The 2025 Multijurisdictional All Hazard Mitigation Plan for Boise County and the Cities of Crouch, Horseshoe Bend, Idaho City, and Placerville

Photographer: Craig Zoch - Double rainbow over Wilderness Ranch subdivision in May 2019

Prepared by:

Boise County Emergency Management

Fairhaven Solutions LLC

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Acronyms

AFG	Assistance to Firefighters Grant
AHMP	All Hazard Mitigation Plan
DMA 2000	Disaster Mitigation Act of 2000
CDC	Center for Disease Control
CFR	Code of Federal Regulations
Cfs	cubic feet per second
CWPP	County Wildfire Protection Plan
EHS	Extremely Hazardous Substance
EPA	U.S. Environmental Protection Agency
EPCRA	Emergency Planning and Community Right to Know Act
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FIS	Flood Insurance Study
FMA	Flood Mitigation Assistance
GIS	Geographic Information System
HMP	Hazard Mitigation Plan
HMGP	Hazard Mitigation Grant Program
IDHW	Idaho Department of Health and Welfare
IDL	Idaho Department of Lands
HMP	Hazard Mitigation Plan
IBHS	Insurance Institute for Business & Home Safety
IOEM	Idaho Office of Emergency Management
IDWR	Idaho Department of Water Resources
MDPI	Multidisciplinary Digital Publishing Institute
NFIP	National Flood Insurance Program
NOAA	National Oceanic and Atmospheric Administration
PDM	Pre-Disaster Mitigation grant program
SFHA	Special Flood Hazard Area
Stafford Act	Robert T. Stafford Disaster Relief and Emergency Assistance Act
AHMP Committee	All Hazard Mitigation Planning HMP Committee
U.S. Census ACS	American Community Survey
USGS	United States Geographical Survey
WHO	World Health Organization

Acknowledgements

Thanks to Jordan Jones, Boise County Emergency Manager; Susan Cleverley, State Hazard Mitigation Officer, Idaho Office of Emergency Management; Lorrie Pahl, State Hazard Mitigation Planner, Idaho Office of Emergency Management; The Boise County Board of County Commissioners; the 2025 Plan Update Planning Committee; and the public for their support and input.

Forward

The Boise County Emergency Management is committed to reduce the long-term impacts of natural and human-caused hazards on the residents, environment, infrastructure, and economy of Boise County by fostering collaborative planning, advancing risk-informed mitigation strategies, and strengthening community resilience through education, innovation, and preparedness. Our goal is to create a safer, stronger, and more resilient Boise County—where communities are empowered, risks are understood, and proactive hazard mitigation safeguards lives, property, and cultural and natural resources for future generations.

> Hazard mitigation involves sustained actions aimed at reducing or eliminating long-term risks to human life and property from various hazards. Natural hazard mitigation planning is a structured process employed by state, tribal, and local governments to engage stakeholders, identify hazards and vulnerabilities, develop long-term strategies to reduce risk and future losses, and implement the plan by utilizing a wide range of resources. A state mitigation plan demonstrates a commitment to mitigating risks from natural hazards and serves as a guide for decision-makers in reducing the impacts of such hazards as resources are allocated. ***FEMA – Local Multi-Hazard Mitigation Planning Guidance. July 2008***

The Boise County All Hazard Mitigation Plan Update 2025 was led by the County's All Hazard Mitigation Planning Committee in collaboration with Fairhaven Solutions, LLC. This Plan meets the requirements for a local natural hazard mitigation plan under 44 CFR Part 201.6. Additionally, it attempts to fully integrate FEMA's Natural Hazard Mitigation Plan processes with the Community Wildfire Protection Plan as outlined in the Healthy Forest Restoration Act.

Chapter 1
Introduction and Background

Photographer: O.L. - View looking south from Cervidae Peak

1.1 - Overview

Natural hazards are inherent properties of the Earth that can influence and impact both the living and non-living features of the natural environment. The scale and potential impact of these hazards vary significantly; for instance, localized windstorms may damage or uproot individual trees, while volcanic eruptions have the capacity to affect or destroy hundreds of square miles of terrain and cause significant mortality among plants and animals. Certain natural disasters occur more frequently in specific regions of the United States: The Pacific Northwest is associated with wildfire, earthquake, and volcanic hazards; the central plains are prone to severe storms capable of producing tornadoes up to one mile wide; and the Atlantic Gulf of America coasts periodically faces tropical storms and hurricanes.

While various landscapes exhibit resilience in the face of natural disasters, human populations and developments are markedly less so. Historically, humans have contended with the repercussions of natural disasters, which often include displaced residents, loss of property, costly clean-up and repairs, and substantial time losses, frequently measured in years. Considering increasing populations and developmental expansion, communities are now identifying proactive steps to mitigate the impacts of natural hazards. Mitigation measures encompass preventative actions aimed at enhancing community and individual resilience to natural hazards and reducing recovery costs.

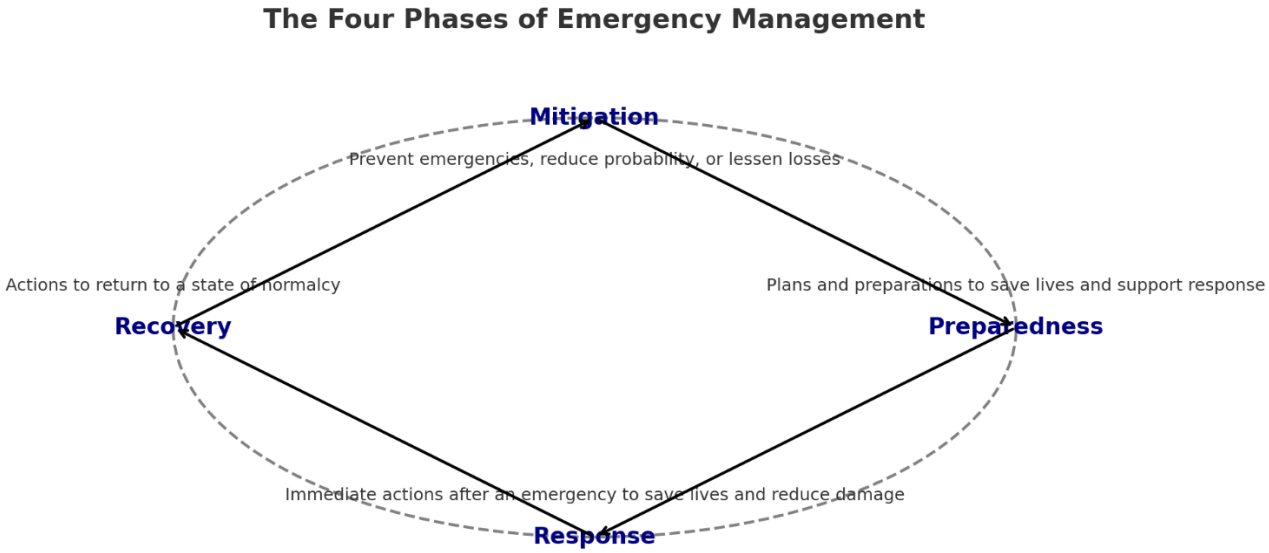
The term ‘hazard’ defines any event with the potential to cause loss of life or property. Hazards become disasters when individuals and communities are negatively impacted by such events. This plan identifies Boise County’s hazards, assesses the county’s vulnerability to those hazards, and details proposed actions to reduce the loss of life and property from disasters. These actions are defined as mitigation.

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

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

the four emergency phases are continuum across time and space undertaken by numerous agencies, organizations, and individuals. Mitigation can occur before and after an emergency or disaster, and mitigation actions can be built into both preparedness and recovery to address vulnerabilities and weaknesses that arise during and post-emergency.

Figure 1: The Four Phases of Emergency Management



Source: Fairhaven Solutions

It is important to distinguish between the Hazard Mitigation Plan (HMP) and other emergency response or emergency management plans. Where emergency response and management plans direct and detail the County's strategy of allocating resources and efforts to respond to and recover from a disaster, mitigation plans identify past occurrences of hazards and associated losses, possible future occurrences and losses, to help guide and implement actions and projects to reduce or eliminate current and future losses. These plans are interrelated, however, and should be employed as a cohesive planning framework to reduce vulnerability and enhance resilience against hazards.

The Boise County All Hazard Mitigation Plan (AHMP) is an update to the 2017 Boise County AHMP. The County's AHMP 2025 update was guided by the Boise County AHMP Committee lead by Jordan Jones, the County's Emergency Manager, and Bradley Petersen with *Fairhaven Solutions LLC*. The Planning Committee was composed of members from personnel within multiple County Departments, and representatives from each of the county's four incorporated cities. Additionally, representatives from State and Federal agencies, and other organizations and stakeholders are active within the county.

This document aims to accurately identify risks to the residents, property, and infrastructure within Boise County and outlines a plan for mitigation efforts in accordance with the *Disaster Mitigation*

Act of 2000. The Federal Emergency Management Agency (FEMA) offers funding opportunities for mitigation actions and mandates a hazard mitigation plan (HMP) that identifies risks and vulnerabilities, proposes mitigation strategies, and includes a planning process featuring multi-jurisdictional participation with public outreach. Furthermore, the AHMP Committee seeks to create an easy-to-use document that serves as a key component in making Boise County more resilient to potential hazards.

The County-wide AHMP results from comprehensive analyses, professional cooperation, collaboration, and assessments of hazard risks and other pertinent factors, all aimed at reducing the potential threats posed by hazards to people, infrastructure, property, and unique ecosystems in Boise County. The County's AHMP was updated and approved by the Idaho Office of Emergency Management (IOEM) and FEMA in 2017. This document represents an update to the County's AHMP under the Pre-Disaster Mitigation program and will remain in effect until 2030. This updated plan assists in identifying and assessing various potential hazards while ensuring the County's and its Communities are eligibility for grants and other funding.

The development of the AHMP adheres to the requirements set forth by FEMA and the IOEM for a county-level pre-disaster mitigation plan. The State of Idaho's 2023 Hazard Mitigation Plan identifies twelve natural hazards affecting the state. To maintain consistency, the County's AHMP Committee selected eleven hazard annexes from the state-identified hazards that pose the highest risk for its residents.

1.2 - Plan Purpose & Benefits

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

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

- Selection of Risk Reduction Actions – Hazard mitigation is a systematic process of identifying and analyzing the County's risks. By setting clear goals and identifying and implementing mitigation strategies, the County and its partners can reduce losses from disasters.

- Builds Local, State, & Federal Partnerships – The hazard mitigation plan builds partnerships through two-way communication and collaboration by involving various stakeholders at the local, State, and Federal levels.
- Facilitates Sustainability – Risk from hazards and sustainability of the county and its communities are linked. Without identifying and mitigate risks, the livelihood and continuance of the county and its communities is threatened. Enhancing resilience to hazards enhances sustainability.
- Establishes Funding & Resource Priorities – By coordinating and consolidating mitigation actions undertaken in the county into a unified strategy, the plan helps prioritize and articulate the County and its communities' needs to the public, organizations and enterprise, and agencies with stakes in the county.
- Increase Hazard Awareness & Education – The hazard mitigation planning process increases education and awareness of hazards and risks in the county and its communities. This awareness helps individuals understand their risk, self-mitigate, and enhance their resilience. This can be translated to support of mitigation actions in the County.

The hazards that will be updated for this plan include:

- Wildland Fire
- Flooding
  - River Floods
  - Flash Flooding
  - Dams and Levee
- Geological:
  - Avalanches
  - Landslides
  - Earthquakes
  - Volcanic Eruptions (ash)
- Hazardous Materials
- Extreme Weather:
  - Thunderstorms and High Winds
  - Extreme Heat
  - Winter Storms
- Enhance Healthcare Services: Including Pandemic/Disease
- Cybersecurity
- Terrorist and other Civil Disorders

1.3 - AHMP Committee: Guiding Principles and Values

The Boise County AHMP Committee is guided by the following principles and core values:

Mission Statement

To reduce the long-term impacts of natural and human-caused hazards on the residents, environment, infrastructure, and economy of Boise County by fostering collaborative planning, advancing risk-informed mitigation strategies, and strengthening community resilience through education, innovation, and preparedness.

Vision Statement

A safer, stronger, and more resilient Boise County—where communities are empowered, risks are understood, and proactive hazard mitigation safeguards lives, property, and cultural and natural resources for future generations.

Value Statement

- **Collaboration** – We believe in transparent, inclusive partnerships across agencies, communities, and stakeholders to build a unified approach to mitigation.
- **Resilience** – We are committed to fostering communities that can adapt to and recover from hazard events swiftly and sustainably.
- **Integrity** – We uphold honesty, accountability, and scientific integrity in all planning, decision-making, and communication efforts.
- **Equity** – We strive to ensure all voices are heard and that vulnerable populations are prioritized in mitigation strategies.
- **Stewardship** – We are dedicated to protecting Boise County's natural landscapes, cultural heritage, and infrastructure through responsible and sustainable planning.

1.4 - Federal Emergency Management Agency (FEMA) Philosophy

Effective November 1, 2004, a Natural Hazard Mitigation Plan approved by FEAM is required for Hazard Mitigation Grant Program (HMGP) and Pre-Disaster Mitigation Program (PDM) eligibility. The HMGP and PDM programs provide funding, through state emergency management agencies, to support local mitigation planning and projects to reduce potential disaster damage.

The new local Natural Hazard Mitigation Plan requirements for HMGP and PDM eligibility are based on the *Disaster Mitigation Act of 2000*, which amended the *Stafford Disaster Relief Act* to promote an integrated, cost-effective approach to mitigation. Local Natural Hazard Mitigation Plans must meet the minimum requirements of the *Stafford Act-Section 322*, as outlined in the criteria contained in 44 CFR Part 201. The plan criteria cover the planning process, risk assessment, mitigation strategy, plan maintenance, and adoption requirements.

Prior to local adoption of its Hazard Mitigation Plan (HMP), the county submits a draft HMP to IOEM for initial review, after which IOEM forwards the plan to FEMA for formal evaluation. FEMA is allotted up to 45 days for this process, as stated in 44CFR §201.6(d)(1-2). Upon receiving FEMA's reviewed document, the county's governing body must formally adopt the plan in a*ccord*ance with 44CFR §201.6(c)(5). Following official adoption, the local jurisdiction is required to periodically review and update its plan to account for changes in development, mitigation efforts, or priorities. The revised plan must be resubmitted for approval within five years to maintain eligibility for mitigation pr*oject* grant funding, per 44CFR §201.6(d)(3).

A FEMA-designed plan will be evaluated on its adherence to a variety of criteria, including:

- Adoption by the County Board of County Commissioners, and the Cities of Crouch, Horseshoe Bend, Idaho City, and Placerville, and any other County taxing entities that wish too.
- Multi-jurisdictional Plan Adoption
- Multi-jurisdictional Planning Participation
- Documentation of Planning Process
- Identifying Hazards
- Profiling Hazard Events
- Assessing Vulnerability: Identifying Assets
- Assessing Vulnerability: Estimating Potential Losses
- Assessing Vulnerability: Analyzing Development Trends
- Multi-jurisdictional Risk Assessment
- Local Hazard Mitigation Goals
- Identification and Analysis of Mitigation Measures
- Implementation of Mitigation Measures
- Multi-jurisdictional Mitigation Strategy
- Monitoring, Evaluating, and Updating the Plan
- Implementation Through Existing Programs
- Continued Public Involvement

1.5 - Plan Overview

Plan Update Process (Chapter 2) describes the process by which the plan will be updated and maintained once it is adopted. This includes both committee and community involvement in all stages of the process.

The following outlines the planning process as described in (44CFR §201.6(b):

(1) An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval;

(2) An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia and other private and nonprofit interests to be involved in the planning process; and

(3) Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.

Chapter 2 also describes the AHMP Committee's formal plan maintenance process to ensure that the HMP remains an active and applicable document. The process includes monitoring, evaluating, and updating the HMP, monitoring the mitigation measures and project closeouts, and incorporating public input throughout the HMP's 5-year lifespan.

History of the County (Chapter 3) provides a general history and background of the County's historical trends for population, demographic, and economic conditions that have shaped the area. Trends in land use and development are also discussed.

Risk Assessment Overview (Chapter 4) details the process of identifying hazards and describes the process through which the AHMP Committee identified and compiled relevant data on all potential natural hazards that threaten the county and its residents and the immediate surrounding area. The information collected includes historical data on natural hazard events that have occurred in and around Boise County and how these events impacted the residents and their property.

The descriptions of natural hazards that could affect Boise County are based on historical occurrences and best available data from agencies such as FEMA, the U.S. Geological Survey, the Idaho Geologic Survey, Idaho Department of Lands, and the National Weather Service. Detailed hazard profiles include information on the frequency, magnitude, location, and impact of each hazard as well as probabilities for future hazard events.

In addition, Chapter 4 identifies potentially vulnerable assets such as people, housing units, and critical facilities. These data were compiled by assessing the potential impacts of each hazard using U.S. Census data, and the Boise County Assessor's office. The resulting information identifies the full range of hazards that the county could face and potential social impacts, damages, and economic losses.

Mitigation Strategy (Chapter 5)

Addresses Boise County's all-hazard mitigation activities:

- Mitigation Strategy
- Mitigation Goals
- Mechanisms to incorporate mitigation strategies
- Development of Mitigation Action Items
- Process to monitor and evaluate mitigation action items
- Project start-up and close-out procedures
- 2025 Mitigation action items
- Capability Assessment
- Funding Sources

Chapter 2
The Plan Process

John Melland: Picture taken near Kirkham campground and hot spring.

2.1 - Overview

To comply with *CFR (44CFR§201.6(a)(b)(c))*, documentation of the planning process, including public involvement is required for an updated local mitigation plan. This section describes how this plan was updated, who participated, and the role of involved agencies. **For additional information see Appendix.**

The planning process is vital to the development and completion of a comprehensive AHMP that best fits a County and its Stakeholders. As with almost all planning efforts, the plan is only as good as the process itself.

> The planning process section of the mitigation plan documents how the plan was developed, who was involved and what data and information were used to build or update the plan. A successful planning effort includes active participation and buy-in from community leaders, stakeholders and the public. The *National Mitigation Framework* emphasizes the valuable role of collaboration among various sectors to ensure that mitigation capabilities continue to grow and that comprehensive mitigation includes strategies for all community sectors. Examples of sectors with mitigation capabilities are those agencies and stakeholders responsible for:
>
> - Emergency management.
> - Economic development.
> - Land use and development.
> - Housing.
> - Health and social services.
> - Infrastructure (including transportation and other community lifelines).
> - Natural and cultural resources.
>
> In addition, FEMA's *National Response Framework, 4th Edition* identifies critical community lifelines, which are the most fundamental services in the community that, when stabilized, enable all other aspects of society to function. Community lifelines include the following:
>
> - Safety and Security.
> - Food, Water, Shelter.
> - Health and Medical.
> - Energy.

- Communications.
- Transportation.
- Hazardous Material.

Efforts to mitigate potential impacts to community lifelines are key to building resilience. These community lifelines connect to the sectors in the National Mitigation Framework and the Recovery Support Functions under the National Disaster Recovery Framework; the same agencies and departments that support these sectors also often support community lifelines and the recovery mission.

Involving members from these key sectors in the planning process will result in a shared understanding of risks. It will also help build widespread support for directing financial, technical and human resources toward natural hazard risk reduction.

FEMA – Local Mitigation Planning Policy guide: April 2023 (See FEMA's Planning Process Element Requirements in Appendices)

2.2 - The Plan Update Process

The development of the Boise County All-Hazard Mitigation Plan (AHMP) was a collaborative effort that included outreach to both the public and key organizations within the County's jurisdictional boundaries. Throughout the planning process, public involvement and stakeholder engagement were prioritized, with invitations extended for participation at every stage.

Under the direction of the Boise County Board of Commissioners, the County's Emergency Manager engaged members of the Emergency Response Planning Team to establish the AHMP Committee and begin the plan update process. This committee was composed of personnel representing key regions of the County as well as representatives from external agencies. This diverse committee structure ensured that a broad range of perspectives and expertise informed the mitigation planning effort. The AHMP Committee commenced its meetings in February 2025 and continued to convene monthly through November 2025, ensuring consistent progress and ongoing engagement throughout the planning period.

The planning process included seven distinct steps which were in some cases sequential (step 1 then step 2) and in some cases intermixed (step 5 completed throughout the process):

1. **Organization of Resources** – The County's Emergency Manager and Fairhaven Solutions worked together to develop a comprehensive list of potential participants as well as a project timeline and work plan. The AHMP Committee served as the basis for identifying

stakeholders that could provide valuable insight into risk assessments and mitigation strategies during the update process.

2. **Collection of Data –** Data was collected for the risk assessment and ancillary data for background information primarily came from the following organizations:

    - Boise County Departments and other Jurisdictions:
        - Emergency Management, Sheriff, Assessor, Horseshoe Bend, Fire Management Districts, public.
    - State of Idaho
        - IOEM, IDL, IDWR, Fish and Game
    - Federal Agencies
        - FEMA, NOAA, USACE, USGS, US Census 2020, HUD, EPA

3. **Field Observations and Estimations:** Fairhaven Solutions, members of the AHMP Committee, Idaho State Officials, and FEMA Region 10 Officials collaborated to identify areas of concern to improve understanding of risks, proximity of structures and infrastructure to risk areas, access, and potential mitigation projects. The analyses used in the 2025 plan were reviewed and updated to reflect new hazard vulnerabilities or changes in development.

4. **Mapping –** Boise County's Assessor's Office, IOEM GIS Department, and Fairhaven Solutions developed mapping products as visual tools to support various analyses.

5. **Public Involvement –** the AHMP Committee with Fairhaven Solutions developed a plan to involve the public through an "all hazards" survey, public meetings, surveys, public review of draft documents, and acknowledgement of the final updated plan by the signatory representatives.

6. **Strategies and Prioritization** – Fairhaven Solutions and the AHMP Committee representatives worked together to review the risk analyses and develop realistic mitigation strategies. As part of the 2025 plan update, a section was added for a record of completed mitigation action items, as well as a status report of projects identified. This will provide the County with a tool to track progress for each identified action.

7. **Drafting of the Report –** Fairhaven Solutions drafted a final updated report document and worked with members of the AHMP Committee to review each section, incorporate public comments, proceed with the state and federal review processes, and adopt the final document.

2.3 - Stakeholders' Engagement (See Appendices for details)

A major component of the planning process is involvement and participation from representatives

and stakeholders from the County, local communities, State and Federal agencies, and other organizations. Through the process, perspectives on hazards and risks, community assets, and mitigation needs are discussed and incorporated into the plan. Individuals who were a part of the AHMP Committee, their roles within the planning team, and the jurisdiction they represent are highlighted in Table 1. The AHMP Committee made efforts to include individuals, departments, outside state and federal agencies, and others that have an interest in hazard management within the Boise County.

Table 1: Boise County All Hazard Mitigation Steering Committee

Name	Department & Title	Role in the Planning Process
Jordan Jones	Boise County, Emergency Manager	Project Coordinator
Patrick Goff	Mayor, Horseshoe Bend	Community perspective
Scott Turner	Sheriff, Boise County	First Responder
Clay Tucker	County Commissioner	County Expert
Chris Juszczak	Boise County Assessor	Risk Analysis Expert
Darell Lindstrom	Boise County Commissioner	County Expert
Ben Roeber	IOEM	Advisor
Rick Barber	Placerville	Placerville Community
David Ayers	State of Idaho - IOMD	Advisor
Mike Underwood	Clear Creek	Clear Creek Community
Paul Cleaveland	Chief, Garden Valley - FD	Wildland Fire Experience
Melisa Lindros	Lowman	Lowman Community
Mel Barkalow	Boise County, Wildfire Mitigation Coor.	Regional Expert
Jason Rowe	Boise County - GIS	Mapping
Robert Callahan	Boise County Commissioner	County Expert
Dan Cano	Thorn Creek	Thron Creek Community
John Stull	Robie Creek - Fire Chief	Regional Needs Expert
Mari Adams	Idaho City, EMS Director	First Responder
Ken Everhart	Mayor, Idaho City	Community Perspective
Trevor Schiefelbein	Mayor, Crouch	Community Perspective
Clark Cassel	City of Placerville	Community Perspective
Lorrie Pahl	IOEM	Advisor
Bradley Petersen	Fairhaven Solutions LLC	Project Lead for FHS
Colton McCarthy	Wilderness Ranch – Fire Chief	Wilderness Ranch Expert

2.4 - Public Involvement (See Appendices for details)

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

Boise County AHMP Committee and *Fairhaven Solutions* worked together to develop an "All Hazard Mitigation Survey" to help educate, inform, and include the public on the process the AHMP Committee was involved in. This survey had a remarkable 500 plus participants. Through the answers and comments participants made the public's view of hazardous concerns and potential mitigation opportunities identified throughout the County. These responses were used to facilitate information sharing to the public on the various risk analyses and mitigation action items. Discussions were led, and inputs were provided to help gather feedback about the plan components and emergency management issues in general.

In addition to the survey, public meetings were hosted, in Horseshoe Bend and other locations throughout the state. Following the approval by the AHMP Committee the draft document, a period of public comment was provided to further incorporate input on the process and results of the updated Hazard Mitigation Plan.

2.5 - Incorporating Existing Plans

During the planning process, and when preparing the hazard analysis, risk assessments, and the mitigation action items, the AHMP Committee consulted various hazard and mitigation-related plans and studies, including the following:

- Boise County All-Hazard Mitigation Plan (2018) Review of the previous HMP provided a base for reviewing and updating community profiles, hazards, risks, and mitigation action progress.
- Boise County, Idaho *Community Wildfire Prevention Plan*: This plan was referenced for updating hazard profiles and potential mitigation efforts that may overlap with Tribal mitigation strategies.
- Boise County, Comprehensive Plan: Ensure the updated AHMP identifies and prepares for the future areas of growth identified in the County's Comprehensive plan.
- City of Horseshoe Bend Comprehensive Plan: Ensures the updated AHMP identifies and

prepares for the future areas of growth identified in the Horseshoe Bend's Comprehensive plan.

- FEMA Region 10's RiskMAP Team: Current floodplain Maps and proposed Preliminary Maps Boise County. (Currently, the City of Crouch is not a member of the NFIP.)

After the adoption of the AHMP, the AHMP Committee will ensure that elements of the AHMP are incorporated into other existing planning mechanisms. The processes for incorporating the AHMP into various planning documents will occur as other plans are updated, and new plans are developed.

2.6 - Plan Maintenance, Evaluating and Updating the Plan

The AHMP update was prepared as a collaborative effort among The County's Stakeholders on the Planning Committee. The County will continue to use the AHMP Committee to monitor, evaluate, and update the AHMP. The County's Emergency Manager, Committee leader, will serve as the primary point of contact and will coordinate all local efforts to monitor, evaluate, and revise the AHMP.

To assist the AHMP Committee in reviewing the 2025 AHMP, the status section on the approved Mitigation Action Items, MAI, was designed to allow progress updates. Additionally, the Planning Committee agreed to meet at least on an annual basis to review the plan and submit any updates or changes that may need to be made to the plan based on changes to the Hazard Profile, County assets, or the MAI. The Emergency Manager will collect all correspondence and determine if changes need to be made to the plan immediately or should be made prior to the plan update in 2030.

During the third year of adoption, the AHMP Committee will undertake the following activities to evaluate the plan and ensure that the HMP is readopted in a timely manner:

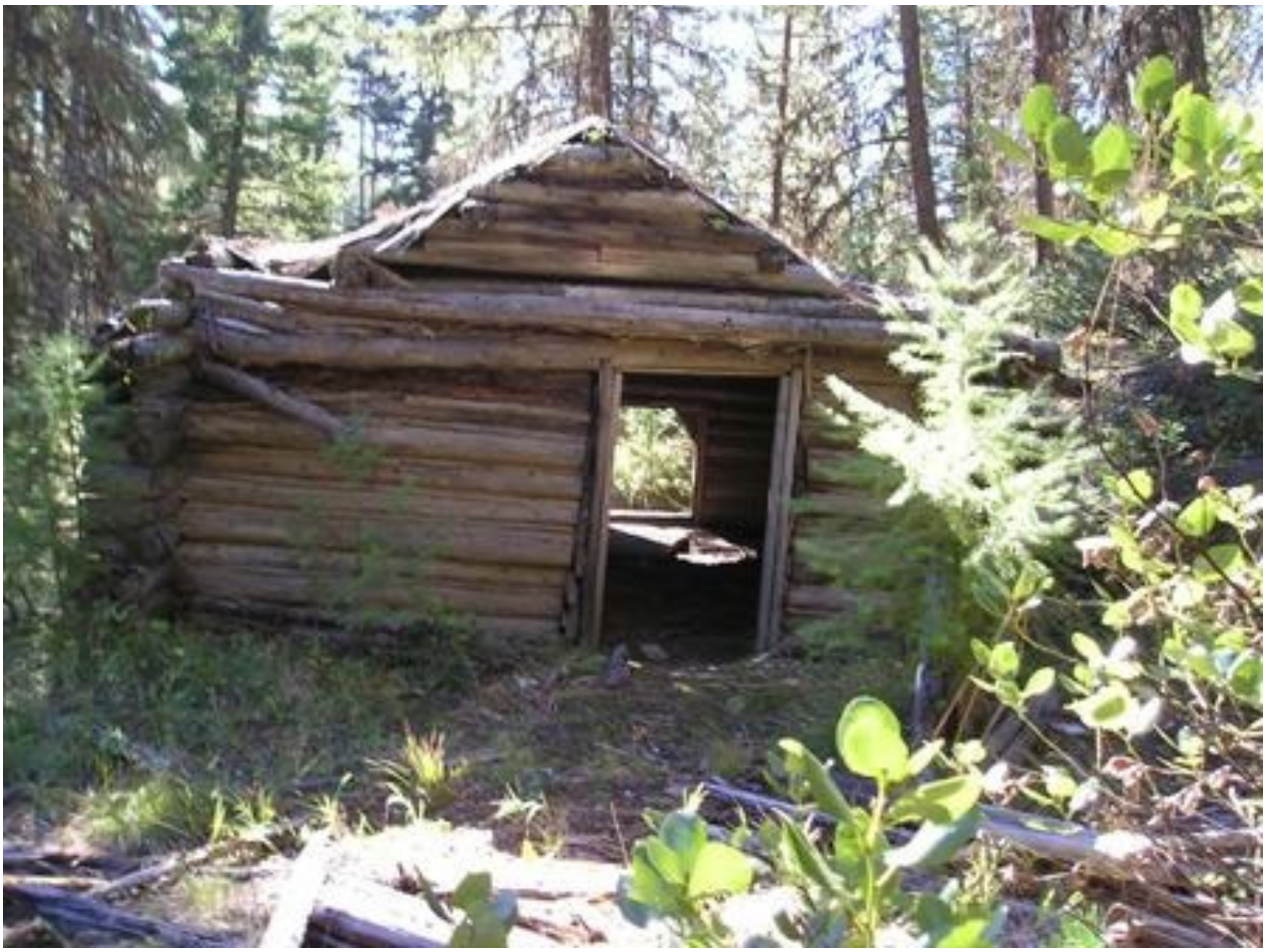
- Review all annual email correspondence regarding plan maintenance.
- Thoroughly analyze and update the Risk Assessment.
- Prepare a new Action Plan with prioritized actions, responsible parties, and resources.
- Prepare a new draft AHMP and submit it to the Tribal General Council for adoption.
- Submit an updated AHMP to the State of IOEM and FEMA for approval.

2.7 - Obtaining Continued Public Involvement

The AHMP Committee is dedicated to involving the public directly in the continual reshaping and updating of the AHMP. A copy of the plan will be available at the Public. The AHMP Committee will

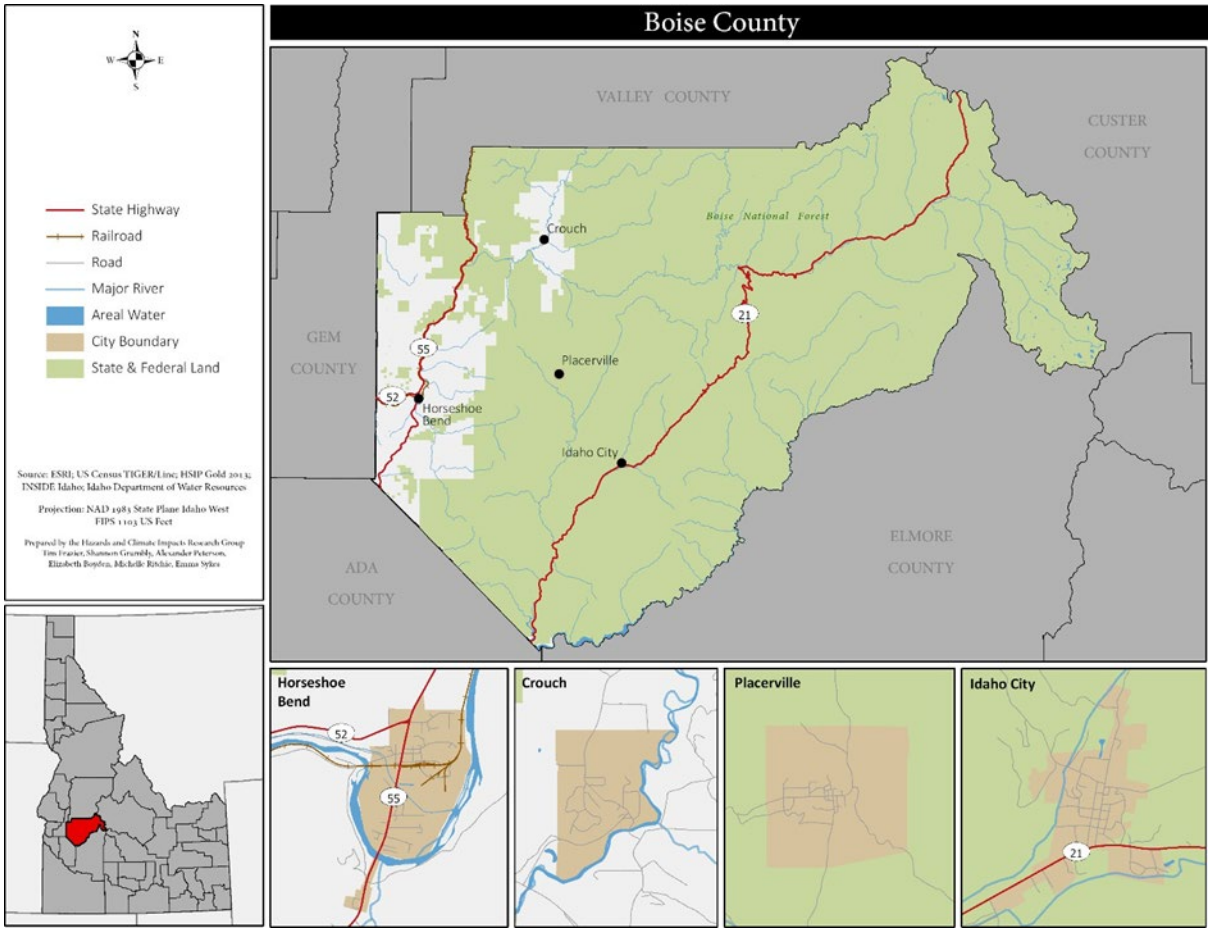
also identify opportunities to raise community awareness about the AHMP and the hazards that affect the residents of Boise County. This effort could include attendance and the presentation of materials at special events.

Chapter 3
Community Profile and History



Dee Woodstorm: Found way back in the mountains in a deep ravine.

Figure 2: Map of Boise County



3.1 - Planning Area Overview

Boise County is located in the West Central Highlands of Idaho and is bounded by Valley County to the north, Custer County to the northwest, Elmore County to the south, Ada County to the southeast, and Gem County to the west. It covers approximately 1.2 million acres and is characterized by general ruggedness, steep wooded mountains, and deep canyons.

Boise County is located within the Idaho Batholith, a granitic intrusion of the late Cretaceous period, and is characterized by a mountainous landscape that has developed through uplift, faulting, and subsequent dissection and stream cutting action over time. The majority of this rock formation within the County is made up of granite, but it can also range from quartz to gabbro. Due to these geologic characteristics, the majority of the county consists of peaks and valleys. Peaks occur along faults of the Boise Ridge Fault and are created by the natural uplift of the land. Valleys occur in places where major streams were blocked by the fault. As such, Boise County's elevation ranges from 2,964 feet at Horseshoe Bend to 10,830 feet at the highest peak in the Sawtooth Range.

The Sawtooth Wilderness Area, located on the easternmost side of the county forms the boundary between Boise and Cluster Counties with a number of peaks reaching above 10,000 feet. Another dominant geographic feature is the Payette River, which cuts through the center of the county. Within Boise County, more than 80 percent of the land is made up of the Boise National Forest (964,000 acres). Vegetation within this area consists of trees, including Ponderosa pine, Douglas fir, Englemann spruce, Subalpine fir, Grand fir, and Lodgepole pine. Ground cover vegetation includes bunchgrass, cheatgrass, bluebunch wheatgrass, arrowleaf, balsam root, snow brush, dogbane, bracken fir, and bitterbrush. Other species include pine grass, wild strawberry, bitter cherry, and Oregon grape snowberry.

Boise County encompasses approximately 1,900 square miles of mountainous terrain within the Boise River and Payette River watersheds. The AHMP planning area includes all land within Boise County and focuses on the following four primary population centers and planning communities:

- Idaho City (County seat)
- Horseshoe Bend
- Crouch including (Garden Valley)
- Placerville

These Communities represent the primary locations of population, housing, infrastructure, and public services within Boise County and serve as focal points for hazard mitigation planning.

Approximately 85 percent of Boise County is publicly owned, primarily managed by the U.S. Forest Service as part of the Boise National Forest, with additional lands managed by the Bureau of Land Management and the State of Idaho. Private development is concentrated in river valleys and along State Highways 55 and 21, the County's primary transportation and evacuation corridors.

3.1 - History

Historical Development and Hazard Context

Indigenous Use and Early Settlement: Prior to Euro-American settlement, the Boise River Basin and surrounding mountain valleys were seasonally used by the Northern Shoshone and Bannock Tribes for hunting, fishing, and travel. Tribal use declined following gold discoveries and the influx of miners and settlers beginning in the early 1860s.

Gold Rush Era and County Formation (1862–1880)

Boise County was established on January 12, 1863, following the discovery of gold in the Boise Basin. Mining camps and towns developed rapidly with little formal planning or infrastructure.

Communities such as Idaho City and Placerville emerged as major mining centers, while smaller settlements developed along river corridors and transportation routes. At its peak, Idaho City was one of the largest cities in the Pacific Northwest.

Historic mining practices permanently altered river channels, floodplains, and hillslopes. Historic mining activities continue to influence flooding, erosion, and landslide risk within portions of the County.

3.2 - Economy

Like many rural counties in the United States, Boise County relies upon a natural resource-based economy. This primarily refers to the timber, mining, and agriculture sectors. Historically, logging also played a large role in Boise County as approximately 80 percent of the county's land area consists of forest.

Tourism and recreation facilities within the county offer a range of opportunities from skiing at Bogus Basin to kayaking on the Payette River. These and other activities provide a year-round base of recreational opportunities on federal, state, and private lands.

In addition to timber and tourism, there is a long history of mineral exploration in Boise County. The Gold Rush in 1862 allowed for the establishment of over 250 businesses in the Boise Basin alone. There is also a strong economic base in government support. For example, the U.S. Forest Service manages public timber sales, the regulation of mining activities, and provides employment for positions such as fire lookouts and trail maintenance workers.

Farming and ranching are also present within Boise County. Alfalfa and grass are grown on the western portion of the County, and some areas still maintain cattle ranching on leased public lands. In addition to these farms and ranches, there is an increasing number of large family gardens, orchards, and farmer's markets.

In addition to jobs within the County boundaries, Boise County residents also rely on Boise City in nearby Ada County for work as there are over 23,400 firms located within the city.

3.4 - Transportation

Highways

The major highways within the County are maintained by the Idaho Department of Transportation. State Highway 55, also known as the Payette River Scenic Byway, travels from Boise in Ada County to New Meadows in Valley County. It cuts through the western portion of Boise County and passes through Horseshoe Bend and Banks. In 2014, just south of Banks an average daily traffic flow count was taken, totaling 5,100. Another traffic count was taken just north of Banks totaling 3,600.

State Highway 52 travels from Horseshoe Bend in Boise County to Emmett in Gem. State Highway 21, also known as the Ponderosa Pine Scenic Byway, travels from Boise to Stanley. It traverses the center of the County from the southwest to the northeast and travels through Idaho City and Lowman. In 2014, average daily traffic flow counts for SH 21, taken at the southwestern portion of the County, was 2,900. The traffic count connecting this segment of highway to Idaho City was 1,800. Just north of Idaho City the count was 490. Continuing along this route to the northeast, the count just southwest of Lowman was 200, and the count to the northeast was 580. Finally, at the northeastern portion of the county where SH 21 exits the County the traffic count was 420 (Idaho Department of Transportation).

In addition to these major highways, Banks-Lowman Road (Old Highway 17) provides access to the northeastern portion of the county. Many roads have also been built by the Forest Service throughout the county for logging, mining, and recreational uses.

Rail

The only railroad in the county, the Thunder Mountain Line, ceased operation in 2016. It was used for scenic tours along the Payette River from Horseshoe Bend to Banks.

Airports

Boise County has three general aviation landing strips which are primarily used for small private operations and government. These are also used by the public, the U.S. Forest Service, and emergency services.

Garden Valley airport is maintained by the Idaho Department of Transportation and is located on Banks- Lowman Road to the east of Garden Valley. It is a grass strip 3,850 feet long and 125 feet wide. No lighting is available and it is not maintained during the winter, though one small airplane hangar is present for private use.

Idaho City airport is located on the northwest edge of Idaho City. It is operated and maintained by the U.S. Forest Service and includes no private hangars, lighting, services, and is not maintained during the winter. It consists of a grass and dirt strip 3,400 feet long and 50 feet wide.

Warm Springs (Lowman) airport is located in Warm Springs and is used for emergency purposed only. It contains no facilities and no night landing facilities. The grass strip is 2,850 feet long and 50 feet wide. It is not maintained during the winter but the Idaho Department of Transportation Division of Aeronautics does assist in its maintenance during the remaining months. There is also a heliport for limited uses by the Lowman Ranger Station. Other private airstrips exist in the Clear Creek (not maintained any longer, emergency helicopters use only,) Horseshoe Bend, and Placerville areas.

3.5 - Forestry, Federal Lands, and Wildfire Risk

The establishment of the Boise National Forest in 1907 placed much of the County under federal management. Decades of wildfire suppression increased forest density and fuel loading.

These conditions significantly increase wildfire intensity and Wildland–Urban Interface (WUI) exposure, particularly near Idaho City, Crouch, and Placerville.

3.6 - Water Resources

Within Boise County is the Payette River Basin. The largest tributaries of the Payette River drainage system include Alder Creek, Clear Creek, and Deadwood River. The Payette River also has several tributaries including the Gold Fork, Lake Fork, North Fork, Deadwood, Middle Fork, and South Fork. The Middle Fork of the Payette River is a tributary of the South Fork. The South Fork and its tributaries drain to the north. Draining downstream, the river continues from the reservoir to the Snake River. The Payette River and its tributaries are used expansively for recreation and irrigation purposes. Most water source supplies come from the Payette River and are stored in reservoirs.

Within the center of the county are the Grimes and Mores Creeks, which flow south and join the Boise River at the southern boundary of the county. Granite and Clear Creeks are the main tributaries of Grimes Creek.

Elk Creek is the principle tributary of Mores Creek. Both the North Fork of the Boise River and its tributaries flow into southern Boise County. In addition to these surface waters, there are 12 geothermal springs.

Groundwater sources also exist within the county. Within the Horseshoe Bend area, there is an aquifer that was used by the City until the installation of a surface water treatment plant. Most wells that still acquire water from this aquifer are for domestic purposes. This includes School District No.

73, which can pump up to 150 gallons per minute. In both the Payette and Boise River basins, water provides the foundation for irrigated agriculture. It also supplies the energy needed for hydroelectric power sites within the County. In addition, a large portion of County residents rely on private wells for domestic use. There are over 2,600 wells within the County, the majority of which are domestic single residence. Other uses include exploration, monitoring, municipal, and public water supply uses.

Figure 3: Surface Water and Watersheds

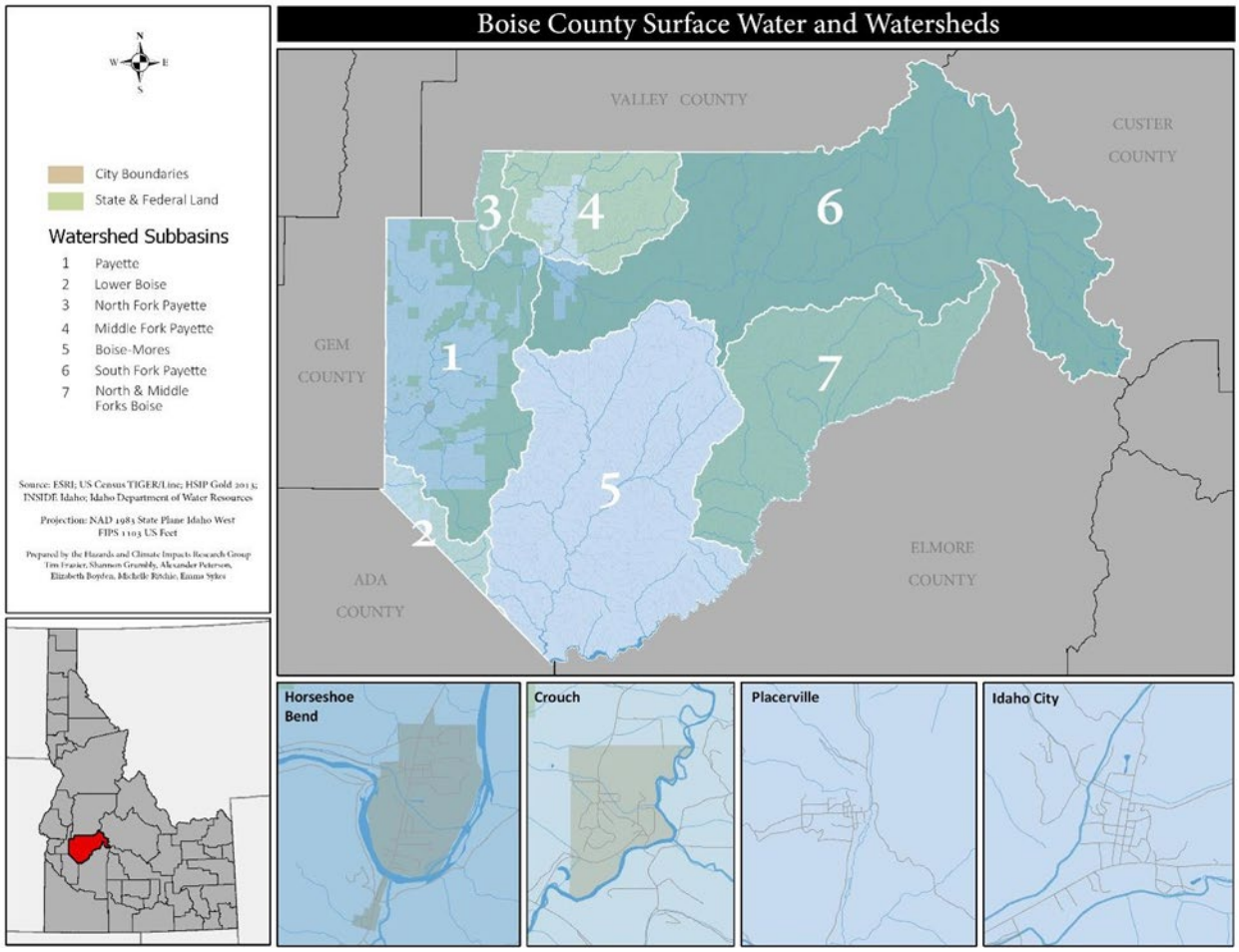
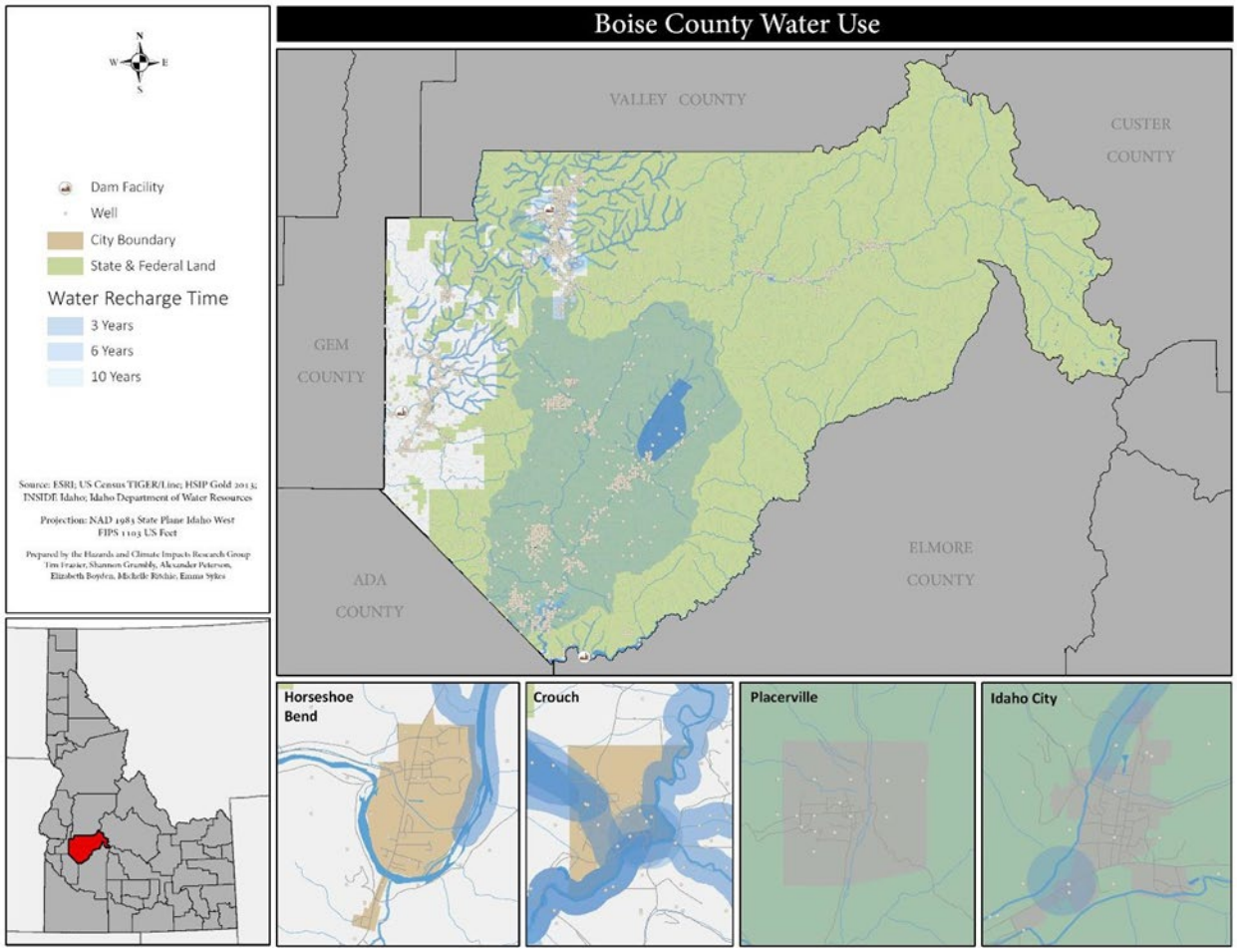


Figure 4: Surface Water Use



3.7 Critical Wildlife Habitat

Boise County has diverse habitats that support around 210 bird species, 70 types of mammals, and 24 kinds of reptiles and amphibians. These wildlife populations exist thanks to natural habitats, human impact, and changes from different land-use practices. While the U.S. Forest Service mainly works to conserve local wildlife habitats, the Idaho Department of Fish and Game oversees the county's wildlife populations.

Boise National Forest, covering about 964,000 acres with 579,500 acres of vegetation, is the County's main wildlife habitat. Recognizing its importance as a wintering area helps protect wildlife from negative effects caused by human activities like snow machines and dogs, which can reduce local populations.

Large, small, and upland game bird species found within the County include the blue grouse, spruce grouse, chukar partridge, gray (Hungarian) partridge, California quail, and mountain quail. Raptor

species include the golden eagle, osprey, goshawk, prairie falcon, red-tailed hawk, and wintering bald eagles along the South Fork of the Payette River.

There are approximately 40 lakes in Boise County, providing habitat for waterfowl in addition to rivers and streams. These waterfowl species include the Canada goose, mallard, gadwall, and common merganser. Few goldeneye and bufflehead also nest at high elevations. Other common bird and mammal species within the county include the flicker, woodpecker, raven hair woodpecker, steller's jay, dipper, snowshoe hare, cottontail rabbit, badger, beaver, porcupine, skunk, northern water shear, pine marten, and big brown bat. The County's streams and reservoirs also provide for a diverse aquatic habitat, supporting a variety of fish species. These include the cutthroat, rainbow, brook bull trout, steelhead trout, northern squawfish, and sculpins. Trout can also be found within the county in the cold, clear streams of the Boise and Payette River drainages.

Wildlife areas are sensitive to the feeding and migration needs of species are also noted as needing protection from over-development. For example, the Greater Sage Grouse Conservation Plan details that portions of the Boise National Forest that comprise moderate to high value wildlife habitat will be monitored to assess condition within the Sage Grouse Management Area. Other projects currently underway include the High Valley Integrated Resource Project, Becker Integrated Resource Project, Bogus Basin Forest Health Project, and Williams Creek Project **(U.S. Forest Service).**

3.8 - Land Cover

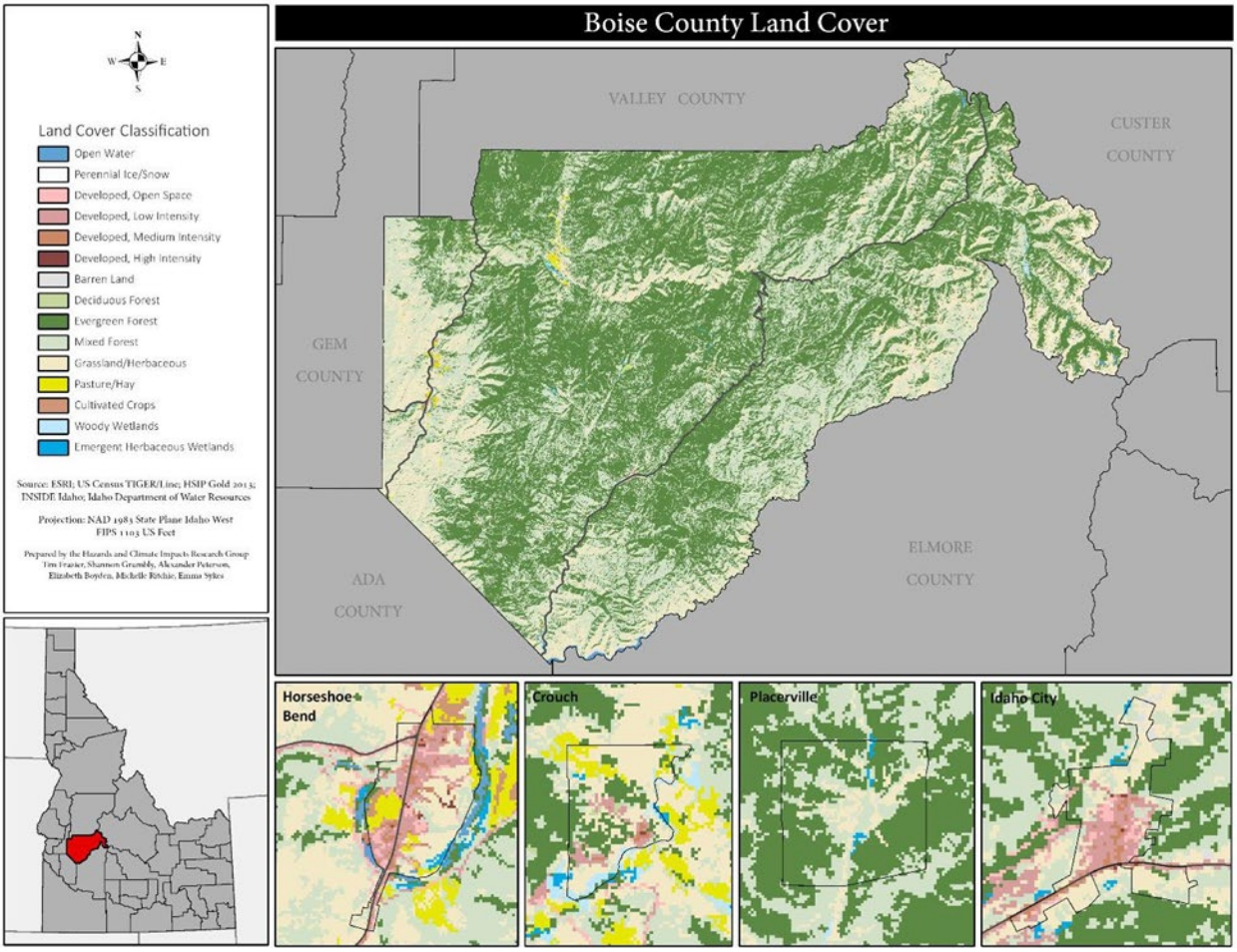
Boise County contains 15 classified land cover types according to the 2006 National Land Cover Database. Table 2 provides each land cover type along with a description, while Figure 5 shows land cover across the County.

Table 02: Land Cover Types

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

Cultivated Crops	Areas used for the production of annual crops, such as corn, soybeans, vegetables, tobacco, and cotton, and also perennial woody crops such as orchards and vineyards. Crop vegetation accounts for greater than 20% of total vegetation. This class also includes all land being actively tilled.
Woody Wetlands	Areas where forest or shrubland vegetation accounts for greater than 20% of vegetative cover and the soil or substrate is periodically saturated with or covered with water.
Emergent Herbaceous Wetlands	Areas where perennial herbaceous vegetation accounts for greater than 80% of vegetative cover and the soil or substrate is periodically saturated with or covered with water.

