a region of central Idaho where the intensity of earthquakes is greater.

The proposed project includes doing earthquake resistance improvements to the old courthouse. Buildings are generally not earthquake-proof, but damage from earthquakes can be reduced if proper construction is used. The original construction was heavy unreinforced masonry. The masonry consists of heavy stone walls in the lower floor, and double brick walls to the roof. This type of construction is very subject to damage from earthquakes. Within the past twenty years, earthquakes that have occurred at other locations in Idaho and Nevada have caused significant damage to unreinforced masonry.

The floor and roof framing is timber with the supported ends of the timber members in masonry pockets in the exterior walls. There are no visible lateral attachments of the floors and roof to the exterior walls. The exteriors walls must provide the lateral resistance for the floors and roof during an earthquake. Since the masonry walls are not reinforced, their resistance to lateral loads is very limited. The lateral loads from the floors and roof have no positive load path from the roof and floor to the walls.

The project will include adding new masonry walls inside the exterior walls of the building. The new masonry walls will be reinforced masonry blocks designed to resist earthquake lateral loads by carrying the load to the foundation through the reinforced masonry, rather than trying to reinforce the masonry to adequate strength to carry the load. The entire inside of the exterior building walls is not likely to require new masonry wall construction. Only sufficient new masonry walls to carry the horizontal loads will be required. This will likely be about 10 masonry wall segments extending from foundation to roof, with each segment being about 12 wide.

Figure 2 shows the basic concept for the new masonry walls. The new masonry walls will be attached to the old brick on the inside to prevent the old brick from falling off the building during an earthquake. Old masonry work falls from buildings during earthquakes due to the movement of the wall cracking the mortar and bricks, causing them to fall. Adding the new masonry walls inside the building will provide a stiff resistance to horizontal movement, which reduces the possibility of the old masonry cracking and falling off. Sometimes the movement can't be reduced sufficiently to completely prevent some old masonry from falling. The main objective of the seismic improvement is to improve the life safety aspects of the building and not completely prevent superficial damage. The new masonry walls will provide a much more stable structural system for the building than currently exists.

To install the new inner masonry walls, most of the interior part of the building will have to be removed to allow installation of the new masonry work and connection of the floors and roof to new masonry walls. Since carrying all the lateral loads to the exterior walls may not be practical, some additional masonry walls on the interior portion of the building will likely be required. These could be at an interior stair well or some other interior wall. To transfer the horizontal loads from the floors and roof to the new masonry walls, steel collectors are required between the steel frames and the floor and roof framing. The collectors are steel members that connect to the new masonry wall to the floor and roof sheathing.

The existing building has beams embedded in masonry pockets to support the vertical component of the loads. Due to the possibility of the old masonry cracking and falling, the vertical load system should be changed to steel columns and beams. The steel column and beam system will only serve as the vertical load supporting system. As presented above, the lateral load resisting system will be reinforced masonry.

Installation of the new reinforced masonry walls and steel beam and column system will require removal of a substantial portion of the interior of the building. After the new structural work is complete, the interior of the building should be restored to near its original condition. This includes using materials and finishes that match the original construction as closely as possible. The new masonry work and steel framing should be covered with interior building finishes to conceal the new work on the inside as much as possible.

The exterior of the building will remain in its original condition. The new work will be confined to the interior so the project will have little or no impact on the exterior.

Figure 3 shows a basic concept of the proposed seismic improvements. Since no engineering has been done on the building and the requirements of the earthquake-resisting system, the information shown is conceptual in nature and does not represent a suitable design.

ENVIRONMENTAL AND PERMITTING

The courthouse building is on the National Register of Historic Places. Work on the building will have to be closely coordinated with the requirements for restoration of historic buildings. Demolition of the interior of the building will likely expose some type of hazardous material that will require special removal and disposal methods.

CONSTRUCTABILITY

The proposed seismic improvement project will require all the county offices currently in the building to be relocated to a temporary location until the work is complete. The work will require at least 30 months to complete.

Opinion of Costs

The opinion of costs for the project is shown in the attached table. The expected useful life of the facility would be 40 years.

BENEFIT COST ANALYSIS PROJECT COST ESTIMATE						
Applicant		Blaine County, Idaho				
Project Title		Blaine County Courthouse Seismic Improvements				
Preparer:		D. Kinzer				
	HAZARD:		**Earthquake**			
	MITIGATION STRATEGY		**Construction**			
Estimating Step	**Project Phase**	**Description**	**Quantity**	**Unit**	**Unit Cost**	**Task Cost**
1	PreConstruction	Historic Coordination and Permitting	1	LS	40,000	$40,000
		Preliminary Engineering	1	LS	200,000	$200,000
		PreConstruction Subtotal				**$240,000**
2	Construction	Remove Mechanical Items	38	Ea	1,800	$ 68,400
		Remove Electrical Items	480	FT	40	$ 19,200
		Remove Part of First Floor	2,100	SF	90	$ 189,000
		Remove Part of Second Floor	1,600	SF	70	$ 112,000
		Temporary Floor Shoring	3,700	SF	60	$ 222,000
		Remove Roof	3,500	SF	30	$ 105,000
		Temporary Roof	3,500	SF	16	$ 56,000
		Install micro piles	26	EA	7,800	$ 202,800
		Install concrete foundation for steel	10	EA	9,700	$ 97,000
		Install new masonry piers	14	EA	48,000	$ 672,000
		Install new steel collectors	12	EA	18,000	$ 216,000
		Install new steel beam and columns	10	EA	31,000	$ 310,000
		Replace first floor	2,100	SF	360	$ 756,000
		Replace second floor	1,600	SF	290	$ 464,000
		Replace roof frame	8	EA	22,000	$ 176,000
		Replace roof sheathing and roof	3,500	SF	14	$ 49,000
		Connect floors to new framing	12	EA	18,000	$ 216,000
		Finish masonry piers	14	EA	18,000	$ 252,000
		Restore interior w alls	48,000	SF	9	$ 432,000
		Restore Mechanical Systems	3,700	SF	28	$ 103,600
		Restore Electrical Systems	3,700	SF	32	$ 118,400
		Restore floors	6,200	SF	12	$ 74,400
		Construction Subtotal				**$ 4,910,800**
3	Construction	Insurance And Bonds	1	LS	163,000	$ 163,000
	General	Site Supervision	1	LS	400,000	$ 400,000
		G C Overhead & Profit	1	LS	600,000	$ 600,000
		Permits	1	LS	60,000	$ 60,000
		General Construction Subtotal				**$ 1,223,000**
	Applicant Costs	Prepare Contract Documents	1	LS	500,000	$ 500,000
		Moving Offices to Temporary Location	2	EA	12,000	$ 24,000
		Temporary Office Rent	36	Mo	8,000	$ 288,000
		Applicant Cost to Manage Design	1	LS	20,000	$ 20,000
		Applicant Cost to Manage Construction	1	LS	30,000	$ 30,000
		Applicant Cost Subtotal				**$ 862,000**
4	Maintenance	None				$0
		Annual Maintenance Subtotal				**$0**
5	Escalation	(to mid-point of construction)	84	Month	0.05%	$ 227,000
6	Estimate Review	PreConstruction Subtotal				$ 240,000
	& Confirmation	Construction Subtotal				$ 4,910,800
		General Construction Subtotal				$ 1,223,000
		Applicant Cost Subtotal				$ 862,000
		Annual Maintenance Subtotal				$ -
		Escalation Subtotal				$ 227,000
	PROJECT TOTAL					**$ 7,462,800**

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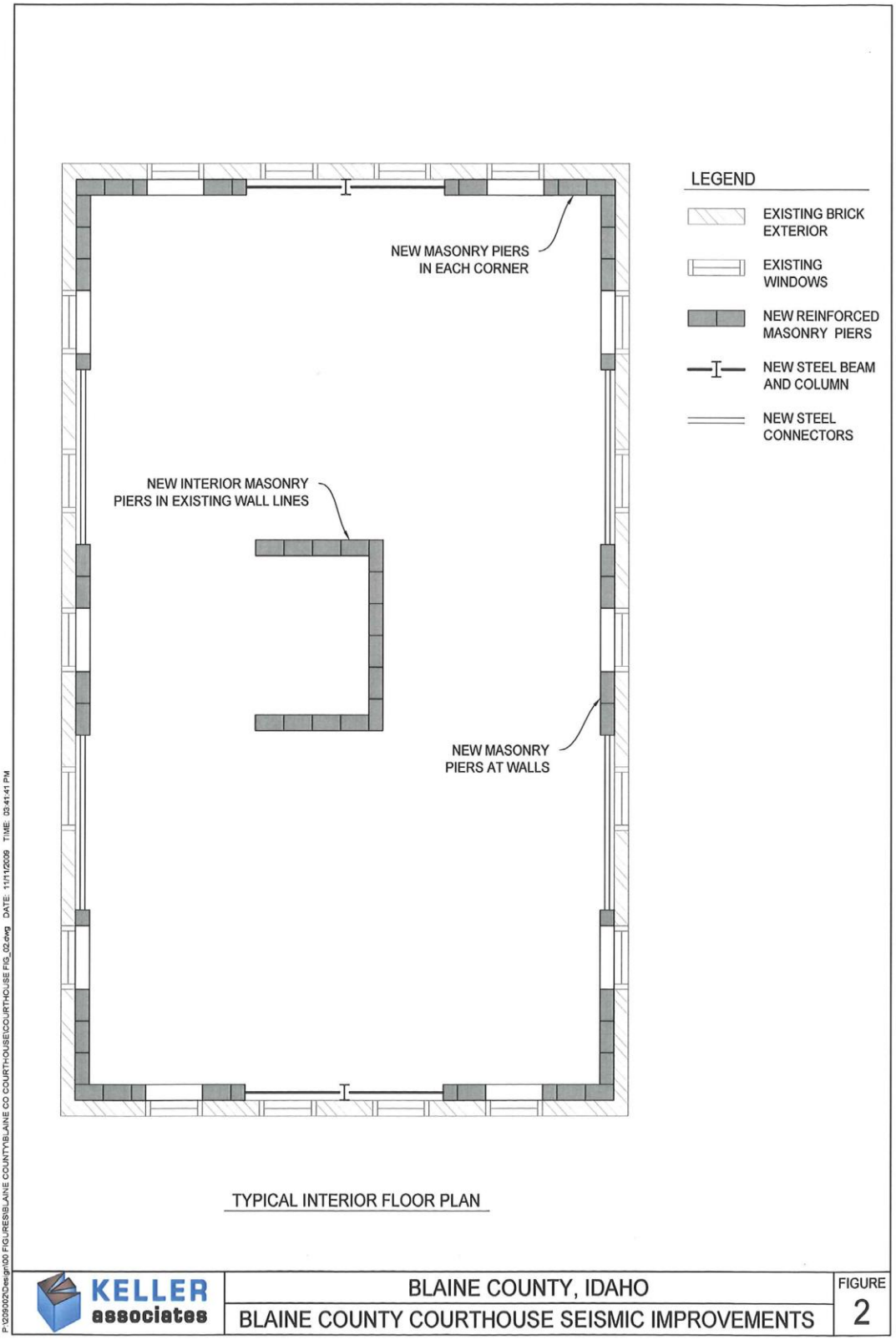
KELLER associates

BLAINE COUNTY, IDAHO
BLAINE COUNTY COURTHOUSE SEISMIC IMPROVEMENTS

FIGURE 1


LEGEND
EXISTING BRICK EXTERIOR
EXISTING WINDOWS
NEW REINFORCED MASONRY PIERS
NEW STEEL BEAM AND COLUMN
NEW STEEL CONNECTORS
NEW MASONRY PIERS IN EACH CORNER
NEW INTERIOR MASONRY PIERS IN EXISTING WALL LINES
NEW MASONRY PIERS AT WALLS
TYPICAL INTERIOR FLOOR PLAN
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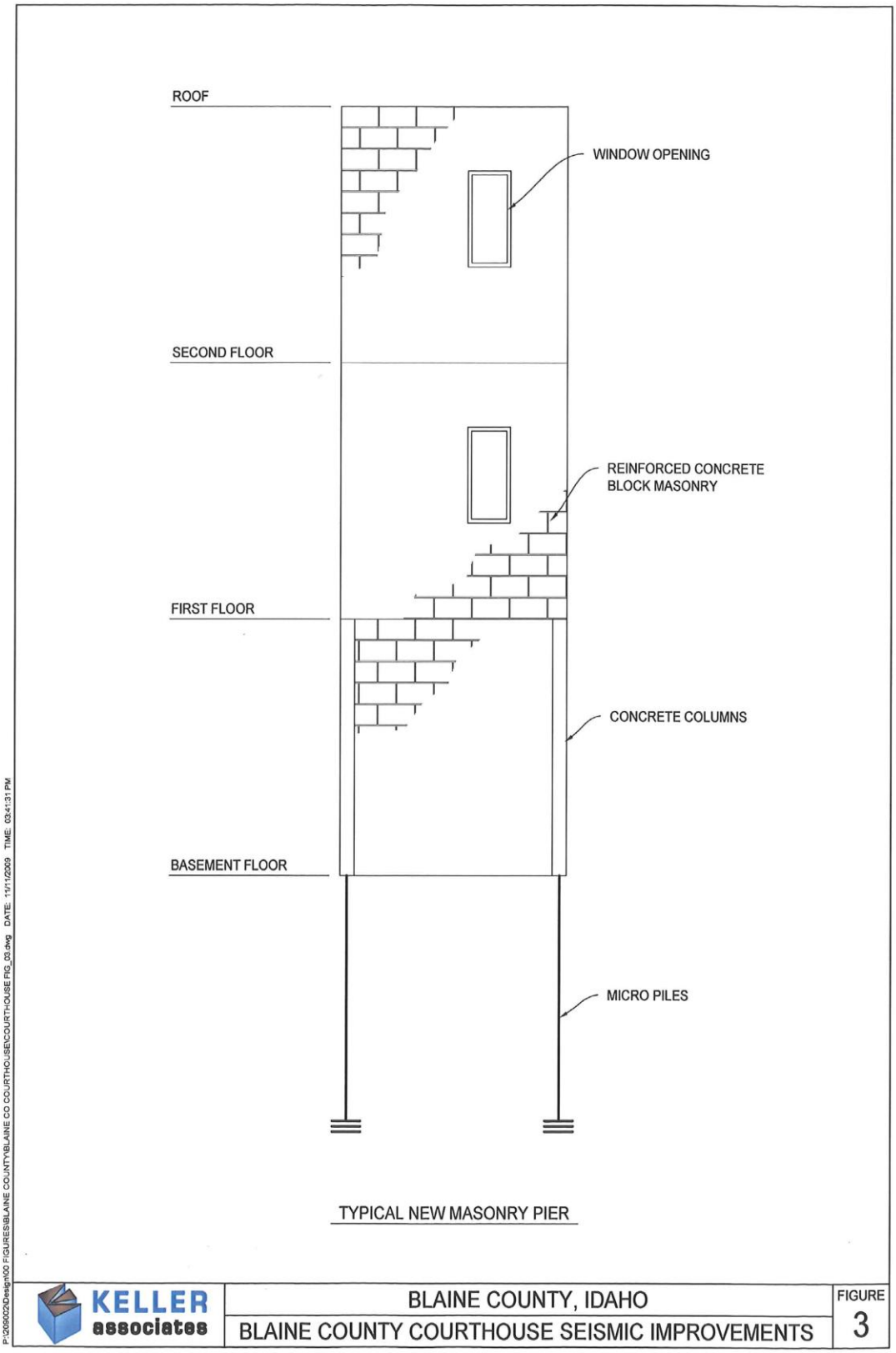
KELLER associates
BLAINE COUNTY, IDAHO
BLAINE COUNTY COURTHOUSE SEISMIC IMPROVEMENTS
FIGURE 2


