# BANNOCK COUNTY
# HAZARD MITIGATION PLAN
# 2021

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U.S. Department of Homeland Security
FEMA Region 10
130 228th Street, SW
Bothell, WA 98021-8627

FEMA

January 5, 2022

The Honorable Ernie Moser
Chairman, Bannock County Commissioners
624 E. Center Room 101
Pocatello, Idaho 83201

Dear Mr. Moser:

On January 3, 2022 the United States Department of Homeland Security's Federal Emergency Management Agency (FEMA) Region 10 approved the Bannock County Hazard Mitigation Plan as a multi-jurisdictional local plan as outlined in Code of Federal Regulations Title 44 Part 201. This approval provides the below jurisdictions eligibility to apply for the Robert T. Stafford Disaster Relief and Emergency Assistance Act's, Hazard Mitigation Assistance grants projects through January 2, 2027, through your state:

| | | |
|---|---|---|
| Bannock County | City of Pocatello | City of Arimo |
| City of Chubbuck | City of Downey | City of Inkom |
| City of Lava Hot Springs | City of McCammon | |

FEMA individually evaluates all application requests for funding according to the specific eligibility requirements of the applicable program. Though a specific mitigation activity or project identified in the plan may meet the eligibility requirements, it may not automatically receive approval for FEMA funding under any of the programs. Approved mitigation plans may be eligible for points under the National Flood Insurance Program's Community Rating System. For additional information regarding the Community Rating System, please visit: www.fema.gov/national-flood-insurance-program-community-rating-system or contact your local floodplain manager.

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

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

Sincerely,

Kristen Meyers, Director
Mitigation Division

Enclosures

cc: Susan Cleverly, Idaho Office of Emergency Management

# Bannock County Idaho
# Hazard Mitigation Plan

## Promulgation of Adoption

Be it known that the Bannock County, Idaho, Board of County Commissioners does hereby approve the Adoption of the Bannock County Idaho Hazard Mitigation Plan and direct its implementation through all the Bannock Hazard Mitigation Planning Committee.

Be it also known that the Board of County Commissioners hereby directs the Director of Emergency Management to continue to lead the implementation of this Plan as the Bannock County Hazard Mitigation Committee Chair.

This Plan has been developed in the interest of providing all hazard mitigation protection to populations living in Bannock County and the incorporated cities within its boundaries. Through adoption of this Plan, all County and city agencies are requested to develop directives, standard operating procedures, checklists or other supplemental guidance to insure its maximum effectiveness.

Bannock County Commissioner — Date: 12/7/21

Bannock County Commissioner — Date: 12/7/21

Bannock County Commissioner — Date: 12/7/21

Attest:

Bannock County Clerk — Date: 12/7/21

Endorsed:

Wes Jones — Date: 12/7/21
Director of the Office of Emergency Management

# Notice of Endorsement and Participation in the Bannock County Hazard Mitigation Plan

I, KEVIN ENGLAND, Mayor for the City of Chubbuck endorse to support and participate in the implementation of the Bannock County Hazard Mitigation Plan as it applies to the City of Chubbuck.

DATED this 15th day of December, 2021

City of Chubbuck

By: Kevin B. England
Mayor

Received by the City Clerk this _____day of_____, 2021

Signature:_____
Clerk

# Notice of Endorsement and Participation in the Bannock County Hazard Mitigation Plan

I, Brian C. Blad, Mayor for the City of Pocatello endorse to support and participate in the implementation of the Bannock County Hazard Mitigation Plan as it applies to the City of Pocatello.

DATED this 13th day of December, 2021

City of Pocatello

By: BBld
Mayor

Received by the City Clerk this 13th day of December, 2021

Signature: Kenneth Kendell
Clerk

# Notice of Endorsement and Participation in the Bannock County Hazard Mitigation Plan

I, Rex Nielsen, Mayor for the City of Downey endorse to support and participate in the implementation of the Bannock County Hazard Mitigation Plan as it applies to the City of Downey.

DATED this ____ day of _____, 2021

City of Downey

By: Rex Nielsen
Mayor

Received by the City Clerk this _____day of_____, 2021

Signature:_____
Clerk

# Notice of Endorsement and Participation in the Bannock County Hazard Mitigation Plan

I, JOHN D THOMSON, Mayor for the City of Lava Hot Springs endorse to support and participate in the implementation of the Bannock County Hazard Mitigation Plan as it applies to the City of Lava Hot Springs.

DATED this 21st day of DEC, 2021

City of Lava Hot Springs

By: _____
Mayor

Received by the City Clerk this _____day of_____, 2021

Signature:_____
Clerk

# Notice of Endorsement and Participation in the Bannock County Hazard Mitigation Plan

I, Karlene Hall, Mayor for the City of McCammon endorse to support and participate in the implementation of the Bannock County Hazard Mitigation Plan as it applies to the City of McCammon.

DATED this 13th day of December, 2021

City of McCammon

By: Karlene W. Hall
Mayor

Received by the City Clerk this _____day of_____, 2021

Signature:_____
Clerk

# Notice of Endorsement and Participation in the Bannock County Hazard Mitigation Plan

I, Max Shaffer, Mayor for the City of Inkom endorse to support and participate in the implementation of the Bannock County Hazard Mitigation Plan as it applies to the City of Inkom.

DATED this 10 day of December, 2021

City of Inkom

By: Max Shaffer
Mayor

Received by the City Clerk this 10 day of December, 2021

Signature: LeAnn Adams
Clerk

# Notice of Endorsement and Participation in the Bannock County Hazard Mitigation Plan

I, LONNSE J. GUNTER, Mayor for the City of Arimo endorse to support and participate in the implementation of the Bannock County Hazard Mitigation Plan as it applies to the City of Arimo.

DATED this 10 day of DEC, 2021

City of Arimo

By: _____
Mayor

Received by the City Clerk this _____day of_____, 2021

Signature:_____
Clerk

# 2021 Bannock County Hazard Mitigation Plan CWPP Adoption

(Ryan O' Hearn, Pocatello Fire Department, Fire Chief) — Date: 3/7/2022

(Merlin Miller, Chubbuck Fire Department, Fire Chief) — Date: 2-8-22

(Mark Brood, North Bannock County Fire Department, Fire Chief) — Date: 2/16/2022

(Johnny Ketner, Inkom/McCammon Fire Department, Fire Chief) — Date: 02/28/2022

(Chris Sorensen, Downey Fire Department, Fire Chief) — Date: 3/8/22

(Ken Fagnant, Lava Hot Springs Fire Department, Fire Chief) — Date: 2/8/2022

(Robert Christiansen, Arimo Fire Department, Fire Chief) — Date: 2/8/2022

MELISSA WARREN Digitally signed by MELISSA WARREN Date: 2022.02.24 14:47:49 -07'00'

(Melissa D. Warren, Bureau of Land Mgmt., Field Manager) — Date

KIM OBELE Digitally signed by KIM OBELE
Date: 2022.02.08 15:59:41
-07'00'

(Kim A. Obele, USDA Forest Service, District Ranger) Date

Tyre Holfeltz 3-31-22

(Tyre Holfeltz, Idaho Dept of Land, Wildfire Risk Mitigation Prgm Mgr) Date

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## Figures

# Tables

# ACRONYMS

| | |
|---|---|
| AIDS | acquired immunodeficiency syndrome |
| BLM | U.S. Bureau of Land Management |
| CFR | Code of Federal Regulations |
| CRS | Community Rating System |
| CWPP | county wildfire protection plan |
| DOT | U.S. Department of Transportation |
| FEMA | Federal Emergency Management Agency |
| FIRM | Flood Insurance Rate Map |
| HazMat | hazardous material |
| HIV | human immunodeficiency syndrome |
| HMP | all hazard mitigation plan |
| IDEQ | Idaho Department of Environmental Quality |
| IEOM | Idaho Office of Emergency Management |
| IDL | Idaho Department of Lands |
| IDWR | Idaho Department of Water Resources |
| INL | Idaho National Laboratory |
| ITD | Idaho Transportation Department |
| MMI | Modified Mercalli Intensity Scale |
| mph | miles per hour |
| NCDC | National Climatic Data Center |
| NDMC | National Drought Mitigation Center |
| NFIP | National Flood Insurance Program |
| NFPA | National Fire Protection Association |
| NWS | National Weather Service |
| OEM | Office of Emergency Management |
| PGA | peak ground acceleration |

| | |
|---|---|
| SARS | Severe Acute Respiratory Syndrome |
| SHMO | State Hazard Mitigation Officer |
| SPI | Standardized Precipitation Index |
| TB | tuberculosis |
| TORRO | Tornado and Storm Research Organization |
| WCT | Wind Chill Temperature (index) |
| WUI | wildland-urban interface |

# EXECUTIVE SUMMARY

This 2021 Hazard Mitigation Plan is an update of the 2015 plan. The update was led by the Bannock County Office of Emergency Management who, under the direction of the County Commissioners, is responsible for implementing the mitigation actions recommended in this plan. The Hazard Mitigation Plan commit was comprised of members of Bannock County, Arimo, Chubbuck, Downey, Inkom, Lava Hot Springs, McCammon, Pocatello, and local, state, and federal stakeholders. Community involvement was utilized through social media, an electronic questionnaire, invitations to attend the planning meetings, and review of the final plan.

The biggest change captured in the 2021 plan was the merging of natural hazards to line up with the State Hazard Mitigation Plan and FEMA requirements. For example, in the 2015 plan drought, hail, lightening, and hot weather were all ranked individually. In the 2021 plan they are included in severe weather. During the update process, natural hazards were reviewed and reassessed, and hazard rankings were updated to reflect changes in the county. The updated rankings for Bannock County at large are shown below. Non-natural hazards were assessed, but they were not ranked.

| Hazard | 2015 Ranking | 2021 Ranking |
|---|---|---|
| Severe Weather | High | High |
| Wildfire | High | High |
| Flooding | Moderate/High | Moderate |
| Avalanche | Low | Moderate |
| Landslide | Moderate | Low |
| Earthquake | Moderate | Low |
| Dam Failure | Low | Low |

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# 1.0 PLAN OVERVIEW AND PLANNING PROCESS

Bannock County, Idaho and the incorporated cities that lie within the County boundaries are vulnerable to natural and non-natural hazards that threaten the health, welfare, and security of its residents. The cost of response to, and recovery from, disaster events can be lessened when attention is turned to mitigating their impacts and effects before they occur.

This Hazard Mitigation Plan (HMP) seeks to identify the County's hazards, understand the vulnerabilities to those hazards, and craft solutions that, if implemented, will significantly reduce threats to life and property. The Plan is based on the premise that hazard mitigation works. With increased attention to managing natural hazards, communities can reduce the threats to citizens and, through proper land use and emergency planning, avoid creating new problems in the future. Many solutions can be implemented at minimal cost and social impact.

This is not an emergency response or management plan. The Plan can be used to identify weaknesses and refocus emergency response planning. Enhanced emergency response planning is an important mitigation strategy. The focus of this Plan, however, is to support better decision making directed toward avoidance of future risk and to implement activities or projects that will eliminate or reduce current risks.

The Federal Emergency Management Agency (FEMA) requires that hazard mitigation plans be updated every five years per the Code of Federal Regulations (CFR), Title 44, Part 201.6(d)(3). This 2021 update reflects changes in development patterns, progress in local mitigation efforts, and changes in mitigation priorities within the county since the 2015 Plan.

## 1.1 Purpose

The purposes of this plan are as follows:

- Fulfill federal and local government mitigation planning responsibilities.
- Promote pre- and post-disaster mitigation measures with short- and long-range strategies to minimize suffering, loss of life, impact on traditional culture, and damage to property and the environment.
- Eliminate or minimize conditions that would have an undesirable impact on the people, culture, economy, environment, and well-being of Bannock County at large.
- Enhance elected officials', departments', and the public's awareness of the threats to the community's way of life and of what can be done to prevent or reduce the vulnerability and risk.

## 1.2 Scope

The jurisdictions covered in this plan are all the unincorporated areas within Bannock county, Idaho, and the cities of Arimo, Chubbuck, Downey, Inkom, Lava Hot Springs, McCammon, and Pocatello.

## 1.3 Mission Statement

This HMP proposes public policy designed to protect citizens, critical facilities, infrastructure, private and public property, the local economy, and the environment from risks associated with natural and nonnatural hazards.

## 1.4 Integration with Local Planning Mechanisms

During the development of the HMP, several planning and management documents were reviewed to avoid conflicting goals and objectives. Existing programs and policies were reviewed to identify those that may weaken or enhance the hazard mitigation objectives outlined in this document. The following narratives help identify and briefly describe some of the existing planning documents and ordinances considered during the development of this plan. This list does not necessarily reflect every plan, ordinance, or other guidance document within each jurisdiction; however, this is a summary of the guidance documents used.

- **Bannock County Comprehension Plan (2021)** – (FINAL_Bannock-County-Plan-3.8.21_Compiled.pdf) This plan articulates goals, objectives and policies that will support a 20-year vision to be an economically vibrant County that encourages sustainable development while enhancing Bannock County's rural, recreational, and agricultural character. Using a combination of narrative, charts and illustrations, as well as detailed appendices including summary reports and maps, this plan will assist County decision makers as they assess future projects and determine the location and extent of future development. The HMP dove-tailed with the Comprehensive Plan during its development to ensure that the goals and objectives of each are integrated.

- **Idaho Forest Action Plan Part One: Resource Management (2020)** - (FINAL_2020-FAP-Resource-Assessment_09-03-20.pdf (idaho.gov)) The Forest Resource Assessment provides a geospatial analysis of conditions and trends for all forested lands in Idaho. It delineates rural and urban forest areas that are the highest priority for projects and investments administered through State and Private Forestry programs. Threats to and benefits from forest resources were identified and form the foundation of the analysis. A companion Statewide FAP Resource Strategy will be developed to address the issues and priority areas identified in this assessment. The Resource Strategy will identify activities and approaches for protection, restoration and enhancement of forest resources in priority landscapes. The HMP relied on the Resource Management Plan to verify future land uses.

- **Idaho Hazard Mitigation Plan (2018)** – (State Hazard Mitigation Plan | Office of Emergency Management (idaho.gov) ) (ID-SHMP-Chapter-3-Hazards-in-Idaho.pdf) This plan serves as the strategy document for Idaho's Hazard Mitigation Program. Idaho's State Hazard Mitigation Plan (SHMP) identifies the hazards affecting Idaho, analyzes risks and vulnerabilities, determines potential losses, and develops strategies to reduce impacts. Mitigation measures range from public education and land use planning to specific construction actions that reduces hazard losses. The SHMP is revised every 5 years in compliance with appropriate laws and regulations. The State HMP was utilized as a reference throughout the Bannock HMP update. The State HMP was used to verify hazards and identify any specific hazard events in Bannock County.

- **Bannock County Emergency Operations Plan (2021)** - (Preface (bannockcounty.us)) This Plan acts as fundamental guidance for emergency response by all agencies assigned specific functional responsibilities. The Plan is based on the premise that agencies will respond within their current capabilities. When those capabilities are exhausted additional capabilities will be requested through mutual aid agreements, State Agencies, and finally Federal Agencies. The EOP used the HMP to ensure goals and objectives were aligned.

## 1.5 Planning Process

The Bannock County Office of Emergency Management lead the planning efforts for the 2021 update. The team is comprised of city and county officials and staff, fire protection, law enforcement, public works, hospitals, federal agencies, public health, and emergency agencies.

The planning team (Table 1-1) met with residents during the update process and encouraged citizens to join in meetings and provide input throughout the process. Social media was used to encourage involvement throughout the update.

### 1.5.1 Planning Team

*Table 1- 1 Bannock County Planning Team*

| Name | Organization | Title |
|---|---|---|
| Wes Jones | Bannock County Office of Emergency Management | Director |
| Torey Danner | Bannock County Coroner | Deputy |
| Shane T. Passey | Simplot | Manager |
| Timothy Soloman | Pacific Corp | Manager |
| Scott Davis | Red Cross | Manager |
| Arik Jorgensen | Forest Service | Manager |
| David Gates | Pocatello Fire | Fire Chief |
| Merlin Miller | North Bannock Fire | Fire Chief |
| J.R. Farnsworth | North Bannock Fire | Fire Chief |
| Karen Agular | Pocatello Valley Fire Dept. | Fire Chief |
| Johnny Ketner | Inkom Fire Department | Fire Chief |
| Chris Sorensen | Downey Fire Department | Fire Chief |
| Ken Fagnant | Lava Hot Springs Fire Department | Fire chief |
| Brian Blad | Pocatello Mayor | Mayor |
| Kevin England | Chubbuck Mayor | Mayor |
| Karlene Hall | McCammon Mayor | Mayor |
| Rex Nielsen | Downey Mayor | Mayor |
| Jon Thomson | Lava Hot Springs Mayor | Mayor |
| Lonnie Gunter | Arimo Mayor | Mayor |
| Max Shaffer | Inkom Mayor | Mayor |
| Tony Manu | Bannock County Sheriff | Sherriff |
| Mike Dahlquist | Bannock County Under Sheriff | Under Sheriff |
| Scott Ames | Bannock County Captain | Dispatch |
| Torey Danner | Idaho One Pro | Contractor |
| Kiel Burmester | Bannock County Public Works | Director |

| Name | Organization | Title |
|---|---|---|
| Tyson Koester | Bannock County Public Works | Assistant Director |
| Cyndi Andersen | Bannock County GIS | Director |
| Hal Jensen | Bannock County Planning and Zoning | Director |
| Michael Jaglowski | Bannock County | Engineer |
| Tristan Bourquin | Bannock County Planning and Zoning | Assistant Planner |
| Guy Bliesner | Idaho School Safety and Security | Analyst |
| Dan Williams | Oneida County Emergency | Emergency Manger |
| Alan Eborn | Bear Lake County Emergency | Emergency Manager |
| Di Jones | Power County Emergency | Emergency Manager |
| Eric Hobson | Caribou County Emergency | Emergency Manager |
| Lamont Doney | Franklin County Emergency | Emergency Manager |
| William Trahant | Fort Hall Emergency | Emergency Manager |
| Scott Reese | Bingham County Emergency | Emergency Manager |
| Devin Hughes | Southeast Idaho Public Health | Manager |
| Jessy Sears | Southeast Idaho Public Health | Manager |
| Matt Hunter | Pocatello Chamber of Commerce | Director |
| Kevin Bailey | Pocatello United Way | Liaison |
| Lewis Eakins | ISU Public Safety | Manager |
| Roger Schei | Pocatello Police | Chief |
| Steve Taylor | East Idaho VOAD | Manager |
| Doug Tanner | Department Environmental Quality | Engineer |
| Fritz Zweigart | Idaho State Police | Commander |
| Larry Fisher | Faith Based Groups | Liaison |
| Bill Guiberson | Chubbuck Police | Chief |
| Carisa Schultz | INL | Liaison |
| Greg Vickers | Portneuf Medical Center | Public Outreach |
| Dave D | Southeast Idaho Council of Governments | Liaison |
| Dianne Brush | Red Cross | Manager |
| Allen | School District 25 | Board Member |
| Bret Blair | Williams Pipeline | Manager |
| Cody Cordell | Williams Pipeline | Manager |
| Bret Rowe | Simplot | Manager |
| Ed Vining | Williams Pipeline | Director |
| Evan Snow | Idaho Transportation Department | Manager |
| Jamey Windt | F.B.I. | Liaison |
| Jeanene Strong | Simplot | Manager |
| Jim Mowrey | Simplot | Manager |
| Rick Moore | Intermountain Gas | Manager |
| Scott Redding | Idaho Transportation Department | Engineer |
| Scott Wright | Idaho Fish and Game | Deputy |
| Staci O'Connell | ON Semi Conductor | Engineer |
| Steve Gertonson | Idaho Transportation Department | Engineer |
| Ted Corrington | Simplot | Manager |
| Wayne Curtis | Idaho Transportation Department | Engineer |
| Zacary Shumway | ON Semi Conductor | Manager |

| Name | Organization | Title |
|---|---|---|
| Justin Merrell | Marathon Petroleum | Manager |
| Grace Jedlicka | Land O'Lakes | Manager |
| Ernie Moser | Bannock County Commissioner | Commissioner Chair |
| Terrel Tovey | Bannock County Commissioner | Commissioner |
| Jeff Hough | Bannock County Commissioner | Commissioner |
| Scott Crowther | Bannock County Operations | Operations Manger |
| Kristi Davenport | Bannock County | Administrative Assistant |
| Kristi Klauser | Bannock County | Controller |
| Darin Letzring | State of Idaho IOEM | AFO |
| Saige J. Ballock-Dixon | North Wind | Contractor |
| Phillip Colborn | Intermountain Gas | Manager |
| Aaron Miaullis | INL Oversight | Emergency Outreach Manager |
| Landry J. Austin | INL Oversight | Manger |
| Phillip Colborn | Intermountain Gas | Manager |
| Servil Hoff | Marathon Petroleum | Manager |
| Joshua Williams | Marathon Petroleum | Manager |
| Alan Evans | Pocatello Airport | Manager |
| Bonnie Hill | Downey City Council | Councilwoman |
| Jim Bagley | Bannock County Planner | Planner |
| Chris Boyce | ISU Emergency Management | Emergency Manager |
| Robert Christiansen | Arimo Fire Department | Fire Chief |
| Dave Spillett | Idaho Power | Manager |
| Becky Johnson | Idaho Fish and Game | Biologist |
| Hannah Sanger | Pocatello Science and Environment | Administrator |
| Matt Stucki | Idaho Power | Energy Advisor |
| Jennifer Cornell | DEQ Water Quality | analyst |
| Mori Byington | Bannock Transportation | Director |
| Jessy Sears | ISU Public Safety | Director |
| Jake Hammer | Union Pacific Haz Mat | Manager |
| Tyre Holfeltz | IDL Wildfire Risk Management | Manger |
| Kim Obele | USDA Forest Service | District Ranger |

### 1.5.2 Description of Planning Process

The plan update builds on existing mitigation strategy developed during the planning process. All the hazard analyses were updated.

The planning process began in November 2020 as a collective process involving local and regional organizations involved in hazard mitigation activities, agencies that regulate development, and neighboring communities. The planning process started with discussing the update process with Bannock County Emergency Management, organizing the planning committee, and scheduling the first committee/public meeting. The following meetings took place during the planning effort:

**August 5, 2020-** Bannock County Director of Emergency Management met with the state OEM representatives to discuss the update process.

**November 20, 2020-** Bannock County Director of Emergency Management met with Bannock County Hazard Committee to kick-off the process.

**December 15, 2020** - The Bannock County kickoff meeting was held in Pocatello and virtually. There was a presentation from North Wind Inc (North Wind), reviewing the update process and goals for the new plan.

**February 9, 2021** - A follow up meeting was held to review the results of the survey that citizens were encouraged to participate in.

**March 29, 2021**- Meeting to update the mitigation project list, examining goals, adding new mitigation projects.

**June 25, 2021**- Meeting with IDL, fire personnel, Forest Service, BLM, and county personnel to discuss County Wildfire Protection Plan (CWPP) update.

Sign in sheets for the meeting can be found in Attachment 1. Members of the committee and public were asked to review the previous plan, provide feedback on mitigation projects, review existing hazards and risks, complete the online survey, and supply future mitigation projects for consideration.

Following the update of the plan, the public was given a chance to review the final plan prior to submittal to the state. The community was given from June 7- June 25, 2022 to review and provide comments on the plan. No significant comments were received.

The planning process included the following steps:

1. **Origination of Resources** - Bannock County hired the services of a private consulting firm to assist in the planning process. Together, they worked to develop a list of participants as well as a project timeline.

2. **Collection of Data** - The consultant coordinated the collection of new data about the extent and occurrences of hazards.

3. **Risk Assessment** - Hazards risks were reassessed based on updated data and discussed at meetings prior to being accepted in the updated plan.

4. **Public Involvement** - A plan to include the public was discussed and implemented through surveys, public meetings, social media, and review and adoption of the plan.

5. **Mitigation Strategies** - A working meeting was conducted to discuss past mitigation strategies and create new strategies that the community would like to see implemented.

6. **Drafting of the Report** - Based on updated hazard data and public and committee input, the plan was drafted and sent to the public, state, and FEMA for review.

7. **Adoption of the Plan** - Following all reviews, each jurisdiction adopted the plan.

### 1.5.3 Participating

To be included as an adopting jurisdiction in the Bannock County HMP, each jurisdiction is required to participate in the process. The following offices were represented and involved in the planning process from each adopting jurisdiction:

- Bannock County: Wes Jones, Director of Emergency Management, Lead the update process
- City of Pocatello: Brian Blad, Mayor. Participated through meetings, teleconference, email with committee member, provided plan review and update
- City of Arimo: Lonnie Gunter, Mayor. Participated through meetings, teleconference, email with committee member, provided plan review and update
- City of Chubbuck: Kevin England, Mayor. Participated through meetings, teleconference, email with committee member, provided plan review and update
- City of Downey: Rex Nielson, Mayor. Participated through meetings, teleconference, email with committee member, provided plan review and update
- City of Inkom: Max Shaffer, Mayor. Participated through meetings, teleconference, email with committee member, provided plan review and update
- City of Lava Hot Springs: Jon Thompson, Mayor. Participated through meetings, teleconference, email with committee member, provided plan review and update
- City of McCammon: Karlene Hall, Mayor. Participated through meetings, teleconference, email with committee member, provided plan review and update

One-on-one discussions between planning committee leadership and the representatives of the jurisdictions occurred as needed to ensure understanding and involvement in the update process.

Invitations were sent via email and phone to several local and regional agencies involved in hazard mitigation activities, agencies that regulate development, and neighboring communities, including:

- Elected Officials
- Fire Departments
- Hospitals
- Health Department
- Idaho OEM
- Law Enforcement
- Public Works
- School Districts

### 1.5.4 Public Involvement

Public notices were made through social media (Attachment A). The notices invited the public to participate in the update process by attending the meetings and contributing comments and suggestions to the Bannock County OEM. Recordings of the meetings were posted to social media for the public to view. Furthermore, a copy of the HMP was available for the community members to provide comments and suggestions. Hazard agencies were in high attendance.

An online survey for the residents of Bannock County was developed so that the planning committee could evaluate the concerns of the community members. The survey link was sent to public officials and posted on social media for the general public. A total of 171 community members responded to the survey.

The top five hazards, perceived by the community, are:

- Wildfire
- Severe weather
- Winter Storms
- Structural Fire
- Earthquake

Approximately 67% of the community were interested in making their homes more resistant to hazards and indicated that public outreach programs (i.e. community workshops, public education events, social media, internet) would be the most effective way for the county to help the community reduce risks from hazards. The results of the survey were used to develop mitigation actions of concern to the public. The online survey is located in Attachment 2.

### 1.5.5 Identified Hazards/Vulnerabilities

All hazards from the 2015 HMP were reviewed and found to be applicable to Bannock County and incorporated cities. Existing hazards were updated per the FEMA *Local Mitigation Planning Handbook*. Hazards analyzed for the HMP update include the following:

Natural

- Severe weather
- Drought
- Flooding
- Dam Failure
- Earthquake
- Landslide/Avalanche
- Wildfire

Non-natural Hazards

- Structural Fire
- Hazardous Material Event
- Riot/Terrorism
- Cyber Security
- Pandemic

### 1.5.6 Hazard Analysis

The hazard analysis was conducted using information gathered during the planning team committee meetings, the 2015 HMP, current research, and the state hazard mitigation plan. For each hazard, two kinds of information are required to assess risk: (a) information pertaining to how frequently hazard events are likely to occur (i.e., hazard frequency) and (b) information concerning the potential amount

of damage that a hazard event can cause (i.e., hazard magnitude). To the extent that such data can be obtained quantitatively, risk can then be determined as the product of the hazard's frequency and magnitude. The precise quantitative data of both kinds of information are often difficult or impossible to obtain. Hazard frequency and magnitude are described in detail below.

### *Hazard Frequency*

To evaluate hazard frequency, historical events and scientific projections, subjective judgments were used to determine the likelihood that the identified hazard would occur. Frequency of occurrence for a given hazard was estimated using historical records. The value of frequency estimates obtained with historical records are subject to the existence of such records, their availability, and their accuracy. The use of historical records was dependent on scientific projections that can account for natural cyclical events, economic conditions, technical advancements, and changes in land use. If the hazard frequency could not be determined solely from historical data and/or scientific projections, subjective judgments were used to give a semi-quantitative frequency.

Frequency projection data from these sources were used, as appropriate, in this plan. As part of the analysis process, frequency data were examined and assigned a relative level based on the criteria shown in Table 1-2.