Figure 5: Land Cover Map



3.9 - Modern Growth and Infrastructure Development (1950–Present)

Construction of Arrowrock Dam (1915) and Lucky Peak Dam (1955) improved flood control and water management downstream. Since 2000, Boise County has experienced steady growth driven by recreation, tourism, second-home development, retirees, and commuters from the Treasure Valley. Development has largely occurred in forested and river-adjacent areas with limited access and infrastructure redundancy.

3.10 - Jurisdiction Participation

The hazard mitigation planning process is built on the participation of the County and the incorporated cities within its boundaries.

Table 03: Jurisdictional Participation

Name	2005 Participation	2017 Participation	2025 Participation
Boise County	Yes	Yes	Yes
City of Crouch	Yes	Yes	Yes
City of Horseshoe Bend	Yes	Yes	Yes
Idaho City	Yes	Yes	Yes
City of Placerville	Yes	Yes	Yes

3.11 - Community Profiles

Idaho City (County Seat)

2020 Population: 466 **(US 2020 Census Bureau)**

Idaho City serves as the county seat and primary governmental center for Boise County. The city retains a strong historic character, with numerous structures listed on the National Register of Historic Places.

Primary Hazard Concerns:

- Wildfire
- Severe winter storms
- Limited evacuation routes

Horseshoe Bend

2020 Population: 715 **(US 2020 Census Bureau)**

Horseshoe Bend is located along State Highway 55 and functions as a gateway community between Boise County and the Treasure Valley.

Primary Hazard Concerns:

- Flooding along the Payette River
- Wildfire
- Transportation corridor disruptions

Crouch/Garden Valley

Estimated Population: 731 **(US 2020 Census Bureau)** (Seasonal Estimates: 1000)
Crouch/Garden Valley is a recreation-oriented community located along the South Fork of the Payette River and experiences significant seasonal population increases.

Primary Hazard Concerns:

- Flooding
- Wildfire
- Seismic
- Limited emergency access

Placerville

Status: Unincorporated community
Population: 48 **(US 2020 Census Bureau)**

Placerville is a historic mining community located in the Boise Basin with limited modern development.

Primary Hazard Concerns:

- Wildfire
- Landslides
- Winter storm isolation

3.12 - Governance and Emergency Management

Boise County operates under a three-member Board of County Commissioners and provides emergency management services to unincorporated communities, including Crouch and Placerville. Idaho City and Horseshoe Bend maintain municipal governments and coordinate closely with the County.

Emergency services are coordinated through Boise County Emergency Management, working with local fire districts, law enforcement, the Idaho Office of Emergency Management, and FEMA Region X.

3.13 - Demographics and Housing

Table 04: Boise County Population Trend

Year	Population	Source
2000	6,670	U.S. Census Bureau
2010	7,028	U.S. Census Bureau
2020	7,459	U.S. Census Bureau
2022 (est.)	7,793	U.S. Census Bureau ACS
2023 (est.)	7,816	Idaho Department of Labor
2025 (est.)	8,602	Idaho Department of Labor

Seasonal and recreational housing accounts for approximately **24 percent of housing units**, increasing summer population during peak wildfire season.

Table 05: Housing Characteristics, Housing Occupancy

Housing Types	Units	Percent
Owner-Occupied	3,120	63%
Renter-Occupied	640	13%
Seasonal/Recreational	1,180	24%

US Census Bureau, 2022 ACS

3.14 - Land Use and Development Patterns

Private development is constrained by extensive public land ownership and rugged terrain. Residential growth has primarily occurred in river valleys and forested subdivisions, increasing exposure to wildfire, flooding, and access-related hazards.

Table 06: Land Ownership and Development Patterns in Boise County

Ownership	Percent
Federal	75% (Estimated)
State	10% (Estimated)
Private	15% (Estimated)

BLM Surface Management Agency; Idaho Department of Lands

Chapter 4
Risk Assessment Overview
Hazard Profiles

John Melland: Picture taken near Kirkham campground and hot spring.

Overview

The Risk Assessment identifies the hazards that can affect jurisdictions participating in the mitigation plan. It analyzes each of these hazards with respect to: where each hazard might affect the planning area (location); its potential magnitude (extent); how often events have happened in the past (previous occurrences); how likely they are to occur in the future (future probability); what parts of the community are most likely to be affected (vulnerability); and the potential consequences (impacts).

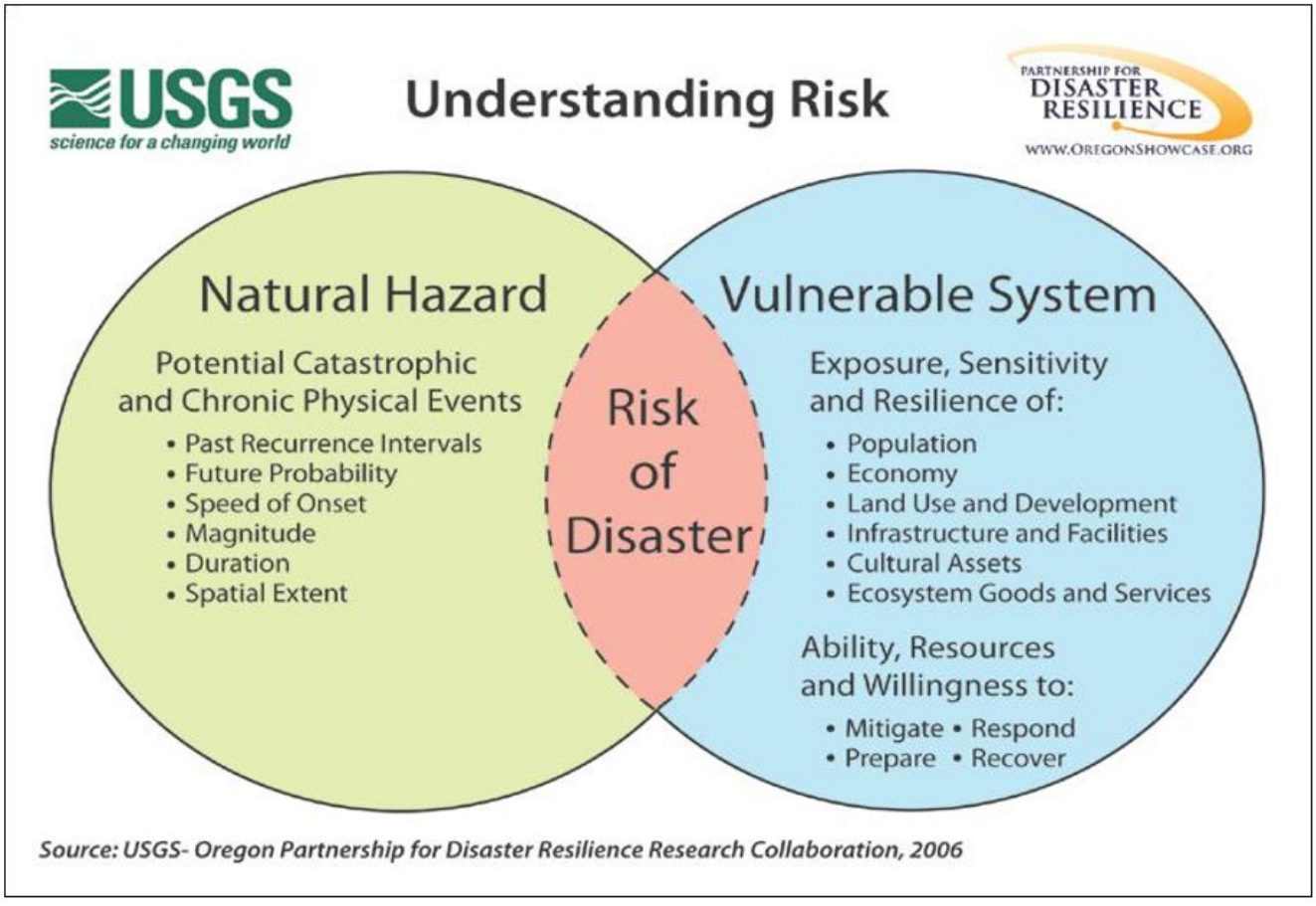
There is no prescribed method for how to present this information, and the location, extent, previous occurrences and future probability can be described or presented in a way that satisfies all requirements together. For example, for some hazards, one map with explanatory text could provide information on location, extent and future probability.

Risk Assessments provide the factual basis for activities proposed in the strategy to reduce losses from identified hazards. Therefore, it is very important to use current and accurate information, even if the most sophisticated technology is not available for conducting the analysis of that information. This analysis provides the basis for the actions in the Mitigation Strategy, so local risk assessments must provide sufficient information to enable the jurisdiction to identify and prioritize appropriate mitigation actions to reduce losses from identified hazards. Risk Assessments need to clarify the connection between the vulnerabilities identified for participating jurisdictions and the actions they will take to reduce losses to people and property.

Risk Assessments are not a static part of the plan. Conditions such as the climate, population demographics and land use change over time, and the Risk Assessment must consider how these changes will alter the jurisdiction's vulnerabilities to future hazard events. The mitigation planning regulation **(44 CFR § 201.6(c)(2)(i)) and (d)(3))** require a consideration of the probability of future hazard events, and requires plan updates to reflect changes in development. Both are critical to the risk profile. Climate change is making many types of hazards more frequent and extreme. Every community may experience impacts differently, depending on its geographic location and its own land use and development patterns. While many places see more

frequent and intense rainfall leading to more severe flooding, with rising sea levels contributing to more frequent and intense coastal flooding and storm surge, other places are suffering from more severe drought because of increased temperatures and decreased precipitation, creating conditions that favor wildfires. A higher annual number of extremely hot and cold days may cause communities to consider how to reduce their impact on vulnerable populations. Warmer temperatures provide more energy for thunderstorms and tornados. Warmer ocean waters fuel the energy of tropical weather, and coastal areas are seeing more destructive storms, including hurricanes and nor'easters. Local mitigation planning is an opportunity to carefully understand the best available information about future risks and translate it into meaningful actions in the present to reduce those risks. **FEMA – Local Mitigation Planning Policy guide: April 2023 (See FEMA's Risk Assessment Element Requirements in Appendices)**

Figure 6: Understanding Risk



FEMA – Local Mitigation Planning Policy guide: April 2023

4.1 - Wildland Fire Profile

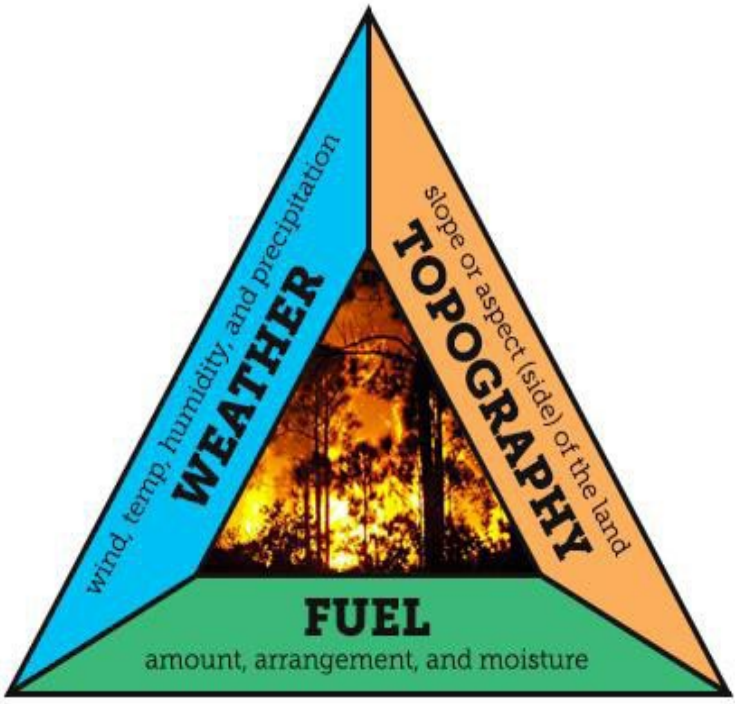
Boise County has experienced numerous wildland fires, commonly called wildfires. Similar to other counties in Idaho, Boise County faces significant wildfire risks that threaten its residents, buildings, and natural resources. Wildfires are an annual concern with the potential for severe impacts. The 2025 plan update includes the County's Community Wildfire Protection Plan (CWPP) 2023, which can be found in the Appendices.

4.1.1 - Wildland Fire Characteristics

Wildland fire behavior is shaped by the complex interaction of three key factors: fuels, topography, and weather. These elements form what is commonly referred to as the *Fire Behavior Triangle* (Figure ??), and any change in one component can significantly influence the effects of the others. Understanding how these factors interact is critical not only for managing active wildfires but also for developing effective strategies to reduce wildfire risk. Of these three components, fuel is the only one that land managers can directly modify. Therefore, decisions regarding fuel type and distribution, such as reducing fuel loads or altering vegetation—must be made with careful consideration of the region's climate and terrain. Proactive measures like creating strategic fuel breaks, restoring native plant species, and conducting prescribed burns are all examples of fuel management practices that can help mitigate wildfire threats and improve the ability to predict fire

behavior. The following section provides a brief overview of each element of the fire environment and how it influences fire dynamics.

Figure 7: Fire Behavior



Source: www.weatherstem,com

Weather

Fire behavior is predominantly influenced by weather conditions. Factors such as wind, moisture levels, temperature, and relative humidity determine the drying rates of fuels and the curing of vegetation. The ignition potential of fuels is also influenced by th ther patterns and trends can help predict how likely it is for a certain fuel type to ignite and sustain a fire. Once ignited, wildfire behavior is further affected by atmospheric stability and local and regional weather conditions. Temperature, wind speed, wind direction, precipitation, storm systems, and prevailing winds all impact fire behavior, making weather the most challenging component of the fire triangle to predict and interpret. For instance, during the Yarnell Hill fire in Arizona, which resulted in the deaths of 19 firefighters, a storm cell caused the flaming front to change direction abruptly by 90 degrees and accelerated up to speeds of 10 to 15 mph.

Topography

The burning behavior of fires in similar fuel types varies significantly under different topographic conditions. Topography plays a crucial role in influencing both heat transfer and localized weather patterns, which in turn affect vegetative growth and the accumulation of fuels across a landscape. The characteristics of slopes and their aspects are especially important in determining fire dynamics.

Northern slopes are typically cooler and wetter, making them more productive sites for vegetation. These conditions lead to the build-up of substantial fuel loads, but with higher moisture levels, slower curing rates, and ultimately lower rates of fire spread. On the other hand, southern and western slopes are exposed to more direct sunlight, resulting in higher temperatures and lower soil and fuel moisture content. This exposure produces lighter fuels that are more prone to burning rapidly. Consequently, fires on these slopes tend to spread more quickly and are more intense.

Additionally, southern and western slopes are often found on the windward side of mountains, which expose them to prevailing winds and extends the period during which these areas are susceptible to burning throughout the year. The steepness of a slope also directly influences fire spread. Fuels located upslope from an advancing fire front are preheated as the fire approaches, and this preheating effect increases with the steepness of the slope. The result is higher rates of fire spread and longer flame lengths on steeper inclines. Therefore, steep slopes with a south-southwest aspect typically experience the most intense fire behavior due to the combination of dry fuels and prevailing westerly winds.

Fuels

In the context of wildfires, fuels refer to any organic material, whether living or dead, found within the fire environment. Examples of fuel types include grass, brush, branches, logs, logging slash, forest-floor litter, conifer needles, and buildings. The physical properties and characteristics of these fuels dictate how fires behave and spread. Factors such as fuel loading, size and shape, moisture content, continuity, and arrangement significantly influence fire behavior. Generally, smaller and finer fuels facilitate a faster potential rate of fire spread. Small fuels, including grass, needle litter, and other fuels less than a quarter inch in diameter, are primarily responsible for fire propagation. Fine fuels, characterized by high surface-to-volume ratios, are considered the main carriers of surface fires. Conversely, larger fuels tend to decrease the rate of spread due to a lower surface-to-volume ratio, resulting in slower-burning fires that release greater energy and burn with higher intensity, making them more challenging to control.

Fuels are classified by their diameter, which has important implications for fuel moisture retention. Smaller diameter fuels experience quicker changes in moisture content, whereas larger diameter fuels take longer to change. In terms of fire potential on the landscape and fire suppression efforts,

the time required for a fuel type to become volatile is critical. Therefore, instead of classifying fuels by size alone, they are categorized as one-hour, ten-hour, 100-hour, or 1000-hour fuels. This classification method describes the time needed for a particular fuel's status to transition from non-combustible to combustible due to altered moisture levels in the surrounding environment.

4.1.2 - Wildland Fire – History and Mitigation Context

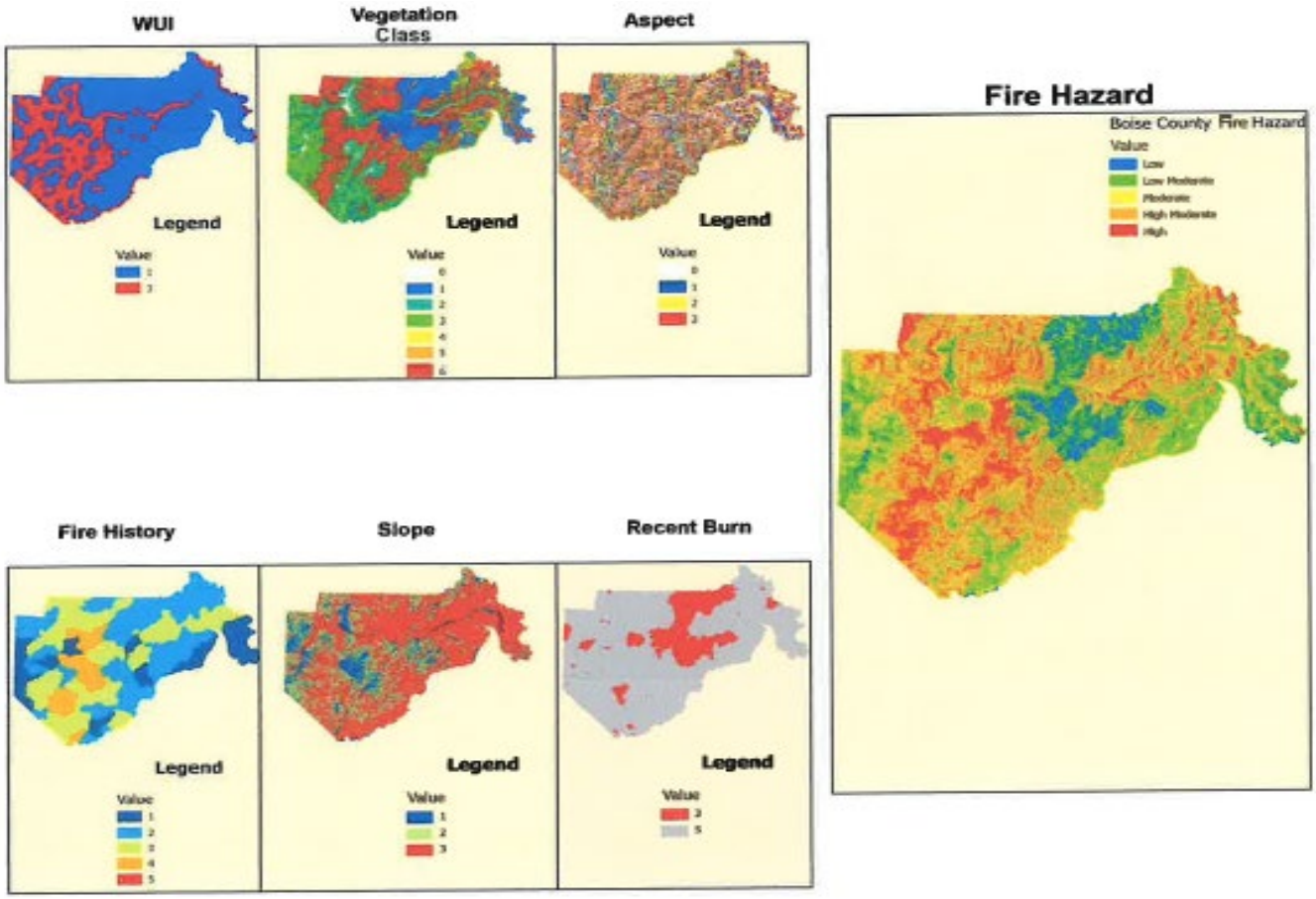
Hundreds of wildfires burned more than 840,000 acres across Boise County from 1980 to the present. Wildfire is an annual event in Boise County, as it is in many counties across the state.

Table 07: Wildfire Summary

Year	Occurrences	Presidential Disaster Declarations	Acres Burned	Approximate Damages
1980-2005	131	1	362,993	$86,000,000
2006-2016	214	5	203,108	$370,000,000
2017-2024	382	1	270,899.4	$19,000,000
Total	**727**		**840,000.4**	**$473,000,000**

Sources: FEMA, IDL, US Forest Service, IOEM

Figure 8: Fire Hazards Maps



Source: Boise County CWPP 2024

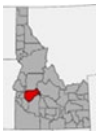


Figure 9: Wildfire Risk Model Map

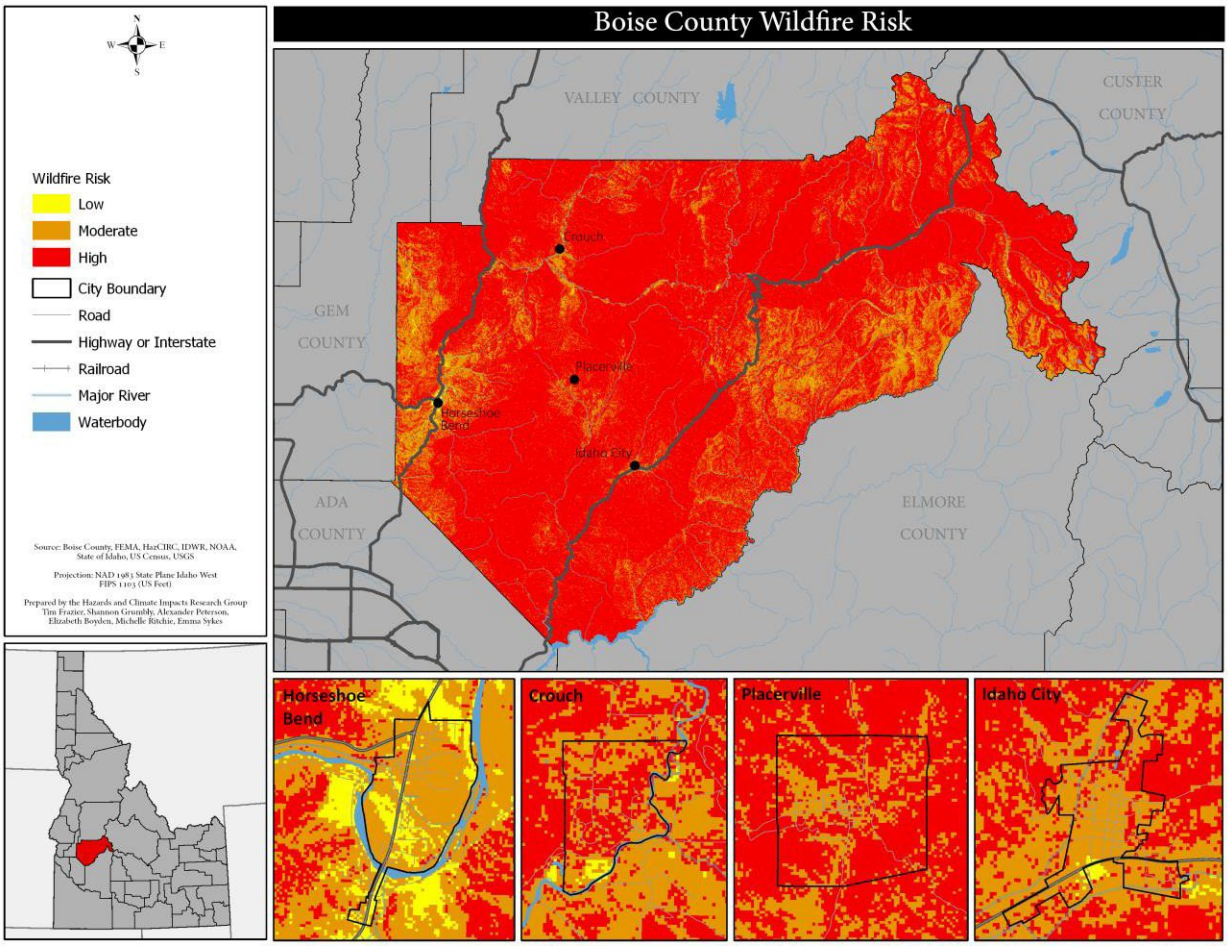
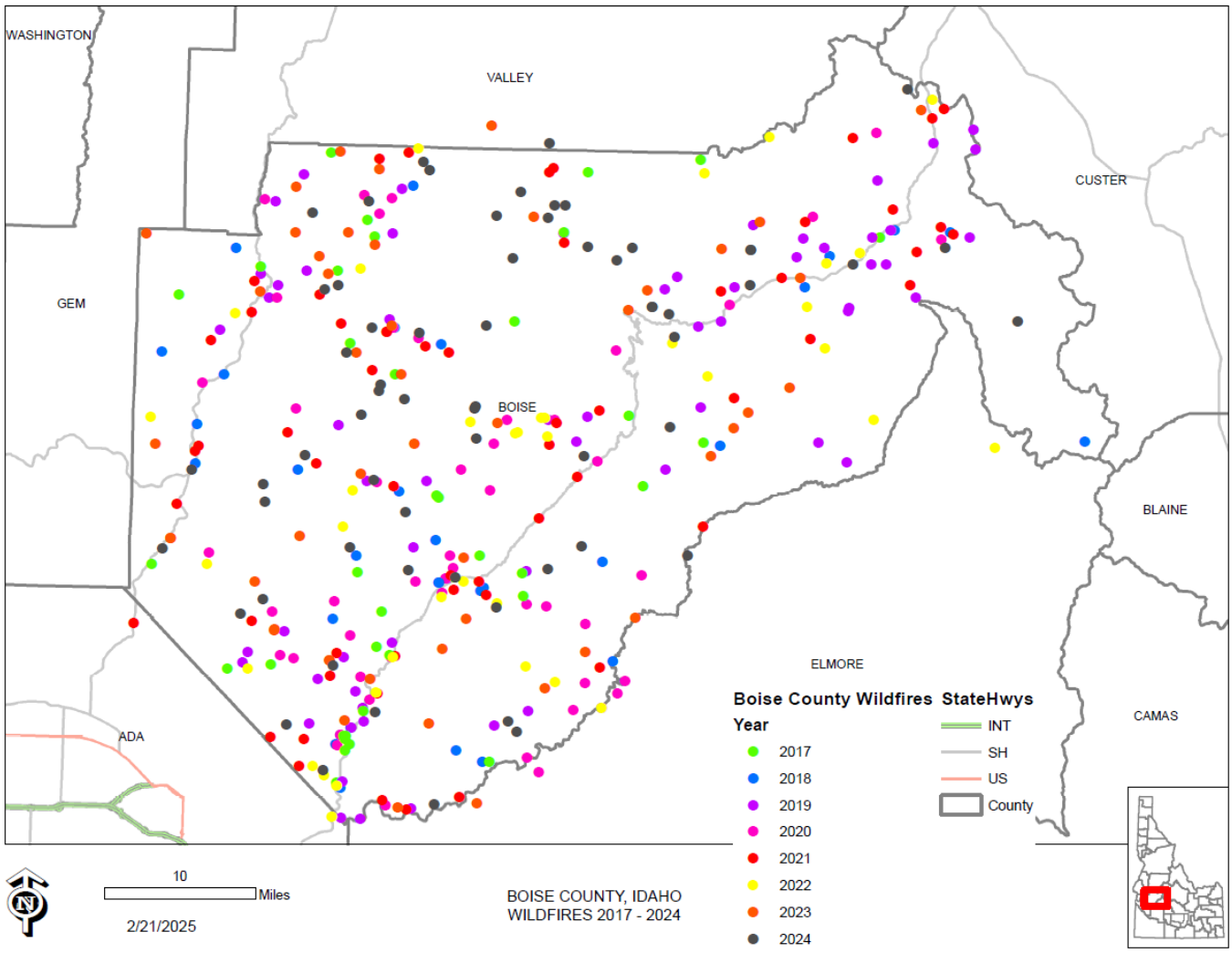


Figure 10: Boise County Wildland Fires 2017-2024



Source: Idaho Department of Lands

Table 08: 2017 All Wildfires

Number	Start Date	Acres	Fire Cause	Incident/Name
1	2017-05-28	0.10	Human	Granite
2	2017-06-24	0.21	Human	Chaparral
3	2017-06-25	0.25	Human	Ra1 Boise Co
4	2017-06-27	0.10	Natural	Soldier
5	2017-06-27	0.50	Natural	Shadow

6	2017-06-27	1.00	Natural	Scriver
7	2017-06-28	0.10	Natural	Soldier
8	2017-06-28	0.10	Human	Daniel
9	2017-07-05	0.34	Human	Henry
10	2017-07-08	0.10	Unknown	Ra 3 Ada Co
11	2017-07-09	0.30	Human	Easley
12	2017-07-20	68.00	Human	Wapiti
13	2017-07-26	0.10	Natural	Willow Creek
14	2017-07-27	0.10	Human	Knife Ridge
15	2017-07-30	4.30	Human	Burnett
16	2017-07-31	0.10	Human	Mm82 Hwy55
17	2017-08-25	0.10	Natural	Grayback
18	2017-08-20	0.10	Human	Meadow Creek
19	2017-08-24	0.17	Natural	Wash
20	2017-08-26	0.10	Natural	Horse
21	2017-08-27	24.30	Human	Stierman
22	2017-08-27	24.50	Human	Stierman
23	2017-08-30	0.10	Natural	South Fork
24	2017-08-30	10.60	Natural	Boulder
25	2017-08-30	6.10	Natural	Rim
26	2017-08-31	0.25	Natural	Dunigan
27	2017-08-31	0.10	Natural	Bog
28	2017-09-10	0.25	Natural	Owl Creek
29	2017-09-14	30.00	Human	Twin
30	2017-09-24	0.10	Natural	Rattlesnake
31	2017-09-27	0.80	Human	Duquette
32	2017-10-03	0.10	Natural	Rush

33	2017-10-18	0.10	Unknown	Ra 2 Boise Co
34	2017-12-07	0.10	Human	Airport

Table 09: 2018 All Wildfires

Number	Start Date	Acres	Fire Cause	Incident/Name
1	2018-02-13	11.90	Human	Russell
2	2018-04-27	0.34	Human	Landing Zone
3	2018-05-24	0.60	Natural	Lightning
4	2018-05-28	0.10	Natural	Hawley
5	2018-05-28	0.18	Natural	Pine
6	2018-05-29	1.69	Natural	Goat
7	2018-06-04	0.10	Human	Dry
8	2018-06-17	0.10	Human	Ten
9	2018-06-24	65.00	Human	Twin
10	2018-07-05	0.10	Human	Bonjour
11	2018-07-15	524.06	Human	Mm21 Hwy 21
12	2018-07-20	0.10	Human	Waverly
13	2018-07-21	2.70	Human	Elk Run
14	2018-07-21	0.10	Human	Wolf
15	2018-07-25	4,636.97	Human	Mm73 Hwy55
16	2018-07-28	0.10	Human	Cedar
17	2018-08-05	0.20	Human	Spanish
18	2018-08-10	0.10	Human	Long Haul
19	2018-08-12	0.10	Human	Grapine
20	2018-08-25	4,571.00	Unknown	Wapiti
21	2018-08-28	1.30	Human	Steamboat
22	2018-09-01	0.10	Unknown	River Run

23	2018-09-06	115.00	Natural	Casner
24	2018-09-07	0.30	Natural	Abby
25	2018-09-07	26.00	Natural	German
26	2018-09-15	0.13	Human	Wet
27	2018-09-18	7.50	Human	Mm65 Hwy55
28	2018-09-24	0.14	Human	Buck
29	2018-10-01	0.12	Unknown	Cottonwood

Table 10: 2019 All Wildfires

Number	Start Date	Acres	Fire Cause	Incident/Name
1	2019-04-19	0.01	Human	Rim
2	2019-05-03	0.20	Human	Meadow
3	2019-05-26	0.10	Human	Shot Gun
4	2019-06-02	0.11	Natural	Pine
5	2019-06-02	0.10	Natural	Pikes
6	2019-06-06	0.40	Natural	Haga
7	2019-07-07	0.10	Natural	Badger
8	2019-07-11	0.26	Human	Roundup
9	2019-07-14	326.68	Human	Canyon
10	2019-07-24	0.01	Human	Lower
11	2019-07-27	0.11	Human	Turner
12	2019-07-29	0.25	Natural	Chapman
13	2019-07-29	0.10	Natural	Hunter
14	2019-07-29	0.10	Natural	Taylor
15	2019-07-29	0.10	Natural	Ten Mile
16	2019-07-29	0.25	Natural	Mcdonald
17	2019-07-29	0.10	Natural	Owl

18	2019-07-29	0.25	Natural	Bluejay
19	2019-08-01	105.62	Human	Shores
20	2019-08-01	150.00	Human	Lucky
21	2019-08-02	12.61	Natural	Lizzy
22	2019-08-02	0.10	Natural	Eight
23	2019-08-02	3.00	Natural	Nine
24	2019-08-03	3.56	Natural	Wolf
25	2019-08-03	1.20	Unknown	Lake
26	2019-08-09	0.20	Natural	Fence
27	2019-08-09	0.10	Natural	Lightning
28	2019-08-10	0.10	Natural	Sawtooth
29	2019-08-10	0.10	Natural	Hanging
30	2019-08-10	0.10	Natural	Fivemile
31	2019-08-10	0.10	Natural	Warm
32	2019-08-10	0.10	Natural	Miller
33	2019-08-10	0.10	Natural	Ponderosa
34	2019-08-10	0.10	Natural	Casner
35	2019-08-11	0.11	Natural	Lewis
36	2019-08-11	0.92	Natural	Avelene
37	2019-08-11	0.01	Natural	Mm26 Hwy21
38	2019-08-11	0.10	Natural	Howell
39	2019-08-13	0.10	Natural	Elk
40	2019-08-14	0.50	Human	Mm24 Hwy21
41	2019-08-17	0.40	Natural	Quartz
42	2019-08-17	0.10	Human	Pats
43	2019-08-19	0.10	Human	Beach
44	2019-08-21	0.75	Natural	Pilot

45	2019-08-26	0.13	Under Investigation	Haven
46	2019-08-26	0.76	Human	Ranft
47	2019-08-30	78.00	Unknown	Mm2 Hwy17
48	2019-09-01	0.10	Human	Mm80 Hwy21
49	2019-09-05	0.10	Human	Archie
50	2019-09-05	3.00	Natural	Eddy
51	2019-09-05	0.10	Natural	John
52	2019-09-06	0.10	Natural	Willow
53	2019-09-06	0.10	Natural	Milk
54	2019-09-06	0.10	Human	Airport
55	2019-09-06	0.10	Natural	Douglas
56	2019-09-06	0.10	Natural	Sawmill
57	2019-09-06	0.11	Natural	Kelly
58	2019-09-07	0.10	Unknown	Hoodoo
59	2019-09-07	0.25	Natural	Rocky
60	2019-09-12	0.10	Unknown	Mm1 Hwy17
61	2019-10-01	0.10	Natural	Phillips
62	2019-10-15	0.50	Human	Range
63	2019-10-29	0.10	Human	Nellies

Table 11: 2020 All Wildfires

Number	Start Date	Acres	Fire Cause	Incident/Name
1	2020-02-24	0.10	Human	Mm27 Hwy21
2	2020-03-23	0.10	Human	Wildcat
3	2020-04-09	1.00	Human	Foxburro
4	2020-04-17	0.50	Human	Evergreen

5	2020-04-19	46.54	Human	West Slope
6	2020-04-20	0.10	Human	Slide
7	2020-05-02	0.10	Natural	Gregory
8	2020-05-03	0.10	Human	Irish
9	2020-05-03	9.49	Natural	Pinney
10	2020-05-04	1.00	Human	Saw
11	2020-05-09	0.10	Human	Stierman
12	2020-06-28	0.10	Human	Archie
13	2020-07-16	0.10	Human	Nelson
14	2020-07-25	0.30	Human	Rush
15	2020-07-25	0.30	Human	River Run
16	2020-07-27	79.04	Human	Golden
17	2020-07-27	40.82	Natural	Warm
18	2020-07-28	0.25	Natural	Eights
19	2020-07-29	0.50	Natural	Thompson
20	2020-07-31	0.25	Human	Rabbit
21	2020-08-03	4.00	Natural	Howell
22	2020-08-06	0.50	Natural	Shafer
23	2020-08-06	438.50	Natural	Pumpkin
24	2020-08-06	2.80	Natural	Bogus
25	2020-08-06	0.25	Natural	Meadow
26	2020-08-06	0.10	Natural	Hungarian
27	2020-08-06	0.10	Natural	Clear
28	2020-08-06	0.48	Natural	Milk
29	2020-08-07	0.25	Natural	Ross
30	2020-08-09	2.00	Human	Scriver
31	2020-08-09	0.10	Natural	Coulter

32	2020-08-13	1.40	Human	Cemetary
33	2020-08-22	4.51	Human	Bend
34	2020-08-23	1.00	Human	River
35	2020-08-25	0.10	Natural	Deer Valley
36	2020-08-26	0.10	Human	Gate
37	2020-08-26	0.50	Natural	Knife
38	2020-08-26	2.23	Natural	Badger
39	2020-08-27	0.20	Natural	Thorn
40	2020-09-05	0.10	Human	Summit
41	2020-09-11	0.90	Human	Boothill
42	2020-09-20	6.40	Human	Mm3 Hwy17
43	2020-10-03	0.10	Human	Mm53 Hwy21
44	2020-10-05	1.50	Human	Ophir
45	2020-10-05	0.10	Human	Logger
46	2020-10-17	0.57	Human	Fence
47	2020-10-29	1.00	Human	Springs
48	2020-11-01	0.22	Human	Fox

Table 12: 2021 All Wildfires

Number	Start Date	Acres	Fire Cause	Incident/Name
1	2021-02-08	0.10	Human	California
2	2021-03-29	0.10	Human	Mm78 Hwy55
3	2021-04-18	0.55	Human	Moon
4	2021-04-21	8.21	Human	Phillips
5	2021-05-11	0.10	Human	Lodge
6	2021-05-13	0.17	Human	Twenty

7	2021-05-16	0.10	Human	Vista
8	2021-05-18	0.10	Human	Eightmile
9	2021-05-27	0.10	Human	Youkon
10	2021-05-29	0.10	Human	Piney
11	2021-05-30	0.10	Human	Corral
12	2021-06-13	0.10	Human	Buttercup
13	2021-06-16	0.10	Human	Boat
14	2021-06-23	0.20	Human	Elk
15	2021-07-02	0.10	Natural	Crooked
16	2021-07-02	0.10	Natural	Wolf
17	2021-07-06	17.36	Natural	Harris
18	2021-07-06	0.10	Natural	Freeman
19	2021-07-07	8.00	Natural	Warm
20	2021-07-24	0.10	Human	Spring
21	2021-07-25	2.00	Human	Rocky
22	2021-07-28	921.17	Natural	Deer
23	2021-07-30	0.10	Natural	Canyon
24	2021-08-01	0.25	Natural	Shank
25	2021-08-01	0.60	Natural	Maria
26	2021-08-01	0.10	Natural	Slim
27	2021-08-01	0.10	Natural	Scriver
28	2021-08-01	0.10	Natural	Rock
29	2021-08-01	0.10	Natural	Kirkham
30	2021-08-02	0.10	Natural	Wash
31	2021-08-02	25.88	Human	Mm66 Hwy55
32	2021-08-02	0.10	Natural	Timber
33	2021-08-03	1.00	Natural	Boom

34	2021-08-04	0.25	Human	Richard
35	2021-08-05	0.10	Natural	Jackson
36	2021-08-05	0.10	Natural	Alder
37	2021-08-06	0.50	Human	Carpenter
38	2021-08-06	0.10	Natural	Sugarloaf
39	2021-08-07	0.10	Natural	Wapiti
40	2021-08-08	0.50	Natural	Frenchie
41	2021-08-10	48.00	Natural	Smith
42	2021-08-10	0.50	Natural	Packsaddle
43	2021-08-10	0.10	Human	Mores
44	2021-08-11	0.30	Natural	Whiskey
45	2021-08-19	0.50	Human	Grimes
46	2021-08-22	0.10	Natural	Lost
47	2021-08-22	0.10	Human	Wetgulch
48	2021-08-19	0.75	Natural	Fox
49	2021-08-24	0.10	Human	Camp
50	2021-08-27	0.10	Human	Highland
51	2021-09-05	0.10	Human	Mm103 Hwy21
52	2021-09-08	0.30	Human	Grandjean
53	2021-09-17	0.10	Human	Ra 6 Boise Co
54	2021-09-17	100.00	Human	Mm55 Hwy55
55	2021-09-19	0.10	Human	Charter
56	2021-09-19	0.10	Human	Toll
57	2021-10-04	0.10	Human	Arrowrock
58	2021-10-21	1.10	Human	Valley
59	2021-10-23	0.28	Human	Five
60	2019-11-25	1.21	Human	Robie

Table 13: 2022 All Wildfires

Number	Start Date	Acres	Fire Cause	Incident/Name
1	2022-03-25	6.00	Human	GRADE
2	2022-07-02	0.10	Human	OSPREY
3	2022-08-05	10.80	Human	SPRING
4	2022-08-05	0.10	Human	MM20 HWY21
5	2022-08-13	0.10	Human	RA 6 BOISE CO
6	2022-08-16	0.10	Human	BARKA
7	2022-08-17	0.10	Human	Three Island Lake
8	2022-08-19	0.10	Natural	MORES
9	2022-08-20	0.10	Natural	FORK
10	2022-08-20	0.10	Natural	MANNING
11	2022-08-20	0.10	Natural	HORSE
12	2022-08-21	0.10	Natural	THORN
13	2022-08-21	1.00	Natural	BALD
14	2022-08-21	0.75	Natural	HUCKLEBERRY
15	2022-08-20	0.25	Natural	TENMILE
16	2022-08-22	10.00	Natural	CANYON
17	2022-08-22	0.25	Natural	LOST
18	2022-08-20	0.10	Natural	BEARCUB
19	2022-08-22	0.10	Human	RA 8 BOISE CO
20	2022-08-23	1.00	Natural	JUNGLE
21	2022-08-27	0.20	Natural	GOTCH
22	2022-09-03	0.10	Human	BELL
23	2022-09-08	0.20	Human	ROCKY

24	2022-09-16	0.10	Natural	ROBIE
25	2022-09-19	0.10	Human	LITTLEDEER
26	2022-09-29	0.60	Human	CALI
27	2022-10-06	2.70	Human	ELK
28	2022-10-06	2.20	Human	GRIMES
29	2022-10-06	2.20	Human	NORTHFORK
30	2022-10-06	0.10	Human	SMITH
31	2022-10-07	0.10	Human	WILSON
32	2022-10-07	0.10	Human	SMITH 2
33	2022-10-11	0.10	Natural	PUNGO
34	2022-10-11	0.60	Human	WARM
35	2022-10-16	48.40	Human	TENNER
36	2022-10-20	0.25	Human	RA 9 BOISE CO
37	2022-10-28	0.25	Human	HAGA

Table 14: 2023 All Wildfires

Number	Start Date	Acres	Fire Cause	Incident/Name
1	2023-05-22	0.10	Human	SPRINGS
2	2023-05-26	0.10	Natural	MILLER
3	2023-06-04	0.10	Natural	WESCRO
4	2023-06-10	0.10	Natural	HORSEMAN
5	2023-06-25	43.60	Human	MM59 HWY55
6	2023-06-27	0.10	Natural	CHARTERS
7	2023-06-30	0.10	Natural	ABBY
8	2023-06-30	1.60	Natural	BOYLES
9	2023-07-02	0.10	Human	ARROW

10	2023-07-07	43.70	Human	MM60 HWY55
11	2023-07-13	0.10	Human	FORK
12	2023-07-15	0.10	Human	MM86 HWY21
13	2023-07-17	0.25	Natural	HORN
14	2023-07-24	0.50	Human	MISSOURI
15	2023-08-03	0.10	Natural	FIVE
16	2023-08-04	0.10	Natural	DAGGETT
17	2023-08-04	26.80	Natural	SALMON
18	2023-08-04	0.10	Undetermined	Scriver Creek
19	2023-08-06	0.25	Natural	SCRIVER
20	2023-08-06	0.10	Natural	WET
21	2023-08-06	0.25	Natural	COTTON
22	2023-08-08	0.10	Natural	SHOEMAKER
23	2023-08-09	0.10	Natural	SHAWS
24	2023-08-11	0.10	Natural	EIGHT
25	2023-08-19	0.70	Natural	WAKE
26	2023-08-19	1.80	Natural	GOOSE
27	2023-08-20	0.10	Natural	SCOTT
28	2023-08-20	0.50	Natural	PHILLY
29	2023-08-20	0.20	Natural	TIE
30	2023-08-22	0.10	Natural	GARDEN
31	2023-08-25	0.10	Natural	RA 9 BOISE CO
32	2023-08-26	0.10	Human	RABBIT
33	2023-08-26	1.20	Natural	SMITTY
34	2023-08-27	1.80	Natural	PLACER
35	2023-08-27	1.50	Natural	NORD
36	2023-08-28	0.10	Natural	SPRING

37	2023-08-28	0.10	Natural	LOG
38	2023-08-29	0.10	Natural	WOLF
39	2023-08-29	0.10	Natural	BEAR
40	2023-08-31	0.10	Natural	CROOKED
41	2023-09-09	0.10	Human	PACKSADDLE
42	2023-09-14	1.60	Natural	Howell
43	2023-09-17	1.20	Human	SMITH
44	2023-09-17	17.80	Human	GULCH
45	2023-09-25	0.10	Human	PINE
46	2023-10-02	0.10	Human	SHAFER
47	2023-10-04	0.10	Human	WESTPINE

Table 15: 2024 All Wildfires

Number	Start Date	Acres	Fire Cause	Incident/Name
1	2024-04-20	0.44	Human	TURNER
2	2024-05-09	1.50	Human	TIMBERLINE
3	2024-05-29	0.10	Natural	LAMB
4	2024-05-29	0.10	Natural	HOOVER
5	2024-05-29	0.25	Natural	KARNEY
6	2024-05-30	0.40	Natural	ALDER
7	2024-06-14	9.75	Human	MM20 HWY17
8	2024-06-15	0.10	Human	LICK
9	2024-06-18	0.10	Human	SCOTTIE
10	2024-06-23	0.25	Human	MM70 HWY55
11	2024-06-27	0.10	Natural	SLAUGHTERHOUSE
12	2024-06-27	0.10	Natural	BANNOCK

13	2024-06-27	0.30	Natural	HOOTON
14	2024-06-28	0.22	Human	MM7 HWY17
15	2024-06-29	0.10	Natural	BIRCH
16	2024-06-29	0.25	Natural	RABBIT
17	2024-07-04	8.00	Human	RA 7 BOISE CO
18	2024-07-05	2.00	Human	COLD
19	2024-07-23	23.70	Natural	SUNSET
20	2024-07-24	0.25	Natural	NELSON
21	2024-07-24	0.70	Natural	HALL
22	2024-07-25	0.10	Undetermined	STEVENS - UTL
23	2024-07-25	0.10	Undetermined	JOSIE - UTL
24	2024-07-25	0.10	Natural	HIGHLAND
25	2024-07-25	7.00	Natural	SAMS
26	2024-07-25	0.25	Natural	LITTLE
27	2024-07-25	0.25	Natural	HELENDE
28	2024-07-25	129,062.70	Natural	WAPITI
29	2024-07-26	271.00	Natural	BULLTROUT
30	2024-07-29	0.51	Natural	Warbonnet Peak
31	2024-08-05	0.10	Undetermined	BINGO
32	2024-08-05	0.10	Natural	FIVEMILE
33	2024-08-05	1,877.00	Natural	ANDERSON
34	2024-08-05	11,423.20	Natural	BULLDOG
35	2024-08-06	0.10	Natural	WASH
36	2024-08-06	0.10	Natural	COULTER
37	2024-08-06	0.10	Undetermined	SUMMIT
38	2024-08-06	3,734.00	Natural	FLAT
39	2024-08-06	0.75	Natural	WEST

40	2024-08-06	50,072.60	Natural	NELLIE
41	2024-08-06	0.10	Natural	SHANKS
42	2024-08-06	0.10	Natural	TENDER
43	2024-08-08	61,496.00	Undetermined	MIDDLE FORK COMPLEX
44	2024-08-12	0.10	Natural	SCOTT
45	2024-08-13	0.40	Natural	KETTLE
46	2024-08-17	0.10	Human	DON
47	2024-08-27	9.70	Human	PIKE
48	2024-09-02	0.10	Human	SCRIVE
49	2024-09-05	1.00	Natural	GREGG
50	2024-09-07	22.10	Human	MILLER
51	2024-09-08	4.75	Natural	WILLOW
52	2024-09-11	0.10	Natural	CROSS
53	2024-09-11	0.10	Natural	HORN
54	2024-09-11	0.10	Natural	EASTGRANEY
55	2024-09-11	0.10	Natural	HUCKLEBERRY
56	2024-09-11	0.10	Natural	KINZIE
57	2024-09-12	0.25	Natural	JACK
58	2024-09-12	0.10	Natural	SCRIVER
59	2024-09-12	0.10	Natural	MORES
60	2024-09-17	0.10	Natural	BURNS
61	2024-09-16	0.10	Natural	MONTY
62	2024-09-16	0.10	Natural	BLUEJAY
63	2024-09-18	0.20	Natural	WILDGOAT
64	2024-10-18	0.10	Human	APPLE

Table 16: 2017-2024 Wildfires Over 10 Acres

Start Date	Acres	Fire Cause	Incident/Name
2017-07-20	68.00	Human	Wapiti
2017-08-27	24.30	Human	Stierman
2017-08-27	24.50	Human	Stierman
2017-08-30	10.60	Natural	Boulder
2017-09-14	30.00	Human	Twin
2018-02-13	11.90	Human	Russell
2018-06-24	65.00	Human	Twin
2018-07-15	524.06	Human	Mm21 Hwy 21
2018-07-25	4,636.97	Human	Mm73 Hwy55
2018-08-25	4,571.00	Unknown	Wapiti
2018-09-06	115.00	Natural	Casner
2018-09-07	26.00	Natural	German
2019-07-14	326.68	Human	Canyon
2019-08-01	105.62	Human	Shores
2019-08-01	150.00	Human	Lucky
2019-08-02	12.61	Natural	Lizzy
2019-08-30	78.00	Unknown	Mm2 Hwy17
2020-04-19	46.54	Human	West Slope
2020-07-27	79.04	Human	Golden
2020-07-27	40.82	Natural	Warm
2020-08-06	438.50	Natural	Pumpkin
2021-07-06	17.36	Natural	Harris
2021-07-28	921.17	Natural	Deer
2021-08-02	25.88	Human	Mm66 Hwy55
2021-08-10	48.00	Natural	Smith

2021-09-17	100.00	Human	Mm55 Hwy55
2022-08-05	10.80	Human	SPRING
2022-08-22	10.00	Natural	CANYON
2022-10-16	48.40	Human	TENNER
2023-06-25	43.60	Human	MM59 HWY55
2023-07-07	43.70	Human	MM60 HWY55
2023-08-04	26.80	Natural	SALMON
2023-09-17	17.80	Human	GULCH
2024-07-23	23.70	Natural	SUNSET
2024-07-25	129,062.70	Natural	WAPITI
2024-07-26	271.00	Natural	BULLTROUT
2024-08-05	1,877.00	Natural	ANDERSON
2024-08-05	11,423.20	Natural	BULLDOG
2024-08-06	3,734.00	Natural	FLAT
2024-08-06	50,072.60	Natural	NELLIE
2024-08-08	61,496.00	Undetermined	MIDDLE FORK COMPLEX
2024-09-07	22.10	Human	MILLER

4.1.3 - Current Fire Mitigation and Prevention Efforts

Fire prevention and mitigation strategies in Boise County are multifaceted and involve collaboration across County, federal, state, and local partners. Here are some current fire management practices:

- Fuels Treatment – Mechanical thinning, brush removal, and firebreak creation in high-risk zones.

- Community Outreach – Fire safety education, defensible space workshops, and collaboration with homeowners in WUI areas.

- Emergency Response Coordination – Integrated response teams and incident command with federal partners during large fires.

- Firewise USA® and similar programs have been implemented in high-risk communities to improve home ignition zone management and wildfire awareness. **(NFPA Firewise USA Community List, 2024)**

- **Federal, State and Regional Partners**

    - US Forest Service (USFS) and Bureau of Land Management (BLM)
    - Idaho Department of Lands (IDL)
    - Boise County Emergency Management
    - Clear Creek Volunteer Fire Department
    - Wilderness Ranch Fire Protection District
    - Idaho City Fire Protection District
    - Garden Valley Fire Protection District
    - Thron Creek Volunteer Fire Department
    - Centerville Volunteer Fire Department
    - Robie Creek Fire Protection Department
    - Placerville Fire Protection District

4.1.4 - Challenges and Future Considerations

Despite significant progress, key challenges remain:

- WUI Growth – Increasing development in forested areas raises the stakes for fire response and mitigation.
- Climate Variability – Extended fire seasons and more extreme weather are straining existing resources.
- Sustained Funding – Long-term investment in fuels management and community preparedness is essential.
- Ongoing collaboration will be vital to achieving long-term fire resilience.

4.1.5 - Probably of Future Occurrence

Wildfires can be very expensive, but even worse they can be potentially very deadly for the residents of Boise County if they are not prepared for them. With the recent and projected population growth,

proactive mitigation steps are critical to saving lives and infrastructure.

Lightning ignitions are common in the County and typically occur along ridgetops, but human causes account for over 30% of all fires that occur within the County. These fires are often quickly controlled by local resources and rarely grow beyond an acre in size. Community educational efforts are critical to lower human caused wildfires.

Wildland fire can occur in any landscape in Boise County. A vast majority of reported fires are in the eastern or western areas of the County, where State and Federal agencies manage the land. Wildfire across Idaho is changing, coincident with drought, insects, unusual warm temperatures, and past fire suppression activities. In Idaho, various bark beetles including the western pine beetle, mountain pine beetle, Douglas-fir beetle, and fir engraver are attacking large stands of trees. Because winter is no longer cold enough and long enough to keep these beetles in check, they survive to deplete the tree of nourishment and moisture throughout the year. Affected trees usually die within two or three years. Drought stress, disease infestation, and human disturbance are further impacting wildland fire occurrence and severity.

Climate Change Impact

Climate change is projected to increase wildfire risk in Boise County through higher average temperatures, reduced snowpack, drier summer fuels, and longer fire seasons **(Source: NOAA NCEI 2023; USFS Rocky Mountain Research Station 2023).** *The US. Forest Service Wildfire Risk to Communities (2023)* identifies Boise County as part of Idaho's highest-risk wildfire corridor for mid-century. Table ?? and ??, identifies an increase in temperatures during the summer months for the past 50+ years, and an expected increase through 2050.

Table 17: Observed Climate Trends in Boise County, 1970–2023

Parameter	Observed Trend
Mean Annual Temperature	+2.3 °F since 1970
Summer Max Temp (°F)	+3.1 °F (June–Aug)
Snowpack (Apr 1 SWE)	-20% to -40%
Fire season length	+27 Days
Large fires > 1,000 ac (avg per Decade)	+3 to 9 Days

Source: NOAA 2023; USFS RMRS 2023

Table 18: Mid-Century Climate Projections for Boise County, 2025 – 2050

Climate Variable	2030 Projection	2050 Projection
Avg Annual Temp Increase	+2.5 – 3 °F	+4.5 – 5.5 °F
Snowmelt Timing Advance	2 – 4 Weeks Earlier	4 – 6 Weeks Earlier
Summer Precipitation	–10 to –15 %	–20 %
Consecutive Dry Days	+10	+18
Days > 90 °F (Boise Proxy)	+20 days per- Year	+40 Days per-Year

Source: NOAA 2023; USFS RMRS 2023, University of Idaho CIRC (2023)

Table 19: Projected Wildfire Exposure for Boise County

Metric	2020 Baseline	2050 Projection	Change
Average burned acres per year	18,000	40,000	+120 %
Structures exposed per year	260	550	+110 %
Population in high-risk WUI	1,400	2,100	+50 %

Source: (Source: USFS Wildfire Risk to Communities Dataset 2023)

Table 20. Secondary Hazards and Mitigation Considerations

Secondary Effect	Description
Post-fire Flooding & Debris Flows	Debris flows on burned slopes
Air Quality Degradation	Extended PM2.5 episodes in Boise Valley
Infrastructure Vulnerability	Power and telecom lines in WUI zones
Ecosystem Shifts	Decline in ponderosa pine; grassland expansion
Fine fuels and ladder fuels	Drying earlier in season
Pine Beetle-killed mortality	> 20 % in mid-elevation Boise National Forest
"Red Flag Warning" days	expected to double by 2050

Source: (Source: USFS Wildfire Risk to Communities Dataset 2023)

4.1.6 - Value of Resources at Risk

It is difficult to estimate the potential losses across the County, typically structures located in forested areas without an adequate defensible space or fire-resistant landscaping have the highest risk of loss. Nevertheless, homes and other structures located in the grasslands or agricultural regions are not without wildfire risk. Grass fires are often the most dangerous due to high rates of spread. Fires in this fuel type are considered somewhat easier to suppress given the right resources, but they can also be the most destructive. Homes along the perimeter of the community would have the highest risk due to their adjacency to wildland fuels.