ROOF
WINDOW OPENING
SECOND FLOOR
REINFORCED CONCRETE
BLOCK MASONRY
FIRST FLOOR
CONCRETE COLUMNS
BASEMENT FLOOR
MICRO PILES
TYPICAL NEW MASONRY PIER
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KELLER associates
BLAINE COUNTY, IDAHO
BLAINE COUNTY COURTHOUSE SEISMIC IMPROVEMENTS
FIGURE 3

BLAINE COUNTY
911 DISPATCH
SEISMIC IMPROVEMENTS

November 11, 2009

PROJECT NO. 209002

PREPARED BY:

KELLER associates
131 SW 5TH AVENUE, SUITE A
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(T) 208 288 1992
(F) 208 288 1999

BLAINE COUNTY 911 DISPATCH SEISMIC IMPROVEMENTS

EXISTING CONDITIONS

This project is located in the City of Hailey in Blaine County, Idaho. Blaine County recently constructed a new 911 dispatch center near the airport. The center is located in an interior room of the building with no windows and a single entrance. The communication equipment and computer servers are located in a separate room next to the dispatch center.

The center consists of a number of 911 call centers where operator are set up at desks to operate the center and dispatch emergency services to areas in the county. The concern is that the dispatch center is vulnerable to damage and interruption of operations in the event of an area earthquake of sufficient magnitude to require major emergency response.

The dispatch operators have file cabinets located nearby that could move, tip over or have drawers slide out during an earthquake. These could injure dispatch personnel at a critical time and disrupt the center's ability to respond.

The computer room has a substantial amount of air conditioning equipment mounted overhead to keep the room cool. The servers and computers generate a large amount of heat which requires the air conditioners. The air conditioners have refrigeration piping running between the condensers and evaporators. The refrigeration piping is cold enough to condense moisture on the outside of the pipes which drips off at the low points of the piping system. The dripping pipes drip onto the communication and computer equipment below. Currently the computers and communication equipment are protected by a sheet of plastic draped across the room.

PROPOSED PROJECT

Most of the equipment in the dispatch center is attached and secured to be stable during an earthquake. Some of the equipment should be better secured to prevent movement during an earthquake. The utility power supply is vulnerable to outage during an earthquake, so a source of backup power is necessary for dispatch operation.

The file cabinets should be secured and drawers barred to prevent accidental opening. The file cabinets could also be moved to a different location so the effects of file cabinets moving and opening would not interfere with the dispatch operation. However, a separate file location may not be as effective as securing the files, since access to the files will be more difficult with a separate location.

The overhead air conditioning systems should be changed to improve the reliability of the communication / server room. Although the dripping condensate is not directly related to an earthquake, an earthquake can cause considerable disruption of all daily activities and other side effects that may not be anticipated. The plastic sheet may be working during normal conditions, but during an earthquake it may not be adequate to prevent communication and computer failure due to water intrusion.

The existing air conditioning system should be removed from above the computer and communication equipment and another air conditioning system installed. A ductless air conditioner is recommended. Ductless air conditioners are typically installed with a condenser outside. The evaporator is a wall unit that is mounted near the top of the wall, with a circulation fan to move the air through the unit for cooling. The units are available in 1, 2 and 3 ton capacity. By installing two units - one on each side of the room - 4 to 6 tons of air conditioning can be provided in the room. The refrigeration tubing is run through or inside the wall, and is insulated to prevent condensation drip.

ENVIRONMENTAL AND PERMITTING

None required.

CONSTRUCTABILITY

The project only requires coordination with the dispatch center.

Opinion of Costs

The opinion of costs for the project is shown in the attached table. The expected useful life of the facility would be 10 years.

BENEFIT COST ANALYSIS PROJECT COST ESTIMATE						
Applicant		Blaine County, Idaho				
Project Title		911 Dispatch Seismic Improvments				
Preparer:		D. Kinzer				
	HAZARD:		**Earthquake**			
	MITIGATION STRATEGY		**Construction**			
Estimating Step	**Project Phase**	**Description**	**Quantity**	**Unit**	**Unit Cost**	**Task Cost**
1	PreConstruction	Coordination	1	LS	1,000	$ 1,000
		Preliminary Engineering	1	LS	5,000	$ 5,000
		PreConstruction Subtotal				**$ 6,000**
2	Construction	Attach Files in Dispatch Room	4	Ea	1,500	$ 6,000
		Attach Printer in Dispatch Room	1	EA	2,000	$ 2,000
		Replace Computer Monitor Supports	4	Ea	9,000	$ 36,000
		Replace Bookshelf w ith closed unit	1	Ea	2,000	$ 2,000
		Remove Existing Air Conditioner	1	LS	5,000	$ 5,000
		Install Ductless Air Conditiomner	2	EA	6,000	$ 12,000
		Change computer racks to restrained	8	EA	2,500	$ 20,000
		Construction Subtotal				**$ 83,000**
3	Construction	Insurance And Bonds	1	LS	2,000	$ 2,000
	General	Site Supervision	1	LS	4,000	$ 4,000
		G C Overhead & Profit	1	LS	6,000	$ 6,000
		Permits	1	LS	500	$ 500
		General Construction Subtotal				**$ 12,500**
	Applicant Costs	Prepare Contract Documents	1	LS	8,000	$ 8,000
		Applicant Cost to Manage Design	1	LS	1,000	$ 1,000
		Applicant Cost to Manage Construction	1	LS	3,000	$ 3,000
		Applicant Cost Subtotal				**$ 12,000**
4	Maintenance	None				$0
		Annual Maintenance Subtotal				**$0**
5	Escalation	(to mid-point of construction)	30	Month	0.05%	$ 1,300
6	Estimate Review	PreConstruction Subtotal				$ 6,000
	& Confirmation	Construction Subtotal				$ 83,000
		General Construction Subtotal				$ 12,500
		Applicant Cost Subtotal				$ 12,000
		Annual Maintenance Subtotal				$ -
		Escalation Subtotal				$ 1,300
	PROJECT TOTAL					**$ 114,800**

FLOOD MITIGATION

WOOD RIVER in BELLEVUE

EXISTING CONDITIONS

This project is located in Blaine County near Bellevue, Idaho (Figure 1). The Big Wood River flows south from the Sawtooth Range, passing by Sun Valley, Ketchum, Hailey and Bellevue on its way to Magic Reservoir. Below Ketchum, the Big Wood River is joined by the East Fork Wood River. The City of Bellevue lies in the narrow valley between the Pioneer Mountains on the east, and the Wood River on the west. The Big Wood River drains 640 square miles.

Toward the south end of Bellevue, the river meanders have formed overflow channels that carry water during high flows (Figure 2). In 2006, flooding occurred in a residential area on Riverside Drive with a cul-de-sac about 300 feet south of one of the meanders (Figure 3).

The Wood River has historically been subject to high flows during spring runoff, with maximum flows occurring during May or June. Historical flow data from October 1915 is available for the Big Wood River at Hailey, upstream from Bellevue. The highest average monthly flow during the period of record was reached in May 2006 with an average monthly flow of 3,394 cfs. The flooding that occurred in the area along Riverside Drive hindered access to homes, and caused damage to the road, sewer, and waterline serving the area. A temporary rock/earth dike was constructed to limit the extent of the flooding.

In addition to the infrastructure which belongs to the City of Bellevue, the river bank and Bellevue Canal north of the cul-de-sac in the developed area are vulnerable to erosion from flooding.

The Corps of Engineers removed debris from a 27-mile reach of the Big Wood River through Ketchum, Hailey and Bellevue in 1985. The flood insurance rate maps were revised in July 1998. Significant quantities of gravel and large debris have accumulated in the river, reportedly moving the river channel east and diminishing the flood plain.

FLOODWAY

Figure 4 shows the applicable portion of the FEMA FIRM (Flood Insurance Rate Map) for the Big Wood River near the City of Bellevue. The channel and the area within about 500 feet of the channel are in Zone AE, which is an area of 100-year flood where the base flood elevation and flood hazard factors have been determined by FEMA.

PROPOSED FLOOD MITIGATION MEASURES

As discussed above, Riverside Drive and the water and sewer utilities serving the area could be damaged again by flood waters. The river bank and Bellevue Canal are also vulnerable to erosion and flood damage.

An option that was proposed after the 2006 flood was the use of a temporary water-filled bladder to protect the area. However, this is not considered a practical long-term solution. Use

of a temporary bladder would require that someone monitor projected river flows and take action when river flows are expected to reach flood levels. This approach would not protect the river bank from erosion during high flows that were below flood levels.

One alternative to mitigate flooding is to restore the original channel by removing debris and gravel accumulations, as was done in 1985. This would involve approval from and coordination with the Corps of Engineers, the Idaho Department of Water Resources, and the Idaho Department of Lands. Due to the potential environmental effects and the opposition of area homeowners, this alternative is not likely to be approved.

Another alternative to address protection of the infrastructure and potential erosion of the riverbank and canal would involve 1) raising the road and infrastructure above flood elevation, and 2) stabilizing the bank (see Figure 5). Rock armor would be used to provide erosion protection for the road. The bank stabilization plan would include the placement of barbs and sills in the overflow channel, with the intent to route flow toward the main channel and limit flooding to lower velocity sheet flow.

ENVIRONMENTAL AND PERMITTING

Replacement of the roadway and pipelines would require excavation and placement of additional fill. Regrading the roadway will require some work outside of the existing roadway to allow the roadway slopes to be constructed. During construction, erosion control practices would be used to prevent sediment from entering the drainages. Permanent erosion control is needed to minimize any long-term effects of the ground disturbance, and to prevent erosion of the fill material.

Placement of barbs and sills, classified as alteration of the stream channel, would require a joint permit from the Corps of Engineers, the Idaho Department of Water Resources, and the Idaho Department of Lands. The permit will outline the requirements for the construction work.

CONSTRUCTABILITY

Reconstruction of the pipelines will require excavation for removal of the existing pipelines and installation of the new lines above flood elevation. The regrading of the roadway will require excavation and material placement outside of the existing road shoulders. To minimize erosion, the construction activity should not begin until late summer and should be completed before winter. (Work during the winter is not practical in this area.) The disturbed ground should be protected from erosion immediately after work is complete and before the onset of winter. Any seeding done in late fall will germinate in the spring and must be protected during winter to prevent erosion.

Traffic on the road will be limited to access for homeowners during construction.

Opinion of Costs

The opinion of costs for the two projects are shown in the attached table. The expected useful life of Project 1 and Project 2 would be 40 years and 20 years, respectively.