*Table 1- 2 Frequency level criteria*

| Ranking | Description |
|---|---|
| High | Multiple times a year to 5 years |
| Medium | 5 to 25 years |
| Low | 25 years or has yet to occur |

### *Hazard Magnitude*

Hazard magnitude estimates must rely on data gathered from a number of sources, including historical data, scientific projections, computer modeling, and subjective judgments. Magnitude estimates are generally based on the severity of potential impact of three critical vulnerabilities: (1) human life, (2) property, and (3) the environment. These vulnerabilities have been used to assign a quantitative magnitude for each identified hazard.

### *Quantifying Risk*

Once a hazard has a defined frequency and magnitude, an estimate of the overall risk severity associated with that hazard emerges. Table 1-3 below outlines the overall risk ranking assigned to each hazard.

*Table 1-3. Hazard Ranking*

| Ranking | Description |
|---|---|
| High | Hazard occurred more than 10 times, probability of future occurrence is at least once in the next year, would results in deaths, severe property damage, and shutdown of essential services. |
| Medium | Hazard has occurred 6-9 times, probability of future occurrence is at least once in the next 10-25 years, minor injuries, would results in minor injuries or property damage. |
| Low | Hazard has occurred fewer than 5 times, probability of future occurrence is at least once in the next 50+ years, would results in few to no injuries or property damage. |

### 1.5.7 Development of Mitigation Alternatives

Mitigation measures were evaluated or reassessed for the identified hazards that were updated or newly assessed for the HMP update. Mitigation projects were assessed against the established goals and objectives to ensure that the selected projects reduce risk, as desired.

### 1.5.8 Plan Development and Document Review

The HMP update is intended to meet all necessary requirements set forth by FEMA for mitigation plans and Public Law (44 CFR§201.6). Plan drafts were presented to the Planning Committee and the public for review prior to final submittal to the state hazard mitigation officer (SHMO) for review and comments.

The SHMO submits the final plan to FEMA for review. FEMA reviews the final version of a plan prior to local adoption to determine whether the plan meets the criteria; however, FEMA is unable to approve the plan prior to adoption. The plan is evaluated by FEMA on its adherence to a variety of criteria, as described in the Local Mitigation Plan Review Guide.

Pending adoption by FEMA, the plan must be adopted by the participating jurisdictions. Each participating jurisdiction (Bannock County, Arimo, Chubbuck, Downey, Inkom, Lava Hot Springs, McCammon, and Pocatello) is requested to adopt the plan by resolution, with the county officials and respective mayors signing the appropriate participation document. These signed documents will be sent to the state for review before forwarding to FEMA for final approval to add to the approval letter to resend to the county for record. The finished plan includes a promulgation page for Bannock County and an agreement to endorse and participate for each participating jurisdiction.

## 1.6 Plan Use

The HMP is used to help county and city officials, neighboring communities, and local and regional agencies plan, design, and implement programs and projects that will help reduce vulnerability to natural and non-natural hazards. The focus of the updated plan is to continue support of the decision-making and the implementation of projects that will reduce the impact of disasters before they occur. Such actions can both reduce existing risk exposure and avoid creating new exposure.

The plan is also used to facilitate inter-jurisdictional coordination and collaboration related to all hazard mitigation planning and implementation within Bannock County and at the regional level. Finally, the plan is used to develop or provide guidance for local emergency response planning. Although the HMP is not an emergency response/management plan, it can be used to help identify weaknesses in, and improvement of, those types of plans.

## 1.7 Plan Maintenance

The Bannock County HMP maintenance process includes a schedule for annually monitoring and evaluating the programmatic outcomes called for in the plan and for producing a plan revision every five years.

### 1.7.1 Formal Review Process

The Plan will be reviewed on an annual basis by the Director of Emergency Management and reviewed and revised every five years by the committee to determine the effectiveness of programs and to reflect changes that may affect mitigation priorities. The Director of Emergency Management, or designee, will be responsible for contacting the Committee members and organizing the review. Committee members will be responsible for monitoring and evaluating the progress of the mitigation strategies in the Plan. The Committee, including participating jurisdictions subcommittees, will review the goals and action items to determine their relevance to changing situations in the County and Cities as well as changes in Federal policy, and to ensure that they address current and expected conditions. The Committee will also review the risk assessment portion of the Plan to determine if this information should be updated or modified, given any new available data. The organizations responsible for the various action items will report on the status of the projects, the success of various implementation processes, difficulties encountered, success of coordination efforts, and which strategies should be revised or removed.

The Director or designee will be responsible to insure the update of the Plan. The Director will also notify all holders of the Bannock County AHMP, including all participating jurisdictions and affected stakeholders when changes have been made. Every five years the updated plan will be submitted to the Idaho Office of Emergency Management and the Federal Emergency Management Agency (FEMA) for review.

### 1.7.2 Continued Public Involvement

The Office of Emergency Management is dedicated to the concept of public involvement in the planning process, including the review and updating of the Plan both annually and on a five-year cycle. Copies of the Plan are made available to the public by appropriate County and City departments' outside agencies though the Bannock County Office of Emergency Management website. The public will be provided with the opportunity to provide input into Plan revisions and updates at least every five years through the LEPC's open public meetings. To this end, joint county/city public meetings may be held when deemed necessary by the Director, providing a forum where the public can express concerns, opinions, or new alternatives. These meetings, conducted under Idaho open meeting law, will be documented and considered by the LEPC when updating the Plan. The Board of County Commissioners and City Councils will be responsible for using County/City resources to publicize public meetings and to maintain public involvement.

### 1.7.3 Monitoring, Evaluation, and Updating Plan

To ensure the HMP continues to provide an appropriate path for risk reduction throughout the county, it is necessary to regularly evaluate and update the HMP. The Director will be responsible for monitoring the status of the plan and gathering appropriate parties to track the implementation of the plan. The planning committee will convene on an annual basis to determine the progress of the identified mitigation actions. In order to evaluate the effectiveness of the HMP, the Emergency Director will reach out to stakeholders and department heads on an annual basis to assess the effectiveness of the plan at achieving its stated purpose and goals.

The Bannock County Emergency Director or designee is responsible for contacting committee members and organizing the annual meeting. The Committee's responsibilities include:

- Review county profile and individual community assessments for each hazard and note any major changes or mitigation projects that have altered the vulnerability of each entity.
- Update the status of mitigation projects as they are completed, or as new needs or issues are identified.
- Monitor the implementation of the plan in each jurisdiction.
- Evaluate the mitigation strategies in this plan to ensure the document reflects current hazard analyses, development trends, code changes, and risk analyses and perceptions.
- Create future action plans and mitigation strategies. These should be carefully assessed and prioritized using the benefit-cost analysis methodology that FEMA has developed.
- Ensure the public is invited to comment and be involved in mitigation plan updates.
- Review the hazard mitigation plan in connection to other plans, projects, developments, and other significant initiatives.
- Coordinate with appropriate municipalities and authorities to incorporate regional initiatives that transcend the boundaries of the county.
- Update the plan every five years and submit for FEMA approval.
- Amend the plan whenever necessary to reflect changes in state or federal laws and statutes required in 44 CFR.

### 1.7.4 The 5-Year Action Plan

This section outlines the implementation agenda that the committee should follow in the five years following adoption of this plan, and then every five years thereafter. The Bannock County Emergency Director is responsible to ensure the HMP is updated every five years.

The committee will consider the following schedule as an action plan for the first five-year planning cycle:

**Year 0:**

- 2021: Update HMP, including a series of committee meetings and public meetings. Submit 2020 HMP for FEMA approval.

**Year 1:**

- June – July 2022: Prepare for and promote first annual plan review and public meetings.
- August 2022: Reconvene planning committee for first annual meeting. Introduce the concept of mitigation plan integration with other planning documents. Host first annual public meeting.

**Year 2:**

- June – July 2023: Prepare for and promote second annual plan review and public meetings.
- August 2023: Reconvene planning committee for second annual meeting. Review plan integration efforts. Host second annual public meeting.

**Year 3:**

- June – July 2024: Prepare for and promote third annual plan review and public meetings.
- August 2024: Reconvene planning committee for third annual meeting. Review plan integration efforts. Host second annual public meeting.

**Year 4:**

- June – July 2025: Prepare for and promote fourth annual plan review and public meetings.
- August 2025: Reconvene planning committee for fourth annual meeting. Review plan integration efforts. Host fourth annual public meeting.

**Year 5:**

- January - September 2026: Update 2021 HMP, including a series of planning committee meetings and public meetings.
- October 2026: Submit 2026 HMP for FEMA approval.

It should be noted that this schedule can be modified as necessary and does not include any meetings and/or activities that would be necessary following a disaster event (which would include reconvening the planning committee within 45 days of a disaster or emergency to determine what mitigation projects should be prioritized during the community recovery). If an emergency meeting occurs, this proposed schedule may be altered to fit any new needs.

### 1.7.5 Annual Planning Committee Meetings

During each annual meeting, the committee will be responsible for a brief evaluation of the 2021 HMP and to review the progress on mitigation actions.

#### *Plan Evaluation*

To evaluate the plan, the planning committee should answer the following questions:

- Are the goals and objectives still relevant?
- Is the risk assessment still appropriate, or has the nature of the hazard and/or vulnerability changed over time?
- Are current resources appropriate for implementing this plan?
- Have lead agencies participated as originally proposed?
- Has the public been adequately involved in the process? Are their comments being heard?
- Have departments been integrating mitigation into their planning documents?

If the answer to each of the above questions is “yes,” the plan evaluation is complete. If any questions are answered with a “no,” the identified gap must be addressed.

#### *Review of Mitigation Actions*

Once the plan evaluation is complete, the committee must review the status of the mitigation actions. To do so, the committee should answer the following questions:

- Have the mitigation actions been implemented as planned?
- Have outcomes been adequate?
- What problems have occurred during the implementation process?

### *Meeting Documentation*

Each annual meeting must be documented, including the plan evaluation and review of mitigation actions. Mitigation actions have been formatted to facilitate the annual review process.

## 1.7.6 Implementation through Existing Programs

Hazard mitigation practices must be incorporated within existing plans, projects, and programs. Therefore, the involvement of all departments, private non-profits, private industry, and appropriate jurisdictions is necessary in order to find mitigation opportunities within existing or planned projects and programs. To execute this, the Emergency Director will assist and coordinate resources for the mitigation actions and provide strategic outreach to implement mitigation actions that meet the goals and objectives identified in this plan.

# 2.0 BANNOCK COUNTY DESCRIPTION

Bannock County ranks 5th among Idaho counties in population and 27th in area. The economy is diversified, and the County is the regional trading center for southeastern Idaho. Its northern portion is more urbanized and has a greater population and more employment opportunities, while the southern portion is more rural and agricultural with little commercial or employment activity. Bannock County is home to Idaho State University and to the Pocatello Zoo. Incorporated cities include Arimo, Chubbuck, Downey, Inkom, Lava Hot Springs, McCammon, and Pocatello. A very small portion of the City of Pocatello is within Power County.

Bannock County is located in Southeast Idaho and occupies an area of 1,148 square miles or 741,100 acres. It is bordered on the east by Franklin and Caribou Counties, on the north by Bingham County, on the west by Power and Oneida Counties, and on the south by Oneida and Franklin Counties. Part of the Fort Hall Indian Reservation is located in the northernmost section of the County. The remainder of the reservation is in Bingham and Power Counties.

## 2.1 Topography and Geography

Bannock County geography is shown on the map below (Figure 2-1). Bannock County has two main and two smaller mountain ranges. The main ranges, both running north and south, are the Bannock Range to the west and the Portneuf Range to the east. The smaller ranges are the Fish Creek Range, a small portion of which extends into Bannock County just northeast of Lava Hot Springs, and the Pocatello Range, the smallest of the four and lying just east of Pocatello and Chubbuck. Maximum peak elevations in the Bannock, Portneuf, and Fish Creek ranges vary from 7,000 to over 9,000 feet, with a height of 9,271 feet at Bannock Peak in the Portneuf Range. In the Pocatello Range, the maximum elevation is 6,582 feet at Camelback Mountain. Marsh Valley runs through the middle of the County between the Bannock and Portneuf Ranges with an elevation of 4,865 feet on the southern end at Downey, slowly declining to 4,547 feet at Inkom. Between Inkom and Pocatello, the valley narrows into the Portneuf Narrows or Portneuf Gap. Pocatello is at an elevation of 4,464 feet, and northwest of Pocatello the topography flattens out into the Snake River Plain. A narrow canyon runs east to west from McCammon to the County border through Lava Hot Springs, following the Portneuf River. Another narrow canyon lies between the Portneuf Range and Pocatello Range.

## 2.2 Geology

There are several fault lines throughout the area, especially in the eastern portion of the County south of Lava Hot Springs and the northern portion surrounding the area between Pocatello and Inkom. Figure 2-2 shows the different types of rock found in Bannock County. Much of the valley area is alluvium and loess. The mountain areas are a mix of felsic pyroclastic rock as well as sandstone and mixed miogeosynclinal.

## 2.3 Climate

The climate in Bannock County is moderate and dry with four distinct seasons. Historically, the hottest and driest month is July and the coldest and wettest month is January. Average precipitation in the county is between 10-14 inches. Average annual snowfall is between 30 and 38 inches for cities in lower elevations (Lava Hot springs has an average annual snowfall of 66 inches).

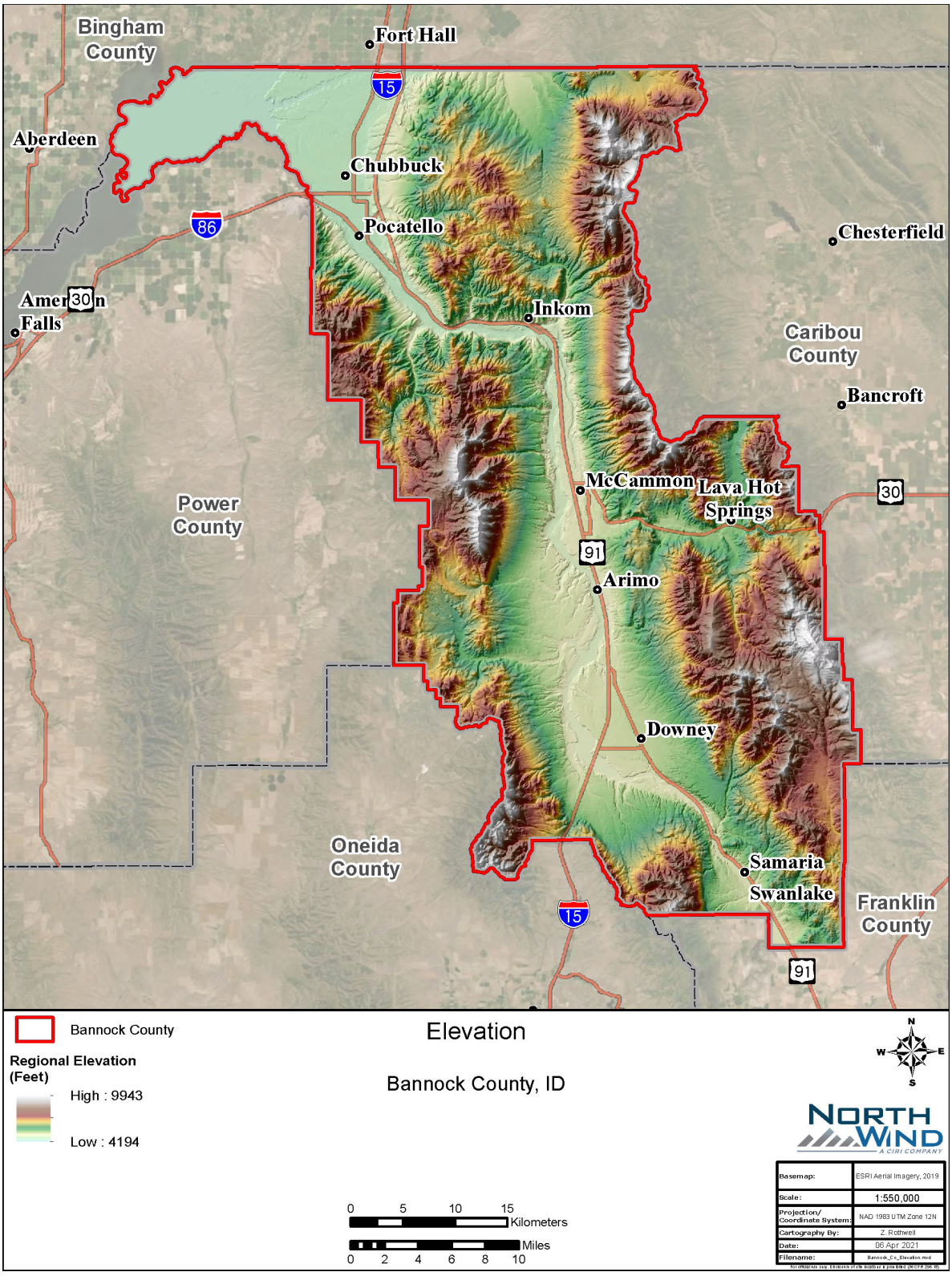


*Figure 2-1 Bannock County Geography Map*

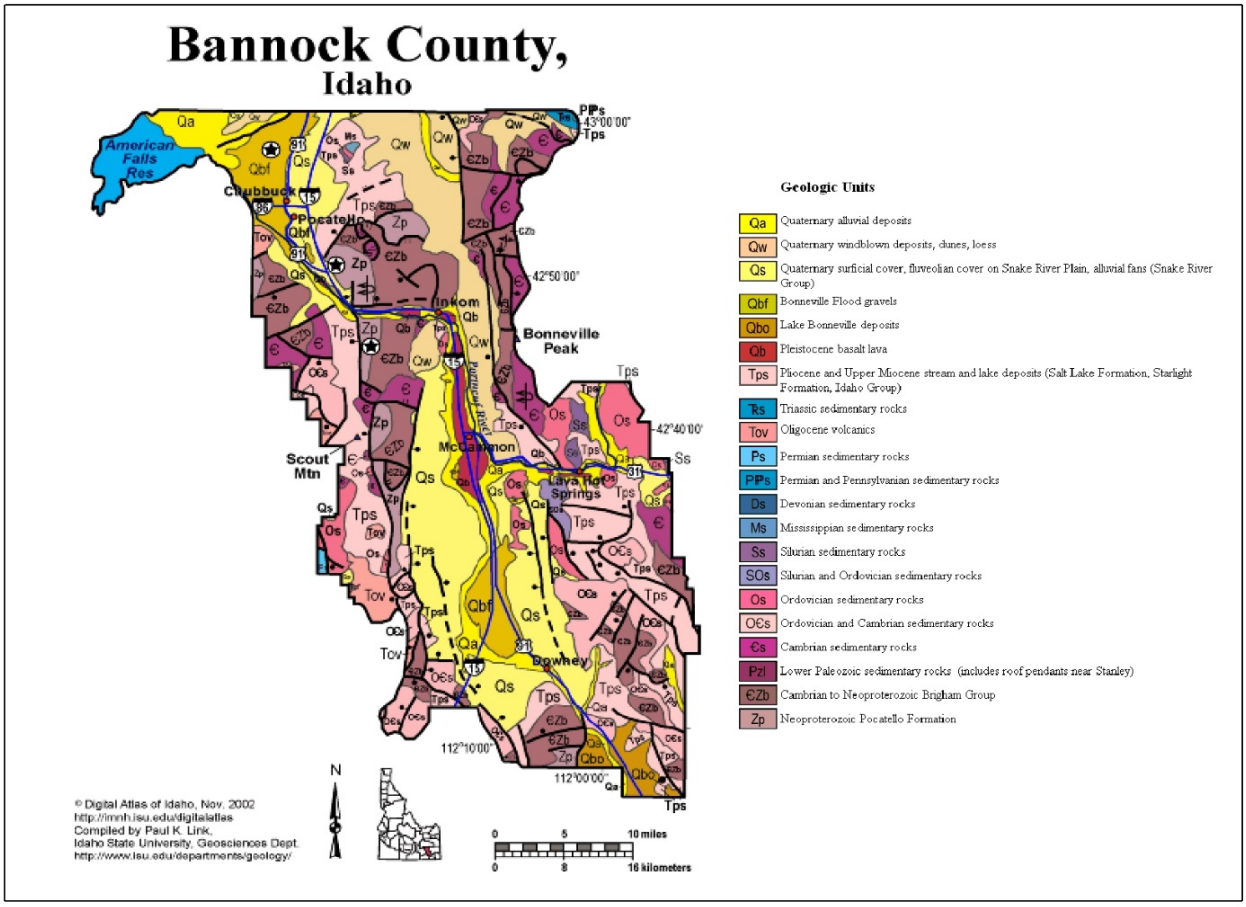


*Figure 2- 2 Geologic Map of Bannock County*

The average monthly climate summary for Pocatello is provided in Table 2-1.

*Table 2- 1 Average Monthly Climate Summary for Pocatello (30 years)*

| | Jan. | Feb. | Mar. | Apr. | May | Jun. | Jul. | Aug. | Sept. | Oct. | Nov. | Dec. | Annual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Average Max Temperature (F) | 32.6 | 38.0 | 48.0 | 58.0 | 68.2 | 77.5 | 88.7 | 87.0 | 75.8 | 62.2 | 45.5 | 34.7 | 59.7 |
| Average Min Temperature (F) | 15.2 | 19.8 | 26.6 | 32.8 | 40.2 | 46.6 | 53.2 | 51.4 | 42.6 | 33.5 | 24.7 | 17.5 | 33.7 |
| Average Total Precipitation (in) | 0.99 | 0.98 | 1.26 | 1.15 | 1.46 | 0.99 | 0.64 | 0.61 | 0.84 | 0.87 | 1.11 | 1.24 | 12.13 |
| Average Total Snowfall (in) | 8.8 | 7.1 | 5.4 | 3.2 | 0.8 | 0.0 | 0.0 | 0.0 | 0.1 | 1.6 | 5.7 | 10.7 | 43.4 |
| *Source:* https://www.ncei.noaa.gov/pub/orders/IPS/IPS-069BA322-D69D-44AD-9C51-CBA966963E0D.pdf | | | | | | | | | | | | | |

## 2.4 Ownership

Bannock County contains nearly 194,995 acres of Federal land (BLM and USFS) and 47,912 acres of State land. There are 115,465 acres of Tribal Lands and 378,161 acres of privately held land in Bannock. Figure 2-3 demonstrates the land ownership of Bannock.

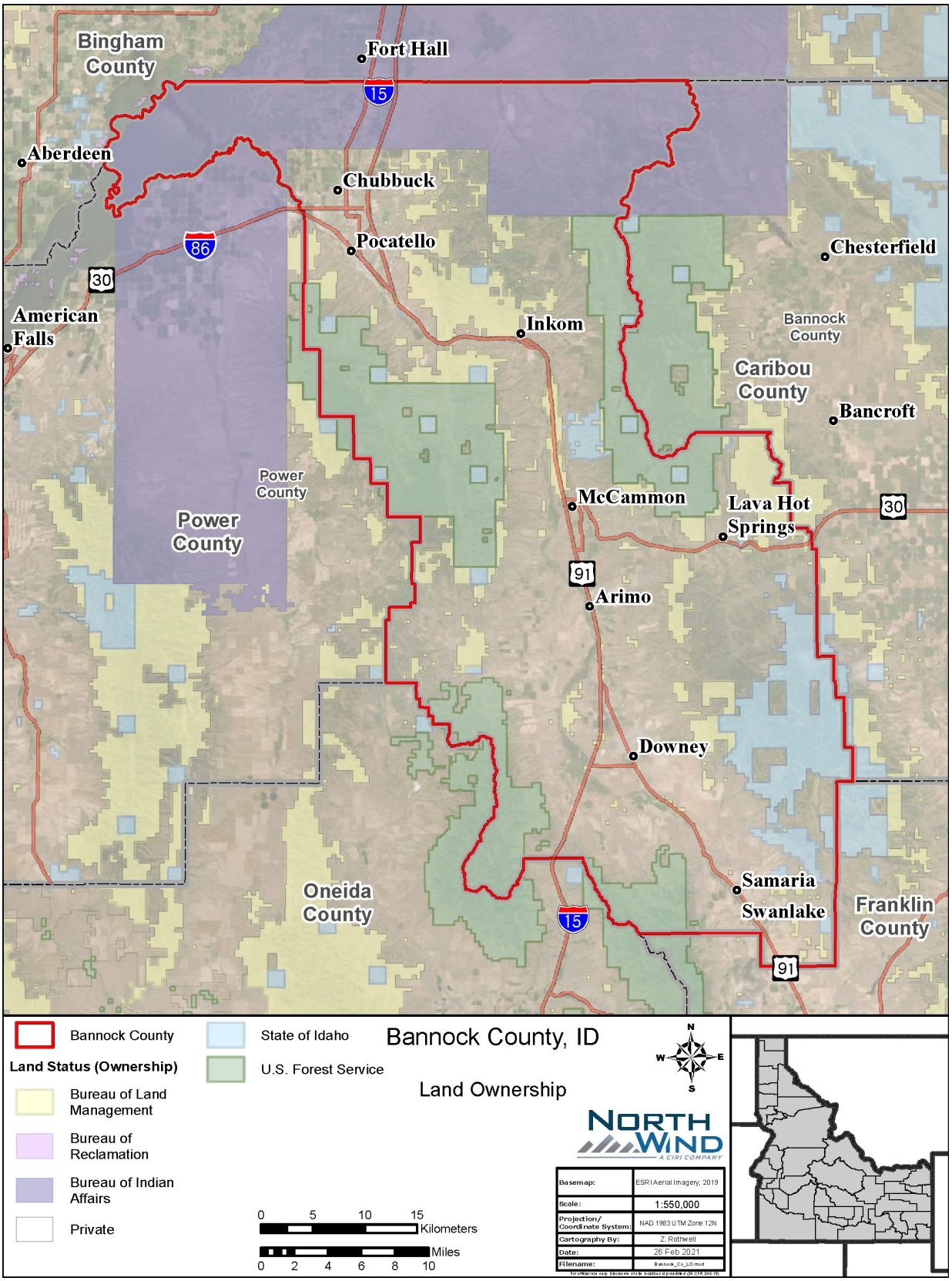


*Figure 2- 3 Bannock County Land Ownership Map*

Ownership has not significantly changed since the last update; therefore, no additional hazard impacts are likely.

## 2.5 Land Use/Land Cover

Land cover area and type were gathered from the National Land Cover Database and are displayed in Table 2-2 and correspond to Figure 2-4.

*Table 2- 2 Land Cover Area by Cover Type (all values in table are square miles)*

| Land Cover Type | Area |
|---|---|
| Barren Land | 18.28 |
| Cultivated Crops | 207.67 |
| Deciduous Forest | 42.44 |
| Developed, High Intensity | 1.08 |
| Developed, Low Intensity | 12.41 |
| Developed, Medium Intensity | 8.29 |
| Developed, Open Space | 26.46 |
| Emergent Herbaceuous Wetlands | 3.94 |
| Evergreen Forest | 150.20 |
| Hay/Pasture | 3.01 |
| Herbaceuous | 63.15 |
| Mixed Forest | 5.22 |
| Open Water | 5.03 |
| Shrub/Scrub | 572.55 |
| Woody Wetlands | 27.73 |

## 2.6 Natural Resources

The Lower Portneuf Valley Aquifer is located within Bannock County and is the only source of drinking water for the cities of Pocatello, Chubbuck, and north Bannock County. The Portneuf River extends approximately 97 miles and is notably one of the most important natural resources within the county, offering the potential for community, natural, and economic opportunities to adjacent areas. The Portneuf River is fed by approximately 900 miles of intermittent streams and over 550 miles of perennial streams. Lastly, according to the Soil Survey of Bannock County Area, Idaho, approximately 11% of the survey area meets the requirement for prime farmland.