Most wildfire impacts to people or development occur in the Wildland-Urban Interface (WUI). The WUI consists of areas of development adjoining or mixing with forest or range wildland and wildland fuels. The WUI can range from urban areas adjoining wildlands, to isolated cabins and ranches. Specific WUI definitions vary according to each county's needs. Boise County adopted the following WUI definition, followed by the rationale for adoption:

- WUI Definition – Is an area where developed lands interact with undeveloped lands and includes the infrastructure and natural resources communities rely on for existence.
- Location – It is found in remote scattered development areas to highly developed urban areas and everywhere in between.

Wildland fire is a natural and recurring hazard in Southwestern and Central Idaho, including within Boise County. The region's steep topography, dense coniferous forests, and seasonal climate patterns contribute to its fire-prone nature. Historically, fire has played a critical role in shaping the landscape and maintaining ecological balance. Today, the risk posed by wildfires is increasing due to a combination of climate variability, fuel accumulation, and expanded development in the WUI.

Unlike other natural disasters, the effects of wildfire, except for smoke and fire brands, are localized and can be contained with an effective management strategy. However, even if a fire is successfully contained, communities in proximity to the fire may still experience disruptions as municipal resources are diverted to suppression efforts. Should a wildfire grow beyond the capabilities of local fire agencies, other in-state resources as well and federal resources may be requested for additional support. Residents with property in the path of wildland fire will likely suffer the greatest impacts through loss of structures, personal property, and/or the value of any timber or crops on their land.

Increased wildfire activity within a region will significantly raise the health risk for individuals due to prolonged smoke exposure, especially during late summer and early fall. Smoke from these fires contains harmful air pollutants, including fine particulate matter, carbon monoxide, volatile organic compounds, and other toxic substances that pose serious health risks. **(Environmental Protection Agency. *Climate Change Indicators in the United States: Wildfires and Air Quality*. 2023.)**

Wildfire hazards are particularly concerning for the Elder population within the County, those with pre-existing health conditions, and residents in rural areas with limited access to healthcare or air quality resources. These residents increased attention during wildfires because of:

- Higher rates of underlying health conditions.
- Limited mobility and difficulty accessing clean air spaces.
- Potential reluctance to evacuate.
- Reliance on Community support systems, which may be disrupted during wildland fire emergencies.

Table 21: Wildfire Population Exposure

Risk	Crouch	Horseshoe Bend	Idaho City	Placerville	Unincorporated
Low	-	203	-	-	860
Moderate	292	326	429	43	2,156
High	439	-	286	5	5,586

Source: US Census, IDL, GIS

Table 22: Wildfire Building Counts

	Risk	Res	Com	Ind	Agr	Rel	Gov	Edu
Crouch	Low	-	-	-	-	-	-	-
	Mod	14	7	3	-	2	-	1
	High	70	5	2	1	1	-	-
Horseshoe Bend	Low	102	7	4	-	-	-	-
	Mod	166	7	3	1	-	-	1
	High	-	-	-	-	-	-	-
Idaho City	Low	-	-	-	-	-	-	-
	Mod	140	7	2	-	1	2	2
	High	25	-	-	-	-	-	-
Placerville	Low	-	-	-	-	-	-	-
	Mod	-	-	-	-	-	-	-
	High	27	-	-	-	-	-	-
Unincorporated	Low	55	4	-	1	-	-	-
	Mod	1,615	35	17	5	4	3	3
	High	2,405	79	33	10	5	9	2

Source: 2017 Boise County HMP, US Census Bureau, Point2Homes housing profiles – 2023

Table 23: Estimated Building Values (in Thousand Dollars)

	Risk	Res	Com	Ind	Agr	Rel	Gov	Edu
Crouch	Low	-	-	-	-	-	-	-
	Mod	$4,030	$2,671	$6,409	-	-	-	$4,613
	High	$20,946	$4,117	$632	$553	$479	-	-
Horseshoe Bend	Low	$28,535	$3,704	$2,434	-	-	-	-
	Mod	$44,168	$5,383	$6,409	$199	-	-	$4,613
	High	-	-	-	-	-	-	-
Idaho City	Low	-	-	-	-	-	-	-
	Mod	$42,186	$6,290	$808	-	$1,221	$1,043	$15,756
	High	$7,276	-	-	-	-	-	-
Placerville	Low	-	-	-	-	-	-	-
	Mod	$7,265	-	-	-	-	-	-
	High	$2,237	-	-	-	-	-	-
Unincorporated	Low	$14,643	$2,648	-	$466	-	-	-
	Mod	$509,296	$3,882	$8,527	$1,811	$3,411	$5,728	$1,808
	High	$860,487	$72,235	$24,649	$4,921	$3,256	$11,079	$3,920
Total	All	$1,541,069	$100,930	$49,868	$7,950	$8,367	$17,850	$30,710

Source: Architectural Digest, September 15, 2022, US Census Bureau, Point2Homes housing profiles

4.2 Boise County – Flood Profile

4.2.1 - Hazard Description and History

Floods can be divided into two major categories: river (riverine) floods and flash floods.

Riverine flooding is associated with a river's watershed, which serves as the natural drainage basin that channels water runoff from rain and snowmelt. This type of flooding happens when the amount of runoff exceeds the carrying capacity of the natural drainage systems. Rainwater and snowmelt that is not absorbed by the soil or vegetation follows surface drainage paths shaped by the topography. These paths converge into a network of rills, creeks, streams, and rivers. The speed at which river floods rise—whether slow or fast—typically depends on the size of the river or stream involved.

Flash floods are more dangerous and rise much more quickly than river floods. They result from the rapid introduction of large volumes of water into a small geographic area, such as extreme precipitation events in watersheds smaller than 50 square miles. Flash floods tend to reach their peak within eight hours or less and are more commonly observed in hilly or confined terrain. They can occur in both urban and rural environments, mainly along smaller rivers and drainage ways that do not typically carry large amounts of water. This type of flood poses greater safety risks compared to river floods due to its rapid onset, high-water velocity, potential for channel scour, and heavy debris load. **(Statewide Regional Evacuation Study Program. Central Florida Region Technical Data Report. Volume 1-7, Chapter II – Regional Hazards Analysis.)**

River (Riverine) Floods

The most commonly reported measure of flood magnitude is known as the “base flood.” This term refers to the magnitude of a flood that has a one-percent chance of being equaled or exceeded in any given year. Although a base flood is unlikely to occur in any single year, it is possible for such an event to happen in consecutive years. The base flood elevation level is referred to as the “100-year (1%) Flood” or “Regulatory Flood.”

Floods are typically described using statistical frequency terminology. The phrase "100-year flood" or "100-year floodplain" indicates an event or area that has a 1% probability of experiencing a flood of a certain size in any given year. Importantly, the concept does not imply that such a flood will only occur once every hundred years. Instead, whether or not a flood occurs in a particular year does not affect the ongoing 1% chance of a similar flood happening in the following year.

Because floodplains can be mapped, the boundary of the 100-year flood is commonly used in floodplain mitigation programs to identify areas at significant risk of flooding. Other statistical frequencies may also be used to evaluate flood risk, depending on the level of risk selected for analysis—for example, the 5-year, 20-year, 50-year, or 500-year floodplain.

The areas adjacent to the channel that normally carries water are referred to as the floodplain or the “Special Flood Hazard Area,” SFHA. In practical terms, the floodplain is an area that is inundated by flood waters. In regulatory terms, the floodplain is the area that is under the control of floodplain regulations and programs (such as the National Flood Insurance Program which publishes the FIRM maps). The floodplain is often defined as: “land that has been or may be covered by floodwater, or is surrounded by floodwater and inaccessible, during the occurrence of the regulatory flood.” **(FEMA, NFIP)**

The nature and magnitude of any flood event reflect the hydrologic response of the landscape. This response is shaped by a range of factors, including soil texture and permeability, land cover and vegetation, land use, and land management practices.

Water from precipitation and snowmelt—collectively referred to as runoff—moves across the landscape following one or more pathways: overland flow, shallow subsurface flow, or deep subsurface (groundwater) flow. Each pathway contributes water to streams or depressions at different rates and in varying quantities. The characteristics of the landscape determine how runoff is distributed among these pathways, thereby influencing the overall hydrologic response.

Unlike precipitation and ice formation, flooding can to some extent be mitigated through the management or restoration of the floodplain. When natural water storage capacity is reduced or the

landscape has been altered, engineered and nature-based solutions—ranging from reservoirs and levees to constructed wetlands—can help restore balance. Thoughtful land-use planning can enhance the natural hydrologic resilience of an area; for instance, re-vegetating burned slopes helps convert rapid, flood-prone overland flow into slower subsurface flow, thereby reducing flood risk.

Flood damage often results when development ignores or underestimates these natural hydrological forces. Many communities occupy flood-prone areas and are subsequently surprised when streams overflow their channels to reclaim the floodplain. Historical reliance on structural flood-control measures has further encouraged unsuitable development and perpetuated flood-related losses. "Winter weather conditions are the main driving force in determining where and when floods will occur. The type of precipitation that a winter storm produces is dependent on the vertical temperature profile of the atmosphere over a given area." **("Snowstorms." Rampo College. Resource Section for Meteorology.)**

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

On small drainages, the most severe floods are usually a result of rainfall on frozen ground; however, moderate quantities of warm rainfall on a snowpack, especially for one or more days, can also result in rapid runoff and flooding in streams and small rivers. Although meteorological conditions favorable for short-duration warm rainfall are common, conditions for long-duration warm rainfall are relatively rare. Occasionally, however, the polar front becomes situated along a line from Hawaii through Oregon, and warm, moist, unstable air moves into the region.

The major source of flood waters on the Reservation is normal spring snow melt. As spring melt is a "natural" condition; the stream channel is defined by the features established during the average spring high flow (bank-full width). Small flow peaks exceeding this level and the stream's occupation of the floodplain are common events. The magnitude of most floods on the Reservation depends on the combinations of intensity and duration of rainfall, pre-existing soil conditions, area of a basin, elevation of the rain or snow level, and the amount of snowpack. Man-made changes to a basin also can affect the size of floods. Although floods can happen at any time during the year, there are typical seasonal patterns for flooding based on a variety of natural processes that cause floods:

- Heavy rainfall on wet or frozen ground, before a snowpack has accumulated, typically causes Fall and early Winter floods
- Rainfall combined with the melting of the low elevation snowpack typically causes Winter and early Spring floods.

- Late Spring floods result primarily from the melting of the snowpack.

Flash Flooding

There are three types of flash flooding:

- Extreme precipitation and runoff events
- Inadequate urban drainage systems that become overwhelmed by runoff
- Dam/Levee failures

Flash flooding can arise from several types of events. Significant rainfall or rapid snowmelt on frozen ground during the winter and early spring months is one major cause. High-intensity thunderstorms, which typically occur in the summer, are another source of flash floods. Additionally, rainfall onto areas affected by recent fires, where the soil has become hydrophobic or water repellent due to high heat, greatly increases runoff and the potential for flash flooding.

While flash floods triggered by thunderstorms are less common than those resulting from general rain or snowmelt, they tend to be much more severe. The speed at which these floods begin depends on multiple factors, including the precipitation's intensity and duration, as well as characteristics of the basin such as soil type, vegetation cover, topography, and slope. Flooding in developed areas can occur within minutes when heavy rainfall strikes directly overhead. Regions with sandy soil and sparse vegetation, especially those recently burned, are particularly vulnerable. Mountainous terrain is especially susceptible, as steep slopes can stall thunderstorms over limited areas and channel runoff into narrow canyons, intensifying the flood's flow. Nevertheless, flash floods can develop anywhere if rainfall exceeds the land’s ability to absorb water.

Floods resulting from rainfall on frozen ground in winter, or from rainfall accompanied by a warm, regional frontal system that rapidly melts snow at low and intermediate elevations, can be extremely severe. Both scenarios quickly channel large volumes of water into stream systems, often exceeding their capacity.

Sometimes, floating ice or debris accumulates at natural or constructed barriers and restricts water flow. Ice and debris jams can result in two types of flooding:

- Upstream flooding may occur when water is held back by an ice or debris jam, inundating large areas and often leaving ice or debris deposits after waters recede. Such inundation can extend well beyond the usual floodplain.

- When the jam breaks, high velocity flooding can occur downstream. These floodwaters can be especially destructive due to the ice and debris they carry.

Flooding caused by ice or debris jams is common in central Idaho and can significantly contribute to flood-related damage. Small jams frequently form in many streams throughout the Nez Perce Reservation, particularly at bridge abutments and culverts.

Dam and Levee Failures

Dam and levee failures also pose a potential flood hazard. A dam failure is the structural collapse of a dam that releases the water stored in the reservoir behind the dam. A levee failure/breach is the structural failure or rupture of a levee, resulting in the uncontrolled release of water into the protected area behind the levee. A dam failure is usually the result of the age of the structure, inadequate spillway capacity, or structural damage caused by an earthquake or flood. A levee breach is usually caused by flood waters overtopping, erosion or seepage weakening the structure, structural defects or poor construction, and earthquakes or other natural disasters.

The sudden release of water has the potential to cause human casualties, economic loss, and environmental damage. This type of disaster is dangerous because it can occur rapidly, providing little warning and evacuation time for people living downstream. The flows resulting from dam and or levee failures generally are much larger than the capacity of downstream channels and can therefore lead to extensive flooding. Flood damage occurs because of the momentum of the flood caused by the sediment-laden water, flooding over the channel banks, and impact of debris carried by the flow.

History

Floods are among the most frequent natural hazards throughout the United States. The Federal Emergency Management Agency (FEMA) administers the National Flood Insurance Program (NFIP), which has brought significant attention to flood risks and made them one of the most widely recognized hazards in the nation. The 2017 update to the flood hazard profile reorganized the way flood risks are evaluated, incorporated additional data and modeling, and provided a more thorough and unified analysis of flood risk within the county.

Across the country, floods are responsible for an average of 150 fatalities each year. Most injuries and deaths occur when individuals are swept away by strong flood currents. Property damage is most frequently caused by inundation from water carrying large amounts of sediment. Rapidly moving floodwaters are capable of washing buildings off their foundations and carrying vehicles downstream. Additionally, infrastructure such as pipelines, bridges, and other critical systems can be damaged when high water levels are combined with debris moved by the flood. Other potential consequences include floating fuel tanks, inundation of residential areas, road washouts, and

basement flooding, all of which can contribute to extensive and costly damage.

Table 24: Boise County Flood Summary

	Before 2016	2017-2025	Total
Occurrences	20	5	25
Disaster Declarations	-	-	-
Damages	$8,100,000	$200,000	$8,300,000

Source: NOAA: Storm Events Database

Table 25: FEMA-Declared Flood Disasters in Boise County, Idaho (Since 2005)

Disaster Number	Year	Event Description	Incident Dates
DR-4310-ID	2017	Severe Storms, Flooding, Landslides, and Mudslides	March 6 – March 28, 2017
DR-4333-ID	2017	Severe Storms, Flooding, Landslides, and Mudslides	May 6 – June 16, 2017
DR-4319-ID	2017	Flooding and Ground Saturation (Winter Storms)	February 5 – February 27, 2017
DR-1893-ID	2010	Severe Storms, Flooding, Mudslides	March 31 – April 11, 2010
DR-1643-ID	2006	Severe Storms, Flooding, Landslides, and Mudslides	May 16 – June 5, 2006

Source: FEMA Disaster Declarations Database (https://www.fema.gov/disaster)

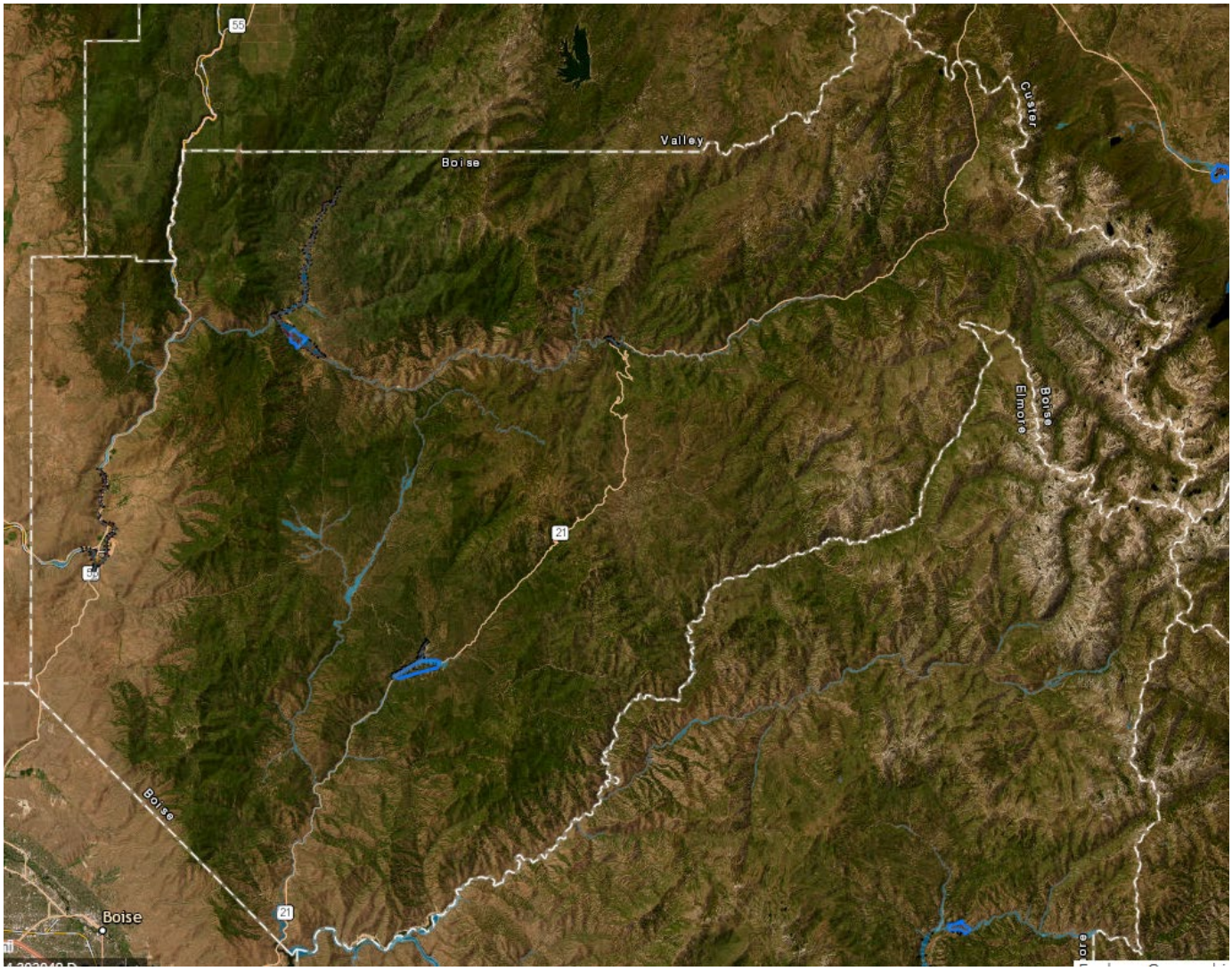
The most frequent and severe floods in Boise County took place during the statewide flooding of 2017, which caused extensive damage due to ongoing snowmelt, saturated ground, and heavy rains. FEMA responded by providing federal assistance for repairing public infrastructure (Public Assistance), offering Hazard Mitigation Grant Program (HMGP) funds to help lower future flood risks, and in some cases, granting Individual Assistance (IA) to affected households. Although there have been other instances of localized flooding, they did not lead to additional FEMA major disaster declarations specifically for Boise County.

4.2.2 - Probability of Future Occurrences

River (Riverine) Flooding

Boise County's FIRM, Flood Insurance Rate Map (FIRM) is in June 1988. FEMA Region 10's RiskMAP Division is currently updating the Boise County's FIRM and has released its preliminary maps.

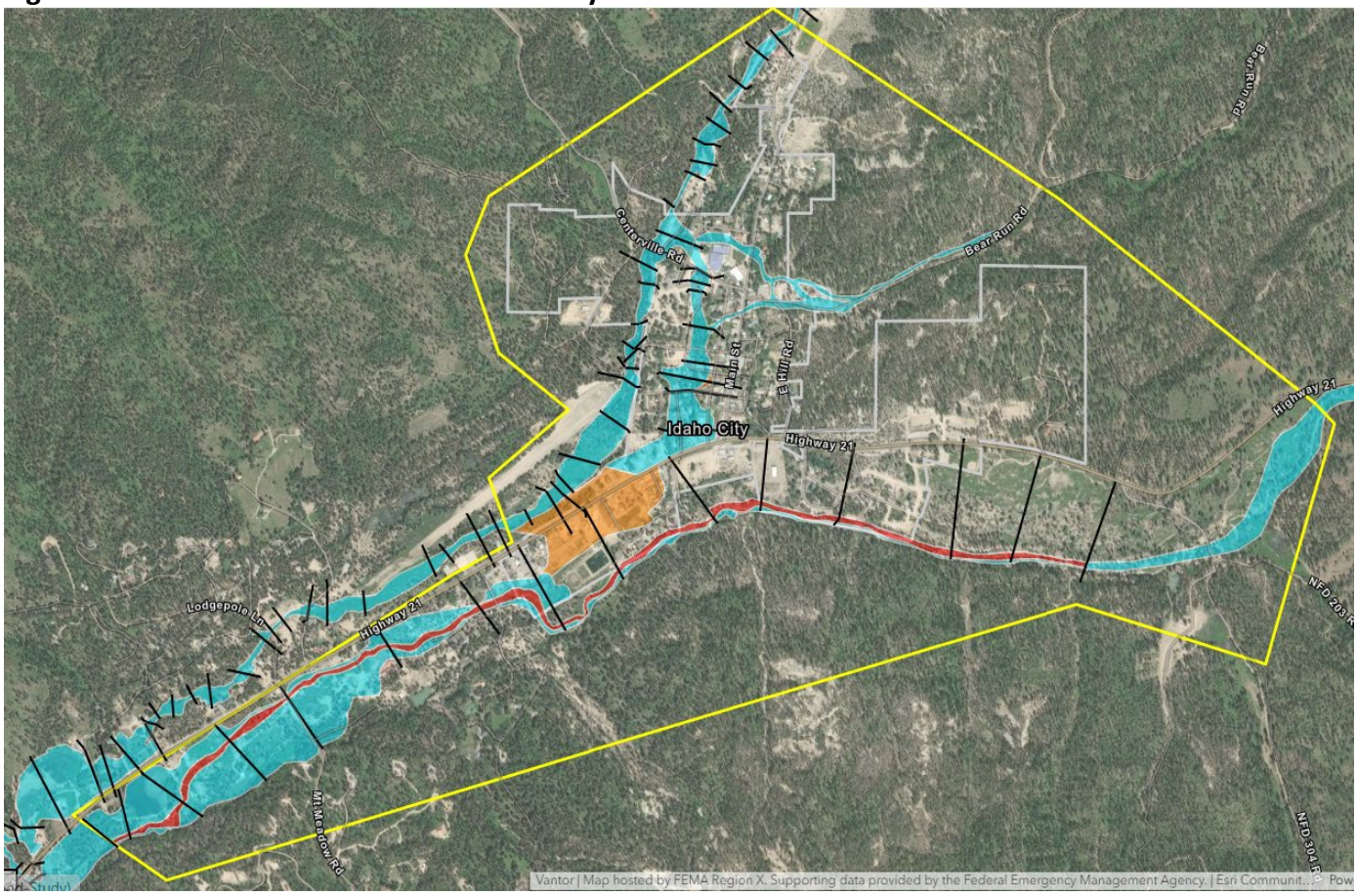
Figure 11: Boise County's Current FIRM, Date 1988



Source: Idaho Department of Water Resources

- Area of High Flood risk (Floodway) (1% Annual Chance)
- Area of High Flood Risk (1% Annual Chance)
- Area of Moderate Flood Risk (0.2% Annual Chance)
- Effective Letters of Map Revision

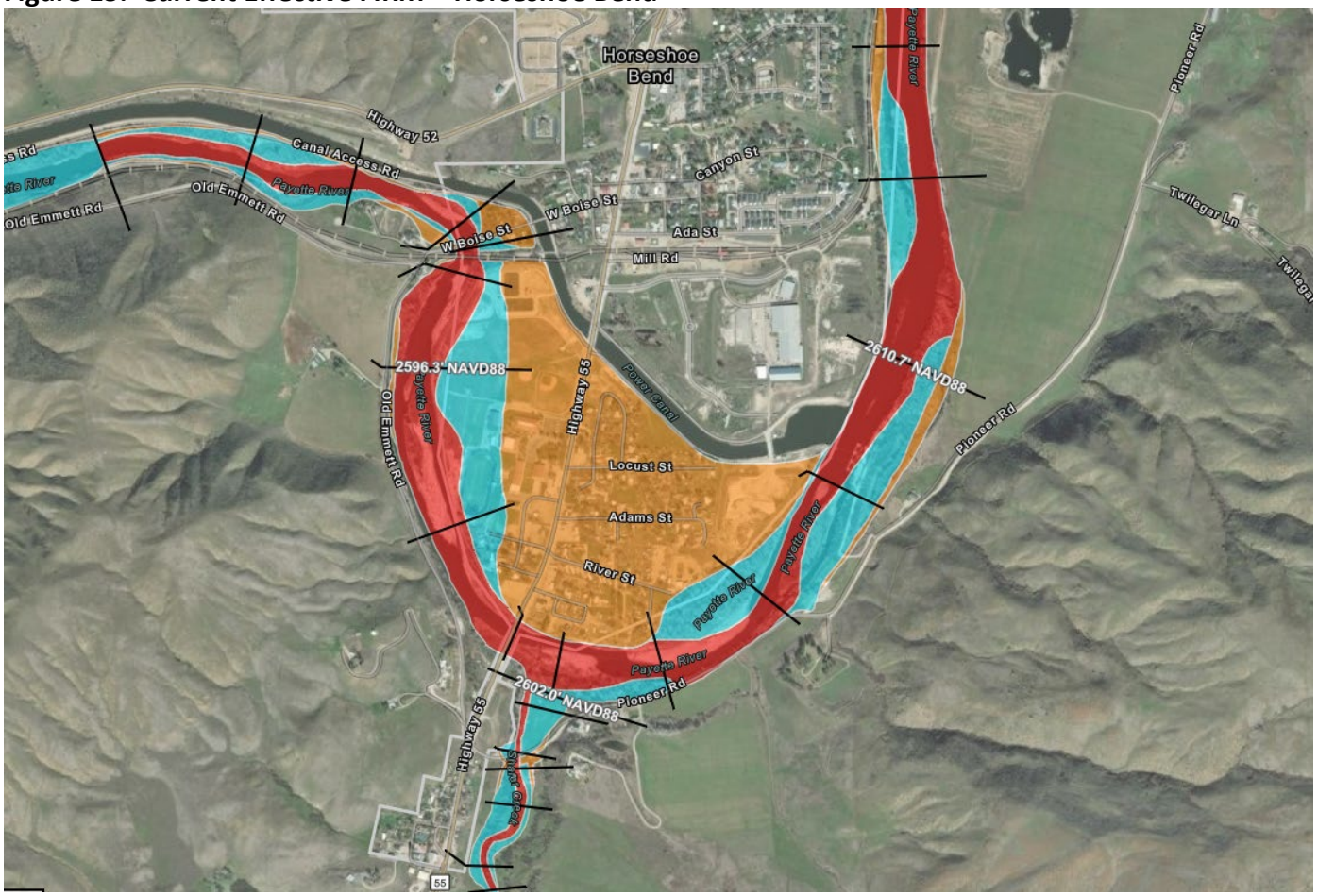
Figure 12: Current Effective FIRM – Idaho City



Source FEMA Region 10, RiskMAP

- Area of High Flood risk (Floodway) (1% Annual Chance)
- Area of High Flood Risk (1% Annual Chance)
- Area of Moderate Flood Risk (0.2% Annual Chance)
- Effective Letters of Map Revision

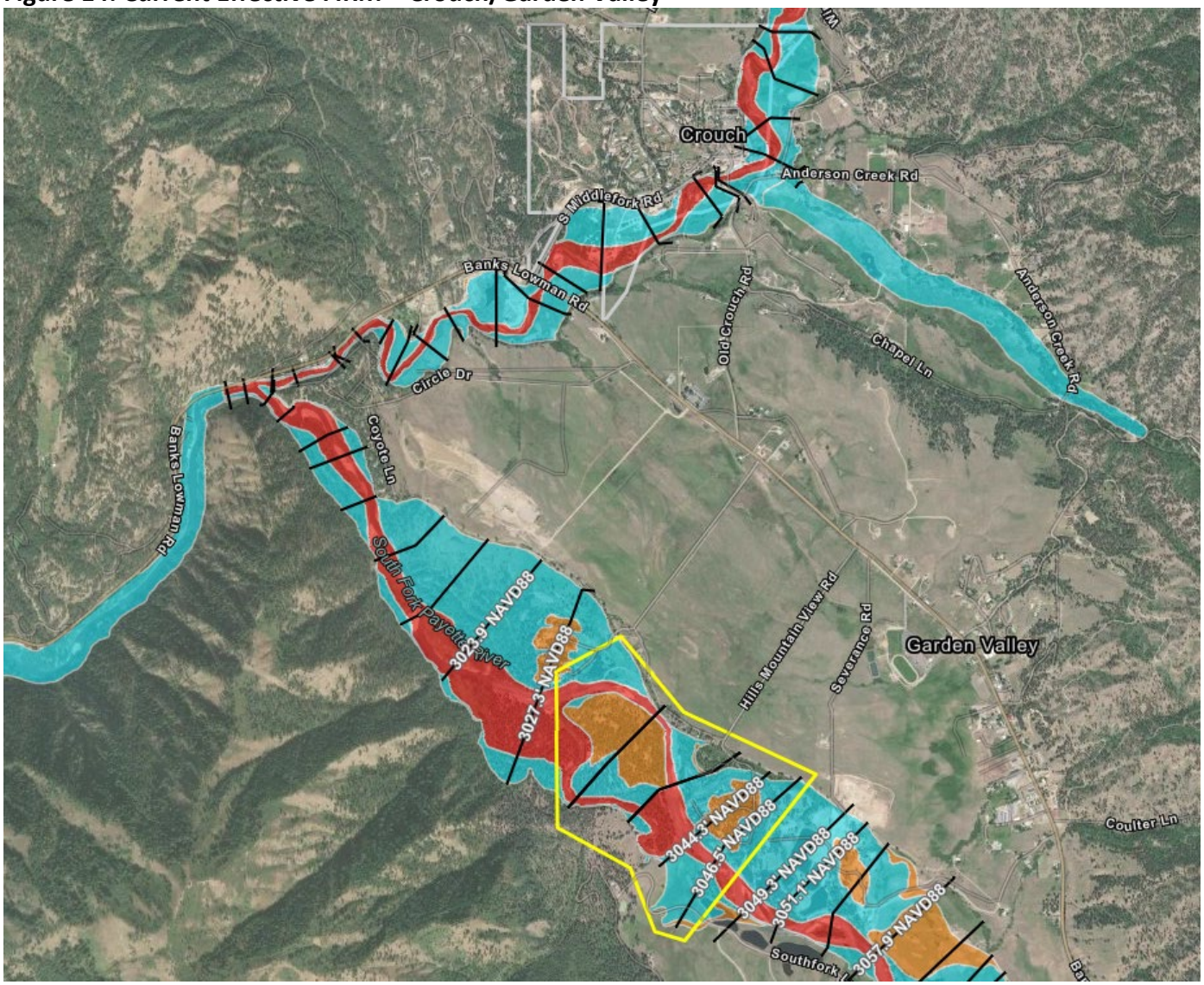
Figure 13: Current Effective FIRM – Horseshoe Bend



Source FEMA Region 10, RiskMAP

- Area of High Flood Risk (Floodway) (1% Annual Chance)
- Area of High Flood Risk (1% Annual Chance)
- Area of Moderate Flood Risk (0.2% Annual Chance)
- Effective Letters of Map Revision

Figure 14: Current Effective FIRM – Crouch/Garden Valley



Source FEMA Region 10, RiskMAP

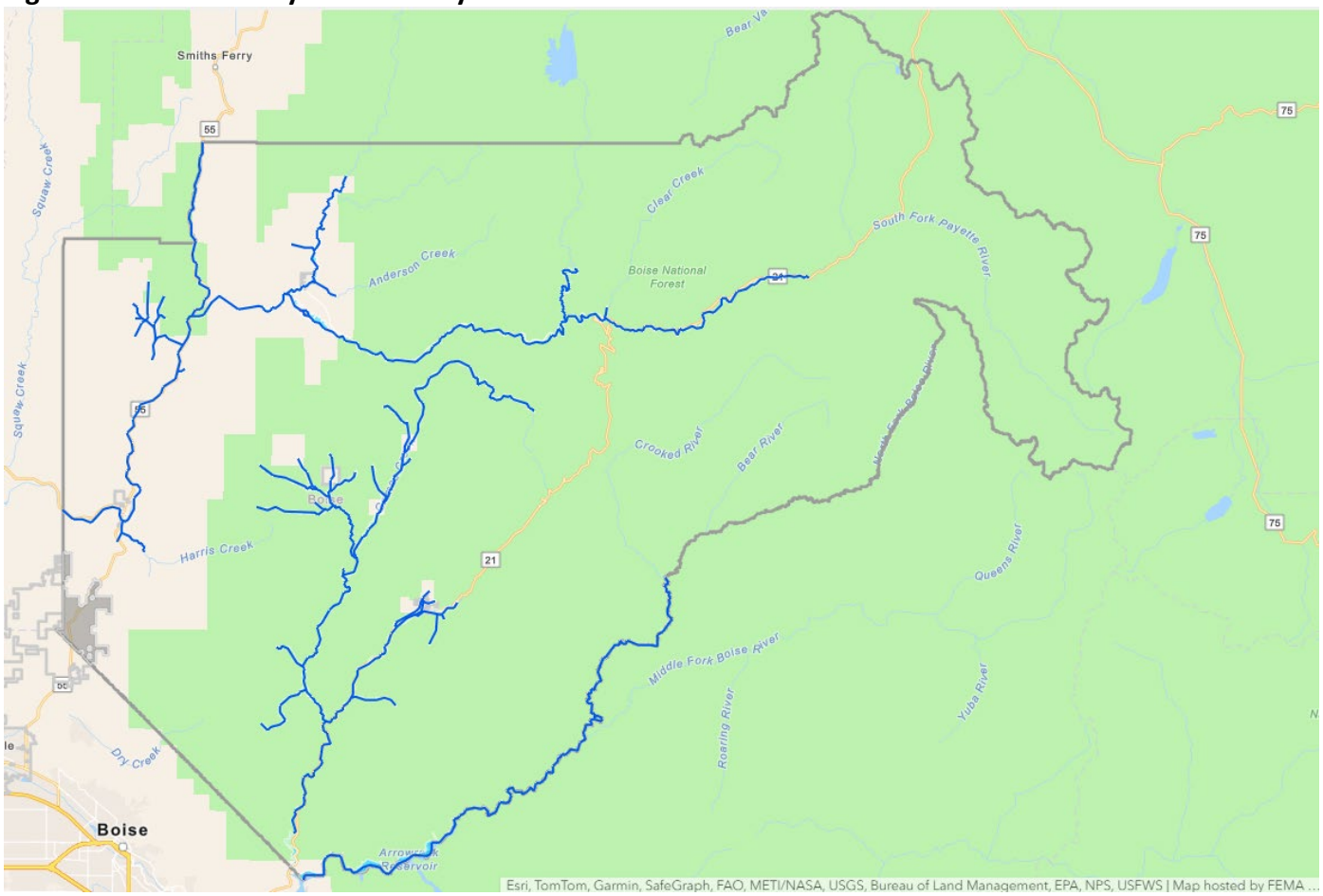
- **Area of High Flood risk (Floodway) (1% Annual Chance)**
- **Area of High Flood Risk (1% Annual Chance)**
- **Area of Moderate Flood Risk (0.2% Annual Chance)**
- **Effective Letters of Map Revision**

Figure 15: Current Effective FIRM - Placerville

Source FEMA Region 10, RiskMAP, June 2025

- Area of High Flood risk (Floodway) (1% Annual Chance)
- Area of High Flood Risk (1% Annual Chance)
- Area of Moderate Flood Risk (0.2% Annual Chance)
- Effective Letters of Map Revision

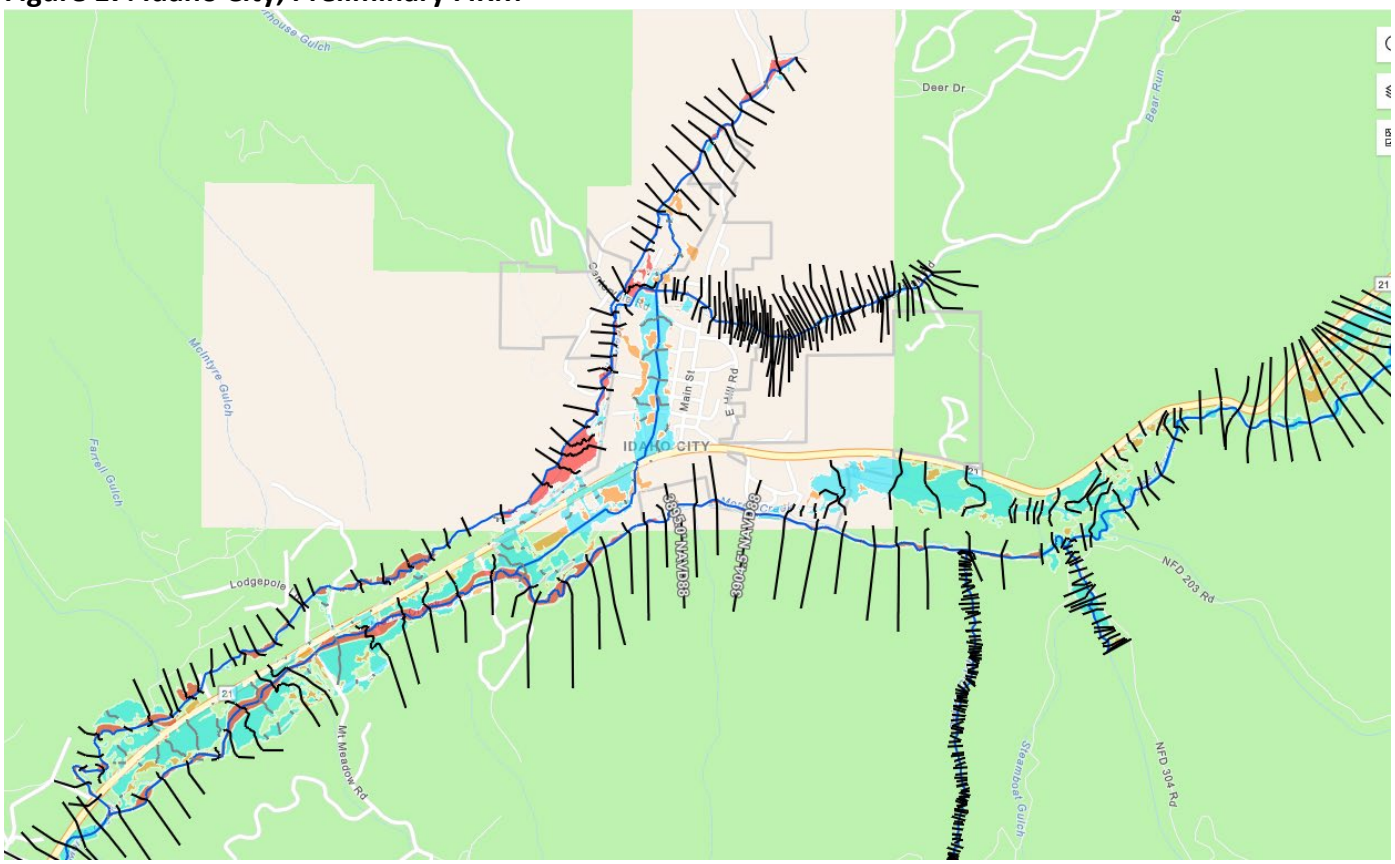
Figure 16: Boise County - Preliminary FIRM



Source FEMA Region 10, RiskMAP, June 2025

- Area of High Flood risk (Floodway) (1% Annual Chance)
- Area of High Flood Risk (1% Annual Chance)
- Area of Moderate Flood Risk (0.2% Annual Chance)
- Effective Letters of Map Revision

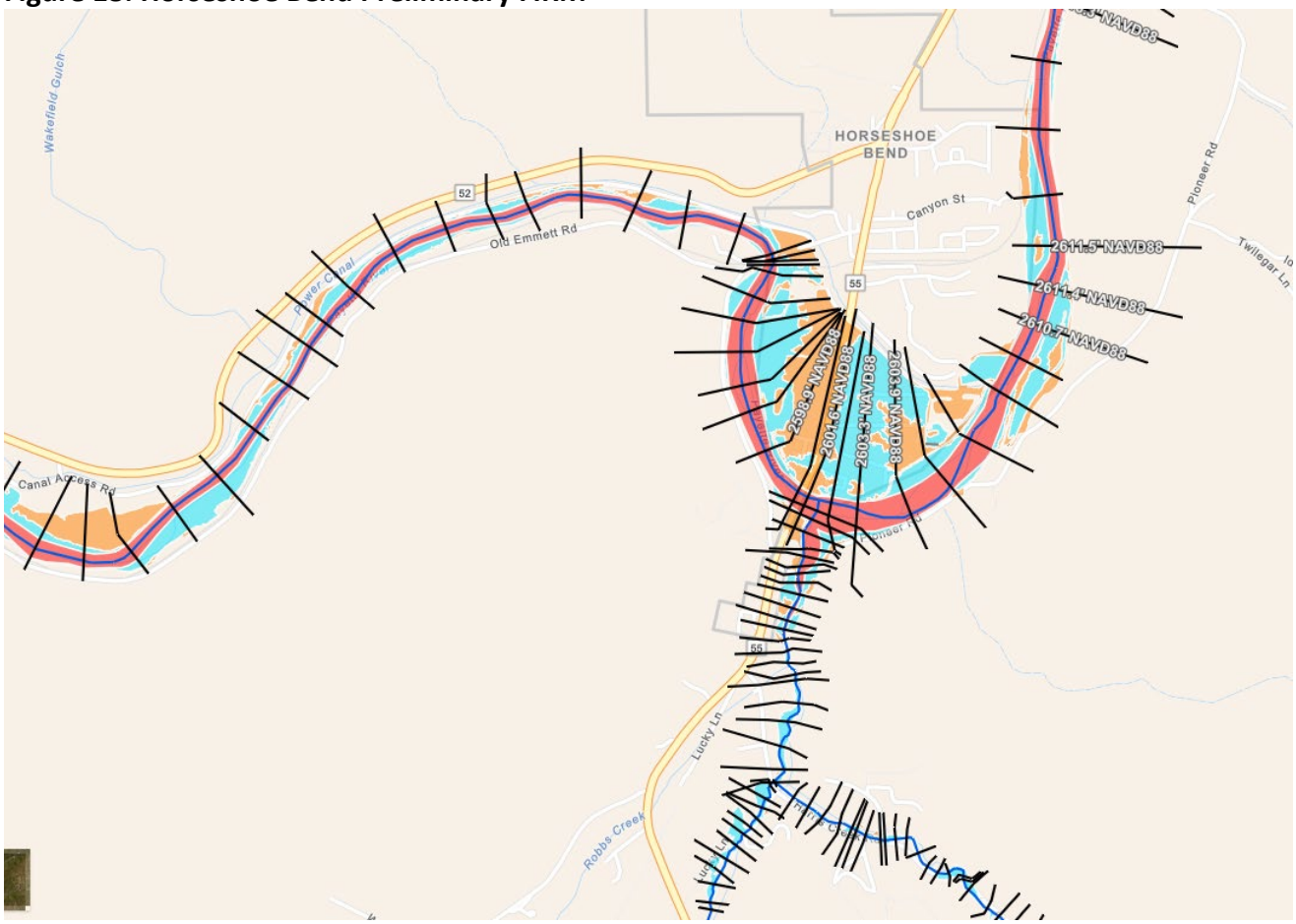
Figure 17: Idaho City, Preliminary FIRM



Source FEMA Region 10, RiskMAP, June 2025

- Area of High Flood risk (Floodway) (1% Annual Chance)
- Area of High Flood Risk (1% Annual Chance)
- Area of Moderate Flood Risk (0.2% Annual Chance)
- Effective Letters of Map Revision

Figure 18: Horseshoe Bend Preliminary FIRM



Source FEMA Region 10, RiskMAP, June 2025

- **Area of High Flood risk (Floodway) (1% Annual Chance)**
- **Area of High Flood Risk (1% Annual Chance)**
- **Area of Moderate Flood Risk (0.2% Annual Chance)**
- **Effective Letters of Map Revision**

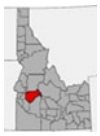
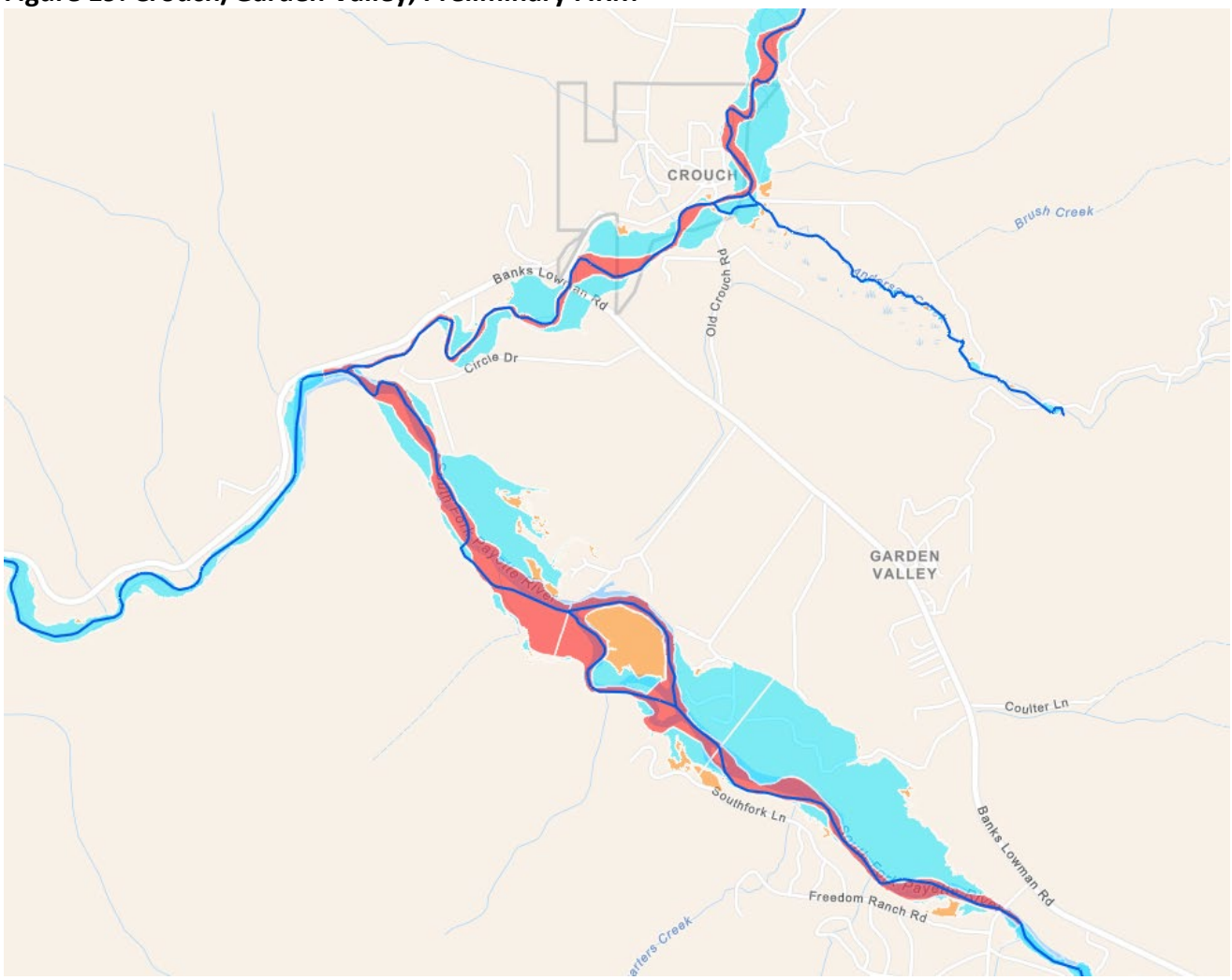


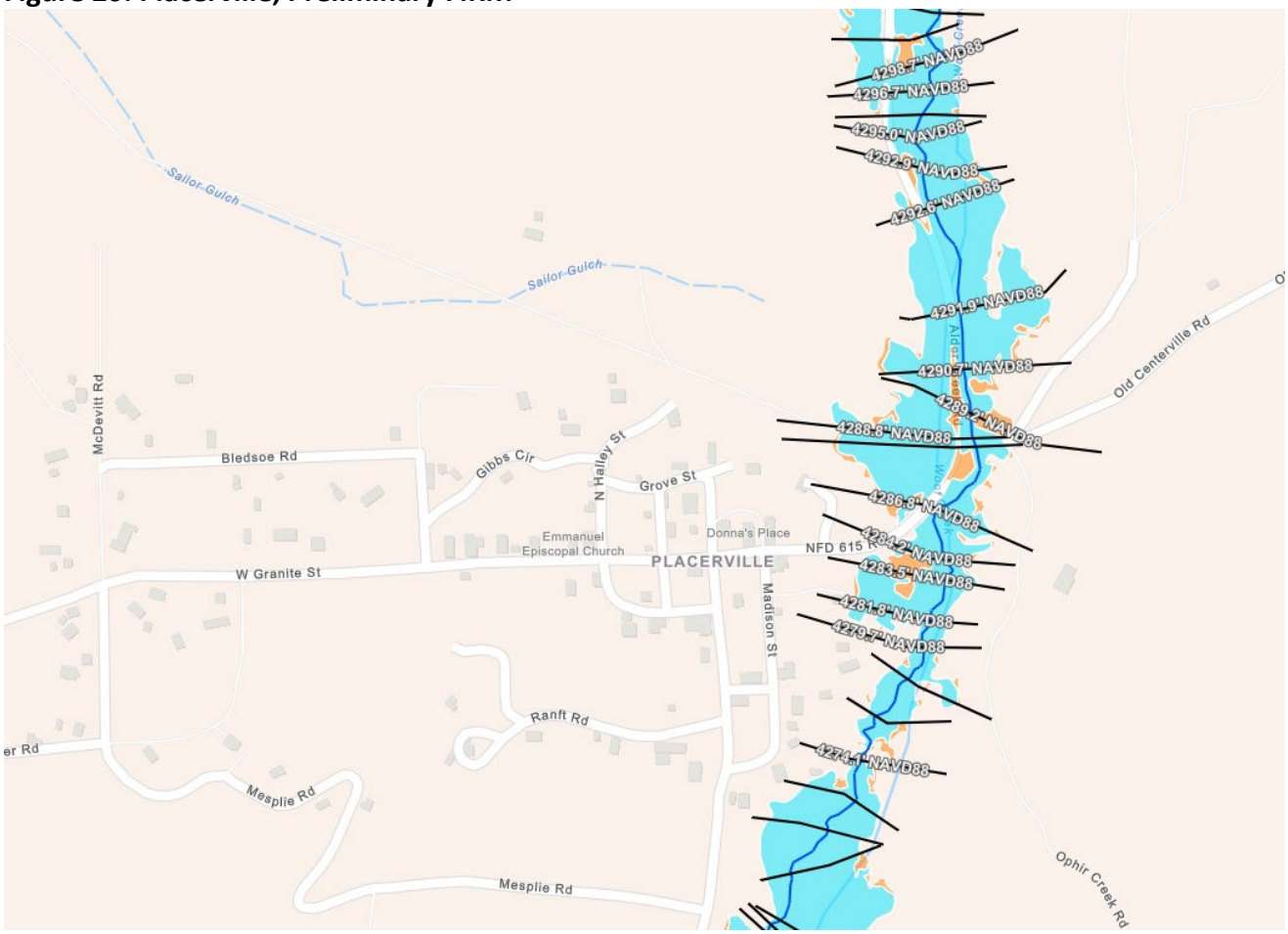
Figure 19: Crouch/Garden Valley, Preliminary FIRM



Source FEMA Region 10, RiskMAP, June 2025

- Area of High Flood risk (Floodway) (1% Annual Chance)
- Area of High Flood Risk (1% Annual Chance)
- Area of Moderate Flood Risk (0.2% Annual Chance)
- Effective Letters of Map Revision

Figure 20: Placerville, Preliminary FIRM



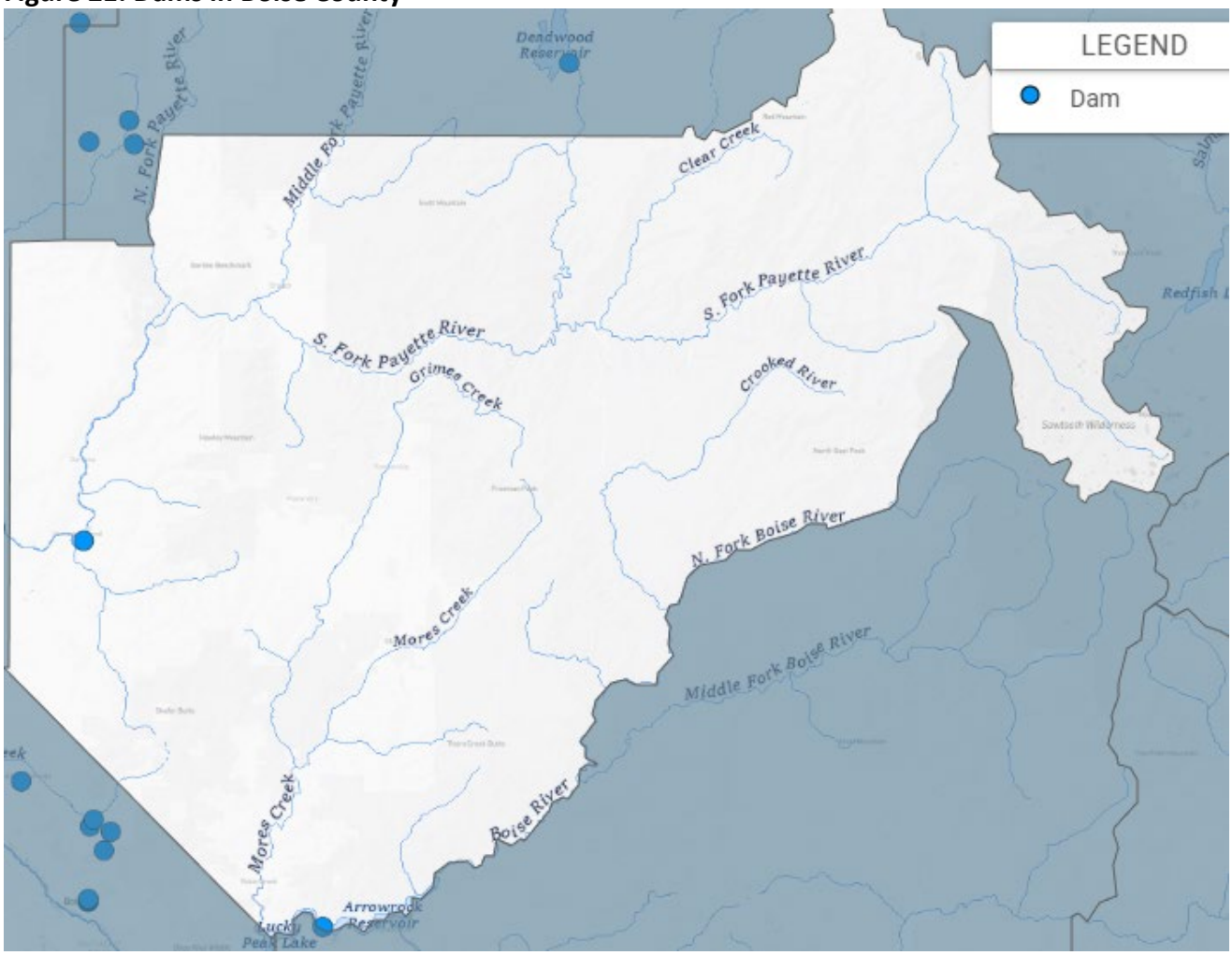
Source FEMA Region 10, RiskMAP, June 2025

- Area of High Flood risk (Floodway) (1% Annual Chance)
- Area of High Flood Risk (1% Annual Chance)
- Area of Moderate Flood Risk (0.2% Annual Chance)
- Effective Letters of Map Revision

Dams and Levees

The *USACE National Inventory of Dams* identifies two Dams within Boise County. Arrowrock Dam in the southeast corner of the County, and the Horseshoe Bend Diversion on the Payette River in the City of Horseshoe Bend.