BENEFIT COST ANALYSIS PROJECT COST ESTIMATE						
Applicant	Blaine County, Idaho					
Project Title	Flood Mitigation Wood River in Bellevue					
Preparer:	D. Kinzer					
	HAZARD: MITIGATION STRATEGY		**Flood Construction**			
Estimating Step	**Project Phase**	**Description**	**Quantity**	**Unit**	**Unit Cost**	**Task Cost**
1	PreConstruction	Environmental Evaluation	1	LS	5,000	$ 5,000
		Site Survey	1	LS	5,000	$ 5,000
		PreConstruction Subtotal				**$ 10,000**
2	Construction	Excavation	500	Cy	25	$ 12,500
		Replace Waterline	400	LF	17	$ 6,800
		Replace Sewer	400	LF	20	$ 8,000
		Regrade Existing Roadway	3000	SY	8	$ 24,000
		Restore Road Surface	3000	SY	12	$ 36,000
		Roadway Slope Armor	200	CY	100	$ 20,000
		Seeding & Permanent Erosion Control	1	LS	1500	$ 1,500
		Install Bank Erosion Protection	45	CY	40	$ 1,800
		Temporary Erosion Control	1	LS	5000	$ 5,000
		Construction Subtotal				**$ 115,600**
3	Construction General	Insurance And Bonds	1	LS	2,500	$ 2,500
		Site Supervision	1	LS	6,000	$ 6,000
		G C Overhead & Profit	1	LS	6,000	$ 6,000
		Permits	1	LS	2,500	$ 2,500
		General Construction Subtotal				**$ 17,000**
	Applicant Costs	Prepare Contract Documents	1	LS	10,000	$ 10,000
		Applicant Cost to Manage Design	1	LS	4,000	$ 4,000
		Applicant Cost to Manage Construction	1	LS	6,000	$ 6,000
		Applicant Cost Subtotal				**$ 20,000**
4	Maintenance	Erosion Control Repair	24	Hr	36	$864
		Debris Clearing	8	Hr	36	$288
		Annual Maintenance Subtotal				**$1,152**
5	Escalation	(to mid-point of construction)	60	Month	0.05%	$ 4,000
6	Estimate Review & Confirmation	PreConstruction Subtotal				$ 10,000
		Construction Subtotal				$ 115,600
		General Construction Subtotal				$ 17,000
		Applicant Cost Subtotal				$ 20,000
		Annual Maintenance Subtotal				$1,152
		Escalation Subtotal				$ 4,000
	PROJECT TOTAL					**$ 166,600**

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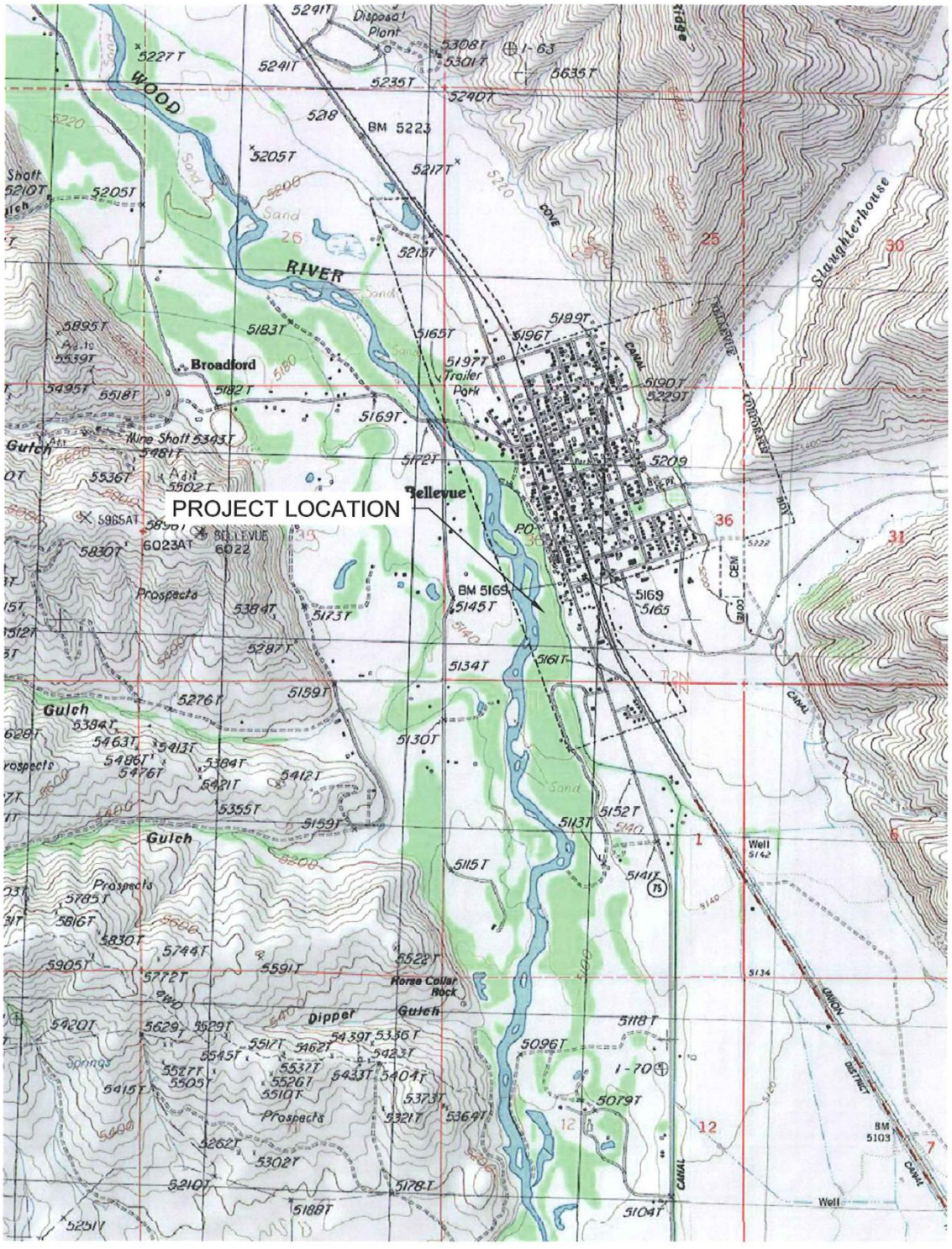

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KELLER associates

WOOD RIVER FLOOD MITIGATION	FIGURE 1

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WOOD RIVER
FLOOD MITIGATION

FIGURE 2

2006 FLOODING

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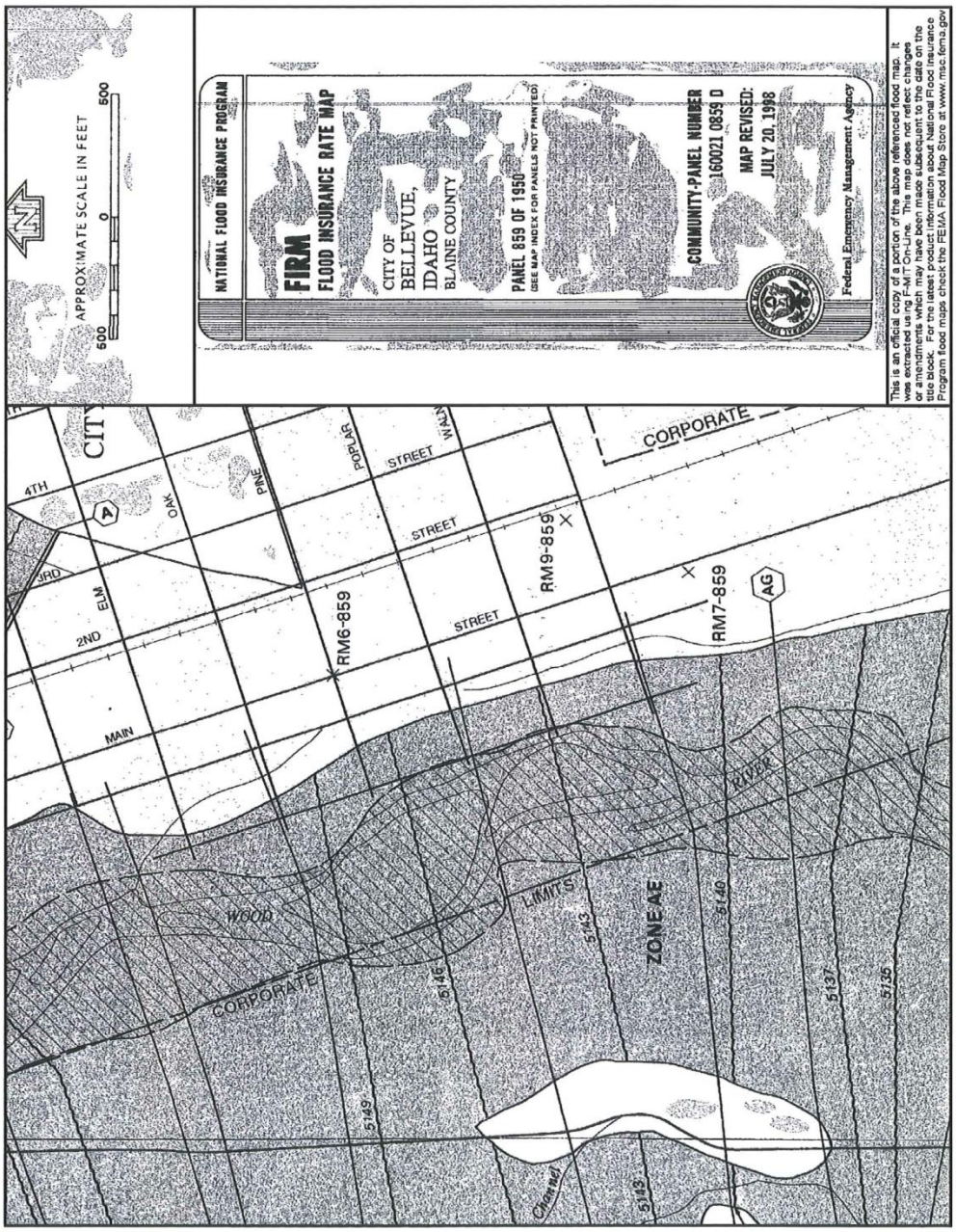
KELLER associates

WOOD RIVER	FIGURE
FLOOD MITIGATION	3



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WOOD RIVER
FLOOD MITIGATION

FIGURE 4

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WOOD RIVER	FIGURE
FLOOD MITIGATION	5

BLAINE COUNTY FUEL REDUCTION

EXISTING CONDITIONS

This project is located in Blaine County near Sun Valley, Idaho (Figure 1). The city of Sun Valley has grown extensively over the past decades. Most of the development expansion has been into the range land adjacent to the city. The area is hot and dry during the summer months, so the potential for range fires is a concern. Recent development has occurred in the foothills of the surrounding mountains, in an area with relatively steep topography.

The dry range land combined with the steep terrain creates a condition where range fires are very difficult to control once they get started. In recent years, the city has experienced range fires that have come dangerously close to the developed areas and threatened homes in the area. Access to fight the fires is limited by the terrain and developments in the affected area.

The biggest threat of fires is from a range fire starting nearby and being driven into the city perimeter developments by winds resulting from the fire and topography. Controlling the fire with ground crews is restricted due to the dangerous conditions involved with limited access and fighting range fires that move along the dry brush-covered ground at alarming speed.

Even with the homes constructed with fire-resistant materials or treated with fire retardant, the heat of the range fire can engulf a building before the fire reaches the building.

ALTERNATIVES

There are two alternatives for the project, in addition to doing nothing. Doing nothing will subject the homes in the development to the continued hazards of potential range fires. One alternative is to reduce the fuel around the city to reduce the advancement of the range fires into the developed areas. The cost of fuel reduction is about $120 an acre; this equates to about $180,000 for this project. However, the brush mulching has to be done every four to five years.

The second alternative is to replace the roofs on the homes with fire-resistant roofing. The cost of roof replacement is about $15,000 (50 squares at $300 per square). There are about 150 homes involved, which represents $2,250,000. The life of the replacement roofs is estimated at 30 years.

Since fuel reduction would need to be done several times within a 30-year period vs. a single replacement of roofs, costs need to be annualized in order to compare the two alternatives on a cost basis. Annualized costs for the two alternatives are $52,000 and $163,500 for fuel reduction and roof replacement, respectively. Thus, it appears that fuel reduction is likely to be the preferred alternative based on the lower cost.

PROPOSED PROJECT

The project is intended to prevent range fires from reaching the developments by use of fuel reduction. Fuel reduction is a practice where the materials that fuel the range fires are removed. The fuel materials are any combustible material above the ground that ignite from

any approaching range fire and help advance the fire. This can be brush, trees, grass, wood piles, combustible debris and combustible building materials.

The range land surrounding the city is covered with brush and grass, which are good source of fuel for range fires. The spread of range fires into the developed area could be reduced or eliminated if a barrier of non-combustible ground was created between the range land and the developed area. Since a range fire could come from any direction, the barrier would have to surround most of the city. The barrier would become a fire line to protect the city. Figure 2 shows the proposed location of the fire line.

The fire line would be created by using special brush clearing machines. Figure 3 shows a typical brush clearing machine (Nordstrom Mechanical Fuel Reduction machine). The cutter head mounts a track (steel or rubber) excavator to control the movement of the cutter head. In this application the rubber tracks are preferred, since they don't damage the ground as much as the steel cleat tracks. The cutter head does the mulching of the brush using a 150 Hp diesel engine, driving the head through hydraulic pump and hydraulic motor on the head. The cutter head is 48 inches in diameter, and can cut a swath 70 feet wide in one pass using the rotation capacity of the excavator.

The total length of the fire line required to protect the city is about 134,000 feet. The fire line would have to be 500 feet wide to prevent the range fire from jumping across it when driven by high winds.

ENVIRONMENTAL AND PERMITTING

The fuel reduction will destroy about 1,500 acres of range land by mulching the vegetation on the ground. After the mulching is complete, the ground may be more susceptible to erosion than before due to the loss of the vegetation structure on the ground. An environmental evaluation will be necessary to determine both short- and long-term impacts on the environment.

CONSTRUCTABILITY

The fuel reduction operation is a relatively simple process. Once the location of the desired fire line is established, the brush cutter machine can be mobilized in and work can begin. Production rates are high - about 50 acres a day for the light brush typical of the project area.

Opinion of Costs

The opinion of costs for the project is shown in the attached table.