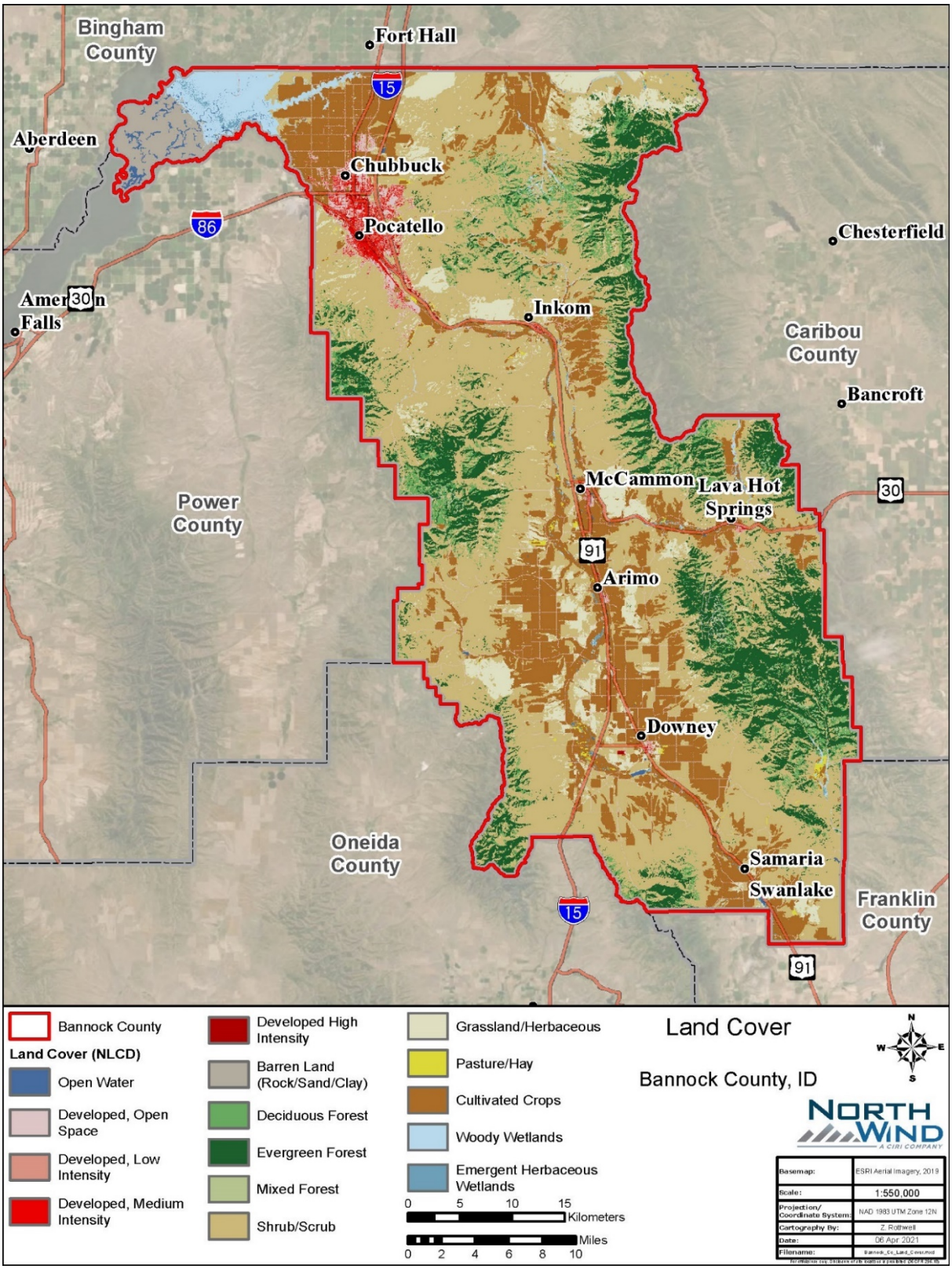


*Figure 2- 4 Map showing land use in Bannock County*

## 2.7 Demographics

The estimated population for Bannock County in 2019 was 87,823, which is approximately 16% increase from 2000 population and a 6% increase from 2013. The majority of the population lives in or near Pocatello, which is also the largest city in Bannock County. Other incorporated cities within the county include Arimo, Chubbuck, Downey, Inkom, Lava Hot Springs, and McCammon. The population has continued to grow at a steady rate since 2000 (Table 2-3).

*Table 2- 3 Population changes for incorporated cities in Bannock County*

| | **Population Growth for Each Incorporated City of Bannock County** | | | | | |
|---|---|---|---|---|---|---|
| | 1990 | 2000 | 2013 | 2019 | % change 2000-2013 | % change 2013-2019 |
| Arimo | 311 | 348 | 360 | 364 | 3.3% | 1% |
| Chubbuck | 7,794 | 9,700 | 14,125 | 15,588 | 31.3% | 10% |
| Downey | 626 | 613 | 628 | 633 | 2.4% | 1% |
| Inkom | 769 | 738 | 856 | 902 | 13.8% | 5% |
| Lava Hot Springs | 420 | 521 | 410 | 432 | (21.3)% | 5% |
| McCammon | 722 | 805 | 809 | 831 | 0.5% | 3% |
| Pocatello | 46,062 | 51,442 | 54,350 | 56,637 | 5.3% | 4% |
| County | 66,026 | 75,565 | 83,091 | 87,823 | 10% | 6% |
| Source: U.S. Census Data 2010 Report, US Census Data Estimate 2019 | | | | | | |

*The size of a population in a particular area has a strong correlation with hazard vulnerability and loss. For example, urban areas with high populations (e.g., Pocatello and Chubbuck) naturally have a higher number of structures; therefore, they will experience greater loss during hazard events.*

## 2.8 Socioeconomics

Bannock County has an estimated 34,852 housing units and a population density of 74.5 people per square mile. Ethnicity distribution in the county is as follows: 90.6% white, 1.1% Black or African American, 3.8% American Native and Alaskan Native, 1.6% Asian, 0.3% Native Hawaiian and Other Pacific Islander alone, 2.6% Two or More Races.

The estimated age distribution for the county is as follows: 6.9 % under 5 years of age, 25.9% under 18 years of age and 14.7% are 65 years or older. Approximately 50.3% of the population are female persons. These values are estimates and have not changed since the 2010 Census.

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# 3.0 RISK ASSESSMENT

## 3.1 Overview

A hazard assessment was conducted to determine the potential damage, loss, or other impacts created by the interaction of identified hazards to community assets. The severity of that risk depends on the extent of the hazard and the vulnerability of the asset, as well as the community's capabilities to mitigate, prepare for, respond to, and recover from the events. The focus of the overall risk assessment in the 2021 Hazard Mitigation Plan (HMP) update was to build on the risk assessments from the previous HMPs. Furthermore, the HMP update identifies how potential impacts from the previously identified hazards have changed since the previous HMP. Changes related to land use development and new hazard information were added to the HMP update and used in the overall risk assessment.

## 3.2 Purpose

The purpose of a risk assessment is to establish a basis to determine the cost effectiveness and priority of implementing mitigation strategies. Risk assessments are used to evaluate hazards for the overall county; however, they are also jurisdiction-specific in that they examine the assets, vulnerabilities, and overall risks and unique to each community.

## 3.3 Hazard Description and Assessment

The Bannock County Planning Committee reviewed the hazards identified in the 2015 HMP and recognized that these hazards are still significant and present within the county; however, some of the hazards could be combined to condense and streamline the plan. The hazards that are described and analyzed in the HMP update are as follows:

### 3.3.1 Natural Hazards

- Severe weather
- Drought
- Flooding
- Dam Failure
- Earthquake
- Landslide/Avalanche
- Wildfire

### 3.3.2 Non-natural Hazards

- Structural Fire
- Hazardous Material Event
- Riot/Terrorism
- Cyber Security
- Pandemic

## 3.4 Severe Weather

| Hazard Overview | | | |
|---|---|---|---|
| Location: | | County-Wide | |
| Frequency/Previous Occurrence: | | High | |
| Impact/Consequence: | | High | |
| Community Vulnerability: | | Moderate | |
| **Overall Hazard Ranking by Jurisdiction** | | | |
| Arimo | Chubbuck | Downey | Inkom |
| High | High | High | High |
| Lava Hot Springs | McCammon | Pocatello | |
| High | High | High | |

The impact of weather hazards has widespread (drought) or local (lightning), but all have the potential to be severe and life threatening. Historical weather data are generally available detail over long periods, allowing for reasonably accurate risk assessment for planning purposes. Included in this category are extreme heat, extreme cold, lightning, hail, straight line wind, tornado, and winter storms. Each hazard is examined independently; however, it is recognized these hazards naturally occur simultaneously.

Severe weather occurs regularly in Bannock County, and it is assumed that there are repetitive losses especially caused by Straight Line Wind damage; however, this type of loss is not reported to a single point and this is hard to track and quantify.

### Future Occurrences

Based on previous events throughout the county, as listed in the table below, there is a 100% probability that severe weather will occur in Bannock County (Arimo, Chubbuck, Downey, Inkom, Lava Hot Springs, McCammon, and Pocatello).

### Vulnerability Assessment

Storms are naturally occurring disturbances manifested in strong winds accompanied by rain, snow, hail, and often thunder and lightning. All the areas within Bannock County (Arimo, Chubbuck, Downey, Inkom, Lava Hot Springs, McCammon, and Pocatello) are vulnerable to severe weather. Prevalent problems include disruption to transportation and loss of utilities. The effects vary with the intensity of the storm and level of preparation by the local jurisdiction and residents. Due to the remoteness of some of the towns, severe weather is more likely to impact transportation corridors. All jurisdictions are prone to blowing wind and a disruption of normal commuting activities, leaving sensitive populations (seniors, poor, children) vulnerable. Most structures throughout Bannock County and jurisdictions are built to handle severe weather (wind, snow load and temperature). It is difficult to estimate potential financial losses for severe weather due to the unpredictability or events.

### 3.4.1 Extreme Heat

Extreme heat is a relative term describing a period when weather conditions include temperatures and humidity significantly higher than those that are usual to a particular geographic area. The National Weather Service (NWS) issues alerts to the public based on the NWS Heat Index, which takes both the temperature and humidity into account (Figure 3-1). The NWS will initiate alert procedures when the high temperature is expected to exceed 105 to 110 degrees Fahrenheit (°F) (depending on the local climate) for at least two consecutive days. Extreme heat conditions are uncommon in Idaho, where, in general, humidity is low and weather patterns are variable.

Higher-than-normal humidity and temperatures can cause a short or prolonged period of extreme heat. A prolonged period of excessive heat is referred to as a heat wave and is related to very humid conditions. The extent or magnitude of an extreme heat event is measured using the NWS Heat Index (Figure 3-1).

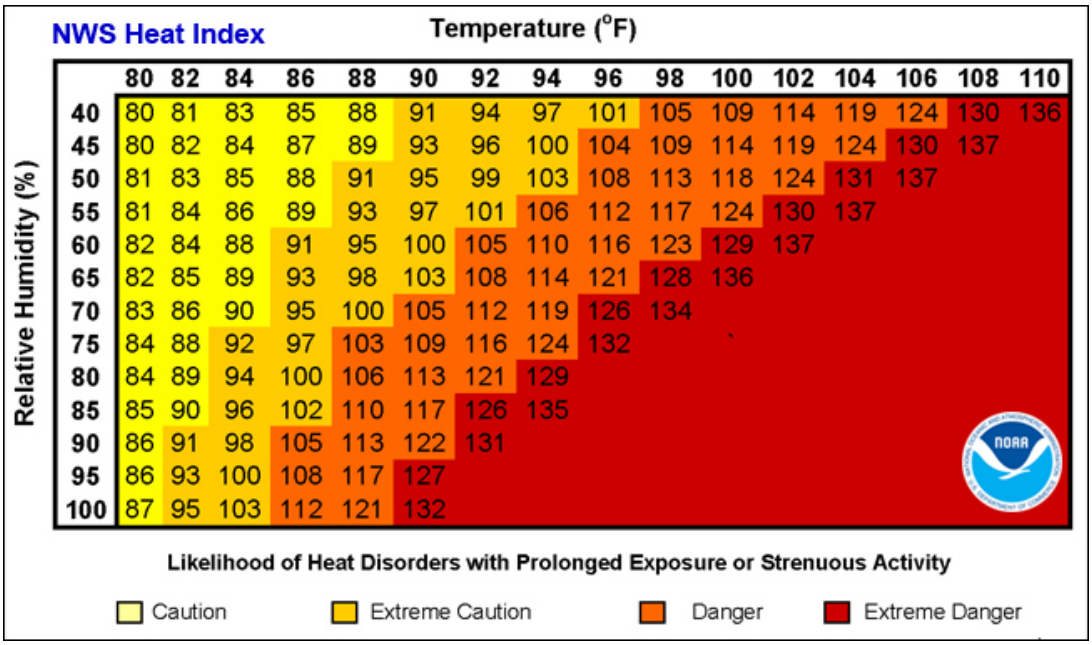


*Figure 3- 1 NOAA's National Weather Service Heat Index*

Based on the index, an extreme heat event could occur with an air temperature as low as 80°F if the percentage of humidity was equal or greater than 40%. Extreme heat has the potential to impact the entirety of Bannock County and associated jurisdictions.

## Historical Frequencies

Bannock county has never experienced an extreme heat event as described above; however, the potential exists. The record high for the county was 104°F, which was recorded July 31, 2020. Daily weather summaries were taken from the Pocatello Airport Weather Stations for a 23-year period (1997-2020) and analyzed using Pearson Log III method to determine return interval of extreme heat events (Table 3-1).

*Table 3- 1 Historic Extreme Heat Summary*

| Return Period (Years) | Probability (%) | Maximum Temperature (F) |
|---|---|---|
| 1.05 | 95.2 | 97 |
| 1.25 | 80.0 | 98 |
| 2 | 50 | 99 |
| 5 | 20 | 101 |
| 10 | 10 | 102 |
| 25 | 4 | 104 |
| 50 | 2 | 105 |
| 100 | 1 | 106 |
| 200 | 0.5 | 107 |

### Impacts

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

### Loss Estimate

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

## 3.4.2 Extreme Cold

Extreme cold events are when temperatures drop well below normal in that area. Extremely cold temperatures typically accompany winter storms; therefore, extended utility outages, failures in infrastructure, and other storm-related hazards may occur.

Extreme cold events have historically occurred within Bannock County and surrounding regions. These events have the potential to impact infrastructure, other storm-related hazards may occur.

The extent of extreme cold temperature is generally measured though the Wind Chill Temperature (WCT) Index. Whenever temperatures drop well below normal and wind speed increases, heat can leave the body more rapidly. The WCT Index is the temperature a body feels when the air temperature is combined with the wind speed. The index is based on that rate of heat loss from exposed skin caused by the effects of wind and cold. As the speed of the wind increases, it can carry eat away from the body much more quickly, causing skin temperature to drop. When there are high winds, serious weather-related health problems are more likely, even when temperatures are only cool. The Wind Chill Chart (Figure 3-2) shows the difference between actual air temperature and perceived temperature. The chart also shows the amount of time until frostbite occurs.

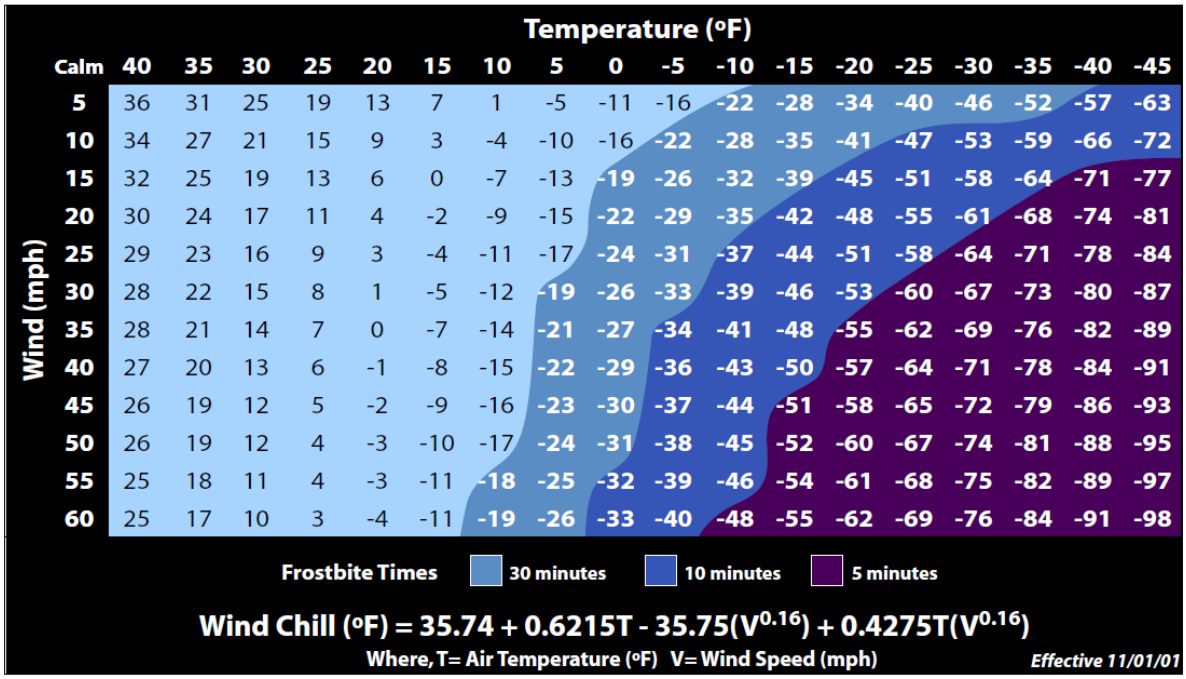


*Figure 3- 2 National Weather Service Wind Chill Chart*

Since 1999, 18 extreme cold/wind-chill events have occurred in Bannock County (Table 3-2). No deaths or injuries have been attributed to these events.

*Table 3- 2 NCDC Reported Extreme Cold/Wind-Chill Events*

| Date | Location | Category | Deaths | Injuries | Property Damage ($) | Crop Damage ($) |
|---|---|---|---|---|---|---|
| 6/2/2001 | Lower Snake River Plain | Extreme Cold/Wind Chill | 0 | 0 | 0 | 0 |
| 6/2/2001 | Caribou Highlands | Extreme Cold/Wind Chill | 0 | 0 | 0 | 0 |
| 5/8/2002 | Lower Snake River Plain | Extreme Cold/Wind Chill | 0 | 0 | 0 | 0 |
| 5/8/2002 | Caribou Highlands | Extreme Cold/Wind Chill | 0 | 0 | 0 | 0 |
| 12/1/2002 | Lower Snake River Plain | Extreme Cold/Wind Chill | 0 | 0 | 0 | 0 |
| 12/10/2009 | Caribou Highlands | Extreme Cold/Wind Chill | 0 | 0 | 0 | 0 |
| 12/10/2009 | Lower Snake River Plain | Extreme Cold/Wind Chill | 0 | 0 | 0 | 0 |
| 2/1/2011 | Caribou Highlands | Extreme Cold/Wind Chill | 0 | 0 | 0 | 0 |
| 12/4/2011 | Caribou Highlands | Extreme Cold/Wind Chill | 0 | 0 | 0 | 0 |
| 1/3/2013 | Caribou Highlands | Extreme Cold/Wind Chill | 0 | 0 | 0 | 0 |
| 1/14/2013 | Caribou Highlands | Extreme Cold/Wind Chill | 0 | 0 | 0 | 0 |
| 12/9/2013 | Lower Snake River Plain | Extreme Cold/Wind Chill | 0 | 0 | 0 | 0 |

| Date | Location | Category | Deaths | Injuries | Property Damage ($) | Crop Damage ($) |
|---|---|---|---|---|---|---|
| 12/9/2013 | Caribou Highlands | Extreme Cold/Wind Chill | 0 | 0 | 0 | 0 |
| 2/6/2014 | Lower Snake River Plain | Extreme Cold/Wind Chill | 0 | 0 | 0 | 0 |
| 11/12/2014 | Lower Snake River Plain | Extreme Cold/Wind Chill | 0 | 0 | 0 | 0 |
| 1/4/2017 | Lower Snake River Plain | Extreme Cold/Wind Chill | 0 | 0 | 0 | 0 |
| 1/4/2017 | Caribou Highlands | Extreme Cold/Wind Chill | 0 | 0 | 0 | 0 |
| 10/1/2019 | Lower Snake River Plain | Extreme Cold/Wind Chill | 0 | 0 | 0 | 0 |

## Impacts

There is no defined geographic boundary for extreme cold. Extreme cold events are common to the county, causing impacts and losses to the county and local roads, structures, facilities, utilities, and the population. Impacts include damage to the roadway, utility outages, freezing of water and sewer mains, frost heaves/ice jams in rivers, injuries, and loss of life.

Health effects of exposure to extreme cold include hypothermia and frostbite, both of which can be life threatening. Infants and the elderly are most susceptible damage to infrastructure and critical facilities can occur causing utility outages, property damage, and limited response from emergency services.

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

Overall, the economic losses are variable, and, depending on the time of year, agricultural, industrial, and commercial damages may occur. Because of this variability, an estimate average sum for an extreme cold event is anticipated to be in the thousands of dollars.

## Loss Estimate

During the spring, summer, and fall temperatures drop low enough to produce frost. While such temperatures are not low enough to damage infrastructure or require extra heating costs, it can be devastating to crops. Warning lead times for Bannock County are usually a day or two, based on forecasts made by the National Weather Service in Pocatello.

## 3.4.3 Winter Storms

A severe winter storm event can include heavy snow, blizzards, sleet, freezing rain, and ice storms and can be accompanied by extreme cold. For the purposes of this analysis, a severe winter storm is defined as any winter condition where the potential exists for a blizzard (winds [mph] and falling/drifting snow that causes reduced visibility <1/4 mile for > 2 hours), heavy snow (six or more inches of snowfall in 24 hours and mountains nine inches of snowfall or more in 24 hours), ice storms, and/or strong winds.

Severe winter storms occur regularly throughout the county and typically occur in conjunction with cold temperatures. It is expected that winter storms will continue throughout the county.

## Historical Frequencies

Severe winter storms occur regularly throughout the county and typically occur in conjunction with cold temperatures. It is expected that winter storms will continue throughout the county. Since 1999, 66 severe winter storm events have been reported in Bannock County, primarily in Lower Snake River Plain highland areas (Table 3-3).

*Table 3- 3 NCDC Reported Winter Storms*

| Date | Location | Deaths | Injuries | Property Damage ($) | Crop Damage ($) |
|---|---|---|---|---|---|
| 12/1/1996 | Caribou Highlands | 0 | 0 | 0 | 0 |
| 12/4/1996 | Caribou Highlands | 0 | 0 | 0 | 0 |
| 12/4/1996 | Lower Snake River Plain | 0 | 0 | 0 | 0 |
| 3/4/1998 | SW & SC Bingham/x NW Bannock/N Power | 0 | 0 | 0 | 0 |
| 2/6/1999 | Caribou Highlands | 0 | 0 | 0 | 0 |
| 2/9/1999 | Caribou Highlands | 0 | 0 | 0 | 0 |
| 4/5/1999 | Caribou Highlands | 0 | 0 | 20,000 | 0 |
| 1/10/2000 | Caribou Highlands | 0 | 0 | 0 | 0 |
| 2/24/2000 | Caribou Highlands | 0 | 0 | 0 | 0 |
| 2/24/2000 | Lower Snake River Plain | 0 | 2 | 85,000 | 0 |
| 1/25/2001 | Lower Snake River Plain | 0 | 0 | 0 | 0 |
| 1/21/2002 | Caribou Highlands | 0 | 0 | 0 | 0 |
| 2/7/2002 | Lower Snake River Plain | 2 | 0 | 0 | 0 |
| 2/7/2002 | Caribou Highlands | 0 | 0 | 0 | 0 |
| 11/8/2002 | Caribou Highlands | 0 | 0 | 0 | 0 |
| 3/5/2003 | Caribou Highlands | 0 | 0 | 0 | 0 |
| 12/25/2003 | Caribou Highlands | 0 | 0 | 0 | 0 |
| 12/25/2003 | Lower Snake River Plain | 0 | 0 | 0 | 0 |
| 1/24/2004 | Lower Snake River Plain | 0 | 0 | 0 | 0 |
| 1/24/2004 | Caribou Highlands | 0 | 0 | 0 | 0 |
| 1/7/2005 | Caribou Highlands | 0 | 0 | 0 | 0 |
| 1/7/2005 | Lower Snake River Plain | 0 | 0 | 0 | 0 |
| 11/26/2005 | Lower Snake River Plain | 0 | 0 | 0 | 0 |
| 2/27/2006 | Lower Snake River Plain | 0 | 0 | 0 | 0 |
| 1/27/2008 | Caribou Highlands | 0 | 0 | 0 | 0 |
| 1/31/2008 | Caribou Highlands | 0 | 0 | 0 | 0 |
| 1/31/2008 | Lower Snake River Plain | 0 | 0 | 0 | 0 |

| Date | Location | Deaths | Injuries | Property Damage ($) | Crop Damage ($) |
|---|---|---|---|---|---|
| 2/7/2008 | Caribou Highlands | 0 | 0 | 0 | 0 |
| 12/24/2008 | Caribou Highlands | 0 | 0 | 0 | 0 |
| 12/27/2008 | Lower Snake River Plain | 0 | 0 | 0 | 0 |
| 2/29/2012 | Caribou Highlands | 0 | 0 | 0 | 0 |
| 1/10/2013 | Caribou Highlands | 0 | 0 | 0 | 0 |
| 1/10/2013 | Lower Snake River Plain | 0 | 0 | 2,000 | 0 |
| 2/22/2013 | Caribou Highlands | 0 | 0 | 0 | 0 |
| 2/23/2013 | Lower Snake River Plain | 0 | 0 | 0 | 0 |
| 3/1/2014 | Caribou Highlands | 0 | 0 | 0 | 0 |
| 12/24/2014 | Caribou Highlands | 0 | 0 | 0 | 0 |
| 12/24/2014 | Lower Snake River Plain | 2 | 8 | 15,000 | 0 |
| 12/21/2015 | Caribou Highlands | 0 | 0 | 5,000 | 0 |
| 12/23/2015 | Caribou Highlands | 0 | 0 | 0 | 0 |
| 11/28/2016 | Lower Snake River Plain | 0 | 0 | 25,000 | 0 |
| 1/7/2017 | Caribou Highlands | 0 | 0 | 0 | 0 |
| 1/7/2017 | Lower Snake River Plain | 0 | 0 | 0 | 0 |
| 1/22/2017 | Caribou Highlands | 0 | 0 | 0 | 0 |
| 1/22/2017 | Lower Snake River Plain | 0 | 0 | 0 | 0 |
| 2/22/2017 | Caribou Highlands | 0 | 0 | 0 | 0 |
| 2/22/2017 | Lower Snake River Plain | 0 | 0 | 25,000 | 0 |
| 3/4/2017 | Caribou Highlands | 0 | 0 | 0 | 0 |
| 2/25/2018 | Lower Snake River Plain | 0 | 0 | 0 | 0 |
| 3/2/2018 | Lower Snake River Plain | 0 | 0 | 0 | 0 |
| 3/2/2018 | Caribou Highlands | 0 | 0 | 0 | 0 |
| 1/16/2019 | Lower Snake River Plain | 0 | 0 | 0 | 0 |
| 2/6/2019 | Lower Snake River Plain | 0 | 0 | 0 | 0 |
| 2/10/2019 | Lower Snake River Plain | 0 | 0 | 0 | 0 |
| 2/25/2019 | Lower Snake River Plain | 0 | 0 | 0 | 0 |
| 10/28/2019 | Lower Snake River Plain | 0 | 0 | 0 | 0 |
| 1/11/2020 | Lower Snake River Plain | 0 | 0 | 0 | 0 |
| 1/17/2020 | Lower Snake River Plain | 0 | 0 | 0 | 0 |
| 2/2/2020 | Lower Snake River Plain | 0 | 0 | 0 | 0 |
| 2/5/2020 | Lower Snake River Plain | 0 | 0 | 0 | 0 |

## Impacts

The impacts of the very cold temperatures that may accompany a severe winter storm are discussed above. Numerous other life-threatening impacts include but are not limited to motorists stranded by road closures or may be trapped in their automobiles in heavy snow and/or low visibility conditions. Bad road conditions can cause automobiles to lose control. People can be trapped in homes or buildings for long periods of time without food, heat, and utilities. Those who are ill may be deprived of medical care by being stranded or through loss of utilities and lack of personnel working at care facilities. Use of heaters in automobiles and buildings by those who are stranded may result in fires or carbon monoxide poisoning. Fires during winter storm conditions are hazardous because fire service response is hindered or prevented by road conditions and because water supplies may be frozen. Disaster services may also not be available if telephone service is lost. People who attempt to walk to safety through winter storm conditions often become disoriented and lost. Downed power lines not only deprive the community of electricity for heat and light but pose an electrocution hazard. Death and injury may also occur if heavy snow accumulation causes roofs to collapse.

## Loss Estimate

There is no defined geographic boundary for winter storms. Extreme Winter storms are common in the county, causing impacts and losses to the county and local roads, structures, facilities, utilities, and the population. Impacts include damage to infrastructure, critical facilities, utility outages, injuries, and loss of life.

Winter storms have the potential to directly or indirectly cause injuries or deaths, primarily from automobile accidents, overexertion, and exposure. Winter storms are often accompanied by strong winds that cause blizzard conditions with blinding wind-driven snow, drifting snow, extreme cold temperatures, and dangerous wind chill. Heavy accumulations of ice can bring down trees and power lines, disabling electric power and communications for days or weeks. Heavy snow can immobilizer a region and paralyze a city, shutting down all transportation routes and disrupting medical and emergency services. Snow and wind can damage the roofs of structures and infrastructure.

