



State of Idaho Hazard Mitigation Plan

Volume 1. Core Plan

Public Review Draft | June 2023



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Part 1. Background Information



1. INTRODUCTION

1.1 HAZARDS IN IDAHO

Idaho is hazard prone. Billion-dollar disasters have occurred in Idaho and will happen again. Consider the following major disasters:

- Idaho experienced one of the most significant wildfire events in U.S. history. The 1910 fire burned 3 million acres (an area the size of the State of Connecticut) and destroyed two entire Idaho towns. In all, 86 people died and 7.5 billion board-feet of timber was consumed. Combinations of drought, continuous fuels over landscapes, multiple large fires burning at the same time, and severe late-season wind events could cause such an event to occur again. Using conservative cost estimation methodologies, the total cost of such a fire today would approach \$3.5 billion.
- Idaho experienced one of the most significant dam failures in U.S. history. The Teton Dam failure in 1976 drained an impoundment 270 feet deep in less than 6 hours. Damage was swift and complete as 2 million cubic feet per second poured from the breach. Six communities were devastated, and thousands of homes and businesses were destroyed. The dam failure triggered significant landslides and had serious impacts on the lower portion of the Teton River's ecology and on habitats in the Snake River as far down as Fort Hall. Damage, in today's costs, exceeded \$2 billion.
- The 1983 Borah Peak earthquake registered a 6.9 magnitude and resulted in \$26 million in damage. State-of-the-art loss estimation tools have determined that an earthquake of similar magnitude in Idaho Falls today would destroy over 1,500 structures and damage an additional 31,000 structures. Total estimated losses would be \$1.5 billion.

Given the relatively small size of the State and its gross domestic product, disasters that result in billion-dollar disaster losses would represent significant economic and environmental impacts for Idaho. Implementing hazard mitigation practices before disasters strike can reduce the losses of future hazard events.

1.2 STATE HAZARD MITIGATION PLANNING

1.2.1 Hazard Mitigation Defined

Hazard mitigation is defined as any sustained action taken to reduce or eliminate the long-term risk to human life and property from hazards. Hazard mitigation is considered one of the five phases of emergency management (see Figure 1-1).



Figure 1-1. Five Phases of Emergency Management

The other four phases are:

- **Prevention**—Measures that provide permanent protection from disasters or emergencies
- **Preparedness**—Actions, programs and systems that people or organizations take before a disaster or emergency to make sure they are safe before, during and after the event occurs
- **Response**—Actions that people or organizations take once a disaster or emergency occurs to address its immediate and short-term effects
- **Recovery**—Actions and programs taken to return conditions to an acceptable level

Mitigation actions can occur before or after a disaster event, so mitigation can be built into both preparedness actions and recovery actions to improve conditions and make them more resilient after future disaster events.

1.2.2 Purpose of Planning

Hazard mitigation plans are documents prepared by states, local jurisdictions, and tribal nations to define their hazard mitigation goals, objectives, and actions. Mitigation plans are created to protect the health, safety, and economic interests of residents by reducing the impacts of natural hazards. Such plans must achieve several essential goals:

- Increase public awareness and understanding of vulnerabilities and support specific actions to reduce losses from future natural disasters.
- Expand understanding of potential risk reduction measures.
- Create safer communities by reducing loss of life, injury, and property damage.
- Reduce financial impacts on individuals, communities, and society as a whole.
- Provide eligibility for post-disaster and pre-disaster mitigation funding from the Federal Emergency Management Agency (FEMA).

Federal Requirements for State Hazard Mitigation Planning

In addition to meeting the needs of Idaho for hazard-related risk reduction, this Plan was developed to meet all federal requirements that state hazard mitigation plans must meet to be eligible for certain funding. States must have an approved state hazard mitigation plan meeting the requirements in Title 44 of the Code of Federal Regulations (44 CFR 201.4) as a condition of receiving FEMA mitigation grants through the following programs:

- Public Assistance Categories C-G (PA C-G)
- Fire Management Assistance Grants (FMAG)
- Building Resilient Infrastructure and Communities (BRIC)
- Hazard Mitigation Grant Program (HMGP)
- HMGP Post Fire
- Flood Mitigation Assistance (FMA)
- Rehabilitation of High Hazard Potential Dams (HHPD)

Notation is provided throughout this Plan to indicate where the content provided addresses a specific FEMA requirement. Key among the requirements in FEMA's most recent guidance for state hazard mitigation plans are contents to address the importance of equity and climate change in hazard mitigation, as summarized below.

Planning for Equitable Outcomes

FEMA defines equity as the consistent and systematic fair, just and impartial treatment of all individuals. Centering equity in the mitigation plan helps ensure an inclusive planning process that benefits the whole community. Inclusive planning processes take time and thoughtful planning to set up so that everyone has the resources to meaningfully participate, make progress, and benefit from hazard mitigation. Equity is essential to reducing risk to the whole community, including those that face barriers to accessing assistance and to populations that are disproportionately affected by disasters.

Planning for Climate Change

Climate change increases the frequency, duration, and intensity of natural hazards, such as wildfires, extreme heat, drought, storms, heavy precipitation, and sea level rise. These variations exacerbate the impacts of disasters on underserved and socially vulnerable populations who already experience the greatest losses from natural hazards. Hazard mitigation and climate adaptation are complementary efforts that have the same goal: long-term risk reduction for people and increased safety for communities. Adapting to the expected impacts of climate change is a form of hazard mitigation. A hazard mitigation plan that addresses climate change in its risk assessment and includes adaptation actions in its mitigation strategy may reduce risk to current and future events.

The *State of Idaho Hazard Mitigation Plan* is Idaho's long-term mitigation investment strategy for reducing hazard-related risk. The plan outlines activities and projects to address hazard vulnerabilities that were identified through a comprehensive risk assessment. As required by FEMA, the State updates its mitigation plan every five years. The plan was last approved in 2018; the update for 2023 reflects changes in development, progress in statewide mitigation efforts, and changes in priorities.

Idaho's State Hazard Mitigation Plan (SHMP) also guides local governments engaged in mitigation planning. It provides critical information and guidance to local jurisdictions about the State's risks from natural hazards as well as state capabilities, priorities, and action plans. The plan focuses on hazards and risks that affect local jurisdictions, including impacts from risks on the built environment; community lifelines; future conditions; population; land use; and socially vulnerable communities. The SHMP also assesses the effects of climate change on hazards, their potential impacts, and strategies for addressing them.

Definition: Community Lifelines

Community lifelines are the most fundamental services in a community. When functioning, they enable all other aspects of society to function. FEMA categorizes community lifelines as follows:

- Safety and Security
- Food, Water, Shelter
- Health and Medical
- Energy
- Communications
- Transportation
- Hazardous Materials

Local jurisdictions should use the SHMP as a reference when developing their own plans that address mitigation, land use, economic development, housing, infrastructure, transportation, public health, historic and cultural resources, or environmental conservation. Local governments, including special districts, also can leverage the SHMP when developing climate adaptation, resilience, mitigation, land use, comprehensive and economic development plans.