BENEFIT COST ANALYSIS PROJECT COST ESTIMATE						
Applicant	Blaine County, Idaho					
Project Title	Fuel Reduction Project					
Preparer:	D. Kinzer					
	HAZARD: MITIGATION STRATEGY		**Fire Fuel Reduction**			
Estimating Step	**Project Phase**	**Description**	**Quantity**	**Unit**	**Unit Cost**	**Task Cost**
1	PreConstruction	Environmental Evaluation	1	LS	10,000	$ 10,000
		PreConstruction Subtotal				**$ 10,000**
2	Construction	Remove Trees	100	EA	350	$ 35,000
		Mulch Brush	1500	Ac	100	$ 150,000
		Debris Removal	2,500	CY	15	$ 37,500
		Construction Subtotal				**$ 222,500**
3	Construction General	Insurance And Bonds	1	LS	2,000	$ 2,000
		Site Supervision	1	LS	3,000	$ 3,000
		G C Overhead & Profit	1	LS	7,000	$ 7,000
		Permits	1	LS	4,000	$ 4,000
		General Construction Subtotal				**$ 16,000**
	Applicant Costs	Prepare Contract Documents	1	LS	6,000	$ 6,000
		Applicant Cost to Manage Design	1	LS	500	$ 500
		Applicant Cost to Manage Construction	1	LS	1,000	$ 1,000
		Applicant Cost Subtotal				**$ 7,500**
4	Maintenance	None				$0
		Annual Maintenance Subtotal				**$0**
5	Escalation	(to mid-point of construction)	30	Month	0.05%	$ 27,000
6	Estimate Review & Confirmation	PreConstruction Subtotal				$ 10,000
		Construction Subtotal				$ 222,500
		General Construction Subtotal				$ 16,000
		Applicant Cost Subtotal				$ 7,500
		Annual Maintenance Subtotal				$ -
		Escalation Subtotal				$ 27,000
	PROJECT TOTAL					**$ 310,000**

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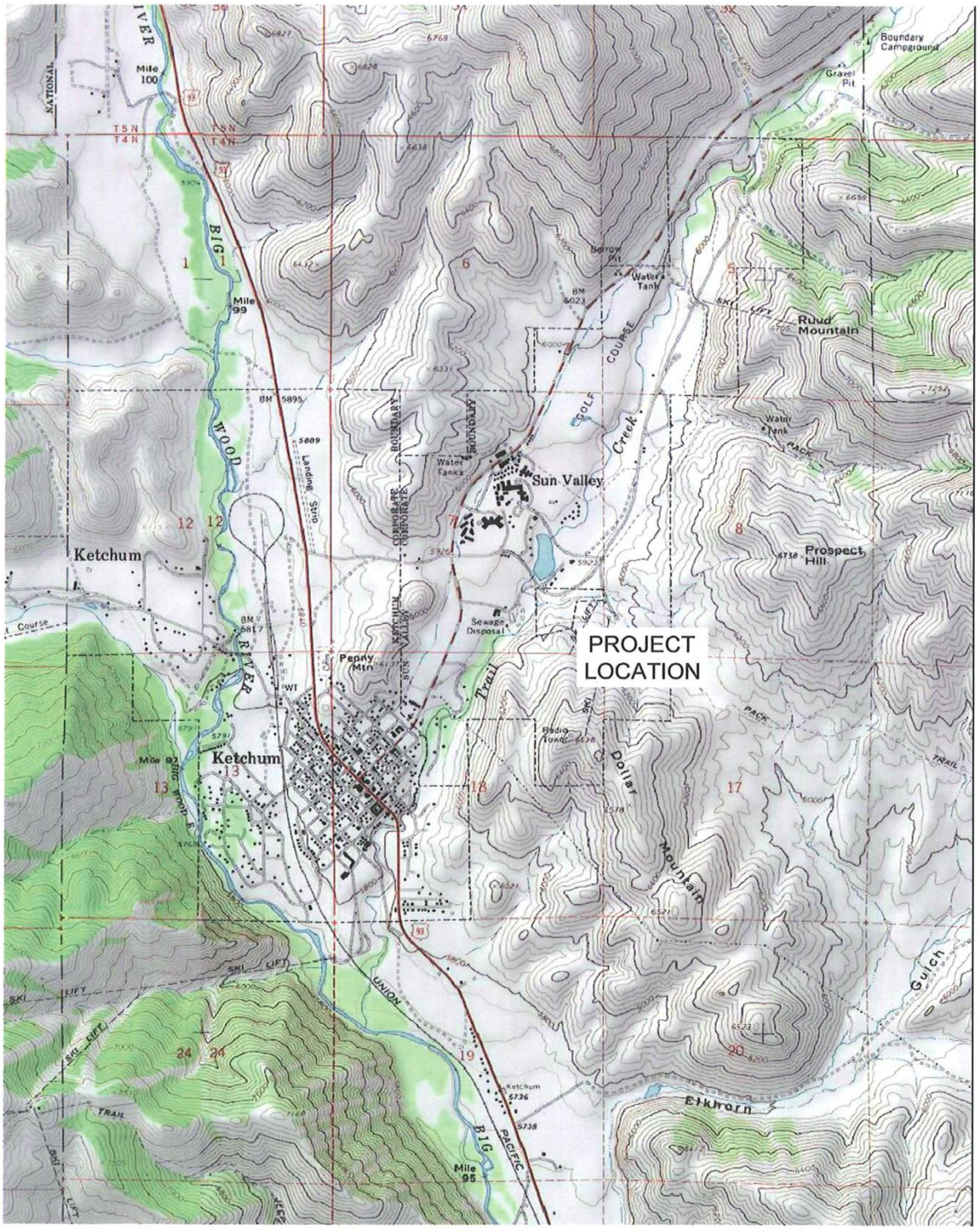

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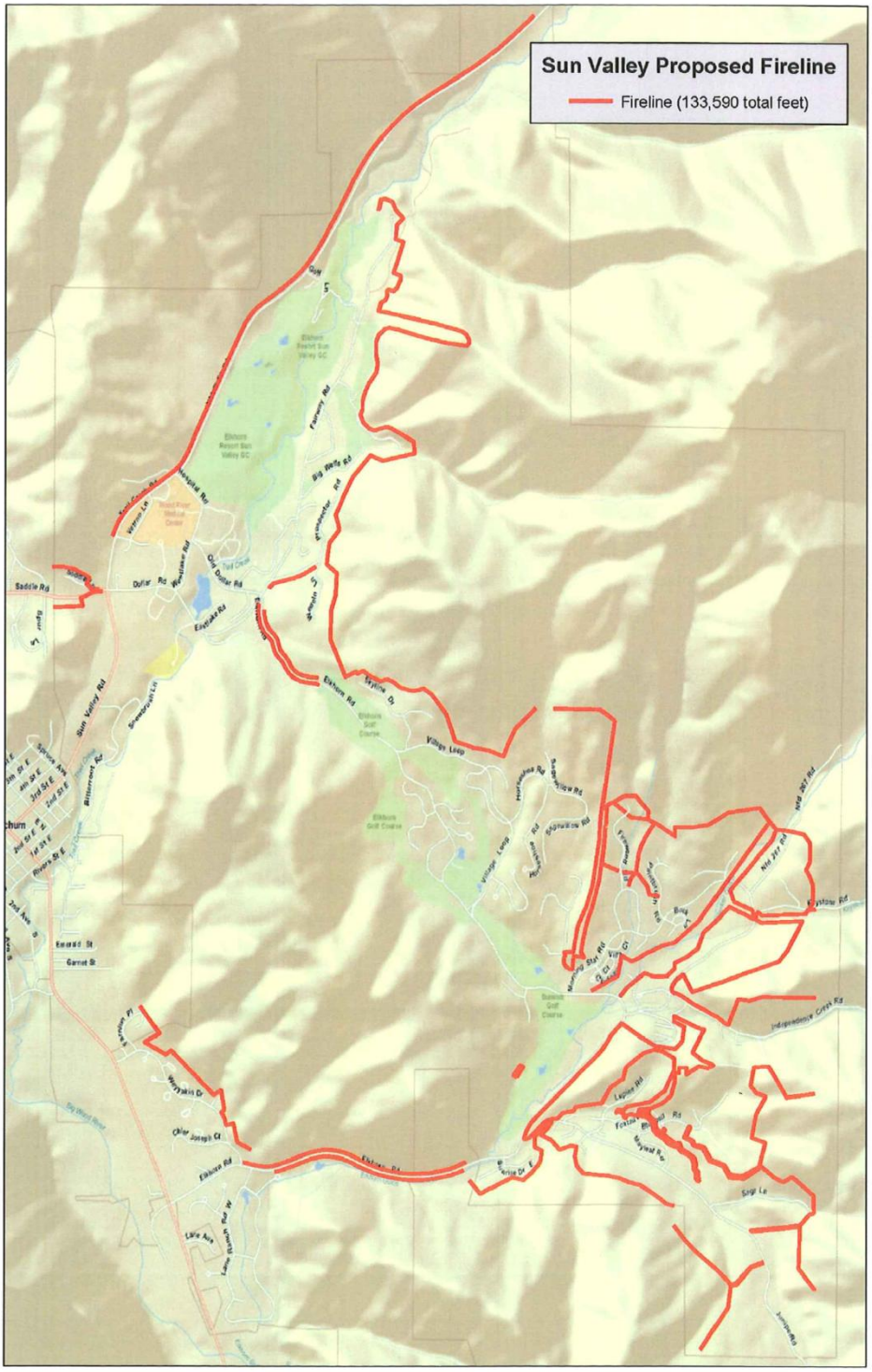
KELLER associates	BLAINE COUNTY FUEL REDUCTION PROJECT	FIGURE 1



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KELLER associates

BLAINE COUNTY
FUEL REDUCTION PROJECT

FIGURE 2

FUEL REDUCTION BRUSH CUTTER

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KELLER associates

BLAINE COUNTY
FUEL REDUCTION PROJECT

FIGURE 3

Attachments

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Attachment 1
AHMP Meeting Minutes

Blaine County Multi Jurisdiction
All Hazard Mitigation Plan
Committee Meeting Minutes
July 10, 2008

The first meeting of the Blaine County AHMP committee was held on July 10, 2008 at 10:00 am at the Elkhorn Fire Station with Chuck Turner, Blaine County Disaster Services Coordinator, conducting. Chuck has chosen to have his LEPC as the committee for the AHMP. Mr. Turner welcomed everyone to the meeting and conducted the business part of the meeting and then turned some time over to Rick Fawcett of Whisper Mountain Professional Services, Inc., the consultant the County has hired to write the plan. Rick thanked those in attendance and introduced the tenants of hazard mitigation planning. He stressed the purpose of the plan is to save lives and reduce property loss.

Rick gave a power-point presentation on the progress of the plan to date and the means by which it is being written. He explained County historical hazards data from the past 100 years has been studied and new data is being collected as the plan is in progress. The hazards will be ranked for severity according to the formula:

Frequency X Magnitude = RISK

He said he will send out a risk perception survey to a random selection of property owners in the County. The results from the survey will be included in the plan. After the collection of the hazard information, the risks will be ranked for both the County and the Cities in the County. Mitigation projects for those hazards will then be identified, and engineering for cost loss analysis for the top four projects will be completed. The plan will then be submitted to the State for review and then back to the Commissioners for approval. At this point the County will qualify for pre-disaster and post-disaster mitigation funding from the State upon approval.

Since the County has to provide 25% soft match for the All Hazards Mitigation Plan project, any studies or work previously completed that can be used in writing the plan will count toward the match. Also, the attendance of the committee members will count toward the match.

Rick then passed around a risk assessment tool to identify what the committee members felt are the highest risks in the County.

Rick thanked everyone for their time and encouraged their participation and contributions to the plan as it is being written.

Agency	Representative	Position	Email
Idaho Bureau of Homeland Security	Gary W Davis	Area Field Officer	gdavis@bhs.idaho.gov
Blaine County Communications	Bob Greenlow	Coordinator	bgreenlow@co.blaine.id.us
Ketchum Police Department	Mike McNeil	Assistant Chief	mmcneil@ketchumpolice.org
Saint Luke's Wood River Medical Center	JoDee Alverson	Administrator	alversoj@slwrmc.org
Sun Valley Fire Department	Jeff Carnes	Fire Chief	jcarnes@svidaho.us
Hailey Fire Department	Mike Chapman	Fire Chief	mchapman2@cox-internet.com
Sun Valley Company	Cory Lovoi	K E Rink Manager	clovoi@sunvalley.com
Ketchum Fire Department	Mike Elle	Fire Chief	melle@ketchumfire.org
Blaine County	Char Nelson	Operations	cnelson@co.blaine.id.us
Sun Valley Fire Department	Ray Franco	Assistant Chief	rfranco@svidaho.org
	Cindy Jesinger		cindyjesinger@gmail.com
Wood River Fire	Bart Lassman	Fire Chief	blassman@wrfr.com
South Central Public Health District	Karyn Goodale	Manager	kgoodahl@phd5.idaho.gov

Blaine County Multi Jurisdiction
All Hazard Mitigation Plan
Public Workshop Meeting Minutes
April 9, 2009

The Blaine County Multi-Jurisdiction All Hazard Mitigation Plan (AHMP) public workshop was held on April 9, 2009 at 10:00 am at the Elk Horn Fire Station. Chuck Turner, Blaine County Emergency Services Coordinator, conducted the meeting. He welcomed all those in attendance and turned the time over to Rick Fawcett, Whisper Mountain Professional Services, Inc., the consultant hired by the County to write the AHMP. Rick added his welcome to Mr. Turner's and stressed again that the purpose of the plan is to save lives and reduce property loss.

Rick reviewed the process of writing the plan to this point, and explained how the risks in the County were studied through 100 year and older historical data. He said the formula **frequency X magnitude= risk**. He showed how the risks in the County have been ranked and asked for comments on the ranking.

Rick then asked for comments from those in attendance as to what they consider hazards in the County, and also what areas they knew of that had repetitive loss. The following items were brought to discussion:

1. The City of Bellevue has flooding within the City limits that threatens infrastructure repetitively.
2. Due to the single feed power line in the County, power loss is an extreme threat, especially in the cold temperatures of winter. Everyone agreed that this is probably the greatest risk in the County, and perhaps a whole section of the plan should address this.
3. There are areas experiencing flash flooding since the Castle Rock Fire above Little Woods Reservoir and around Warm Springs.
4. Fish Creek Dam should be included as a risk for flooding.
5. Much of the research data was taken from HAZUS and does not have the most current statistics. The attendees would like to see if the most current statistics could be used to determine the final projects. Rick said he would try to find more recent data. They also said that data from the Picabo weather station is not accurate because it is too protected.
6. Blaine County is a high profile populous County and because of internationals traveling in and out the attendees also felt bird flu and swine flu should be strong considerations for risk.
7. There is repetitive flooding in Eagle Park in Hailey.
8. There are cuts in the canal bank in Bellevue causing repetitive flooding. Some mitigation has already been done to resolve that problem.
9. There is some stream road wash-out in the Bend area.

Rick led the group in ranking the risks. Every area in the County moved the risk of power outage to a High/High rank. They felt like aircraft risk could be moved to a Medium/Medium, although they all agreed that the airport should be relocated.

The goals were then selected. The City of Hailey handed in their goals as they had already selected them. The County goals are:

1. Remedy the single loop power supply to reduce the risk of power outage.
2. Provide an emergency fuel storage source powered by generator for critical supply demand.
3. All canyons have only one egress. Roadways need to be developed for ingress and egress.
4. Repetitive flooding in Hailey and Bellevue need to be mitigated.
5. Wildfire reduction plans need to be further implemented and developed.