The economic impact of winter storms each year is huge with costs for removal of snow, damage, and loss of business high; approximately, $177,000 in damages has been reported per year as a result of winter storms since 1996.

### 3.4.4 Lightning

## Hazard Description

Lightning is defined by the NWS as “A visible electrical discharge produced by a thunderstorm. The discharge may occur within or between clouds, between the cloud of air, between a cloud and the ground, or between the ground and a cloud.” A lightning discharge may be over five miles in length, generate temperatures upwards of 50,000°F and carry 50,000 volts of electrical potential. Lightning is most often associated with thunderstorm clouds; however, lightning can strike as far as five to ten miles from a storm. Thunder is caused by the rapid expansion of air heated by a lightning strike. Cloud-to-ground lightning strikes occur with much less frequency in northwestern United States than in other parts of the county. Figure 3-3, demonstrates lightning flash density across the United States.

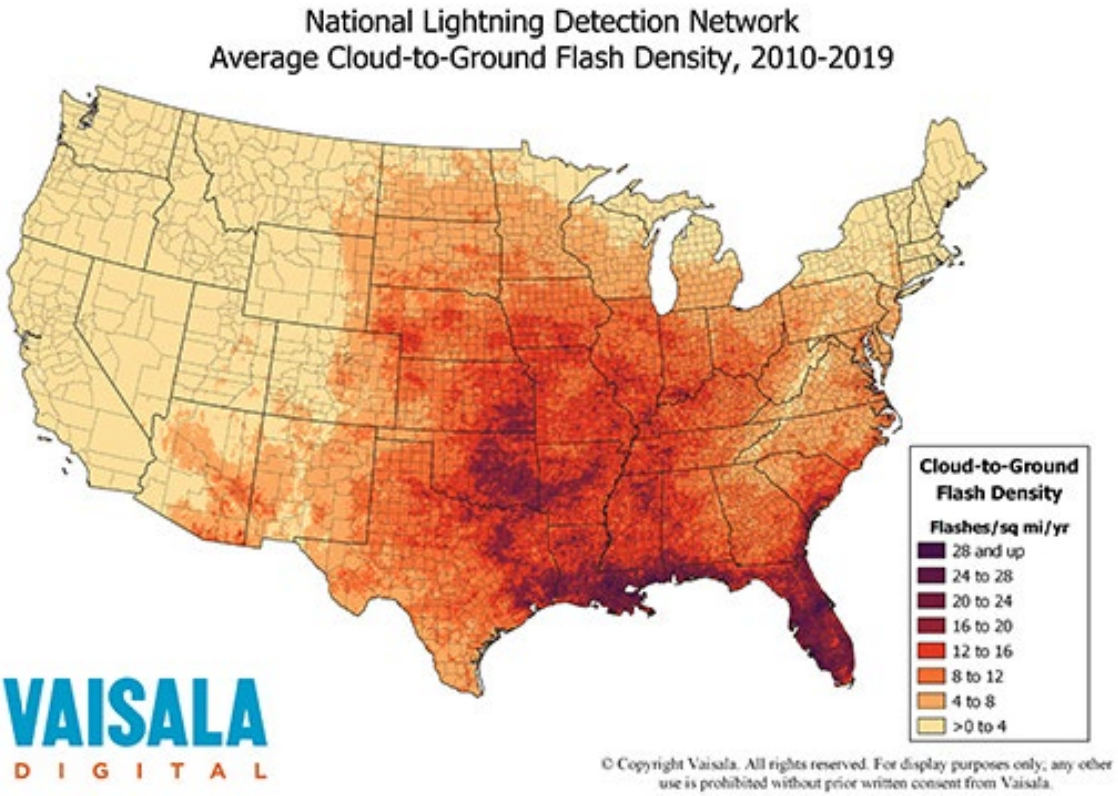


*Figure 3- 3 Lightning Flash Density*

## Historical Frequencies

Except when significant wildfires are ignited, lightning strikes general do not result in a large-scale disaster. Weather data indicate that lightning occurs often in Bannock County, although strikes affecting the public are rare (Table 3-4).

*Table 3- 4 Past Occurrences of lightning in Bannock County*

| Date | Fatalities | Injuries | Property Damage ($) | Crop Damage ($) |
|---|---|---|---|---|
| 5/16/1996 | 0 | 0 | 0 | 0 |
| 7/29/1996 | 0 | 0 | 0 | 0 |
| 6/17/1997 | 0 | 0 | 1,000,000 | 0 |
| 8/2/1997 | 0 | 0 | 0 | 0 |
| 7/30/1998 | 0 | 0 | 0 | 0 |
| 9/30/1998 | 0 | 3 | 0 | 0 |
| 9/30/1998 | 0 | 0 | 0 | 0 |
| 5/29/1999 | 0 | 0 | 10,000 | 0 |
| 8/27/1999 | 0 | 0 | 0 | 0 |
| 8/25/2020 | 0 | 0 | 10,000 | 0 |

## Impacts

Lightning is the second most deadly weather phenomenon in the United States, being second only to floods. On average, 60 to 70 deaths per year are attributed to lightning nationally. In Idaho, the average us less than one per year. Despite the enormous energy carried by lightning, only about 10% of strikes are fatal. Injuries include central nervous system damage, burns, cardiac effects, hearing loss and trauma. The effects of central nervous system injuries tend to be long-lasting and severe, leading to such disorders as depression, alcoholism, chronic fatigue and in some cases suicide. Lightning also strikes structures, causing fires and damaging electrical equipment. Wildland fires are often initiated by lightning strikes, as are petroleum storage tank fires. Approximately one-third of all power outages are lightning-related.

## Loss Estimate

The magnitude of economic losses is difficult to estimate. Government figures suggest annual national costs at around $30 million; however, some experts argue losses could be in the billions of dollars. The potential of lightning strikes occurs with some regularity in Bannock County. Of special concern are the wide-open fields and metal farm equipment.

### 3.4.5 Hail

## Hazard Description

The NWS defines hail as “A showery precipitation in the form of irregular pellets or balls of ice more than 5 mm (0.2 inches) in diameter, falling from a cumulonimbus cloud.” Hail occurs when updrafts in thunderstorms carry raindrops upward into extreme cold areas of the atmosphere, where they freeze into ice. Hail size can vary from the defined minimum up to 4.5 inches or more in diameter. Severe hail is defined as being three-fourths inches or more in diameter.

Hail that does occur is typically smaller than one-half inch in diameter and the areas affected are small. Typically, hail occurs in connection with spring thunderstorms. Hail, like thunderstorms, can occur throughout Bannock County.

The severity of hail events is based on the size of hail, wind, and structures in the path of a hailstorm large hail and stronger winds typically are classified as severe hailstorms and, therefore are more likely to cause more damage to structures, crops, livestock, and wildlife. Hail that is typical to Idaho and Bannock county is typically smaller and has less potential to cause severe damage. A scale showing hail intensity categories was developed by the Tornado and Storm Research Organization (TORRO) and modified with a size scale developed by the National Climatic Data Center (Table 3-5).

## Historical Frequencies

Since 1999, 35 hailstorm events have been reported in Bannock County (Table 3-6). No deaths or injuries related to hailstorms have been reported in Bannock County.

*Table 3- 5 Hail Intensity Scale*

| Size Code | Intensity Category | Typical Hail Size Diameter (inches) | Descriptive Term | Typical Damage Impacts |
|---|---|---|---|---|
| H0 | Hard Hail | Up to 0.33 | Pea | No damage |
| H1 | Damaging Potential | 0.33-0.60 | Marble | Slight general damage to plants, crops |
| H2 | Significant | 0.60-0.80 | Dime | Significant damage to fruit, crops, and vegetation |
| H3 | Severe | 0.80-1.20 | Nickel | Severe damage to fruit and crops, damage to glass and plastic structures, and scored paint and wood |
| H4 | Severe | 1.20-1.60 | Quarter | Widespread glass damage and vehicle bodywork damage |
| H5 | Destructive | 1.60-2.0 | Half Dollar | Wholesale destructions of glass, damage to tiled roofs, significant risk to injuries |
| H6 | Destructive | 2.0-2.4 | Ping Pong Ball | Bodywork of grounded aircraft, brick walls pitted |
| H7 | Destructive | 2.4-3.0 | Golf Ball | Severe roof damage, risk of serious injuries |
| H8 | Destructive | 3.0-3.5 | Hen Egg | Severe damage to aircraft bodywork |
| H9 | Super Hailstorms | 3.5-4.0 | Tennis Ball | Extensive structural damage; risk of severe or even fatal injuries to persons caught in the open |
| H10 | Super Hailstorms | 4.0+ | Baseball | Extensive structural damage; risk of severe or even fatal injuries to persons caught in the open |

*Table 3- 6 Historical Hail Events for Bannock County*

| Date | Location | Magnitude | Deaths | Injuries | Property Damage ($) | Crop Damage ($) |
|---|---|---|---|---|---|---|
| 9/1/2000 | Lava Hot Springs | 1 | 0 | 0 | 0 | 0 |
| 5/27/2001 | Pocatello | 0.75 | 0 | 0 | 0 | 0 |
| 7/13/2001 | Chubbuck | 1 | 0 | 0 | 0 | 0 |
| 7/15/2001 | Arimo | 1.5 | 0 | 0 | 0 | 0 |
| 7/19/2002 | Pocatello | 0.75 | 0 | 0 | 0 | 0 |
| 7/24/2002 | Inkom | 0.75 | 0 | 0 | 0 | 0 |
| 7/25/2002 | Pocatello | 0.75 | 0 | 0 | 0 | 0 |
| 7/25/2002 | Inkom | 0.75 | 0 | 0 | 0 | 0 |
| 4/28/2003 | Chubbuck | 1.75 | 0 | 0 | 0 | 0 |

| Date | Location | Magnitude | Deaths | Injuries | Property Damage ($) | Crop Damage ($) |
|---|---|---|---|---|---|---|
| 6/20/2003 | Swan Lake | 0.75 | 0 | 0 | 0 | 0 |
| 6/19/2004 | Pocatello | 0.75 | 0 | 0 | 0 | 0 |
| 6/24/2004 | McCammon | 0.75 | 0 | 0 | 0 | 0 |
| 7/18/2004 | Pocatello | 0.75 | 0 | 0 | 0 | 0 |
| 6/23/2005 | Pocatello | 0.75 | 0 | 0 | 0 | 0 |
| 8/4/2006 | Chubbuck | 0.75 | 0 | 0 | 0 | 0 |
| 8/18/2007 | Inkom | 0.75 | 0 | 0 | 0 | 0 |
| 8/22/2007 | Pocatello | 0.75 | 0 | 0 | 0 | 0 |
| 6/3/2009 | Chubbuck | 1 | 0 | 0 | 0 | 0 |
| 6/26/2009 | Pocatello | 1.25 | 0 | 0 | 0 | 0 |
| 7/4/2009 | Pocatello | 1 | 0 | 0 | 0 | 0 |
| 6/12/2013 | Chubbuck | 1 | 0 | 0 | 0 | 0 |
| 6/12/2013 | Pocatello | 1 | 0 | 0 | 0 | 0 |
| 6/12/2013 | Chubbuck | 1 | 0 | 0 | 0 | 0 |
| 6/1/2015 | Chubbuck | 2 | 0 | 0 | 0 | 0 |
| 6/1/2015 | Tyhee | 1.75 | 0 | 0 | 0 | 0 |
| 6/15/2015 | Downey | 1 | 0 | 0 | 0 | 0 |
| 8/27/2015 | Swan Lake | 1.25 | 0 | 0 | 0 | 0 |
| 4/2/2017 | Chubbuck | 1.25 | 0 | 0 | 0 | 0 |
| 4/2/2017 | Pocatello | 1 | 0 | 0 | 0 | 0 |
| 4/2/2017 | Chubbuck | 1 | 0 | 0 | 0 | 0 |
| 4/2/2017 | Pocatello | 1.25 | 0 | 0 | 0 | 0 |
| 4/2/2017 | Pocatello | 1.25 | 0 | 0 | 0 | 0 |
| 4/2/2017 | Chubbuck | 1 | 0 | 0 | 0 | 0 |
| 4/2/2017 | Pocatello | 1.5 | 0 | 0 | 0 | 0 |
| 6/28/2017 | Chubbuck | 1 | 0 | 0 | 0 | 0 |

## Impacts

The severity of hailstorm impacts in Bannock County is considered limited because of the past occurrences with no reported injuries. In the event of an injury, it can be treated locally with first aid. There are typically no severe impacts to the natural environment. Property damage and crop loss are the most likely impacts from a severe hailstorm event. Due to the large amount of agricultural land throughout Bannock County the potential crop loss is high in the event of a severe hailstorm.

## Loss Estimates

Economic loss can be extensive, especially to agricultural-based economies. Hail is very damaging to crops. Severe hail may cause extensive property damage, including damage to vehicle paint and bodywork, glass, shingles and roofs, plastic surfaces, etc. Hail loss nationally is estimated at over $1 billion annually. Bannock County has no reported damages to property or crops since 1999 from hail.

### 3.4.6 Wind

## Hazard Description

Straight-line wind is common. Straight-line winds are responsible for most thunderstorm wind damage, with wind speeds in excess of 100 mph on occasion. A common association with straight-line wind is a downburst. A downburst is a small area of rapidly descending air beneath a thunderstorm that can have wind velocities equal to that of a tornado. These can be extremely dangerous and can cause significant damage to buildings.

A tornado is a violently rotating column of air that bridges between thunderclouds and the earth, often forming a funnel-shaped cloud. Wind speeds within the vortex range from 40 to over 300 mph. The tornado itself can move across the ground at up to 70 mph. Damage is generally confined to a narrow path; however, the tornado may travel over large distances.

Straight-line winds are generated by thunderstorms. As previously discussed, thunderstorms typically occur during the spring and summer months. Thunderstorms can form anywhere in Bannock County. Some areas are more susceptible to high winds, which would indicate areas more susceptible to damage.

Tornadoes can also occur anywhere thunderstorms form. Although no data currently exist to help identify regions of particular risk, records of past wind and tornado events provide useful information in this regard.

Straight-line winds of concern are “high-winds.” A high wind is one that sustains wind speeds of 40 mph or greater for one hour or longer, or winds of 58 mph or greater for any duration. High wind advisories, watches, warnings are issued by the NWS according to the following criteria:

- *High Wind Advisory:* Issued when wind speeds may pose a hazard. In Idaho, the criterion is the potential for sustained winds at 30 to 39 mph or gusts of 45 to 47 mph, covering a significant part of at least one zone, and lasting for several hours.
- High Wind Warning: Issued when there is the potential for high wind speeds developing that may pose a hazard or be life threatening. In Idaho, the criterion is the potential for sustained winds at 30 to 39 mph or gusts of 45 to 57 mph, covering a significant part at least one zone, and lasting several hours.
- High Wind Watch: Issued when wind speeds may pose a hazard or be life-threating. In Idaho, the criterion is the potential for sustained winds greater than or equal to 35 knots, lasting at least one hour, or gusts of 50 knots for any time.

Tornado intensity is measured on the Fujita Scale (Table 3-7) using wind speed and characteristic damages to describe each scale rating.

*Table 3- 7 Fujita Scale*

| Scale | Wind Estimate (mph) | Typical Damage |
|---|---|---|
| F0 | < 73 | *Light damage.* Some damage to chimneys; branches broken off trees; shallow-rooted trees pushed over; sign boards damaged. |
| F1 | 73–112 | *Moderate damage.* Peels surface off roofs; mobile homes pushed off foundations or overturned; moving autos blown off roads. |
| F2 | 113–157 | *Considerable damage.* Roofs torn off frame houses; mobile homes demolished; boxcars overturned; large trees snapped or uprooted; light-object missiles generated; cars lifted off ground. |
| F3 | 158–206 | *Severe damage.* Roofs and some walls torn off well-constructed houses; trains overturned; most trees in forest uprooted; heavy cars lifted off the ground and thrown. |
| F4 | 207–260 | *Devastating damage.* Well-constructed houses leveled; structures with weak foundations blown away some distance; cars thrown and large missiles generated. |
| F5 | 261–318 | *Incredible damage.* Strong frame houses leveled off foundations and swept away; automobile-sized missiles fly through the air in excess of 100 meters (109 yards); trees debarked; incredible phenomena will occur. |

## Historical Frequencies

There have been 45-high wind events have been recorded in Bannock County, since 1997 (Table 3-8a and Table 3-8b). There have been eight high wind events reported that caused damages greater than $5,000; there have been no deaths reported due to high winds. Daily weather summaries were taken from the Pocatello Airport Weather Station for a 23-year period and analyzed using a Pearson Log III method to determine the return interval (Table 3-9). There have been two tornado events recorded since 1996 in Bannock County (Table 3-10).

*Table 3- 8a Bannock County High Wind Events (High Wind)*

| Date | Region | Magnitude (mph) | Deaths | Injuries | Property Damage ($) | Crop Damage ($) |
|---|---|---|---|---|---|---|
| 6/30/1997 | SW/SC Bingham, NW Bannock | 47 | 0 | 0 | 0 | 0 |
| 9/25/1999 | Lower Snake River Plain | 40 | 0 | 0 | 50,000 | 0 |
| 4/6/2000 | Lower Snake River Plain | 55 | 0 | 0 | 0 | 0 |
| 12/15/2000 | Lower Snake River Plain | 50 | 0 | 0 | 0 | 0 |
| 3/13/2001 | Lower Snake River Plain | 54 | 0 | 0 | 0 | 0 |
| 4/23/2002 | Lower Snake River Plain | 61 | 0 | 0 | 0 | 0 |
| 5/7/2002 | Lower Snake River Plain | 40 | 0 | 0 | 0 | 0 |
| 3/6/2003 | Lower Snake River Plain | 43 | 0 | 0 | 0 | 0 |
| 12/14/2003 | Lower Snake River Plain | 61 | 0 | 0 | 1,000 | 0 |
| 3/6/2004 | Lower Snake River Plain | 60 | 0 | 0 | 0 | 0 |
| 3/6/2004 | Caribou Highlands | 60 | 0 | 0 | 0 | 0 |
| 5/10/2004 | Lower Snake River Plain | 38 | 0 | 0 | 100,000 | 0 |

| Date | Region | Magnitude (mph) | Deaths | Injuries | Property Damage ($) | Crop Damage ($) |
|---|---|---|---|---|---|---|
| 5/10/2004 | Caribou Highlands | 39 | 0 | 0 | 0 | 0 |
| 4/13/2005 | Lower Snake River Plain | 40 | 0 | 0 | 0 | 0 |
| 11/14/2005 | Lower Snake River Plain | 58 | 0 | 0 | 0 | 0 |
| 11/23/2006 | Lower Snake River Plain | 46 | 0 | 0 | 0 | 0 |
| 1/4/2008 | Lower Snake River Plain | 65 | 0 | 0 | 3,000 | 0 |
| 2/14/2008 | Lower Snake River Plain | 54 | 0 | 0 | 0 | 0 |
| 5/20/2008 | Lower Snake River Plain | 41 | 0 | 0 | 0 | 0 |
| 5/12/2009 | Lower Snake River Plain | 36 | 0 | 0 | 2,000 | 0 |
| 10/26/2009 | Lower Snake River Plain | 52 | 0 | 0 | 4,500 | 0 |
| 4/27/2010 | Lower Snake River Plain | 52 | 0 | 0 | 4,000 | 0 |
| 5/3/2010 | Lower Snake River Plain | 54 | 0 | 0 | 0 | 0 |
| 9/5/2010 | Lower Snake River Plain | 56 | 0 | 0 | 500 | 0 |
| 10/24/2010 | Lower Snake River Plain | 56 | 0 | 0 | 2,000 | 0 |
| 10/24/2010 | Caribou Highlands | 52 | 0 | 0 | 1,000 | 0 |
| 11/16/2010 | Lower Snake River Plain | 52 | 0 | 0 | 0 | 0 |
| 11/16/2010 | Caribou Highlands | 56 | 0 | 0 | 0 | 0 |
| 12/29/2011 | Caribou Highlands | 56 | 0 | 0 | 3,000 | 0 |
| 2/22/2012 | Caribou Highlands | 61 | 0 | 0 | 10,000 | 0 |
| 2/22/2012 | Lower Snake River Plain | 54 | 0 | 0 | 40,000 | 0 |
| 2/25/2012 | Lower Snake River Plain | 56 | 0 | 0 | 1,000 | 0 |
| 10/16/2012 | Lower Snake River Plain | 61 | 0 | 0 | 165,000 | 0 |
| 4/13/2013 | Lower Snake River Plain | 53 | 0 | 0 | 0 | 0 |
| 3/17/2014 | Lower Snake River Plain | 56 | 0 | 0 | 3,000 | 0 |
| 3/17/2014 | Caribou Highlands | 50 | 0 | 0 | 5,000 | 0 |
| 11/18/2015 | Caribou Highlands | 54 | 0 | 0 | 1,000 | 0 |
| 10/30/2016 | Lower Snake River Plain | 52 | 0 | 0 | 1,500 | 0 |
| 5/12/2017 | Lower Snake River Plain | 50 | 0 | 0 | 100 | 0 |
| 5/12/2017 | Caribou Highlands | 56 | 0 | 0 | 0 | 0 |
| 10/20/2017 | Lower Snake River Plain | 50 | 0 | 0 | 0 | 0 |
| 11/1/2017 | Lower Snake River Plain | 50 | 0 | 0 | 2,000 | 0 |
| 1/30/2018 | Lower Snake River Plain | 52 | 0 | 0 | 500 | 0 |
| 4/2/2018 | Lower Snake River Plain | 56 | 0 | 0 | 150,000 | 0 |
| 4/2/2018 | Caribou Highlands | 51 | 0 | 0 | 65,000 | 0 |
| 5/6/2020 | Lower Snake River Plain | 50 | 0 | 0 | 0 | 0 |

*Table 3-8b Bannock County High Wind Events (Thunderstorm Wind)*

| Date | Region | Magnitude (mph) | Deaths | Injuries | Property Damage ($) | Crop Damage ($) |
|---|---|---|---|---|---|---|
| 7/17/1955 | Not Provided | 63 | 0 | 0 | 0 | 0 |
| 9/2/1970 | Not Provided | 0 | 0 | 0 | 0 | 0 |
| 9/18/1972 | Not Provided | 64 | 0 | 0 | 0 | 0 |
| 7/11/1975 | Not Provided | 0 | 0 | 0 | 0 | 0 |
| 9/17/1976 | Not Provided | 0 | 0 | 0 | 0 | 0 |
| 6/14/1977 | Not Provided | 50 | 0 | 0 | 0 | 0 |
| 7/6/1983 | Not Provided | 0 | 0 | 0 | 0 | 0 |
| 7/9/1983 | Not Provided | 0 | 0 | 0 | 0 | 0 |
| 3/21/1984 | Not Provided | 0 | 0 | 0 | 0 | 0 |
| 5/9/1989 | Not Provided | 50 | 0 | 0 | 0 | 0 |
| 8/8/1989 | Not Provided | 0 | 0 | 0 | 0 | 0 |
| 9/17/1989 | Not Provided | 0 | 0 | 1 | 0 | 0 |
| 8/27/1991 | Not Provided | 50 | 0 | 0 | 0 | 0 |
| 4/17/1992 | Not Provided | 55 | 0 | 0 | 0 | 0 |
| 4/17/1992 | Not Provided | 0 | 0 | 0 | 0 | 0 |
| 6/12/1992 | Not Provided | 56 | 0 | 0 | 0 | 0 |
| 7/20/1992 | Not Provided | 0 | 0 | 0 | 0 | 0 |
| 5/3/1993 | Not Provided | 55 | 0 | 0 | 0 | 0 |
| 5/5/1994 | Not Provided | 0 | 0 | 0 | 50,000 | 0 |
| 5/16/1996 | Pocatello | 50 | 0 | 0 | 0 | 0 |
| 6/14/1996 | Chubbuck | 43 | 0 | 0 | 0 | 0 |
| 6/14/1996 | Pocatello | 45 | 0 | 0 | 0 | 0 |
| 7/4/1996 | Pocatello | NA | 0 | 0 | 0 | 0 |
| 8/15/1997 | Pocatello | 43 | 0 | 0 | 0 | 0 |
| 1/17/1998 | Pocatello | NA | 0 | 0 | 2,000 | 0 |
| 2/14/2000 | McCammon | 51.2 | 0 | 0 | 40,000 | 0 |
| 9/13/2001 | Pocatello | NA | 0 | 0 | 0 | 0 |
| 4/28/2003 | Chubbuck | 70 | 0 | 0 | 6,000 | 0 |
| 8/22/2003 | Virginia | 50 | 0 | 0 | 0 | 0 |
| 8/22/2003 | Inkom | 50 | 0 | 0 | 0 | 0 |
| 8/22/2003 | Pocatello | 50 | 0 | 0 | 0 | 0 |
| 8/22/2003 | Pocatello | 50 | 0 | 0 | 0 | 0 |
| 8/22/2003 | Pocatello | 52 | 0 | 0 | 0 | 0 |
| 5/27/2004 | Chubbuck | 50 | 0 | 0 | 0 | 0 |
| 6/3/2004 | Pocatello | 56 | 0 | 0 | 0 | 0 |
| 6/9/2004 | Pocatello | 52 | 0 | 0 | 0 | 0 |
| 7/31/2004 | Pocatello | 65 | 0 | 0 | 5,700 | 0 |

| Date | Region | Magnitude (mph) | Deaths | Injuries | Property Damage ($) | Crop Damage ($) |
|---|---|---|---|---|---|---|
| 8/22/2004 | Chubbuck | 60 | 0 | 0 | 0 | 0 |
| 4/19/2005 | Chubbuck | 60 | 0 | 0 | 1,000 | 0 |
| 5/5/2005 | Pocatello | 60 | 0 | 0 | 300 | 0 |
| 5/9/2005 | Pocatello | 65 | 0 | 0 | 14,000 | 0 |
| 5/9/2005 | Chubbuck | 65 | 0 | 0 | 13,000 | 0 |
| 6/22/2005 | Chubbuck | 60 | 0 | 0 | 10,000 | 0 |
| 3/25/2006 | Pocatello | 61 | 0 | 0 | 40,000 | 0 |
| 3/25/2006 | Pocatello | 65 | 0 | 0 | 10,000 | 0 |
| 3/25/2006 | Pocatello | 65 | 0 | 0 | 100,000 | 0 |
| 3/25/2006 | Chubbuck | 70 | 0 | 0 | 10,000 | 0 |
| 3/25/2006 | McCammon | 60 | 0 | 0 | 10,000 | 0 |
| 8/4/2007 | Pocatello | 52 | 0 | 0 | 2,000 | 0 |
| 8/4/2007 | Pocatello | 52 | 0 | 0 | 1,000 | 0 |
| 8/18/2007 | Pocatello | 52 | 0 | 0 | 0 | 0 |
| 9/13/2009 | Pocatello | 65 | 0 | 0 | 6,000 | 0 |
| 8/6/2010 | ARIMO | 52 | 0 | 0 | 5,000 | 0 |
| 3/10/2011 | Chubbuck | 56 | 0 | 0 | 2,000 | 0 |
| 3/10/2011 | Portneuf | 53 | 0 | 0 | 0 | 0 |
| 6/29/2011 | Pocatello | 52 | 0 | 0 | 0 | 0 |
| 8/10/2012 | Chubbuck | 52 | 0 | 0 | 4,000 | 0 |
| 7/5/2013 | Chubbuck | 56 | 0 | 0 | 1,000 | 0 |
| 8/5/2013 | Lava Hot Springs | 56 | 0 | 0 | 0 | 0 |
| 6/15/2015 | DOWNEY | 61 | 0 | 0 | 8,000 | 0 |
| 12/21/2015 | Pocatello | 52 | 0 | 0 | 3,000 | 0 |
| 8/17/2016 | Pocatello | 56 | 0 | 0 | 1,000 | 0 |
| 9/1/2016 | Chubbuck | 52 | 0 | 0 | 0 | 0 |
| 9/14/2016 | North Pocatello | 56 | 0 | 0 | 200 | 0 |
| 5/6/2017 | Pocatello | 52 | 0 | 0 | 1,000 | 0 |
| 6/26/2017 | Pocatello | 56 | 0 | 0 | 2,000 | 0 |
| 7/6/2017 | Downey | 61 | 0 | 0 | 10,000 | 0 |
| 5/7/2019 | Chubbuck | 52 | 0 | 0 | 1,000 | 0 |
| 7/12/2019 | Chubbuck | 62 | 0 | 0 | 8,000 | 0 |
| 5/30/2020 | Chubbuck | 53 | 0 | 0 | 0 | 0 |

*Table 3- 9 Log Pearson Type III for High Wind Events*

| Return Period (Years) | Probability (%) | Maximum Wind (mph) |
|---|---|---|
| 1.05 | 95.2 | 42 |
| 1.25 | 80.0 | 44 |
| 2 | 50 | 46 |
| 5 | 20 | 48 |
| 10 | 10 | 50 |
| 25 | 4 | 51 |
| 50 | 2 | 53 |
| 100 | 1 | 54 |
| 200 | 0.5 | 55 |

*Table 3- 10 Historic Tornado Events in Bannock County*

| Date | Location | Fatalities | Injuries | Property Damage ($) | Crop Damage ($) |
|---|---|---|---|---|---|
| 2/14/2000 | Chubbuck | 0 | 0 | 110,000 | 0 |
| 8/17/2007 | Inkom | 0 | 0 | 1000 | 0 |

## Loss Estimates

Based on past occurrences Bannock County, the estimated damages from 1997 to 2020 from wind total approximates to $615,100, and the damage that occurred from the 1997 to 2020 from tornadoes totals approximately to $111,000. These costs are representative of loss to property. No crop loss was reported in the county. Other direct costs can include emergency response and cleanup of debris. Indirect costs include loss of industrial and commercial productivity. The overall cost can be greater than the recorded historical losses.