1.3 HOW THIS PLAN WAS PREPARED

Development of the 2023 SHMP update involved coordination between the Idaho Office of Emergency Management (IOEM); local, state, and federal agencies; and private sector partners (see Figure 1-2).

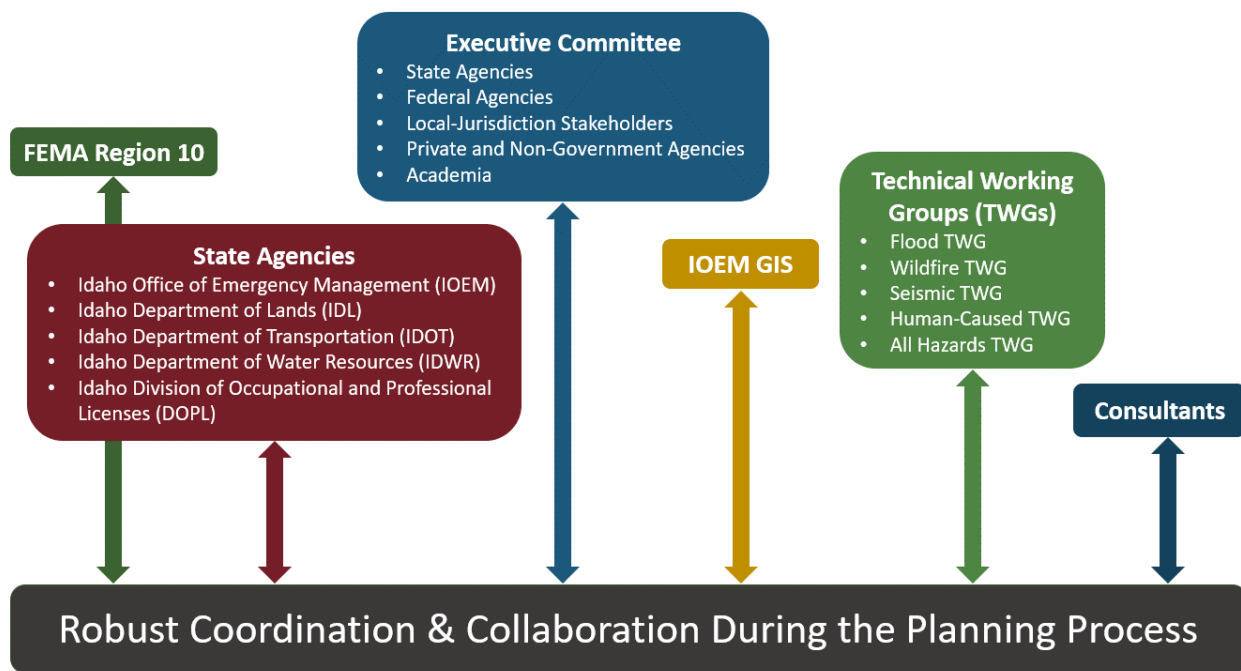


Figure 1-2. Planning Process Participants

The planning process focused on addressing and incorporating the following:

- Updated data on hazard events and mitigation efforts in Idaho
- Diverse and changing concerns reflected in the local plans of Idaho’s counties and tribal nations

This update required a multilayered planning process that employed a variety of forums and techniques. The following sections provide highlights of the planning process. Appendix D provides detailed information about who was involved, key decisions and milestones, timelines, and the integration of other planning programs.

1.3.1 Participants

The primary state agencies implementing hazard mitigation in Idaho include IOEM, the Idaho Department of Lands (IDL), the Idaho Department of Transportation, the Idaho Department of Water Resources (DWR), and the Idaho Division of Occupational and Professional Licenses. At the federal and local levels, many stakeholders and subject matter experts across sectors collaborated to develop a comprehensive update. The following section provides an overview of the stakeholders and their involvement. Meeting summaries and detailed participation information are located in Appendix D.

FEMA Region 10

The IOEM Mitigation Section and the State Hazard Mitigation Officer (SHMO) coordinated with FEMA throughout the planning process. This included consultations, asking questions to ensure the approach to analyzing and organizing natural hazards met FEMA requirements, and providing updates to the Region 10 office about the planning process.

Planning Executive Committee

IOEM used a Planning Executive Committee comprising IOEM and other agency representatives to assist in the SHMP update. This committee included individuals from state and federal agencies, as well as stakeholders from local jurisdictions, private and non-governmental agencies, and academia. These were all stakeholders responsible for the sectors of emergency management; economic development; land use and development; housing; health and social services; infrastructure; and natural and cultural resources. The Executive Committee participated in several exercises and provided overall guidance and direction on the 2023 SHMP update.

Technical Working Groups

With so many agencies having a stake in hazard mitigation, technical working groups (TWGs) were formed around all of Idaho’s assessed hazards. The TWGs provided expertise and detail beyond the scope of the Planning Executive Committee. Five main groups across all sectors were utilized as part of the 2023 Plan update (Table 1-1). Appendix D includes additional details and meeting summaries.

Table 1-1. Technical Working Group Members

Agency	Representative’s Sector/Area of Expertise
Flood Technical Working Group	
Boise Project Board of Control	Infrastructure
Boise State University	Natural and Cultural Resources
Cascadia Region Earthquake Workgroup (CREW)	Infrastructure, Natural and Cultural Resources
Idaho Department of Lands	Land Use and Development
Idaho Department of Transportation	Infrastructure
Idaho Department of Water Resources	Infrastructure, Dam Safety
Idaho Geological Survey	Natural and Cultural Resources
Idaho Office of Emergency Management	Emergency Management
National Weather Service	Natural and Cultural Resources