Rick thanked everyone for their valuable contributions. He said he would make the additions and changes to the plan and post it on the web site for further review. Once the plan is completed, it will be sent to FEMA for review. Once FEMA has approved it, the plan will then be sent to the County Commissioners for adoption.

Agency	Representative	Position	Email
Idaho Bureau of Homeland Security	Gary W Davis	Area Field Officer	gdavis@bhs.idaho.gov
Blaine County Communications	Bob Greenlaw	Coordinator	bgreenlaw@co.blaine.id.us
Ketchum Police Department	Mike McNeil	Assistant Chief	mmcneil@ketchumpolice.org
Sun Valley Fire Department	Jeff Carnes	Fire Chief	jcarnes@svidaho.us
Sun Valley Company	Cory Lovoi	K E Rink Manager	clovoi@sunvalley.com
Ketchum Fire Department	Mike Elle	Fire Chief	melle@ketchumfire.org
Blaine County	Char Nelson	Operations	cnelson@co.blaine.id.us
Wood River Fire	Bart Lassman	Fire Chief	blassman@wrfr.com
South Central Public Health District	Karyn Goodale	Manager	kgoodahl@phd5.idaho.gov
Blaine County Sheriff's Office	Gene Ramsey	Chief Deputy	gramsey@co.blaine.id.us
LWID/City Offices	Bob Simpson	Manager	watermaster37n@aol.com

Agency	Representative	Position	Email
City of Sun Valley	Sharon Hammer	Administrator	shammer@SVIdaho.org
City of Ketchum	Sid Rivers	Planning and Zoning Planner	srivers@ketchumidaho.org
City of Hailey	Tom Hellen	Public Works Director	tom.hellen@haileycitybuilding
City of Bellevue	Craig Eckles	Planning Director FEMA Administration	ceckles@bellevue.idaho.us
Keller Associates	Susan Burnham	Civil Engineer	sburnham@kellerassociates.com
Idaho Power	Jim Bell	District Manager	jimbell@Idahopower.com
Sawtooth North Fire	Bill Murphy	North Zone FMO	bgmurphy@fs.fed.us
Blaine County Sheriff	Howard Royal	Facilities Director	hroyal@blaineschools.org
Blaine County	Angenie McCleary	Commissioner	amccleary@co.blainie.id.us
Blaine County Sheriff	Katie Palmer	Human Resources	katie@blaineschools.org
Blaine County Sheriff	Mal Prior	Building Mgr	mprior@blaineshcools.org
Sun Valley Streets	Bill Whitesell	Street Superintendent	bwhitesell@svidaho.org
Sun Valley Water & Sewer	Pat McMahon	Manager	pat@svwsd.com
Hailey City Council	Carol Brown	Council Member	carol.brown@haileycityhall.org
Blaine County	Bill Dyer	Building Official	bdyer@co.blaine.id.us
City of Sun Valley	Eric Adams	Building Official	eadams@svidaho.org
Ketchum Fire	Robbie Englehart	Assistant Chief	renglehart@ketchumfire.org
Blaine County Firewise	Karly Maratea	Assistant	karlymarateais@gmail.com
Blaine County Firewise	Angie Grant-Kettleband	Coordinator	angelahgrant@hotmail.com
Hailey Police	Dave Sellers	Assistant Chief	dave.sellars@haileycityhall.org
Hailey Fire	Mike Balerge	Captain	mike.balerge@haileycityhall.org

Agency	Representative	Position	Email
Wood River Fire	Jeff Nevins	Assistant Chief	jnevins@wrfr.com
Blaine County	Chuck Turner	Disaster Services Coordinator	twodogs2@mindspring.com
Sun Valley Fire Department	Ray Franco	Assistant Chief	rfranco@svidaho.org
City of Sun Valley	Wayne Willich	Mayor	wwillich@svidaho.org
City of Sun Valley	Nils Ribi	Council President	nils@nilsribi.com
LEPC	Kim Rogers	Public Information Officer	kimmrogers@cox.net
Sun Valley Police Department	Kim Orchard	Sergeant	korchard@svidaho.org

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Attachment 2
Public Questionnaire Results

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Blaine County All-Hazards Mitigation Plan

Public Participation Questionnaire

November 2008

Dear Blaine County Resident,

We need your help! Blaine County is completing on an initiative to assist communities in reducing risk from natural and man-made hazards. This questionnaire is designed to help us understand your perceptions of those hazards. We are developing a strategic plan to prioritize activities designed to assist Blaine County communities and residents to reduce their risk from natural and man-made disasters. The information you provide will help improve coordination of risk reduction activities within the County.

Your returned survey indicates your willingness to take part in the study. Your participation in this study is voluntary. All individual survey responses are strictly confidential, and are for research purposes only.

Your opinions are important to us. Please return your completed survey within 15 days or receipt to our technical consultant on this project Whisper Mountain Professional Services, Inc. at 1110 Call Creek Drive Suite 6, Pocatello, Idaho, 83201 in the stamped, addressed, return envelope provided.

If you have questions regarding the survey, feel free to contact Whisper Mountain Professional Service, Inc. at (208) 478-1099.

Thank you for your participation!

Sincerely,

Mr. Charles Turner,
Coordinator,
Blaine County
Disaster Services

1. What town do you live in or near? _____

2. Have you ever experienced or been impacted by a disaster (a sudden event bringing severe damage, loss, or destruction)?

- ❑ Yes (please explain**):**_____
- ❑ No

3. How concerned are you about the possibility of our community being impacted by a disaster?

- ❑ Concerned
- ❑ Somewhat concerned
- ❑ Not concerned

4. Please select the five (5) highest that you believe are hazards facing your neighborhood.

- ❑ Blizzards/Ices Storms/Winter Storms
- ❑ Hail
- ❑ Storm Water Erosion
- ❑ Hazardous Materials
- ❑ Dam Failure
- ❑ Land Subsidence (e.g. sinkhole)
- ❑ Drought
- ❑ Landslide/Mudslide
- ❑ Earthquake
- ❑ Lightening
- ❑ Expansive Soils
- ❑ Nuclear
- ❑ Extreme Cold
- ❑ Terrorism (bombs/biological/chemical)
- ❑ Extreme Heat
- ❑ Tornadoes
- ❑ Fires
- ❑ Volcanoes
- ❑ Air Quality
- ❑ Flooding – Canal
- ❑ Flooding – Flash (Ravine)
- ❑ Wildland Fires
- ❑ Insect Infestations
- ❑ High Wind / Wind Storms
- ❑ Other (please explain):

5. Is there a hazard not listed in this survey that you think is a wide-scale threat to your neighborhood?

- ❑ Yes (please explain):_____
- ❑ No

Note: ***<u>Please read before answering questions 6 and 7.</u>***

A "flood" as defined by the National Flood Insurance Program is "a general and temporary condition of partial or complete inundation of two of more acres of normally dry land area or two or more properties". Flood zones are geographic areas that the Federal Emergency Management Agency (FEMA) has defined according to varying levels of flood risk. These zones are depicted on a community's Flood Hazard Boundary Map or Flood Insurance Rate Map (FIRM). It's important to know that if you have a Federally backed mortgage on a home located in a high-risk area, Federal law requires you to purchase flood insurance. Also, if you've received a Federal grant for previous flood losses, you must have a flood insurance policy to qualify for future aid.

6. Is your home located in a floodplain as defined under the National Flood Insurance Program (NFIP)?

- ❑ I don't know
- ❑ Yes
- ❑ No

7. Do you have flood insurance, if required, through a National Flood Insurance Program (NFIP) Carrier?

- ❑ I don't know
- ❑ Yes
- ❑ No

If "No", why not?

- ❑ Not located in a floodplain
- ❑ Too expensive
- ❑ Not necessary because it never floods
- ❑ Not necessary because I'm elevated or otherwise protected
- ❑ Never really considered it
- ❑ Other (please explain):

8. Do you carry hazard insurance for your home/property?

- ❑ Yes
- ❑ No

What Hazards does your insurance cover?

- ❑ Fire
- ❑ Earthquake
- ❑ Wind
- ❑ Landslides
- ❑ Tornado
- ❑ Land Subsidence
- ❑ Volcanic Activity
- ❑ Mudslide/Mud Flow
- ❑ Land Rising or Shifting

9. Have you taken any actions to make your home or neighborhood more resistant to hazards?

- ❑ Yes
- ❑ No

If "Yes", please explain:

_____
_____
_____
_____
_____
_____
_____

10. Are you interested in making your home or neighborhood more resistant to hazards?

- ❑ Yes
- ❑ No

11. What is the most effective way for you to receive information about how to make your home and neighborhood more resistant to hazards?

- ❑ Newspaper
- ❑ Television
- ❑ Radio
- ❑ Internet
- ❑ Mail
- ❑ Public Workshops/meeting
- ❑ Other (please explain):

12. In your opinion, what are some steps your county or city governments could take to reduce or eliminate risk of future hazard damages in your neighborhood?

_____
_____
_____
_____
_____
_____
_____

13. Are there any other issues regarding the reduction of risk and loss associated with hazards or disasters in the community that you think are important?

_____
_____
_____
_____
_____
_____
_____
_____

14. A number of community-wide activities can reduce our risk from hazards. In general, these activities fall into one of the following six broad categories. Please tell us how important you think each one is for your community to consider pursuing.

1. Prevention
Administrative or regulatory actions that influence the way land is developed and buildings are built. Examples include planning and zoning, building codes, open space preservation, and floodplain regulations.

- ❑ **Very Important**
- ❑ **Somewhat Important**
- ❑ **Not Important**

2. Property Protection
Actions involve the modification of existing buildings to protect them from a hazard or removal from the hazard area. Examples include acquisition, relocation, elevation, structural retrofits, and storm shutters.

- ❑ **Very Important**
- ❑ **Somewhat Important**
- ❑ **Not Important**

3. Natural Resource Protection
Actions that, in addition to minimizing hazard losses also preserve or restore the functions of natural systems. Examples include: floodplain protection, habitat preservation, slope stabilization, riparian buffers, and forest management.

- ❑ **Very Important**
- ❑ **Somewhat Important**
- ❑ **Not Important**

4. Structural Projects
Actions intended to lessen the impact of a hazard by modifying the natural progression of the hazard. Examples include dams, levees, canals, detention/retention basins, channel modification, retaining walls and storm sewers.

- ❑ **Very Important**
- ❑ **Somewhat Important**
- ❑ **Not Important**

5. Emergency Services
Actions that protect people and property during and immediately after a hazard event; examples include warning systems, evacuation planning, emergency response training, and protection of critical emergency facilities or systems.

- ❑ **Very Important**
- ❑ **Somewhat Important**
- ❑ **Not Important**

6. Public Education and Awareness
Actions to inform citizens about hazards and the techniques they can use to protect themselves and their property. Examples include outreach projects, school education programs, library materials and demonstration events.

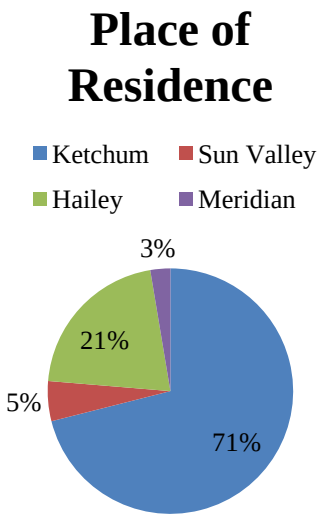
- ❑ **Very Important**
- ❑ **Somewhat Important**
- ❑ **Not Important**

THANK YOU FOR YOUR PARTICIPATION

Public Questionnaire Results

A public questionnaire was provided to 200 residents of the County. Of the 200 mailed 38 were returned for a return rate of 19%. The following is a discussion of the results:

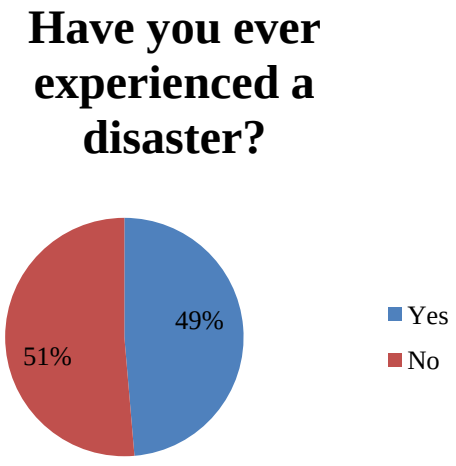
Question 1: What town do you live in or near?



Place of Residence	Number of Responses	Percent
Ketchum	27	71%
Sun Valley	2	5%
Hailey	8	21%
Meridian	1	3%
Total	**48**	**100%**

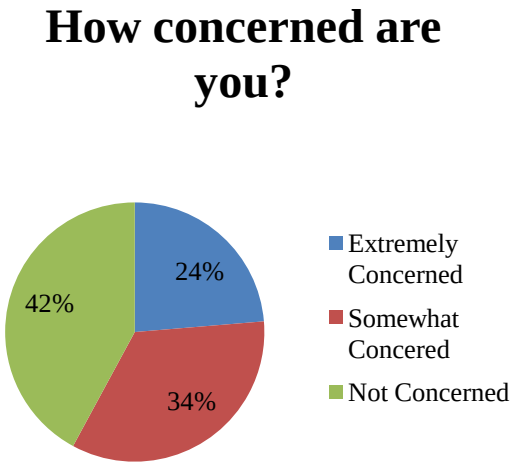
The results of this question relatively reflect the population distribution of the County. 71% of the respondents were from Ketchum and most of the small towns and unincorporated areas had at least 1 response.

Question 2: Have you ever experienced or been impacted by a disaster?