### 3.4.7 Drought

In Idaho, drought is an expected phase in the climatic cycle. Objective, quantitative definitions for drought exist; however, most authorities agree that, because of the many factors contributing to it and because its onset and relief are slow and indistinct, none is entirely satisfactory. For this assessment, a simplified definition is needed. To simply the definition of a drought, the National Drought Mitigation Center (NDMC) defines a drought as “A prolonged period of deficient precipitation within a geographical area.” Therefore, a drought is the result of a significant decrease in water supply relative to what is normal in that area.

Drought in Idaho is generally associated with a sustained period of low winter snowfall. This results from a temporary, yet significant, change in the large-scale weather patterns in the western United States. The limited snowpacks result in reduced stream flows and groundwater recharge. Idaho’s system of reservoirs and natural storage can buffer the effects of minor events over a few years; however, a series of dry winters will result in a shortage of available water. Extended periods of above-average temperatures during the spring and summer can increase the impacts of low snowpack.

Drought has the potential to impact all of Bannock County and associated jurisdictions. However, based on the typical precipitation in the Snake River Plain, any impacts from drought are more likely to impact the western part of the country.

## Extent

The extent or magnitude of a drought is dependent on the amount of precipitation within the area. By measuring precipitation rates, the extent of drought conditions can be estimated. For the purposes of this plan, NDMC's Standardized Precipitation Index (SPI) is used to identify emerging droughts. The SPI measures precipitation shortfall and excess over a variety of time scales. The SPI map for Idaho is provided in Figure 3-4. The current drought condition can be mapped and used to predict future drought conditions (see Figure 3-5 for November 2020).

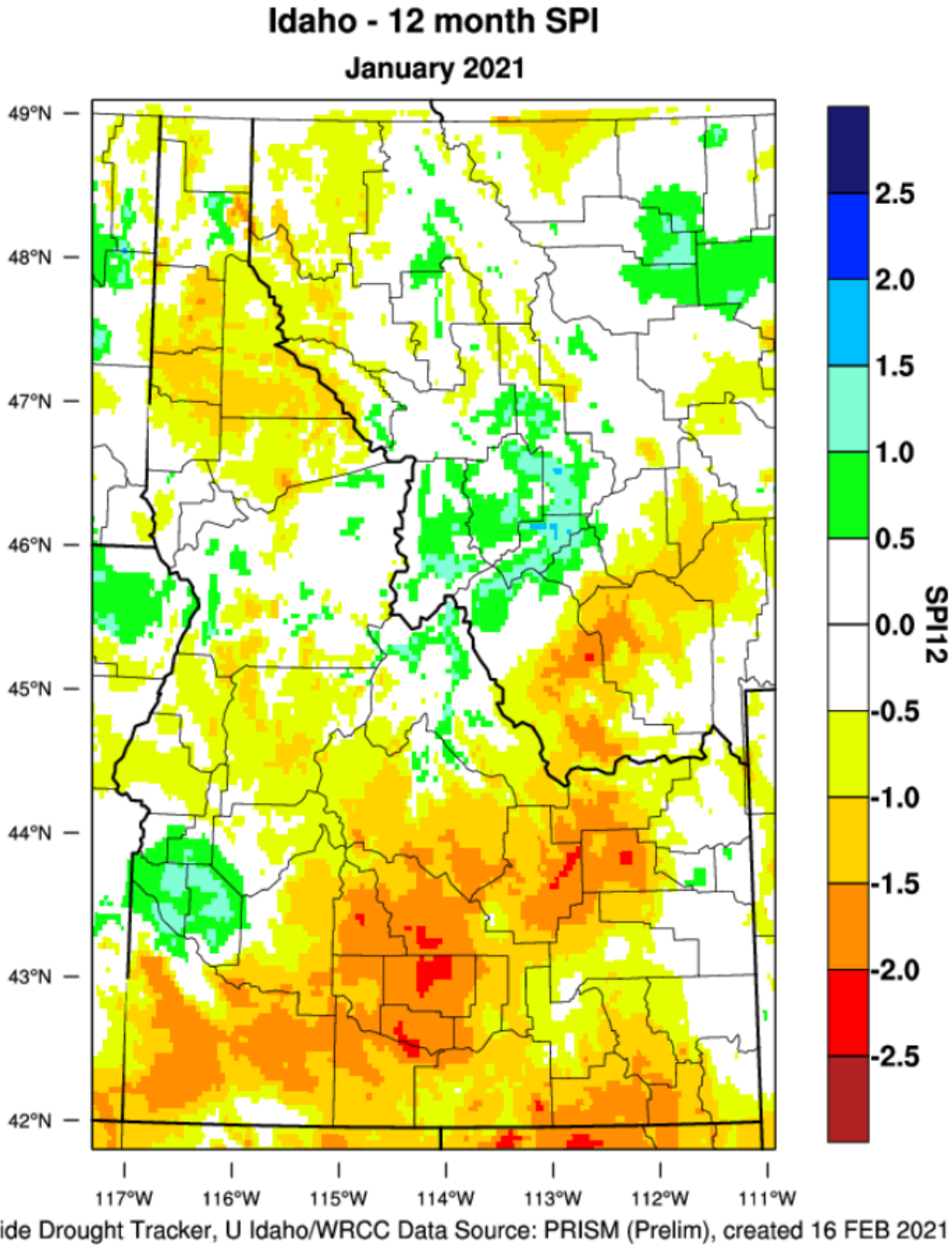


*Figure 3- 4 Idaho 12-month SPI*

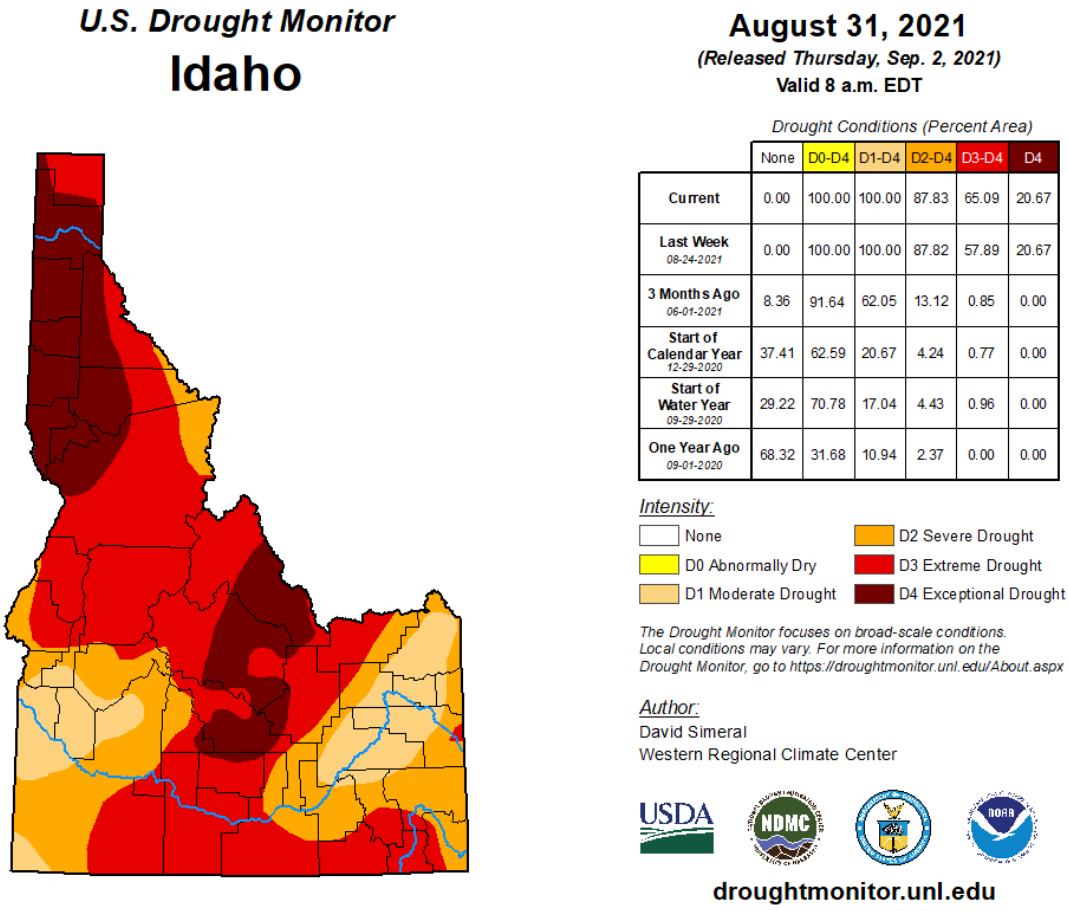


*Figure 3- 5 Palmer Modified Drought Index*

## Previous Occurrences

The Idaho Department of Water Resources reports that meteorological drought conditions (a period of low precipitation) existed in the State approximately 30% of the time during the period 1931-1982. Principal drought in Idaho, indicated by stream flow records, occurred during 1929-41, 1944-45, 1959-61, 1977, and 1987-92. The most prolonged drought in Idaho was during the 1930s. For most of the State, that drought lasted for 11 years (1929-41) despite greater than average stream flows in 1932 and 1938. In 1977, the worst single year on record, a severe water shortage occurred throughout Idaho and the West. Stream flows were below normal from1979 to 1981. A federal declaration was issued in 1977 for the State of Idaho and counties neighboring Bannock County (Idaho State Hazard Mitigation Plan 2019). Drought Emergency Declarations were issued for Bannock County in the years2001, 2003, 2004, 2005, and 2007, 2012, and 2013.

## Future Occurrences

Based on past occurrences within the county and throughout most of Idaho, it is anticipated that droughts will continue to occur yearly, but the severity will vary. Since the 1920s, Idaho has had drought conditions for at least one year each decade and usually for more prolonged periods. The magnitude of

the drought is dependent on the amount of precipitation that is received throughout the year, which varies from year to year; therefore, the extent of future events is unknown. However, with the SPI, Drought Monitor, and other tools used to predict droughts, warnings can be issued months in advance.

## Vulnerability Assessment

Bannock County is vulnerable to drought because it is located in an arid region. Drought has the potential to impact the people and the built and natural environments. Because of the large agricultural and other resource-based industries within the country, impact to the economy would result in long-term consequences.

Drought produces a complex web of impacts that span many sectors of the economy and reach well beyond the area experiencing physical drought. This complexity exists because water is integral to the ability to produce goods and provide services. Furthermore, because of the complex web, it is difficult to assess financial estimates and damages as a direct result of drought impacts.

Drought impacts can be categorized as economic, environmental, or social. Many of these impacts overlap, and direct impacts cannot be tied specifically to one category. Some examples of drought impacts include reduced crop, rangeland, and forest productivity; increased fire hazard, increased livestock mortality rates; and damage to wildlife and fish habitat. Examples of indirect impacts include soil erosion caused by wind and water, fewer recreational opportunities, and increased problems with insects and diseases to forests.

Economic impacts include:

- Losses of crop, livestock, and timber production and associated businesses,
- Losses from recreation providers and associated business,
- Losses related to the increased costs resulting from increased energy demand and shortages caused by reduced hydroelectric generation capacity, and
- Long-term loss of economic growth and development.

Arimo, Chubbuck, Downey, Inkom, Lava Hot Springs, McCammon, and Pocatello have large agriculture industries that could be greatly affected by a significant drought. An extreme and prolonged drought could result in limited availability of irrigation water causing severe crop losses throughout Bannock County.

## Hazard Summary

Drought occurs regularly and, with modeling tools, can be predicted. Based on historical occurrences and the extent, droughts will typically occur countywide, but are more likely to occur in the western part of the county. An estimated loss is difficult to determine because of the overall impact to the economy; however, based on reported average historical estimates it is assumed loss estimates would be in the hundreds of thousands if not millions of dollars. For severe, droughts, the state would provide reconstruction assistance in the form of a temporary change in water rights, which has occurred in the past. No sheltering is required during drought event. Droughts do not typically cause bodily harm. Historical records indicate that drought events occur regularly and can be expected to continue occurring on a yearly basis.

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

## 3.5 Flooding

| Hazard Overview | | | |
|---|---|---|---|
| Location: | | County-Wide | |
| Frequency/Previous Occurrence: | | Moderate | |
| Impact/Consequence: | | Moderate | |
| Community Vulnerability: | | Moderate | |
| **Overall Hazard Ranking by Jurisdiction** | | | |
| Arimo | Chubbuck | Downey | Inkom |
| Low | Low | Low | High |
| Lava Hot Springs | McCammon | Pocatello | |
| Low | Moderate | Moderate | |

## Description

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

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

In Idaho, flooding most commonly occurs in the spring and is caused by snowmelt. Floods occur in Idaho everyone to two years and are considered the most serious and costly natural hazard affecting the state. The amount of damage caused by a flood is influenced by the speed and column of the water flow, the length of time the impacted area is inundated, the amount of sediment and debris carried and deposited, and the amount of erosion that may take place.

Flooding can be caused by natural elements or humans. Natural causes include heavy rainfall, rapid snowmelt, flash floods, and alluvial fan flooding. Human causes include dam failure and urban storm water overflow. In this section, both natural and human-caused floods are discussed.

## Flood Terminology

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

- *Flood Insurance Study* – An official report, provided by the Federal Insurance Administration, that provides flood profiles, the flood boundary-floodway map, and water surface elevation of the estimated 100-year base flood.
- *Flood Insurance Rate Map (FIRM)* – An official map on which the Federal Insurance Administration has delineated both the areas of special flood hazards and the risk premium zone applicable to the community.
- *100-Year Base Flood* – A flood having a 1% chance of being equaled or exceeded in any given year.
- *Floodplain* – Land adjacent to a lake, river, stream, estuary, or other water body that is subject to flooding. If left undisturbed, the floodplain serves to store and discharge excess floodwater. In riverine systems, the floodplain includes the floodway.
- *Floodway* – A channel of a river or other watercourse and the adjacent areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than one foot.
- *National Flood Insurance Program (NFIP)* – The federal standard for floodplain management that establishes a 100-year floodplain.
- *100-Year Floodplain* – An area chosen using historical data to define where, in any given year, there is a 1% chance of a flood that covers or exceeds the floodplain.

## Types of Flooding

As described above, flooding is the partial or complete inundation of normally dry land. Natural types of flooding include riverine flooding, flash flooding, alluvial fan flooding, and ice/debris jam flooding, as discussed below. There is often no sharp distinction between the various types of flood events.

- Riverine Flooding: Riverine or overbank flooding of rivers and streams is the most common type of flood event. Riverine floodplains range from narrow, confined channels in the steep valleys of hilly and mountainous areas to the wide, flat areas. The volume of water in the floodplain is a function of the size of the contributing watershed; topographic characteristics (i.e., watershed shape and slope); and climatic and land-use characteristics. In steep, narrow valleys, flooding usually occurs quickly and is of short duration, and floodwaters are likely to be rapid and deep. In relatively flat floodplains, areas may remain inundated for days or even weeks; however, floodwaters are typically slow moving and relatively shallow and may accumulate over long periods.

  Overbank flooding occurs when downstream channels receive more rain or snowmelt from their watershed than normal, and the excess water overloads the channels and flows out onto the floodplain. For large rivers, overbank flooding typically follows large-scale precipitation events that occur over a large area. For small rivers and streams, overbank flooding can occur after small precipitation events because the small channels can become easily overwhelmed. Overbank flooding often occurs in the late winter or spring because of snowmelt (often caused by a rain-on-snow event), and the extent of flooding depends on the depth of winter snowpack and spring weather patterns.

- Flash Floods: A flash flood can occur when a severe storm generates a significant amount of rainfall in a short amount of time. Flash flood events are often characterized by a rapid rise in water level, high velocity, and large amounts of debris. Flash-flood intensity is determined by the amount of rainfall and the steepness of watershed and stream gradients. The amount of watershed vegetation, the natural and artificial flood storage areas, and the configuration of the stream bed and floodplain are also important factors. Changes to these can increase or decrease the severity of a flash flood. For example, the loss of vegetation in a steep canyon after a wildfire could cause severe flash flooding. Flash flooding in urban areas is an increasing hazard because of impervious surfaces, gutters, and storm sewers that can increase the velocity of runoff.

- Alluvial Fan Floods: Alluvial fans are sloping, fan-shaped landforms common at the base of mountain ranges in arid and semiarid regions. They are made of soft sediments that are deposited where a stream or river leaves a defined channel and enters a broader flatter floodplain. The soft sediments can be easily moved by water, causing shifting of river channels and erosion of riverbanks. These areas have a high risk of flooding because, as rivers or streams continually deposit sediments, the channel can exceed capacity causing overbank flooding. Human developments, including roads, can alter flow patterns and increase erosion, which increases the likelihood of severe flooding.
- Ice/Debris Jam Floods: Flooding caused by ice/debris jams is similar to flash flooding. Ice or debris that is blocked in a stream channel can cause a rapid rise of water at the jam and extend upstream. Failure or release of the jam causes sudden flooding downstream. Ice/debris jams are most likely to occur where the channel slope naturally decreases; at headwaters of reservoirs; at natural channel constrictions (i.e., bends and bridges); and along shallow stretches of streams. Ice jam floods can occur during fall freeze-up from the formation of frazil ice, during mid-winter periods when stream channels freeze solid to form anchor ice, and during spring break-up when rising water levels from snowmelt or rainfall break the existing ice cover into large floating masses that lodge at bridges and other constrictions. Debris jam may result from land sliding, dumping, or inappropriate streamside vegetation management. These can occur at any time of the year.

Natural floods are most likely to occur within floodplains, especially NFIP-identified 100-year floodplain. One-hundred-year floodplains are found throughout Bannock County (Figure 3-6).

## Extent

Floods vary greatly in frequency and magnitude. Small flood events occur much more frequently than large, devastating events. In order to identify the extent of a flood, the term base flood is used. A base flood is a flood that covers or exceeds the determined floodplain or a flood that has a 1% chance of being equaled or exceeded in any given year. Base floods can occur in any year, even successive ones. As defined above, base floods are also referred to as a 100-year flood or a regulatory flood. Floods are described by their statistical frequency. A 100-year flood describes an event or an area subject to a 1% probability of a certain size flood occurring in any given year, even successive ones. This concept does not mean that a flood will happen only once every 100 years. Since floodplains can be mapped, the boundary of the 100-year flood is commonly used in floodplain mitigation programs to identify areas where the risk of flooding is significant.

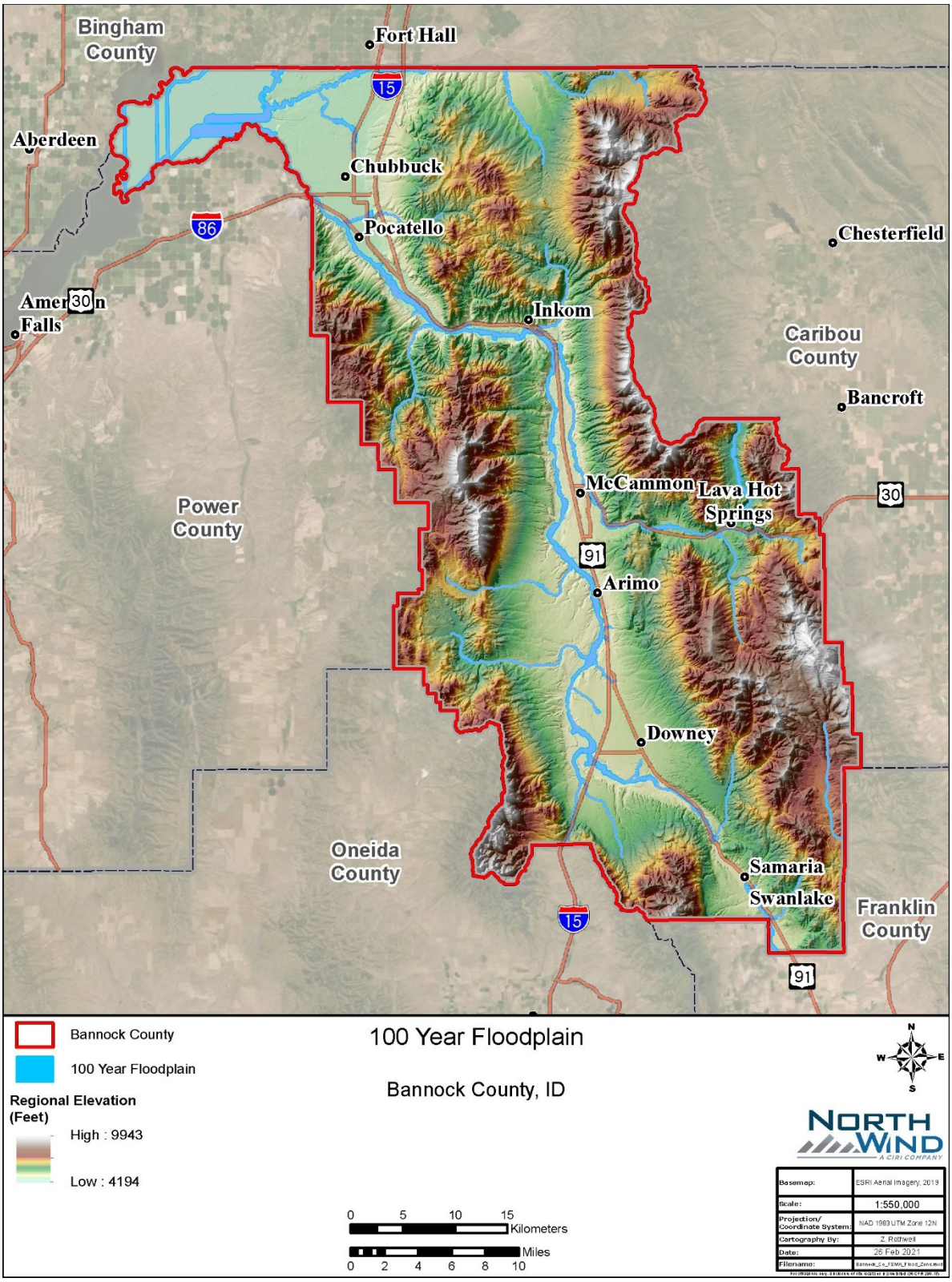


*Figure 3- 6 FIRM 100 Year Flood Plain*

There are two meanings to the term floodplain: practical and regulatory. The practical term, as described above, is an area that can be inundated by floodwater. The duration and size of the inundation is dependent on the magnitude of the event. Historic floodplains can be altered by human activities and, therefore, can alter natural flooding processes. In regulatory terms, a floodplain is an area where specific regulations and programs apply. Idaho code defines a floodplain as land that has been or may be covered by floodwaters, or is surrounded by floodwater and inaccessible, during the occurrence of the regulatory flood. Using the regulatory meaning of a floodplain and 100-year flood boundaries, planning and zoning efforts regulate some human activities in floodplains in order to protect the population, infrastructure, and facilities.

Application of these terms and concepts to flash floods and ice/debris jam floods can be difficult. Instead of floodplain, the term inundation zone is used to describe areas most likely impacted by flash floods and ice/debris jam floods. Inundation zones may be determined by projecting the anticipated volume of water, terrain features, and vegetation. However, inundation zones are less obvious than identified floodplains.

## Past Occurrences

Bannock County has historically been prone to flooding along the Portneuf River as well as Marsh Creek. The years 1962 and 1963 saw two of the worst flood years on record. In February of 1962 prolonged rain and warm temperatures melted snow and flooded the Portneuf and Snake Rivers and Marsh Creek. Bannock County was the hardest hit of the counties affected by the flood. In Pocatello, more than 60 homes and numerous businesses were flooded with five feet of water from the Portneuf River, which reached a peak flow of 2,990 cubic feet per second (cfs). One death was attributed to the flood, and the City's water supply was contaminated. Damage to Pocatello was estimated at $1.63 million. In Lava Hot Springs, the floodwaters tore out all four bridges and washed away building foundations and roads, isolating the community and leaving layers of mud. Damage to the town was estimated at $1.5 million. In Inkom, floodwaters damaged roads and agricultural land. The Red Cross received 141 applications for aid. County damages were estimated at $3,100,000.

The following year in February heavy rain and melting snow caused the Portneuf and Snake Rivers to flood again. The Portneuf River reached an estimated peak flow of 2470 cfs, and numerous creeks, including Marsh Creek, flooded river bottoms and farmlands throughout the County. Bancroft and Lava Hot Springs were hit hardest and filed for Federal emergency disaster relief funds. To alleviate future flooding, the Portneuf River flood control project was undertaken. The project, costing $7 million and taking 2.5 years, produced a 5.3-mile concrete channel with levees and riprapped banks which drains 1,250 square miles of runoff.

Flooding events in Bannock county are seasonal. There have been 46 recorded flood events in the County from 1997 to 2020 (Table 3-11) with approximately $3,659,000 in property damage in Bannock County. Meteorological data review did not find any ice/debris jam floods in Bannock County.

*Table 3- 11 Bannock County Historic Floods*

| Date | Location | Flooding Type | Deaths | Injuries | Property Damage ($) | Crop Damage ($) |
|---|---|---|---|---|---|---|
| 6/18/1997 | Pocatello | Flood | 0 | 0 | 0 | 0 |
| 7/25/1997 | Pocatello | Flood | 0 | 0 | 0 | 0 |
| 7/28/1997 | Pocatello | Flood | 0 | 0 | 0 | 0 |
| 8/10/1997 | Pocatello | Flood | 0 | 0 | 0 | 0 |
| 8/12/1997 | Pocatello | Flood | 0 | 0 | 0 | 0 |
| 9/12/1998 | Pocatello | Flood | 0 | 0 | 0 | 0 |
| 9/30/1998 | Pocatello | Flood | 0 | 0 | 0 | 0 |
| 8/3/2003 | Pocatello | Flash Flood | 0 | 0 | 0 | 0 |
| 8/22/2003 | McCammon | Flash Flood | 0 | 0 | 0 | 0 |
| 8/24/2003 | Inkom | Flash Flood | 0 | 0 | 0 | 0 |
| 7/18/2004 | Pocatello | Flash Flood | 0 | 0 | 535,000 | 0 |
| 8/17/2004 | Inkom | Flash Flood | 0 | 0 | 0 | 0 |
| 8/22/2005 | Swanlake | Flash Flood | 0 | 0 | 0 | 0 |
| 9/21/2005 | Pocatello | Flash Flood | 0 | 0 | 5,000 | 0 |
| 5/1/2006 | Pocatello | Flood | 0 | 0 | 0 | 0 |
| 9/5/2007 | Pocatello | Flash Flood | 0 | 0 | 0 | 0 |
| 9/5/2007 | Pocatello | Flash Flood | 0 | 0 | 0 | 0 |
| 2/24/2009 | Chubbuck | Flood | 0 | 0 | 5,000 | 0 |
| 6/14/2009 | Pocatello | Flash Flood | 0 | 0 | 8,000 | 0 |
| 6/14/2009 | Swanlake | Flood | 0 | 0 | 25,000 | 0 |
| 6/26/2009 | Pocatello | Flash Flood | 0 | 0 | 700,000 | 0 |
| 7/4/2009 | Inkom | Flash Flood | 0 | 0 | 500,000 | 0 |
| 7/4/2009 | Pocatello | Flash Flood | 0 | 0 | 1,000 | 0 |
| 8/23/2009 | Pocatello | Flash Flood | 0 | 0 | 1,000 | 0 |
| 8/23/2009 | Pocatello | Flash Flood | 0 | 0 | 1,000 | 0 |
| 5/8/2011 | Pocatello | Flood | 0 | 0 | 0 | 0 |
| 6/1/2011 | Pocatello | Flood | 0 | 0 | 10,000 | 0 |
| 7/4/2011 | Pocatello | Flash Flood | 0 | 0 | 0 | 0 |
| 2/22/2012 | Chubbuck | Flood | 0 | 0 | 9,000 | 0 |
| 7/7/2013 | Pocatello | Flash Flood | 0 | 0 | 0 | 0 |
| 8/23/2013 | Chubbuck | Flash Flood | 0 | 0 | 500,000 | 0 |
| 9/3/2013 | Chubbuck | Flash Flood | 0 | 0 | 700,000 | 0 |
| 9/8/2013 | Pocatello | Flash Flood | 0 | 0 | 1,000 | 0 |
| 7/11/2014 | Pocatello | Flash Flood | 0 | 0 | 0 | 0 |
| 8/5/2014 | Chubbuck | Flash Flood | 0 | 0 | 6,000 | 0 |
| 8/8/2014 | Arimo | Flash Flood | 0 | 0 | 0 | 0 |
| 8/13/2014 | Pocatello | Flash Flood | 0 | 0 | 0 | 0 |
| 8/14/2014 | Inkom | Flash Flood | 0 | 0 | 0 | 0 |
| 5/8/2015 | Pocatello | Flash Flood | 0 | 0 | 2,000 | 0 |

| Date | Location | Flooding Type | Deaths | Injuries | Property Damage ($) | Crop Damage ($) |
|---|---|---|---|---|---|---|
| 1/9/2017 | Swanlake | Flood | 0 | 0 | 0 | 0 |
| 2/5/2017 | Chubbuck | Flood | 0 | 0 | 450,000 | 0 |
| 3/1/2017 | Chubbuck | Flood | 0 | 0 | 125,000 | 0 |
| 4/4/2017 | Pocatello | Flood | 0 | 0 | 0 | 0 |
| 5/1/2017 | Pocatello | Flood | 0 | 0 | 65,000 | 0 |
| 6/1/2017 | Pocatello | Flood | 0 | 0 | 10,000 | 0 |
| 5/18/2018 | Alameda | Flash Flood | 0 | 0 | 0 | 0 |

## Future Occurrences

Although flooding is relatively infrequent in Bannock County, it is likely to occur in the future. The majority of flood events have been flash floods, but based on the topography of the county, flash floods are likely to occur.