Figure 21: Dams in Boise County



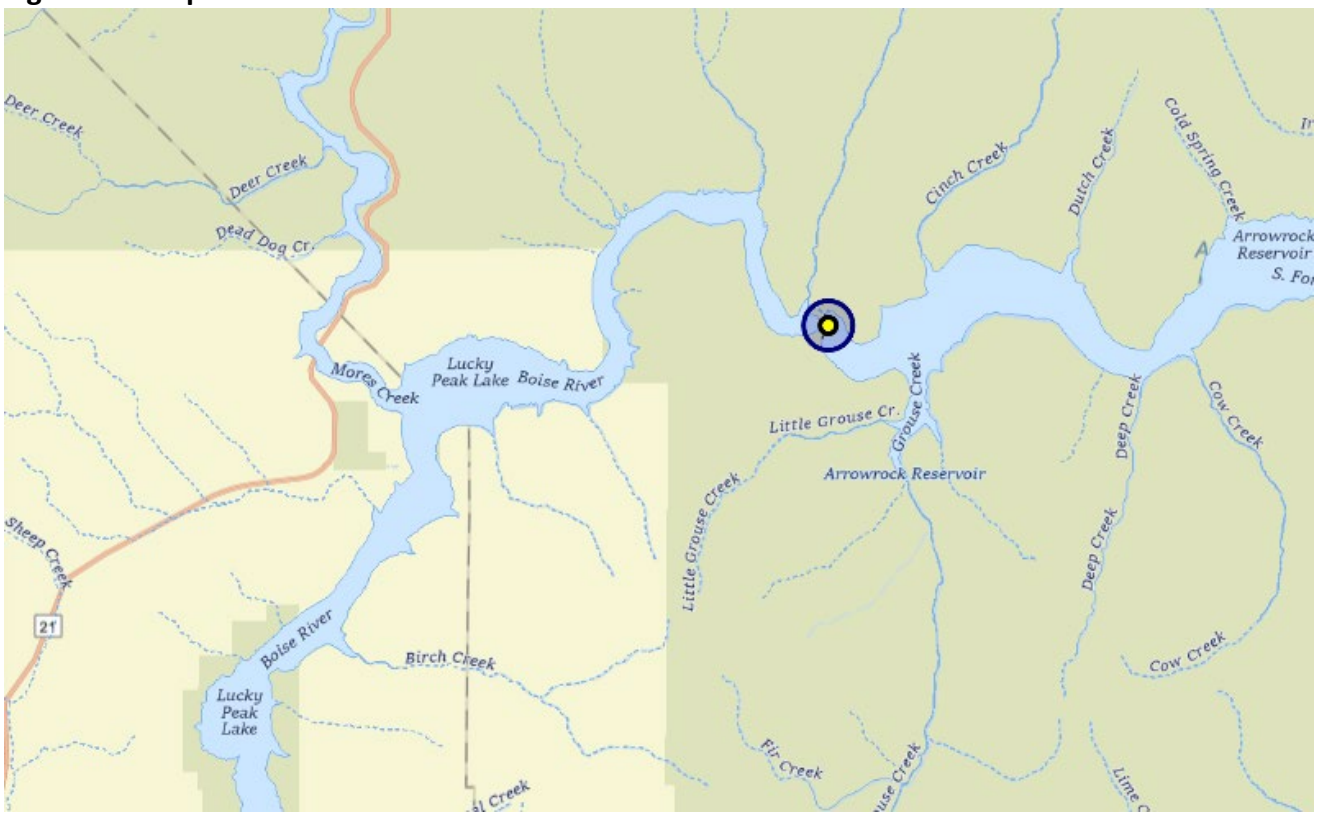
Source: USACE – National Inventory of Dams

Arrowrock Dam Facts

- Fed ID: ID00280
- Location: Latitude – 43.5954, Longitude – -115.9225
- Owner: BUREAU OF RECLAMATION
- Purposes: Flood Risk Reduction, Irrigation, Fish and Wildlife Pond, Recreation, Water Supply

- NID Height (Ft): 350
- Dam Type: Concrete, Arch, Gravity
- NID Storage (Acre Ft): 272,224
- Year Completed: 1915
- Last Inspection: 05/05/2021
- Arrowrock Dam is part of a system of three major dams in the Boise River basin
    - Arrowrock
    - Anderson Ranch
    - Lucky Peak
- Risk: High risk of inundation downstream

Figure 22: Map of Arrowrock Dam



Source: USACE – National Resources of Dams

Risks

While Arrowrock Dam is considered highly unlikely to breach, a failure would have serious downstream consequences. Such an event could flood most homes and businesses with deep water and pose a risk to lives in affected areas. As a result, the USACE and BOR classify the dam's hazard

potential as high. This designation indicates that emergency planners anticipate major flooding and life-safety risks for downstream communities should the reservoir be suddenly released—even though the chance of structural failure in any given year is very low during normal operation.

If Arrowrock Dam were to breach:

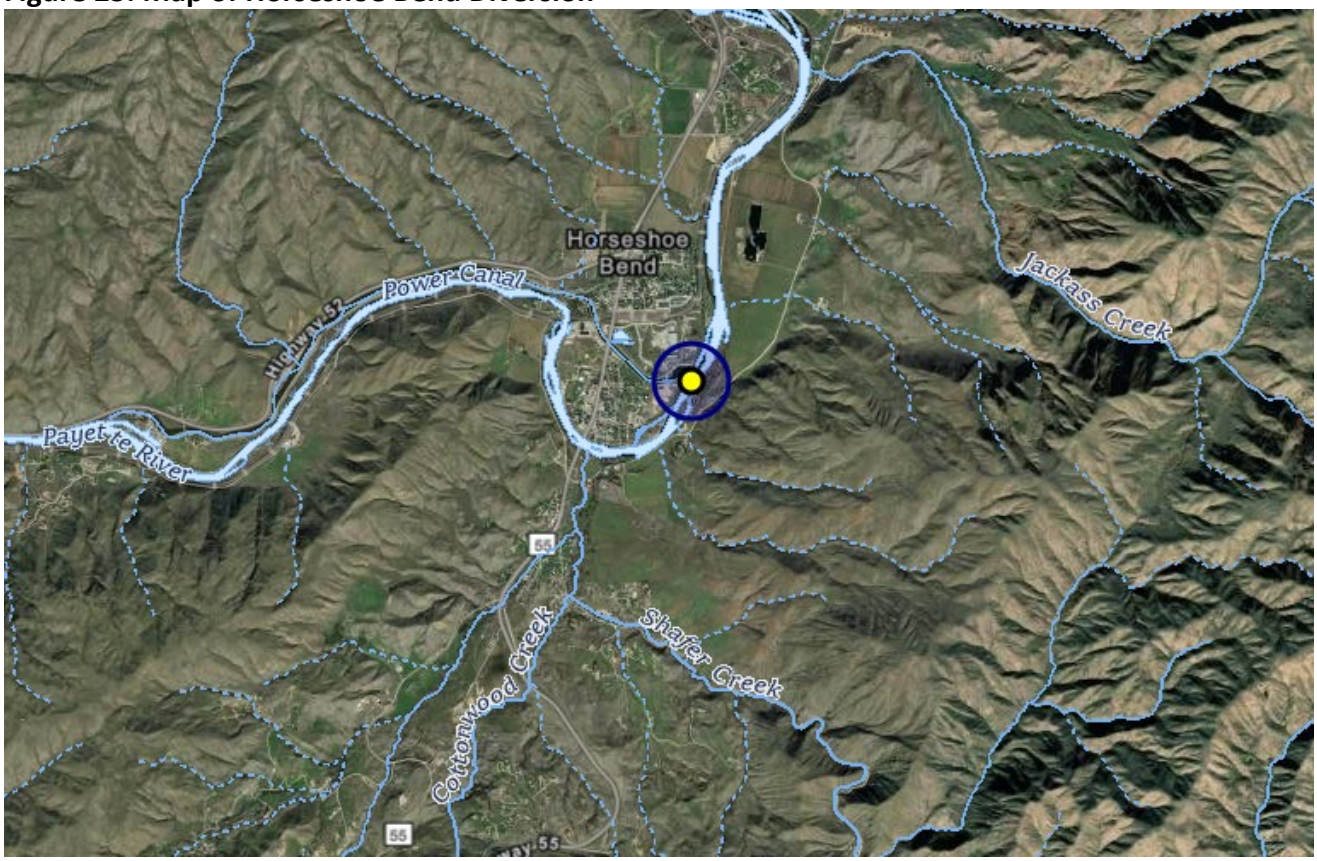
- Initial flood wave would travel down the Boise River canyon toward Lucky Peak Reservoir.
- Because Lucky Peak Reservoir and Dam lie downstream, some floodwater might be temporarily stored or slowed, but the surge could still pass through and inundate lower valley reaches.
- Downstream communities along the Boise River corridor, including in Ada County, could experience significant flooding — with little warning depending on breach timing and reservoir level. This includes parts of the Boise metropolitan area and agricultural lands.

Horseshoe Bend Diversion Dam Facts

Horseshoe Bend Diversion is a hydroelectric diversion dam on the Payette River near Horseshoe Bend, Idaho.

- Fed ID – ID00726
- Owner: Horseshoe Bend Hydroelectric Company
- Location: Latitude – 43.908517, Longitude – -116.190719
- Primary Purpose: Hydroelectric – It is used to divert river water for hydroelectric generation.
- NID Height (Ft): 8
- NID Storage (Acre Ft): 116
- Year Completed: 1995
- Last Inspection: 07/07/2022
- Risk: Low risk of inundation downstream

Figure 23: Map of Horseshoe Bend Diversion



Source: USACE – National Resources of Dams

Risks

While Horseshoe Bend Diversion Dam is considered highly unlikely to breach, there is always a chance for a dam failure no matter how small the risk is. The facility includes a small impoundment behind a diversion structure approximately eight feet high with a normal storage capacity of about 116 acre-feet and a surface of six acres. The drainage area feeding the structure is approximately 2,230 square miles. This type of facility is not a large storage dam; its impoundment is relatively small compared with large irrigation or flood-control reservoirs.

A *low hazard potential* classification indicates that if the structure were to fail, it would be unlikely to cause significant property damage or threaten life safety downstream. Breach consequences are strongly influenced by current river stage. A diverting structure failure during high flows would add to the existing flood risk, whereas during low flows the additional water volume would be less impactful. Remote or sudden structural failures can also contribute to local flash flood-like surges, although the magnitude for this diversion is comparatively low. This classification reflects the small

volume of stored water and modest impoundment size, meaning the potential flood wave from a breach would not produce extensive inundation like that from a high-hazard storage dam.

Large storage dams with major reservoirs (e.g., Arrowrock or Black Canyon) have much greater stored volumes and thus a breach would pose a significantly higher hazard downstream – a *high-hazard* designation. Horseshoe Bend Diversion's reservoir is orders of magnitude smaller. Diversion structures typically impound water for short reaches and do not store large flood volumes. Breach consequences are strongly influenced by current river stage. A diverting structure failure during high flows would add to the existing flood risk, whereas during low flows the additional water volume would be less impactful. Remote or sudden structural failures can also contribute to local flash flood-like surges, although the magnitude for this diversion is comparatively low.

The risk of flooding due to a breach of the Horseshoe Bend Diversion is low relative to larger reservoir dams because the structure's impoundment is small and does not store a large volume of water. A breach could cause a temporary surge in Payette River flows downstream, potentially affecting areas close to the river immediately below the diversion, but widespread or catastrophic flooding is not anticipated solely from this structure's failure. Emergency action plans and periodic inspections further reduce the risk.

Horseshoe Bend Levee

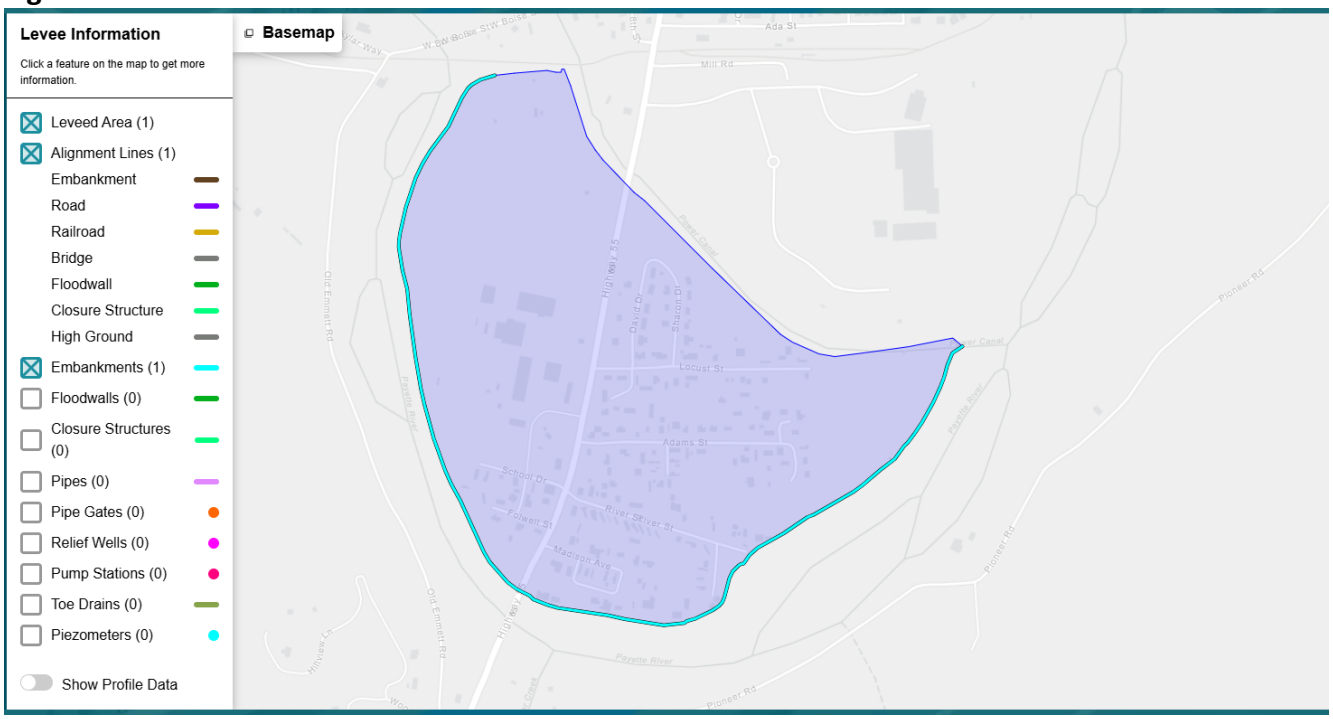
Boise County has only one levee as show on the USACE Levee Data Base. The Horseshoe Bend Levee is a non-Federally constructed, non-Federally operated levee on the right bank of the Payette River where it wraps around the City of Horseshoe Bend, Idaho. The City is responsible for operation and maintenance. The project consists of approximately 4,800 feet of earth embankment levee constructed using sandy gravel alluvium from the riverbed. The levee is 3 to 4 feet in height, has a crest width of ten feet, and 2H:1V side-slopes. When originally constructed, the levee was not rivetted. The leveed area comprises 140 acres with suburban residential developments, schools, the City Water Treatment Plant, and other infrastructure. Extreme event life loss estimates are at 0, with property damages estimated at approximately up to 73 million dollars. **USACE Levee Data Base**

The following risk characterization is a description of risk associated with this levee system:

> It is currently undergoing review and may be updated in the future. The Levee Senior Oversight Group considers the risk associated with the Horseshoe Bend (LST ID 3892) to be low for breach prior to overtopping based on anticipated poor performance with low associated consequences and also to be low for overtopping due to relatively frequent likelihood of overtopping with very low associated consequences. There has been some erosion issues during past high-

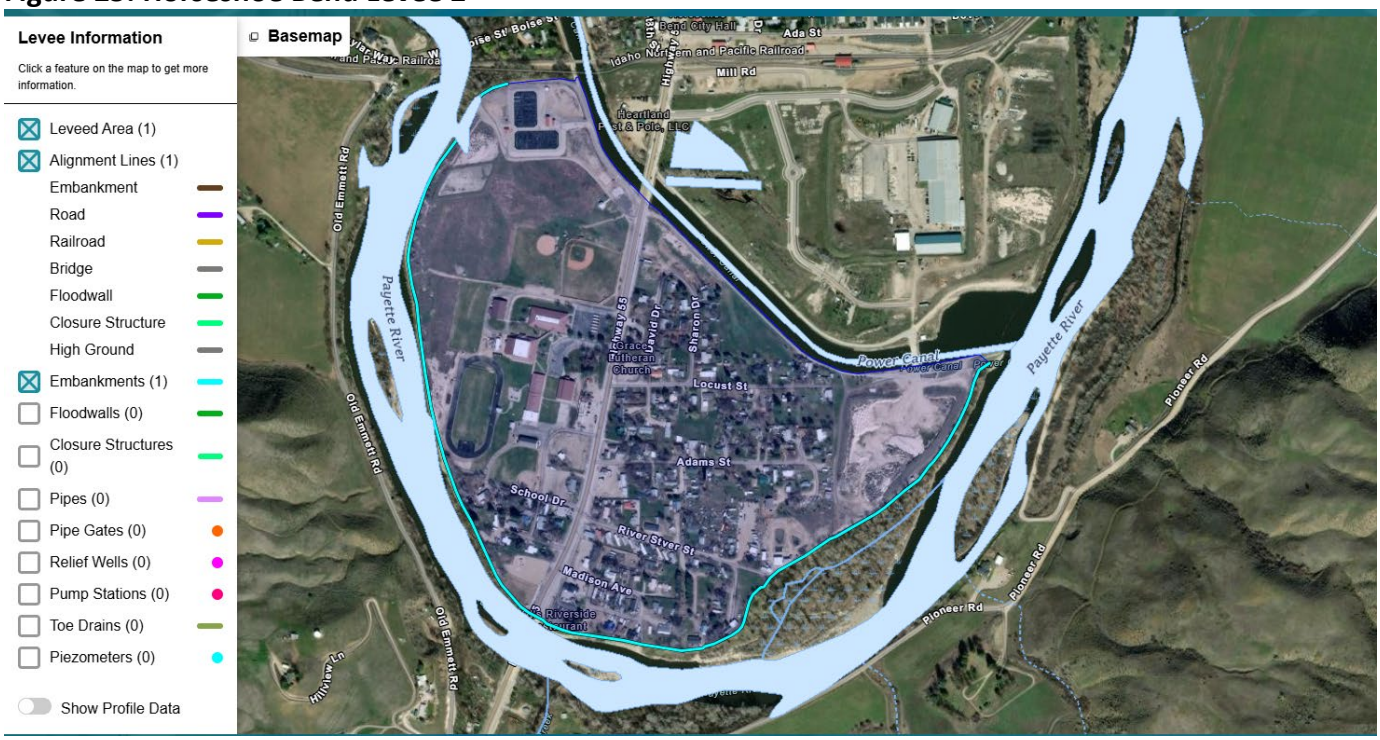
water events in 1997 and 2011. These eroded areas have been repaired and have performed well during the next loading event. There is still an erosion concern due to the high velocities of the river and unriveted portions of the levee. There will be shallow inundation depths for the leveed area which contains a very small population. The levee height is short and wide, which reduces the concern for seepage and stability. There is moderate community awareness, excellent flood warning effectiveness, and short egress routes out of the leveed area. **USACE Levee Data Base**

Figure 24: Horseshoe Bend Levee 1



Source: USACE: Levee Database

Figure 25: Horseshoe Bend Levee 2



Source: USACE: Levee Database

Risk of Levee Breach

The risk of a breach and or levee failure is rated low. The levee protects the City of Horseshoe Bend. The levee meets the minimum standards of the USACE but is not FEMA certified levee. It is important that one of the mitigation action items starts the process of bringing the levee up to *FEMA Levee Certification Standards* not only to protect lives and infrastructure, but to lower the flood insurance costs for residents within the protection zone of the levee. Protection zone of the levee protects **(USACE Levee Data Base)**:

- 134 Buildings
- 420 People
- $72 Million in Property Damage
- 3.3 Acres of Farmland
- 2 Critical Structures (2 Schools)

4.2.3 - Impact of Future Occurrences

Increase Risk due to Climate Change

According to multiple sources, future potential flooding risks may be affected by future Climate

Change trends. Due to proposed shifts in precipitation weather patterns climate projections for Idaho and the broader Mountain West show that winter and spring precipitation is expected to increase during the 21st century. More precipitation during these seasons – when snowpack forms and then melts – can heighten the potential for high river flows and flooding. Higher temperatures also mean more precipitation falling as rain instead of snow, which can lead to *earlier snowmelt and higher winter/spring river flows*. **NOAA National Centers for Environmental Information: Idaho Climate Summaries 2022** https://statesummaries.ncics.org/chapter/id/?utm_source=chatgpt.com

Climate models and hydrologic studies consistently show that a warming atmosphere can hold more moisture, leading to more frequent and more intense short-duration precipitation events, which can trigger flash floods and heightened river levels even without large snowmelt volumes. For example, general climate research indicates extreme precipitation magnitudes may increase by roughly 7 percent for each degree Celsius of warming, and extremely heavy winter precipitation is projected to increase several-fold by the end of the century in the western U.S. **University of Idaho Library: *Observed and Projected Changes in Idaho's Climate* John T. Abatzoglou, Adrienne M. Marshall, Grant L. Harley** https://objects.lib.uidaho.edu/mcclure-center/iceia-climate-report-2021.pdf?utm_source=chatgpt.com

In Idaho's snow-dominant watersheds (including parts of Boise County's river systems), climate projections indicate earlier spring runoff, reducing the buffering effect of snowpack. When warmer temperatures cause snow to melt sooner while rain still falls, rivers can crest earlier and with greater magnitude, increasing flood risk. **University of Idaho Library: *Observed and Projected Changes in Idaho's Climate* John T. Abatzoglou, Adrienne M. Marshall, Grant L. Harley** https://objects.lib.uidaho.edu/mcclure-center/iceia-climate-report-2021.pdf?utm_source=chatgpt.com

Streamflow and Flood Frequency Projections

A peer-reviewed hydrologic study of the Boise River Watershed (which influences water systems in and downstream of Boise County) modeled climate-driven streamflow and flood risk through 2099. Its key findings include **(MDPI, *A Study on Climate-Driven Flash Flood Risks in the Boise River Watershed, Idaho* by Jae Hyeon Ryu and Jungjin Kim)**:

- Under multiple statistical flood frequency models, *the magnitude of potential flash flood events is likely to increase over time* due to climate change and variability.
- Climate-driven streamflow scenarios showed a wider envelope of historic variability, meaning future peak flows could be *higher and more unpredictable* than historically observed.
- The simulations suggest that *intense flood events under climate change scenarios could become more frequent* than in past climate conditions.

This does not provide a single number for "increased risk" but clearly shows future flood magnitude and uncertainty trends are upward compared with historical baselines.

Statewide Climate Change Findings (NOAA State Climate Summary)

The 2022 NOAA State Climate Summary for Idaho (a consensus report from climate scientists) highlights climate-related changes relevant to flood risk:

- Temperatures in Idaho have risen significantly and are projected to continue rising, which affects snowpack and the timing of runoff.

- Winter and spring precipitation is projected to increase across the state during this century, which contributes to flood risk when combined with warming.

- Higher temperatures will likely increase the portion of precipitation that falls as rain instead of snow, which can increase winter and early spring streamflows and flood potential. **NOAA National Centers for Environmental Information: Idaho Climate Summaries 2022** https://statesummaries.ncics.org/chapter/id/?utm_source=chatgpt.com

Greater Rain-on-Snow Flood Potential

In parts of western Idaho, including the Payette and Boise River basins, warming temperatures can trigger *rain-on-snow events*, where rain falling on existing snowpack accelerates melting and increases runoff. This process has been linked to flood events and is projected to become *more common under climate change*. **University of Idaho Library: *Observed and Projected Changes in Idaho's Climate* John T. Abatzoglou, Adrienne M. Marshall, Grant L. Harley** https://objects.lib.uidaho.edu/mcclure-center/iceia-climate-report-2021.pdf?utm_source=chatgpt.com Climate research for the U.S. shows that rainstorms are becoming more intense due to climate change, increasing flash flood potential. While this national trend does not directly measure Boise County, it is consistent with regional precipitation projections that also indicate enhanced extreme rainfall. **Axios: Rainstorms are getting more intense amid climate change, Alex Fitzpatrick**

Interactions with Other Hazards

Climate change may also feeds *other factors that can amplify flood impacts*:

- Wildfires, which are projected to increase under climate change, can leave landscapes more vulnerable to rapid runoff and debris flows that can compound downstream flooding risks for up to several years after a fire. Boise State Public Radio News | By Murphy Woodhouse Published February 2, 2024 at 1:26 PM PST

- Changes in snowpack distribution and runoff timing affect reservoir operations and peak river flows, with implications for infrastructure and flood management.

Projected Precipitation

Idaho climate projections show *increases in winter/spring precipitation* and *decreases in snowpack storage capacity* (e.g., April 1 snow water equivalent) by mid-century under higher warming scenarios, which implies more water running off earlier in the season rather than being stored as snow. **University of Idaho Library: *Observed and Projected Changes in Idaho's Climate* John T. Abatzoglou, Adrienne M. Marshall, Grant L. Harley** https://objects.lib.uidaho.edu/mcclure-center/iceia-climate-report-2021.pdf?utm_source=chatgpt.com

Studies using *ensemble streamflow simulation models* for the Boise River Watershed show that future peak flow distributions widen, implying increased extremes with climate forcing – a proxy for increased flood frequency and magnitude. Federal flood maps (FEMA) currently do not account for future climate change impacts on flood probabilities, and experts agree that regulatory floodplain overlays may *underestimate future flood risk* because they rely exclusively on historical hydrology rather than projected changes. **MDPI *A Study on Climate-Driven Flash Flood Risks in the Boise River Watershed, Idaho*** by **Jae Hyeon Ryu** and **Jungjin Kim**

"Climate change" contributes to increased flood risk in Boise County by:

- Warming temperatures that lead to earlier snowmelt and rain-dominated precipitation events in winter and spring.
- More intense precipitation events that can trigger flash flooding and raise river levels rapidly. Heavier rainfall events are likely, which heightens flash flood potential. **Axios: Rainstorms are getting more intense amid climate change, Alex Fitzpatrick**
- Changes in snowmelt timing and magnitude that shift streamflow peaks into different seasons.
- Landscape changes (e.g., wildfire scars) that make soils less absorbent and can exacerbate runoff.
- Increased likelihood of higher peak flows and flood-causing events compared to the historical climate baseline. Winter/spring precipitation may rise, and a larger fraction will fall as rain instead of snow, increasing river discharge extremes. **NOAA National Centers for Environmental Information: Idaho Climate Summaries 2022** https://statesummaries.ncics.org/chapter/id/?utm_source=chatgpt.com
- Greater unpredictability in the timing and intensity of flood-related runoff. Early snowmelt and rain-on-snow dynamics can concentrate runoff into shorter periods with higher flows, raising flood risk in spring. **University of Idaho Library: *Observed and Projected Changes in Idaho's Climate* John T. Abatzoglou, Adrienne M. Marshall, Grant L. Harley** https://objects.lib.uidaho.edu/mcclure-center/iceia-climate-report-2021.pdf?utm_source=chatgpt.com

- A need for adaptation in planning and infrastructure design that anticipates more extreme events than those shown in historical records. Hydrologic modeling suggests a broader range of possible streamflow extremes in the future, indicating increased flood magnitude potential. **MDPI *A Study on Climate-Driven Flash Flood Risks in the Boise River Watershed, Idaho*** by **Jae Hyeon Ryu** and **Jungjin Kim**

4.2.4 - Value of Resources at Risk

The diverse landscape and weather patterns of Boise County cause flooding. Riverine flooding occurs mostly in the northern regions of Boise County along the Main Fork, North Fork, South Fork, and Middle Fork of Payette River. Valley County regulates the water flow rates by two dams located on Payette Lake and Cascade Lake, which reduce the drainage area within their county but significantly increase the risks in Boise County by increasing the water velocity flowing southward into the northern lowlands of Boise County. Rain-on-snow events can occur at almost all elevations across the county, and these events often contain enough moisture to cause flooding on the Main Fork, North Fork, South Fork, Middle Fork, and most of Payette River's major tributaries in the county. These events are likely to increase in occurrence and magnitude with climate change and warmer temperatures. The high elevation areas within Boise County act as the water source for flooding other areas of the county as well as other counties adjacent to Boise County.

Within the region, summer thunderstorms can result in flash flooding of specific smaller drainages. Often there is little time to react to the quickly rising waters. Due to the nature of the terrain within Boise County, localized flooding from thunderstorms tends to be more of a storm drainage problem for many communities. Short term blockage of roads is usually the biggest impact as drainage structures are overwhelmed by the amount of water. Many of the roads within the county are gravel roads which tend to wash into storm drains and potentially sewer drains plugging these structures.

Wildfires create risk of flash floods due to the reduction in vegetative cover across slopes. These localized flood events would be constrained to the drainages within the burned area and downstream until the water and debris reaches the larger river system. Additionally, ice and debris flows can occur as part of riverine and flash flooding.

FEMA's RiskMap FIRMs, both the current *Effective Floodplain Map* and the *Preliminary Floodplain Map* in all four of the incorporated cities have exposed populations and structures in both the 100-year (1%) and 500-year (0.2%) floodplains (Table 29 and Table 30). Most of the population and structures exposed to flood events are located in the unincorporated areas of the County. In general, most of the exposure are residential properties, with commercial and agriculture-related buildings exhibiting more limited exposure.

Table 26: Population exposure to floods

Event	Crouch	Horseshoe Bend	Idaho City	Placerville	Unincorp.
100Yr (1%)	13	397	81	-	2,687
500Yr (0.2%)	13	444	71	-	2,602

Table 27: Structure count and type exposure to floods

	Event	Res	Com.	Ind.	Agr.	Rel.	Gov.	Edu.
Crouch	100Yr (1%)	55	4	2	1	1	1	1
	500Yr (0.2%)	55	4	2	1	1	1	1
Horseshoe Bend	100Yr (1%)	201	8	4	0	0	0	1
	500Yr (0.2%)	224	9	4	0	0	0	1
Idaho City	100Yr (1%)	105	5	1	0	1	1	2
	500Yr (0.2%)	60	4	1	0	0	0	1
Placerville	100Yr (1%)	0	0	0	0	0	0	0
	500Yr (0.2%)	0	0	0	0	0	0	0
Unincorporated	100Yr (1%)	1,656	62	24	7	6	6	3
	500Yr (0.2%)	1,685	65	24	7	6	7	3

Source: US Census Bureau, 2017 Boise County's HMP

Table 28: Structure value exposure to floods (thousands of USD)

	Event	Res	Com	Ind	Agr	Rel	Gov	Edu
Crouch	100Yr (1%)	$16,239	$2,567	$750	$553	$479	-	$1,613
	500Yr (0.2%)	$16,239	$2,567	$750	$553	$479	-	$1,613
Horseshoe Bend	100Yr (1%)	$54,935	$5,476	$1,484	-	-	-	$4,702
	500Yr (0.2%)	$61,081	$5,855	$1,484	-	-	-	$4,702
Idaho City	100Yr (1%)	$31,308	$5,431	$519	-	$1,221	$435	$15,756
	500Yr (0.2%)	$17,920	$4,821	$519	-	-	-	$14,357
Placerville	100Yr (1%)	-	-	-	-	-	-	-
	500Yr (0.2%)	-	-	-	-	-	-	-
Unincorporated	100Yr (1%)	$546,371	$59,038	$18,991	$3,364	$4,289	$8,476	$1,878
	500Yr (0.2%)	$557,370	$60,024	$18,851	$3,434	$4,255	$10,297	$1,878

Sources: US Census Bureau, 2017 Boise County's AHMP, ???

Table 29: Damage to essential facilities

		Number of Critical Facilities		
		At Least Moderate	At Least Substantial	Loss of Use
100-Year Flood (FEMA)	Hospitals	-	-	-
	Schools	3	3	4
	EOCs	-	-	-
	Police Stations	1	1	1
	Fire Stations	1	1	2
500-Year Flood (FEMA)	Hospitals	-	-	-
	Schools	3	3	4
	EOCs	-	-	-
	Police Stations	1	1	1
	Fire Stations	1	1	2

Source: 2017 Boise County HMP

Flood Risk and Future Development in Boise County

Future development in flood-prone areas within Boise County presents a significant concern, as it may lead to increased losses affecting both life and property. The areas of highest flood risk are found along the Payette River, Mores Creek, and Elk Creek. Flooding associated with these waterways may potentially impact on the Cities of Crouch, Horseshoe Bend, and Idaho City, as well as their respective Adjacent Community Interfaces (ACIs). Notably, the Payette River flows directly through Horseshoe Bend and Crouch, while Mores Creek and Elk Creek run parallel to Idaho City within city limits.

In addition to natural waterways, a canal runs parallel to the Payette River as it passes through Horseshoe Bend, which increases the potential for flood-related losses in the event of a flood. According to the Boise County Comprehensive Plan and Future Land Use Map, anticipated future development is likely to occur in and around these community centers. This includes areas near the Ponderosa Pine Scenic Route, where the community is at risk from flooding associated with Robbie Creek.

Should development continue in these flood-prone regions, the flood hazard risk within Boise County may increase due to heightened exposure of populations, structures, and critical infrastructure. While there are numerous tributaries and other waterways in the County with flood potential, most are situated on Conservation Areas (federal lands) or Natural Resource Areas where residential development is minimal, limiting the risk in those locations.

Figure 26: Socioeconomic Vulnerability to Floods

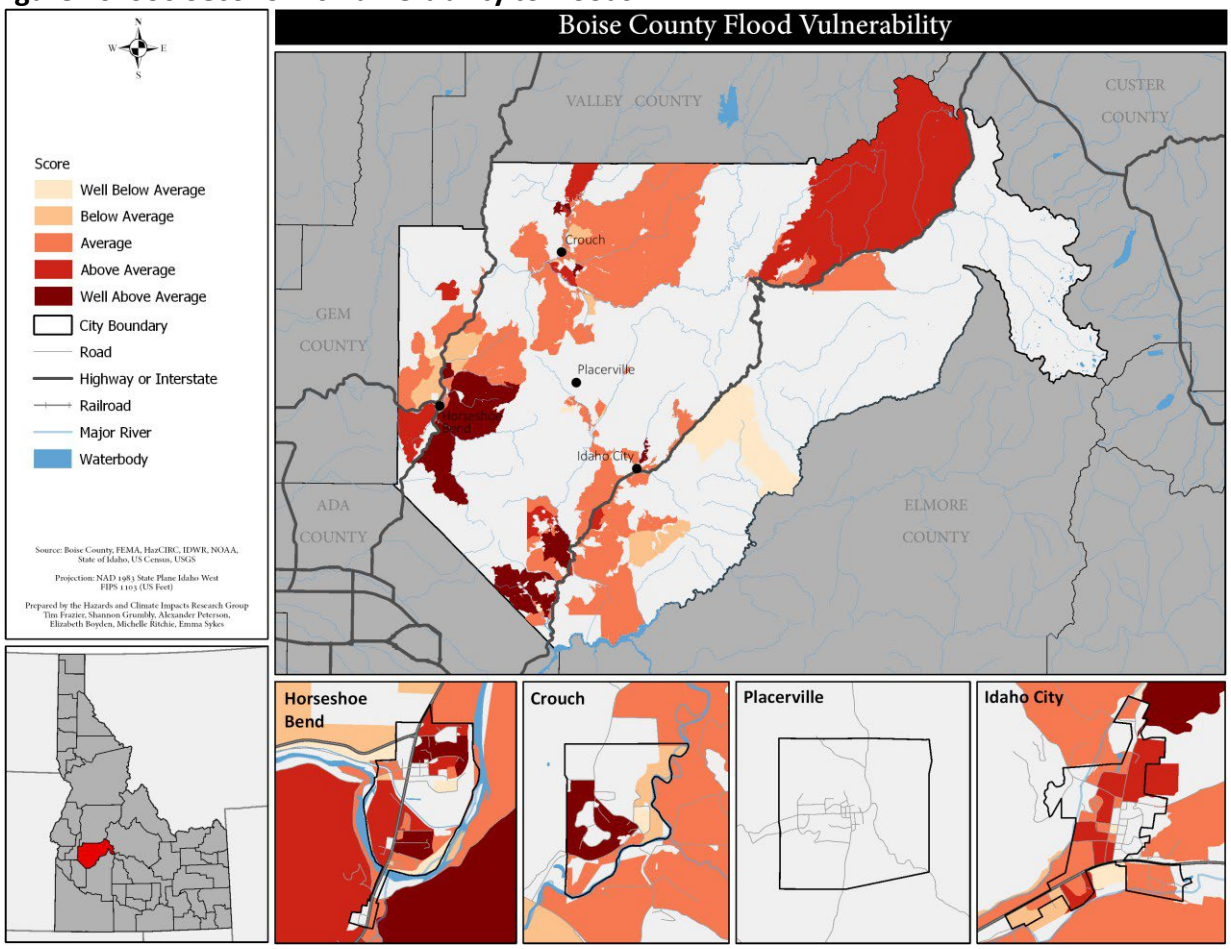


Figure 27: Loss Estimates for the FEMA 1% (100 Year) Annual Chance Flood Event

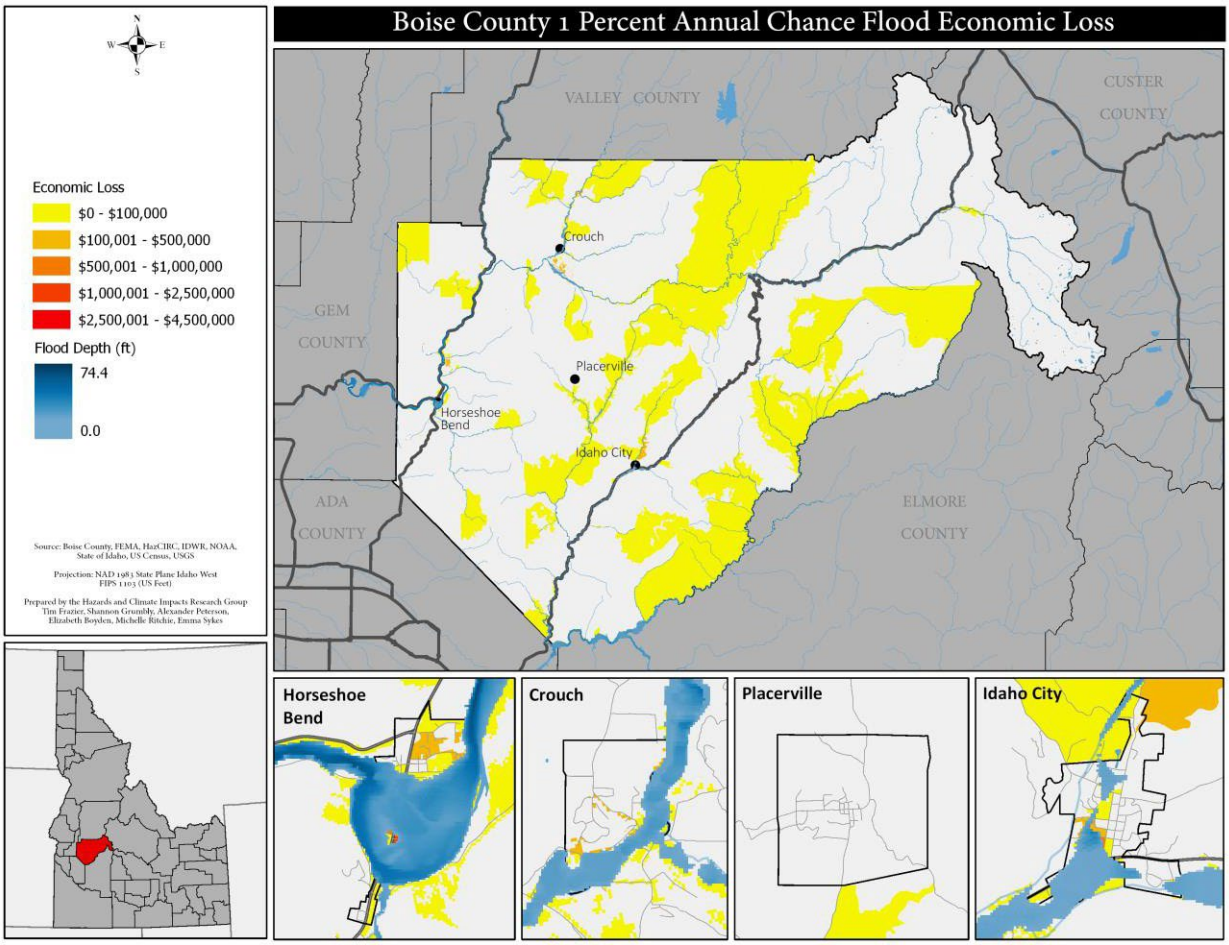
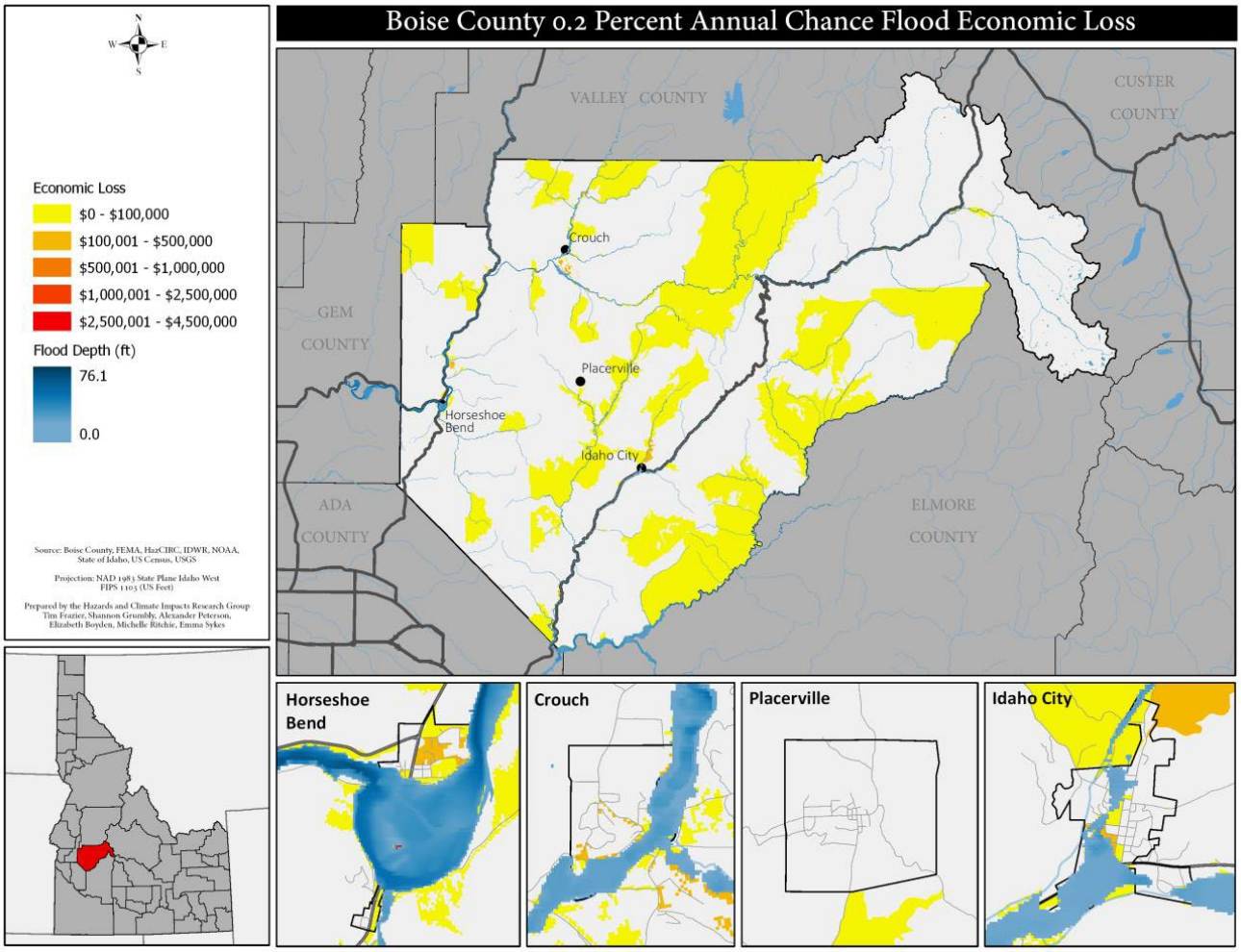


Figure 28: Loss Estimates for the FEMA 0.2% (500 year) Annual Chance Flood Event



4.3 Geologic Hazards Profile

Geologic hazards, natural events stemming from the dynamic processes of the Earth, pose varying levels of risk to Boise County's residences and infrastructure. These hazards include avalanches, landslides, earthquakes, and volcanic ashfall. Although the County is not located in a region with frequent or severe geologic activity compared to other parts of the Pacific Northwest, the topographic, soil, and hydrologic characteristics of the region make it susceptible to specific geologic threats. This section identifies and evaluates the geologic hazards relevant to the County, their historic and potential impacts, and the associated resources at risk.

4.3.1 - Avalanche

Although avalanches do not often cause widespread structural damage, there is an increasing trend in avalanche-caused casualties across the Western US. It is important to mitigate potential loss of life and reduce resources expended during search and rescue. The 2017 update incorporated an avalanche hazard profile, undertook avalanche data collection and modeling, and considered future development and climate impacts, to provide a more comprehensive analysis of avalanche risk.

Hazard Description and History

Table 30: Boise County Avalanche History

	1980-2016	2017-2025	Total
Occurrences	9	1	10
Disaster Declarations	-	-	-
Casualties	8 Fatalities 7 Injured	-	8 Fatalities 7 Injured
Property Damage	-	-	-
Repetitive Losses	-	-	-

Source: NOAA – Storm Events Database, Boise County HMP 2017, IDL

An avalanche is defined as the rapid downslope movement of snow, frequently combined with ice, air, and occasionally debris such as rocks, soil, or trees, which transpire when the stability of the snowpack on a slope is compromised. Avalanches are initiated when the gravitational forces acting upon the snow exceed the cohesive strength of the snowpack anchoring it. Once triggered, avalanches can accelerate rapidly, often reaching velocities of 60–80 mph during significant events. These phenomena occur swiftly, remain challenging to predict with accuracy, and may sometimes be triggered by individuals present within the hazard zone.

Avalanche events depend on complex interactions between weather patterns and terrain. They are most likely to happen during heavy snowfalls or thaws, with many occurring during or soon after major snowstorms. Roughly 90% of avalanches start on slopes between 30 and 45 degrees, but slopes from 25 to 50 degrees can also be at risk. Avalanches often take place above the timberline, especially on slopes facing away from prevailing winds, though they can also occur lower down in gullies, road cuts, and clearings among trees. Thick forests generally help stabilize the snow and prevent avalanches, but areas with moderate tree cover are still vulnerable.

There are two main types of avalanches: loose snow avalanches and slab avalanches. Loose snow avalanches begin at a single spot, rarely cause much damage, and involve dry, fresh snow sitting atop older, stable layers. Slab avalanches, however, can be deadly because they release a solid block of snow that slides as one unit, potentially causing destruction and loss of life. These avalanches often occur when something disturbs the snowpack or when the strength within the slab exceeds the stability below or beside it. As slab avalanches travel downhill, they gather speed and more snow.

An avalanche's path has three parts. The starting zone is high up on ridges, bowls, or canyons, with steep slopes between 25 and 50 degrees. The track zone has gentler slopes of 15 to 30 degrees, where avalanches reach their highest speed and largest size. The runout zone sits at the bottom,

with mild slopes from 5 to 15 degrees, and is where the avalanche slows and leaves behind snow and debris.

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

Impact of Avalanche Events

Avalanches are a significant hazard in the mountainous regions of Idaho. Between 1950 and 2017, there were 71 reported fatalities related to avalanches in the state, placing Idaho seventh in the nation for avalanche-related deaths **(Colorado Avalanche Information Center, 2017).** Among these incidents, snowmobiling was identified as the leading cause, with climbing and backcountry skiing also contributing to fatalities.

The geophysical processes that lead to avalanches are statistically independent of previous events. This means that the occurrence of avalanches is not directly linked to any single factor or past history. Instead, avalanches typically result from a combination of elements such as snow depth, meteorological conditions, vegetative cover, and human activities.

Due to these limitations and the lack of consistent reporting, it is challenging to establish return periods for avalanches in Idaho. As a result, regional avalanche forecast centers utilize the North American Avalanche Danger Scale (2010) to qualitatively assess the probability of avalanche activity. This scale also provides recommended travel precautions based on current observations, as shown in the reference table.

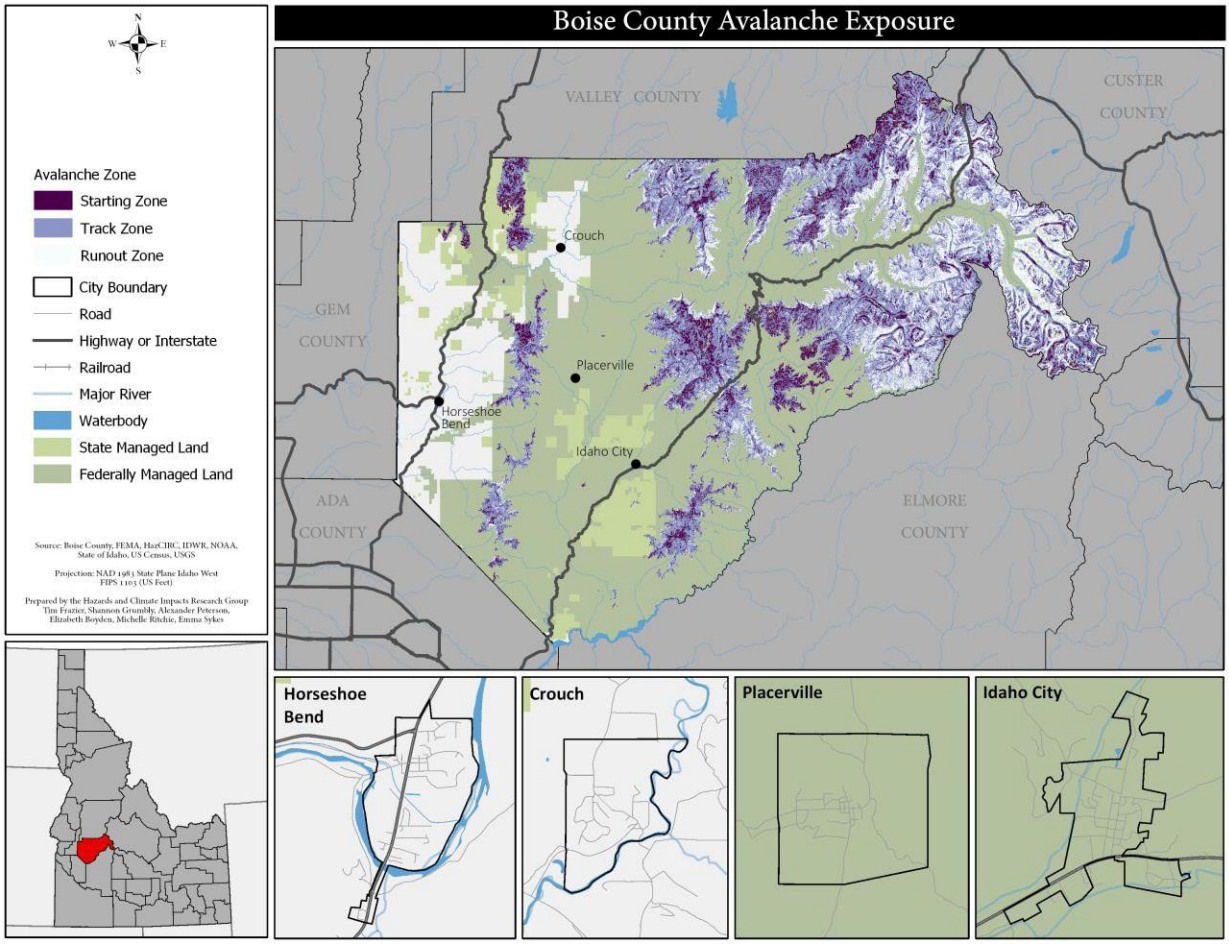
Table 31: North American Avalanche Danger System

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

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

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

Figure 29: Avalanche Zones Map



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

Table 32: Avalanche Impacts Pressure and Damages

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

Probably of Future Occurrences

Climate change may affect how often and how severely avalanches occur, largely due to shifts in precipitation patterns. Heavier snowfall, more frequent freeze-thaw cycles, and changes in rainfall can lead to an increase in avalanches. The Intergovernmental Panel on Climate Change (IPCC) considers stronger precipitation events extremely likely, which could result in more avalanches. Conversely, rising temperatures may decrease avalanche activity by shrinking the areas where avalanches typically start and reducing peak runoff. Further detailed research is needed to better understand how climate change might impact avalanche frequency and intensity.

It is important to note that avalanches can occur throughout the winter and spring seasons in the backcountry. These avalanches are often not reported due to no losses of life or property, making it difficult to determine the precise number of actual occurrences.

Table 33: Avalanche occurrences

Date	Casualties	Damage	Trigger	Area
1/10/1997	1 Fatality	-	Snowmobile	Fox Canyon
3/2/2009	-	-	Unknown	Emigration Canyon
2/20/2012	1 Caught	-	Snowmobile	Beaver Creek Canyon
2/24/2012	1 Buried	-	Snowmobile	Bloomington Canyon
1/11/2014	1 Injured	-	Snowmobile	St. Charles Canyon
1/13/2014	-	-	Unknown	Sink Hollow
1/17/2014	1 Caught	-	Snowmobile	Bloomington Lake
12/31/2015	1 Injured; 2 Caught	-	Snowmobile	St. Charles Canyon
1/23/2016	-	-	Natural	Worm Creek
2/7/2016	-	-	Natural	Bear Lake

Sources: NWS, Payette Avalanche Center

Climate change may affect how often and how severely avalanches occur, largely due to shifts in precipitation patterns. Heavier snowfall, more frequent freeze-thaw cycles, and changes in rainfall can lead to an increase in avalanches. The Intergovernmental Panel on Climate Change (IPCC) considers stronger precipitation events extremely likely, which could result in more avalanches. Conversely, rising temperatures may decrease avalanche activity by shrinking the areas where avalanches typically start and reducing peak runoff. Further detailed research is needed to better

understand how climate change might impact avalanche frequency and intensity.

Value of Resources at Risk

Avalanche incidents in Boise County predominantly affect individuals and groups engaging in backcountry activities. Certain segments of the transportation infrastructure, particularly those situated in high-altitude regions adjacent to steep inclines, may also be at risk. GIS analysis examining the proximity of the County's population and structures to avalanche-prone areas reveals that, while some residents and buildings are exposed, the overall degree of exposure is minimal throughout the County.

Building in Boise County's mountainous regions raises avalanche risks. While avalanches mainly occur naturally, human activities and living in high-risk zones make both their likelihood and effects worse. Steep slopes where avalanches begin are usually unsuitable for heavy development, but building in the runout zone (with slopes between 5 and 30 degrees) directly below these areas remains at risk. Expanding or creating new ski resorts also adds to avalanche vulnerability. Although avalanches rarely cause major structural damage, there has been a rise in casualties linked to increased backcountry recreation.

Avalanche risk has little effect on current and future land use near community centers, as most avalanche zones are on federal or natural resource lands with limited residential development. While some agricultural, mining, grazing, timber, and residential activities occur in these areas and may be affected by avalanches, future residential growth is expected to remain low. However, critical infrastructure like communication towers could face higher risk in west-central and northeastern Boise County.

4.3.2 - Landslides

Hazard Description and History

Table 34: Boise County - Landslide Summary

Date Range	Location/Event	Cause	Impacts	Casualties	Damage/Costs
Pre-1991	Hwy 55 at Spring Valley Summit	Natural slope instability	Repeated road closures; infrastructure impacts	Not specifically recorded	Not quantified but repeated maintenance costs
12/1996 - 01/1997	Statewide (incl. Boise County)	Heavy rain & snowmelt	Multiple major landslides, blocked roads	Region: 6 deaths (statewide); Boise County specifically not isolated	Regional flooding Millions; Boise County part of event
03/2021	Hwy 55 construction zone	Construction + slope instability	Road closures	0	Contributed to increased project costs
11/2021	Hwy 55 — Cut 8	Slope failure	Extended closures	0	$9M added to project cost
01/2022	Hwy 55 — Cut 5	Rockslide	Road closure, vehicle impacts	0	Part of mitigation expenses

Source: USGS

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

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

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

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

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

Omitting weather-caused landslides, landslide occurrence is often coincident with other natural hazards, such as earthquakes, and floods. Consequences of landslides in Idaho generally occur

directly at the site and downslope of the slide area, as well as in adjacent waterways. Temporary road closures and lengthy detours during debris removal and infrastructure repair are the most probable impacts. Landslides can also destroy structures, fuel and energy lines, and communication infrastructure.

Impact of Landslide Events

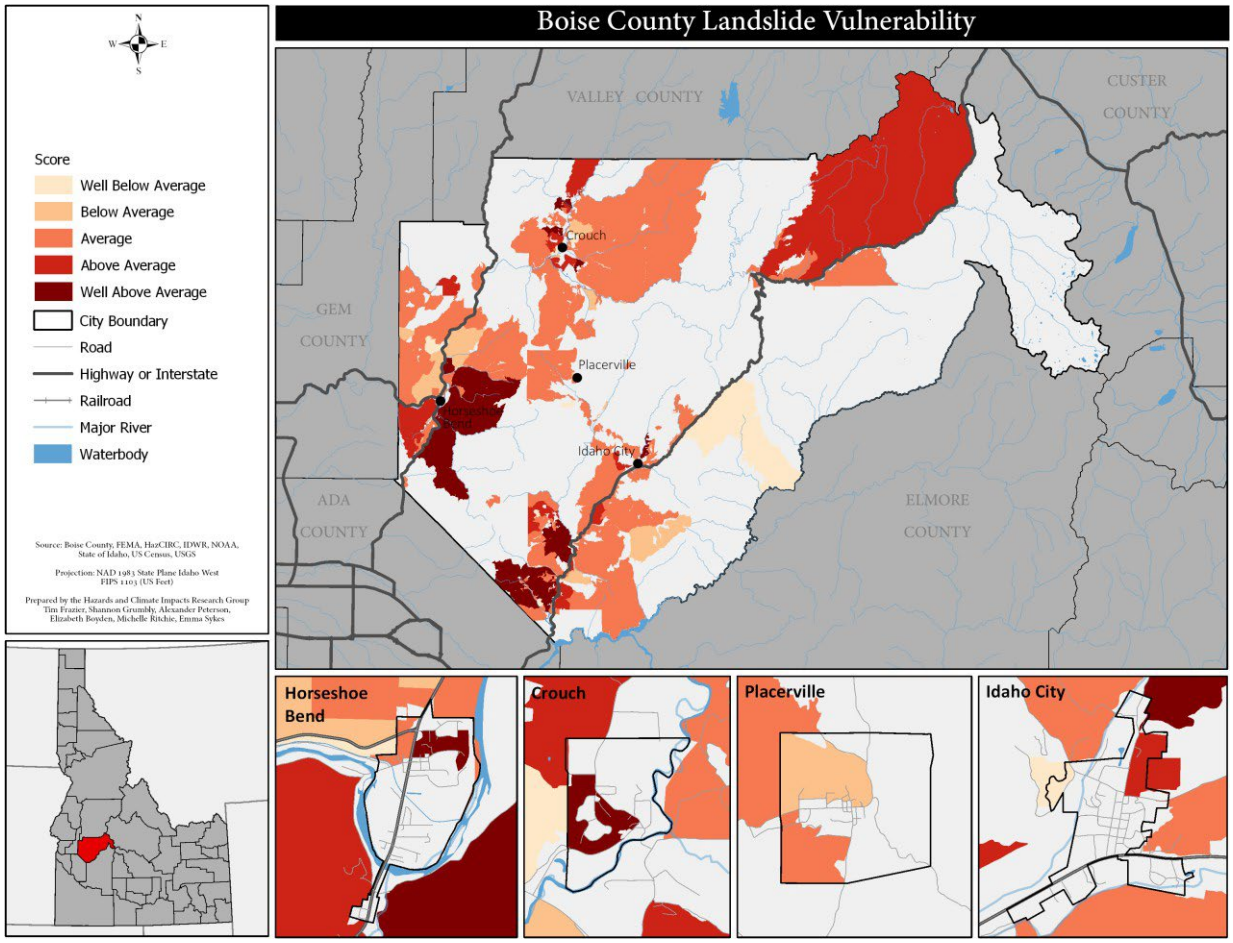
Landslides are a recurrent threat to waterways and highways and a danger to homes, schools, businesses, and other facilities. The unimpeded movement over roads—whether for commerce, public utilities, school, emergencies, police, recreation, or tourism—is essential to the normal functioning of the Reservation. The disruption and dislocation of these or any other routes caused by landslides can quickly jeopardize travel and vital services. Although small slumps on cut and fill slopes along roads and highways are relatively common, nearly all of the more significant landslide risks in the County are associated with the steeper, mountainous slopes.