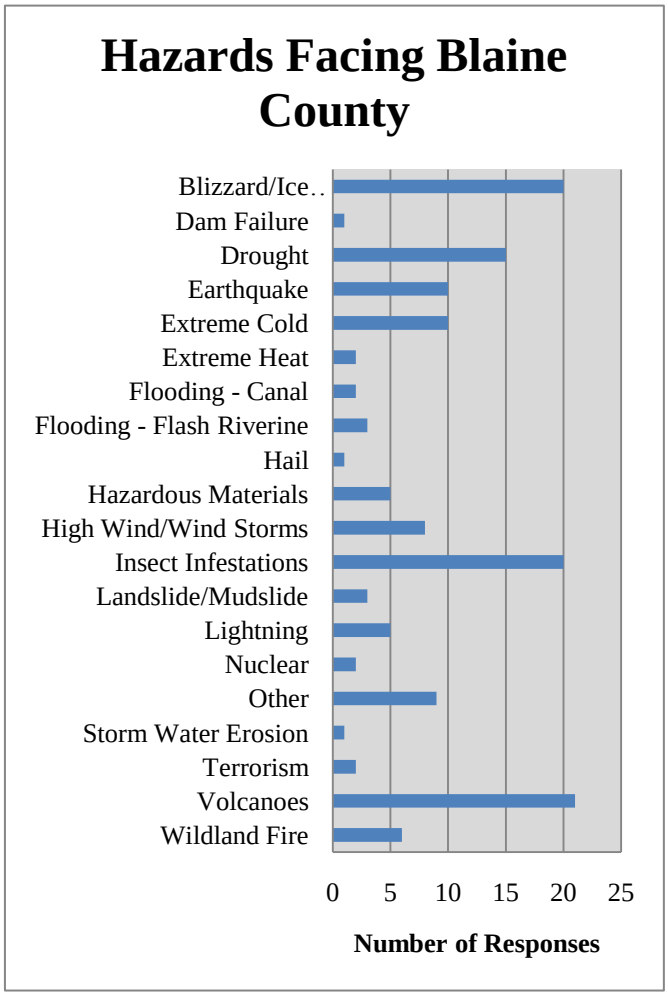


	Number of Responses	Percent
Yes	18	49%
No	19	51%
Total	**37**	

Question 3: How concerned are you about the possibility of our community being impacted by a disaster?



	Number of Responses	Percent
Extremely Concerned	9	24%
Somewhat Concerned	13	34%
Not Concerned	16	42%
Total	**38**	**100%**

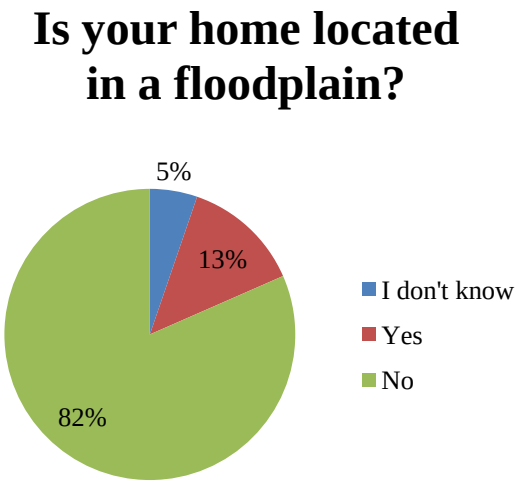


More than 65% of respondents are at least somewhat concerned about a disaster happening.

Question 4: Please select the five (5) highest hazards facing your neighborhood

5. Volcano
6. Winter Storm
7. Insect Infestation
8. Drought
9. Earthquake / Extreme Cold

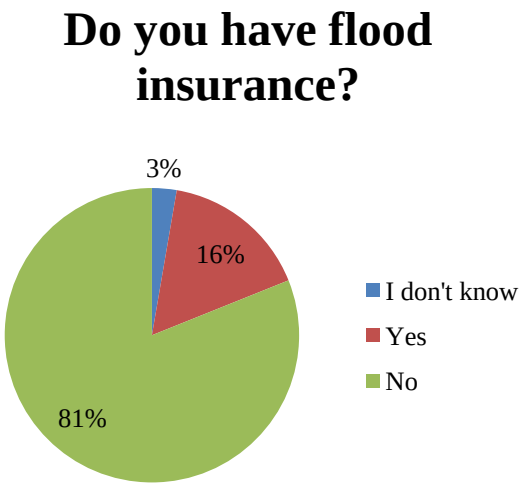
Question 6: Is your home located in a floodplain?



	Number of Responses	Percent
Yes	5	13%
No	31	82%
Don't Know	2	5%
Total	**38**	**100%**

13% of the respondents indicated that they live in a flood plain while 5% do not know. Only five respondents indicated that they carry flood insurance.

Question 7: Do you have flood insurance?

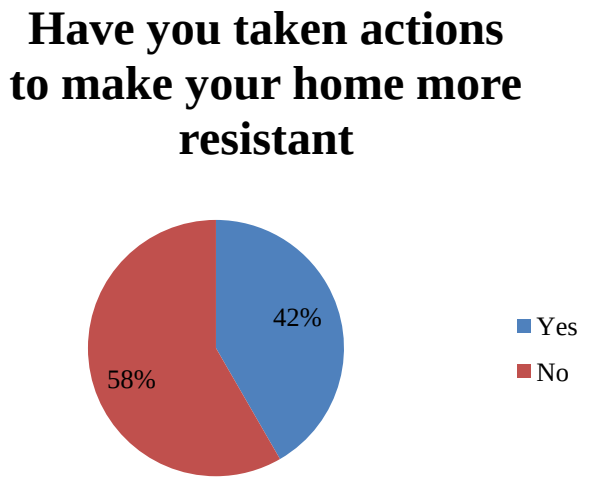


	Number of Responses	Percent
Yes	6	16%
No	30	81%
Don't Know	1	3%
Total	**37**	**100%**

If "no" why not?

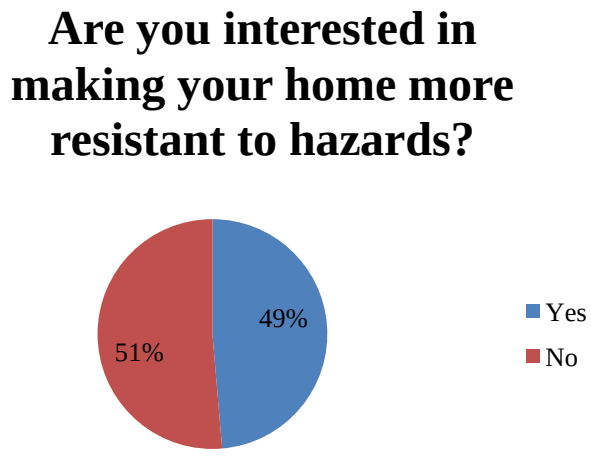
	Number of Responses	Percent
Not located in a floodplain	15	39.5%
Too expensive	2	5.3%
Not necessary because it never floods	2	5.3%
Not necessary because I'm elevated or otherwise protected	8	21%
Never really considered it	8	21%
Other	1	2.6%
Total	**36**	**100%**

Question 8: Have you taken any actions to make your home or neighborhood more resistant to hazards?



	Number	Percent
Yes	15	42%
No	21	58%
Total	**36**	**100%**

Question 9: Are you interested in making your home or neighborhood more resistant to hazards?



	Number of Responses	Percent
Yes	18	49%
No	19	51%
Total	**37**	**100%**

This particular question is very important because many of the mitigation actions that might be taken by the County may require individual property owners to take individual actions and in some cases bear the cost of the mitigation.

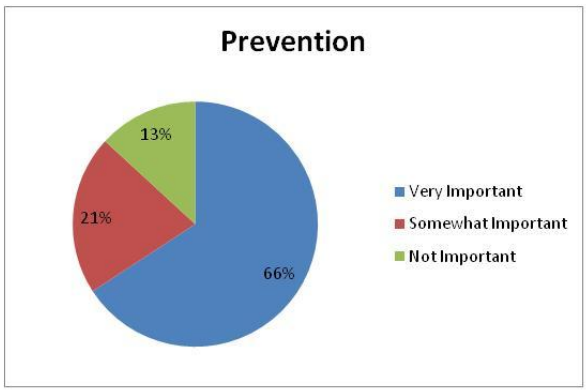
	Number of Responses
Newspaper	**15**
Television	3
Radio	4
Internet	13
Mail	13
Public Meeting	4

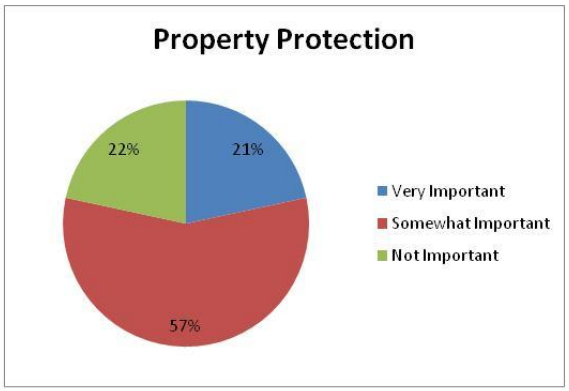
Question 11: What is the most effective way for you to receive information about how to make your home and neighborhood more resistant to hazards?

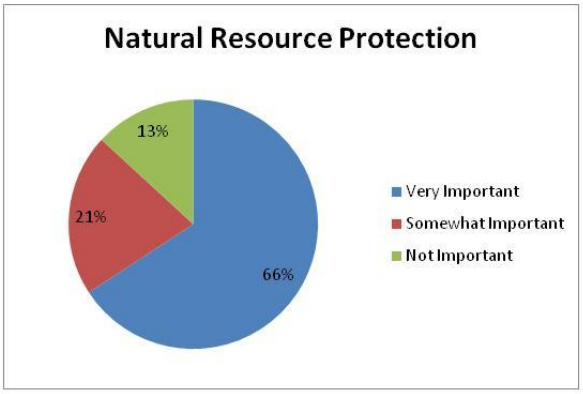
Previous research done by Dr. Hank Jenkins-Smith, the Director of the University of New Mexico's Risk Perception Center as well as Dr. Paul Solvic and others indicated that the public receives 72% of their information regarding risk through television yet the respondents in the County indicated that they would rather have information provided to them in printed form, either through the mail or through the newspaper with television being listed in third place. This is a very important finding which has also been repeated in several other counties.

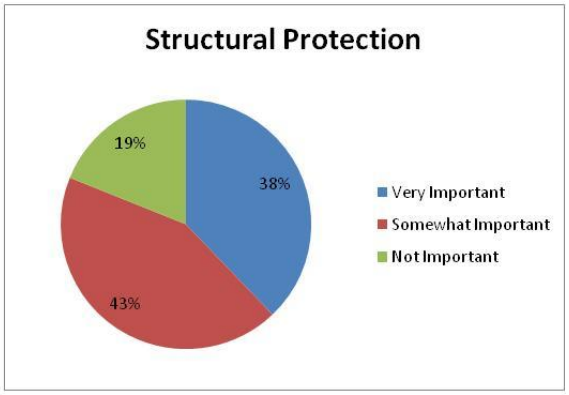
14. A number of community-wide activities can reduce our risk from hazards. In general, these activities fall into one of the following six broad categories. Please tell us how important you think each one is for your community to consider pursuing.

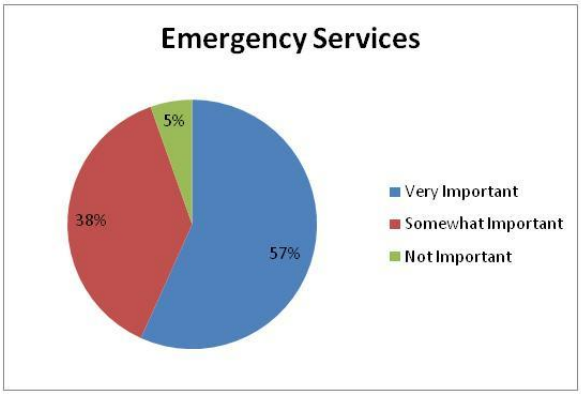
The final question in the survey provides the basis for understanding the perception of the public. As indicated in earlier questions 49% of the public indicated that they would like to make their community more resistant to disaster. The results of this question, however, seem to indicate that the public's perception of how that protection needs to take place may not be aligned with the goals of pre-disaster mitigation which focuses on prevention and protection. The general perception appears to be that mitigation can be done with prevention as well as protection and education.

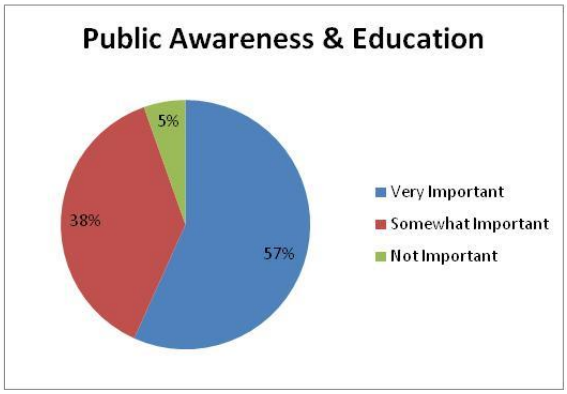












Blaine County AHMP 2008
Public Questionnaire Response
Written Answers

2. Have you ever experienced or been impacted by a disaster (a sudden event bringing severe damage, loss, or destruction)?

1. Fire to property
2. Fires (Castle Rock Fire)
3. Fire at our cabin – lots of damage. Vehicle burned up.
4. Flood, earthquake, fire
5. Castle Rock Fire
6. We were evacuated with Castle Rock Fire
7. Castle Rock Fire
8. Evacuation due to Castel Rock Fire
9. Castel Rock Fire/Roe Fire/2006 Flood
10. Traffic, road closures, evacuated areas (not my home)
11. Castle Rock Fire
12. Wildfires
13. Earthquake
14. Yes, but not here: in Michigan—flood – home had 3 geet of water in basement – Road was a river
15. Castle Rock Fire
16. Fire
17. Castle Rock Fire
18. Fire

5. Is there a hazard not listed in this survey that you think is a wide-scale threat to your neighborhood?

1. HWY Drivers (Drunk)
2. Avalanche
3. Flooding—River
4. Storm Water Flooding
5. Flooding From Recent Fire
6. Pandemic, Disease
7. Radon Gas
8. Allen & Co, INEEL, & Mining Smelter
9. Explosion in building in neighborhood from commercial chemicals
10. Political interference with property rights

7. Do you have flood insurance, if required, through a National Flood Insurance Program (NFIP) Carrier? If "No", why not?