As with other similar natural processes, a return period and probability of future occurrence can be developed from the historical records that are available.

It can be reasonably assumed, based on recorded observations from 1997 through 2019, flooding events occurred once every year. A major flood event has occurred twice every year.

[(Current Year)2019] – [(Historical Year)1997] = 21 years

[(Years on Record) 21] / [(Number of Historical Events) 46] = 0.47 years

Based on historical probability, a flood may occur twice during any given year in Bannock County. The annualized frequency for flooding generated from the National Incident Management System (NIMS) Report is 1.86 floods per year.

Flood warning lead times can vary depending on the forecasting. The NWS issues forecasts and warnings of floods. Warnings are determined by water flow and computer modeling. Most riverine floods can be anticipated in advance, and flood watches are issued no later than six hours after a heavy rain event. Flood warnings are issued as the flood is imminent or occurring. Flash floods are more difficult to predict but will generally follow heavy rain events, and areas that are prone are easily identified.

## Vulnerability Assessment

Hazards during flooding include drowning, electrocution due to downed power lines, leaking gas lines, fire and explosions, hazardous chemicals, and displaced wildlife. Economic loss and disruption of social systems are often substantial. Floods may destroy or damage structures, furnishings, business assets (including records), crops, livestock, roads and highways, and railways. Floods often deprive large areas of electric service, potable water supplies, wastewater treatment, communications, and many other community services, including medical care, and may do so for long periods.

There is repetitive loss due to flooding in Bannock County along the Portneuf River especially between Inkom and the City of Pocatello City Limits which are within the FEMA FIRM floodplain.

An analysis using HAZUS, a regional multi-hazard loss estimation model that was developed by FEMA and the National Institute of Building Sciences (NIBS), was conducted to determine the estimated loss from a 500-year, 100-year, 50-year, 25-year, and 10-year flood.

The geographical size of the region is approximately 1,147 square miles and contains 4,892 census blocks. The region contains over 31 thousand households and has a total population of 82,839 people (2010 Census Bureau data). There are an estimated 31,147 buildings in the region with a total building replacement value (excluding contents) of $7,616 million. Approximately 91.11% of the buildings (and 76.10% of the building value) are associated with residential housing.

For a 100-year flood, HAZUS estimates that about 301 buildings will be at least moderately damaged. This is over 66% of the total number of buildings in the scenario. There are an estimated 10 buildings that will be completely destroyed. Before the flood analyzed in this scenario, the region had 384 hospital beds available for use. On the day of the scenario flood event, the model estimates that 384 hospital beds are available in the region. For essential facilities, there are 3 hospitals in the region with a total bed capacity of 384 beds. There are 42 schools, 7 fire stations, and 4 police stations.

Furthermore, HAZUS estimates the number of households expected to be displaced from their homes due to the flood and the associated potential evacuation. HAZUS also estimates those displaced people that will require accommodations in temporary public shelters. The model estimates 984 households, 2,952 people, will be displaced due to the flood. Displacement includes households evacuated from within or very near the inundated area. Of these, 100 people (out of 82,839) will seek temporary shelter in public shelters.

The building losses are broken into two categories: (1) direct building losses and (2) business interruption losses. The direct building losses are the estimated costs to repair or replace the damage caused to the building and its contents. The business interruption losses are the losses associated with inability to operate a business because of the damage sustained during the flood. Business interruption losses also include the temporary living expenses for those people displaced from their homes because of the flood.

The total building-related losses were 82.48 million dollars. 39% of the estimated losses were related to the business interruption of the region. The residential occupancies made up 62.76% of the total loss. The number of structures and estimated damages for each area as follows:

- Bannock County has approximately 1,950 structures in a floodplain resulting in the potential up to $205 million in damages.
- Chubbuck and Arimo are in entirely in the Area of Minimal Flood hazard resulting in minimal damages expected during a flood event.
- Pocatello has approximately 2,152 structures, including some critical facilities, in a floodplain resulting in the potential up of to $210 million in damages.
- Inkom has approximately 65 structures, in a floodplain resulting in the potential up of to $5.7 million in damages.
- McCammon has approximately 35 structures, in a floodplain resulting in the potential up of to $4.2 million in damages.
- Lava has approximately 25 structures, in a floodplain resulting in the potential up of to $2.3 million in damages.
- Downey has approximately 30 structures in a floodplain resulting in up to $3.8 million in damages.

## Hazard Summary

Floods can be predicted, and warning times range from hours to days. Floods have the potential to impact large areas. The economic loss from a large flood can be extensive; based on a HAZUS analysis for Bannock County, the estimated loss is in the $10,000,000s. The majority of damage would be covered by NFIP to cover reconstruction assistance. Sheltering would be required. Floods can cause bodily harm, and even some deaths may occur. Historical records for flood events indicate that eight have occurred in the county since 1996; therefore, the overall frequency for these events is high.

# 3.6 Dam Failure

| **Hazard Overview** | | | |
|---|---|---|---|
| Location: | | County-Wide | |
| Frequency/Previous Occurrence: | | Low | |
| Impact/Consequence: | | Moderate | |
| Community Vulnerability: | | Low | |
| **Overall Hazard Ranking by Jurisdiction** | | | |
| Arimo | Chubbuck | Downey | Inkom |
| Low | Low | Low | Low |
| Lava Hot Springs | McCammon | Pocatello | |
| Low | Low | Low | |

## Description

A dam is defined as an artificial barrier across a watercourse for the purpose of storage, control, or diversion of water. Most dams are constructed of earth, rock, and/or concrete. Dam failure is the unintended release of impounded waters. Dams can fail for one or a combination of the following reasons:

- Overtopping caused by flood that exceed the capacity of the dam,
- Deliberate acts of sabotage,
- Structural failure of materials used in dam construction,
- Poor design and/or construction methods,
- Movement and/or failure of the foundation supporting the dam,
- Settlement of concrete or embankment dams,
- Piping and internal erosion of soil in the embankment, and/or
- Inadequate maintenance and upkeep.

Failures may be categorized into two types; (1) component failure of a structure that does not result in a significant reservoir release, and (2) uncontrolled breach failure that leads to a significant release. With an uncontrolled breach failure of a manmade dam there is a sudden release of the impounded water, sometimes with little warning. The ensuing flood wave and flooding have enormous destructive power. The Idaho Department of Water Resources (IDWR) is responsible for dam safety in this State.

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

### Size Classification

*Small* – 20 feet high or less and a storage capacity of less than 100 acre-feet of water

*Intermediate* – More than 20 feet, but less than 40 feet high or with a storage capacity of 100 to 4,000 acre-feet of water.

*Large* – 40 feet high or more or with a storage facility of more than 4,000 acre-feet of water.

### Risk Classification

*Low* - No permanent structures for human habitation. Minor damage to land, crops, agricultural, commercial or industrial facilities, transportation, utilities, or other public facilities or values.

*Significant* – Non-concentrated urban development, with one or more permanent structures for human habitation that are potentially inundated with flood water at a depth of two feet or less or at a velocity of two feet per second or less. Significant damage to land; crops; agricultural; commercial or industrial facilities; or loss of use and/or damage to transportation, utilities, or other public facilities or values.

*High* – Urban development or any permanent structure for human habitation that is potentially inundated with flood water at a depth of more than two feet or at a velocity of more than two feet per second. Major damage to land; crops; agricultural; commercial or industrial facilities; and loss of use and/or damage to transportation, utilities, or other public facilities or values.

## Extent

Dam failure is most likely to impact inundation areas that are downstream and immediately around the dam. The extent of the hazard is difficult to determine because of different factors that are involved in a dam failure. In order to assess the hazards that a dam poses to downstream areas, a risk assessment is conducted. The risk assessment is divided into three analyses: (1) analysis of the probability of failure for a given structure, (2) analysis of the flood wave characteristics and extent of inundation resulting from the uncontrolled release, and (3) analysis of the potential consequences to life and property within the inundation zone. All of these analyses include substantial uncertainty; therefore, these analyses are limited in estimating the extent of flooding. However, they provide a basis for determining the severity of a dam failure.

The IDWR Dam Safety Program has classified dams and reservoirs as high, significant, and low risk. As described above, this classification system is based on the potential loss of life and property from a potential dam failure and uncontrolled release. Based on this system, dams with the most potential to impact developed urban areas and large populations are classified as higher risk, not the potential for dam failure.

## Previous Occurrences

Dam failure is infrequent but can have significant consequences. In total, Idaho has experienced two major dam failures: the Teton Dam (1976) and Kirby Dam (1991). The Teton Dam failure impacted areas of Bannock County, with approximately 19,000 acres and 38 homes damaged in the county, totaling $250 million in damage.

The dams in Bannock County are shown in Figure 3-7. There are no recorded dam failures in Bannock County.

## Future Occurrences

Dam failures can be controlled through good design, proper construction, regular inspection by qualified personnel, and a commitment to strong enforcement to correct identified deficiencies. The risk to downstream life and property can be reduced substantially with efforts to limit some types of development adjacent to streams and rivers.

The IDWR Dam Safety Program oversees the regulation and safety of dams and reservoirs throughout Idaho in order to protect the health, safety, and welfare of citizens and their property. Program personnel regularly inspect existing projects according to the potential consequences that the dam's failure would present to downstream life and property. The frequency of individual dam inspections depends in the project's physical condition, method of construction, maintenance record, age, hazard rating, and size and storage capacity. All statutory-sized dams must be inspected by IDWR at least once every five years.

The greater the warning time, the fewer people are at risk of injury or death resulting from a flood caused by a dam failure. It is estimated that with less than 15 minutes of warning time, 50% of the population in an estimated inundation zone risk loss of life. With more than 90 minutes of warning time, the estimated loss is approximately 0.0002% of the population. Early detection systems can increase the warning time.

## Vulnerability Assessment

Dams regulated in the IDWR Dam Safety Program are listed in Table 3-12.

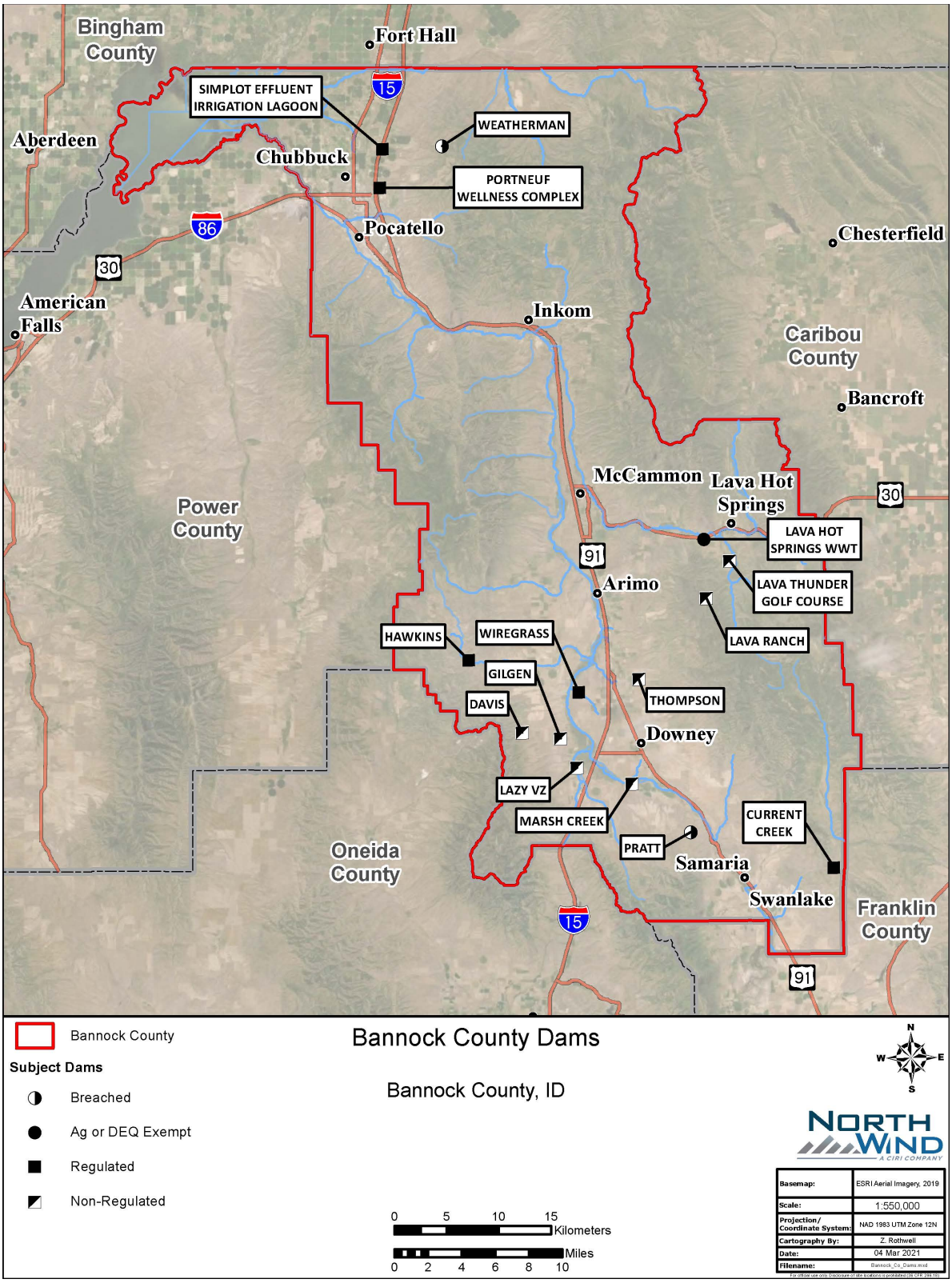


*Figure 3- 7 Dams in Bannock County*

*Table 3- 12 Bannock County Regulated Dams*

| Name | Source | Status | Year Completed | Dam Height (ft) | Normal Storage (acre-ft) | Downstream Hazard Potential | Size Classification |
|---|---|---|---|---|---|---|---|
| Current Creek | Current Creek | Regulated | 1977 | 49 | 800 | Significant | Intermediate |
| Davis | Unnamed Streams | Non-Regulated | NA | 13 | 9 | Not rated | Small |
| Gilgen | Reese Creek | Non-Regulated | NA | 24 | 5 | Low | Small |
| Hawkins | Hawkins Creek | Regulated | 1870 | 35.1 | 880 | Significant | Intermediate |
| Lava Hot Springs WWT | No Source | ag or deq exempt | NA | 15 | 101 | Not rated | Intermediate |
| Lava Ranch | Deer Creek | Non-Regulated | 1960 | 20 | 15 | Low | Small |
| Lava Thunder Golf Course | Portneuf River | Non-Regulated | NA | 8.5 | 5.6 | Low | Small |
| Lazy VZ | Station Creek | Non-Regulated | NA | 12 | 16.52 | Low | Small |
| Marsh Creek | Portneuf River | Non-Regulated | NA | 1 | 1 | Not Rated | Small |
| Portneuf Wellness Complex | Ground Water | Regulated | 2014 | 39 | 60.4 | Significant | Intermediate |
| Pratt | Coalpit Creek | breached | NA | 0 | 0 | NA | NA |
| Simplot Effluent Irrigation Lagoon | Unnamed Streams | Regulated | 1981 | 38.5 | 900 | High | Intermediate |
| Thompson | Yago Creek | Non-Regulated | 1958 | 16.1 | 8 | Low | Small |
| Weatherman | Two-and-a-half-mile creek | Breached | NA | 0 | 0 | NA | NA |
| Wiregrass | wiregrass springs | Regulated | 1943 | 17 | 86 | Low | Small |

Source: Dam Safety Program Research (idaho.gov)

## Hazard Summary

Impacts from dam failures in Bannock County would be minor and extremely localized. The major use for dams is irrigation in very rural parts of the County. Losses would be minimal.

## 3.7 Earthquake

| Hazard Overview | | | |
|---|---|---|---|
| Location: | | County-Wide | |
| Frequency/Previous Occurrence: | | Low | |
| Impact/Consequence: | | Low | |
| Community Vulnerability: | | Low | |
| **Overall Hazard Ranking by Jurisdiction** | | | |
| Arimo | Chubbuck | Downey | Inkom |
| Low | Low | Low | Low |
| Lava Hot Springs | McCammon | Pocatello | |
| Low | Low | Low | |

### Description

An earthquake is associated with energy traveling in waves radiating outward from the point of release. When these waves travel along the surface, the ground shakes and rolls and fractures form. Earthquakes generally last a matter of seconds; however, the waves can travel around the world in a matter of minutes and may cause damage elsewhere.

The formed factures are breaks in the earth's crust known as faults and are classified as either active or inactive. Faults may be expressed on the surface by sharp cliffs or scarp or may be buried below surface deposits. The faults in Bannock County are shown in Figure 3-8.

### Extent

The extent and magnitude of earthquakes are measured in two ways:

- Magnitude (as measured by the Richter Scale) – measures the energy that is released; and
- Intensity (as measured by the modified Mercalli Intensity [MMI] Scale)

Magnitude is calculated by seismologists from seismograph readings and is most useful to scientists comparing the power of earthquakes. Magnitude is often described using the Richter Scale and does not express damage. Earthquakes of Magnitude 2.0 or less are called microearthquakes and are not commonly felt. Events with magnitudes of approximately 4.5 or greater are strong enough to be recorded on a seismograph. The largest known shocks have had magnitudes in the 8.8 to 8.9 range.

An earthquake's intensity consists of a series of key responses, such as people waking up, movement of furniture, and overall destruction. Intensity typically decreases with the distance from the epicenter, or focal point, but also depends on the local geologic features (i.e., depth of sediment and bedrock layers). The intensity of an earthquake is measured by the MMI scale (Figure 3-9). This scale is composed of 12 increasing levels of intensity that range from imperceptible shaking to catastrophic destruction. Each level is designated by a roman numeral. The scale does not have a mathematical basis but an arbitrary ranking based on observed effects.

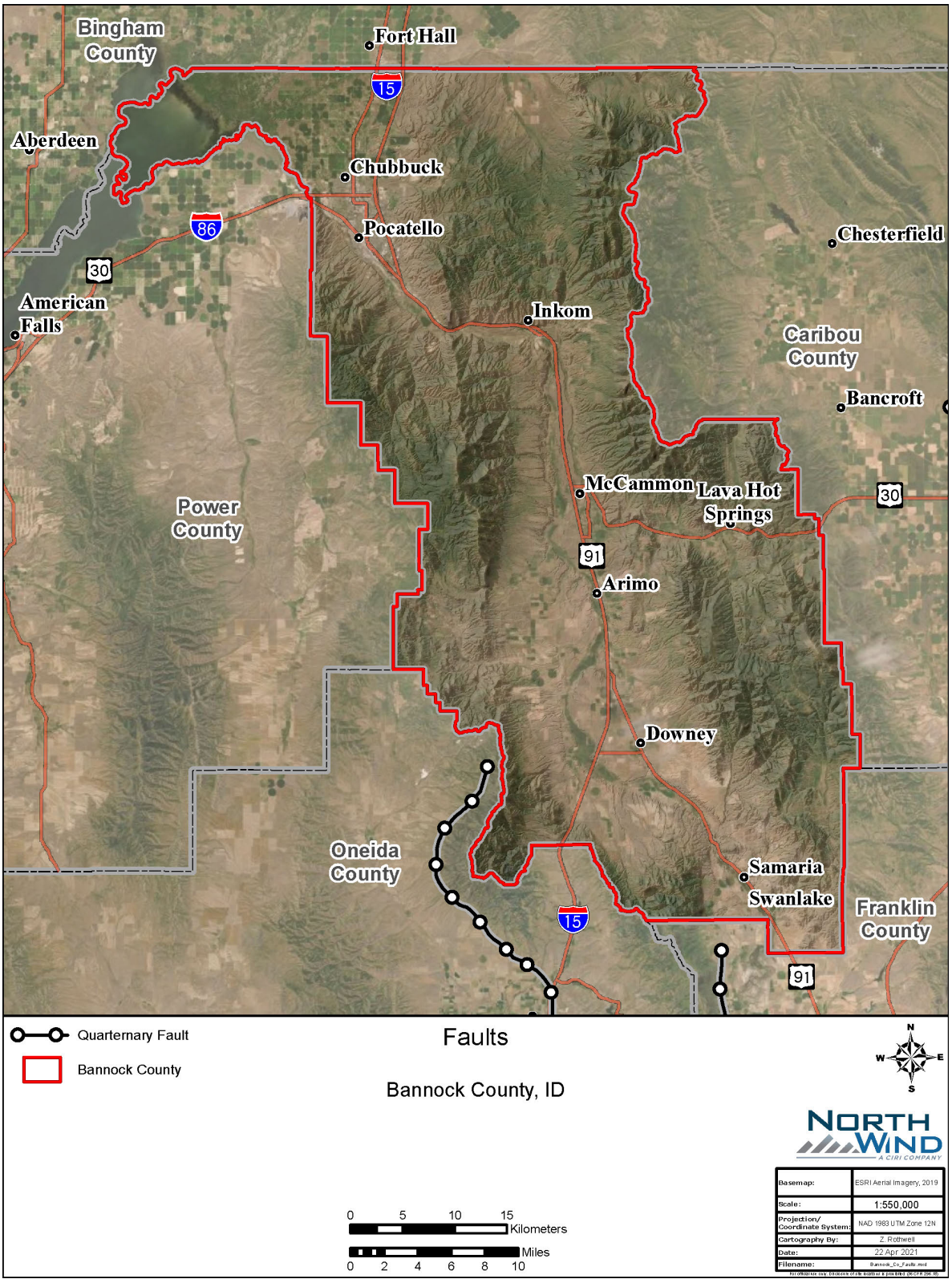


*Figure 3- 8 Bannock County Fault Map*

| | |
|---|---|
| **I. Instrumental** | Generally not felt by people unless in favorable conditions. |
| **II. Weak** | Felt only by a few people at best, especially on the upper floors of buildings. Delicately suspended objects may swing. |
| **III. Slight** | Felt quite noticeably by people indoors, especially on the upper floors of buildings. Many do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibration similar to the passing of a truck. Duration estimated. |
| **IV. Moderate** | Felt indoors by many people, outdoors by few people during the day. At night, some awaken. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rock noticeably. Dishes and windows rattle alarmingly. |
| **V. Rather Strong** | Felt inside by most; may not be felt by some outside in non-favorable conditions. Dishes and windows may break and large bells will ring. Vibrations like large train passing close to house. |
| **VI. Strong** | Felt by all; many frightened and run outdoors, walk unsteadily. Windows, dishes, glassware broken; books fall off shelves; some heavy furniture moved or overturned; a few instances of fallen plaster. Damage slight. |
| **VII. Very Strong** | Difficult to stand; furniture broken; damage negligible in building 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. Noticed by people driving motor cars. |
| **VIII. Destructive** | Damage slight in specially designed structures; considerable in ordinary substantial buildings with partial collapse. Damage great in poorly built structures. Fall of chimneys, factory stacks, columns, monuments, and walls. Heavy furniture moved. |
| **IX. Violent** | General panic; 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. Intense** | Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundation. Rails bent. |
| **XI. Extreme** | Few, if any masonry structures remain standing. Bridges destroyed. Rails bent greatly. |
| **XII. Cataclysmic** | Total destruction – Everything is destroyed. Lines of sight and level distorted. Objects thrown into the air. The ground moves in waves or ripples. Large amounts of rock move position. Landscape altered, or leveled by several meters. In some cases, even the routes of rivers are changed. |

*Figure 3- 9 Modified Mercalli Intensity Scale*

More quantitatively, intensity may be measured in terms of “peak ground acceleration” (PGA), expressed relative to the acceleration of gravity (g) and determined by seismographic instruments. While Mercalli and PGA intensities are arrived at differently, they correlate reasonably well. The locations most susceptible to earthquakes are known; however, there is little ability to predict an earthquake in the short term. A map of the PGA for Idaho and surrounding area is displayed in Figure 3-10, the figure displays a 2% probability exceedance over 50 years.

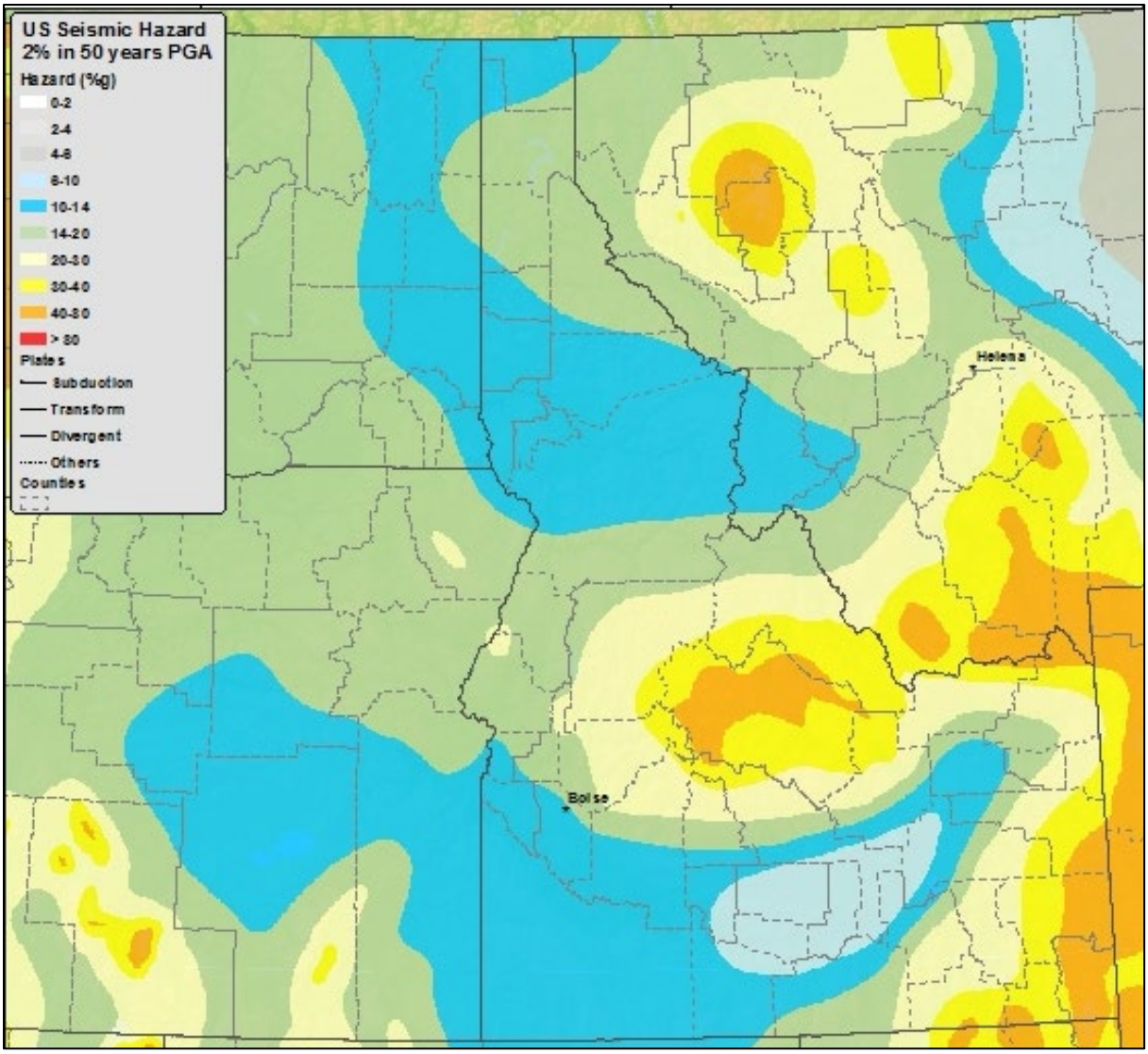


*Figure 3- 10 Seismic Acceleration Map of Idaho*

## Past Occurrences

Though the County doesn't have any epicenters of major historic earthquakes, it is on the outskirts of an earthquake belt that includes counties along the Idaho-Wyoming border into Montana and central Idaho. Table 3-13 captures major earthquake events from 1900 to 1985 that have been felt in Bannock County.