Slides in the river and stream drainages may also block the channel causing water to back up and spill over into areas not previously at risk to flooding. Numerous communities and homes could be at risk if this type of event were to occur. In many cases, a slide blocking the water channel would also cut off emergency access routes as many roads on the Reservations parallel the streams and rivers.

Probability of Future Occurrences

Boise County has experienced landslide occurrences throughout its history. Similar to avalanches, however, not all landslide occurrences are reported, notably those in the backcountry or with no impact to lives and property.

Figure 30: Landslide Vulnerability



Boise County is within the Idaho Batholith, which is a Granitic intrusion of the late Cretaceous Period. Only small portions of the county are level, with the predominant mountainous landscape brought about by historic uplifts, faults, fault blocks, alluvial deposits and stream cutting action that has created steep narrow canyons.

About 70% of Boise County has slopes steeper than 40%. The deep canyons associated with all forks of the Payette River cut through the granite that underlie the regions of Boise County. These flows are interbedded with loose, unstable sedimentary layers that are exposed in the deeply incised canyons. The expose of this unconsolidated sedimentary layer increases landslide potential wherever these deposits are present on steep slopes. Weathering and climatic events lead to landslide activity, with the scale of the event largely dependent on the environmental conditions leading up to the event. Highways 55, 17, and 21 and structures along Payette River system are most likely to be affected by landslide activity.

Value of Resources at Risk

Landslide risk is minimal in the city limits of Crouch, Horseshoe Bend, Idaho City, and Placerville; however, this landslide risk increases in their respected active condition indicators/factors, as well as in other future residential areas in the County. Otherwise, the majority of the landslide risk in the County is located in Conservation Areas (federal lands) and Natural Resource Areas where residential development is minimal yet, critical infrastructure (e.g. Communication towers, etc.) may be at risk if located in these areas where landslide risk is the highest.

Managing landslides in Boise County requires addressing significant roadway accessibility concerns. When landslides occur, road closures may last for days or even weeks, limiting access to crucial services like emergency response, food, and other necessities. Additionally, communities that depend on surface water sources for their municipal supply, such as Horseshoe Bend, encounter additional difficulties. For instance, a landslide north of Horseshoe Bend on Highway 55 last year sent debris onto the road and into the nearby river, making the water temporarily unsuitable for public use. Addressing these issues is costly, but necessary steps must be taken. Refer to "Mitigation Action Items" for more information.

Table 34: Population Exposure to Landslides

Magnitude	Crouch	Horseshoe Bend	Idaho City	Placerville	Unincorporated
1	-	-	-	-	69
2	-	-	-	-	211
3	-	-	-	-	116
4	-	-	-	-	57

Source: US Census Bureau, 2017 Boise County HMP, Point2Homes housing profiles - 2023

A total of 453 structures, all situated in the County's unincorporated areas, are considered at risk of landslide exposure. These structures have a combined value exceeding $125,000,000 (**US Census Bureau, Point2Homes housing profiles – 2023)**.

4.3.3 Earthquake

Hazard Description and History

Boise County has experienced a number of seismic events throughout its history, with effects felt from both proximate and distal earthquakes.

Table 35: Earthquake Summary

	1980-2006	2017-2025	Total
Occurrences	15	5	20
Disaster Declarations	-	-	-
Casualties	-	-	-
Property Damage	-	-	-
Repetitive Losses	-	-	-

Source: USGS https://www.seismicportal.eu

An earthquake is a trembling of the ground resulting from the sudden shifting of rock beneath the earth's crust. Such events cause waves of energy to radiate from the point of release, causing the movement, shaking, and rolling felt during an earthquake event. The durations of earthquakes are normally limited to a few seconds (, but the resultant waves can travel hundreds to thousands of miles and can cause damage to locations far from the fault. Faults are the breaks, fractures, or fracture

zones in the earth associated with seismic activity. These faults are classified as either active or inactive given any associated known geological activity, and can be sharp cliffs or scarps or buried below the earth's surface.

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

Damages associated with earthquakes are influenced by the following:

- Seismic Activity – Varying between earthquake events, seismic activity ranges from localized, small points of energy release to widespread, large and destructive releases. The length of earthquakes ranges from brief (a few seconds) to more than a minute. Earthquake epicenters can be shallow or deep, with depth influencing the type of seismic waves felt and their destructive potential.

- Geology & Soil Types – The underlying geology and soil type of an area influences the propagation of the seismic waves and their impact. Stable geologic types (such as solid bedrock) are less prone to destructive shaking than more unstable geologic types, such as fill soils. The siting of structures and communities as a whole strongly influences the nature and extent of earthquake damages.

- Development & Development Quality – The type and quality of development is vital in considering earthquake damages to a county or community. Isolated, small earthquakes in densely-populated areas or areas with unreinforced masonry can be more devastating than a high-magnitude earthquake in a remote location or in an area with earthquake-appropriate building codes.

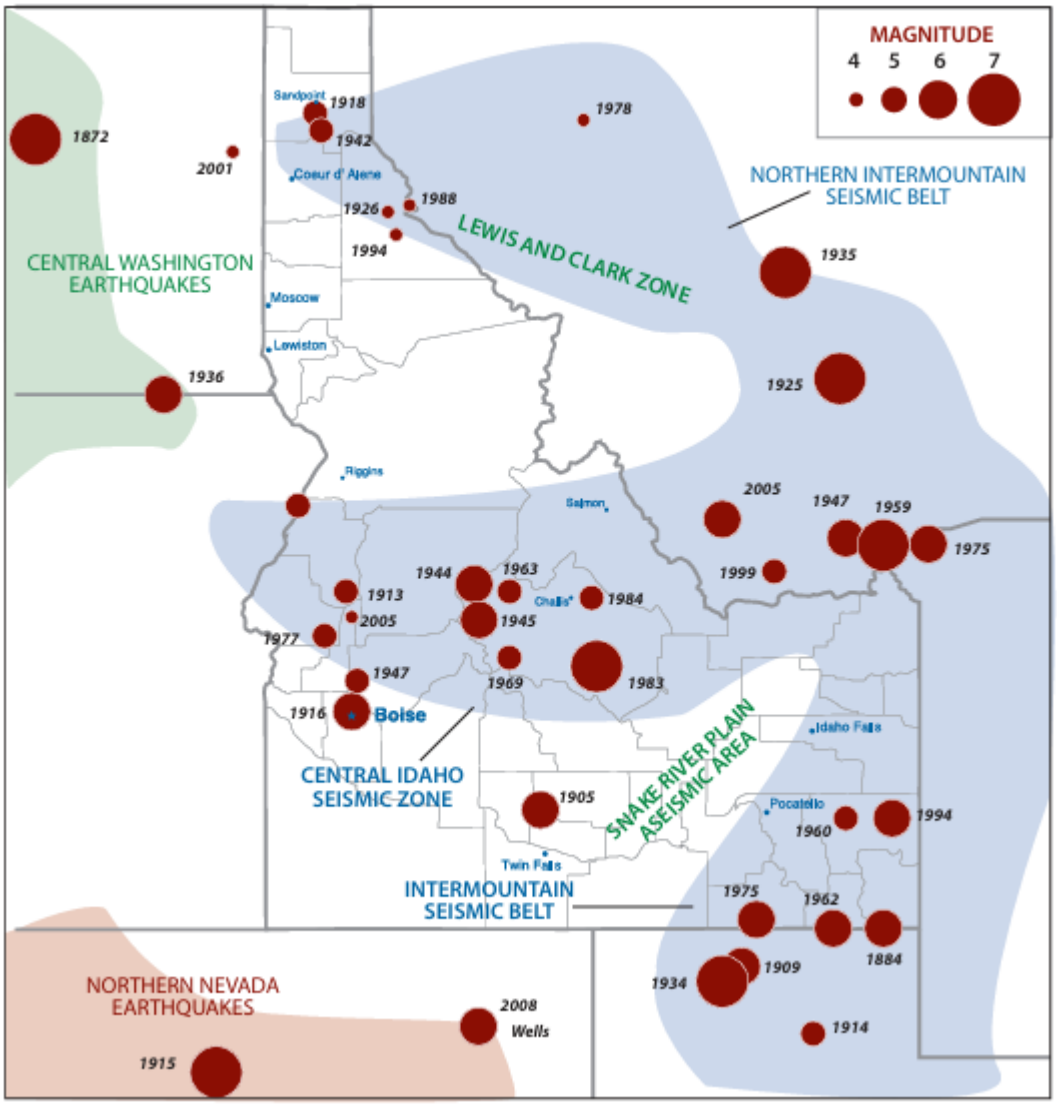
- Time of Day – Time of day determines the distribution of the population, and therefore the distribution of injuries and fatalities. Residences house more people in the evening and night, whereas business centers, schools, and other day-use locations house more people in the morning and afternoon. Day of the week is also important to consider, as people's work, travel, and activities vary between weekdays and weekends. Damages from earthquakes varies, with most damages stemming from shaking. Secondary impacts, such as landslides, are often a result of shaking. The following describes some of the types of damage stemming from an earthquake:

- Shaking – Ranging from minor to severe, minor shaking can cause objects to fall and other minimal damage, while severe shaking causing large structures to collapse and extensive damages. Unreinforced masonry and wood frame structures are most prone to earthquake damage. Non- structural falling hazards include loose or poorly secured objects, and include objects such as bookcases, wall hangings, and building facades. These objects can cause

additional structural damage, and injury or fatality. Shaking can also rupture dams, destroy power and telephone lines, gas, sewer, or water mains, and can cause fires or other hazards that impair response and recovery efforts.

- Ground Displacement – The most dramatic visual evidence of an earthquake, ground displacement often occurs along a fault line. Ground can be thrust upward, subside, or move laterally given a severe enough earthquake. Damages from ground displacement is normally limited to utility lines and transportation infrastructure, though structures situated on fault lines can also be impacted.
- Landslides & Avalanches – Earthquakes often cause cascading hazards. If meteorological conditions are right, such as in-place snowpack or recent rain events, even small earthquakes can cause rock falls, landslides, or debris flows.
- Liquefaction & Subsidence – Liquefaction occurs when the energy released from an earthquake weakens the strength and stiffness of a soil, while subsidence is the caving in or sinking of an area. Fill and saturated soils are notably at risk of liquefaction, which can result in widespread structural damage. Liquefaction and subsidence can also impact surface and subsurface water flow, which can impair individual or community wells as well as flash flood-like water flow. These impacts can likewise impact septic systems, which create additional health risks.
- Seiches – Oscillating waves in an enclosed body of water caused by an earthquake are termed seiches. Although not commonly damaging given their rarity, seiches can resemble tsunami characteristics and destructive potential. Shoreline development along a lake in earthquake-prone areas are then at risk of damage, as well as dams or flood mitigation structures such as levees. Seiches can also cause hydrothermal explosions.

Figure 31: Strongly Felt Historical Earthquakes in the Idaho Area



Source: https://www.idahogeology.org/pub/Other/Putting_Down_Roots_3_19_11.pdf?utm_source=chatgpt.com

Impact of Earthquake Events

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

Table 36: Modified Mercalli Scale Intensities and Descriptions

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

Source: USGS

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

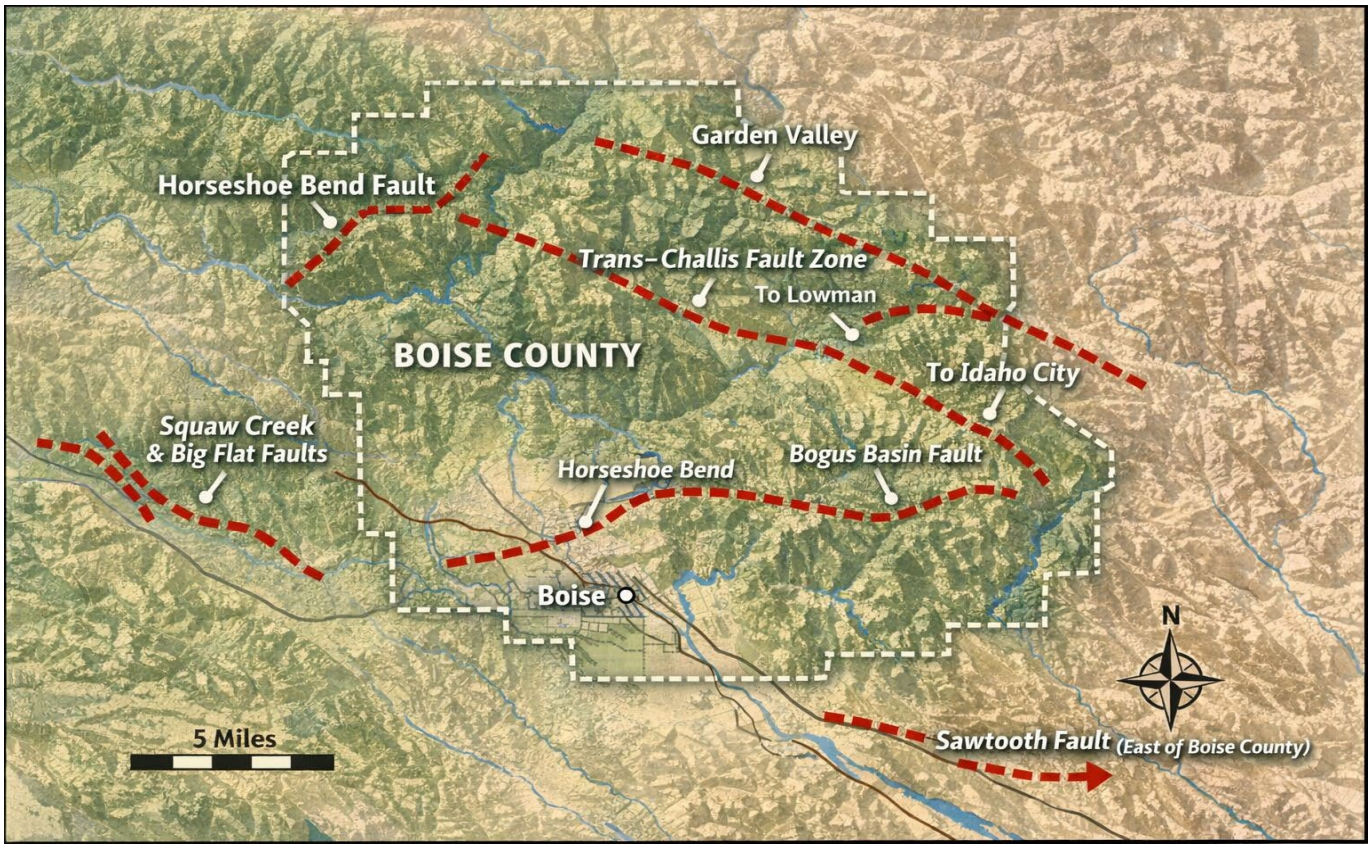
Table 37: Magnitude Ranges and Typical Effects

Magnitude	Classification	Typical Effects
< 2.0	Micro	Not felt; detected only by instruments
2.0–2.9	Minor	Usually not felt
3.0–3.9	Minor	Often felt; rarely causes damage
4.0–4.9	Light	Noticeable shaking; minor damage
5.0–5.9	Moderate	Can damage poorly built structures
6.0–6.9	Strong	Significant damage in populated areas
7.0–7.9	Major	Serious widespread damage
≥ 8.0	Great	Catastrophic damage over large areas

Source: USGS

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

Figure 32: Earthquake Faults in Boise County



Source: USGS, Idaho Geological Survey

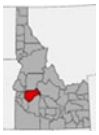


Table 38: Faults Affecting Boise County

Fault or Fault Zone	Location/Trend	Notes
Trans-Challis Fault Zone (two legs)	Through Boise County (Idaho City → Lowman; Horseshoe Bend → Garden Valley)	Larger structural zone with regional relevance
Northern extension faults from Ada County	North from Boise City, across Horseshoe Bend toward Valley County	Known mapped traces with some local seismicity
Northwest-trending faults (Snake River Plain)	Across southwestern Idaho	Many are present but not clearly active based on surface morphology
Nearby Squaw Creek / Big Flat / Jake's Creek faults	~<25–40 miles from Boise	Influence regional hazard but centered outside Boise County
Sawtooth Fault (distant)	Eastern Idaho, ~65+ miles from Boise	Large normal fault; possible shaking effect on Boise regio

Probability of Future Occurrences

Earthquakes occur with moderate frequency in certain areas of Boise County, though historical data typically categorizes them as "micro to minor" in magnitude. Statistically, these seismic events arise approximately once every five years within the County. Table ?? presents detailed information regarding their frequency and distribution. Earthquake activity is generally concentrated in conservation zones, federal land, which tend to have lower population densities. According to the USGS National Seismic Hazards Map, there is a projected two percent probability of experiencing a significant earthquake event (magnitude 5.0 or greater) within the next fifty years.

Expanding development in Boise County could heighten earthquake risk by increasing the number of people, buildings, and vital infrastructure exposed to potential seismic activity. The areas with the greatest risk are located northeast on conservation and federal lands, where residential construction is uncommon. While community centers across the county face lower overall earthquake risk, they contain vulnerable structures and assets that could suffer greater damage during a quake compared to those in the northeastern region.

The City of Horseshoe Bend implements the International Residential Code (IRC) and International

Building Code (IBC). Enforcing these standards for new constructions helps protect lives and property from future earthquakes by ensuring buildings are properly designed and built to minimize seismic risk.

Figure 33: Earthquake Occurrences and PGA

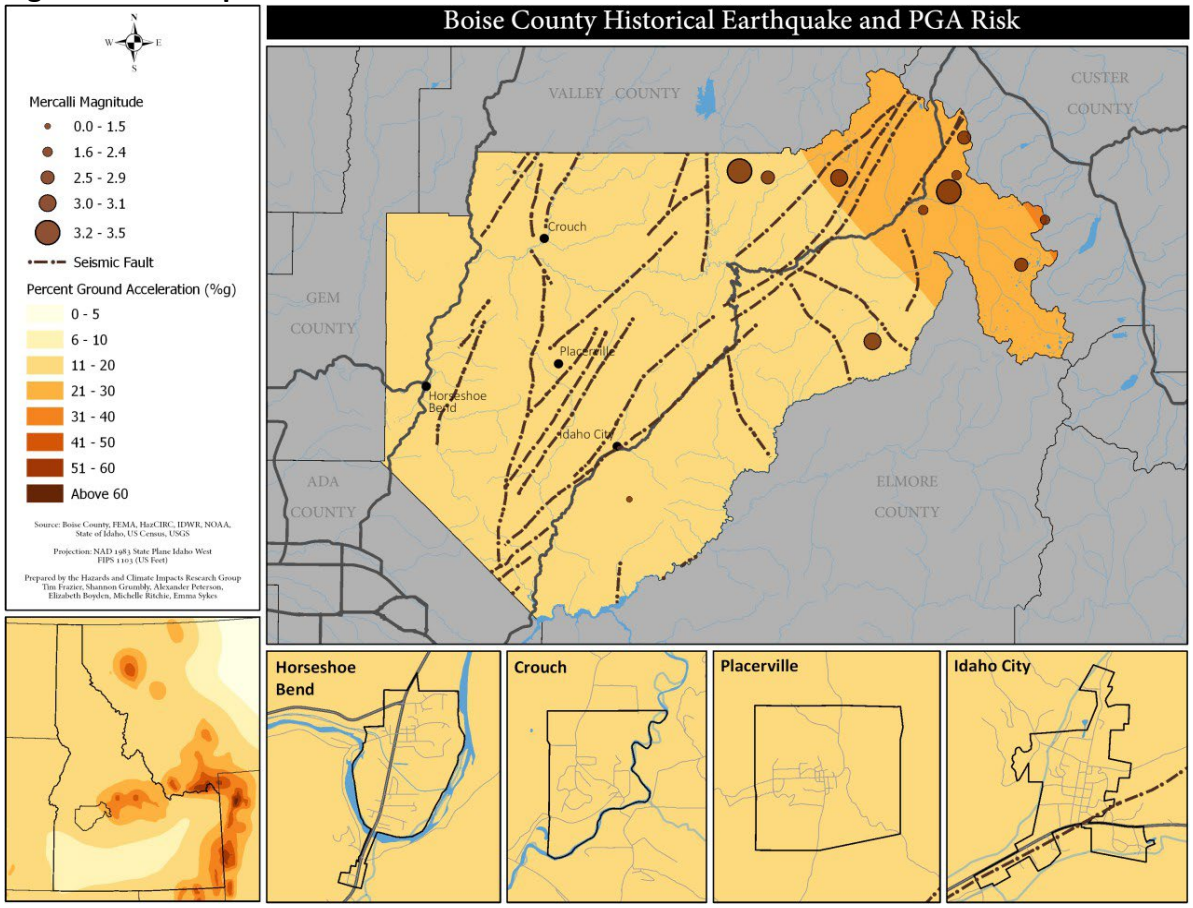


Table 39: Earthquake Occurrences

Date	Magnitude		Date	Magnitude
03/22/1978	4.1		12/11/2013	2.2
02/28/1983	3.7		05/21/2013	2.7
09/22/1990	3.0		12/11/2013	2.2
02/20/1994	3.3		03/06/2014	2.0
03/22/1995	3.3		04/19/2014	2.5
09/05/2000	3.2		11/01/2014	2.1
12/28/2001	3.1		04/06/2024	3.5
07/02/2010	3.2		09/04/2024	3.7
08/21/2010	3.4		01/17/2025	3.5
05/07/2013	2.3		03/26/2025	3.5
05/21/2013	2.7		10/30/2025	3.4

Source: USGS

Figure Table 34: Earthquake Occurrences

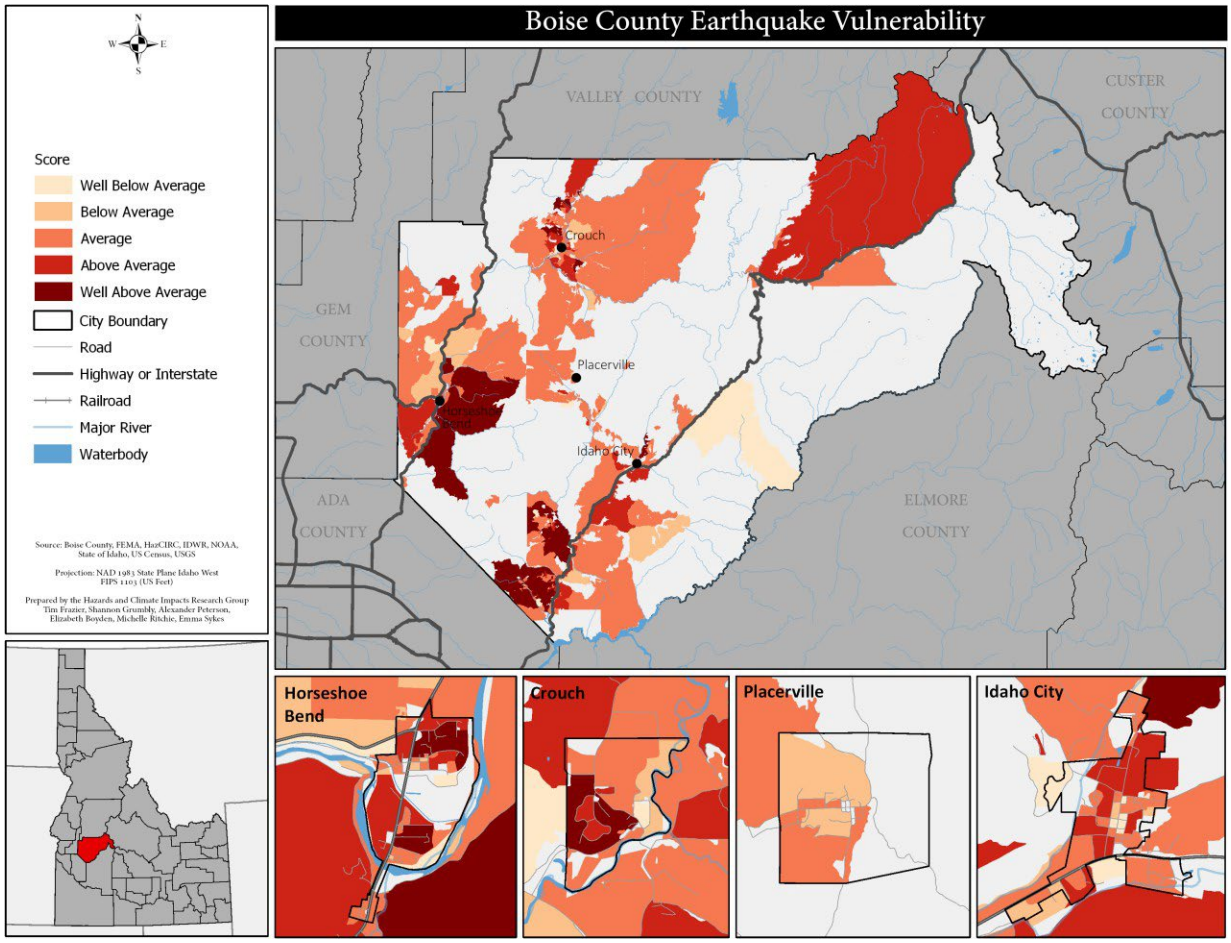


Table 40: Structure number and type exposure to earthquakes

Location	Res	Com	Ind	Agr	Rel	Gov	Edu
Crouch	84	12	5	1	3	-	1
Horseshoe Bend	268	14	7	1	-	-	1
Idaho City	165	7	2	-	1	2	2
Placerville	35	-	-	-	-	-	-
Unincorporated	3634	103	45	14	8	11	4

Table 41: Structure Value and Type Exposure to Earthquakes (Thousands of USD)

Location	Res	Com	Ind	Agr	Rel	Gov	Edu
Crouch	$24,976	$6,788	$2,095	$553	$1,851	-	$1,613
Horseshoe Bend	$72,703	$9,086	$8,843	$199	-	-	$4,702
Idaho City	$49,462	$6,290	$808	-	$1,202	$1,043	$15,756
Placerville	$9,502	-	-	-	-	-	-
Unincorporated	$1,234,306	$94,550	$30,867	$6,689	$5,141	$15,894	$5,192
Total	**$1,390,949**	**$116,714**	**$42,613**	**$7,441**	**$8,194**	**$16,937**	**$27,263**

4.3.4 - Volcanic Eruption Profile

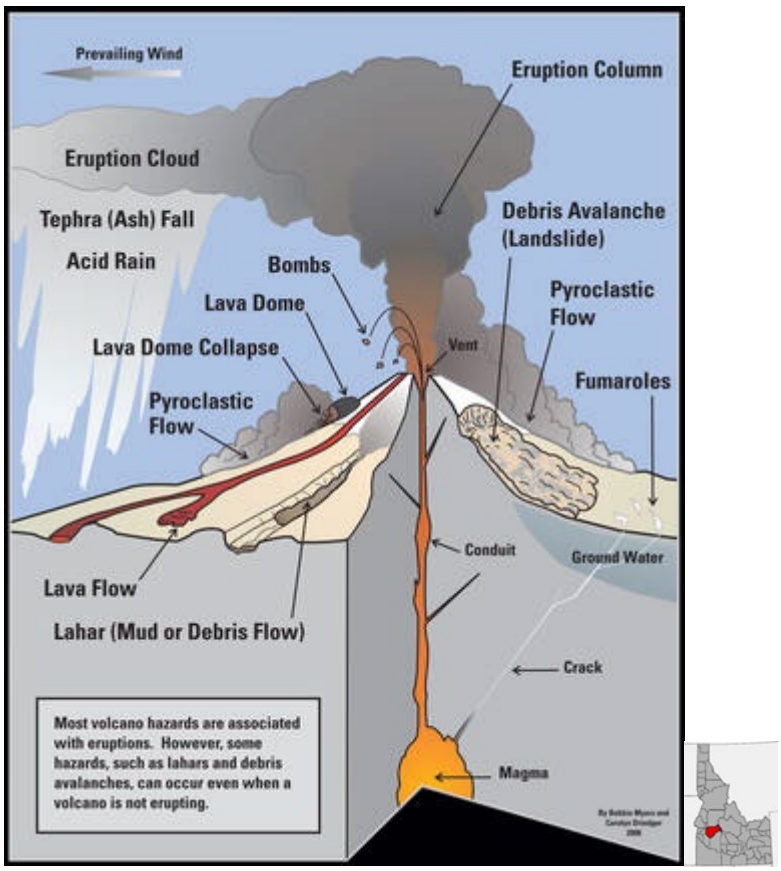
Mount Veniaminof on the Alaska Peninsula erupts on August 18, 2013. Image courtesy of AVO/USGS. Photo by Game McGimsey.

Hazard Description and History

Volcanic eruptions involve the release of molten rock (magma), volcanic gases, and **volcanic ash** into the atmosphere and on the ground. The most significant eruptions tend to produce **high eruption columns** and widespread **tephra (ash) fall** that can travel hundreds of miles from the source. Although Boise County has no active volcanic vents, the primary volcanic hazard for the County is **ashfall transported by prevailing winds from distant volcanic eruptions in the Pacific Northwest**.

Idaho State Hazard Mitigation Plan – Volcanic Eruptions. Idaho Office of Emergency Management. (Office of Emergency Management)

Figure 35: Volcano Hazards in the Cascade Range



Source: USGS

Historic Context

- The 1980 eruption of Mount St. Helens (Washington) produced an enormous ash cloud that affected areas far beyond the immediate vicinity of the volcano, including parts of Idaho, demonstrating how volcanic ash can travel long distances in major explosive events. **Idaho State Hazard Mitigation Plan – Volcanic Eruptions. Idaho Office of Emergency Management. (Office of Emergency Management)**

- Idaho's volcanic past includes ancient basalt flows and rhyolitic eruptions, but these represent geological history rather than current volcanic activity. Current volcanic hazards in Idaho are primarily distal ashfall from other regions' active volcanoes. **(Idaho Geological Survey)**

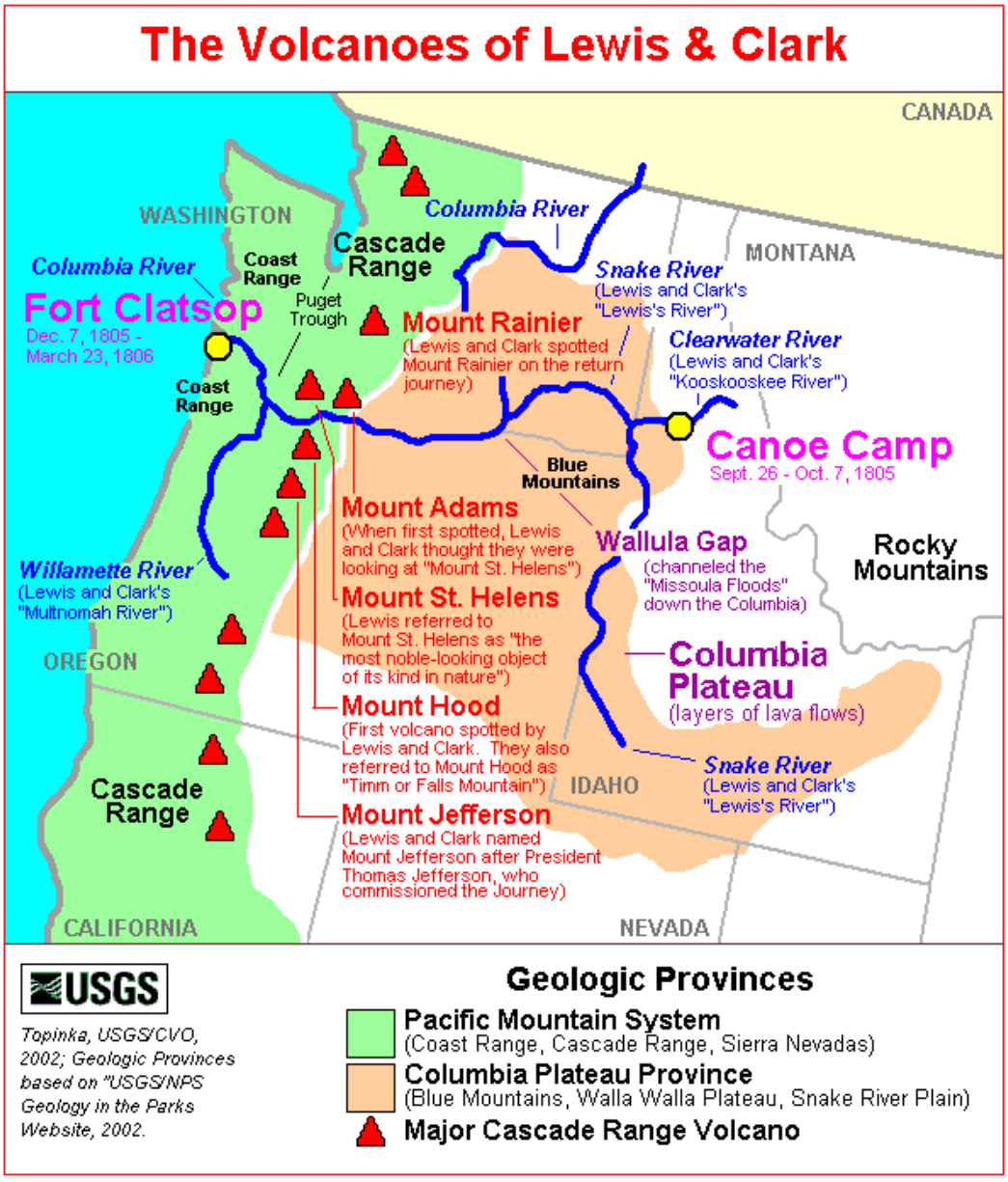
- The Idaho State Hazard Mitigation Plan identifies that portions of Idaho have an annual probability (roughly 1 in 1,000 to 1 in 5,000) of receiving ashfall ≥1 cm from Cascade volcanoes in a major eruption, with a very low likelihood of heavier ash deposits. **Idaho State Hazard Mitigation Plan – Volcanic Eruptions. Idaho Office of Emergency Management. (Office of Emergency Management)**

Key Hazard Mechanisms:

- **Ashfall**: Fine volcanic particles carried downwind, affecting air quality, infrastructure, and health.
- **Airspace impact**: Ash clouds disrupt aviation long distances from the source.
- **Indirect effects**: Interaction of ash with water systems, agriculture, and transportation networks. **Volcanic ash effects and preparedness (NOAA & USGS). (National Weather Service)**

Impact of Volcanic Eruption Events

Figure 36: Northwest Volcanoes



Direct Impact on Boise County:

- Structural and infrastructure impacts: Even modest ashfall can corrode metal, clog filters, and damage machinery. Heavy ash loads (if present) can stress roofs and infrastructure. **Idaho State Hazard Mitigation Plan – Volcanic Eruptions. Idaho Office of Emergency Management. (Office of Emergency Management), Volcanic ash effects and preparedness (NOAA & USGS). (National Weather Service)**

- Public health: Volcanic ash irritates respiratory systems, eyes, and skin; vulnerable populations could be at increased risk. **Volcanic ash effects and preparedness (NOAA & USGS). (National Weather Service)**

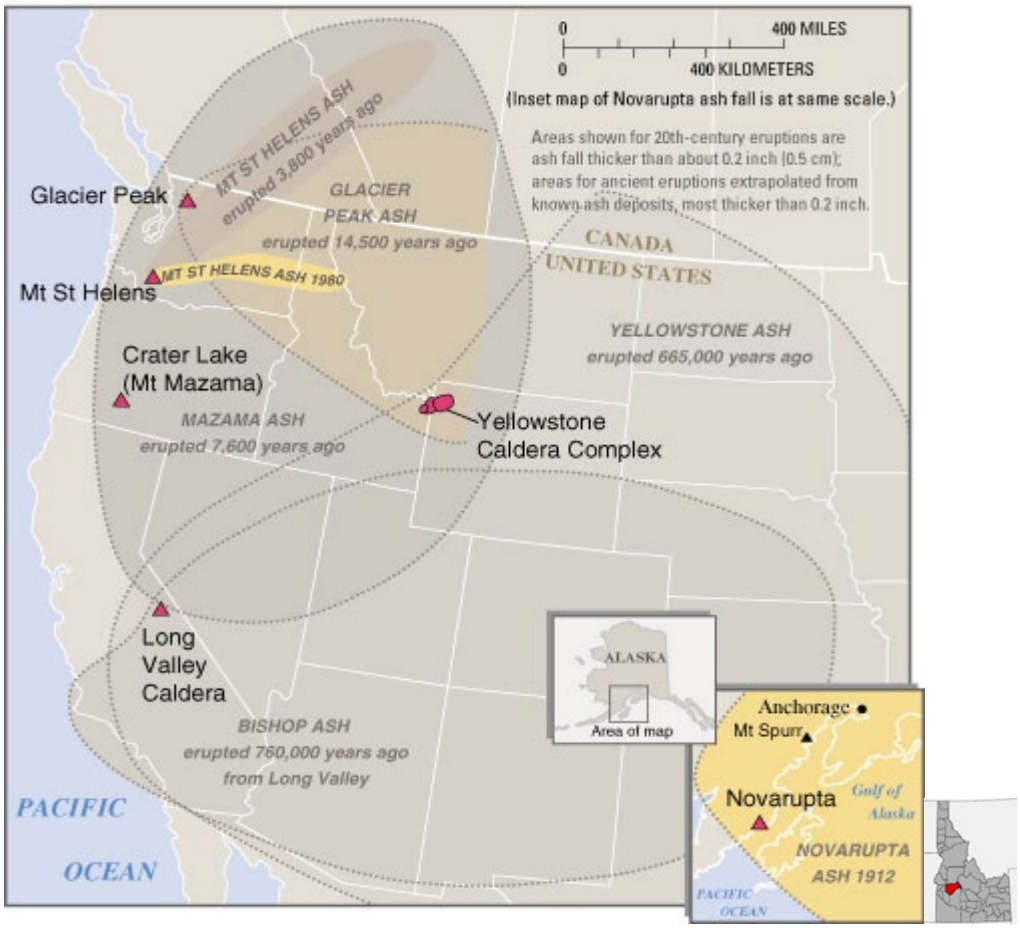
- Agriculture and water systems: Ashfall can smother crops, damage soils, and contaminate open water supplies such as rivers and reservoirs. **PNSN volcanic ashfall hazard and impacts. (Pacific Northwest Seismic Network)**

- Transportation and economy: Roads can become slippery or obscured; airports may shut down; damage to vehicles and HVAC systems can lead to economic losses. **Volcanic ash effects and preparedness (NOAA & USGS). (National Weather Service)**

Downwind Effects

- Ashfall is not usually life-threatening at long distances but can be disruptive. Communities that experienced ashfall from major Cascade eruptions have had to implement **ash removal and water protection plans. Cascade volcano hazard overview (USGS Cascades Volcano Observatory). (USGS)**

Figure 37: Ash Fall – A "Hard Rain" of Abrasive Particles



Source: USGS – Volcano Fact Sheet

Comparative Risk

- Boise County's risk from magmatic flows (lava, pyroclastics, lahars) is negligible because those hazards are confined to areas close to active volcanoes in the Cascade Range. **Cascade volcano hazard overview (USGS Cascades Volcano Observatory). (USGS)**

- The primary concern for Boise County is airborne ashfall, not localized volcanic activity. **Cascade volcano hazard overview (USGS Cascades Volcano Observatory). (USGS)**

Table 42: Volcanic Eruption Hazard for Boise County

Hazard Element	Assessment
Direct volcanic eruption	Very Low (no local sources)
Ashfall from Pacific Northwest volcanoes	Low–Very Low Probability
Likely impacts if ash occurs	Air quality degradation, infrastructure disruption, cleanup costs
Resources at risk	Water systems, buildings, transportation, health services

Probability of Future Occurrences

There are no known active volcanoes in or near Boise County capable of erupting. Volcanism in southern Idaho (e.g., Craters of the Moon and other Snake River Plain features) is geologically interesting but not currently assessed as an imminent hazard. **(Idaho Geological Survey)**

Probability of Ashfall from Distant Volcanoes

- Eruptions in the Cascade Range occur at an average of one to two per century based on geological history. **Ada County Multi-Hazard Mitigation Plan (frequency and effects of ashfall). (Ada County)**

- USGS and state hazard planning note an approximate annual probability of ashfall ≥1 cm at 1:1,000 to 1:5,000 for portions of Idaho, reflecting a low but not zero chance that a major ashfall event could affect Boise County should an explosive eruption occur under favorable wind conditions. **Idaho State Hazard Mitigation Plan – Volcanic Eruptions. Idaho Office of Emergency Management. (Office of Emergency Management)**

Summary Probability (2025–2050):

- Direct volcanic eruption affecting Boise County: *Negligible*
- Ashfall from Cascade volcanoes under major eruption scenarios: *Low*
- Ashfall with measurable (>1 cm) accumulation: *Very low*
- These probabilities reflect geological and atmospheric modeling rather than precise forecasts but are suitable for long-term hazard planning.

Value of Resources at Risk

Population and Built Environment:

- Infrastructure (roads, power lines, airports, buildings) faces moderate vulnerability to ashfall due to abrasion and clogging of mechanical systems.

- Urban and rural residences could require substantial cleanup following ash deposition.

Critical Facilities and Lifelines:

- Water distribution systems with exposed intakes could be contaminated by ash.

- Healthcare and emergency response facilities could experience increased demand due to air quality issues.

- Roads and airports could be disrupted, affecting commerce and emergency operations.

Natural and Economic Resources:

- Agriculture (cropland, grazing lands) can be disrupted by ashfall covering soils and watercourses.

- Tourism and recreation (e.g., forests, lakes) may suffer due to air quality reduction and cleanup needs.

Economic Impact Considerations:

- Even *light ashfall* can impose significant cleanup costs, estimated in prior community planning documents as moderate to high depending on depth and area covered. **Cascade volcano hazard overview (USGS Cascades Volcano Observatory). (USGS)**

- Costs to local businesses, utilities, and transportation services can escalate rapidly if ash management is required.

4.4 - Hazardous Materials Profile

Hazardous materials (hazmat) are often an unknown factor in mitigation planning. Transported chemicals pose a risk to individuals and areas adjacent to transportation corridors, and industry and manufacturing plant hazmat accidents can necessitate evacuation of large areas and require significant resources to contain and manage.

Table 43: Hazardous Materials Summary

	2005-2016	2017-2025	Total
Occurrences	2	0	2
Disaster Declarations	-	-	-
Casualties	-	-	-
Property Damage	-	-	-
Repetitive Losses	-	-	-

4.4.1 - Hazard Description and History

Hazardous material is defined as a substance capable of causing harm to humans, other living organisms, or property. The release of such materials can lead to environmental contamination and pose health risks both in the immediate vicinity and areas located downwind or downstream of the incident. In the United States, the Environmental Protection Agency (EPA) is responsible for regulating hazardous materials, categorizing substances as either hazardous or extremely hazardous. Hazardous substances are characterized by their persistence in the environment and their potential for long-term health effects on living organisms. Conversely, extremely hazardous substances present acute health risks, immediate threats to life, and have the capacity to inflict considerable environmental damage. Hazardous materials encompass a range of wastes, pollutants, and materials maintained at elevated temperatures.

Hazardous materials may be released from fixed facilities, such as manufacturing plants, or during transportation within a region. Highways and active railways are the most probable sites for transportation-related releases of hazardous substances. Because transportation activities are dynamic and disclosure by transportation companies is limited, incidents involving transported hazardous materials present considerable risks to both populated areas and water resources.

The following are brief descriptions of common hazardous materials:

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

Impact of a Hazardous Material Event

Daily road and rail traffic within Boise County's transportation corridors regularly involves the movement of hazardous materials. Populations and infrastructure situated along these routes are vulnerable to incidents or accidents that could result in the release of hazardous substances. The associated risks range from minor roadway spills to significant releases on rail lines. Additionally, illegal methamphetamine production activities present ongoing concerns.

The Areal Locations of Hazardous Atmospheres (ALOHA) model, created by the EPA and NOAA, was used to evaluate the County’s vulnerability to hazardous materials incidents. ALOHA is a tool that simulates the release and spread of chemical clouds, helping plan for and respond to chemical emergencies. The program determines plume dispersion and threat zones based on factors such as the chemical’s properties, quantity, storage method, containment, and real-time weather conditions. It can simulate various scenarios, including toxic or flammable gas clouds, BLEVEs (Boiling Liquid Expanding Vapor Explosions), jet fires, pool fires, and vapor cloud explosions.

Information about chemical types, quantities, and storage locations was obtained from the 2015 Tier II reports submitted to IOEM. These reports are required by the EPA for facilities that store hazardous materials at or above a certain threshold and help support emergency planning efforts. Figure 38 illustrates where hazardous materials are located and their exposure levels, as referenced in Table 44.

Figure 38: Tier II Chemical Facilities and Levels of Concern

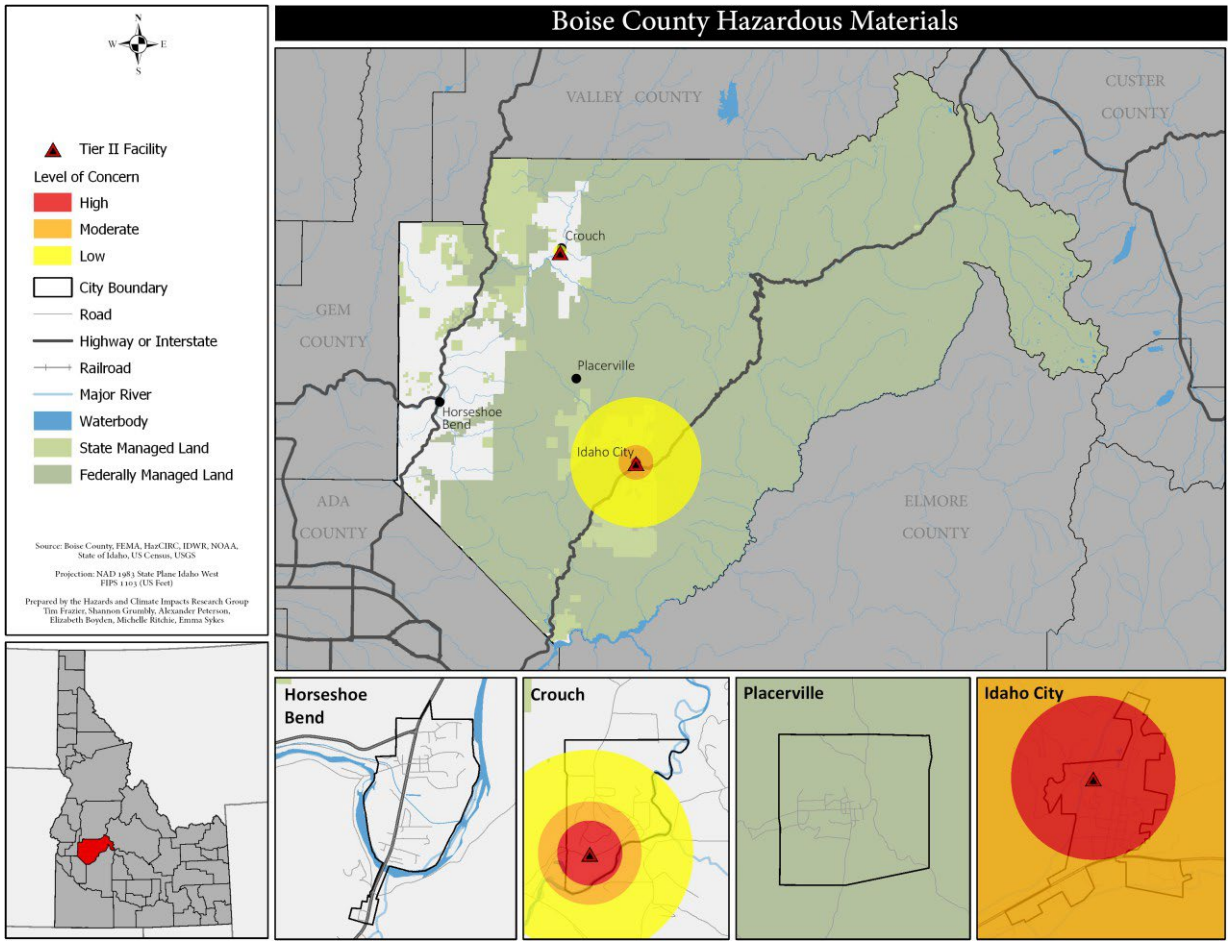


Table 44: Tier II Chemical Facility Data

Chemical	Amount	Unit	LOC Type
Sulfuric Acid	605	Pounds	AEGL
Propane	64,872	Pounds	AEGL

Source: IOEM

4.4.2 - Probably of Future Occurrences

Boise County has experienced a hazmat incident within the last 10 recent years, but Ada County, south of Boise County, has more recent event. Due to the closeness Ada County is to Boise County there is a natural reason to be concerned and prepared.

Table 45: Hazmat Incident Occurrences

Date	Location	Cause	Casualties	Damage	Material
2012	Horseshoe Bend	Equipment Failure	-	-	Hydraulic Oil
2013	Boise County	Natural Phenomenon	-	-	Mineral Oil
2021	Ada County	Wrongful mixing of chemicals	14 Hospitalized, treated and released		Pool Chemicals

Source: NRS

4.4.3 - Value of Resources at Risk

Populations in Crouch, Idaho City, and the unincorporated areas of the County are exposed to the areas of concern around the Tier II chemical facility sites (Table ??). The GIS analysis showed increasing population exposure coincident with increased level of concern in Crouch and the unincorporated areas, while Idaho City exhibited decreased exposure.

Table 46: Population Exposure to Hazmat

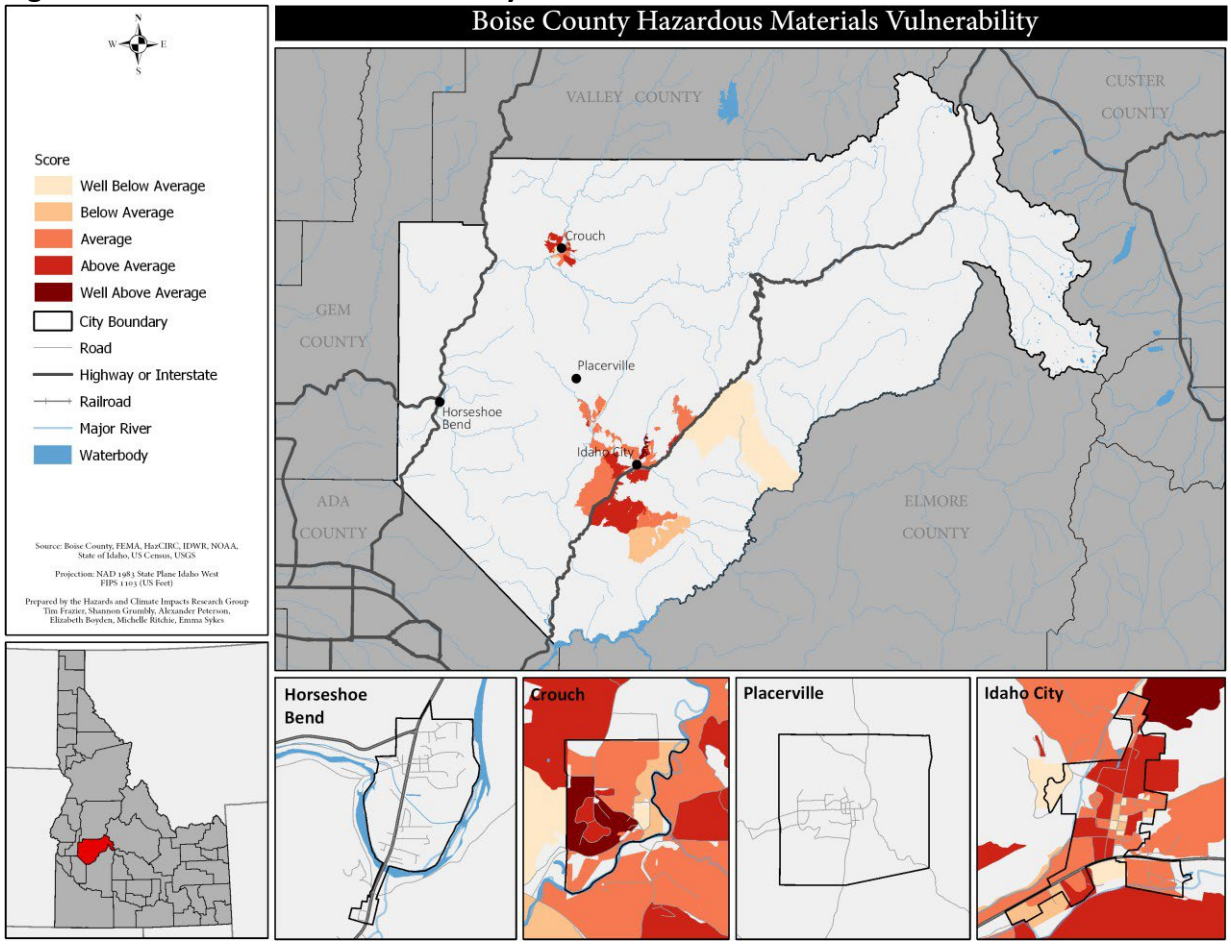
LOC	Crouch	Horseshoe Bend	Idaho City	Placerville	Unincorp.
Low	-	-	105	-	6
Moderate	2	-	35	-	64
High	19	-	-	-	145

Source: US Census Bureau, EPA

Figure 39, identifies the County's vulnerability to hazardous materials. Communities like Crouch and Idaho City, along with nearby census blocks, were found to be most at risk. This assessment only includes sites with reported Tier II chemicals and does not account for hazards from transportation or other dangerous, unregulated substances. For example, agricultural operations often store pesticides, insecticides, and fuel. Similarly, Boise County's main roads and railways frequently carry hazardous materials, which raises vulnerability along these transportation routes.

Certain residents within the Cities of Crouch and Idaho City may be subject to health risks should a chemical release occur at a Tier II facility located within the respective city limits. As further development is anticipated in these high-density regions, the potential number of individuals exposed to hazardous materials incidents may correspondingly increase.

Figure 39: Socioeconomic Vulnerability to Hazmat



4.5 - Extreme Weather Profile

Extreme weather events—defined as severe or unseasonal atmospheric conditions—pose growing risks to Boise County and its residents, infrastructure, economy, and ecosystems. These events include severe storms, extreme heat, heavy snowfall, ice storms, strong wind events, and prolonged droughts. Often these events are coincidence, making delineation difficult. Scientific consensus links increased weather volatility and intensity to the ongoing impacts of climate change. **(University of Idaho McClure Center, 2021; NOAA, 2024)**

4.5.1 - Hazard Descriptions and History

Boise County regularly faces serious threats from severe weather, which affects all of Idaho to varying extents because of its diverse terrain and Pacific Ocean influences. While Idaho experiences less severe weather compared to other states, it still poses significant risks to communities statewide. There have been Presidential Disaster Declarations for storm events in Idaho in 1964, 1972, 1974, 1996, 1997, 2005, 2006, 2010, 2019, and 2024 (**FEMA**). The most common types of severe weather in Boise County include droughts, hailstorms, and windstorms.

The pattern of average annual temperatures in the County demonstrates the impact of altitude on climate. The difference between the mean temperatures of the coldest and warmest months ranges from less than 40°F to well over 50°F, particularly at stations situated at higher elevations. Extended

periods of extreme heat during summer are uncommon, as are prolonged intervals of severe cold in winter. Typically, the movement of weather systems through the County leads to frequent changes in conditions.

Thunderstorms happen frequently and can bring several types of severe weather. While they usually cause only minor disruptions to communities, their side effects—like hail, strong winds, and lightning—can be more widespread. Historical weather data indicates that harsh conditions are probable every year. The area's landscape greatly influences its weather patterns, making all locations in the region susceptible to intense local storms.

Types of Extreme Weather Affecting the County

- Extreme Heat – Extreme heat, often called a heat wave, is when temperatures greatly exceed normal levels. It can cause health problems like heat exhaustion and sunstroke, especially for vulnerable groups. Wildlife loss, increased wildfire risk, and extra stress on power grids are also concerns.
- Extreme Cold – Defined as a period of well below-normal temperatures, often worsened by winds over 10 mph. Advisories are issued when wind chill hits -20°F or lower for at least one hour with such winds. Prolonged extreme cold poses major risks, especially to vulnerable groups, and can lead to ice formation and flooding.