1. Not Required
2. It is a joke!-cost v. benefit
3. I can buy it in high snowpack years
4. Won't cover my finished basement

9. Have you taken any actions to make your home or neighborhood more resistant to hazards? If "Yes", please explain:

1. Metal roof
2. Wildland fuels mitigation
3. Purchased 15 kw emergency generator for home. Have alarms for fire, CO_2, burglary, low temp. , water in crawl space.
4. Cut back trees & shrubs
5. Fire retardant shingles
6. Removed trees and wild growth brush
7. Make sure everyone has functioning smoke alarms
8. First floor is concrete (slab + 2 inch floor)
9. Wood on hand for heat, some emergency supplies
10. Cleared brush around house
11. Stream rip-rap
12. Fire protection

12. Are there any other issues regarding the reduction of risk and loss associated with hazards or disasters in the community that you think are important?

1. Quit using so much water, zero tolerance on DUI
2. No opinion
3. It's not a "business" for government. Each of us should be more self-sufficient- not being encouraged by government to become less so.
4. Snow Removal (promptly) Road Maintenance
5. Limit the amount of land a home may put into lawns and huge trees (especially the wealthy). An acre is plenty.
6. Fire hydrants
7. There is no need. I think it would terrible costly do anything, especially considering the economic times we are in. They need to concentrate on other areas, that are much more important! ! !
8. None
9. Free fire inspections (fire wise) education regarding safety packs (water, food, etc.)
10. Fire proof roofing materials
11. Move public information and legal requirements such as ordinances.
12. Improve emergency communication facilities and radio equipment.
13. NOAA Weather radio, Emergency telephone notification system, TV alerting system through cable provider (COX)
14. Education about risks & measure available to mitigate

15. Update hazard plan. Coordinate with each other in hazard plan on regular basis. Home practice drills.
16. Probably but don't know what
17. None
18. Communications system
19. No building in flood plains or avalanche zones. Landscaping ordinances: promote natural/indigenous landscaping that burns through/past quickly—no fire hazardous landscaping near homes.
20. None
21. Risk management Plan—Disaster Plan—to include animals
22. Make us more aware

13. Are there any other issues regarding the reduction of risk and loss associated with hazards or disasters in the community that you think are important?

1. None that I can think of
2. Terrorism from an attack on the Allen & Co. visit
3. No
4. Enforcement of land use restrictions
5. The local government could make national govt. aware of the risk all the dead timber creates in the Sawtooth National Forest and SNRA and make it free for citizens to clear out dear timber. Relax the rules about 200 ft. from a stream or road to get rid of dead timber.
6. I think this is a waste of time & money
7. Building fire conflagrations, protection of private water supply system.
8. Hospital should be ready for disaster and could probably call on inactive "trained medical personnel in county.
9. No
10. No
11. Not really
12. Less Government
13. We need to have a combined radio/TV/internet warning/information system for emergencies. During the fire last year you couldn't get any information on TV of radio. They need to break in with local instruction.

Attachment 3
St. Luke's Medical Center
Wood River Valley
Hazard Vulnerability Analysis

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St. Luke's Wood River Medical Center

In 1996, St. Luke's Medical Center of Boise was invited to oversee the construction and future operations of a new hospital in the Wood River Valley. Three years later, thanks to the overwhelming support of St. Luke's, registered voters and community philanthropists, a new $32 million, 110,00 square foot hospital was constructed.

In November 2000, St. Luke's Wood River Medical Center opened its doors to serve the health care needs of people living in the greater Blaine County area. During the design process, special care was taken to ensure a facility that would complement the surrounding terrain, with the hospital's exterior and interior reflecting the beauty of Idaho's world-renowned Sun Valley area. To best accommodate the needs of the people in this region, the hospital site was located immediately off Highway 75.

Services at Wood River Medical Center include a 24-hour emergency department, inpatient and outpatient surgery, diagnostics, maternity services, physical and occupational therapy, mammography, intensive care and medical/surgical units. St. Luke's Center for Community Health's main office can be found in the neighboring town of Hailey, Idaho.

St. Luke's Wood River Medical Center serves Blaine County and beyond. More than 1,600 inpatients were cared for in the last fiscal year, in addition to the 1,535 outpatient procedures and 440 inpatient procedures that were performed.

HAZARD VULNERABILITY ANALYSIS

The JCAHO defines hazard vulnerability analysis as "the identification of hazards and the direct and indirect effect these hazards may have on the hospital". This document will serve to discuss the factors entering into the analysis and provides the tool to document it. To work toward this, each identified hazard is evaluated for its **probability** of occurrence, **risk** to the organization, and our current level of **preparedness.**

PROBABILITY

Establishing the probability of occurrence to these various events is part objective and statistical—the remainder can best be considered intuitive or highly subjective. Issues to consider include but are not limited to known risk and historical data. Each hazard is evaluated in terms that will reflect its likelihood, *high, medium, or low probability of occurrence.*

RISK

Risk is the potential impact that any given hazard may have on the organization. Risk must be analyzed to include a variety of factors, which may include, but are not limited to the following:

- Threat to human life
- Threat to health and safety
- Property damage
- Systems failure
- Economic loss

- Loss of community trust/goodwill
- Legal ramifications

The threat to human life and the lesser threat to health and safety are considered to be so significant that they are given separate consideration on the hazard vulnerability analysis tool. The remaining three categories on the analysis tool classify risk factors as to their disruption to the organization in high, moderate, or low classification. From the bulleted list above, property damage, systems failure, economic loss, loss of community trust, and legal ramifications are all considered together to determine the level of risk.

PREPAREDNESS

The final issue to evaluate in this analysis is the organization's current level of preparedness to manage any given disaster. The current status of emergency plans and the training status of staff members to respond to any given hazard are factors to consider in evaluating preparedness. The availability of insurance coverage or backup systems should also be factored into the determination of the current preparedness status. The hazard vulnerability analysis tool in this document evaluates the organization's preparedness level as good, fair, or poor.

HAZARD VULNERABILITY ANALYSIS 2009

NATURAL EVENTS

EVENT	PROBABILITY			RISK					PREPAREDNESS			
	HIGH	MED	LOW	LIFE THREAT	HEALTH/ SAFETY	HIGH DIS-RUPTION	MOD DIS-RUPTION	LOW DIS-RUPTION	POOR	FAIR	GOOD	
SCORE	3	2	1	5	4	3	2	1	3	2	1	**TOTAL**
NOW FALL	**X**						**X**				**X**	**6**
BLIZZARD	**X**					**X**					**X**	**7**
CE STORM	**X**					**X**					**X**	**7**
RTHQUAKE			**X**	**X**							**X**	**7**
DROUGHT		**X**			**X**			**X**			**X**	**8**
FLOOD (Locally)		**X**		**X**	**X**		**X**				**X**	**14**
VILD FIRES		**X**		**X**	**X**						**X**	**12**
VALANCHE/ ANDSLIDE	**X**					**X**					**X**	**7**
SEVERE NDERSTORM	**X**							**X**			**X**	**5**
EPIDEMIC		**X**		**X**	**X**	**X**				**X**		**16**
TREME COLD		**X**		**X**			**X**				**X**	**10**
TREME HEAT		**X**		**X**			**X**				**X**	**10**

TECHNICAL EVENTS

EVENT	PROBABILITY			RISK					PREPAREDNESS			
	HIGH	MED	LOW	LIFE THREAT	HEALTH/ SAFETY	HIGH DIS-RUPTION	MOD DIS-RUPTION	LOW DIS-RUPTION	POOR	FAIR	GOOD	
SCORE	3	2	1	5	4	3	2	1	3	2	1	**TOTAL**
ELECTRICAL FAILURE		**X**						**X**			**X**	**4**
GENERATOR FAILURE			**X**			**X**					**X**	**5**
HELI-PAD ELEVATOR FAILURE			**X**					**X**			**X**	**3**
EL SHORTAGE			**X**				**X**				**X**	**4**
ATURAL GAS FAILURE			**X**					**X**			**X**	**3**
ATER FAILURE			**X**		**X**		**X**				**X**	**8**
WER FAILURE			**X**		**X**		**X**				**X**	**8**
EAM FAILURE			**X**		**X**		**X**				**X**	**8**
FIRE ALARM FAILURE			**X**	**X**			**X**				**X**	**9**
IEDICAL GAS FAILURE			**X**	**X**			**X**				**X**	**9**
DICAL VACUUM FAILURE			**X**				**X**				**X**	**4**
VAC FAILURE			**X**	**X**		**X**					**X**	**10**
CLEAR EVENT (in area)			**X**	**X**	**X**	**X**				**X**		**15**
MAJOR NSPORTATION ILURE (Airport, Buses)		**X**					**X**				**X**	**5**
MERGENCY HELICOPTER IDENT ON OUR ROOF			**X**	**X**		**X**				**X**		**11**
HAZARDOUS WASTE NSPORTATION EVENT ilroad, Interstate)			**X**	**X**	**X**		**X**				**X**	**13**
HAZ MAT		**X**		**X**			**X**			**X**		**11**

HUMAN EVENTS

EVENT	PROBABILITY			RISK					PREPAREDNESS			
	HIGH	MED	LOW	LIFE THREAT	HEALTH/ SAFETY	HIGH DIS-RUPTION	MOD DIS-RUPTION	LOW DIS-RUPTION	POOR	FAIR	GOOD	
SCORE	3	2	1	5	4	3	2	1	3	2	1	TOTAL
CIVIL STURBANCE			X				X			X		5
SS CASUALTY INCIDENT TRAUMA)		X					X				X	5
ERRORISM HEMICAL / OLOGICAL)			X	X	X					X		12
P SITUATION	X						X				X	6
ANT / CHILD BDUCTION			X				X			X		5
MB THREAT			X	X		X					X	10
FORENSIC DMISSION		X						X			X	4

COMMENTS:

- **Epidemic is highest vulnerability –** extremely high disruption especially if staff are infected
- **Nuclear event is next –** the INEL is directly east of us. If there were an event, potential winds could blow the cloud our way
- **Unavailability of supplies –** Being so isolated and the only hospital in the area, we could deplete our supplies and not get replenished in a timely manner
- **Flood** – due to proximity to the river we could be vulnerable
- **Hazardous waste transport event–** due to proximity to the main highway transporting the material and the resources to decontaminate a large incident could exhaust our resources very quickly
- **Wild fire –** due to dry conditions and low precipitation, this could impact us
- **Avalanche / landslide –** Secondary to the fire summer 2007, we are at greater risk of avalanche and land slide in the future
- **Terrorism and Haz Mat incident > 10 patients** - due to high disruption, fear factor, and level of preparedness

Primary threats identified for Blaine County:

- **Wild Fires**
- **Avalanche**
- **River / Stream flooding**
- **Nuclear Terrorism**
- **Extreme Cold / especially if associated with power outage**
- **Winter Storms**

Attachment 4
Hazardous Chemical Protective Action Distance Assignment and Mapping

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Hazardous Chemical Protective Action Distance Assignment and Mapping

Facilities that have significant quantities of hazardous chemicals on site are required by the U.S. Environmental Protection Agency (EPA) to submit "Tier II" reports to State and local agencies as requested. These reports contain information concerning the quantities, hazards and locations of hazardous chemicals at the facility and are intended to serve as the basis for emergency planning. Tier II reports collected by the State of Idaho from facilities in *** County are used in this plan to establish protective action distances which are mapped to identify at-risk populations and locations. In identifying at-risk populations, only short term threats to life and health are addressed. No attempt is made to assess the risk of long-term health effects due to environmental contamination or damage.

Assumptions

Some or all of the following assumptions are made in the process of assigning and mapping PADs for each facility:

1. All chemical products are present in the maximum quantity allowed by the reported "Maximum Amount" code. For example, a product with a reported "Maximum Amount" code of 04 is assumed to be present in a quantity of 99,999 lbs.

2. PAD recommendations provided by the 2008 Emergency Response Guidebook (ERG 2008), while primarily intended to be used for initial response to transportation (highway or railroad) incidents, are adequate and reasonably conservative for fixed facility incidents.

3. It is assumed that only one product is involved or that, if more than one product is involved, PADs are not additive with the longer (or longest) appropriate PAD providing adequate protection from all products.

4. The nature of the incident (spill or fire) and the time of day are those that would call for the longest PAD.

5. The product that is present in a form and amount that would call for the longest PAD is one of those involved.

6. Large spills, as defined by ERG 2008, take place only if products are stored in containers with a capacity for more than 200 liters. It is assumed, in most cases, that only containers reported under codes A, B, C, P, and Q have capacities greater than 200 liters. (Certain exceptions are given in 3.a. and 3.d. of the Methodology section below.)

7. Use of PADs for fire incidents is appropriate for underground and inside tanks (codes B and C) as well as for above ground tanks, tank wagons, and rail cars (codes A, P and Q) because of the presumed, occasional presence of tank trucks or tank cars for product transportation to and/or from the facility.

8. Downwind dispersion of spilled materials is possible in any direction from the facility.

Methodology

For each facility the protective action distance (PAD) is based on a reasonably foreseeable worst case emergency scenario and the appropriate evacuation and protective action distance recommendations from ERG 2008. The procedures for assigning and mapping the worst case scenario PAD for a given facility are as follows:

1. Based on the Tier II information provided, a four-digit UN or NA identification number is assigned to each product. This is generally found from the appropriate material safety data sheet for the specific product or from one for a product with essentially the same hazardous ingredients in essentially the same concentrations. Where the product is shown to have no UN/NA identification number and/or is not regulated in transportation by the U.S. Department of Transportation, it is assumed that the product is an environmental hazard only and it is not considered to be an emergency risk.

2. Using ERG2008, all isolation, evacuation and protective action distances are compiled as provided under the appropriate Guide Number (referenced from the UN/NA identification number) and, for Toxic Inhalation Hazard (TIH) materials, from the Table of Initial Isolation and Protective Action Distances. These include:

    a. The isolation distance recommended as an immediate precautionary measure after the second bullet in the PUBLIC SAFETY section,
    b. The spill evacuation distance recommended under "EVACUATION" in the PUBLIC SAFETY section.
    c. The isolation/evacuation distance(s) recommended under "FIRE" in the PUBLIC SAFETY section.
    d. For TIH materials, all isolation and evacuation distances listed both for SMALL SPILLS and for LARGE SPILLS.