Agency	Representative's Sector/Area of Expertise
U.S. Army Corps of Engineers	Infrastructure
Wildfire and Drought Technical Working Group	
Idaho Department of Insurance, State Fire Marshal's Office	Land Use and Development, Infrastructure
Idaho Department of Lands	Natural and Cultural Resources
Idaho Department of Water Resources	Infrastructure, Natural and Cultural Resources
Idaho Office of Emergency Management	Emergency Management
Water Users Association	Infrastructure, Natural and Cultural Resources
Seismic Technical Working Group	
Boise State University	Natural and Cultural Resources
Cascadia Region Earthquake Workgroup (CREW)	Infrastructure, Natural and Cultural Resources
Idaho Department of Parks and Recreation	Natural and Cultural Resources
Idaho Geological Survey	Natural and Cultural Resources
Idaho Office of Emergency Management	Emergency Management
Water Users Association	Infrastructure, Natural and Cultural Resources
Human-Caused Technical Working Group	
City of Boise	Infrastructure
Idaho Office of Emergency Management	Emergency Management
All Hazards Technical Working Group	
Boise Fire	Emergency Management
Boise State University	Natural and Cultural Resources
Boise State Geosciences	Natural and Cultural Resources
Cascadia Region Earthquake Workgroup (CREW)	Infrastructure, Natural and Cultural Resources
Idaho Department of Administration	Infrastructure, Economic Development
Idaho Department of Commerce	Economic Development
Idaho Department of Corrections	Emergency Management
Idaho Department of Environmental Quality (DEQ)	Health and Social Services, Natural and Cultural Resources
Idaho Department of Lands	Natural and Cultural Resources
Idaho Department of Water Resources	Infrastructure, Natural and Cultural Resources
Idaho Department. of Health & Welfare	Health and Social Services
Idaho Fish and Game	Natural and Cultural Resources
Idaho Geological Survey	Natural and Cultural Resources
Idaho Information Technology Services	Infrastructure
Idaho Military Division	Emergency Management
Idaho Office of Emergency Management	Emergency Management
Idaho Public Utilities Commission	Infrastructure
Idaho State Police	Emergency Management
Idaho State University	Natural and Cultural Resources
Idaho Technology Authority (ITA)	Infrastructure
Local Highway Technical Assistance Council	Infrastructure
Pioneer Irrigation	Infrastructure
USDA	Land Use and Development, Natural and Cultural Resources
U.S. Department of Housing and Urban Development	Housing
USGS	Natural and Cultural Resources
Water Users Association	Infrastructure, Natural and Cultural Resources

Consultants

In the spring of 2023, IOEM hired consulting firm Tetra Tech, Inc., to assist with updates and enhancements to the SHMP, including the risk and vulnerability assessments. Tetra Tech provided data for IOEM to develop updated mapping.

IOEM Geographic Information System Section

A geographic information system (GIS) is a system designed to capture, store, manipulate, analyze, manage, and present spatial or geographic data. IOEM’s GIS Section performs data-related functions such as data creation, conversion, management, and mapping, including interactive maps to support IOEM mitigation plans and processes. Current and authoritative data sources are used for all mapping projects and to display vulnerability and identify critical infrastructures and populations at risk. IOEM GIS assisted with the SHMP update by developing updated hazard and population maps.

1.3.2 Agency and Stakeholder Involvement

Outreach to Other Agencies and Stakeholders

In order to integrate stakeholders into the planning process, the IOEM Mitigation Section held planning meetings and attended other committee, working group, and technical meetings with state and multi-jurisdiction stakeholders to ensure the widest participation and input possible during the expedited planning process of the 2023 SHMP update. Through the Executive Committee and the TWGs, IOES engaged with sectors throughout the planning process. Members’ participation in these groups provided opportunities for plan involvement for all the sectors they represent. Available meeting summaries and presentations are included in Appendix D.

How Agencies and Stakeholders Contributed

TWG meetings included subject-matter expert contributions from federal, state, and local agencies and from the private sector on the following subjects:

- Hazard-specific data, spatial analysis, studies, and research papers related to the natural hazards and hazards of interest assessed in the 2023 SHMP
- DWR expertise on dam data, safety, and potential impacts
- Multi-agency input on vulnerable populations in Idaho including providing applicable datasets for the 2023 SHMP analysis
- IDL provided input on how climate change may amplify the wildfire hazard

1.3.3 Public Outreach

Online Survey

Development and Distribution

IOEM, the Executive Committee, and the TWGs developed a 10-question survey to gather public perception of hazard risks and preparedness activities. The survey was made available as a hard copy, as well as an online link and QR code. The survey was distributed during an in-person public event and promoted on social media and on the State’s hazard mitigation website.

Results and Incorporation

(To be completed after survey is closed.)

Public Events

In-Person

The 2023 SHMP update was prepared under an expedited schedule, so the in-person public outreach effort was focused in Boise, the most populated city in the state. In collaboration with the Idaho Silver Jackets, IOEM participated in a “Disaster Days” public outreach event on June 26, 2023, at Julia Davis Park (Figure 1-3). Draft sections of the plan were available for public review, as well as other information on mitigation planning and resources. The public input survey was made available in paper copies and through a flyer detailing the survey link as well as the QR code for mobile device scanning. Large displays with an overview of the wildfire, flood, earthquake, and landslide hazards were available for public review.



Figure 1-3. Public Outreach Poster

Virtual

On June 29, 2023, IOEM held a virtual meeting to release the public comment draft. The session included an overview of the draft plan and allowed the public to ask questions and provide input on the draft.

Social Media

Social media was used extensively for public outreach and input, as this has become the best method of reaching a broad spectrum of the public that may not be engaged in the process through traditional platforms. The use of social media in the planning process was an invaluable tool for providing access to the community all across Idaho that might not typically be engaged at an in-person emergency management event. IOEM made outreach efforts via its Facebook and Twitter accounts and the IOEM website throughout the plan update process to gain public involvement and input (Figure 1-4).



Figure 1-4. IOEM Facebook Post Promoting the Public Survey

1.3.4 Integration of Mitigation Planning with Other State Planning Efforts

IOEM used this update of the SHMP as an opportunity to further promote SHMP integration and coordination. Numerous plans were reviewed and integrated into the 2023 SHMP update, as documented in the References section. The following list highlights integration opportunities during the planning process as well as a sampling of plans that were integrated into the risk assessment:

- Broad Subject-Matter Expert and Technical Working Group Collaboration on the Risk Assessment**—Subject-matter experts, who represented TWGs from state and federal agencies, academia, and the private sector, were consulted during the data collection phase and risk assessment methodology development for the 2023 SHMP update through group and one-on-one meetings as well as phone and email outreach. This collaboration produced an assessment that incorporated best available data and allowed for revisions throughout the process to achieve the greatest accuracy when representing risk.
- Local Hazard Mitigation Plans**—Local hazard mitigation plans (HMPs) were reviewed, and data and information were integrated as possible, including hazards of concern and potential new development.

The outcome of these reviews emphasized the need for ongoing coordination between the SHMP and local HMPs to produce strong mitigation plans with a unified approach to assessing risk throughout the state.

- **Subject-Matter Expert Meetings Discussing FEMA HMGP Projects**—Subject-matter experts from the TWGs met during the performance period of the 2018 SHMP to identify and rank FEMA HMGP projects associated with disaster declarations. As a result of this coordination, more than \$4.1 million was awarded for projects.
- **Annual Consultation**—The FEMA Region 10 annual consultation helped to identify challenges and opportunities as documented in the capability assessment included in the 2018 SHMP. The annual consultation allowed IOEM to develop targeted strategies to strengthen Idaho’s mitigation program.
- **IOEM GIS**—Much of the spatial data used for the 2023 SHMP update was facilitated through the IOEM GIS geospatial data portal. The need for ongoing coordination and collaboration among planning efforts in the state was acknowledged when reviewing data outputs.
- **Idaho Implementation Strategy for National Fire Plan**—Working group members for the Idaho Implementation Strategy for National Fire Plan also served on the TWGs for the 2023 SHMP update and provided cross-agency coordination.
- **Silver Jackets Implementation Plan**—Working group members for the Silver Jackets Implementation Plan also served on the TWGs for the 2023 SHMP update and provided cross-agency coordination.