## Future Occurrences

There is no defined method for predicting earthquakes, and there are no studies, past or present that could create anything more than general probabilities already available. The rate of historical occurrence is a modest predictor for future occurrences. Based on previous occurrences, there is a 28% chance that an earthquake could happen in Bannock County in any given year.

However, there is little to no warning for an earthquake.

*Table 3- 13 Historic Earthquakes in Bannock County*

| Date | Magnitude | City Name | Distance from Epicenter (miles) |
|---|---|---|---|
| 12/12/1917 | - | Pocatello | 94 |
| 6/28/1925 | 6.8 | Pocatello | 360 |
| 3/12/1934 | 6.6 | Pocatello | 153 |
| 3/12/1934 | 6 | Pocatello | 125 |
| 4/7/1934 | - | Pocatello | - |
| 4/14/1934 | - | Pocatello | - |
| 5/6/1934 | 5.5 | Pocatello | 133 |
| 10/10/1935 | 6.3 | Pocatello | 415 |
| 10/31/1935 | 6 | Pocatello | 417 |
| 3/28/1940 | - | Pocatello | - |
| 11/13/1947 | 6.3 | Pocatello | 213 |
| 8/18/1959 | 7.1 | Pocatello | 243 |
| 8/7/1960 | - | Pocatello | 94 |
| 8/30/1962 | 5.7 | Pocatello | 131 |
| 3/28/1975 | 6.1 | Pocatello | 91 |
| 3/28/1975 | 6.1 | Ridgedale (Pocatello Val) | 7 |
| 10/24/1978 | 4.3 | Pocatello | 61 |
| 11/30/1978 | 4.7 | Pocatello | 85 |
| 12/9/1981 | 4.1 | Pocatello | 87 |
| 10/14/1982 | 4.9 | Pocatello | 89 |
| 10/28/1983 | 7.3 | Pocatello | 170 |
| 8/22/1984 | 5.8 | Pocatello | 217 |
| 2/21/2008 | 6 | Pocatello | 225 |
| 4/15/2010 | 4.9 | Pocatello | 148 |
| 1/25/2011 | 3.7 | Pocatello | 87.3 |
| 5/13/2013 | 3.9 | Arimo | 4 |
| 5/13/2013 | 3.9 | Pocatello | 4 |

## Vulnerability Assessment

The hazards associated with an earthquake are secondary to ground shaking, which can cause buildings to collapse; displacement or cracking of the earth's surface; flooding as a result of damage to dams and levees; and fires from ruptured gas lines, downed power lines, and other sources.

The severity of the impacts depends on the location of the epicenter, urban development and populations, the magnitude and intensity, the geologic features and soil type, and the time of day. Earthquakes with a high magnitude and intensity that occur in unpopulated areas may have less of an overall impact than smaller earthquakes that occur in urban areas because of the potential for structural damage and resulting loss of life.

Hazus estimates that about 4,710 buildings will be at least moderately damaged. This is over 15% of the buildings in the region. There are an estimated 299 buildings that will be damaged beyond repair. (magnitude 7.0 earthquake).

The majority of structural damage would occur to older structures that are poorly maintained, constructed, or designed. Loose or poorly secured objects such as bookshelves and heavy wall hangings, also pose a significant risk of falling during an earthquake and cause damage of bodily harm. Dams are at risk of structural damage during an earthquake. Utility lines, natural gas lines, sewer lines and roads may be disrupted along ground that has been displaced.

Pocatello, Chubbuck, Inkom, Arimo, Lava, and McCammon area are located in areas with low seismic probability and no known fault lines. Communities in these areas have unreinforced masonry buildings that are vulnerable to damage from an earthquake. It is estimated that Bannock County has approximately 120 unreinforced structures, Pocatello has 250 unreinforced structures, Chubbuck has approximately 95 structures, Inkom has about 6 structures, Arimo has about 5 structures, McCammon has 8 structures, Downey has 4 structures, and Lava Hot Springs has 6 structures.

See Attachment 3 for the HAZUS Report for the 10, 25, 50, and 100-year flood analyses.

# 3.8 Landslide

| **Hazard Overview** | | | |
|---|---|---|---|
| Location: | | County-Wide | |
| Frequency/Previous Occurrence: | | Low | |
| Impact/Consequence: | | Moderate | |
| Community Vulnerability: | | Low | |
| **Overall Hazard Ranking by Jurisdiction** | | | |
| Arimo | Chubbuck | Downey | Inkom |
| Low | Low | Low | Low |
| Lava Hot Springs | McCammon | Pocatello | |
| Low | Low | Low | |

## Description

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

The United States Geological Survey has identified regions that are more susceptible to landslides and have an increased percent of incidence. The percent of incidence is the chance of a landslide occurring. Susceptibility to land sliding is defined as the probable degree of response of the areal rocks and soils to natural or artificial cutting or loading of slopes or to anomalously high precipitation.

Landslides can be classified by their velocity as described by Cruden and Varnes. The greater the velocity, the more dangerous the slide. Table 3-14 provides the velocity scale for landslides.

*Table 3- 14 Landslide Velocity Scale*

| Description | Velocity Range |
|---|---|
| Extremely Rapid | >5.0 m/s |
| Very Rapid | 3.0 m/s – 5.0 m/s |
| Rapid | 1.8 m/hour – 3 m/min |
| Moderate | 13 m/month – 1.8 m/hr |
| Slow | 1.6 m/yr – 13m/month |
| Very Slow | 16mm/yr – 1.6 m/yr |
| Extremely Slow/Negligible | 16 mm/yr |

## Extent

So many of the direct and indirect impacts of landslides include:

Human and animal deaths and injuries and resulting productivity losses;

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

## Past Occurrences

Idaho is one of most of the most landslide-prone states. Not all landslide events are recorded; however, based on the Landslide Map of Idaho, there have been eight recorded landslides (Table 3-15).

*Table 3- 15 Historic Landslides in Bannock County*

| Place | Date | Details |
|---|---|---|
| Inkom | 8/10/1997 | Water, mud, rock and other debris washed down lower portion of Green Canyon damaging three homes between Green Canyon and Nester Roads and closing Highway 91 for two hours. |
| Robin | 8/11/1997 | Flooding washed large rock and other debris on Arimo Road in Garden Creek Gap; Over one foot of debris in several locations. |
| Pocatello | 8/3/2003 | Reports of flash flooding on interstate 15 south of Pocatello; Over a half inch of rain in 15 minutes with mudslides and rockslides on the interstate along with fast moving water. |
| McCammon | 8/22/2003 | Mud and rock on road in Harkness Canyon. |
| Inkom | 8/24/2003 | About a half inch of rain over the Blackrock fire burn area caused another mud slide on interstate 15 near Inkom closing the northbound lane for about two hours. |
| Pocatello | 7/18/2004 | Extremely heavy rain...approximately 2 inches fell in 45 minutes from 3 to 4 pm MDT in Pocatello and caused extensive flooding especially along the east benches; The Center Street underpass had a foot of water covering it; Flooding reported at Kirkwood Meadows apartments on Pocatello Creek Road; Flooding on Arthur Street in downtown Pocatello; Mudslide reported near Sagewood Heights along Center Street near Idaho State University; Major flooding reported at intersection of Oak and Yellowstone Streets. |
| Pocatello | 7/7/2013 | Flash flooding occurred in Pocatello with a foot of water at the Center Street overpass and over 8 inches of water flooding intersections north of Center Street on the Idaho State Campus. |
| Bannock County | 9/8/2013 | A heavy rain shower caused flash flooding south of Pocatello including mudslides across roads; Mudslides occurred on Mink Creek Road from Frazier Egg Farm to Bannock Highway closing the road for an hour; Some homes on Autumn Drive and Charlotte Drive had basements flooded near the Charlotte Fire burn area. |

## Future Occurrences

The geophysical processes that contribute to landslides during a particular year are statistically independent of past years. The short period of recorded and observed landslides and associated conditions that contribute to the risk make it difficult to develop return periods for landslide-prone areas. Landslide occurrence is not directly attributed to a specific major meteorological event, but rainfall events are one known cause of landslides.

## Vulnerability Assessment

Based on historical data, landslides cause little damage to structures and the overall environment but can severely impact transportation corridors, limiting access to communities for a short time. Furthermore, landslides can impact power and communication lines. As development continues into areas that have higher susceptibility to landslides there are more likely to be more impact to human populations.

Landslides typically do not cause injuries or death unless people are in the path of the landslide. If transportation corridors are blocked, access to specific locations may become difficult for emergency response.

Financial losses due to landslides are most frequently linked to the costs of road repair and the removal of debris from roadways. The overall costs are dependent on the size of the landslide and amount of damage incurred.

## Hazard Analysis

Landslides are difficult to predict, with little to no warning times. Landslides are localized events with the potential to impact small areas. The economic loss is from road repair and removal of debris. The majority of damage would be covered by the state government for reconstruction assistance. Injuries are not likely and deaths are not typical, and no sheltering would be required. Historical records for landslide events indicate that Bannock County rarely experiences landslides; therefore, the overall frequency for these events is low.

Bannock County has 428 miles of roadway that could potentially be affected or damaged in some manner by landslides. Most of these roads are in the back county. Other Counties have estimated that back county replacement value is $750,000 per mile. The total vulnerability based on that estimate would be $321 Million. Landslides are, however, usually considered a local event, and thus it is difficult to predict the actual repair or replacement costs for a single event.

# 3.9 Avalanche

| **Hazard Overview** | | | |
|---|---|---|---|
| Location: | | County-Wide | |
| Frequency/Previous Occurrence: | | Moderate | |
| Impact/Consequence: | | Moderate | |
| Community Vulnerability: | | Moderate | |
| **Overall Hazard Ranking by Jurisdiction** | | | |
| Arimo | Chubbuck | Downey | Inkom |
| Moderate | Moderate | Moderate | Moderate |
| Lava Hot Springs | McCammon | Pocatello | |
| Moderate | Moderate | Moderate | |

Avalanches are common in mountainous terrain where heavy snowfall accumulates on steep slopes. Avalanches generally occur on slopes between 30 and 45 degrees, with 38 degrees being the ideal slope for development of avalanche conditions. They are often categorized as either loose snow or slab types. A loose avalanche is initiated when snow is dislodged at a point upslope and, in turn, dislodges more snow as it moves downward. Such avalanches usually grow wider and larger as they proceed but are usually somewhat limited in size. The generally more dangerous slab avalanche occurs when a cohesive mass of snow breaks free and moves downward, either as a single unit or breaking into smaller pieces traveling together.

Four factors combine to produce a slab avalanche: (1) a large mass of snow that is cohesive as a result of a single, large snowfall or some physical change due to temperature, introduction of water content, or other factors; (2) some source of instability or weakness that forms a boundary capable of breaking free; (3) a surface, called a sliding layer, upon which the slab may easily slide; and (4) a triggering event, such as increased weight, strong vibration, wind, or a temperature increase, that overcomes the binding forces at, or further weakens, the boundary of instability. (It is estimated that around 90% of avalanches where victims are involved are triggered by the victims or those who accompany them.)

Avalanches are composed of three zones: (1) the release zone where the mass breaks free and accelerates, (2) the track where the mass travels downward at a relatively constant speed (often approaching 80 mph), and (3) the run-out zone where the mass slows and comes to rest. While the exact moment of an avalanche cannot be predicted, avalanche conditions are readily recognizable, and avalanches tend to recur on the same slopes annually.

Because the topography of eastern Bannock County is more mountainous, it is more likely that an avalanche will occur in that portion of the county.

## Extent

Several classification systems are used for rating hazards and conditions associated with avalanches. The United States uses a five-level scale to classify the size of an avalanche, as displayed in Table 3-16.

*Table 3- 16 United States Classification for Avalanche Size*

| Size | Destructive Potential |
|---|---|
| 1 | Sluff or snow that slides less than 50 meters (150) slope distance |
| 2 | Small, relative to path |
| 3 | Medium, relative to path |
| 4 | Large, relative to path |
| 5 | Major or maximum, relative to path |
| Source: American Avalanche Association 2014 | |

Avalanche danger can be forecasted using North American Avalanche Danger Scale (Table 3-17). The scale was designed to communicate between forecasters and public recreators. The categories represent the probability of avalanches occurring and provides travel advice.

*Table 3- 17 North American Avalanche Danger Scale*

**North American Public Avalanche Danger Scale**

Avalanche danger is determined by the likelihood, size and distribution of avalanches.

| Danger Level | Travel Advice | Likelihood of Avalanches | Avalanche Size and Distribution |
|---|---|---|---|
| 5 Extreme | Avoid all avalanche terrain. | Natural and human-triggered avalanches certain. | Large to very large avalanches in many areas. |
| 4 High | Very dangerous avalanche conditions. Travel in avalanche terrain not recommended. | Natural avalanches likely; human-triggered avalanches very likely. | Large avalanches in many areas; or very large avalanches in specific areas. |
| 3 Considerable | Dangerous avalanche conditions. Careful snowpack evaluation, cautious route-finding and conservative decision-making essential. | Natural avalanches possible; human-triggered avalanches likely. | Small avalanches in many areas; or large avalanches in specific areas; or very large avalanches in isolated areas. |
| 2 Moderate | Heightened avalanche conditions on specific terrain features. Evaluate snow and terrain carefully; identify features of concern. | Natural avalanches unlikely; human-triggered avalanches possible. | Small avalanches in specific areas; or large avalanches in isolated areas. |
| 1 Low | Generally safe avalanche conditions. Watch for unstable snow on isolated terrain features. | Natural and human-triggered avalanches unlikely. | Small avalanches in isolated areas or extreme terrain. |

Safe backcountry travel requires training and experience. You control your own risk by choosing where, when and how you travel.

## Past Occurrences

Not all avalanches can be recorded and tracked due to the vast area and wilderness involved in typical avalanche prone zones. Typically, human accidents involving avalanches get recorded in various databases. Five avalanche events occurred in Bannock County and have caused injury and death (Table 3-18).

*Table 3- 18 Historical Avalanches Bannock County*

| Date | Location | Fatalities | Event Narrative |
|---|---|---|---|
| 2/17/2007 | Caribou Highlands | 1 | A 26-year-old snowmobiler was killed in an avalanche about 15 miles west of Jackson near Palisades Peak. The victim was buried under 8 or 9 feet of snow and could not be resuscitated by companions. |
| 12/26/2013 | Caribou Highlands | 1 | A snowmobiler died near Palisades Peak in Neely's Cove in Bannock County due to an avalanche. |
| 2/9/2017 | Caribou Highlands | 1 | A snowmobiler was killed in an avalanche near McCoy Creek. The location was in extreme eastern Bannock County right on the Wyoming border. He was buried under 3 feet of snow and died from injuries sustained in the avalanche. |
| 2/20/2018 | Caribou Highlands | 1 | A snowmobiler was killed in an avalanche in the Sheep Falls area east of Palisades Reservoir. |
| 3/15/2020 | March and Arbon Mountains | 1 | A 300-yard avalanche which was 6 to 7 feet caused the death of a man at Pebble Creek Ski Resort on March 15th. He was skiing at an out-of-bounds run near the north boundary of the ski area when he was trapped under snow without a beacon to aid ski patrol. The avalanche was believed to be caused by heavy, wet snow at high elevations of the ski resort. |
| Source: NCDC, 2020 | | | |

## Future Occurrences

The morphological processes that contribute to avalanches on any given year are statistically independent of past events. Avalanche occurrence is not directly attributed to a specific major meteorological event. Avalanches are typically the result of a combination of weather and snow loading conditions. It can be reasonably assumed, based on recorded observations from 2007 through 2020 (as shown above), that a hazardous avalanche event with damages has occurred once every 2.6 years. The NWS can issue an avalanche warning in advance by examining the weather forecast and snowpack conditions. However, warnings are not available in some areas due to their remote locations.

## Vulnerability Assessment

Bannock County has 428 miles of roadway that could be blocked or damaged in some manner by snow avalanches. Avalanches occur mostly in the backcountry and on federal lands, the overall losses to the count are limited. Most of the losses come from damage to roadways and the resulting snow and debris removal costs. Avalanches are a usually considered a local event making it difficult to predict the actual repair or replacement costs for a single event. Avalanches may result in damage to the roadways or blockage of the roadways preventing access to some areas.

## Hazard Summary

Avalanche conditions can be predicted in advance; however, an actual event cannot. Avalanches are localized events with the potential to impact small areas, mostly mountainous areas outside of city limits. The economic loss is the result of road repairs and removal of debris. Injuries and death are common for individuals that get trapped by an avalanche. Historical records for landslide events indicate that Bannock County rarely experiences avalanches that cause injuries or death; therefore, the overall frequency for these events is low.

# 3.10 Wildfire

| **Hazard Overview** | | | |
|---|---|---|---|
| Location: | | County-Wide | |
| Frequency/Previous Occurrence: | | High | |
| Impact/Consequence: | | High | |
| Community Vulnerability: | | High | |
| **Overall Hazard Ranking by Jurisdiction** | | | |
| Arimo | Chubbuck | Downey | Inkom |
| Moderate | High | Low | High |
| Lava Hot Springs | McCammon | Pocatello | |
| High | High | High | |

A wildfire is defined as a fire that is caused naturally or by humans and occurs in areas of combustible vegetation, typically in or near wildland areas. Typically, wildfires occur in areas that are undeveloped except for the presence of roads, railroads, and power lines. Wildfires occur near areas where improved property and wildland fuels meet at a well-defined boundary. For the purpose of this analysis, these areas are called the wildland-urban interface (WUI) zones.

Historically, wildfire had been an integral part of ecosystems within Bannock County. Depending on the ecosystem and build-up of plant biomass, historical fire events occurred regularly. However, modern fire suppression has changed the historic fire intervals, and wildfire occurs less regularly. With larger fire intervals, plant biomass tends to accumulate, creating large areas of combustible vegetation. In these cases, wildfires that are caused naturally or by humans tend to be larger and cause severe damage to local populations and the overall environment.

Because wildfire is considered to be natural and a necessary component of local ecosystems, wildfires that occur in wildland areas are allowed to progress to the extent that they do not threaten inhabited areas or human interests and well-being. For this reason, wildfires in WUI areas are vigorously controlled and suppressed. However, suppression is becoming more challenging as more development for recreational and living areas is occurring in wildland areas.

Wildfires are typically started by either lightning or humans. Typically, wildfires started by lightning occur in remote areas and are not suppressed immediately, and human-caused fires start in populated areas and are controlled relatively quickly. Wildfires that are human caused are either from careless human activities or are intentional. Intentional fires are typically prescribed burns used by land management agencies.

## Extent

Fire districts in Bannock County include Pocatello Valley Fire District, McCammon Fire District, Inkom Fire District, North Bannock Fire, Lava Fire District, Arimo Fire District, and Downey Fire District.

Wildfires that occur in the WUI were examined because they pose the most risk to county vulnerabilities. The Idaho Department of Lands has generated the locations of the WUI zones within the county as displayed in Figure 3-11. The locations of these zones are used to identify areas that are prone to wildfires and to establish a potential risk to structures on property.

## Past Occurrences

To establish a frequency, historic fire data were collected. Naturally occurring wildfires are typically located in the forested areas. Human-caused wildfires are typically located nearer developed areas. The table below (3-19) shows historical fires in Bannock County and the cause of the fire.

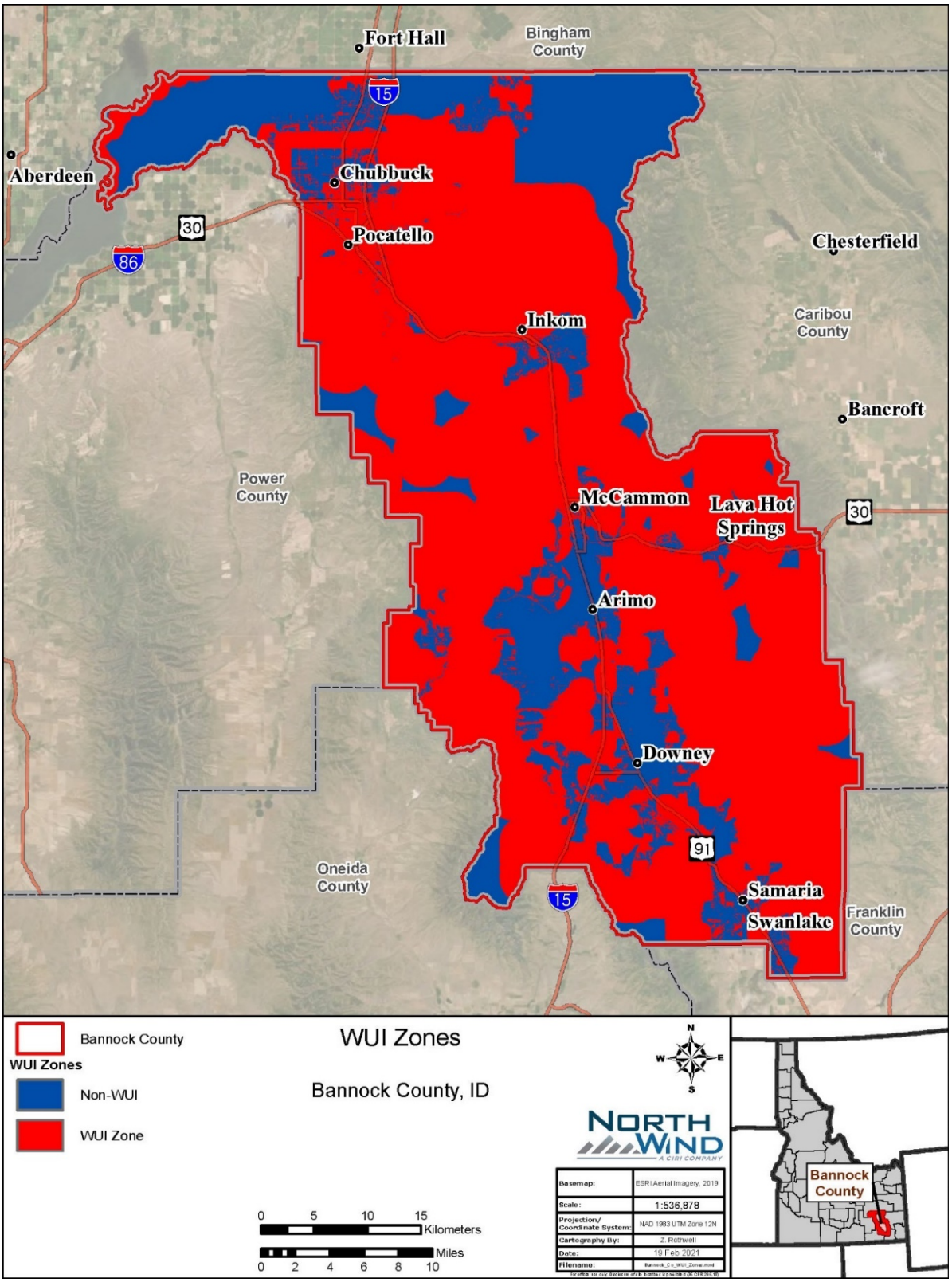


*Figure 3- 11 WUI Zones*

*Table 3-19. Historical Fire Data*

| Year | Total Acres Burned | Natural Ignition | Human Ignition |
|---|---|---|---|
| 1986 | 37.5 | 37.5 | 0 |
| 01987 | 3587 | 35 | 3552 |
| 1988 | 5604.5 | 5200.5 | 404 |
| 1989 | 85.5 | 85 | 0.5 |
| 1990 | 696 | 478 | 218 |
| 1991 | 1198.2 | 2.2 | 1196 |
| 1992 | 6196.9 | 3588.8 | 2608.1 |
| 1993 | 177 | 35 | 142 |
| 1994 | 129.5 | 30.5 | 99 |
| 1995 | 1129 | 112 | 1017 |
| 1996 | 3968.4 | 147.4 | 3821 |
| 1997 | 118.3 | 0.2 | 118.1 |
| 1998 | 3924.8 | 3879.3 | 135.5 |
| 1999 | 806.5 | 464.4 | 342.1 |
| 2000 | 8007.2 | 3170 | 4837.2 |
| 2001 | 556.3 | 8.3 | 548 |
| 2002 | 973 | 498 | 475 |
| 2003 | 744.5 | 3.1 | 7441.4 |
| 2004 | 1.05 | 0.1 | 0.95 |
| 2005 | 19400.7 | 8285.2 | 11115.5 |
| 2006 | 77.5 | 61.5 | 16 |
| 2007 | 3305.3 | 1552.2 | 1753.1 |
| 2008 | 291.3 | 0.2 | 291.1 |
| 2009 | 0.81 | 0 | 0.81 |
| 2010 | 120.2 | 2.1 | 118.1 |
| 2011 | 1852.2 | 462.1 | 1389.1 |
| 2012 | 2316.1 | 0 | 2316.1 |
| 2013 | 1475.9 | 1312.6 | 163.3 |
| 2014 | 395.2 | 395.1 | 1.1 |
| 2015 | 0.5 | 0.2 | 1.3 |
| 2016 | 9387.45 | 9212.25 | 175.2 |
| 2017 | 680.3 | 114.4 | 566.2 |
| 2018 | 4337.33 | 2742.23 | 1595.1 |
| 2019 | 140.1 | 7.1 | 133 |
| 2020 | 2038 | 111 | 1927 |

Large fires in Bannock County include:

Forest Service Lands

- Cheery Creek Fire (2000) burning 691 acres
- Hawkins Fire (2000) burning 3,070 acres
- Lead Draw Fire (2013) burning 156 acres
- Indian Creek Fire (2018) burning 61 acres

BLM Lands

- Black Rock Fire (2003) burning 2,232 acres
- Drive Fire (2011) burning 1,2222 acres
- Charlotte Fire (2012) burning 1,029 acres
- Chines Peak Fire (2020) burning 2,232 acres

Figure 3-12, Figure 3-13, Figure 3-14, and Figure 3-15 show the risk of wildfires based on multiple categories including aspect class, vegetation class, slope class, fire history, and WUI's. Figure 3-14 displays the overall fire risk in the county based on the inputs. The map illustrates the overall fire risk in the county based on the inputs. The map displays that less developed areas in the outer regions of the county have the greatest risk for wildfires.

## Future Occurrences

Based on historical data, there is 100% chance that a wildfire will occur in any given year in Bannock County. The number of acres burned can vary greatly, whereas the number of wildfires per year is usually consistent. Wildfires are not expected to diminish from current trends; rangeland and forest management practices indicate that wildfires trends are likely to continue. With increasing urban development, the amount of damages are likely to increase in the wildfire prone areas.

Wildfires are usually started by lightning or humans, and their direction and intensity vary depending on the conditions in the area. In the worst-case scenario, a rapidly developing wildfire, there is usually at least an hour or more warning time to affected residents due to increased monitoring by officials and the public awareness.

## Vulnerability Assessment

Potential risks from wildfires are not limited to the WUI zones and can occur anywhere under certain conditions. Furthermore, after a fire is started, the extent and intensity are determined by a number of factors, including:

- Weather – wind speed and direction, temperature, and precipitation;
- Terrain – fires typically burn upslope;
- Vegetation type;
- Vegetation condition – dryness;
- Fuel load – the amount and density of vegetation; and
- Suppression.