3. Based on the submitted Maximum Daily Amount and container type, the appropriate PAD for each individual product is selected. Criteria for selection of appropriate PAD are as follows:

    a. Use of "Small Spill" vs. "Large Spill" PADs is based on the 200 liter criterion in ERG 2008 (p. 4 and p. 300). Where container size cannot be determined

with reasonable certainty, a "Large Spill" is assumed if the Maximum Daily Amount is >200 liters. For example, for Chlorine and certain other highly toxic gases that may be stored in one-ton cylinders (capacity > 200 liters), it is assumed that one-ton cylinders are used when the Maximum Daily Amount code is 03 or greater.

b. Regardless of reported Maximum Daily Amount, the "Small Spill" PAD is used when the following Storage Type Codes are reported: F, G, I, J, K, M, N, or O.
c. "Small Spill" PAD is used when Storage Type Codes D or E are reported and the reported Maximum Daily Amount code is 01 or 02.
d. "Large Spill" PAD is used when Storage Type Codes D or E are reported and the reported Maximum Daily Amount code is 03 or greater.
e. "Large Spill PAD is used when the following Storage Type Codes are reported: A, B, C, H, P or Q.
f. "Fire (Fragmentation Hazard") PAD is used when the reported Maximum Daily Amount code is 03 or greater and the following Storage Type Codes are reported: A, B, C, H, P or Q.
g. Where two of the above criteria are met for a single product, the larger PAD is used.
h. A spill PAD of zero (0) is used for products that are environmental or workplace chronic health hazards only (as indicated by "NR" under the UN/NA # heading).

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Attachment 5
Floodplain Permitting Process and Floodplain Permits for Participating Communities

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219 1st Avenue South, Suite 208 Hailey, ID 83333
Planning & Zoning: 208-788-5570 ♦ Fax 208-788-5576
www.blainecounty.org

BLAINE COUNTY FLOODPLAIN CONDITIONAL USE PERMIT APPLICATION

As set forth in Chapters 17 and 25, Title 9 (Zoning Ordinance) of the County Code, Blaine County, Idaho

Please complete the form and 'Save As' a Word Document and send to pzcounter@co.blaine.id.us

Contact Information

(1)	Applicant/Agent	Name: Mailing Address: Phone: Email:
(2)	Owner	Name: Mailing Address: Phone: Email:
(3)	Responsible Party	Name: Mailing Address: Phone: Email:

"Responsible Party is the person who will be the sole responsible contact with the County"

Project Information

(3)	General	Size of Tract: Present Land Use: Existing Zoning: Overlay District(s):
(4)	Property Address	
(5)	Requested Action	

Legal Information

(6)	Legal Description	(Include section, township, range)
(7)	Parcel Number	RP -
(8)	Status of Applicant	Is the applicant the owner of the property legally described above? Yes ☐ No ☐ If no, explain:

(9) Adjacent Ownership — Does the applicant own property adjacent to the area proposed for development? Yes ☐ No ☐
If yes, explain

Additional Information

(10) Please attach the following:

a) Septic permit and letter from the South Central Health District.
b) Proof of ownership.
c) Vicinity map which includes all lands within ½ mile of subject property.
d) Lot and parcel map available from the County Assessor's Office which shows at a minimum parcels or lots within 300' of the exterior boundary of the subject property. The applicant is responsible for accurately indicating the names of surrounding landowners on the map.
e) The names and addresses of surrounding landowners within 300' of the exterior boundary of the subject property are to be typed onto self-adhesive copier labels.
f) Three (3) sets of plans when application requires Hearing Examiner or administrative approval, drawn to scale showing surface view (plan view) of elevations or contours of the ground; pertinent structure, fill or storage elevations; size, location and spatial arrangement of all proposed and existing structures on the site; the IRF and floodway boundaries as taken from the Flood Insurance Rate Maps, existing and proposed easements, location and elevations of streets, water supply, sanitary facilities;
- Site specific information from the studies listed in §9-17-1D of Zoning Ordinance, including IRF elevation at the building site, location of the boundary of the IRF, ordinary high water mark and riparian setback area;
- A profile thru the building site showing the slope of the bottom of the channel or flow line of the stream, proposed areas of fill, natural ground contours and overflow channels and the elevation of the bottom of floor joist and finished floor of the proposed construction relative to the IRF elevation;
- Photographs showing the existing land uses and vegetation upstream and downstream and soil types.
-Specifications for building construction and materials, flood proofing, filling, dredging, grading, channel improvement, storage of materials, water supply and sanitary facilities
- Existing direction of water forces, areas of critical erosion, potential for channel movement or relocation and related hydraulic considerations;
- Groundwater table level at high water in the spring.
- Exterior building elevations and floor plans for proposed structure(s);
- Location of utilities including electric, gas, well, septic tank and drain field(s);
g) Typed responses to attached Standards of Evaluation
h) Agency review of the proposal as determined appropriate by staff;
I) A "Notice" provided by Planning Office after the application is scheduled for public hearing, shall be posted on site of property being considered for at least 7 days prior to public hearing.

j) * Application fee as established by County Fee Resolution plus $.50 per surrounding land owner mailing fee.

k) There may be County Engineer review fees in addition to application fee.

l) When the proposed use involves a potential contaminant source or potential contaminant as set forth in appendix A of this title on file in the county, and is located within a wellhead protection area, written comment from Idaho Department of Environmental Quality and from any other appropriate agency, including, but not limited to, owners of public water systems located within the wellhead protection area, shall be solicited if this is determined by the administrator to be necessary.

m) A written statement by a licensed engineer that the project will have no adverse impact or that such impacts have been identified and mitigated to the maximum extent feasible.

ACKNOWLEDGMENTS

(11) The undersigned certifies that (s)he is the owner or authorized representative of the land in question and that (s)he has filled in this application to the best of his/her knowledge, and that (s)he agrees to comply with all county codes and state laws, as amended, regulating properties in Blaine County, Idaho. The applicant agrees in the event of a dispute concerning the interpretation or enforcement of the conditional use permit in which the County of Blaine is the prevailing party to pay reasonable attorney's fees and costs, including fees and costs of appeal for the County of Blaine.

(12) The undersigned grants permission to County Personnel to inspect any property which is the subject of this application until such time as all condition(s) of approval attached to the application(s) have been satisfied.

SIGNATURE OF APPLICANT/AGENT:

DATE: / /

Please complete the form and 'Save As' a Word Document and send to pzcounter@co.blaine.id.us

****

ADMINISTRATIVE RECORD

Required Fee $450.00 _____ paid on _____
If Applicable: 20% of above fee for Ketchum Rural, Carey, West Magic, Smiley Creek or Wood River Rural Fire Dept. Plan Check: _____ paid on _____
Surrounding Landowner Notices
$.50 ea x _____ = _____ paid on _____
TOTAL _____ receipt # _____

Engineering and consultant fees are calculated based on the time spent by County hired private consultants and their staff to review various projects. These fees are to be paid in full upon receipt and prior to scheduling an applicant's public hearing.

Date Application Certified _____

Hearing Date: _____

Date of and Disposition _____

CITY OF KETCHUM
FLOODPLAIN DEVELOPMENT PERMIT/APPLICATION
(For properties not located on a waterway, but are within the 100-year floodplain)

Application #:_____ Date:_____

1. Name of Applicant:_____

2. Name of Agent:_____

3. Agent's Address:_____

4. Agent's Telephone Number:_____

5. Address and Legal Description of Development Site:_____
_____
_____
_____

6. Parcel Number of Development Site:
_____

7. Property Located in a Designated Flood Hazard Area? Yes_____ No_____

8. Type of Development: Residential_____ Commercial_____ Industrial_____

Dirt Fill_____ Dredging_____ Excavation_____ Other_____

Explain (attached if necessary):_____

9. Elevation of the 100-Year Flood (identify source):_____
_____MSL/NGVD

10. Elevation of the Proposed Development Site:_____MSL/NGVD

11. Elevation/Floodproofing Requirement:_____MSL/NGVD

12. Other Floodplain Elevation Information (identify and describe source):_____

_____

_____

IF THE PROPOSED DEVELOPMENT IS A RESIDENTIAL STRUCTURE, THIS PERMIT IS ISSUED WITH THE CONDITION THAT THE FIRST FLOOR (INCLUDING BASEMENT FLOOR) WILL BE CERTIFIED TO BE ELEVATED A MINIMUM OF ONE (1) FOOT ABOVE THE 100-YEAR FLOOD ELEVATION. IF THE PROPOSED DEVELOPMENT IS A COMMERCIAL BUILDING, THE STRUCTURE MAY BE EITHER ELEVATED OR FLOODPROOFED ACCORDING TO THE FLOODPROOFING STANDARDS CONTAINED IN ZONING CODE TITLE 17.

ALL OTHER APPLICABLE PROVISIONS OF KETCHUM'S FLOODPLAIN MANAGEMENT REGULATIONS SHALL BE MET AS A CONDITION TO OBTAINING THIS PERMIT.

Approved:_____ Denied:_____

Date:_____ _____

Signature of Applicant/Agent

Name, Title and Signature of Planner:

_____

Pursuant to Resolution No. 08-123, any direct costs incurred by the City of Ketchum to review this application will be the responsibility of the applicant. Costs include but are not limited to: engineer review, attorney review, legal noticing, and copying costs associated with the application. The City will require a retainer to be paid by the applicant at the time of application submittal to cover said costs. Following a decision or other closure of an application, the applicant will either be reimbursed for unexpended funds or billed for additional costs incurred by the City.

City of Hailey – Flood Hazard Development Permit Application

Project Name:

_____

_____

Legal Description of Property: Subdivision _____ Lot(s)

_____, Block_____,

Street Address of Property:

_____

Existing building gross sq. ft. (if applicable) _____ Proposed addition or new construction sq. ft. _____

Property Owner Consent:
By signature hereon, the property owner acknowledges that City officials and/or employees may, in the performance of their functions, enter upon the property to inspect, post legal notices, and/or other standard activities in the course of processing this application, pursuant to Idaho Code §67-6507. The property owner is also hereby notified that members of the Planning and Zoning Commission and City Council are required to generally disclose the content of any *ex parte* discussion (outside the hearing) with any person, including the property owner or representative, regarding this application.

Property Owner's Signature: _____Date: _____ / _____ / _____

DESCRIPTION OF DEVELOPMENT:

☐ New Construction
☐ Addition or Improvements
☐ Watercourse Alteration
☐ Subdivision

The proposed development is located in the:
☐ Floodway ☐ 100-year Floodplain

Base Flood Elevation: _____ feet.

REQUIRED SUBMITTALS:

☐ Plans drawn to scale showing
- __ the existing contours with intervals of one foot (1') or less of the elevation of the entire property.
- __ the proposed contours with intervals of one foot (1') or less of the elevation of the entire property, Base Flood Elevation.
- __ the location, dimensions and elevations of the proposed improvements, including buildings, structures, fill, drainage facilities, driveways and streets.

☐ Certification by a registered professional engineer that the flood-proofing methods meet the flood hazard reduction provisions of Hailey Zoning Ordinance Section 4.10.

☐ A description of the extent to which any watercourse would be altered or relocated.

☐ All required and necessary federal and state permits, including studies and mitigation plans for wetlands (e.g., 404 permits).

☐ Certification from a registered professional hydraulic engineer that Encroachments, including Fill, new construction, substantial improvements and other development (a) do not result in any increase in flood levels during the occurrence of a Flood, and (b) the placement of an encroachment will result in no net loss in natural storage area within the Flood Hazard Overlay District. (4.10.7.2.n)

☐ FEMA Elevation Certificate completed by a registered Professional Engineer or Land Surveyor.

☐ City of Hailey Floodplain Foundation Detail
☐ New Construction
☐ Addition or Improvements
☐ Watercourse Alteration
☐ Subdivision

The proposed development is located in the:
☐ Floodway ☐ 100-year Floodplain

Base Flood Elevation: _____ feet.

REQUIRED SUBMITTALS:

☐ Plans drawn to scale showing
__ the existing contours with intervals of one foot (1') or less of the elevation of the entire property.
__ the proposed contours with intervals of one foot (1') or less of the elevation of the entire property, Base Flood Elevation.
__ the location, dimensions and elevations of the proposed improvements, including buildings, structures, fill, drainage facilities, driveways and streets.

☐ Certification by a registered professional engineer that the flood-proofing methods meet the flood hazard reduction provisions of Hailey Zoning Ordinance Section 4.10.

☐ A description of the extent to which any watercourse would be altered or relocated.

☐ All required and necessary federal and state permits, including studies and mitigation plans for wetlands (e.g., 404 permits).

☐ Certification from a registered professional hydraulic engineer that Encroachments, including Fill, new construction, substantial improvements and other development (a) do not result in any increase in flood levels during the occurrence of a Flood, and (b) the placement of an encroachment will result in no net loss in natural storage area within the Flood Hazard Overlay District. (4.10.7.2.n)

☐ FEMA Elevation Certificate completed by a registered Professional Engineer or Land Surveyor.

☐ City of Hailey Floodplain Foundation Detail

☐ Excavation
☐ Fill
☐ Grading
☐ Other_____

PERMIT REVIEW PROCEDURE:

A Flood Hazard Development Permit shall be obtained before any site alteration, construction or development begins within or upon any area located within the Floodplain Sub-District. All applications for a Flood Hazard Development Permit for a subdivision shall be evaluated and approved or denied by the Commission and Council. All other Flood Hazard Development Permit applications shall be evaluated and approved or denied by the Flood Hazard Development Permit Board. The Board shall consist of the Floodplain Administrator, the City Engineer and the Building Official.

ATTACH SIGNED COMMISSION, COUNCIL OR FLOOD HAZARD DEVELOPMENT PERMIT BOARD FINDINGS OF FACT AND CONLUSIONS OF LAW AND DECISION

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