Chapter 23 provides further details on state programs and initiatives that foster SHMP integration and coordination in Idaho.

1.3.5 Schedule

The 2023 SHMP update was prepared under an expedited schedule. While TWG input, updates, and workshops were held over many months prior to the initiation of consultant support, most of the planning process was completed over a five-month process from March through July 2023 (Figure 1-5).

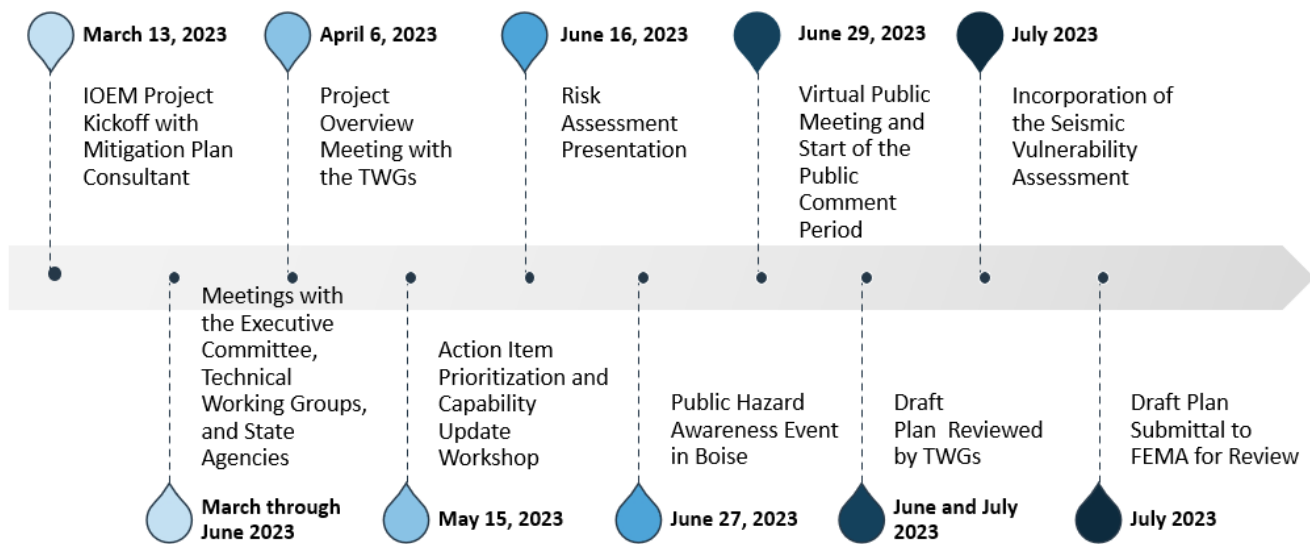


Figure 1-5. Milestones in the Planning Process

1.3.6 Plan Development and Review

Review and Incorporation of Content from 2018 SHMP

During the months before contractor support was secured to update the SHMP, IOEM met with the TWGs to discuss content from the 2018 plan that should be included in the 2023 update. Edits were made to several hazard sections, but much of the qualitative content of the 2018 SHMP was incorporated into the 2023 update.

Emergency Management Accreditation Program

The Emergency Management Accreditation Program (EMAP) provides emergency management programs an opportunity to be evaluated and recognized for compliance with standards certified by the American National Standard Institute. Applicants must demonstrate through self-assessment, documentation, and peer assessment verification that their programs meet the Emergency Management Standard. Accreditation is valid for five years.

The EMAP process accredits an overall emergency management program, of which hazard mitigation is one component. Many EMAP standards for hazard mitigation planning fall outside of what FEMA requires for state hazard mitigation plans. This SHMP was developed to be in full compliance with EMAP standards and criteria. The base plan emphasizes elements required by FEMA, in order to better support local planning in the state. Since the EMAP is a voluntary program, its components that deviate from FEMA requirements are packaged in Appendix B.

Preparation and Review of the Draft Plan

The draft plan incorporating the results of meetings, analyses, surveys, and other information was posted on the IOEM website along with a public comment tool to receive input on the draft plan. The final 2023 Idaho SHMP will also be posted on the IOEM website.

Public Meetings

IOEM presented links to draft plan sections and the survey at public events:

- **June 27, 2023**—IOEM attended the Disaster Days at the Park event in Boise in coordination with the Idaho Silver Jackets.
- **June 29, 2023**—IOEM hosted a statewide virtual public meeting to present and discuss the draft plan.

Draft Plan Public Survey Results and Incorporation

A survey with the link to the online draft plan was developed to guide the public through the chapters of the plan, soliciting feedback and gathering demographic data. The survey link was promoted through social media via IOEM Facebook and Twitter accounts in the same manner as the hazard input survey. This was a targeted, strategic outreach to gain public input.

The survey link was sent out to members of the Planning Executive Committee to send to their contact lists, as well as to the Public Information Emergency Response Team to be placed on other state agency social media accounts. The survey link was featured as a “Hot Topic” on the main IOEM webpage, was provided on a flyer detailing information about the plan and cut off tabs containing the link and QR code, and was sent to facilities and organizations throughout the state for posting on bulletin boards to reach the public. A news release with the

survey info was sent out in May 2023 asking for public comment on the plan. Additionally, IOEM staff presented the draft plan and survey link at public events.

For the draft plan, at time of submission to FEMA, IOEM received (number TBD) public surveys. Comments received will be used as a benchmark to help guide future revisions and planning efforts. Public comments will continue to be received up until official publishing of the plan once it has been promulgated and accepted through the Governor’s office in (month TBD) 2023. A summary of the public comments received, and actions taken are listed in Appendix D.

Preparation and Adoption of Final Plan

The final SHMP was prepared after receipt of FEMA Region 10 comments and will be promulgated in (month TBD) 2023.

1.4 WHAT’S IN THE FINISHED PLAN

1.4.1 Organization and Content

Risk Assessment

The risk assessment for this SHMP is organized alphabetically by hazard in Chapters 5 through 17, with individual chapters providing all hazard profile information and vulnerability assessment results for a single hazard. Each hazard chapter covers six requirements for state hazard mitigation plans:

- Identifying hazards
- Profiling hazard events
- Assessing vulnerability by jurisdiction
- Estimating potential losses by jurisdiction
- Assessing the vulnerability of state facilities
- Estimating potential losses of state facilities

Hazard Profiles

Each hazard profile describes the hazard and provides information regarding the geographic location and severity of the hazard in Idaho. Previous occurrences are summarized, including an overview of significant events in the state since the last plan update (from January 1, 2018, through December 31, 2022). Federal, state, and local sources were reviewed to obtain the historical information. Research was based on events that caused fatalities, injuries, property damages, and/or crop damages. The summary of past events describes damage, level of severity, dates of events, and sources of information.