- Severe storms refer to atmospheric disturbances like thunderstorms, hail, lightning, or strong winds that can cause damage. They often lead to secondary hazards such as floods and landslides.

    - Hail – Hail forms during thunderstorms as balls or lumps of ice bigger than 5 mm that fall from cumulonimbus clouds. As water and wind move up and down inside a storm cell, ice layers build up, sometimes producing hailstones as large as four inches. Each year, hail damages property and crops across the country by nearly $1 billion, striking hardest during key farming months. While major hailstorms can seriously harm vehicles and buildings, they rarely cause deaths.

    - Lightning – According to the NOAA, lightning is a visible electrical discharge from thunderstorms that can occur between clouds, the air, and the earth's surface. It may extend over 5 miles, generating significant heat and voltage. Lightning can be fatal through direct, side, or conducted strikes, and secondary discharges can impact nearby structures due to shifts in electrical potential.

    - Straight-Line Wind – Thunderstorms can produce non-rotating winds over 100 mph. The National Weather Service considers winds 'high' if they are sustained at 40 mph for an hour or reach 58 mph at any time. These winds threaten trees, exposed areas, infrastructure, and utility lines. Downbursts, or microbursts, are intense, localized straight-line winds with speeds similar to tornadoes.

- Thunderstorms form when warm, moist air rises in unstable conditions, creating cumulonimbus clouds. Most common in spring and summer afternoons or evenings. Thunderstorms may bring heavy rain, hail, lightning, strong winds, and tornadoes. Types

include dry thunderstorms (with little or no rainfall), pulse severe thunderstorms (brief, intense storms producing severe weather), severe thunderstorms (winds ≥40 mph or large hail), and supercell thunderstorms, which are the most dangerous and can cause significant damage and violent tornadoes.

- Tornadoes – Tornadoes are intense storms formed by rotating columns of air. Their winds reach 40–300 mph, and the vortex can move up to 70 mph, traveling from 10 to 200 miles. Damage is concentrated along a narrow path, but tornadoes can cause widespread destruction and may occur in multiples during a single storm.

- Winter Storms – These storms cause freezing temperatures, snow, and ice, impacting large or small areas. Severe winter storms bring heavy snowfall (at least four inches in 12 hours or six in 24), while blizzards have winds over 35 mph and temperatures below 20°F. Ice storms occur when rain freezes on contact, creating hazardous conditions. Main risks include snow or ice accumulation, extreme cold, and low visibility, often disrupting travel, utilities, and routines.

Table 47: Extreme Weather Historical Events

Year	Type of Extreme Weather	Impact Highlights
1987	Thunderstorm Wind	80 MPH
1992	Hail	2 inches
1993	Thunderstorm Wind	58 MPH
1993	Thunderstorm Wind	70 MPH
1993	Thunderstorm Wind	55 MPH
1994	Hail	.75 inch
1995	Hail	1 inch
1995	Hail	.75 inch
1996	Thunderstorm Wind	69 MPH
1996	Hail	1 inch
1996	Winter Storm	This storm produced up to 14 inches of new snow.
1997	Thunderstorm Wind	69 MPH
1998	Hail	.75 inch
1998	Hail	1.75 inches
1998	Hail	.75 inch
2000	Hail	1 inch
2000	Winter Storm	This storm produced up to 16 inches of new snow.
2000	Winter Storm	This storm produced up to 18 inches of new snow.

2000	Winter Storm	This storm produced up to 12 inches of new snow.
2002	Thunderstorm Wind	58 MPH
2002	Thunderstorm Wind	58 MPH
2002	Thunderstorm Wind	61 MPH
2002	Thunderstorm Wind	60 MPH
2003	Winter Storm	This storm produced up to 16 inches of new snow.2005
2003	Thunderstorm Wind	81 MPH
2004	Hail	1 inch
2005	Winter Storm	This storm produced up to 12 inches of new snow.
2005	Winter Storm	This storm produced up to 12 inches of new snow.
2006	Hail	1 inch
2006	Hail	1 inch
2006	Hail	1.5 inches
2006	High Wind	54.5 MPH
2007	Winter Storm	This storm produced up to 16 inches of new snow.
2007	Winter Storm	This storm produced up to 12 inches of new snow.
2007	Thunderstorm Wind	60 MPH
2008	Thunderstorm Wind	90 MPH
2008	Thunderstorm Wind	60 MPH
2008	Thunderstorm Wind	60 MPH
2008	High Winds	58 MPH
2008	Winter Storm	This storm produced up to 16 inches of new snow.
2009	Winter Storm	This storm produced up to 24 inches of new snow.
2010	High Wind	69 MPH
2010	Winter Storm	This storm produced up to 18 inches of new snow.
2010	High Wind	58 MPH
2010	Hail	1.75 inches
2010	Thunderstorm Wind	70 MPH
2012	Thunderstorm Wind	55 MPH
2012	High Wind	66 MPH
2013	High Wind	56 MPH
2013	Hail	1 inch

2015	Thunderstorm Wind	70 MPH
2020	Thunderstorm Wind	60 MPH
2022	Winter Storm	This storm produced up to 19 inches of new snow.
2022	High Wind	65 MPH
2022	Hail	1 inch
2023	Thunderstorm Wind	62 MPH
2023	Thunderstorm Wind	65 MPH
2023	High Wind	58 MPH
2024	Hail	1.25 inches
2024	Thunderstorm Wind	67 MPH
2025	High Wind	50 MPH
2025	Thunderstorm Wind	60 MPH

Source: NOAA Storm Events Database

4.5.2 - Probability of Future Occurrences

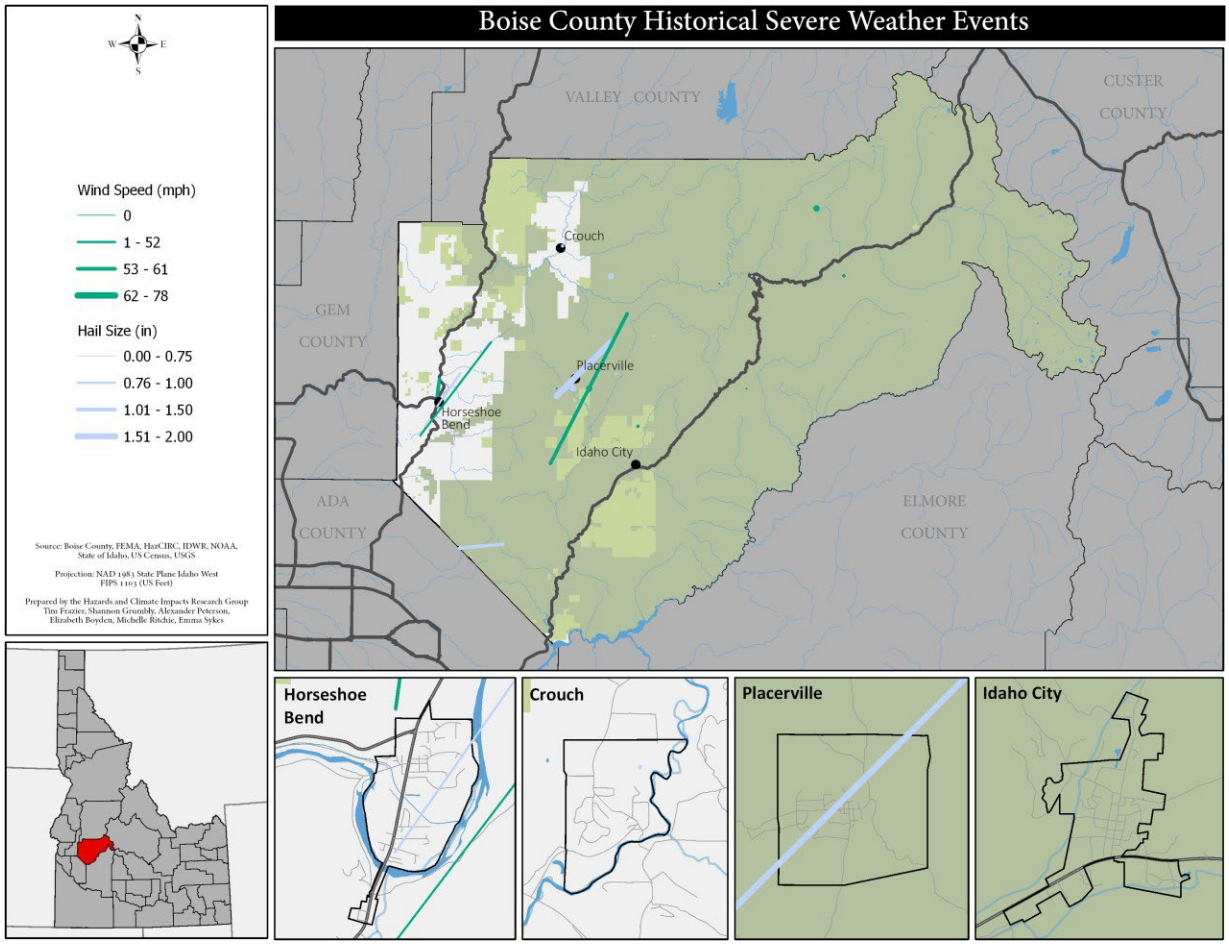
Projections for Idaho's climate show a clear intensification of extreme weather patterns**.** The Idaho Climate-Economy Impacts Assessment forecasts:

- A doubling to tripling of extreme heat days in Idaho by 2050. **(University of Idaho McClure Center, 2021)**

- A continued decline in snow water equivalent due to earlier and faster snowmelt, with implications for water supply and fire risk. **(U.S. Geological Survey (USGS). (2023). *Observed and Projected Changes in Snow Water Equivalent Across Idaho*)**

- Greater variability in storm tracks, increasing the risk of late-season ice storms and unseasonal temperature swings. **(National Oceanic and Atmospheric Administration (NOAA). (2024) *Climate at a Glance: Idaho Trends)***

Figure 40: Historical Severe Weather Events



4.5.3 Values of Resources at Risk

Historical weather data indicate that severe weather events may occur in any region of the County during any year, posing potential risks to both individuals and property. The County's topography plays a significant role in influencing the diverse weather conditions experienced throughout the area.

Boise County has experienced damaging winds throughout the past decades, which have the potential to threaten lives and infrastructure.

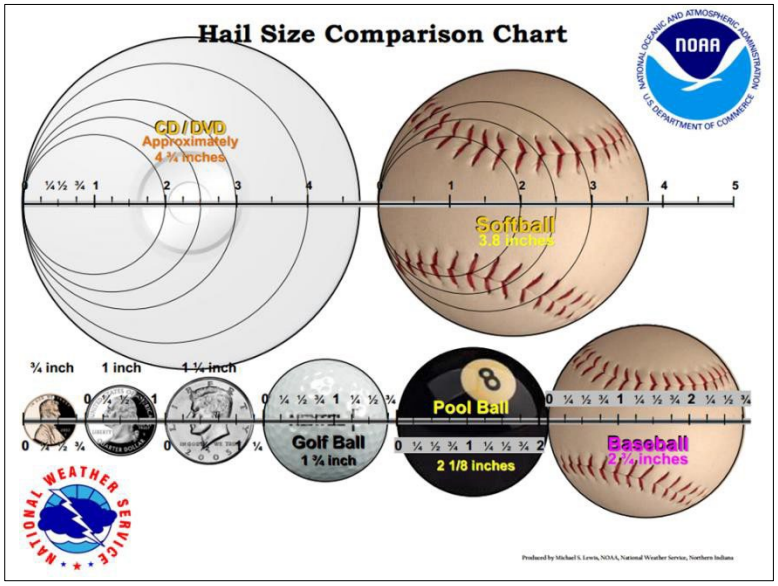
Table 48: Wind Speeds and Damage Estimates

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

Source: NOAA

Typically, hail is considered severe when its diameter reaches three quarters of an inch, approximately the size of a quarter. Over the past thirty years, the County has experienced at least 17 storms producing hail of this size or larger, with the largest observed hailstones measuring two inches in diameter. Hail events have impacted the entire County and are likely to occur annually.

Figure 41: Hail Size Comparison Chart



Source: The National Weather Service

Table 49 shows the warning and advisory criteria used by the NWS for winter weather. Winter weather occurs in Boise County on an annual basis, though not always with associated damage. Due to the overall high elevation of the County, it is not uncommon for several of the communities to be "snowed in" for a period of hours up to a week depending on snowfall amounts. Winter weather can affect the entirety of the County, and has high probability of occurrence in the future.

Table 49: Winter Weather Warning and Advisory Chriteria

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

Source: The National Weather Service

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

4.6 - Healthcare – Pandemic/Disease Profile

4.6.1 - Hazard Description and History

Boise County residents primarily rely on medical services located outside the County, most of which are situated in the Boise metropolitan area. Given the current and anticipated population growth within the County, it is essential to expand local medical services and increase both the number and training of emergency responders. As the population rises, the likelihood of accidents will grow, and there will be greater demand for medical services, especially in the event of a widespread disease outbreak.

A pandemic or major disease outbreak refers to a situation where contagious illness spreads over large regions, impacting a significant number of people and putting immense pressure on local healthcare services. Such events can interrupt medical care, challenge public health systems, disproportionately affect those most at risk, and lead to higher rates of illness and death.

Historic Pandemic/Disease Events in Boise County
(Idaho Department of Health and Welfare (IDHW), CDC, and WHO.)

COVID-19 (2019–2022)

- The COVID-19 pandemic was the most significant infectious disease event in recent memory. Idaho confirmed its first cases in March 2020, and the disease spread to all counties, including Boise County. Case counts grew rapidly, and the County experienced surges in 2020–2021 that impacted local healthcare delivery and required multi-agency public health response.

- Idaho reported tens of thousands of cases statewide, with significant hospitalizations and deaths. While Boise County had lower absolute counts due to its rural population, the proportionate impact strained local healthcare access and services (e.g., testing, isolation, treatment).

Seasonal and Regional Disease Outbreaks

- Seasonal influenza outbreaks (e.g., 2017–2018, 2018–2019, 2022–2023) periodically elevated hospital and clinic burden. These events, while not pandemic scale, still resulted in increased local demand for healthcare services.

Mitigation Actions Implemented

- Implementation of public health guidance (social distancing, mask use, vaccinations) at the County level during COVID-19.

- Coordination between Boise County Public Health District, Idaho Department of Health and Welfare, and local healthcare providers for surveillance, testing, and vaccination clinics.

4.6.2 - Impact of Pandemic/Disease Events

COVID-19

- Disease morbidity included respiratory illness requiring clinical care, hospital admissions, and intensive care in severe cases.

- Mortality from COVID-19 occurred among older adults and individuals with comorbid conditions in Boise County as part of statewide mortality statistics.

Seasonal Outbreaks

Influenza and other seasonal diseases increased clinic visits, acute care episodes, and sometimes led to localized outbreaks, especially in congregate settings (e.g., care homes).

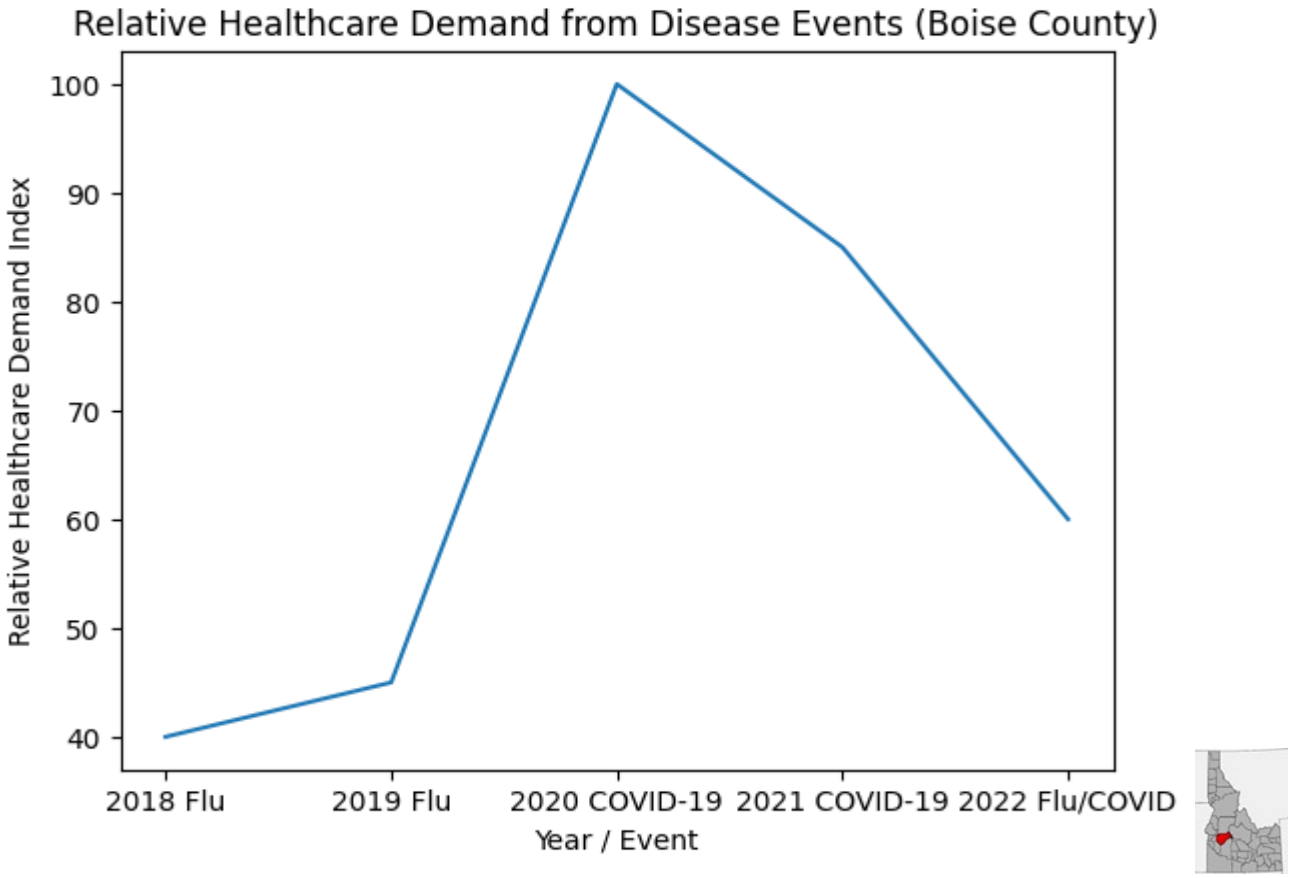
Healthcare System Strain

- Emergency Departments and clinics saw surge volumes, reducing routine care capacity.

- Staffing shortages occurred due to illness, quarantine, or burnout, limiting service continuity.

- Public health resources (testing, contact tracing) were relocated to respond to pandemic demands.

Figure 42: Healthcare Demand from Disease Events



Source: Idaho Department of Health and Welfare (IDHW) – COVID-19 Data Dashboard and influenza surveillance.

Social and Economic Impacts

- Public health restrictions (e.g., isolation/quarantine) affected local economy and workforce availability.
- Healthcare workforce burnout and resource reallocation impacted preventive and chronic disease management.

Secondary Impacts

- Mental health stress elevated due to isolation and stressors associated with illness fears and social disruption.
- Vaccination campaigns required significant logistical coordination at the local level, occasionally stressing volunteer and healthcare provider networks.

Casualties and Costs

- While exact Boise County specific figures vary, national-level metrics illustrate the scale of pandemic burden: **(Local health data is privacy restricted, precise County totals for cases, hospitalizations, and costs must be obtained from the Idaho Department of Health and Welfare under data sharing protocols.)**
    - COVID-19 resulted in over 1 million deaths in the United States and millions of hospitalizations. (CDC)
    - Idaho experienced thousands of deaths and hospitalizations attributable to COVID-19 (IDHW dashboard).

Sources: CDC COVID-19 Case Surveillance Data, Idaho Department of Health and Welfare COVID-19 dashboards.

4.6.3 - Probability of Future Occurrences

Pandemics and Major Disease Outbreaks

- The occurrence of pandemics is infrequent but inevitable from a risk perspective. The World Health Organization (WHO) and the U.S. Centers for Disease Control and Prevention (CDC) consider pandemic risk continuous due to emerging pathogens (e.g., influenza variants, coronaviruses).
- Based on historical patterns (1918 influenza, 1957/1968 influenza, 2009 H1N1, 2019 COVID-19), pandemics occur on the scale of decades to a century with unpredictable timing.

Seasonal Outbreaks

Seasonal influenza and localized disease outbreaks (e.g., pertussis clusters, norovirus) occur annually with varying severity. Local healthcare systems can expect annual burden increases due to seasonal epidemics.

Table 50: Probability Summary

Event Type	Estimated Probability
Major Pandemic	Moderate to High over multi-decadal timeframes (no exact recurrence interval)
Seasonal Influenza and Epidemic Outbreaks	**Very High** (annual)
Localized Disease Outbreaks (e.g., norovirus)	**High**

Source: World Health Organization (WHO) and the **U.S. Centers for Disease Control and Prevention (CDC)**

4.6.4 - Value of Resources at Risk

Table 51: Vulnerable Areas and Infrastructure

Area / Infrastructure	Risks & Impacts
Older Residents and those with Chronic Health Conditions	Higher disease susceptibility and potential for rapid spread.
Healthcare Facilities	Potential overcapacity during peaks; critical for response and vaccination efforts.
Schools & Childcare Centers	Hubs for transmission and community disruption due to closures.
Emergency Operations Center (EOC)	Essential for coordinated response; needs redundancy and back-up systems.
Public Gathering Spaces	Event cancellations weaken community cohesion; require alternate communication strategies.
Transportation & Supply Networks	Disruptions affect access to medical care and essential goods.
Economic and Social Resources	Lost productivity due to illness, quarantine, or caregiver duties. Agriculture and tourism sectors impacted by worker illness and restrictions.

Source: World Health Organization (WHO)

Table 52: Healthcare Resources Potentially at Risk – Boise County

Resource Category	Exposure to Pandemic/Disease Events	Planning Implication
Clinics & Rural Health Facilities	High	Limited surge capacity
EMS & Ambulance Services	High	Increased call volume and response times
Long-Term Care Facilities	Very High	Concentration of vulnerable populations
Public Health Workforce	High	Staffing burnout and continuity risks
Hospitals (Regional Dependence)	Moderate–High	Reliance on out-of-county facilities
Pharmacies & Medical Supply Chains	Moderate	Supply shortages during surges

Source: Idaho Department of Health and Welfare (IDHW)

Table 53 shows the justification for enhancing healthcare services as a mitigation strategy, not merely response.

Table 53: Event Frequency vs Severity Matrix

Event Type	Frequency	Severity
Seasonal Influenza	High	Low–Moderate
Regional Disease Outbreaks	Moderate	Moderate
Pandemic Disease	Low	High–Catastrophic

Source: World Health Organization (WHO)

4.7 - Cybersecurity Profile

4.7.1 - Hazard Description and History

Cybersecurity hazards consist of cyberattacks, data breaches, ransomware, malware, denial of service attacks, and unauthorized access to computer systems or networks that support or control government operations, local infrastructure, public services, and private sector functions. A successful cyber incident can disrupt service delivery, compromise sensitive data, degrade public safety operations, and harm public trust. Cyber hazards are human-induced and can originate from criminal groups, nation-state actors, hacktivists, or opportunistic attackers targeting vulnerable systems.

There is no comprehensive public record of county-level cybersecurity breaches for Boise County specifically. Below are related cybersecurity events affecting Idaho agencies and entities which illustrate the risk environment:

- Cyber intrusion groups, including hacktivist campaigns, have targeted Idaho state websites and digital services in past years — for example, defacement campaigns against several Idaho government websites in July 2020.

- Thousands of cyber breaches affecting state, local, and private sector entities across Idaho have been documented in breach databases from 2021 to 2024, though none are specifically labeled “Boise County” in the public database; these reflect the pervasive statewide level of breaches and threat exposure.

Cybersecurity hazards are not bound by geography (a system connected to the internet anywhere is potentially vulnerable) and can occur with little or no warning, often exploiting software vulnerabilities, stolen credentials, or social engineering.

While Boise County has no widely publicized ransomware or breach events in the public media, county and local governments across Idaho have been included in statewide strategies to address cybersecurity threats and participate in mitigation efforts, such as the State and Local Cybersecurity Grant Program (SLCGP) coordinated by Idaho Office of Emergency Management for local entities.

State-level initiatives, including cybersecurity apprenticeships, training programs, and operational readiness partnerships, reflect an elevated focus on building local resilience and workforce capacity. **(IOEM SLCGP –** https://ioem.idaho.gov/state-and-local-cybersecurity-grant-program/?utm_source=chatgpt.com **)**

4.7.2 - Impact of Cybersecurity Events

Cybersecurity incidents can have direct and indirect impacts on Boise County's governmental operations, infrastructure, public services, and critical facilities.

Direct Service Disruption

- Loss of access to critical IT systems (e.g., financial systems, public records, permitting systems) can slow or halt government services.

- A cyberattack affecting 911 dispatch or emergency management systems can degrade public safety response capacity, as seen in similar county systems in Idaho. Other Idaho Counties have reported server encryption attacks and emergency communication disruption. **(KSL.com,** https://www.ksl.com/article/43220149?utm_source=chatgpt.com **)**

Data and Privacy Exposure

Breaches of sensitive information (personnel records, resident data, law enforcement files) can lead to identity theft, regulatory compliance violations, and erosion of public trust.

Operational and Economic Impacts

- Ransomware attacks can force costly system restoration, potential ransom payments, and extended downtime. Public sector entities often incur significant IT recovery and forensic costs.

- Local businesses in Boise County (small businesses, agricultural operations) are frequent targets of automated attacks such as phishing, identity theft, and malware. **(Boise State University and cybersecurity threat characterization. https://www.boisestate.edu/online/2025/02/03/cybersecurity-for-every-community-why-rural-networks-deserve-equal-protection/?utm_source=chatgpt.com)**

Cascading Infrastructure and Critical Services Impacts

An attack on utility systems, water treatment control systems, or road management software could lead to physical system failures or safety hazards due to loss of monitoring or control. Statewide mitigation planning highlights that poorly secured systems controlling critical infrastructure could lead to failures with safety implications.

Impacts from cyber events are often underreported; small government or rural networks may defer public reporting unless required by law or significant service disruption. **(State of Idaho 2023 Hazard Mitigation Plan)**

4.7.3 - Probability of Future Occurrences

Cyber threats are persistent and evolving. Boise County's exposure to potential cyber incidents is influenced by the increasing digitization of government services and critical infrastructure, the growing volume of automated attack traffic across the internet, and a general increase in ransomware and data breach frequency nationwide. The likelihood of a potential cybersecurity attack:

- Local Government Systems: High probability — county, city, and special district systems connected to the internet are targets for automated scanning, exploitation attempts, and phishing attacks.
- Critical Infrastructure Systems: Moderate to high probability — attacks against utilities, communications, and transportation control systems have increased globally and nationally.
- Severe Cyber Disruption (e.g., ransomware that halts operations): Moderate probability — many local governments have experienced ransomware or similar incidents, indicating this outcome is possible, even if not widely published locally.

National and state cybersecurity programs treat cyber threats as ongoing hazards rather than episodic events. They occur regularly, with frequencies that can make them almost daily occurrences in automated scanning and intrusion attempts.

4.7.4 - Value of Resources at Risk

Cyber hazards can impact people, systems, and critical assets within Boise County:

People

- Employees and residents rely on secure systems for services (e.g., property tax records, licensing).
- Breaches of personal data can expose individuals to identity theft and financial loss.

Government and Public Services

- County administrative systems, public safety dispatch, and emergency management databases are at risk.
- Recovery costs (time, labor, funds) can be significant for an average county IT budget.

Critical Infrastructure and Services

- Utility control systems, water supply monitoring, health department data systems, and transportation systems may have embedded or networked components vulnerable to attack.
- Loss of these systems could impact health, safety, environmental quality, and economic stability.

Business and Economic Activity

Local businesses, particularly small enterprises in the county, face heightened risk from phishing, ransomware, and data theft. According to cybersecurity industry reporting, small businesses are three times more likely to be targeted than larger firms, and tight information technology budgets in rural areas can mean slower recovery. (**Boise Metro Chamber:** https://www.boisechamber.org/blog-634429/idaho-small-business-cybersecurity-summit?utm_source=chatgpt.com **)**

4.8 - Civil Disturbances and Terrorism Hazard Profile

4.8.1 - Hazard Description and History

Civil disturbances and terrorism include intentional human-caused incidents that threaten public safety, disrupt essential services, and damage infrastructure or property. These hazards may involve:

- Civil unrest, protests, or demonstrations that escalate into violence
- Domestic terrorism or extremist-motivated attacks
- Sabotage or targeted attacks against government facilities, infrastructure, or public gathering places
- Threats intended to intimidate populations or influence government actions

Unlike natural hazards, civil disturbances and terrorism are adaptive, unpredictable, and may occur with little warning. They are often influenced by political, ideological, economic, or social factors and can occur at any location regardless of geographic isolation.

According to the U.S. Department of Homeland Security (DHS), domestic violent extremism and targeted violence remain persistent threats nationwide, with local governments and public institutions considered potential targets. **(DHS 2024 – Homeland Threat Assessment. https://www.dhs.gov)**

Historical Context

Boise County has no documented history of major terrorist incidents or large-scale civil disturbances. The county's rural character, limited population density, and absence of high-profile symbolic targets reduce overall exposure compared to urban jurisdictions.

However, Idaho and the Pacific Northwest have experienced:

- Periodic demonstrations and protest activity related to political or social issues
- Threats and security concerns involving government buildings and officials statewide
- Increased law enforcement and emergency management awareness of extremist threats following national incidents, including those since September 11, 2001, and nationwide civil unrest events during.

The Idaho Office of Emergency Management identifies terrorism and civil unrest as hazards that may affect any jurisdiction due to the unpredictable nature of extremist activities and public demonstrations **(IOEM, 2023 Idaho State Hazard Mitigation Plan. https://ioem.idaho.gov)**

Federal and state agencies including DHS, FBI, Idaho State Police, and IOEM monitor emerging threats and coordinate intelligence-sharing and preparedness activities across local jurisdictions.

4.8.2 - Impact of Events

Although the probability of large-scale incidents in Boise County is relatively low, the potential impacts of civil disturbances or terrorism can be severe. Here are some potential impacts of public safety:

- Injury or loss of life among residents, visitors, government employees, or first responders
- Increased demand on law enforcement, emergency medical services, and emergency management resources
- Implementation of lockdowns, evacuations, or shelter-in-place orders

The Federal Emergency Management Agency (FEMA) notes that terrorism and civil unrest events can overwhelm emergency response capabilities and require coordinated multi-agency response. **(FEMA, 2023 Local Mitigation Planning Policy Guide. https://www.fema.gov)**

Government and Infrastructure Impacts

- Damage to county facilities including administrative buildings, courthouses, or law enforcement facilities.
- Disruption of emergency communications systems
- Increased costs for response operations, investigations, and facility repairs

Economic and Social Impacts

- Temporary closure of businesses or government services
- Disruption of tourism and local economic activity
- Long-term psychological impacts including public fear and reduced community confidence

Even smaller-scale incidents can create disproportionate impacts in rural counties where service redundancy is limited, and emergency response resources are constrained.

4.8.3 - Probability of Future Occurrences

The probability of civil disturbances or terrorism affecting Boise County is considered low but credible.

Likelihood Factors:

- Boise County's rural geography and low population density reduce its likelihood as a primary target.
- National trends indicate that extremist activity and targeted violence may occur in rural or suburban areas, not solely urban centers. **(Federal Bureau of Investigation (FBI). 2023. Domestic Terrorism Threat Assessment. https://www.fbi.gov/investigate/terrorism)**
- Increased use of internet-based communication and social media has reduced geographic limitations for organizing extremist activity or civil unrest.
- Demonstrations or protests tied to national or regional issues may occur and carry potential escalation risks.

Table 54: Probability Assessment

Event Type	Probability
Small-scale demonstrations or protests	Low to Moderate
Violent civil disturbance	Low
Terrorist attack or coordinated extremist violence	Low
Threats, hoaxes, or suspicious activity	Moderate

Source: U.S. Department of Homeland Security & Federal Emergency Management Agency. 2022. *Threat and Hazard Identification and Risk Assessment (THIRA) Guide.*

4.8.4 - Value of Resources at Risk

Civil disturbances and terrorism place several categories of assets at risk in Boise County. **(DHS. 2024. Homeland Threat Assessment. https://www.dhs.gov)**

People

- Residents, visitors, and seasonal recreation users
- Public employees, elected officials, and first responders
- Vulnerable populations including elderly residents and individuals with limited mobility

Public Facilities and Government Operations

- Boise County Courthouse and administrative offices
- Sheriff's Office and law enforcement facilities
- Schools, libraries, and public gathering locations
- Emergency operations and communications centers

Disruption or damage to these facilities could significantly affect government continuity and emergency response capability.

Critical Infrastructure

- State Highway 21 and State Highway 55 transportation corridors
- Utility systems including water, wastewater, and power infrastructure
- Public safety communications and dispatch systems

These infrastructure components are critical for maintaining public safety and economic continuity.

Economic and Community Resources

- Local businesses and tourism-related enterprises
- Agricultural operations and supply chains
- Community trust, social stability, and public confidence in government services
- Recovery from damage to these resources may require significant financial investment and prolonged recovery periods, particularly for rural jurisdictions with limited fiscal resources.

Conclusion

Civil disturbances and terrorism represent low-frequency but potentially high-consequence hazards for Boise County. Although the county has limited historical occurrence, evolving national threat environments and the unpredictable nature of human-caused hazards require continued preparedness and mitigation planning.

Mitigation strategies such as interagency coordination, facility security improvements, intelligence sharing, responder training, and public awareness programs can reduce vulnerability and improve community resilience. **(Federal Bureau of Investigation (FBI). 2023. Domestic Terrorism Threat Assessment. https://www.fbi.gov/investigate/terrorism)**

Chapter 5
Mitigation Strategy

Roger C. Idaho City sunset over State Highway 21.

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

The FEMA mitigation strategy requirements:

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

All risk assessments were made based on the conditions existing during February 2025 through January 2026; thus, the recommendations in this section have been made in light of those conditions. However, the components of risk and the preparedness of Boise County's resources are not static. It will be necessary to fine-tune this plan's recommendations annually to adjust for changes in the components of risk, population density changes, infrastructure modifications, and other factors.

5.1 Mitigation Goals

Requirement §201.7(c)(3)(i): The hazard mitigation strategy shall include a description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.

Mitigation goals are defined as general guidelines that explain what the Stakeholders want to achieve in terms of hazard and loss prevention. Goal statements are typically long-range, policy-oriented statements that guide the development of specific mitigation actions. They represent community-wide aspirations for increased safety, resilience, and sustainability.

Table 55: Mitigation Goals for Boise County AHMP

Priority	Description
1	Strengthen local capacity to help the County and its communities prepare for, respond to, and recover from disasters.
2	Reduce wildfire hazard risks and strengthen overall resilience.
3	Minimize flood hazard risks and enhance the County's resilience.
4	Reduce geological hazard risks and strengthen resilience.
5	Reduce extreme weather hazard risk and strengthen resilience.
6	Enhance healthcare services across the County, strengthen emergency response capacity, and mitigate the impact of future pandemics and diseases.
7	Safeguard critical infrastructure and data systems against cybersecurity threats and disruptions to digital communications.
8	Reduce the risk of terrorist and related attacks while strengthening organizational resilience.
9	Strengthen the communication systems of emergency responders to efficiently facilitate emergency operations and uphold public safety.

5.2 - Mechanisms to Incorporate Mitigation Strategies

Boise County encourages the philosophy of instilling disaster resilience in normal day-to- day operations. By implementing planned activities through existing programs and resources, the cost of mitigation is often a small portion of the overall cost of a project's design or program. Through their resolution of adoption as well as their participation on the Steering Committee, each jurisdiction is aware of and committed to incorporating the risk assessments and mitigation strategies contained herein. It is anticipated that the research, local knowledge, and documentation of hazard conditions coalesced in this document will serve as a tool for decision-makers as new policies, plans, and projects are evaluated.

There are several planning processes and mechanisms for the County that will either use the risk assessment information presented in this document to inform decisions or will integrate the

mitigation strategy directly into capital improvements, infrastructure enhancements, training projects, prevention campaigns, and land use and development plans.

5.3 - Development of Mitigation Action Items

This section outlines an integrated schedule of action items designed to reduce risk and prevent the loss of life, property, and critical infrastructure. Where possible, these actions should be incorporated into existing County and Community programs, policies, and operations to enhance day-to-day disaster resilience. Implementation should be guided not only by the findings of this updated All Hazard Mitigation Plan (AHMP), but also by local knowledge of hazard conditions, traditional ecological knowledge, and the lived experience of the residents.

Questions to Consider When Evaluating Mitigation Actions:

Questions proposed to the AHMP Steering Committee to consider for each Mitigation Action Item (MAI).

- Is the hazard addressed by this action identified as a vulnerability in the AHMP Risk Assessment?
- What are the most immediate mitigation needs?
- Is the proposed action consistent with existing County or City documents, policies, laws, or code?
- Does the action directly support one or more mitigation goals identified in this plan?
- Is the action economically feasible? What funding sources or cost-sharing options exist?

Through this evaluation process, the Steering Committee identified mitigation actions to be included in the 2025 AHMP plan update. The table of action items includes a description of each action item and associated administrative information, including which departments or agencies will be responsible, potential cost of implementation, and time frame for completion.

Categorization of Mitigation Action Items

This section provides a brief overview of how the different fields in the MAI table were populated and the criteria used to assign ratings and values.

- **Priority:** All action items need to be prioritized as **LOW**, **MEDIUM**, or **HIGH** based on departmental goals, project feasibility, cost, and overall impact on the Tribe.

- **Time Frame:** An estimation was made regarding the number of years required to fully implement and complete each project.

- **Lead Agency:** The agencies listed in the table are responsible for the implementation, status update, and closing out of the respective action item.

- **Cost:** Since the exact cost of each project is unknown, a cost rating of LOW, MEDIUM, and/or HIGH should be assigned to each action item.
    - **Low: $0 to $25,000**
    - **Medium: $25,000 to $100,000**
    - **High: $100,000 or more**

5.4 - Process to Monitor and Evaluate Mitigation Action Items (Maintenance)

Plan's maintenance requirements include:

- FEMA 44 CFR §201.6(c)(4)(i) – A section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan within a five-year cycle.

- FEMA 44 CFR §201.6(c)(4)(ii) – A process by which local governments incorporate the requirements of the mitigation plan into other planning mechanisms such as comprehensive or capital improvement plans, when appropriate.

- FEMA 44 CFR §201.6(c)(4)(iii) – Discussion on how the community will continue public participation in the plan maintenance process.

As part of the annual review process, the Steering Committee will update the status of mitigation projects and identify any projects that could potentially be funded through grants. New projects not included in the plan will be noted and opportunities to accomplish projects through other planning mechanisms will also be identified.

The status of any completed projects will also be updated to reflect when the project was completed and if it was or is yet to be officially "closed out" by the responsible agency. The list of MAI's will be fully revised during the next five-year update of the plan.

Information and resources that can be used for the annual review can be found in Appendix 2.

5.5 - Project Start-Up and Closeout Procedures

After the adoption of the 2025 AHMP by the County Board of Commissioners, and the Cities of Idaho City, Horseshoe Bend, Crouch, and Placerville's City Councils, the County's Emergency Manager and the AHMP Steering Committee will continue to monitor, evaluate and update the plan. Additionally, the Emergency Manager and key stakeholder representatives will be responsible for monitoring and

implementing assigned mitigation activities from the 2025 AHMP and will report project-status changes at least annually to Stakeholders. The County and Cities will also apprise the public about the AHMP and hazards that affect the residents through various platforms and outreach efforts.

5.6 - 2025 Mitigation Action Items

Requirement §201.7(c)(3)(ii): [The mitigation strategy shall include] a section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure.

MAI #1: Strengthen local capacity to help the County and its communities prepare for, respond to, and recover from disasters.

	Description	Priority	Time Frame	Lead Agency	Cost	Status
1.A	Strengthen data collection, risk assessment, and technical evaluation within designated hazard-prone regions.	Low	On-going	GIS, EM, FD, BCSO	Low	
1.B	Maintain and enhance a mitigation outreach program designed to support residents in disaster preparedness, including the development of emergency evacuation plans for regions identified as being at risk.	Medium	1 to 2 years	GIS, EM, FD, BCSO	Low	
1.C	Maintain continuous training and secure sufficient funding for Local Emergency Planning Committee (LEPC) and Community Emergency Response Team (CERT) programs.	High	On-going	GIS, EM, FD, BCSO	Low	
1.D	Designate and outfit emergency assembly locations for County residents, providing sufficient resources and provisions to sustain prolonged emergency scenarios.	High	2 to 4 years	GIS, EM, FD, BCSO	Medium	
1.E	Incorporate hazard-prone areas into land use planning. Explore the need for hazard zoning and high-risk land use ordinances	Medium	1 to 2 years	GIS, EM, FD, BCSO, P&Z	Low	
1.F	Create comprehensive educational resources to enhance safety awareness and minimize hazard risks in both departmental operations and public outreach initiatives.	Low	1 to 3 years	GIS, EM, FD, BCSO, P&Z, BD	Low	
1.G	Partner with anchor institutions to review existing mitigation measures within facilities and initiate improvements if needed.	Medium	On-going	GIS, EM, FD, BCSO, BD	Low to Medium	
1.H	Collaborate with utility providers, to strengthen infrastructure resilience against potential hazards	Low	On-going	GIS, EM, FD, BCSO	Low	
1.I	Encourage climate adaptation and nature-based mitigation projects when possible	Low	On-going	GIS, EM, FD, BCSO	Low to High	
1.J	The development and improvement of hazard warning systems; including sirens, signage, and electronic message boards—as integral components of comprehensive risk reduction and early warning strategies.	High	2 to 4 years	GIS, EM, FD, BCSO	High	
1.K	Development a *Master Transportation Plan* that identifies and ensures that key roads have proper egress and ingress protection during natural hazard events.	High	2 to 4 years	GIS, EM, FD, BCSO	Low to High	

MAI #2: Reduce wildfire hazard risks and strengthen overall resilience.

	Description	Priority	Time Frame	Lead Agency	Cost	Status
2.A	Incorporate all wildfire mitigation strategies included in the County's CWPP-2023.	High	1 to 5 years	GIS, EM, FD, BCSO	Low to High	
2.B	Update building codes to require fire-retardant materials in new constructions in wildfire-prone areas.	Medium	1 to 2 years	GIS, EM, FD, BCSO, P&Z, BD	Low	
2.C	Continue current fuel management efforts, investigate new approaches for managing fuels, and enhance fire mutual aid programs.	High	On going	GIS, EM, FD, BCSO	Low to Medium	
2.D	Develop defensible space guidelines and provide funding or incentives to support maintenance by landowners.	Low	1 to 5 years	GIS, EM, FD, BCSO	Medium	
2.E	Continue to provide educational materials for homeowners and business owners on best practices for maintaining building fire safety.	Low	On-going	GIS, EM, FD, BCSO, P&Z, BD	Low	
2.F	Assess the location of fire stations related to hazard zones. Retrofit or relocate as needed.	High	5 years	GIS, EM, FD	Medium to High	
2.G	Establish water storage systems for firefighting capacity.	High	5 years	GIS, EM, FD, BCSO	Medium to High	
2.H	Continue to maintain and operate a robust air quality monitoring network. Provide timely notification to the public regarding health impacts of smoke.	Low	5 years	GIS, EM, FD, BCSO	Low to Medium	
2.I	Identify and prioritize critical facilities, public buildings, and high-occupancy structures for structural assessments to evaluate vulnerability to roof or wall collapse.	High	5 years	GIS, EM, FD, BCSO, BD	Medium to High	

MAI #3: Minimize flood hazard risk and enhance County's resilience.

	Description	Priority	Time Frame	Lead Agency	Cost	Status
3.A	Incorporated and unincorporated communities continue to meet all requirements for FEMA's NFIP.	High	On-going	GIS, EM, FD, BCSO	Low	
3.B	Identify and record areas susceptible to flooding. Assess potential mitigation strategies and apply best management practices to effectively minimize flood risk.	High	5 years	GIS, EM, FD, BCSO, P&Z, BD	Medium to High	
3.C	Identify and implement flood hazard risk training for first responders.	Medium	On-going	EM, FD, BCSO	Low	
3.D	Identify and implement mitigation projects to provide real-time flood level data into public alert systems.	Medium	5 years	EM, FD, BCSO	Medium to High	
3.E	Evaluate Horseshoe Bend's levee for potential FEMA certification and associated mitigation opportunities.	High	5 years	City of Horseshoe Bend, EM	High	
3.F	Identify site-specific flood mitigation needs and procure funding for mitigation projects	High	5 years	EM	Medium to High	
3.G	Launch a possible FEMA program to buy out properties or structures that have been identified as being at risk of repeated losses.	Low	On-going	EM, GIS, FD, BCSO	High	
3.H	City of Crouch is encouraged to adopt the NFIP.	High	1 to 3 years	City of Crouch		
3.I	Idaho City and City of Crouch and Garden Valley area update FEMA Letter of Map Revisions.	High	1 to 3 years	Idaho City and City of Crouch and Garden Valley area	Low to High	
3.J	City of Placerville identifies and implements flood protection mitigation.	High	1 to 5 years	Placerville	Medium to High	

MAI #4: Reduce geological hazard risks and strengthen overall resilience.

	Description	Priority	Time Frame	Lead Agency	Cost	Status
4.A	Create a comprehensive geologic map identifying hazard-prone areas.	Low	1 to 2 years	GIS, EM, P&Z, FD, BCSO	Low	
4.B	Identify and prioritize potential geologic mitigation opportunities and implement the projects.	High	On-going	GIS, EM, P&Z, FD, BCSO	Low to High	
4.C	Identify and implement geologic hazard risk training for first responders.	Low	On-going	GIS, EM, P&Z, FD, BCSO	Low	
4.D	Develop communication protocols for informing the public about geologic hazard risks and impacts on infrastructure and property.	Medium	On-going	EM, P&Z, FD, BCSO	Low	

MAI #5: Reduce extreme weather hazard risk and strengthen resilience.

	Description	Priority	Time Frame	Lead Agency	Cost	Status
5.A	Encourage the adoption of resilient construction materials suitable for extreme weather conditions and integrate requirements for underground utilities into building regulations.	Low	On-going	P&Z, BD, EM	Low	
5.B	Ensure that all critical and anchor facilities carry comprehensive insurance for extreme weather events and apply best practices for infrastructure protection.	Low	On-going	EM	Low	
5.C	Coordinate with public utility companies in identifying vulnerabilities that pose risks to infrastructure.	Low	On-going	EM, BCSO	Low	
5.D	Develop a coordinated rescue operation plan for weather-related emergencies and implement appropriate first responder training.	High	On-going	EM, BCSO	Low	
5.E	Create an educational program that focuses on conservation techniques. Offer incentives and technical assistance to help the residents of the County.	Low	5 years	EM	Low to Medium	
5.F	Enhance the County's source-water assessment and protection programs to strengthen resilience against extreme weather events and drought conditions.	High	5 years	EM, BCSO	High	

MAI #6: Enhance healthcare services across the County, strengthen emergency response capacity, and mitigate the impact of future pandemics and diseases.

	Description	Priority	Time Frame	Lead Agency	Cost	Status
6.A	Determine the equipment, supplies, and infrastructure needed to provide sufficient treatment capacity during a public health emergency.	Medium	On-going	EM	Low to High	
6.B	Develop operational strategies, protocols, and training programs to support health professionals.	High	1 to 2 years	EM	Low	
6.C	Address public health outreach, education, and access to resources before and during public health emergencies.	Low	On-going	EM	Low	
6.D	Expand healthcare facilities and ensure comprehensive training for all first responders so they can effectively address public emergencies.	High	5 years	EM	High	

MAI #7: Safeguard critical infrastructure and data systems against cybersecurity threats and disruptions to digital communications.

	Description	Priority	Time Frame	Lead Agency	Cost	Status
7.A	Conduct a Cybersecurity Risk Assessment to identify vulnerabilities in the County's digital systems and critical infrastructure. Establish a Cybersecurity Awareness and Training Program.	High	3 years	EM, BCSO, IT	Low to Medium	
7.B	Create a cybersecurity plan that outlines roles, responsibilities, and response protocols for cyber incidents affecting County operations, 9-1-1 dispatch, emergency services, and critical infrastructure.	High	4 years	EM, BCSO, IT	Low	
7.C	Standardize cybersecurity practices across county departments and municipalities, including password policies, data encryption, and system access controls.	High	1 year	EM, BCSO, IT	Low	
7.D	Ensure that emergency operations, dispatch, and government services have backup procedures and redundant systems in case of cyber disruption.	High	2 years	EM, BCSO, IT	Medium to High	
7.E	Launch community workshops and online resources to educate residents and businesses on cyber hygiene (e.g., strong passwords, recognizing phishing scams, securing Wi-Fi networks).	Low	4 years	EM, BCSO, IT	Low	

MAI #8: Reduce the risk of terrorist and related attacks while strengthening organizational resilience.

	Description	Priority	Time Frame	Lead Agency	Cost	Status
8.A	Create a critical infrastructure protection plan that identifies, assesses, and prioritize critical assets (e.g., water systems, power substations, 9-1-1 centers, schools, bridges, government facilities) for security enhancements and hardening measures.	High	1 to 2 years	EM, BCSO, FD	Low	
8.B	Conduct annual active shooter and lockdown drills in schools, county offices, and public gathering spaces.	High	On-going	EM, BCSO, FD	Low	

MAI #9: Strengthen communication systems of emergency responders to efficiently facilitate emergency operations and uphold public safety.

	Description	Priority	Time Frame	Lead Agency	Cost	Status
9.A	Upgrade first responders' communication equipment and ensure all areas of the County have adequate coverage.	High	1 to 2 years	BCSO, EM, IT	High	
9.B	Conduct communications need assessment and coverage gap analysis.	Medium	3 to 5 years	BCSO, EM, FD, GIS, IT	Low	
9.C	Establish mutual aid radio interoperability protocols with neighboring jurisdictions.	Medium	3 to 5 years	BCSO, EM, FD	Low	
9.D	Enhance countywide radio and backup satellite communication capabilities to ensure resiliency if primary networks are attacked or disabled.	High	On-going	BCSO, EM, FD, GIS, IT	High	

5.7 - Capability Assessment

The County and its incorporated communities actively facilitate hazard mitigation before and after disasters by implementing comprehensive regulations, plans, and programs. Policies for mitigation encompass a forest fire protection ordinance, the issuance of burn permits, and mutual aid agreements. Mitigation planning efforts include the development of a hazard mitigation administration plan and an emergency operations plan. Furthermore, the County engages in several hazard mitigation initiatives, such as a fuel management program, a wildfire outreach program, and a GIS-based hazard mapping program.

Boise County and its incorporated municipalities implement a range of regulatory measures governing development and activities in hazardous areas. These measures include Subdivision and Planned Unit Development (PUD) regulations, zoning designations and associated requirements, specialized land use ordinances, building codes, development standards, environmental criteria, and various other County and City enactments.

All jurisdictions are expected to uphold and enforce their planning and regulatory abilities throughout the duration of this AHMP. Furthermore, they should aim to implement new planning strategies to improve hazard mitigation efforts.

5.8 – Boise County History Non-FEMA - Mitigation Grant Funding

List of Grants Boise County Wildfire Mitigation has implemented or been award and will Implement:

Table 56: Recent Grants Awarded to Boise County

Name	Amount
Good Neighbor Authority	$675,000
21HFR4-Boise-CCRC	$329,138
22HFR4-Boise-CCRC	$238,580
23HFR4-Boise-Willderness	$258,715
23HFR4-Boise-Willderness	$240,000
25HFR4-Boise-Lowman	$240,000
25IRAP-Boise-Middle Fork Payette - HFR	$500,000
24 Fire Prevention and Safety Grant - FEMA	$580,500

Source: Boise County Emergency Manager

5.9 - Mitigation Funding Programs & Opportunities

Mitigation assistance can be sought after through various funding sources. These sources can be financial, technical, or education/outreach related. Below are the funding sources provided that are available for communities and individuals within Boise County.