Each hazard profile also discusses the hazard’s probability of future occurrence, warning time, and secondary hazards. The probability of future occurrences is based on the number of past events divided by the number of years researched. Potential change in climate and its impacts on the hazards of concern are discussed.

Vulnerability Assessments

An updated risk assessment evaluated the State’s vulnerability as a whole as well as local vulnerability by county. A new analysis of socially vulnerable populations was completed for each hazard.

Overview of Local Hazard Mitigation Planning in Idaho

The State is responsible for supporting local governments with mitigation planning through training, technical assistance, and, when available, funding. This ensures that the community is aware of hazard data, planning resources, and state priorities for mitigation. Considering local mitigation strategies and capabilities increases the State’s awareness of local priorities and data. This informs and influences the State’s risk assessment and mitigation priorities. This mutual understanding between the State and local governments allows for a streamlined review and approval process, better aligns mitigation strategies and plans, and directs available resources toward effective mitigation planning. This part of the SHMP summarizes key information about local hazard mitigation planning in Idaho.

Mitigation Strategy

Drawing upon the findings of the hazard risk assessments, the mitigation strategy outlines concrete steps for mitigating hazards in Idaho. The strategy consists of the following:

- A definition of the goals and objectives the State hopes to achieve through hazard mitigation
- A review of strategies outlined in previous Idaho State plans and the progress of their recommendations
- An assessment of the capabilities of all state agencies to carry out hazard mitigation activities
- An updated list of concrete recommended mitigation actions
- A plan for implementing the recommended actions

Appendices

Appendices to the SHMP provide supplementary information that is too lengthy to include in the main part of the plan. The State of Idaho is not seeking enhanced status with this SHMP. However, an appendix is provided that includes content that will be useful if the State pursues enhanced status in the future. Another appendix provides information to meet EMAP requirements that is not required by FEMA for hazard mitigation plans.

1.4.2 Key Changes from Previous SHMP

The 2023 SHMP represents a complete reorganization of the plan from 2018 to better align with new FEMA planning requirements. IOEM chose to focus the 2023 SHMP update on enhancing the risk and vulnerability assessments to include updated hazard information, data, mapping, and analysis. The overall planning process and IOEM GIS mapping were expanded. The 2023 update expanded upon the previous SHMP’s risk assessment. Major improvements, enhancements, and updates are as follow:

- Each hazard section discusses potential impacts on socially vulnerable populations using the U.S. Centers for Disease Control and Prevention’s Social Vulnerability Index.
- The vulnerability assessment summarizes information only by county, which allows Tribal Nations to maintain their sovereignty regarding mitigation planning.
- An updated and expanded critical facility spatial dataset was utilized.
- Critical facilities were organized in FEMA’s seven community lifeline categories.
- U.S. Census block level aggregate building inventory and demographic data based on the 2020 U.S. Census was utilized in FEMA’s hazard simulation model called Hazus (Hazards U.S.).

- The 2023 update expanded upon the previous SHMP’s risk assessment. Improvements, enhancements, and updates are summarized below, including a number of newly available data sets that were incorporated, where possible, into the vulnerability and loss assessments:
 - A comprehensive critical facility inventory was developed combining data sources from the 2018 SHMP with additional input from IOEM.
 - FEMA’s Hazus v6.0 demographic and building stock data is based on 2020 U.S. Census data at the block level, with valuations based on RS Means 2022. This data was used for the Hazus flood and earthquake models, in addition to being exported from the software to be used in the exposure analysis for dam failure, earthquake, flood, landslide, severe storm, and wildfire.
 - The U.S. EPA’s Integrated Climate and Land-Use Scenarios (ICLUS) project generated population and land use projections for the United States through 2100. IOEM chose to use the SSP2 + RCP4.5 scenario that assumes consistent patterns of social, economic, technological, and domestic migration trends and stabilizing global greenhouse emissions by 2100. This data was used to understand population and development trend projections in identified hazard areas.

Appendix F presents a complete analysis of changes.

2. IDAHO’S HAZARDS OF CONCERN

2.1 IDAHO’S HAZARD HISTORY

Idaho has experienced thousands of hazard events, resulting in casualties, millions of dollars in losses, 32 federal major disaster (DR) declarations, three federal emergency (EM) declarations, and 19 federal fire management assistance (FM) declarations. Federal disaster declarations in Idaho since 1956 are listed in Table 2-1 and shown on Figure 2-1. Based on the data listed, the distribution of declarations by incident type is as follows:

- Floods and wildfires were components of 22 declarations each (44 percent)
- Severe storms were a component of 10 declarations (21 percent)
- Landslides and mudslides were a component of four declarations (8 percent)
- Severe weather was a component of 2 declarations (4 percent)
- Earthquake, drought, dam collapse, and evaluation were components of one declaration each (2 percent)

Many of the declarations were classified as a combination of incident types; therefore, these percentages may include the same event in multiple declaration types. Similarly, in Figure 2-1, the number of declarations by county adds up to more than the total number of declarations because many declarations apply to multiple counties.

Eight of the federal declarations have occurred since the adoption of the 2018 SHMP. In addition, Idaho experienced 12 State disaster declarations since 2018, as listed in Table 2-2.

Table 2-1. Major Federal Disaster and Emergency Declarations

Incident Begin Date	Incident Type	Disaster Number	Declaration Type	Counties Affected
September 5, 2022	Ross Fork Fire	5452	Fire Management Assistance	Blaine
August 18, 2022	Four Corners Fire	5449	Fire Management Assistance	Adams, Gem, Valley
August 12, 2021	Bedrock Fire	5407	Fire Management Assistance	Nez Perce, Nez Perce Tribal Nation Land
January 13, 2021	Severe Storm and Straight-line Winds	4589	Major Disaster	Benewah, Bonner, Kootenai, Shoshone
January 20, 2020	COVID-19 Pandemic	4534	Major Disaster	Statewide, Including all tribal nation lands
January 20, 2020	COVID-19 Pandemic	3467	Emergency	Statewide
April 7, 2019	Severe Storms, Landslides, Flooding, Mudslides	4443	Major Disaster	Adams, Idaho, Latah, Lewis, Valley, Nez Perce Tribal Nation Land

Incident Begin Date	Incident Type	Disaster Number	Declaration Type	Counties Affected
July 28, 2018	Grassy Ridge Fire	5263	Fire Management Assistance	Clark
May 6, 2017	Flooding, Landslides and Mudslides	4333	Major Disaster	Blaine, Camas, Custer, Elmore, and Gooding
March 29, 2017	Flooding	4342	Major Disaster	Ada, Canyon
March 6, 2017	Severe Storms, Flooding, Landslides, and Mudslides	4313	Major Disaster	Benewah, Bonner, Boundary, Clearwater, Idaho, Kootenai, Latah, Shoshone, and Valley
February 5, 2017	Severe Winter Storms and Flooding	4310	Major Disaster	Bingham, Cassia, Elmore, Franklin, Gooding, Jefferson, Jerome, Lincoln, Minidoka, Twin Falls, and Washington
August 21, 2016	Henry's Creek Fire	5151	Fire Management Assistance	Bonneville
December 16, 2015	Severe Winter Storms	4252	Major Disaster	Benewah, Bonner, and Kootenai
November 17, 2015	Severe Storm and Straight-line Winds	4246	Major Disaster	Benewah, Bonner, Boundary, Coeur d'Alene Tribal Nation Land, and Kootenai
August 29, 2015	Tepee Springs Fire	5110	Fire Management Assistance	Idaho
August 14, 2015	Municipal Fire	5105	Fire Management Assistance	Clearwater, Nez Perce Tribal Nation
August 10, 2015	Clearwater Lawyer Branch Fire Complex	5099	Fire Management Assistance	Lewis, Idaho, Nez Perce Tribal Nation
July 5, 2015	Cape Horn Fire	5088	Fire Management Assistance	Bonner, Kootenai
August 15, 2013	Beaver Creek Fire	5045	Fire Management Assistance	Blaine, Boise, Camas, Custer, Elmore, and Oneida
August 12, 2013	Elk Fire	5043	Fire Management Assistance	Blaine, Boise, Camas, Custer, Elmore, and Oneida
September 18, 2012	Karney Fire	5019	Fire Management Assistance	Boise
August 3, 2012	Trinity Ridge Fire	5006	Fire Management Assistance	Elmore
March 31, 2011	Flooding / Landslides / Mudslides	1987	Major Disaster	Bonner, Clearwater, Idaho, Nez Perce, Nez Perce Tribal Nation, Shoshone
August 26, 2010	Hurd Fire	2853	Fire Management Assistance	Valley
July 27, 2010	Severe Storms / Flooding	1927	Major Disaster	Adams, Gem, Idaho, Lewis, Payette, Valley, Washington
July 31, 2008	Flooding	1781	Major Disaster	Kootenai, Shoshone
August 30, 2007	Cascade Fire Complex	2726	Fire Management Assistance	Valley
August 30, 2007	East Zone Fire Complex	2725	Fire Management Assistance	Valley
August 29, 2007	Castle Rock Fire	2724	Fire Management Assistance	Blaine
February 27, 2006	Severe Storms / Flooding	1630	Major Disaster	Owyhee
September 13, 2005	Hurricane Katrina Evacuation	3244	Emergency	All 44 counties
July 6, 2005	Heavy Rains / Flooding	1592	Major Disaster	Nez Perce
September 1, 2000	Wildfires	1341	Major Disaster	Ada, Bannock, Bingham, Blaine, Clearwater, Custer, Elmore, Idaho, Jerome, Lemhi, Lewis, Lincoln, Power, Valley
June 13, 1997	Flooding	1177	Major Disaster	Benewah, Bingham, Bonner, Bonneville, Boundary, Butte, Custer, Fremont, Jefferson, Kootenai, Madison, Shoshone

Incident Begin Date	Incident Type	Disaster Number	Declaration Type	Counties Affected
January 4, 1997	Severe Storms/Flooding	1154	Major Disaster	Adams, Benewah, Boise, Bonner, Boundary, Clearwater, Elmore, Gem, Idaho, Kootenai, Latah, Nez Perce, Owyhee, Payette, Shoshone, Valley, Washington
February 11, 1996	Storms/Flooding	1102	Major Disaster	Benewah, Bonner, Boundary, Clearwater, Idaho, Kootenai, Latah, Lewis, Nez Perce, Payette, Shoshone
February 16, 1984	Flooding (Ice Jams)	697	Major Disaster	Lemhi
January 18, 1983	Earthquake	694	Major Disaster	Butte, Custer, and Gooding
May 22, 1980	Volcanic Eruption (Mt. St. Helens)	624	Major Disaster	Benewah, Bonner, Boundary, Clearwater, Kootenai, Latah, Nez Perce, and Shoshone
August 8, 1979	20-Mile Fire	2038	Fire Management Assistance	No declared areas for this disaster
August 20, 1977	Wilson Creek Fire	2029	Fire Management Assistance	No declared areas for this disaster
May 5, 1977	Drought	3040	Emergency	Adams, Bear Lake, Blaine, Camas, Caribou, Elmore, Idaho, Lincoln, and Washington
June 6, 1976	Dam Collapse (Teton Dam)	505	Major Disaster	Bingham, Bonneville, Fremont, Jefferson, and Madison
January 25, 1974	Severe Storms/Flooding (Snowmelt)	415	Major Disaster	Adams, Benewah, Bonner, Boundary, Clearwater, Kootenai, Latah, Shoshone, and Washington
March 2, 1972	Severe Storms/Flooding	324	Major Disaster	Latah
August 30, 1967	Forest Fires	231	Major Disaster	Benewah, Bonner, Boundary, Clearwater, Idaho, Kootenai, Latah, Lewis, Nez Perce, and Shoshone
December 31, 1964	Heavy Rains/Flooding	186	Major Disaster	Ada, Bannock, Benewah, Blaine, Boise, Bonneville, Butte, Camas, Caribou, Cassia, Clearwater, Elmore, Gem, Gooding, Idaho, Jerome, Kootenai, Latah, Lewis, Lincoln, Minidoka, Nez Perce, Owyhee, Payette, Power, Shoshone, and Washington
February 14, 1963	Flooding	143	Major Disaster	No declared areas for this disaster
February 14, 1962	Flooding	120	Major Disaster	No declared areas for this disaster
June 26, 1961	Flooding	116	Major Disaster	No declared areas for this disaster
July 22, 1960	Wildfires	105	Major Disaster	No declared areas for this disaster
May 27, 1957	Flooding	76	Major Disaster	No declared areas for this disaster
April 21, 1956	Flooding	55	Major Disaster	No declared areas for this disaster

Source: (FEMA 2023)