Name: Community Assistance Program – State Support Services Element (CAP-SSSE)
This program provides funding to States to provide technical assistance to communities in the National Flood Insurance Program (NFIP) and to evaluate community performance in implementing NFIP floodplain management activities.
http://www.fema.gov/plan/prevent/floodplain/fema_cap-ssse.shtm

Name: Community Development Block Grant (CDBG) Program
The CDBG program provides grants and technical assistance to federally designated and non-designated municipalities for any type of community development. An Entitlement component provides funding for designated communities via a set formula. The Competitive component provides funding of up to $500,000 to non-federally designated communities. These grants may be used for infrastructure improvement, public services, or development and planning, but 70% of the project must benefit low- and moderate-income persons. CDBG money can be used as matching funds for the FEMA HMA grant programs.
U.S. Department of Housing and Urban Development; Phone: 208-334-1990 ID_Webmanager@hud.gov

Community Development Block Grant (CDBG) Program
The CDBG program provides grants and technical assistance to federally designated and non-designated municipalities for any type of community development. An Entitlement component provides funding for designated communities via a set formula. The Competitive component provides funding of up to $500,000 to non-federally designated communities. These grants may be used for infrastructure improvement, public services, or development and planning, but 70% of the project must benefit low- and moderate-income persons. CDBG money can be used as matching funds for the FEMA HMA grant programs.
U.S. Department of Housing and Urban Development; Phone: 208-334-1990 ID_Webmanager@hud.gov

Continuing Authorities Program
Congress has provided the USACE with a number of standing authorities to study and build water resource projects for various purposes without additional project specific congressional authorization. The types of projects addressed by the Continuing Authorities Program include emergency streambank and shoreline erosion, small flood control projects, small navigation projects, and snagging and clearing for flood control.
US Army Corps of Engineers cenww-pa@usace.army.mil

Department of Commerce/Economic Development Authority (EDA)
EDA was created by Congress pursuant to the Public Works and Economic Development Act of 1965 to provide financial assistance to distressed communities, both rural and urban. EDA's mission is to lead the Federal economic development agenda by promoting innovation and competitiveness, preparing American regions for growth and success in the worldwide economy. EDA will fulfill its mission by fostering entrepreneurship, innovation, and productivity through investments in infrastructure development, capacity building, and business development. These investments will be made to attract private capital investments and higher-skill, higher-wage jobs to regions experiencing substantial and persistent economic distress. EDA works in partnership with distressed regions to address problems associated with long-term economic distress and to assist regions experiencing sudden and severe economic dislocations, such as those resulting from natural disasters, conversions of military installations, changing trade patterns, and the depletion of natural resources. EDA investments generally take the form of grants to or cooperative agreements with eligible recipients.
EDA provides assistance

Department of Homeland Security Grant (HSGP) Program
The HSGP consists of three sub-programs: the State Homeland Security Program (SHSP), Urban Areas Security Initiative (UASI), and Operation Stonegarden (OPSG). The SHSP is the core assistance program in this suite; it provides funds to build capabilities at the State and local levels and to implement the goals and objectives included in State homeland security strategies and initiatives in their State Preparedness Reports. At least 25% of these funds are dedicated towards anti-terrorism activities. UASI focuses on enhancing regional preparedness in metropolitan areas, while OPSG is intended to enhance cooperation and coordination among law enforcement agencies in a joint mission to secure the U.S. border. Program priorities include the integration of law enforcement, fire, and emergency medical service providers for a coordinated response to mass casualty incidents; and support citizen preparedness drills and exercises. Priorities may vary each fiscal year.
http://www.bhs.idaho.gov/Pages/FinanceAndLogistics/Grants.aspx

Department of Transportation/Federal Highway Administration (FHWA) Emergency Relief Program
Congress authorized in Title 23, United States Code, Section 125, a special program from the Highway Trust Fund for the repair or reconstruction of Federal-aid highways and roads on Federal lands which have suffered serious damage as a result of (1) natural disasters or (2) catastrophic failures from an external cause. This program, commonly referred to as the emergency relief or ER program, supplements the commitment of resources by States, their political subdivisions, or other Federal agencies to help pay for unusually heavy expenses resulting from extraordinary conditions.
FHWA Idaho Division Office 3050 Lakeharbor Lane, #126 Boise, ID 83703 FHWA Office Phone : (208) 334-1843

Drought Assistance Programs
Natural disaster is a constant threat to America's farmers and ranchers and rural residents. USDA provides assistance for losses from drought, flood, fire, freezing, tornadoes, pest infestation, and other calamities.
Dennis McNees, Commodity Technician (Emergency Food Assistance) Tel: (208) 332-6820 Fax: (208) 334-2228 Email: dwmcnees@sde.idaho.gov

Emergency Management Performance Grants (EMPG)
The Federal Government, through the EMPG Program, provides necessary direction, coordination, and guidance, and provides necessary assistance, as authorized in this title so that a comprehensive emergency preparedness system exists at all levels for all hazards for States, Territories, federally-recognized tribes and local communities. Participating communities develop performance goals for their emergency management programs and design projects to meet those goals. After being funded, the participants must evaluate progress and report back to BHS to remain eligible.
http://www.fema.gov/fy-2013-emergency-management-performance-grants-empg-program-0

Environmental Planning and Historic Preservation (EHP) Program
The EHP Program integrates historic preservation considerations with FEMA's mission of preparedness, response, recovery, and mitigation. During disaster recovery operations, the agency assesses damages to historic and cultural resources, provides technical assistance to States and local jurisdictions, and ensures compliance with applicable Federal laws and regulations, such as the National Historic Preservation Act.
http://www.fema.gov/environmental-planning-and-historic-preservation-program

Federal Excess Personal Property Program
The program is administered by the USDA's Forest Service with delivery through the State Forester. The Federal Excess Personal Property (FEPP) program re-utilizes excess Federal property obtained from military and other Federal sources for use in rural and wildland firefighting. This equipment is loaned by agreement to State Foresters, who can sub-loan it to local firefighting organizations. Eligible Recipients: Rural Fire Departments serving 10,000 people or less.
Dee Sessions Stewardship/Forest Land Enhancement Program/Legacy/Forest Resource Management/Cooperative Watershed/CostShare Phone: 801-625-5189 Email: dsessions@fs.fed.us

FEMA: Firefighter Assistance Grants
This competitive grant from the Federal Emergency Management Agency provides direct assistance to fire protection organizations. Funds may be awarded for training safety and equipment, firefighting vehicles, fire prevention equipment, or emergency services. Eligible Recipients: fire departments at all levels.
Firefighter Assistance Grants website: http://www.fema.gov/welcome-assistance-firefightersgrant-program or firegrants@dhs.gov

Fire Management Assistance Grant Program
Fire Management Assistance is available to State, local, and Tribal governments for the mitigation, management, and control of fires on publicly or privately owned forests or grasslands, which threaten such destruction as would constitute a major disaster. The Fire Management Assistance declaration process is initiated when a State submits a request for assistance to the FEMA Regional Administrator at the time a "threat of major disaster" exists. The entire process is accomplished on an expedited basis, and FEMA's decision is rendered in a matter of hours.
Federal Emergency Management Agency Federal Regional Center 130 - 228th Street, Southwest Bothell, WA 98021-

Flood Mitigation Assistance Program (FMA) Program
The FMA program is authorized by Section 1366 of the National Flood Insurance Act of 1968, as amended with the goal of reducing or eliminating claims under the National Flood Insurance Program (NFIP). FMA provides funding to States, Territories, federally-recognized tribes and local communities for projects that reduce or eliminate long-term risk of flood damage to structures insured under the NFIP. FMA funding is available for flood hazard mitigation projects, plan development and management costs. Funding is appropriated by Congress annually.
http://www.fema.gov/pre-disaster-mitigation-grant-program

Flood Plain Management Services (FPMS) Program
Section 206 of the 1960 Flood Control Act (PL 86-645), as amended, provides the authority for the U.S. Army Corps of Engineers (USACE) to provide assistance and guidance on all aspects of floodplain management planning. The program develops or interprets site-specific data on obstructions to flood flows, flood formation and timing; and the extent, duration, and frequency of flooding. Upon request, program services are provided to State, regional, and local governments, Indian Tribes, and other non-Federal public agencies without charge.
US Army Corps of Engineers cenww-pa@usace.army.mil

Forest Stewardship Program (FSP)
the FSP provides technical assistance, through State forestry agency partners, to nonindustrial private forest owners to encourage and enable active long-term forest management. A primary focus of the FSP is the development of comprehensive, multi-resource management plans that provide landowners with the information they need to manage their forests for a variety of products and services. Participation in the FSP is open to any non-industrial private forest landowners who are committed to the active management and stewardship of their forested properties for at least 10 years. The FSP is not a cost-share program. Cost-share assistance for plan implementation may be available through other programs, such as the Forest Land Enhancement Program.
Dee Sessions Stewardship/Forest Land Enhancement Program/Legacy/Forest Resource Management/Cooperative Watershed/CostShare Phone: 801-625-5189 Email: dsessions@fs.fed.us

Hazard Mitigation Assistance Grant Program (HMAGP)
The FMA program is authorized by Section 1366 of the National Flood Insurance Act of 1968, as amended with the goal of reducing or eliminating claims under the National Flood Insurance Program (NFIP). FMA provides funding to States, Territories, federally-recognized tribes and local communities for projects that reduce or eliminate long-term risk of flood damage to structures insured under the NFIP. FMA funding is available for flood hazard mitigation projects, plan development and management costs. Funding is appropriated by Congress annually.
http://www.fema.gov/government/grant/hma/index.shtm

Hazardous Materials Emergency Preparedness Grant (HMEPG)
Description: Grant funds will be passed through to local emergency management offices and HazMat teams having functional and active LEPC's.
http://www.bhs.idaho.gov/Pages/FinanceAndLogistics/Grants.aspx

Idaho Fish and Wildlife Foundation
The Idaho Fish and Wildlife Foundation is dedicated to the conservation of natural resources; fish, wildlife, and habitat. The Foundation is a 501 (c) (3) nonprofit organization established in 1990 and is headquartered in Boise, Idaho. Board members represent all regions of the State and work to enhance Idaho's fish and wildlife habitat. The Foundation grants funding for statewide conservation and education projects.
(208)334-2648 or ifwf@idfg.idaho.gov

Individuals and Households Program (IHP)
The IHP is a combined FEMA and State program. When a major disaster occurs, this program provides money and services to people in the declared area whose property has been damaged or destroyed and whose losses are not covered by insurance. In every case, the disaster victim must register for assistance and establish eligibility.
http://www.fema.gov/individual-assistance-program-tools

Inspection of Completed Works Program
Civil works structures whose failure or partial failure could jeopardize the operational integrity of the project, endanger the lives and safety of the public, or cause substantial property damage are periodically inspected and evaluated to ensure their structural stability, safety, and operational adequacy. For structures constructed by the USACE and turned over to others for operation and maintenance, the operating entity is responsible for periodic inspection and evaluation. The USACE may conduct the inspection on behalf of the project sponsor, provided appropriate reimbursement to the USACE is made. However, the USACE may participate in the inspection with the operating entity at the government's expense.
US Army Corps of Engineers cenww-pa@usace.army.mil

Internal Revenue Service (IRS) Casualty Loss-Special Disaster Provisions
Special tax law provisions may help taxpayers and businesses recover financially from the impact of a disaster, especially when the Federal government declares their location to be a major disaster area. Depending on the circumstances, the IRS may grant additional time to file returns and pay taxes. Both individuals and businesses in a federally declared disaster area can get a faster refund by claiming losses related to the disaster on the tax return for the previous year, usually by filing an amended return. The IRS also offers audio presentations on Planning for Disaster. These presentations discuss business continuity planning, insurance coverage, recording keeping and other tips to stay in business after a major disaster.
http://www.irs.gov/businesses/small/article/0,,id=156138,00.html

National Earthquake Hazards Reduction Program (NEHRP)
Under NEHRP, The National Earthquake Technical Assistance (NETAP) Program is a technical assistance program created to provide short-term, no-cost architectural and engineering support related to earthquake mitigation. Examples of NETAP projects are seismic retrofit/evaluation training, evaluation of seismic hazards to critical/essential facilities, post-earthquake evaluations of buildings, and the development of retrofit guidance for homeowners. BHS administers this program in Idaho.
http://www.fema.gov/plan/prevent/earthquake/training_pubs.shtm for training information.

National Oceanic Atmospheric Restoration Center Grants
The NOAA Restoration Center is devoted to restoring the Nation's coastal ecosystems and preserving diverse and abundant marine life. Through its strong commitment to restoration and by promoting partnerships
Lauren Senkyr Idaho NOAA 1201 NE Lloyd Boulevard, Suite 1100 Portland, OR 97232 Phone: 503-231-2110 Fax: 503-231-6265 Lauren.Senkyr@noaa.gov

Pre-Disaster Mitigation (PDM) Program
The PDM Program, authorized by Section 203 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, is designed to assist States, territories, Federally-recognized tribes, and local communities in implementing a sustained pre-disaster natural hazard mitigation program. The goal is to reduce overall risk to the population and structures from future hazard events, while also reducing reliance on Federal funding in future disasters. This program awards planning and project grants and provides opportunities for raising public awareness about reducing future losses before disaster strikes. PDM grants are funded annually by Congressional appropriations and are awarded on a nationally competitive basis.
http://www.fema.gov/pre-disaster-mitigation-grant-program

Public Assistance (PA) Program
Funding provided through federally declared disaster assistance programs may be used for mitigation actions as part of the recovery process. This funding is administered by BHS. Examples of such applications include the PA Program. The measures must apply only to the damaged elements of a facility rather than to other, undamaged parts of the facility or to the entire system. Section 406 mitigation measures are considered part of the total eligible costs of repair, restoration, reconstruction, or replacement of a facility. They are limited to measures of permanent work, and the Applicant may not apply mitigation funding to alternate projects or improved projects if a new replacement facility is involved. Required upgrades meeting applicable codes and standards are part of eligible restoration work and are not considered mitigation measures.
http://www.fema.gov/public-assistance-local-state-tribal-and-non-profit/hazard-mitigationfunding-under-section-406-0

Rehabilitation and Inspection Program
The Rehabilitation and Inspection Program is the USACE program that provides for inspection of flood control projects, the rehabilitation of damaged flood control projects, and the rehabilitation of federally authorized and constructed hurricane or shore protection projects
US Army Corps of Engineers cenww-pa@usace.army.mil

Reimbursement for Firefighting on Federal Property
Under Section 11 of the Federal Fire Prevention and Control Act of 1974, fire departments may be reimbursed for fighting fire on property owned by the Federal government. Only firefighting costs over and above normal operating costs are reimbursable. Claims are submitted to USFA and are reviewed by the Deputy Administrator to ensure they meet the criteria outlined in the Code of Federal Regulations.
Reimbursement is paid to the fire departments by the U.S. Department of Treasury after a claim is approved for payment. For more information, please contact the USFA's Tim Ganley at (301) 447-1358.

Rural Fire Assistance (RFA) Program
Eligible Recipients: Rural Fire Departments serving 10,000 people or less that are adjacent to BLM land. Types of projects or purchases that are acceptable: • Personal Protective Equipment • New-generation fire shelters/case • Communications equipment • Basic Tools • Basic Wildland Fire Training Contact BLM for specifics on purchasing guidelines. The U.S. Fish & Wildlife Service, Bureau of Indian Affairs, and National Park Service also have RFA funds available for rural fire departments with protection areas adjacent to these Federal lands. Please contact your local Federal representative for information.
BLM Rural Fire Assistance Program (RFA): Jon Skinner, Rural Fire Assistance Coordinator Bureau of Land Management, Idaho State Office (208) 373-3854

Rural Housing Programs
This service is responsible for providing safe, sanitary, and affordable housing for rural families with very low income, low income, and moderate income. The Rural Housing Program delivers its services through a wide range of housing programs, including programs supporting single-family homeownership, multi-family rental housing, and farm labor housing.
Roni Atkins, Director, Housing Program Director 9173 West Barnes, Ste A1 Boise, ID 83709 Phone: 208-378-5630 E-Mail: roni.atkins@id.usda.gov

Small Business Administration (SBA) Disaster Loan Programs
The SBA Disaster Loan Program provides businesses low-interest, long-term loans to repair or replace damaged property owned by the business, including real estate, machinery and equipment, inventory, and supplies. Homeowners may also qualify for low-interest loans to help rebuild or repair their homes or repair or replace uninsured or underinsured flood-damaged personal property. Renters may qualify for loans to repair or replace personal property. Economic Injury Disaster Loans provide working capital to small businesses and small agricultural cooperatives to assist them through the recovery period.
Small Business Administration; Phone: (916) 735-1500

State Dam Safety Program
The State DSP is administered in Idaho by the IDWR. This program focuses on inspection, classification, and emergency planning for dam safety and permitting of Emergency Action Plans (EAPs). Funding may be used for a variety of projects, including dam safety – related training for State personnel and training in the field for dam owners on conducting annual maintenance reviews; revision of State maintenance and operation guidelines; improvements to dam inventory databases; and, creation of dam safety videos and outreach materials.
The Idaho Water Center 322 East Front Street PO Box 83720 Boise, Idaho 83720-0098 Phone: (208) 287-4800

The Steele-Reese Foundation Grant Program
The Steele-Reese Foundation, a trust for charitable purposes, was created by Eleanor Steele Reese on August 10, 1955. The foundation makes grants to charitable organizations operating in Idaho and Montana, and in the southern Appalachian mountain region of eastern Kentucky. Rural Conservation: Examples include composting programs, wildlife projects, ecosystem protection programs, and water projects. All conservation/environmental programs must be locally, rather than regionally, focused. National organizations are eligible for support only if all Steele-Reese funds will be employed directly in projects located in the geographical areas served by this foundation. Rural Health: Examples include hospices; preventive health programs; equipment for clinics, small hospitals, EMS and ambulance units; family-planning programs. Rural Humanities: Examples include local arts groups and local historical projects.
Linda Tracy Western Program Director The Steele-Reese Foundation PO Box 8311 Missoula, MT 59807-8311 E-mail: linda@steele-reese.org Phone: (406) 207-7984

USDA Farm Service Agency's (FSA) Emergency Conservation Program (ECP)
The ECP provides emergency funding and technical assistance for farmers and ranchers to rehabilitate farmland damaged by natural disasters and to carry out emergency water conservation measures in periods of severe drought. Funding for ECP is appropriated by Congress. County FSA committees determine land eligibility based on onsite inspections of damage, taking into account the type and extent of damage. For land to be eligible, the natural disaster must create new conservation problems that, if untreated, would: • impair or endanger the land; • materially affect the land's productive capacity; • represent unusual damage which, except for wind erosion, is not the type likely to recur frequently in the same area; and • be so costly to repair that Federal assistance is or will be required to return the land to productive agricultural use.
http://disaster.fsa.usda.gov

USDA Farm Service Agency's (FSA) Tree Assistance Program (TAP)
TAP provides financial assistance to qualifying orchardists and nursery tree growers to replant or rehabilitate eligible trees, bushes and vines damaged by natural disasters occurring on or after Jan. 1, 2008, and before Oct. 1, 2011. TAP was authorized by the 2008 Farm Bill and is funded through the Agricultural Disaster Relief Trust Fund.
USDA/FSA Idaho State FSA 9173 West Barnes Drive Boise, ID 83709-1573 Phone: 208-378-5650

USDA Water and Waste Disposal Programs
The Rural Utilities Service (RUS), the Rural Business-Cooperative Service, and the Rural Housing Service comprise USDA's Rural Development mission area. As the name suggests, the three agencies' programs are designed to meet the needs of people who live in rural areas, including infrastructure, housing, health and medical, education, and employment. The Rural Utilities Service's Water Programs Division has four programs, which provide financial and technical assistance for development and operation of safe and affordable water supply systems and sewage and other forms of waste disposal facilities. Recipients must be public entities. These can include municipalities, counties, special purpose districts, Indian Tribes, and corporations not operated for profit, including cooperatives. A new entity may be formed to provide the needed service, if an appropriate one does not already exist.
USDA/FSA Idaho State FSA 9173 West Barnes Drive Boise, ID 83709-1573 Phone: 208-378-5650

U.S. Department of Housing and Urban Development (HUD) Programs
HUD awards grants to organizations and groups for a variety of purposes. To participate in the HUD grants program, you need to be registered with Grants.gov. Some HUD programs and services are: • HUD 5-H Homeownership Program • HUD Home Program • HUD Partnership for Advancing Technology in Housing • HUD/Federal Housing Administration (FHA) Title I Home Repair Loan Program • HUD/FHA Section 203(h) Mortgage Insurance for Disaster Victims • HUD/FHA Section 203(k) Rehabilitation Mortgage Insurance Program • HUD Disaster Recovery Grants
http://portal.hud.gov/hudportal/HUD or HUD Boise Field Office Plaza IV, Suite 220 800 Park Boulevard Boise, Idaho 83712-7743 Phone: (208) 334-1990

U.S. Forest Service/Idaho Department of Lands (USFS/IDL) Community Fire Protection and BLM Partnership **Funds**
Provide funding for hazardous fuels treatments on private lands adjacent to National Forests (Community Fire Protection) and BLM (Partnership Fund) boundaries. Funds may only be used for hazardous fuels work and not for related activities. Eligible Recipients: County Wildland Fire Interagency Groups (or county governments)
Tyre Holfeltz Idaho Department of Lands tholfeltz@idl.idaho.gov 208-666-8653

Volunteer Fire Assistance (VFA) Program
The Volunteer Fire Assistance (VFA) Program, formerly known as the Rural Community Fire Protection (RCFP) Program, provides financial, technical, and other Federal assistance to State Foresters and other appropriate officials to organize, train and equip fire departments in rural areas and rural communities to suppress fires. A rural community is defined as having a population of 10,000 or less. This 10,000-person limit for participation facilitates the distribution of VFA funding to the neediest fire departments. Eligible Recipients: Rural Fire Departments serving 10,000 people or less.
Ken Ockfen ID Department of Lands 3284 W. Industrial Loop Coeur d'Alene, ID 83815 (208) 769-1525 Fax: (208) 769-1524 kockfen@idl.idaho.gov

Water Quality Improvement Projects
The Volunteer Fire Assistance (VFA) Program, formerly known as the Rural Community Fire Protection (RCFP) Program, provides financial, technical, and other Federal assistance to State Foresters and other appropriate officials to organize, train and equip fire departments in rural areas and rural communities to suppress fires. A rural community is defined as having a population of 10,000 or less. This 10,000-person limit for participation facilitates the distribution of VFA funding to the neediest fire departments. Eligible Recipients: Rural Fire Departments serving 10,000 people or less.
Water Quality Division DEQ State Office 1410 North Hilton Boise, Idaho 83706 Phone: (208) 373-0502 Fax: (208) 373-0576

Western States Fire Manager's Grant Program
This grant program is the primary source of funding used to conduct hazardous fuels treatments on private lands in Idaho. The ILRCC prioritizes all applications received in Idaho. These applications are then reviewed by a panel of Western States Fire Managers, where final funding decisions are made. Eligible Recipients: County Wildland Fire Interagency Groups (or county governments)
General ILRCC questions: Suzanne Schedler, Administrative Assistant Idaho Department of Lands 3780 Industrial Ave South Coeur d'Alene, ID 83815 Phone: (208) 666-8649

The Wilburforce Foundation Grant Program
Wilburforce Foundation protects wildlife habitats in Western North America by actively supporting organizations and leaders advancing conservation solutions. Wilburforce makes investments that contribute to the following types of outcomes: • Increase access to and use of scientific, legal, political, and economic information resources; • Improve the efficiency and effectiveness of grantee organizations conservation leaders, and other allies; • Increase communication, cooperation and collaboration among grantees, stakeholders, decision-makers and/or allies; • Increase awareness, support and utilization of conservation policies, plans and practices that protect wildlife habitat; • Decrease or mitigate threats to wildlife habitat; • Improve the protected status of wildlife habitat; • Improve the ecological resilience of the landscapes in which we work.
Wilburforce Foundation 3601 Fremont Ave N, #304 Seattle, WA 98103-8753 Phone: 206-632-2325 Fax: 206-632-2326 Email: grants@wilburforce.org

Appendices

Appendix 1 – Agendas and Attendees Documentation

All Hazard Mitigation Plan Update "Kickoff Meeting" Horseshoe Bend City Hall
Mon 2/24/2025 12:00 PM - 1:00 PM

And

All Hazard Mitigation Plan Update "Kickoff Meeting" Idaho City
Tuesday, February 25, 2025
11:00 AM - 12:00 PM (MST)

Agenda

Boise County's All Hazard Mitigation Plan

Kickoff Meeting

February 24 and 25, 2025

I. **Welcome**

II. **Introduction**

III. **Presentation**
- **What is Mitigation**
- **All Hazard Mitigation Plan Introduction**
- **Overview of thoughts about the plan**
- **What can be included or excluded**
- **Prepare to receive assignments to help with the meeting**
- **Public participation – Survey**

IV. **Discussion/Questions and Answers**

V. **Schedule for the next meeting**

VI. **Adjourn**

2 hours 12:00-2:00

All Hazard Mitigation Plan Participation

Name	Title	Organization	Phone	Email	Travel Time	Travel Miles
Heidi Novich	SW/SC IOEM	IOEM	208-954-293	hnovich@imd.idaho.gov	—	—
Scott Turner	Sheriff	BCSO	208-781-1117	[illegible]	1hr	38
Rick Barber	COMM / PFPD	Placerville Fire	208 963-1507	RED.MIST.222 @GMAIL.COM	1.5HR	55
Joseph Peterson		Fair Haven Sol.	208-243-2888		5 Hour	~250
[illegible] Pahl	IOEM Mitigation Planner	IOEM	208-371-9118	lpahl@imd.idaho.gov		
Jordan Jones	BC Wildfire Mitigation	Boise County	208-807-0073	jjones@co.boise.id.us	—	—
Bradley Petersen	Contractor - Fairhaven Sol	Fairhaven Solutions	204-313-6651	[illegible]	5hrs	~250
[illegible]	HSB Ambulance DR	Boise County	208 864-7651	stockchic8@		
Paul Rekow	FIRE CHIEF ~~Lowman UFD~~	Lowman UFD	208-246-9448	chief@lowmanfire.org	1	50
Matt Murry	FIRE CHIEF	HSB FD	208 7812302	~~HSBCHIEF~~ HSBFIRECHIEF@gmail.com		
Martye White	HSB City Council	HSB	208 8613008	white.marty.57.com		
[illegible]	HSB [illegible]	CITY	208-484-8586	[illegible]idaho.org		
Dennis Chesnut	Superintendent	HSB School				
Amy Woodruff	Engineer	HSB				
Cora Larson	Principal	HSB School				
Colton McCarthy	Fire Chief	Wilderness Ranch				
Tyller Logden						

Boise County All Hazards Survey introduced to AHMP Committee February 26, 2025 (See Public Participations)

February – April - Information Gathering Visits

Individual Meetings with:

Lorrie Pahl – IOEM, Mitigation Planner
- Direction for Boise County AHMP

Becky Rose – IOEM, GIS
- Mapping help

Tyre Holfeltz – IDL
- Wildfire information

Marshall Rivers, FEMA RiskMAP
- Floodplain

Robin Fox – NOAA
- Storm Events Database

Eric Miller – Geologist
- Driving tour around County

May 12, 2025 AHMP Committee Meeting

Invited:

Jordan Jones	Patrick Goff
Scott Turner	Clay Turner
Darell Lindstrom	Ben Roeber
Rick Barber	David Ayers
Mike Underwood	Paul Cleaveland
Melisa Lindros	Mark Barklow
Jason Rowe	Robert Callahan
Dan Cano	John Stull
Mari Adams	Bradley Petersen

Agenda
Boise County's All Hazard Mitigation Plan Update
May 12, 2025

I. **Welcome**

II. **Introduction**

III. **Presentation and Discussions**
- **Survey Update**
- **Mission, Vision, and Value's Statements**
- **Review: Risk Assessments**
- **Mitigation Strategies: Goals and Action Items**
  - **SWOT Analysis**
  - **Questions**
  - **Additional issues to consider**

IV. **Questions and Answers**

V. **Next meeting:**

VI. **Adjourn**

Boise County's All Hazard Mitigation Plan Update
July 15, 2025

Invites:

Jordan Jones	Patrick Goff	Scott Turner
Clay Turner	Darell Lindstrom	Ben Roeber
Rick Barber	David Ayers	Mike Underwood
Paul Cleaveland	Melisa Lindros	Mark Barklow
Jason Rowe	Robert Callahan	Dan Cano
John Stull	Mari Adams	Bradley Petersen
Chris Juszczak		

Agenda
Boise County's All Hazard Mitigation Plan Update
July 15, 2025

I. **Welcome**

II. **Introduction**

III. **Presentation and Discussions**
- **Mission, Vision, and Value's Statements**
- **Review: Risk Assessments**
- **Mitigation Strategies: Goals and Action Items**
  - **SWOT Analysis**

- **Questions**
- **Additional issues to consider**

IV. Questions and Answers

V. Next meeting: Tuesday, July 29, 2025

VI. Adjourn

who is federally funded?

All Hazard Mitigation Plan Participation 7-15-25

Name	Title	Organization	Phone	Email	Travel Time	Travel Miles
Jordan Jones	BC EM	Boise County	208-807-0073	jjones@co.boise.id.us		
Scott Turner	Sheriff	Boise county	208-781-1117	sturner@co.boise.id.us		
Rick Barber	Commissioner PFPD	Placerville	208 392-9437	RED.HIST.222@GMAIL.COM		
Dan Cano	Fire Chief	Thorn Creek VFD	208-392-4229	dcano1@mindspring.com		
Dave Ayers	AFO	IOEM	208-608-2638	dayers@ioem.idaho.gov		
Mari Adams	EBCAD Director	EBCAD	↑			
Mike Underwood	Firefighter	Clear Creek				
Paul Cleaveland	Chief/Council	Garden Valley	Online			
Bradley Petersen	Fairhaven					
Mel Barklow	BC LWM					
Melisa Lindros	Lowman Wildfire Mitigation	Lowman	↓			

Boise County's All Hazard Mitigation Plan Update
July 29, 2025

Invites:

Jordan Jones
Clay Turner
Rick Barber
Paul Cleaveland
Jason Rowe
John Stull
Chris Juszczak
Clark Cassel
Patrick Goff
Darell Lindstrom
David Ayers
Melisa Lindros
Robert Callahan
Mari Adams
Ken Everhart
Scott Turner
Ben Roeber
Mike Underwood
Mark Barklow
Dan Cano
Bradley Petersen
Trevor Schiefelbeim

Agenda
Boise County's All Hazard Mitigation Plan Update
July 29, 2025

I. **Welcome**

II. **Introduction**

III. **Presentation and Discussions**
- **Mission, Vision, and Value's Statements**
- **Review: Risk Assessments**
- **Mitigation Strategies: Goals and Action Items**
  - **SWOT Analysis**
  - **Questions**
  - **Additional issues to consider**

IV. **Questions and Answers**

V. **Next meeting: Tuesday, August 26, 2025**

7-29-25

All Hazard Mitigation Plan Participation 2 Hours

Name	Title	Organization	Phone	Email	Travel Time	Travel Miles
Jordan Jones	BC WM EM	Boise County	208-807-0073	jjones@co.boise.id.us		
Mike Underwood	CCVFD Comms Off	ClearCreek Fire	208-571-7368	mike.u@clearcreekfd.com	—	—
Diane Petersen						
Bradley Petersen		Fair Haven Schools	208-313-6691	b[illegible]		
Scott Turner	Sheriff	Boise	208-392-4411	sturner@co.boise.id.us		
DAN CANO	TCVFD Chief	Thorn Creek VFD	208-392-4229	dcano1@mindspring.com		
Pat Goff	Mayor HSB	HSB Mayor				
Paul Cleavland	GV Council / Chief	GV Fire/City	online			
Colton McCarthy	ORVFD / Chief	Wilderness Ranch				
John Stull	RVFD / Chief	Robie Creek	(208) 965-1313	John.Stull@Robiecreek.org		

Boise County AHMP Team Meeting
Tuesday, August 26, 2025

Invites:

Jordan Jones	Patrick Goff	Scott Turner
Clay Turner	Darell Lindstrom	Ben Roeber
Rick Barber	David Ayers	Mike Underwood
Paul Cleaveland	Melisa Lindros	Mark Barklow
Jason Rowe	Robert Callahan	Dan Cano
John Stull	Mari Adams	Bradley Petersen
Chris Juszczak	Ken Everhart	Trevor Schiefelbeim
Clark Cassel		

Agenda

Boise County AHMP Team Meeting
Tuesday, August 26, 2025

I. **Welcome**

II. **Introduction**

III. **Presentation and Discussions**
- **Mission, Vision, and Value's Statements**
- **Review: Risk Assessments**
- **Mitigation Strategies: Goals and Action Items**
  - **Proposed new survey**

IV. **Questions and Answers**

V. **Next meeting: Tuesday, September 9, 2025, 1:00pm**

8-26-25

All Hazard Mitigation Plan Participation

Name	Title	Organization	Phone	Email	Travel Time	Travel Miles
Jordan Jones	BCEM	Boise County	208-807-0073	jjones@coboise.idus		
Dave Ayers	IOEM AFO	IOEM	208 608 2638	Dayers@imdaho.gov	50min	58mi.
Rick Barber	Placerville Fire	PFPD	208 392-9437	RED.MTT.222@GMAIL	45 MIN	30 MI
Sam Bonovich	Sam Bonovich	TCVFD	208-392-4259	SAMMYTheBONE59@E-MAIL.COM	20 m	
Dan Cano	Idaho Cities	TCVFD	208-392-4229	dcano16@minidsprings.com	20m	20 m
Bradley Peterson	Fairhaven solutions					
Paul Cleaveland	Chief	Garden Valley				
Patt Goff	Mayor	HGB				
Clinton McCarthy	Fire Chief	WRFPD	208 319 4628	CLMCCARTHY@WRFPD.NET	20 MIN	16 MILES

Boise County AHMP Team Meeting
Tuesday, September 9, 2025

Invites:

Jordan Jones	Patrick Goff	Scott Turner
Clay Turner	Darell Lindstrom	Ben Roeber
Rick Barber	David Ayers	Mike Underwood
Paul Cleaveland	Melisa Lindros	Mark Barklow
Jason Rowe	Robert Callahan	Dan Cano
John Stull	Mari Adams	Bradley Petersen
Chris Juszczak	Ken Everhart	Trevor Schiefelbeim
Clark Cassel		

Agenda
Boise County AHMP Team Meeting
Tuesday, September 9, 2025

VI. Welcome

VII. Introduction

VIII. Presentation and Discussions

- **Mitigation Strategies:**
  - **Goals**
  - **Action Items**

- **Wildfire Discussion**
- **Flooding**
- **Geologic Hazard Profile**

IX. Questions and Answers

Next meeting: Tuesday, September 9, 2025, 1:00pm

9-9-25 All Hazard Mitigation Plan Participation 1.5 hours

Name	Title	Organization	Phone	Email	Travel Time	Travel Miles
John Stull	Chief	RCFD	(208) 965-1313			
Eric Geibel	Ass Chief	RCFD	—			
DAN CANO	Chief	ICUFD	208-392-4229			
RJ Oram	Firefighter	TCVFD	208-999-2061			
Sam Bonovich	ASST Chief	TCVFD	208-392-4259			
Scott Turner	Sheriff	BCSO				
Paul Cleavland	Chief	Garden Valley				
Milisa Lindros	Lowman	Lowman				
Mel Barkalow	WMC	Boise County				
Bradley Peterson	Fairhaven	Contractor				
Jordan Jones	EM	Boise County				
Rick Barber	COMMISSIONER	PLACERVILLE PARK	208-963-1507			
~~[illegible]~~						

Boise County AHMP Team Meeting
Tuesday, September 23, 2025

Invites:

Jordan Jones
Clay Turner
Rick Barber
Paul Cleaveland
Jason Rowe
John Stull
Chris Juszczak
Clark Cassel
Patrick Goff
Darell Lindstrom
David Ayers
Melisa Lindros
Robert Callahan
Mari Adams
Ken Everhart
Scott Turner
Ben Roeber
Mike Underwood
Mark Barklow
Dan Cano
Bradley Petersen
Trevor Schiefelbeim

Agenda
Boise County AHMP Team Meeting
Tuesday, September 23, 2025

I. **Welcome**

II. **Introduction**

III. **Questions from Last Meeting**

IV. **Public Survey Update**

V. **MAI Discussions**

VI. **Questions and Answers**

VII. **Next Meeting: October 21, 2025**

9-23-25

All Hazard Mitigation Plan Participation

Name	Title	Organization	Phone	Email	Travel Time	Travel Miles
Jordan Jones	Emergency Mang.	Boise County	208-807-0073	jjones@co.boise.id.us		
Bradley Petersen	Contractor	Fairhaven Solutions	208-313-6691	[illegible]	5 hrs	
Dave Ayers	AFO	IOEM	208 608 2638	dayers@imd.idaho.gov	53 min	38 miles
Rick Barber	~~RFPD~~ COMM	PFPD	208 963-1507	RED_MIST_222@GMAIL	45 MIN	17
DAN CANO	TCVFD Chief	TCVFD	208-392-4229	dcano@mindspring.com	15 min	15
Sam Benham	TCVFD ASST	TCVFD	208-392-4269	[illegible]	[illegible]	15
Caton McCarthy	WRFPD Chief	WRFPD	208 319 4628	CMCCARTHY@WRFPD.NET	18	15
Scott Turner	Sheriff	BCSO	208 392-4411	[illegible]	0	0

Boise County AHMP Team Meeting
Tuesday, September 23, 2025

Invites:

Jordan Jones	Patrick Goff	Scott Turner
Clay Turner	Darell Lindstrom	Ben Roeber
Rick Barber	David Ayers	Mike Underwood

Paul Cleaveland
Jason Rowe
John Stull
Chris Juszczak
Clark Cassel
Melisa Lindros
Robert Callahan
Mari Adams
Ken Everhart
Mark Barklow
Dan Cano
Bradley Petersen
Trevor Schiefelbeim

Agenda
Boise County AHMP Team Meeting
Tuesday, October 21, 2025

I. **Welcome**

II. **Introduction**

III. **Questions from Last Meeting**

IV. **Public Survey Update**

V. **Finalize Mitigation Goals and Strategies**

VI. **More MAI Discussions**

VII. **Review of new materials**

VIII. **Questions and Answers**

IX. **Next Meeting: November 4, 2025**

10-21-25

All Hazard Mitigation Plan Participation

2 hours

Name	Title	Organization	Phone	Email	Travel Time	Travel Miles
Jordan Jones	EM	Boise County	208-807-0073	Jjones@co.boise.id.us	—	—
RICK BARBER	COMMISSIONER	Placerville Fire	208-963-1509	[illegible]	3.0	60
Clark K Cassel	Mayor	Placerville	208 949 9717	ccassel.placerville council id.gov		
Dan Cano	Thorn creek Chief	Thorn creek VFD	208-392-4229	[illegible]	15	30 min
Sam [illegible]	Thorn Creek AST.	Thorn Creek VFD	208-392-4259		15	30 mi
John Stull	Chief	Robie Creek	online			
Bradley Peterson	Fairhaven	Contractor				
Colton McCarthy	Fire Chief	WRFPD	208 319 4628	cmccarthy@wrfpd.net	18	16

Boise County AHMP Team Meeting
Tuesday, November 4, 2025

Invites:

Jordan Jones	Patrick Goff	Scott Turner
Clay Turner	Darell Lindstrom	Ben Roeber
Rick Barber	David Ayers	Mike Underwood
Paul Cleaveland	Melisa Lindros	Mark Barklow
Jason Rowe	Robert Callahan	Dan Cano
John Stull	Mari Adams	Bradley Petersen
Chris Juszczak	Ken Everhart	Trevor Schiefelbeim
Clark Cassel		

Agenda
Boise County AHMP Team Meeting
November 4, 2025

I. **Welcome**

II. **Introduction**

III. **Questions/Concerns from Last Meeting**

IV. **Finalize all Goals and Strategies**

V. **Review materials**

VI. **Questions and Answers**

VII. **Next Meeting?**

Appendix 2

Public Participation Documentation

Horseshoe Bend City Council Discussion

September 11, 2025

Presentation Presented at the Meeting:

The 2025 Multijurisdictional All Hazard Mitigation Plan for Boise County and the Cities of Crouch, Horseshoe Bend, Idaho City, and Placerville

Photographer: Craig Zoch - Double rainbow over Wilderness Ranch subdivision in May 2019

Prepared by:

Boise County Emergency Management

Fairhaven Solutions LLC

Boise County All Hazard Mitigation Plan Update
2025

Mission Statement

To reduce the long-term impacts of natural and human-caused hazards on the residents, environment, infrastructure, and economy of Boise County by fostering collaborative planning, advancing risk-informed mitigation strategies, and strengthening community resilience through education, innovation, and preparedness.

Vision Statement

A safer, stronger, and more resilient Boise County—where communities are empowered, risks are understood, and proactive hazard mitigation safeguards lives, property, and cultural and natural resources for future generations.

Values Statement

The Boise County All-Hazard Mitigation Team is guided by the following core values:

- **Collaboration** – We believe in transparent, inclusive partnerships across agencies, communities, and stakeholders to build a unified approach to mitigation.
- **Resilience** – We are committed to fostering communities that can adapt to and recover from hazard events swiftly and sustainably.
- **Integrity** – We uphold honesty, accountability, and scientific integrity in all planning, decision-making, and communication efforts.
- **Equity** – We strive to ensure all voices are heard and that vulnerable populations are prioritized in mitigation strategies.
- **Stewardship** – We are dedicated to protecting Boise County's natural landscapes, cultural heritage, and infrastructure through responsible and sustainable planning.

Proposed Natural Hazard Risk Assessments
Includes: History, Impact and Value of Risk Assessment

- **Wildfire Hazard Profile:**
    - Most information taken from Boice County's Community Wildfire Protection Plan, CWPP, 2023

- **Flood Hazard Profile:**
    - River Floods
    - Flash Flooding
    - Dams and Levee

- **Geologic Hazards Profile:**
- Landslides
- Earthquakes

- **Extreme Weather Profile:**
    - Severe Thunderstorms and High Winds
    - Extreme Heat
    - Drought
    - Winter Storms

- **Healthcare Services and Pandemic/Disease**

- **Cybersecurity**

- **Terrorist and related attacks**

Proposed Mitigation Goals:

Priority	Description
1	Strengthen local capacity to help communities prepare for, respond to, and recover from disasters.
2	Reduce the risk of wildfire hazards and strengthen overall resilience.
3	Reduce flood hazard risks and strengthen overall resilience.
4	Reduce geological hazard risks and strengthen overall resilience.
5	Reduce extreme weather hazard risk and strengthen resilience.
6	Enhance healthcare services across the county, strengthen emergency response capacity, and mitigate the impact of future pandemics and diseases.
7	Safeguard critical infrastructure and data systems against cybersecurity threats and disruptions to digital communications.
8	Reduce the risk of terrorist and other civil disorders while strengthening organizational resilience.
9	Strengthen the communication systems of emergency responders to efficiently facilitate emergency operations and uphold public safety.
10	More?
11	More?

Questions to Consider When Evaluating Mitigation Actions:

- Is the hazard addressed by this action identified as a vulnerability in the HMP Risk Assessment?
- What are the most immediate mitigation needs?
- Is the proposed action consistent with existing County or City documents, policies, laws, or code?
- Does the action directly support one or more mitigation goals identified in this plan?
- Is the action economically feasible? What funding sources or cost-sharing options exist?
- Is the action culturally appropriate and environmentally responsible?

Additional Issues to Consider:

- **Priority:** All action items were prioritized as LOW, MEDIUM, or HIGH based on departmental goals, project feasibility, cost, and overall impact on the Tribe.
- **Time Frame:** An estimation was made regarding the number of years required to fully implement and complete each project.
- **Lead Agency:** The agencies listed in the table are responsible for the implementation, status update, and close-out of the respective action item.
- **Cost:** Since the exact cost of each project is unknown, a cost rating of LOW, MEDIUM, and/or HIGH was assigned to each action item. These ranges were taken from Worksheet 7 in the Tribal Mitigation Planning Handbook and are as follows:
    - Low: $0 to $25,000
    - Medium: $25,000 to $100,000
    - High: $100,000 or more

Draft: 2025 Mitigation Action Items

Requirement §201.7(c)(3)(ii): [The mitigation strategy shall include] a section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure.

MAI # 1: Strengthen local capacity to help the county and its communities prepare for, respond to, and recover from disasters.

	Description	Priority	Time Frame	Lead Agency	Cost	Status
1. A	Enhance data collection, risk analysis, and technical studies for identified hazard-prone areas.					
1. B	Develop a mitigation outreach program to assist residents in preparing for disasters, including creating emergency evacuation plans for areas identified as hazard prone.					
1. C	Maintain and fund Community Emergency Response Team (CERT) programs.					
1. D	Designate and equip emergency gathering locations for County residents with supplies for extended emergencies.					
1. E	Incorporate hazard-prone areas into land use planning. Explore the need for hazard zoning and high-risk land use ordinances.					
1. F	Develop educational materials to promote safety and reduce hazard risk across departments and public outreach efforts.					
1. G	Identify anchor institutions and assess whether additional facilities are needed. Confirm that all facilities have suitable equipment and supplies.					
1. H	Ensure public utilities are protected, as best as possible, from hazards.					
1. I	Install public alert sirens in key locations for residents' safety.					
1.J	Enhance medical infrastructure and ensure comprehensive training for all first responders to effectively address public and county emergency requirements.					

MAI # 2: Reduce wildfire hazard risks and strengthen overall resilience.

	Description	Priority	Time Frame	Lead Agency	Cost	Status
2. A	Incorporate all wildfire mitigation strategies included in the County's CWPP-2023.					
2. B	Maintain existing fuel management programs, explore new fuel management methodologies, and strengthen fire mutual aid initiatives.					
2. C	Develop defensible space guidelines and provide funding or incentives to support maintenance by landowners.					
2. D	Assess the location of fire stations relative to hazard zones. Retrofit or relocate as needed.					
2. E	Establish water storage systems and firefighting capacity.					
2. F	Secure funding and install fire-suppression wells.					
2. G	Continue to maintain and operate a robust air quality monitoring network. Provide timely notification to the public regarding health impacts of smoke.					

MAI # 3: Minimize flood hazard risk and enhance County resilience.

	Description	Priority	Time Frame	Lead Agency	Cost	Status
3.A	Map and document flood-prone areas. Explore mitigation options and implement best management practices to reduce flood risk.					
3.B	Conduct community flood preparedness drills and integrate real-time flood level data into public alert systems.					
3.C	Evaluate Horseshoe Bend's levee for potential FEMA certification and associated mitigation opportunities.					
3.D	Identify site-specific flood mitigation needs and procure funding.					

MAI #4: Reduce geological hazard risks and strengthen overall resilience.

	Description	Priority	Time Frame	Lead Agency	Cost	Status
4.A	Create a comprehensive geologic map identifying hazard-prone areas.					
4.B	Equip emergency vehicles and department fleets with tools and resources necessary to respond to geologic hazards.					
4.C	Develop communication protocols for informing the public about geologic hazard risks and impacts on infrastructure and property.					

MAI # 5: Reduce extreme weather hazard risk and strengthen resilience.

	Description	Priority	Time Frame	Lead Agency	Cost	Status
5.A	Promote the use of durable building materials for extreme weather and incorporate underground utilities into building codes.					
5.B	Ensure that all critical facilities carry comprehensive insurance for extreme weather events and apply best practices for infrastructure protection.					
5.C	Map structural vulnerability and identify trees that pose risks to buildings and powerlines. Implement prioritized removals.					
5.D	Develop a coordinated rescue operation plan for weather-related emergencies.					
5.E	Create and enforce a water conservation ordinance with clearly defined penalties for non-compliance.					
5.F	Create an educational program that focuses on conservation techniques. Offer incentives and technical assistance to help the residents of the County.					
5.G	Expand the County's source-water assessment and protection initiatives to improve resilience to extreme weather and drought.					

MAI # 6: Enhance healthcare services across the county, strengthen emergency response capacity, and mitigate the impact of future pandemics and diseases.

	Description	Priority	Time Frame	Lead Agency	Cost	Status
6.A	Determine the equipment, supplies, and infrastructure needed to provide sufficient treatment capacity during a public health emergency.					
6.B	Develop operational strategies, protocols, and training programs to support health professionals.					
6.C	Address public health outreach, education, and access to resources before and during public health emergencies.					
6.D	Expand healthcare facilities throughout the county and ensure all providers and first responders are trained and prepared.					

MAI # 7: Safeguard critical infrastructure and data systems against cybersecurity threats and disruptions to digital communications.

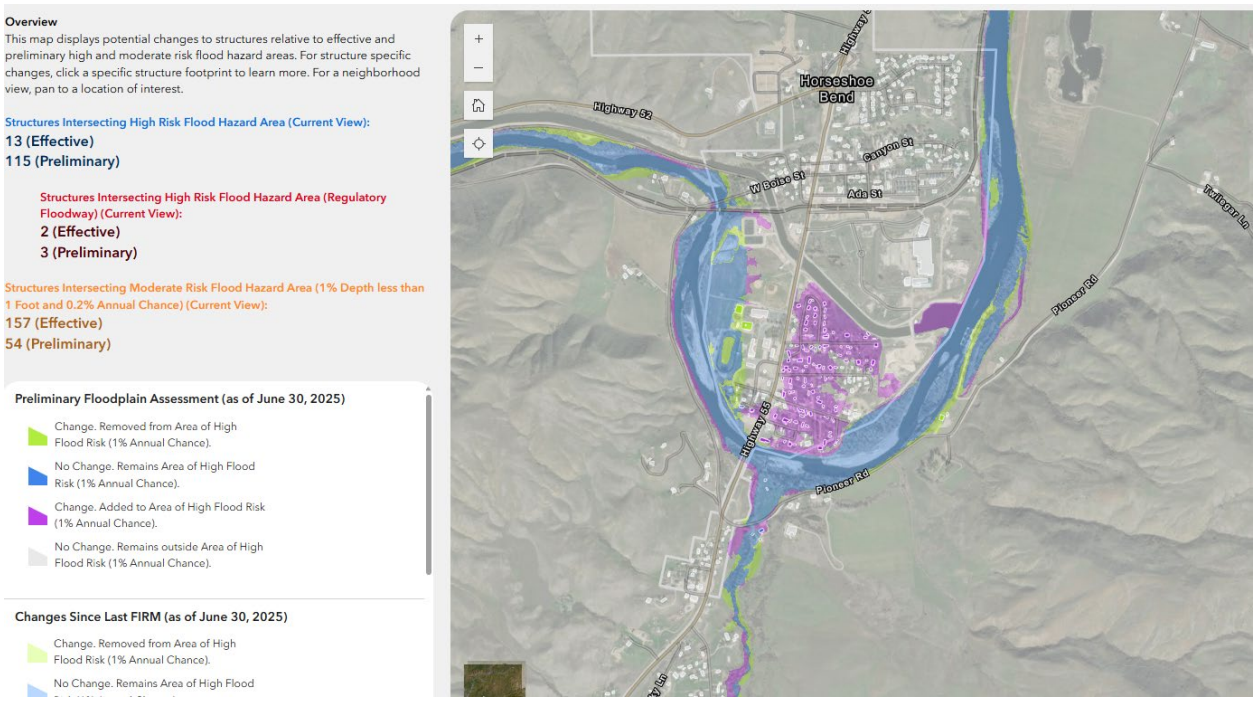
	Description	Priority	Time Frame	Lead Agency	Cost	Status
7.A	Conduct a Cybersecurity Risk Assessment to identify vulnerabilities in the County's digital systems and critical infrastructure.					
7.B	Establish a Cybersecurity Awareness & Training Program to reduce human error—one of the largest sources of cybersecurity breaches.					
7.C	Create a cybersecurity plan that outlines roles, responsibilities, and response protocols for cyber incidents affecting County operations, 9-1-1 dispatch, emergency services, and critical infrastructure.					
7.D	Standardize cybersecurity practices across county departments and municipalities, including password policies, data encryption, and system access controls.					
7.E	Ensure that emergency operations, dispatch, and government services have backup procedures and redundant systems in case of cyber disruption.					
7.F	Launch community workshops and online resources to educate residents and businesses on cyber hygiene (e.g., strong passwords, recognizing phishing scams, securing Wi-Fi networks).					

MAI # 8: Reduce the risk of terrorist and related attacks while strengthening organizational resilience.

	Description	Priority	Time Frame	Lead Agency	Cost	Status
8.A	**Create a Critical Infrastructure Protection Plan that i**dentifies, assesses, and prioritize county critical assets (e.g., water systems, power substations, 9-1-1 centers, schools, bridges, government facilities) for security enhancements and hardening measures.					
8.B	Conduct annual active shooter and lockdown drills in schools, county offices, and public gathering spaces.					

MAI # 9: Strengthen communication systems of emergency responders to efficiently facilitate emergency operations and uphold public safety.

	Description	Priority	Time Frame	Lead Agency	Cost	Status
9.A	Develop a plan and obtain funding for backup power and telecom systems at key sites.					
9.B	Upgrade first responders' communication equipment and ensure all areas of the County have adequate coverage.					
9.C	Conduct communications needs assessment and coverage gap analysis.					
9.D	Establish mutual aid radio interoperability protocols with neighboring jurisdictions.					
9.E	Enhance countywide radio and backup satellite communication capabilities to ensure resiliency if primary networks are attacked or disabled.					



Public Survey:

https://docs.google.com/forms/d/e/1FAIpQLScW4f0g_In4RCZ10MSSlAA3poX6rghaKEAJzoh8r5evPYdn0g/viewform?usp=header

MAI Questionnaire:

https://docs.google.com/forms/d/e/1FAIpQLSfv6lscRtx1nMlrvEfXzWF2f3eae9VsDfjSkSFPKZQk1peNSg/viewform?usp=header

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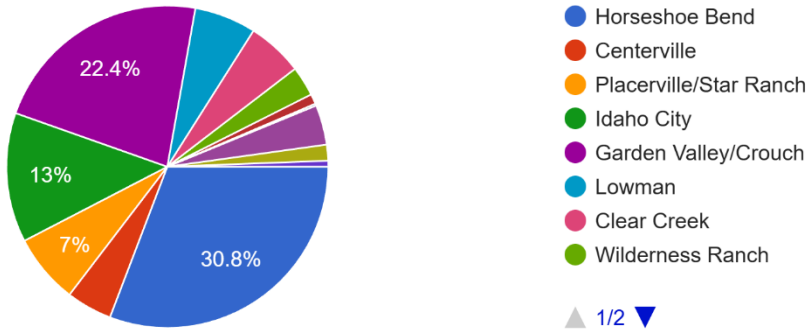
Public Survey Questions and Results
Boise County All Hazards Survey
501 Residents Participated

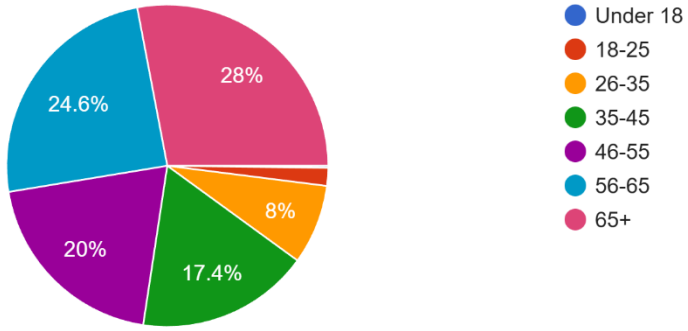
Which location is nearest to your residence or property?

500 responses



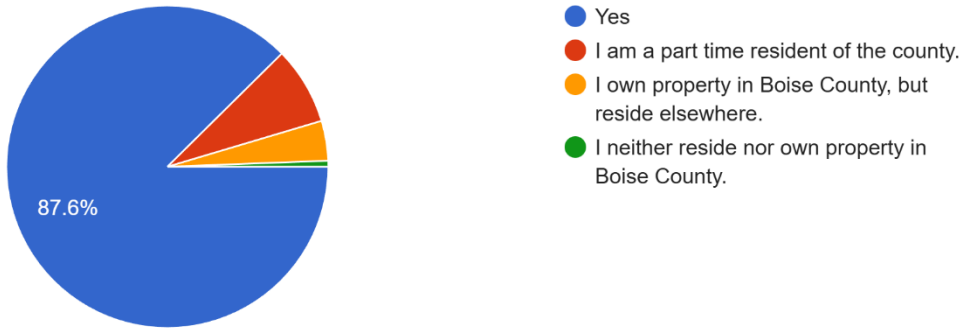
What is your age range?

500 responses



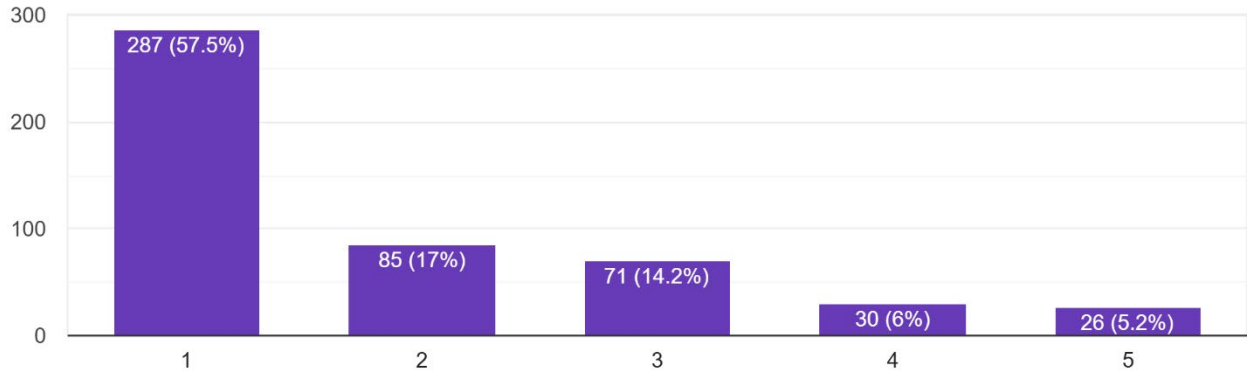
Do you reside in Boise County?

500 responses



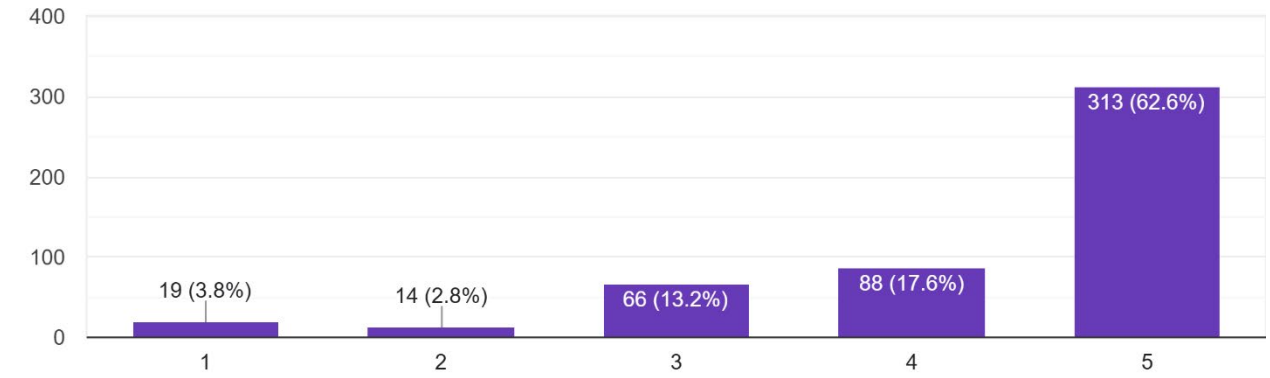
Flooding

499 responses



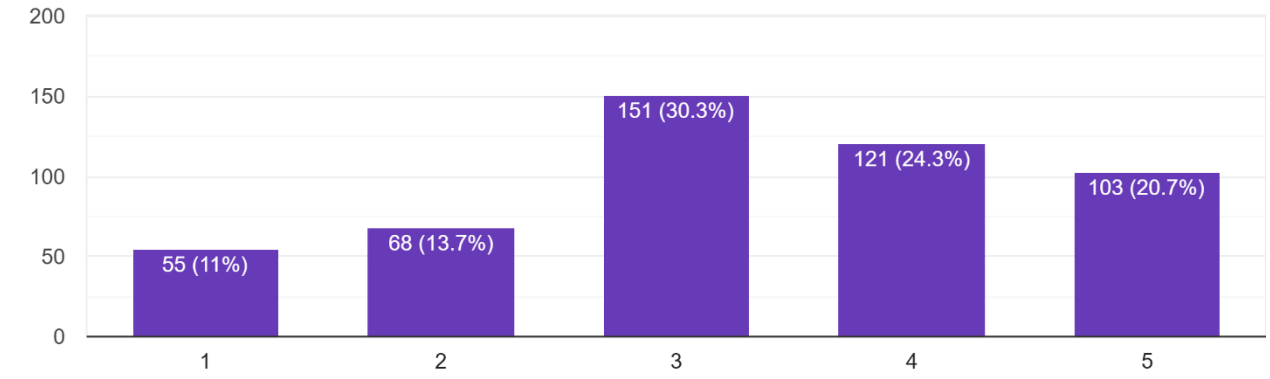
Wildfire/Smoke

500 responses



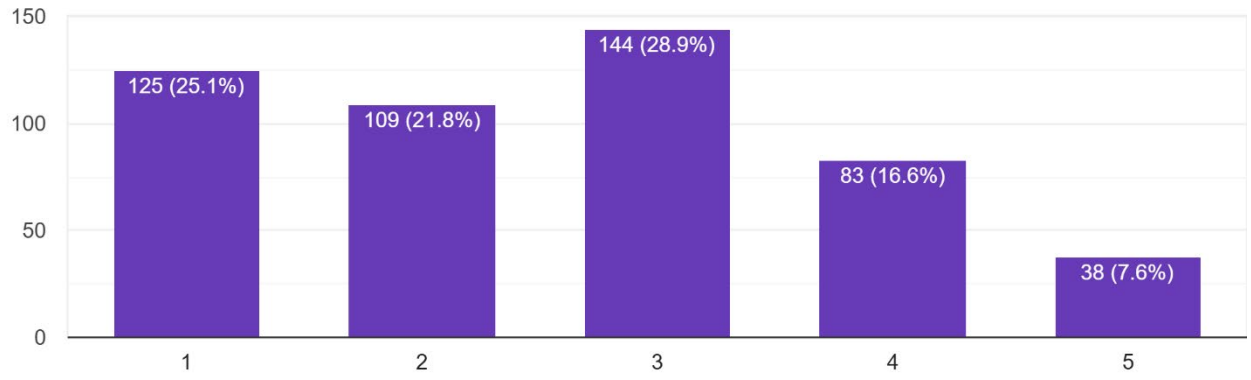
Ingress/Egress: Blocked roads by any cause, particularly highways.