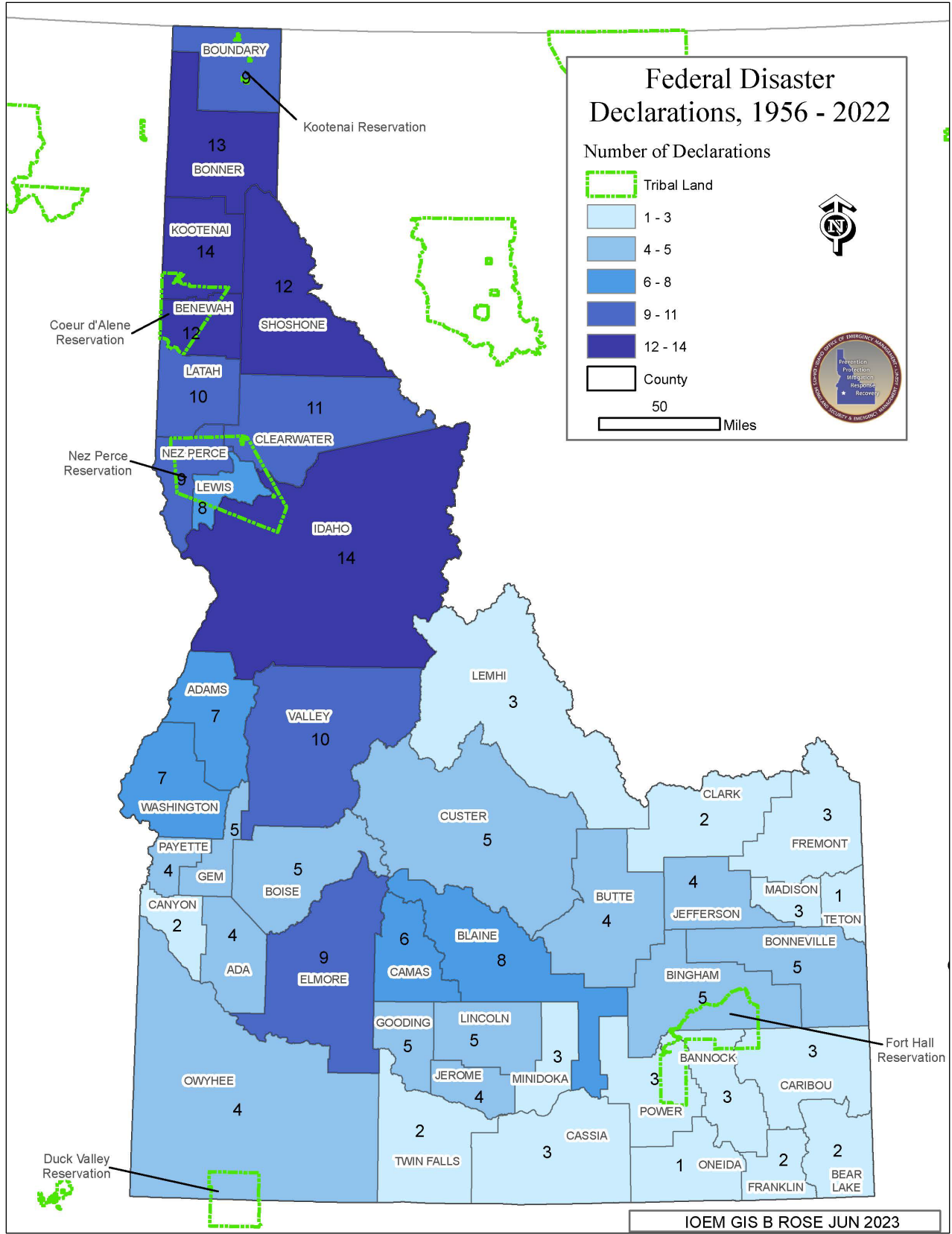


Figure 2-1. Federal Disaster Declarations, 1956 – 2022

Table 2-2. State of Idaho Disaster Declarations Not Resulting in a Federal Disaster Declaration

Year	Hazard	Date	State Declaration	Counties Affected	Comments
2022	Fire	September 9	ID-04-2022	Lemhi	Moose Fire – A 130,205-acre fire burned for four months near Salmon, Idaho resulting in the deaths of two helicopter pilots assisting in firefighting efforts.
2022	Fire	September 6	ID-03-2022	Jerome	Ross Fork Fire – Due to a lightning strike, a 37,868-acre fire burned through rural areas in the Sawtooth National Forest. No injuries or structural damage were reported.
2022	Fire	August 19	ID-02-2022	Valley	Four Corners Fire – A wildfire broke out near Lookout Peak in the West Mountain Range, west of Cascade, Idaho. The fire burned over 13,000 acres and impacted both the Payette National Forest and Boise National Forest.
2022	Flood	June 21	ID-01-2022	Idaho, Nez Perce	Spring Flooding – Following heavy rainfall, runoff and flooding occurred affecting Idaho and Nez Perce counties causing significant damage to roads and dangerous travel conditions. \$3 million in Emergency Relief (ER) funding was quickly made available due to damage to roads and bridges.
2021	Fire	July 9	ID-02-2021	Idaho, Valley, Lemhi, Custer	Wildfires – Idaho Governor Brad Little issued an emergency declaration due to a number of wildfires that broke out in the state. Notable fires included the Dixie-Jumbo and Cougar Rock Fires that collectively burned over 40,000 acres. Hot, dry, and windy conditions greatly contributed to the spread of these fires.
2020	Fire	September 8	ID-03-2020	Bonner	Summer Wildfires – Numerous wildfires burned thousands of acres in northern Idaho and a number of structures were destroyed.
2020	Earthquake	April 1	ID-02-2020	Custer	Challis Earthquake – A magnitude 6.5 earthquake shook the area north of Boise near the mountain town of Stanley, Idaho. The shaking lasted 20-30 seconds.
2019	Flood	April 9	ID-02-2019	Washington	Spring Flooding – flooding from spring runoff ran over US Highway 95 and Idaho Highway 55 through the Central Mountains.
2019	Winter Storms	February 25	ID-01-2019	Bonneville, Nez Perce	Winter Storms – After an atmospheric river was transported over Idaho and collided with Arctic air covering the state, heavy snowfall and wind created treacherous conditions. Record levels of snowfall were recorded.
2018	Fire	August 15	ID-03-2018	Clark, Washington	Summer Wildfires – Over 100,000 acres of land were burned in the 2018 Idaho fire season propelled by heavy winds and dry conditions.
2018	Flood	May 29	ID-02-2018	Jefferson	Late Spring Flooding – An emergency declaration was issued after late spring flooding caused significant damage to the Jefferson County levee. About 400 feet of levee were affected and 65 homes were at risk of flooding.
2018	Flood	March 19	ID-01-2018	Madison	Spring Flooding – Snowmelt due to warm weather and rainfall caused flooding beginning on March 19. 200 miles of Madison County roads were damaged in just one week.

Source: IOEM 2023

2.2 STATE HAZARDS OF CONCERN

The 2023 SHMP profiles the following hazards (listed alphabetically):

- Avalanche (snow)
- Civil disorder
- Cyber threat
- Drought
- Earthquake
- Flood (including dam failure)
- Hazardous materials release
- Landslide
- Pandemic
- Radiological accident
- Severe weather (includes lightning, winds/tornadoes)
- Volcanic eruptions
- Wildfire

Historically, the most significant of these hazards in Idaho have been severe weather, flood, and wildfire. This is based on recent major disaster declarations, the results of the vulnerability and loss assessments, and the hazards identified as significant in local plans. The data indicate that severe weather events occur frequently and are an element of many disaster declarations, both state and federal. Due to the widespread areas where flood and wildfire have been known to occur, these hazards are significant; however, they have occurred less frequently than severe weather events in Idaho. Based on the number of local plans identifying these hazards as significant, earthquake and landslide are also considered to be significant State hazards.

The natural hazards were similarly identified in the 2018 plan update. The key difference in that plan was that dam failure was profiled independently of the flood hazard.