498 responses



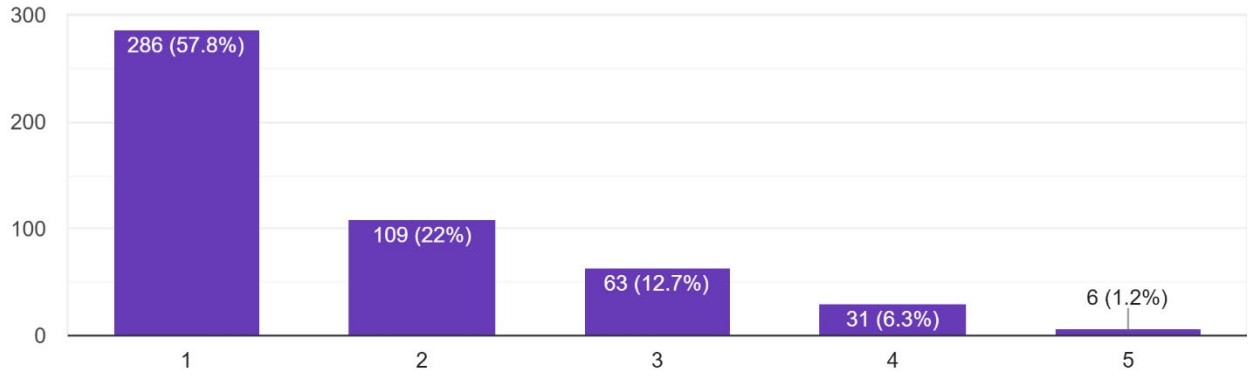
Landslide

499 responses



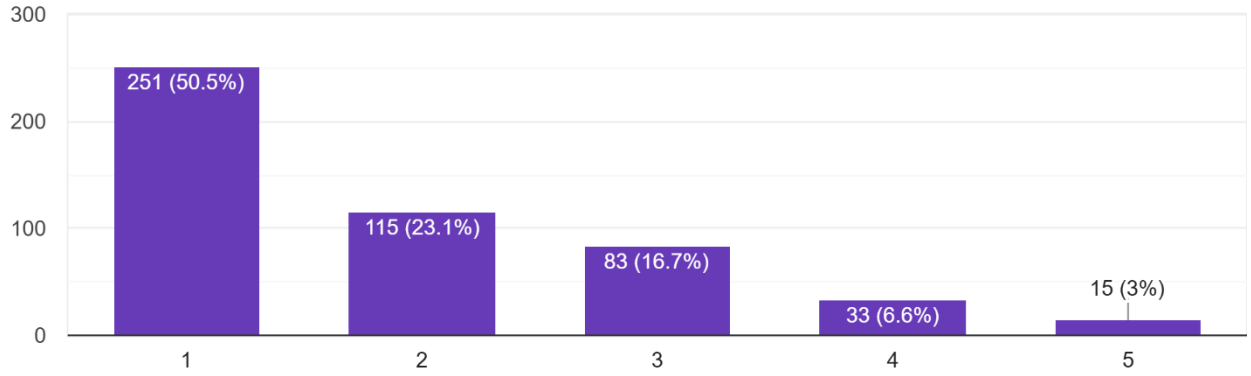
Avalanche

495 responses



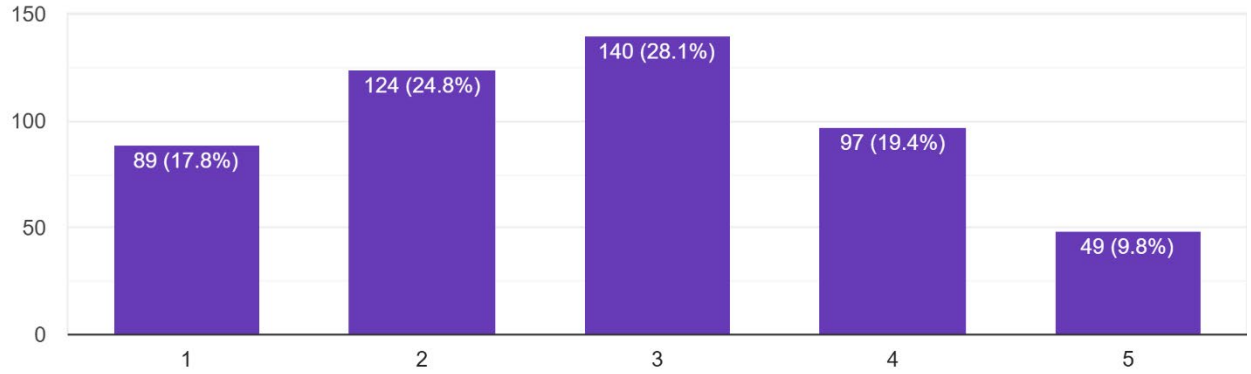
Hazardous material spills or other Hazardous Material incidents:

497 responses



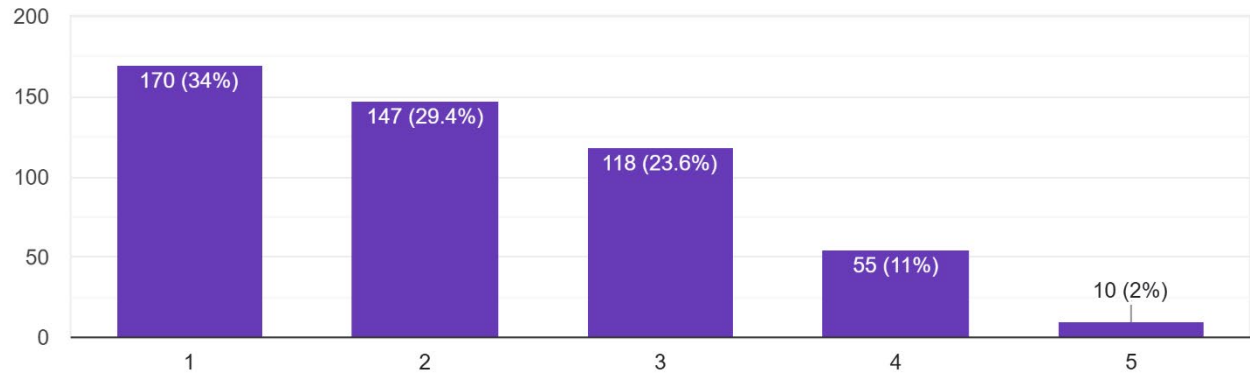
Severe Weather or Temperatures

499 responses



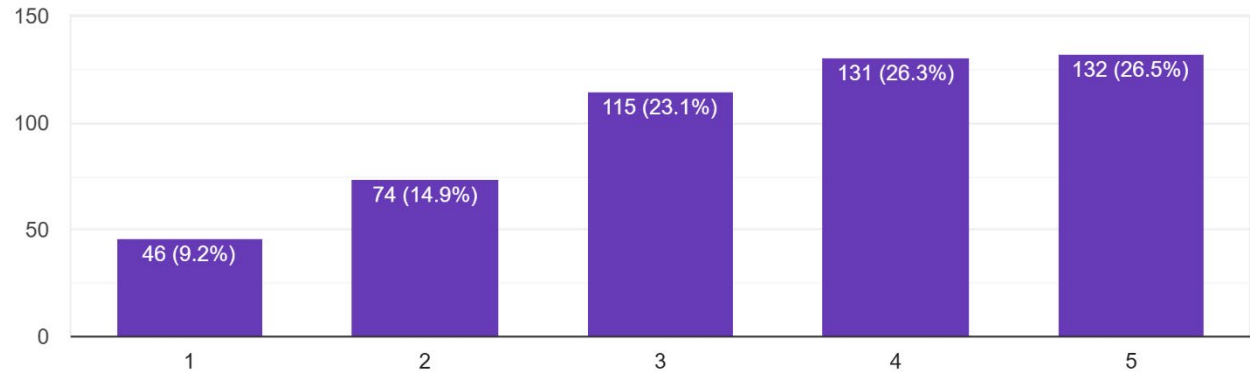
Earthquake

500 responses



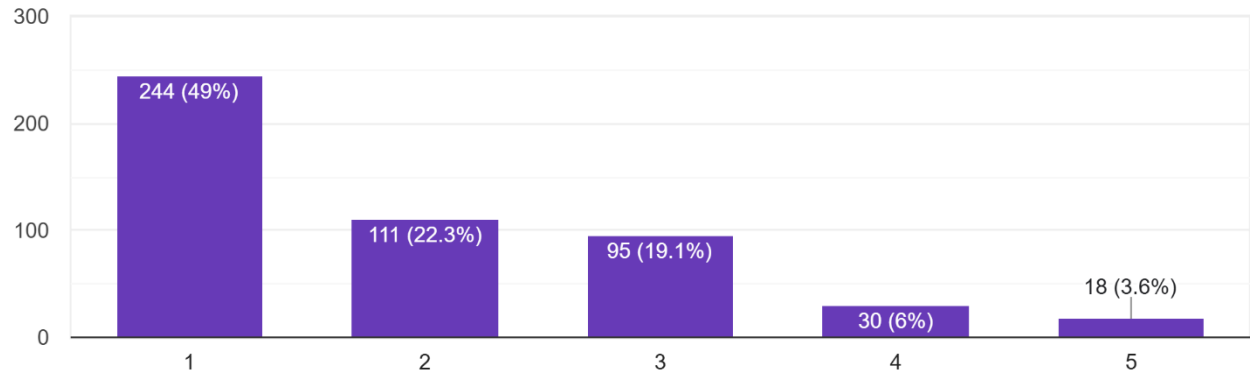
Extended Power Outage

498 responses



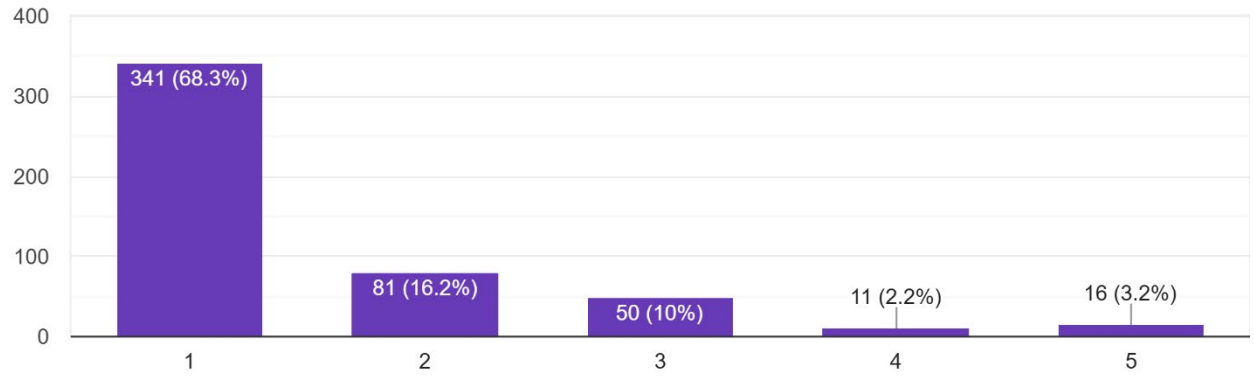
Pandemic/Communicable Disease

498 responses



Crop Damage/Failure

499 responses



Other- Please write in any major concern not listed

98 responses

Medical response

Speeding vehicles on porter creek, endangering kids

Garden Valley should have a much more active and available police presence

I have noticed the police are not patrolling the neighborhoods or back roads or 55. Are they in Boise at the doughnut shop.

Idaho power being allowed to: 1. Cut/drop trees creating tinder on property line. 2. Being allowed to kill power during fire risk season preventing us from protecting property.

County not managing the extreme over growth of Poisonous Hemlock and the danger to the community if those massive patches catch fire.

Speeding traffic on Harris Creek Road

General road maintenance/ snow removal

I'm concerned about the lack of a local ability to respond to medical emergencies requiring any advanced life saving treatments.

Garden Valley has essentially no public transportation serving the elderly. It forces the elderly to move from Garden Valley before they lose their driver's license. #1 concern

Driving conditions on Old Hwy 55 are really bad. I know it is not maintained by the county. But it's getting increasingly more traffic due to continued building, which badly tears up the road even worse. There are parts of the road where you have to go completely off-road into the briar pit to avoid potholes and chunks of asphalt sticking up. Emergency vehicles NEED to be able to get up and down this road. And the residents who live here should also be able to do that.

Super loud and speeding vehicle's that go up and down Harris Creek is a huge concern.

None

spread of noxious / invasive weeds

Up at my property and around the area landslides have been a major factor the last few years

Deplorable roads that increase or prevent emergency personnel

Limited and generally one way in and one way out in subdivisions and other properties

The road conditions of Robie creek! It's never maintained

Dumping of yard waste into river

I would highly encourage folks in the Garden Valley area to take wildfire mitigation SERIOUSLY! We all need to do our part to protect the lives and resources that are a privilege, not a right.

Lack of Volunteers for emergency

General road maintenance is a safety issue. Not necessarily snow removal but more potholes, painting, shoulders, etc.. The condition of our major paved county roads are a safety hazard.

Lack of irrigation working..... For 9 years

Those Damn Russians

speeding traffic & elk

Liberals

The change in road maintenance for the last 6 years has severely increased the number and length of "narrow sections" on South Fork Road, which greatly increases the possibility of the road falling into the river and trapping residents.

Rolling my ankle on the new side walk

Forest service not maintaining the public lands we live in or around

Heavy UTV traffic over Harris Creek. They often exceed the speed limit, and do not follow traffic laws.

I'm terrified living in Terrace Lakes. I wish there were an alarm system possibility to alert folks if there were an evacuation need. I also worry about the navigation of fire roads to get out. I also wish there were a neighborhood planning meeting so people would know exactly where to go if there were fire. In reality, the golf course is probably a safe place to get to if it's all around and spreading. I just worry about the elderly in this neighborhood not being able to get out.

Lack of alternative route if the main road is blocked

Response time of first responders

Crime

Idiot drivers on 21

The roads!! So many edges of the road giving away in so many places. Seems it would make sense to fix now before that happens completely and the road is gone.

Non resident traffic (ATV/4wheeler) traffic being UNSAFE!

The Emergency Resource Center in GV aka GV Senior Center does not have a generator.

Campers leaving fires still burning and also leaving toxic trash in the forest. People camping in pull off spots rather than campgrounds.

Shortage of available emergency services, especially Sheriffs deputies who are stretched thin.

Not enough Emergency Personnel

My biggest concern from the city council meeting a couple of weeks ago was a chart that Bradley Peterson from Fairhaven Solutions showed. This chart showed much of our city between the river and the canal as possibly being considered a floodplain area if FEMA gets involved. The concern that I have with this is folks that live in floodplain areas who have government backed loans on their homes (which are most home loans) are forced to purchase flood insurance on top of their already high home owners insurance. Though this does not pertain to my husband and I because we own our home. I believe that this may effect many folks of our community who may not be able to afford both home owners and floodplain insurance. I believe that most people of our community want less government in their lives and not more. Please know...my brother and sister-in-law went through a bad earthquake in Alaska four or five years ago. From their experience, FEMA is a joke. The only thing FEMA does is offer people low interest loans to fix damages and even that was on a limited basis. They straight out were not much help. Take a look at the hurricane went through North Carolina last year and did so much damage. Those poor people got very little help through FEMA. Let's please keep FEMA out of our community! It's my opinion that they only make things difficult and expensive. Thanks for listening!

Heavy metals in water

Social structure collapse 5

EMS availability

Pot holes in road

Poor road conditions/maintenance on Brownlee road! Wildlife on highways.

Civil War- revolution, hazards on highway including rocks and other drivers.

Emergency response times, to major injuries

Power Outage in General - 5

EMS not having an appropriate response time. Not having a reliable ambulance on staff

My concern is all the loud sounds and speeding down Harris Creek.

Sustainable and reliable emergency service response

Large amounts of traffic...

Criminals hiding out in Boise County

Protection of our environment and quality of life.

Small landslides from water erosion on middle fork road with boulders dangling.

Road maintenance

Old fire roads are being purchased and buildings constructed on them making some neighborhoods having left only one way in and out! That is not a good situation in fire country. A cpt would not send fire trucks into any neighborhood like that. Access roads are there for a reason'.

Water shortages

Fires

Lack of services ie ambulance, therapies such as BI, OT, dental ...

5 Unhealthy foods

Insurrection

Visitors destroying egress roads

Solar flares and alien invasion from another planet

Ability for emergency services to reach our location due to rough roads

Winter access for an ambulance.

Old Highway 55 is not maintained, but building permits are still issued non-stop, so traffic keeps increasing. Heavy construction trucks are a major problem.

EMS services

"Ingress/Egress: Blocked roads by any cause, particularly highways." Major concern with the one road access for the majority of Garden Valley residents, S Middlefork and Middlefork Rd(s) have one way out for any sort of evacuation it is a severe bottleneck and the fire station is at one end. There has to be another access road installed and maintained.

Limited EMS resources

Road conditions unacceptable. Severe potholes on Hwy. 21 and in city limits of Idaho City. Fire hydrant access in Idaho City-supposed to be made accessible by Idaho City but have been buried due to snow plow work by city employees. Water quality in the Spring.

Social discourse durring a prolonged internet outage (5)

Fire hydrants not in working order when needed like when the house behind chevron burnt to the ground due to no water and they have a hydrant in their landscape

Current administration's plans to gut Forest Service and clear cut forests, sell off public lands, and remove protection for our waterways will greatly impact quality of life in Boise County.

Unattended fires in camping areas threaten our area. LEO need to patrol known camp grounds Saturday and Sunday mornings.

Road conditions in wilderness ranch

Emergency services response time

Local fascists & right wing militia; watershed protection and water quality/supply; public land and historic road access

Time it takes for medical help

Trump administration cutting services to Boise County

Major concern is all of the people moving into boise county in general. Im more concerned about the growth they bring than any natural disaster.

Aquifer depletion/low well output, upstream or watershed contamination from mining

Road wash outs and lack of maintenance

No communications for emergency service during power outage.

Paramedicine

High speed and reckless driving on Harris Creek Road

People speeding

UTVs (no fenders, no mirrors, too loud, going too fast) on major county roads (Harris Cr, Alder Cr, Centerville Rd)

We have a concern about full-time neighbors who don't keep their properties clean.

Speeding in Harris creek

Speeding UTV's and trucks hauling heavy loads (logs and equipment) on Harris Crk Rd killing livestock, cats, dogs, or children. A new 25 mph sign needs to be placed on both sides of Harris Crk Rd. One that is visible before Harley Rd./Tara Lane to traffic coming from Placerville to Hwy 55. A second sign in front of Harris Crk Lane or the Ole RV Park so it is visible in advance to traffic driving from Hwy 55 to Placerville. All neighbors in this area have kids who walk everyday on Harris Crk Rd. to each other's houses and to Hwy 55, then use the new sidewalk to go to school. On the weekends (especially Saturday morning, 5 pm, dusk) are the worst and most dangerous tîmes. The big UTV clubs/groups (15 to 60 UTV's in a row) are not the problem, they have to drive slow. The small clusters of 10 or under, are the loud speeding ones in both directions. Once the signs are up it would be great to see law enforcement enforcing them. Thank you, we appreciate this survey and all the hours of preparation that go into making our county safe.

Icy roads, potholes ,

Transient people, nonresidents destroying roads

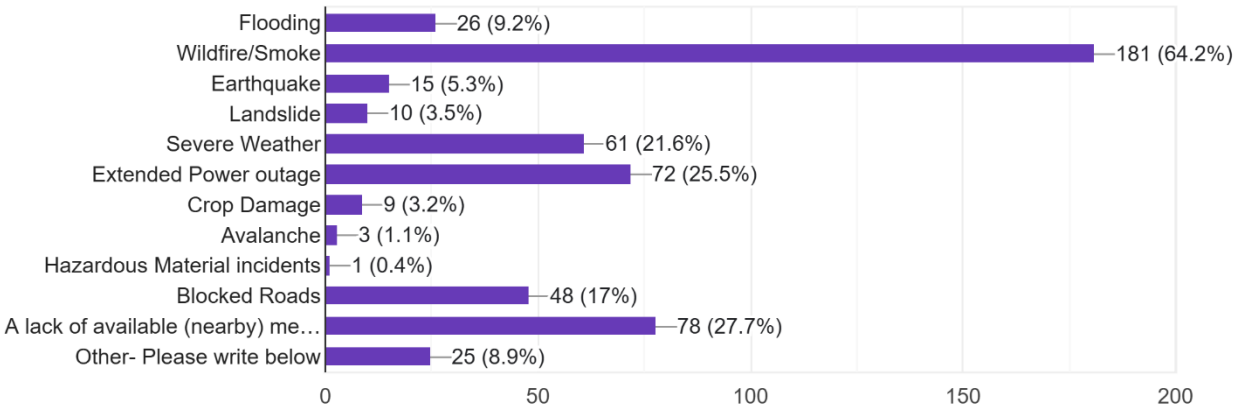
Lack of emergency medical services in a reasonable time

EMP/Nuclear event

Fire Retardant seeping into water table - killing fish in ponds/river

Please select any of the following that have significantly damaged your property or significantly harmed the health of any of your household members in the last 5 years:

282 responses



If you answered other, please explain below

34 responses

People trespassing, fire service response time, EMS response time and

Radon in appts , at high levels

I have to move from Garden Valley because there is no public transportation.

Roads are terrible. And maintained poorly with bad ditching

property wasn't damaged, but everything around it burned in the Wapiti Fire last summer

Preventing commute to work

Our narrow mountain community roads being able to handle the population in any emergency evacuation reason. Many areas are one road in and out.

Last years fire smoke was really bad

None

Excessive snow imploded my garage roof.

Too many people moving here

Vegetables in garden didn't get any sun due to smoke. I couldn't be outside due to asthma and bad air quality

Fire with no water and Terrace Lakes and other subdivision overgrowth creating fuel for fire.

Inept city emergency services, water disruptoon, building code enforcement, and traffic backedup not allowing emergency access to highway 55.

Well water shortage 5

Hail

Ignorant humans

A good friend had a major health problem and was unable to get quick response from Boise or gem county. They did make it but she was also already in cardiac arrest. She made a nearly full recovery but with lack of emergency response it is very scary especially with two young children.

Hail damage to roof

Fire hydrant not properly functioning no water accessible to put out fire

Main road poorly maintained at times almost impassable due to poor grading!

My neighbors dog chewed through my canoe.

summer fires

Not maintaining roads

I would not say that lack of availability of paramedics has affected us directly but I would say that the general lack of paramedics in garden valley is a major concern most of the community seems blissfully unaware of and when we do have a medic if that medic is on one call - we generally haven't had a backup medic meaning that the system is very strapped. The fact that we fund our EMS with a golf tournament is honestly ridiculous. Especially with so many of the emergency calls during the summer being for out of towners historically.

Smith creek bridge needs repairs!

UTV noise and danger has affected our mental health through increased anxiety.

Lung issues from smoke; lack of Paramedic for better care in emergency - Stoke victim

Hail storm

Health concerns related to COVID.

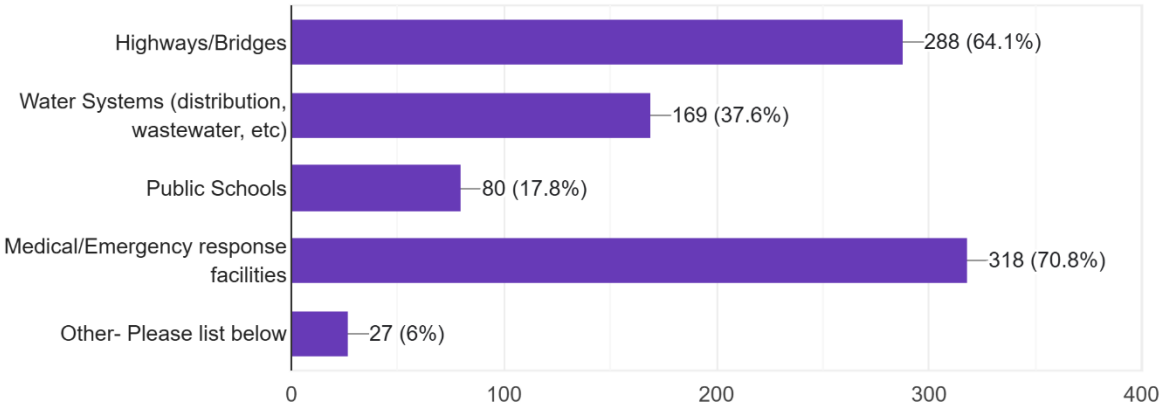
Shape of the roads. Such as sink holoes, puddles, roads needing smoothed out.

Vehicles and speeding traffic killing livestock, a child will be next.

Fire Retardant killing pond/river fish

Infrastructure: select any that you consider at significant risk from the listed Hazards

449 responses



If you selected other, please explain below-

34 responses

Garden Valley should have stationed 24 hour ems and fire personnel

Police services, our county only has so much personal and at times seems that they have a hard time keeping up. Time response. It's only getting worse.

Communications. Internet, telephone, cellular service. (note; existing phone landlines are in poor condition. Often exposed at the surface in roadways or patched in multiple locations, and not enough capacity for the area. Also phone pedestals/ junction boxes placed in poor locations for snow removal)

I have to move from Garden Valley because there is no public transportation.

Secondary roads and neighborhood streets (Terrace Lakes) are occasionally impassible in winter.

County roads/culverts

South Fork Road

Volunteer fire dept spread too thin during major fire season

Poorly maintained dirt roads

Lack of Local Emergency Shelters/Supplies/Preparedness

.

Regarding the last question, I prefer not to share my level of/or lack of emergency preparedness

Centerville Bridge etc..

I explained above my concern about the roads.

Fire response

Ambulance response time

Highway 55 is too congested and we could be trapped in the event of a major fire or emergency.

Power distribution and communications

Gardena bridge at risk from earthquake

Idaho Power is increasingly prone to outages. Power for water systems in particular is important for us.

Low level of disaster preparedness in lowman general population, especially given vulnerability in community (poverty index, elderly and otherly abled.) Lack of community based communication and preparedness system in case of major disaster. At a personal level, we don't have a generator and do experience frequent outages.

The current infrastructure will not support the impending housing developments

Gravel roads

I currently have insurance but heard lots of people are being dropped so I fear I will get that notice too

I don't know why 'power' isn't on your list

Limbs and branches extending into roadways

Centerville road. Changes by the day. Never know what to expect and also fear of an accident with a SxS / ATV.

Communications

Poor road maintenance on bear run road
Poor grading.

Power

Road maintenance LACK OF. Removes the ability for first responders to access the incident in a timely manner!

Smith's creek bridge needs repair! It is the only access

Dirt roads

Damage to roads from slides, community water loss from power outage, lack of paid Paramedics and other staff at the Garden Valley Fire Station our only means of emergency medical care.

Speeding on Harris creek

We had a fire and the response time was two hours. Luckily we slowed it with snow and the only had to pull down the wall and put out the two by fours that were still burning inside. We live right on a major road, so I don't understand

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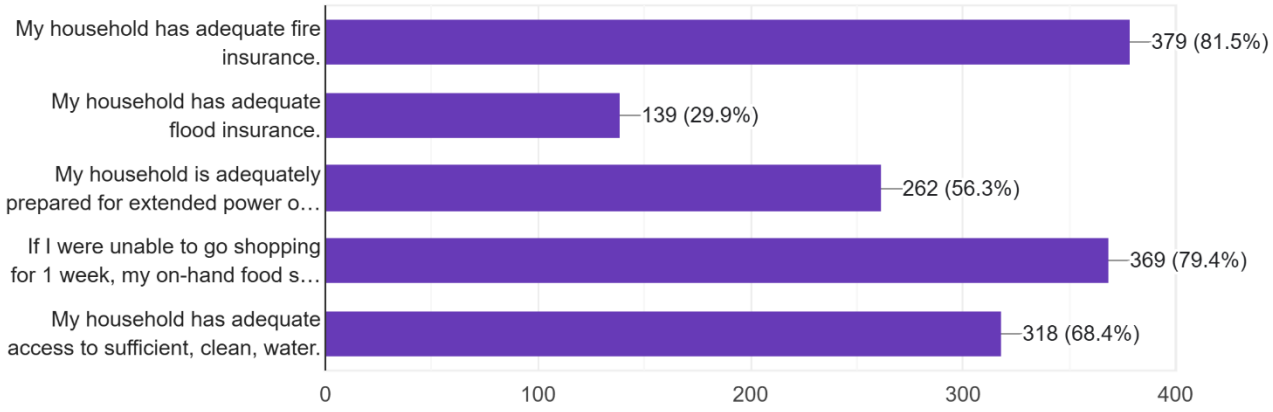
Please select any of the following that apply to your household:

465 responses



Final Document Review – Posted on Boise County's Emergency Management – February 9, 2025

Appendix 3 – Future Plan Update Guidelines

Future Plan Update Guidelines

Boise County, Idaho sets public involvement as a top priority and recognizes that public awareness is critical to the mitigation planning process. Continued public involvement will be achieved through dissemination of information across multiple communication channels. The plan will be made available on the Boise County Emergency Management website for public review, along with notifications of plan update meetings and progress updates on mitigation activities. It is the goal of the All Hazard Mitigation Plan (AHMP) Committee to develop a web-based interactive map that allows the public to view risk and vulnerability associated with specific hazards within Boise County. Additional outreach efforts may include distribution of informational brochures through mailings and hosting booths at public events that provide information on mitigation actions homeowners can implement to improve disaster resilience.

Suggested Agenda Items for the Annual Plan Update or Following a Declared Disaster:

- Update the historical events record to reflect hazard events occurring within the previous year.
- Review the county profile and individual community hazard assessments and identify any significant changes or completed mitigation projects that have altered vulnerability.
- Add a section documenting completed mitigation accomplishments and ongoing mitigation projects.
- Update all action items in Chapter 5 as projects are completed and as new mitigation needs or priorities are identified.
- Address coordination between the Hazard Mitigation Plan and Emergency Operations Plans to ensure alignment and operational integration.
- Complete the Planning Update Evaluation Worksheet to identify areas of the plan requiring revision or improvement.
- Address methods for providing the public with opportunities to review and provide feedback on annual plan updates.

During the third year following plan adoption, Boise County should include an agenda item addressing funding for the plan update process. One year should be allotted for grant writing and securing funding, followed by an additional year to complete the plan update. Initiating the renewal process during the third year helps ensure sufficient time to obtain funding and complete updates, supporting the goal of maintaining a current and FEMA-compliant plan.

Worksheet to assist in Identify Potential Items Requiring Updates or Review:

Hazard mitigation plan update evaluation worksheet.

Plan Section	Considerations	Explanation
Planning Process	Should new jurisdictions and/or districts be invited to participate in future plan updates?	
	Have any internal or external agencies been invaluable to the mitigation strategy?	
	Can any procedures (e.g., meeting announcements, plan updates) be done differently or more efficiently?	
	Has the Planning Team undertaken any public outreach activities?	
	How can public participation be improved?	
	Have there been any changes in public support and/or decision-making priorities related to hazard mitigation?	
Capability Assessment	Have jurisdictions adopted new policies, plans, regulations, or reports that could be incorporated into this plan?	
	Are there different or additional administrative, human, technical, and financial resources available for mitigation planning?	
	Are there different or new education and outreach programs and resources available for mitigation activities?	
	Has NFIP participation changed in the participating jurisdictions?	
Risk Assessment	Has a natural and/or technical or human-caused disaster occurred?	
	Should the list of hazards addressed in the plan be modified?	

Plan Section	Considerations	Explanation
	Are there new data sources and/or additional maps and studies available? If so, what are they and what have they revealed? Should the information be incorporated into future plan updates?	
	Do any new critical facilities or infrastructure need to be added to the asset lists?	
	Have any changes in development trends occurred that could create additional risks?	
	Are there repetitive losses and/or severe repetitive losses to document?	
Mitigation Strategy	Is the mitigation strategy being implemented as anticipated? Were the cost and timeline estimates accurate?	
	Should new mitigation actions be added to the Action Plan? Should existing mitigation actions be revised or eliminated from the plan?	
	Are there new obstacles that were not anticipated in the plan that will need to be considered in the next plan update?	
	Are there new funding sources to consider?	
	Have elements of the plan been incorporated into other planning mechanisms?	
Plan Maintenance Procedures	Was the plan monitored and evaluated as anticipated?	
	What improvements are needed to the procedures?	

Appendix 4
FEMA Requirements

Local Planning Requirements (*FEMA Local Mitigation Planning Planning Policy, April 2025*)

This section provides detailed guidance on how FEMA interprets the various regulations required for all local mitigation plans. The local mitigation plan requirements include the following elements:

Element A: Planning Process.

- Element B: Hazard Identification and Risk Assessment.
- Element C: Mitigation Strategy.
- Element D: Plan Maintenance.
- Element E: Plan Update.
- Element F: Plan Adoption.
- Element G: High Hazard Potential Dams (required for HHPD Grant Program).
- Element H: Additional State Requirements.

ELEMENT A: Planning Process Requirements

Element A Requirements
A1. Does the plan document the planning process, including how it was prepared and who was involved in the process for each jurisdiction? (Requirement 44 CFR § 201.6(c)(1))
A1-a. The plan must describe the current planning process. Documentation requirements typically are met with a narrative description, but may also include other records such as copies of meeting minutes, sign-in sheets or newspaper articles. When a narrative description is provided, supporting documentation such as meeting minutes, sign-in sheets, etc., does not need to be included in the plan itself. Planners are encouraged to retain supporting documentation in a Plan Appendix as a record of how decisions were made and who was involved. **Document** means to provide factual evidence for how the participants developed/updated the plan. **Involvement** means being engaged and actively participating in the development of the plan; providing input and directly providing, affecting or editing plan content as the representative of the participating jurisdiction(s) or organization. *If applicable, ensure that participating Community Rating System (CRS) jurisdictions maximize points throughout the planning process.*

A1-b. The plan must list the representatives from each of the participants in the current plan that will seek approval, and how they participated in the planning process.

The plan must identify who participated, by agency and title.

Participant means any local government or entity developing or updating a local mitigation plan.

Participation means being engaged and having the chance to provide input on the plan. It can be defined and met in a variety of ways (such as attendance at meetings, reviewing and commenting on drafts, etc.).

Element A Requirements

A2. Does the plan document an opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia and other private and non-profit interests to be involved in the planning process? (Requirement 44 CFR § 201.6(b)(2))

A2-a. The plan must provide documentation of an opportunity for stakeholders to be involved in the current planning process. Documentation of this opportunity must identify how *each* of the following types of stakeholders were presented with this opportunity, as applicable.

1. Local and regional agencies involved in hazard mitigation activities:
   - Examples include public works, emergency management, local floodplain administration and Geographic Information Systems (GIS) departments.
2. Agencies that have the authority to regulate development:
   - Examples include: zoning, planning, community and economic development departments; building officials; planning commissions; or other elected officials.
3. Neighboring communities:
   - Examples include adjacent local governments, including special districts, such as those that are affected by similar hazard events or may share a mitigation action or project that crosses boundaries. Neighboring communities may be partners in hazard mitigation and response activities, or may be where critical assets, such as dams, are located.
4. Representatives of businesses, academia, and other private organizations:
   - Examples include private utilities or major employers that sustain community lifelines.
5. Representatives of nonprofit organizations, including community-based organizations.
   - Examples include housing, healthcare or social service agencies.

An **opportunity to be involved** in the planning process means that these stakeholders are invited to be engaged or are asked to provide information or input to inform the plan's content.

Community Lifelines are the most fundamental services in the community that, when stabilized, enable all other aspects of society to function. The integrated network of assets, services and capabilities that provide community lifeline services are used day to day to support recurring needs. Lifelines enable the continuous operation of critical government and business functions and are essential to human health and safety or economic security, as described in the National Response Framework, 4th Edition.

The specific entities may be defined by each jurisdiction based on the unique characteristics of the local government, including special districts. The purpose of inviting input is to integrate natural hazard risk reduction across all community systems, as well as encouraging implementation of mitigation actions.

Element A Requirements
A3. Does the plan document how the public was involved in the planning process during the drafting stage and prior to plan approval? (Requirement 44 CFR § 201.6(b)(1))
A3-a. The plan must document how the public had an opportunity to be involved in the current planning process, and what that participation entailed. The opportunity must occur during the plan's development, which means prior to the plan's submission for formal review. In addition, the plan must document how public feedback was included throughout the planning process. *Examples of documentation include, but are not limited to, narratives, materials from open meetings, screenshots of social media postings and/or interactive websites with drafts for public review and comment, questionnaires or surveys through utility bills, etc.*
A4. Does the plan describe the review and incorporation of existing plans, studies, reports and technical information? (Requirement 44 CFR § 201.6(b)(3))
A4-a. The plan must document what existing plans, studies, reports and technical information were reviewed and how they were incorporated, if appropriate, into the development/update of the plan. For jurisdictions with structures for which National Flood Insurance Program (NFIP) coverage is available, regulatory flood mapping products[6] are required to be incorporated, if appropriate. *Participants may use other jurisdiction-specific materials, including non-regulatory flood mapping products, that improve upon NFIP regulatory flood mapping products.* *Gaps and limitations may be addressed as actions in the mitigation strategy, in particular for items that require additional assistance.* **Incorporate** means to reference or include information from other existing sources to form the content of the mitigation plan. *The documentation requirement may be met with narrative or citations (i.e., footnotes, in-text citations or a bibliography). Examples of the types of existing sources include, but are not limited to: the state hazard mitigation plan; local plans (such as comprehensive/master/general land use, economic development, capital improvement, affordable housing, resource management, resilience, etc.); and hazard-specific reports and plans (such as Community Wildfire Protection Plans).*

Element B: Risk Assessment Requirements

Element B: Risk Assessment Requirements
B1. Does the plan include a description of the type, location and extent of all natural hazards that can affect the jurisdiction? Does the plan also include information on previous occurrences of hazard events and on the probability of future hazard events? (Requirement 44 CFR § 201.6(c)(2)(i))
B1-a. The plan must include a description of all natural hazards that can affect the jurisdiction(s) in the planning area and their assets, such as dams, located outside of the planning area. This requirement may be met with either a narrative description or definition. The plan must provide the rationale if omitting any natural hazards that are commonly recognized to affect the participant(s) in the planning area. There is no prescribed method for explaining the omission, but the plan must demonstrate the lack of risk to the participant(s) that omits the hazard. **Natural hazards** are a source of harm or difficulty created by a meteorological, environmental or geological event. Natural hazards, such as flooding and earthquakes, impact the built environment, including dams and levees. *Identifying hazards includes identifying all the types of hazards that can occur, e.g., the different types of flood hazards (flash, riverine, storm surge, debris flows, ice jams, dam/levee failure, etc.).*
B1-b. The plan must include information on location for each identified hazard. **Location** is defined as the unique geographic boundaries within the planning area, or assets outside of geographic boundaries that may be affected by the identified hazard. Maps are an efficient way to illustrate location. However, location may be described through plan narratives or other formats. *If maps are used, provide sufficient detail and scale to clearly identify the hazard locations within and/or affecting assets owned by the participating jurisdiction(s). If narrative descriptions are used, they must contain enough detail to clearly identify the area(s) (and assets, as applicable) that will be affected by the hazard.*
B1-c. The plan must provide the extent of the hazards that can affect the planning area. When describing extent using charts or scales (e.g., Saffir-Simpson scale for hurricane wind speed; Enhanced Fujita scale for tornado), the plan must document how the scale applies to each jurisdiction. **Extent** is defined as the range of anticipated intensities of the identified hazards. The information must relate to each of the plan participants or the planning area, depending on the hazard. Extent is most commonly expressed using various scientific scales.
B1-d. The plan must include information on previous hazard events for each hazard that affects the planning area. At a minimum, this includes any state and federal major disaster declarations for the planning area since the last update. *Previous occurrences can be included in a variety of ways, but should include an emphasis on significant events, as determined by the community. If no events have occurred for a hazard, this must be stated.*

Element B: Risk Assessment Requirements
B1-e. The plan must include the probability of future events for the identified hazards that can affect the planning area. Probability may be met in a variety of ways; however, general descriptors must be quantitatively defined. Probability must include the type, location and range of anticipated intensities of identified hazards. **Probability of future hazard events** means the likelihood of the hazard occurring or reoccurring. It may be defined in historical frequencies, statistical probabilities, hazard probability maps and/or general descriptors (e.g., unlikely, likely, highly likely). If general descriptors are used, they must be quantified or defined in the plan. For example, "highly likely" could be defined as "100% chance of occurrence next year" or "one event every year."
B1-f. For multi-jurisdictional plans, when hazard risks differ across the planning area and between participating jurisdictions, the plan must specify the unique and varied risk information for each applicable jurisdiction and their assets outside the planning area.
B2. Does the plan include a summary of the jurisdiction's vulnerability and the impacts on the community from the identified hazards? Does this summary also address NFIP insured structures that have been repetitively damaged by floods? (Requirement 44 CFR § 201.6(c)(2)(ii))
B2-a. The plan must describe the vulnerability of each participant to the identified hazards. The description must include current and future assets (including people) and the risk that makes them susceptible to damage from the identified hazards. For plan updates, the risk assessment must meet element E1-a. The risk assessment must describe the vulnerability of plan participant(s) to each identified hazard. The vulnerability description must include a summary (such as a problem statement) of the hazard and its consequences or effects on the participant(s) and their assets. A list of assets without context is not sufficient. **Vulnerability** is a description of which assets, including structures, systems, populations and other assets as defined by the community, within locations identified to be hazard prone, are at risk from the effects of the identified hazard(s). **Assets** are determined by the community and include, but are not limited to: ▪ People. ▪ Structures (including facilities, lifelines and critical infrastructure). ▪ Systems (including networks and capabilities). ▪ Natural, historic, and cultural resources. ▪ Activities that have value to the community. *To form the vulnerability description, plan participant(s) may identify which specific assets are most important and most susceptible to damage or loss from hazards. (For example, this may be expressed as replacement cost).*

Element B: Risk Assessment Requirements
B2-b. The plan must describe the potential impacts on each participating jurisdiction and its identified assets. **Impacts** are the consequences or effects of each hazard on the participant's assets identified in the vulnerability assessment. For example, impacts could be described by referencing historical disaster damages with an estimate of potential future losses (such as percentage of damage vs. total exposure). *Gaps and limitations may be addressed as actions in the mitigation strategy, in particular for items that require additional assistance.*
B2-c. The plan must address repetitively flooded NFIP-insured structures by including the estimated numbers and types (residential, commercial, institutional, etc.) of repetitive/severe repetitive loss properties. *Participants should consider addressing all properties at high risk of flooding that may not be NFIP repetitive loss properties. For example, properties in the Special Flood Hazard Area (SFHA) with their lowest floor below the established Base Flood Elevation are at risk of flood damage from the base flood and potentially from more frequent flood events.* **Repetitive loss structure** means a structure covered under an NFIP flood insurance policy that (1) has incurred flood-related damage on two occasions, in which the cost of repair, on average, equaled or exceeded 25% of the value of the structure at the time of each such flood event; and (2) at the time of the second incidence of flood-related damage, the contract for flood insurance contains increased cost of compliance coverage. (44 CFR § 77.2(i)) **Severe repetitive loss structure** means a structure that is covered under an NFIP flood insurance policy and has incurred flood-related damage (1) for which four or more separate claims have been made under flood insurance coverage, with the amount of each claim (including building and contents payments) exceeding $5,000 and with the cumulative amount of such claims payments exceeding $20,000; or (2) for which at least two separate flood insurance claims payments (building payments only) have been made, with cumulative amount of such claims exceeding the value of the insured structure. (44 CFR § 77.2(j)) *Use of flood insurance claim and disaster assistance information is subject to The Privacy Act of 1974, as amended, which prohibits public release of the names of policyholders or recipients of financial assistance and the amount of the claim payment or assistance. However, maps showing general areas where claims have been paid can be made public.* ***If a plan includes the names of policyholders or recipients of financial assistance, or the amount of the claim payment or assistance, the plan cannot be approved until the information covered by the Privacy Act is removed from the plan or is properly protected per the Privacy Act.***

Element C: Mitigation Strategy Requirements

Element C: Mitigation Strategy Requirements
C1. Does the plan document each jurisdiction's existing authorities, policies, programs and resources and its ability to expand on and improve these existing policies and programs? (Requirement 44 CFR § 201.6(c)(3))
C1-a. The plan must describe how the existing authorities, policies, programs, funding and resources of each participant are available to support the mitigation strategy. This must include a discussion of the existing building codes and land use and development ordinances or regulations. Capabilities may be described in a table or narrative. **Discussion** means a narrative or other materials that provide context on a section of the plan. *Describing the current capabilities provides a rationale for which mitigation projects can be undertaken to address the vulnerabilities identified in the Risk Assessment.*
C1-b. The plan must describe the ability of each participant to expand on and improve the capabilities described in the plan. If the participants do not have the ability or authority to expand and/or improve their capabilities, the plan must describe this lack of ability or authority. *Gaps and limitations for each participant may be addressed as actions in the mitigation strategy.*

Element C: Mitigation Strategy Requirements
C2. Does the plan address each jurisdiction's participation in the NFIP and continued compliance with NFIP requirements, as appropriate? (Requirement 44 CFR § 201.6(c)(3)(ii))
C2-a. The plan must describe participation in the NFIP for each participant, as applicable, in accordance with NFIP regulatory requirements. The following information must be provided for each participant.[7] 1. Adoption of NFIP minimum floodplain management criteria via local regulation. 2. Adoption of the latest effective Flood Insurance Rate Map (FIRM), if applicable. 3. Implementation and enforcement of local floodplain management regulations to regulate and permit development in SFHAs. 4. Appointment of a designee or agency to implement the addressed commitments and requirements of the NFIP. 5. Description of how participants implement the substantial improvement/substantial damage provisions of their floodplain management regulations after an event. Simply stating, "The community will continue to comply with the NFIP" is not sufficient to meet the requirement. Jurisdictions not currently participating in the NFIP, where a Flood Hazard Boundary Map or FIRM has been issued, may meet this requirement by describing why the community does not participate in the NFIP. *For jurisdictions that voluntarily participate in the CRS, it is highly recommended that this description also include related activities and address any issues raised during community assistance and monitoring activities.*
C3. Does the plan include goals to reduce/avoid long-term vulnerabilities to the identified hazards? (Requirement 44 CFR § 201.6(c)(3)(i))
C3-a. The plan must include goals to reduce the risk of the identified hazards. The goals must be consistent with the hazards identified in the plan. Goals may be presented as general statements applying to more than one hazard, or they may be itemized to each of the identified hazards. **Goals** are broad, long-term policy and vision statements that explain what is to be achieved by implementing the mitigation strategy.

Element C: Mitigation Strategy Requirements
C4. Does the plan identify and analyze a comprehensive range of specific mitigation actions and projects for each jurisdiction being considered to reduce the effects of hazards, with emphasis on new and existing buildings and infrastructure? (Requirement 44 CFR § 201.6(c)(3)(ii))
C4-a. The mitigation strategy must include an analysis of a comprehensive range of actions or projects that the participants considered to specifically address vulnerabilities identified in the risk assessment. Actions considered must emphasize reducing risk to existing buildings, structures and infrastructure, as well as limiting risk to new development and redevelopment. *It is important for all actions considered to be documented, be as specific as possible, and be clearly linked to the vulnerabilities and impacts identified in the risk assessment. This includes actions for alleviating data deficiencies or building up capabilities related to mitigation implementation. Documenting all ideas provides a record of what actions were considered, and why. Additionally, this creates a list of actions that can be reconsidered as conditions change.* **Analyzing a comprehensive range** means considering mitigation alternatives spanning all types of solutions. These may include local plans and regulations, structure and infrastructure projects, natural systems protection, and education and awareness programs. This analysis helps a jurisdiction select actions based on its own capabilities, as well as the social, technical and economic feasibility of the action. A **mitigation action** is a measure, project, plan or activity proposed to reduce current and future vulnerabilities described in the risk assessment.
C4-b. Each plan participant must identify one or more mitigation actions the participant(s) intends to implement for each hazard addressed in the risk assessment. The actions must be achievable and demonstrate how the mitigation activities reduce the risks identified in the risk assessment. *The actions may apply to physical infrastructure, as well as the populations within the planning area. Actions may apply to one or more participants, as long as each participant is clearly associated with one or more actions.* *Non-mitigation actions can be included in a plan but will not be considered as part of the mitigation action requirement. These include actions that do not contribute to a long-term solution for the problem they are intended to address.* *Plan updates may validate and include previously included actions if those actions are being reconsidered for implementation to reduce the risks of identified hazards in the plan's current risk assessment.*

Element C: Mitigation Strategy Requirements
C5. Does the plan contain an action plan that describes how the actions identified will be prioritized (including cost benefit review), implemented and administered by each jurisdiction? (Requirement 44 CFR § 201.6(c)(3)(iii)); (Requirement 44 CFR § 201.6(c)(3)(iv))
C5-a. The plan must describe the criteria used for prioritizing the implementation of the actions. The criteria must include an emphasis on the extent to which benefits are maximized, in relation to the associated costs of the action. *Although a full benefit-cost analysis is not necessary, the plan must demonstrate that proposed mitigation actions will be prioritized by weighing the cost of the action versus the benefits the action will produce, in addition to other prioritization factors. Another example of a prioritization method may be that jurisdictions establish a minimum threshold for the dollar amount, types or number of benefits an action must have to be considered for implementation. Or they could simply prioritize actions with more benefits than other alternatives.* *Other methodologies are acceptable if the plan demonstrates that the action's monetary and non-monetary benefits were specifically emphasized and considered in the community's decision-making process. Qualitative benefits (quality of life, natural and beneficial values, etc.) may be used, especially in considering mitigation actions that alleviate long-term risks.*
C5-b. The action plan must identify who is responsible for administering each action, along with the action's potential funding sources and expected time frames for completion. The plan must provide the position, office, department or agency responsible for implementing/administrating the identified mitigation actions. Names are not required, but the plan must provide enough detail for users to determine who within the jurisdiction will implement or administer the mitigation action. *The plan must identify applicable potential funding sources, with details beyond generic terms such as "federal," "state" and/or "local." The identified funding sources must be relevant to implementing the associated actions.* *The plan must identify expected time frames for completion. General terms like "short-term," "medium-term" and "long-term" must be defined. "Ongoing" is acceptable when used appropriately (e.g., for multi-phased projects).*

Element D: Plan Maintenance Requirements

Element D: Plan Maintenance Requirements
D1. Is there discussion of how each community will continue public participation in the plan maintenance process? (Requirement 44 CFR § 201.6(c)(4)(iii))
D1-a. The plan must describe how the participant(s) will continue to seek public participation after the plan has been approved and during the plan's implementation, monitoring, and evaluation. *The plan may contain a narrative description or an itemized list of steps, demonstrating the prescribed method that will be followed to obtain future public participation.* *Special consideration should be given to identifying and using unique and meaningful ways to keep the public engaged in the process.* *Examples include, but are not limited to: periodic presentations on the plan's progress to elected officials, schools or other community groups; annual questionnaires or surveys; public meetings; postings on social media; and interactive websites.*
D2. Is there a description of the method and schedule for keeping the plan current (monitoring, evaluating and updating the mitigation plan within a five-year cycle)? (Requirement 44 CFR § 201.6(c)(4)(i))
D2-a. The plan must identify how, when and by whom the plan will be tracked for implementation over its five-year cycle (monitoring). *Monitoring may be described by including a narrative description or an itemized list of steps demonstrating the prescribed method that will be followed to monitor the plan after plan approval and during the plan's implementation.* **Monitoring** means tracking the implementation of the plan over time. For example, monitoring may include a system for tracking the status of the identified hazard mitigation actions.
D2-b. The plan must identify how, when and by whom the plan will be assessed for effectiveness at achieving its stated purpose and goals (evaluating). *The evaluation method may be described by including a narrative description or an itemized list of steps demonstrating the prescribed method that will be followed to evaluate the plan after plan approval and during the plan's implementation, and prior to the plan's update.* **Evaluating** means assessing the effectiveness of the plan at achieving its stated purpose and goals.
D2-c. The plan must identify how, when and by whom the plan will be reviewed and revised at least once every five years (updating). *The update method may be described by including a narrative description or an itemized list of steps that will be followed to update the plan prior to resubmission for approval and during the plan's implementation.* **Updating** means reviewing and revising the plan at least once every five years.

Element D: Plan Maintenance Requirements
D3. Does the plan describe a process by which each community will integrate the requirements of the mitigation plan into other planning mechanisms, such as comprehensive or capital improvement plans, when appropriate? (Requirement 44 CFR § 201.6(c)(4)(ii))
D3-a. The plan must describe the community's process to integrate the plan's data, information, and hazard mitigation goals and actions into other planning mechanisms. **Integrate** means to include hazard mitigation principles, vulnerability information and mitigation actions into other existing community planning to leverage activities that have co-benefits, reduce risk and increase resilience. **Planning mechanisms** refers to the governance structures used to manage local land use development and community decision-making, such as budgets, comprehensive plans, capital improvement plans, economic development strategies, or other long-range plans.
D3-b. The plan must identify the local planning mechanisms where hazard mitigation information/ actions may be integrated. The identified list of planning mechanisms must be applicable to the plan participant(s) and not contradict the identified capabilities.
D3-c. A multi-jurisdictional plan must describe each participant's individual process for integrating information from the mitigation strategy into their identified planning mechanisms. *This element may be met with a general narrative description if the process is applicable to each of the plan participants; however, any participant who cannot apply the same process as other plan participants must include their unique process for integration.*

Element E: Plan Update Requirements

Element E: Plan Update Requirements
E1. Was the plan revised to reflect changes in development? (Requirement 44 CFR § 201.6(d)(3))
E1-a. The plan must describe changes in development that have occurred in hazard-prone areas and how they have increased or decreased the vulnerability of each jurisdiction since the previous plan was approved. If no development changes affected the jurisdiction's overall vulnerability, this must be stated with the plan. **Changes in development** means recent development (for example, construction completed since the last plan was approved, or development planned or under consideration by the jurisdiction), or conditions that may affect the risks and vulnerabilities of the jurisdictions (for example, declining populations or projected increases in population, or foreclosures). This can also include changes in local policies, standards, codes, regulations, land use regulations and other conditions.
E2. Was the plan revised to reflect changes in priorities and progress in local mitigation efforts? (Requirement 44 CFR § 201.6(d)(3))
E2-a. The plan must describe how it was revised due to a change in priorities for each jurisdiction. This can be done as a narrative or with detailed statements in the appropriate sections of the plan. The priorities to be considered are defined by the participant(s). If the participant(s) has no change in priorities since the last approval of the mitigation plan, this must be stated.
E2-b. The plan must describe the status of all hazard mitigation actions in the previous plan by identifying whether they have been completed or not, for each jurisdiction. For actions that are not complete, the plan must state whether the action is no longer relevant or will be included in the updated action plan.
E2-c. The updated plan must explain how the jurisdiction(s) integrated information from the mitigation plan into other planning mechanisms, as a demonstration of progress in local hazard mitigation efforts. If information from the previous plan was not integrated into other planning mechanisms, this must be stated.

Element F: Plan Adoption Requirements

Element F: Plan Adoption Requirements
F1. For single-jurisdictional plans, has the governing body of the jurisdiction formally adopted the plan to be eligible for certain FEMA assistance? (Requirement 44 CFR § 201.6(c)(5))
F1-a. The jurisdiction must provide documentation of plan adoption, usually a resolution by the governing body or other authority, to receive approval. Documentation may be provided in the form of meeting minutes, resolutions, signed letter or any other method to demonstrate that official adoption by the participant has occurred. *See Section 6, Plan Review and Approval, for more information on the process to adopt the plan after review by the state and FEMA.*
F2. For multi-jurisdictional plans, has the governing body of each jurisdiction officially adopted the plan to be eligible for certain FEMA assistance? (Requirement 44 CFR § 201.6(c)(5))
F2-a. To receive approval, the participants must adopt the plan and provide documentation that the adoption has occurred. Participants that submit their adoption documentation separately from the other multi-jurisdictional plan participants will not receive a new expiration date. Participating jurisdictions that adopt the plan more than one year after Approvable Pending Adoption (APA) status has been issued must either: ▪ Validate that their information in the plan remains current with respect to both the risk assessment (no recent hazard events, no changes in development) and their mitigation strategy (no changes necessary); or ▪ Make the necessary updates before submitting the adoption resolution to FEMA.

Element G: High Hazard Potential Dams

Element G: High Hazard Potential Dams
HHPD1: Did the plan describe the incorporation of existing plans, studies, reports and technical information for HHPDs?
To meet this requirement with a specific focus on HHPDs, the mitigation plan must include descriptions of: **HHPD1-a:** How the local government coordinated with local dam owners and/or the state dam safety agency. NOTE: Ensure sensitive and/or personally identifiable information is protected. **HHPD1-b:** Information shared by the state and/or local dam owners. Examples may include: ▪ Location and size of the population at risk, as well as potential impacts to institutions and critical infrastructure/facilities/lifelines. ▪ Inundation maps, emergency action plans, floodplain management plans and/or data or summaries provided by dam breach modeling software, such as HEC-RAS, DSS-WISE HCOM, DSS-WISE Lite, FLO-2D, as well as more detailed studies.
HHPD2: Did the plan address HHPDs in the risk assessment?
To meet this requirement with a specific focus on HHPDs, the mitigation plan must: **HHPD2-a:** Describe the risks and vulnerabilities to and from HHPDs, including: ▪ Potential cascading impacts of storms, seismic events, landslides, wildfires, etc. on dams that might affect upstream and downstream flooding potential. ▪ Potential significant economic, environmental or social impacts, as well as multi-jurisdictional impacts, from a dam incident. ▪ Location and size of populations at risk from HHPDs, as well as potential impacts to institutions and critical infrastructure/facilities/lifelines. ▪ Methodology and/or assumptions for risk data and inundation modeling. **HHPD2-b:** Document the limitations and describe the approach for addressing deficiencies.
HHPD3: Did the plan include mitigation goals to reduce long-term vulnerabilities from HHPDs?
To meet this requirement with a specific focus on HHPDs, the mitigation plan must: **HHPD3-a:** Address a reduction in vulnerabilities to and from HHPDs as part of its own goals or with other long-term strategies. The plan does not need to include a goal specific to HHPDs alone. **HHPD3-b:** Link proposed actions to reducing long-term vulnerabilities consistent with the goals.

Element G: High Hazard Potential Dams
HHPD4: Did the plan include actions that address HHPDs, and prioritize mitigation actions to reduce vulnerabilities from HHPDs?
To meet this requirement with a specific focus on HHPDs, the mitigation plan must: **HHPD4-a:** Describe a range of specific actions, such as: ▪ Rehabilitating/removing dams. ▪ Adopting and enforcing land use ordinances in inundation zones. ▪ Elevating structures in inundation zones. ▪ Adding flood protection, such as berms, floodwalls or floodproofing, in inundation zones. **HHPD4-b:** Describe the criteria used for prioritizing actions related to HHPDs. **HHPD4-c:** Identify the position, office, department or agency responsible for implementing and administering the action related to mitigating hazards to or from HHPDs.

Appendix 4 – Link to Boise County CWPP – 2023

https://www.boisecounty.us/services/emergency-management/