2.3 COMMONLY RECOGNIZED NATURAL HAZARDS OMITTED

At the national level, hurricanes, tropical cyclones, and tsunamis are significant natural hazards. However, due to their statistical historical improbability of impacting Idaho, they are not assessed in this plan.

2.4 LOCAL HAZARDS OF CONCERN

Idaho has 44 counties that are eligible to develop a local hazard mitigation plan. In addition, five Tribal Nations may develop a hazard mitigation plan, although only four have done so. Planning efforts by local jurisdictions should be consistent with the SHMP.

Since 2010, the State has reviewed all local hazard mitigation plans and compiled key information from them into a database for analysis and mapping. This database has been updated annually to inform State hazard mitigation planning efforts. Local plans that have been approved since 2018 were reviewed to identify the hazards that are currently of greatest concern. Table 2-3 lists the hazards assessed by local plans in the state, and indicates which hazards each county and tribal nation rated as a major or high hazard, as noted in the table by an “H.”

The highest-ranking significant hazards in the local plans are similar to those in this SHMP. The top three local hazards are severe weather, flood, and wildfire. There has been an increase in state and federal declarations for wildfires over the past five years.

Table 2-3. Hazards of Concern Assessed by Local Jurisdiction

Jurisdiction	Avalanche	Drought	Earthquake / Seismic	Flood (includes dam failure)	Landslide	Severe Storms (includes wind, tornado)	Volcano	Wildfire
Ada County	–	√	√	√	√	H	√	√
Adams County	–	–	√	√	√	H	–	H
Bannock County	√	–	√	√	√	H	–	H
Bear Lake County	√	–	√	√	√	H	–	√
Benewah County	–	–	√	H	√	H	–	H
Bingham County	√	H	√	H	√	H	–	H
Blaine County	√	H	√	H	√	√	–	H
Boise County	√	–	√	H	H	√	–	√
Bonner County	√	–	√	√	√	H	–	H
Bonneville County	√	√	√	H	√	H	–	H
Boundary County	√	√	H	H	√	H	–	H
Butte County	–	–	H	–	–	–	–	–
Camas County	√	H	H	H	√	H	–	H
Canyon County	–	√	H	√	√	H	–	√
Caribou County	√	–	√	√	√	H	–	√
Cassia County	√	–	√	√	√	H	–	H
Clark County	–	H	√	√	√	√	√	H
Clearwater County	–	–	–	H	H	H	–	H
Coeur D'Alene Tribal Nation	–	–	√	√	√	√	–	√
Custer County	√	√	√	H	–	√	–	H
Elmore County	–	–	√	H	H	H	–	H
Franklin County	√	–	√	√	√	H	–	√
Fremont County	–	√	H	H	√	H	√	H
Gem County	–	√	√	√	√	H	–	H
Gooding County	–	–	√	H	√	√	–	H
Idaho County	–	–	√	H	H	H	–	H
Jefferson County	–	–	√	√	√	√	–	√
Jerome County	–	H	√	√	√	H	–	H
Kootenai County	√	√	H	H	√	H	√	H
Kootenai Tribal Nation	–	–	–	–	–	–	–	–
Latah County	–	√	√	√	√	√	√	H
Lemhi County	–	√	√	√	√	H	–	H
Lewis County	–	–	√	H	√	H	–	√
Lincoln County	–	–	√	√	√	H	–	√
Madison County	–	√	–	√	–	H	–	√
Minidoka County	–	–	√	√	–	√	–	√
Nez Perce County	√	√	√	√	√	H	–	H
Nez Perce Tribal Nation	–	√	–	√	√	√	√	√
Oneida County	√	H	H	√	√	H	–	H

Jurisdiction	Avalanche	Drought	Earthquake / Seismic	Flood (includes dam failure)	Landslide	Severe Storms (includes wind, tornado)	Volcano	Wildfire
Owyhee County	√	–	√	√	√	√	–	H
Payette County	–	–	√	H	√	H	–	H
Power County	√	√	H	H	√	H	–	H
Shoshone-Bannock Tribal Nations	–	√	√	√	√	√	–	√
Shoshone County	√	–	H	√	√	H	–	√
Teton County	√	√	√	√	√	H	√	√
Twin Falls County	√	H	√	√	√	H	–	H
Valley County	–	–	H	√	H	√	–	H
Washington County	–	–	√	H	√	H	–	H
Total	21	21	40	43	39	44	6	41

√ = hazard assessed
 H = assessed as high hazard
 – = no assessed hazard
 Source: IOEM 2023

Table 2-4 shows the hazards of concern for all of the local hazard mitigation plans that were reviewed for this and previous SHMP updates. The top three hazards identified by the local jurisdictions in 2023 are the same as they were in 2018. Wildfire, severe storms, and flood were dropped as high-ranked hazards by some jurisdictions, while drought, earthquake, and landslide were added as high-ranked hazards.

Table 2-4. Local Hazard Mitigation Plan Roll-Up, Jurisdictions Ranking Hazards of Concern as High or Major

Hazard	Number Ranked as High or Major (2023)	Number Ranked as High or Major (2018)	Number Ranked as High or Major (2013)	Number Ranked as High or Major (2010)
Avalanche	0	0	0	0
Drought	7	4	1	1
Earthquake	10	2	8	5
Flood (includes Dam Failure)	18	26	24	26
Landslide	5	2	6	6
Severe Storms (includes Wind / Tornado)	33	34	38	35
Volcanic	0	0	0	0
Wildfire	30	33	43	41

2.5 THE ROLE OF CLIMATE CHANGE

Climate change will continue to exacerbate the frequency, scale, and intensity of hazards across Idaho. Many communities have experienced substantial damage from climate-related hazards. Climate patterns are shifting, resulting in more extreme and variable weather conditions across the state, with more extreme precipitation events, declining snowpack, more frequent and severe heat waves, and drought conditions. Climate change has impacted Idaho’s natural areas and forests, increasing the frequency of wildfires.

Adapting to the changing climate will require an approach to hazard mitigation that prioritizes long-term community resilience practices. Such practices aim to reduce harm for those who experience greater risk and burden of harm due to historical and current marginalization and under-investment, thus resulting in greater

resilience across the whole community. The hazard mitigation actions necessary to achieve this goal constantly evolve as conditions change, and the participation of all levels of government, non-profit organizations, the private sector, and the public enhances all actions. It is important to ensure that hazard mitigation actions do not contribute to greenhouse gas emissions, which exacerbate climate change impacts.

As defined by the Intergovernmental Panel on Climate Change, climate adaptation actions are adjustments in natural or human systems that respond to climatic conditions and moderate harm (Intergovernmental Panel on Climate Change 2022). Both hazard mitigation and climate adaptation actions move toward the same goal of long-term risk reduction. Integration of hazard mitigation and climate adaptation planning is particularly applicable to natural hazards influenced by climate change, such as severe storms, flooding, extreme heat, wildfire, and drought.

Each hazard chapter in the 2023 SHMP update includes a section describing the climate change impacts on the hazard.