Wildfires in Bannock County are dangerous to both residents and emergency response personnel. Fire suppression activities have a high frequency of injuries, such as heat exhaustion and smoke inhalation. Residents with property in the path of the wildfire will likely suffer the greatest impacts through loss of structures and/or value of property. Many fires require an evacuation of nearby residents in order to ensure the safety of citizens. Sensitive populations may be affected by air quality caused from wildfires. Smoke and particulates can severely degrade air quality, triggering health problems.

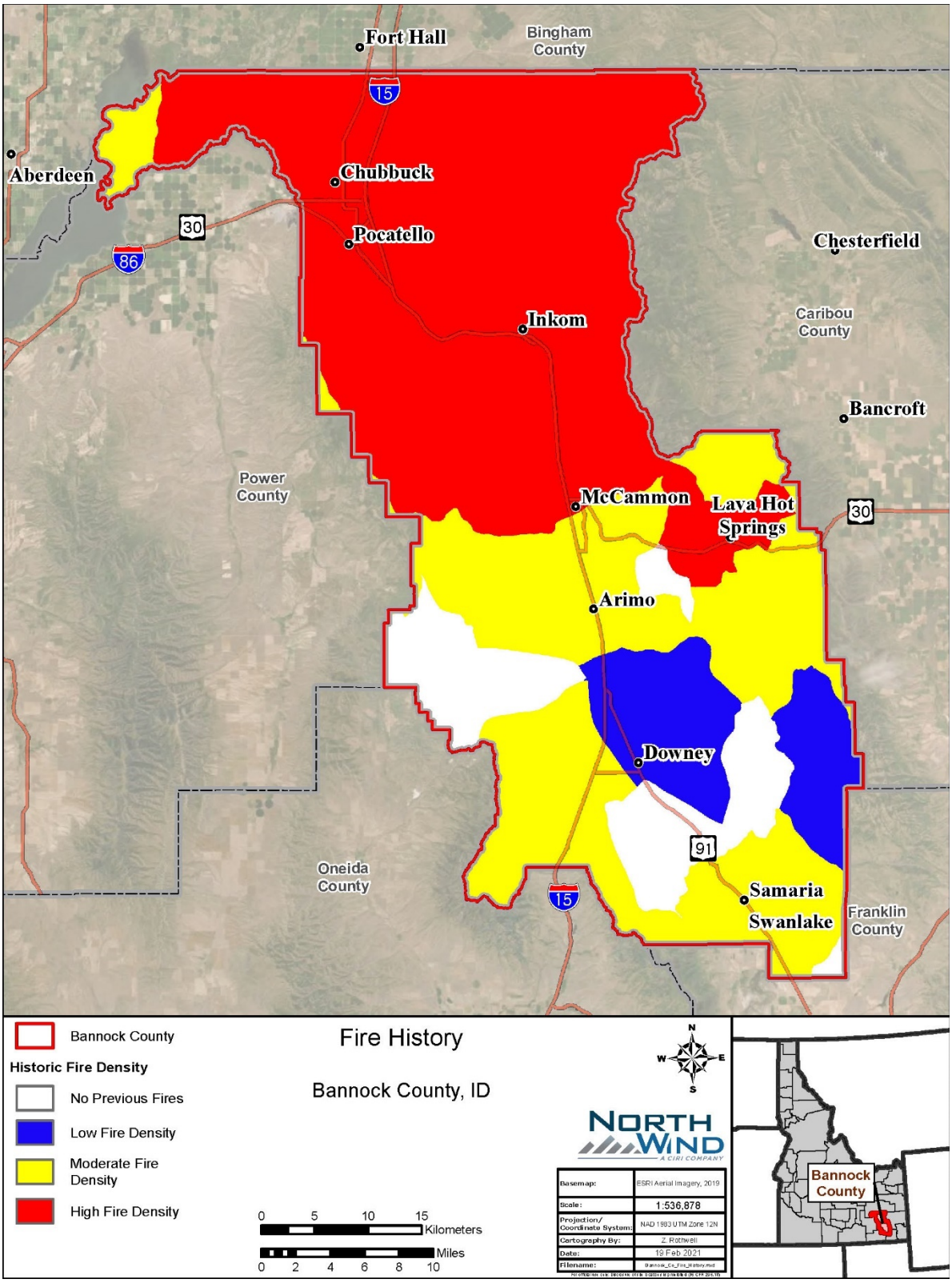


*Figure 3- 12 Bannock County Fire History*

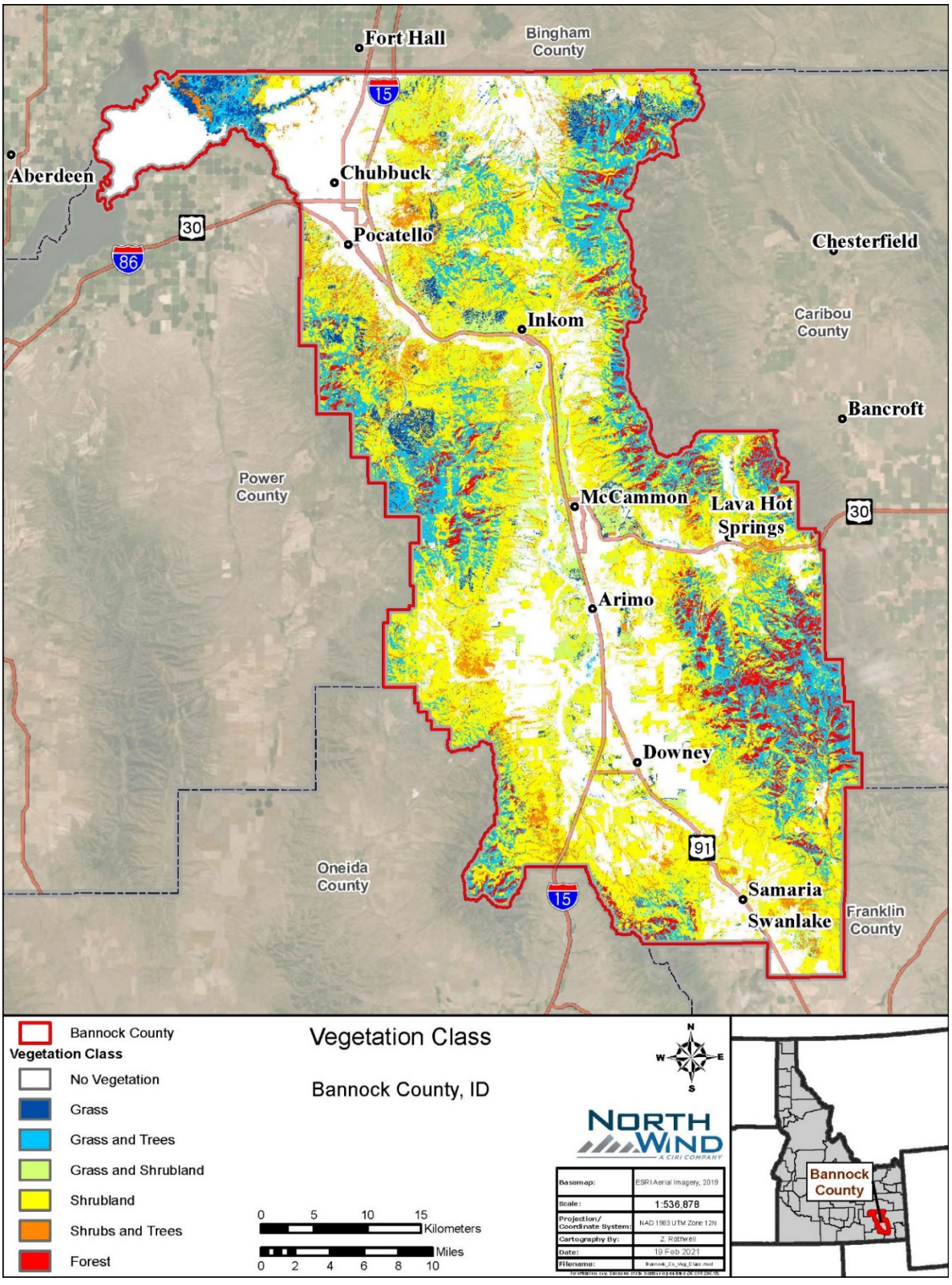


*Figure 3- 13 Vegetation Class in Bannock County*

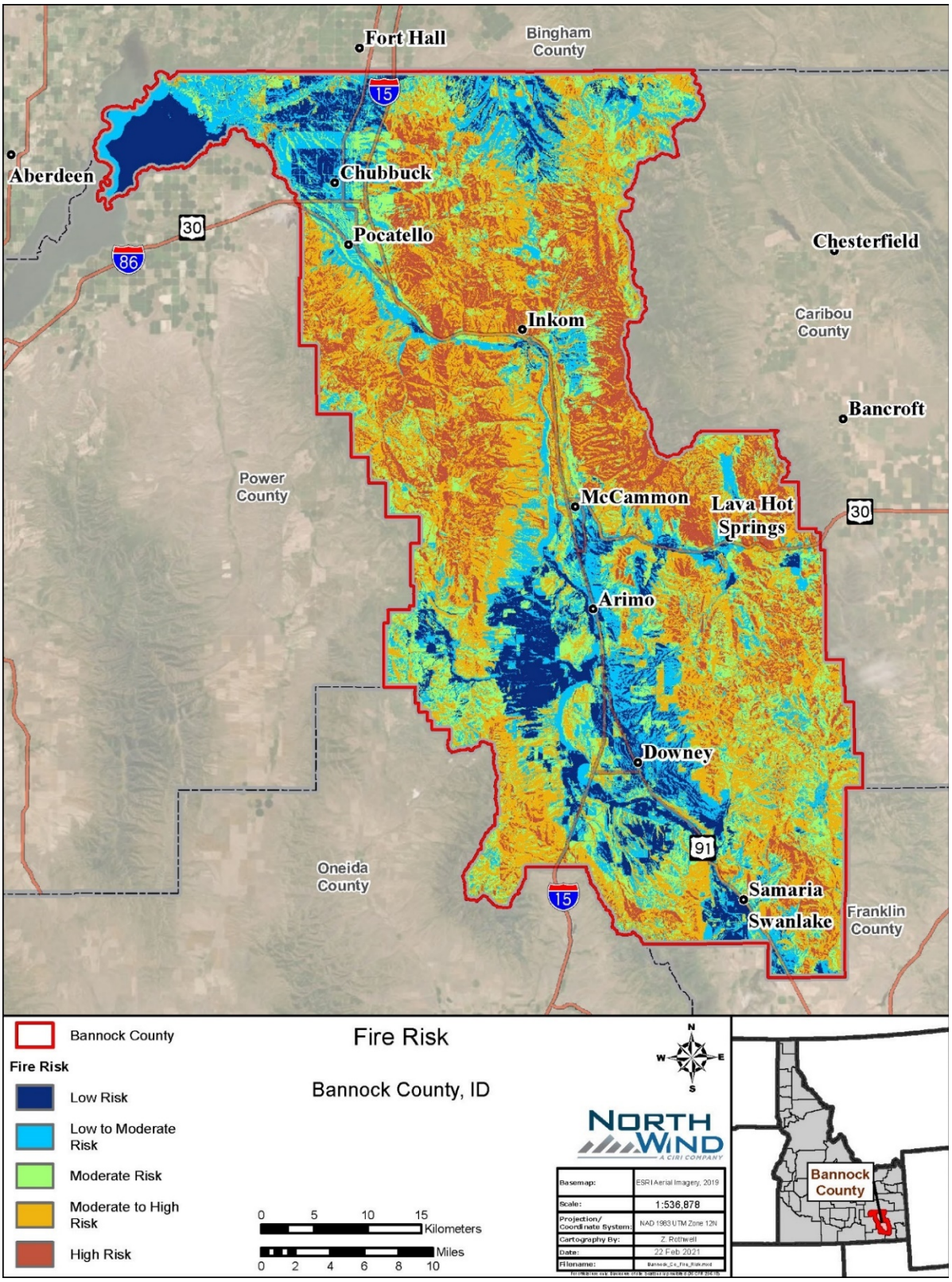


*Figure 3- 14 Fire Risk*

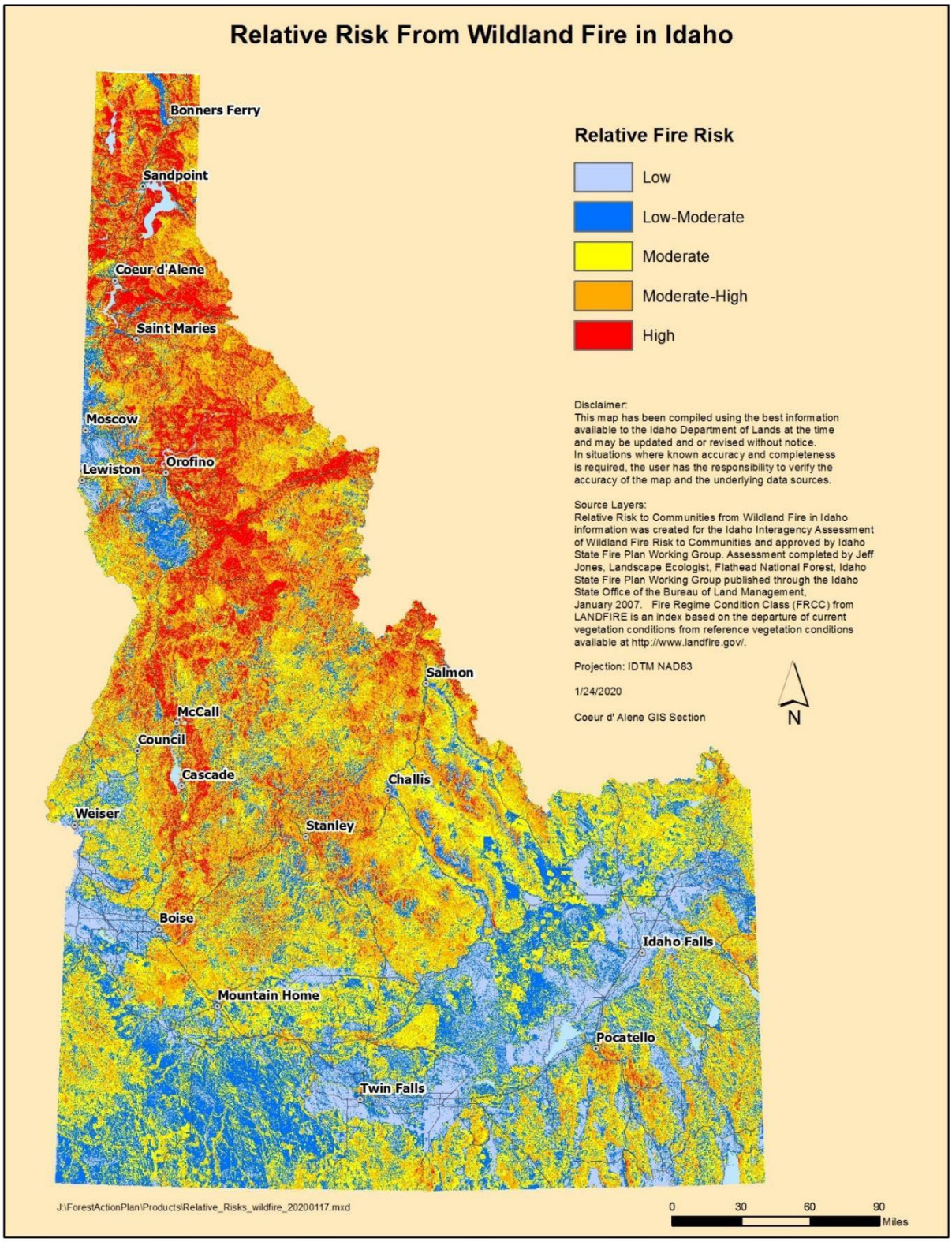


*Figure 3- 15 Idaho Relative Wildfire Risk Map*

Growth in Bannock County has been increasing in WUI zones. Typically, structures located in WUI areas without defensible space landscaping have the highest risk of loss. There are approximately 31,417 buildings located in Bannock County within the WUI (structures include commercial and residential buildings) according to Bannock County GIS Services.

Chubbuck, Pocatello, Inkom, McCammon and Lava Hot Springs are all located either completely or partially in WUI Zones as displayed in Figure 3-11 and are more susceptible to damages caused by wildfires when compared to cities not located in WUI Zones. Arimo and Downey are not located in WUI zones. The vegetation in the WUI areas include grasses and shrubs as displayed in Figure 3-13, these fuel types tend to spread rapidly.

As building continues to grow in the WUI areas, property and residents located in these areas will likely suffer the greatest impacts through loss of structures and/or value of their land. It is difficult to estimate potential losses due to wildland fires predictability of wildfire behavior and nature of ignition sources. It is impossible to forecast the path a wildfire will take and what type of assets and resources will be at risk. Therefore, no value estimates were made for this hazard. Although not all structures will be lost in any given fire because wildland firefighter personnel attempt to protect structures, this estimate is used to establish an estimated loss value of structures within these zones.

## Community Wildfire Protection Planning

On June 25, 2021 the Bannock County Director of Emergency Management and representatives from Idaho Department of Lands, the BLM, the Forest Service, and members of local fire departments met to discuss community wildfire protection planning for Bannock County. The session consisted of discussing the framework for identifying mitigations actions for the common impacts associated with wildfires in Bannock County. Attachment 5 includes the mitigation actions to reduce the risk from wildfires through educations and outreach programs, the development of partnerships, and implementation of preventative activities such as defensive space and mechanical treatments.

Representatives present at the meeting discussed the risk and vulnerabilities in Bannock County and reviewed the fire maps below. Agencies discussed and shared mitigation actions they have implemented and would like to see implemented to reduce risk in Bannock County.

Representative from the meeting should meet on a yearly basis to discuss the effectiveness of programs and to evaluate changes that may affect mitigation priorities.

# 3.11 Non-Natural Hazards

## Biological

### *Pandemics*

Protecting the public's health is paramount. As communities work to reduce the spread of a pandemic, most recently, COVID-19, they are also addressing the economic, social, and secondary health consequences of the disease. State, local, tribal, and territorial officials are best positioned to determine the level of mitigation required. Mitigation strategies should be feasible, practical, and acceptable; they should be tailored to the needs of each community and implemented in a manner that minimizes both morbidity and mortality from the pandemic and does not create or exacerbate any health disparities.

The information that follows provides a framework for states and localities as they consider which actions to take to mitigate community transmission of COVID-19 in the United States. Selection and implementation of these actions should be guided by the extent of disease transmission.

A pandemic is a worldwide epidemic. The term "outbreak" may be applied to a more geographically limited medical problem (e.g., in a single community rather than statewide or nationwide). Pandemic considerations include infection and illness, disease incubation time, how the disease spreads, and the geographic area affected. In addition, modern air travel has made it possible to cause a pandemic in a short period as we saw with the most recent pandemic that affected the entire globe (COVID-19) and has resulted in significant reconsideration of the pandemic hazard mitigation strategies worldwide. Other pandemics that have affected the united states and populations worldwide include influenza, smallpox, tuberculosis (TB), severe acute respiratory syndrome (SARS), human immunodeficiency virus (HIV), West Nile virus, and H1N1.

Individuals need to follow healthy hygiene practices, stay at home when sick, practice physical distancing to lower the risk of disease spread, the use of cloth face coverings when social distancing cannot be maintained. These universal precautions are appropriate regardless of the extent of mitigation needed.

CDC outlines a range of specific mitigation strategies to consider for slowing down the spread of COVID-19 and any pandemic hereafter.

### *Pandemic Influenza versus Annual Influenza*

A flu pandemic has little or nothing in common with the annual flu season. A flu pandemic is caused by a new, much more serious, and contagious virus to which humans have little or no natural resistance. And while, in general, a vaccine has been developed in anticipation of the annual flu season, no vaccine would be available at the onset of a pandemic. If such a new, highly contagious strain of influenza began to infect humans, it would probably cause widespread illness and death within a matter of months, and the outbreak could last up to two years. The Centers for Disease Control and Prevention predict that as many as 25 to 30% of the U.S. population may become ill, that many of these would require hospitalization, and that many might die. Eastern Idaho Public Health is currently working on a plan to limit the spread of an influenza pandemic and to maintain essential health care and community services if an outbreak should occur. As seen in 2020 with COVID-19, once a pandemic begins it is incredibly difficult to stop it. A person infected with influenza may be contagious for days before symptoms appear and for days or weeks thereafter, making it extremely easy for the virus to infect large numbers of people, especially in more urban areas.

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

### *Novel Influenza*

Influenza virus may mutate into a new form of flu that would be easily spread from person to person. Some birds and mammals carry the novel influenza with no apparent harm to them.

People who have close contact with infected birds, mammals, or with surfaces that have been contaminated with droppings from these animals are at risk of becoming infected.

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

### *SARS*

SARS is a viral respiratory illness caused by a coronavirus, called SARS-associated coronavirus. SARS was first reported in Asia in February 2003. Over the next few months, the illness spread to more than two dozen countries in North America, South America, Europe, and Asia before the SARS global outbreak of 2003 was contained. According to the World Health Organization, a total of 8,098 people worldwide became sick with SARS during the 2003 outbreak. Of these, 774 died. In the United States, only eight people had laboratory evidence of SARS-associated corona virus infection. All of these people had traveled to other parts of the world where there were SARS outbreaks. In general, SARS begins with a high fever (temperature greater than 100.4°F). Other symptoms may include headache, an overall feeling of discomfort, and body aches. Some people also have mild respiratory symptoms at the outset. About 10 to 20% of patients have diarrhea. After two to seven days, SARS patients may develop a dry cough. Most patients develop pneumonia.

SARS is believed to spread mainly by close person-to-person contact. The virus that causes SARS is thought to be transmitted most readily by respiratory droplets (droplet spread) produced when an infected person coughs or sneezes. Droplet spread can happen when droplets from the cough or sneeze of an infected person are propelled a short distance (generally up to 3 feet) through the air and deposited on the mucous membranes of the mouth, nose, or eyes of persons who are nearby. The virus also can spread when a person touches a surface or object contaminated with infectious droplets and then touches the mouth, nose, or eyes. It is also possible that the SARS virus is spread more broadly through the air (airborne spread) or by other unknown means.

### *COVID-19*

COVID-19 is a severe viral respiratory illness caused by a severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The first case was identified in Wuhan, China in December 2019. The disease spread worldwide leading to a pandemic. According to the World Health Organization (WHO) as of March 1, 2021 there were approximately 113 million cases and 2.5 million deaths worldwide.

### *Smallpox*

Smallpox is a serious, contagious, and sometimes fatal infectious disease. There is no specific treatment for smallpox disease, and the only prevention is vaccination. There are two clinical forms of smallpox: variola major and variola minor. Variola major is the most common form of smallpox, with a more extensive rash and higher fever. Variola minor is less common, and the symptoms are less severe.

Smallpox outbreaks have occurred periodically for thousands of years. With increased access to smallpox vaccines, the smallpox disease was eradicated in 1979. The last case of smallpox in the United States was in 1949. Because the disease has been eradicated from the world, routine vaccination against smallpox among the public was stopped because it was no longer necessary for prevention.

### *TB*

TB is a bacterial infection that usually attacks the lungs; however, it can attach to any part of the body (i.e., the kidneys, spine, and brain). If not treated properly, TB can be fatal. TB was once the leading cause of death in the United States. TB is spread through the air from one person to another. The TB bacteria are put into the air when a person with TB disease of the lungs or throat coughs, sneezes, speaks, or sings. People nearby may breathe in these bacteria and become infected.

### *West Nile Virus*

West Nile virus is a potentially serious illness and is established as a seasonal epidemic in North America that flares up in the summer and continues into the fall.

### *HIV/Acquired Immunodeficiency Syndrome (AIDS)*

HIV/AIDS is a viral infection transmitted by sexual intercourse, through contaminated blood transfusions, or from infected mother to child during pregnancy or breastfeeding. This disease compromises the immune system. HIV/AIDS was first recognized by the Centers for Disease Control and Prevention in 1981, and no cure exists.

### *Cholera*

Cholera is a bacterial infection in the small intestine that may cause diarrhea, dehydration, and death. It spreads by ingesting food or water contaminated with the feces from infected persons. Cholera outbreaks no longer exist in the United States due to water treatment and sanitation.

### *Diphtheria*

Diphtheria is a contagious infection caused by bacteria affecting the upper respiratory tract and less often the skin. Coughing, sneezing, or even laughing easily transmits the disease. Complications include breathing problems, heart failure, and nervous system damage. Diphtheria is rare in the United States due to immunizations.

### *Measles*

Measles is a serious respiratory disease caused by a virus. It spreads easily through coughing and sneezing. The measles, mumps, and rubella vaccine protect against measles.

### *Pertussis*

Pertussis, or whooping cough, is a serious respiratory bacterial infection. It causes violent coughing. It is most harmful to infants. The TD protects against whooping cough.

### *Polio*

Polio is a worldwide disease caused by the poliovirus. It can cause paralysis and be deadly. The polio vaccine can protect against polio.

### *Q Fever*

Q fever is a worldwide disease with acute and chronic states caused by bacteria. The bacteria can be found in the milk, urine, amniotic fluids, and feces of infected animals. The typical contact comes from domesticated cattle, sheep, and goats. Infection of humans occurs by inhalation from air that contains airborne barnyard dust contaminated by dried placental material, birth fluids, and excreta of infected animals. Humans are very susceptible to the disease, and very few organisms may be required to cause infection.

### *Typhoid Fever*

Typhoid fever is a bacterial infection of the intestinal tract and bloodstream. Most of the cases are acquired during foreign travel to underdeveloped countries.

### *Plague*

Plague is a disease caused by bacteria and affects humans and other mammals. Humans usually get plague after being bitten by fleas that carry the plague bacteria or by handling an animal infected with plague. Currently, human plague infections continue to occur in the western United States. It can be treated with antibiotics.

Future occurrences of pandemic events are expected to continue. As bacteria and viruses continually evolve, there is always the opportunity for new diseases to occur. The overuse of antibiotics has the possibility to allow diseases that were once under control to reemerge.

The Centers for Disease Control and Prevention will share cleared information about urgent public health incidents with public information officers; federal, state, and local public health practitioners; clinicians; and public health laboratories to reduce the rapid distribution diseases to the public. Warning times will vary from days to months.

## Vulnerability Assessment

Characteristics and impacts of a pandemic are:

- Rapid spread through the community,
- Overloaded healthcare systems,
- Inadequate medical supplies, and
- Economic and social disruption.

While modern epidemiology and medical advances make the decimation of populations much less likely, new forms of diseases continue to appear. The potential, therefore, exists for pandemics to cause widespread loss of life and disability, overwhelm medical resources, and have a tremendous impact on the population.

## Structural Fire

A structural fire is any fire inside, on, under, or in contact with a structure. This includes any mobile residential structure (i.e., a mobile or modular residence); however, it does not include roadworthy vehicles such as recreation vehicles. Structural fires can be detrimental to life, property, and the local economy.

Major causes of structural fires include:

- Incendiary/arson,
- Heating,
- Cooking,
- Open flame,
- Electrical distribution,
- Appliances,
- Children playing, and
- Exposure to other fire (wildfires)

Based on the definition of a structural fire, such a fire is likely to occur anywhere a structure is located.

### Extent

The severity of structural fires varies due to the losses associated with the incident. The impact to the local economy is minimal with the loss of a residential structure; however, the loss of a large manufacturing facility can be more extensive. The loss of life during a residential fire is more likely than a fire at an industrial or commercial building. The building composition and the hour of the incident combine to increase the loss of life during a residential-type fire.

### Vulnerability Assessment

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

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

## Extended Utility Outages

Outages can be caused by specific hazards, human error, or equipment failures. Short-term utility outages are easily handled and can be considered an inconvenience; however, extended outages can result in a failure of community infrastructure and services.
The utilities included in this discussion are electricity, gas, communications, and water. These are essential services in the county, and any extended outage would become problematic. A loss of electricity for any extended time would impact vulnerable populations by limiting their ability to heat their homes, pump drinking water, and power medical equipment. Additionally, community infrastructure and local businesses and schools would be difficult to keep functioning. A large portion of the population uses natural gas as a heat source. Any loss of natural gas service during winter months has the potential to expose large portions of the population to extreme cold. An outage of

communication services would limit the ability of people to use the telephone, cell phone, and internet services, causing little to no emergency communications. Finally, a loss of water service could limit people from accessing clean water and limit sewer services.

Utility failures can be caused by many hazard events. Anything from an earthquake to a terrorist event could cause utilities to fail. Hazards that can rapidly compromise utility systems include earthquakes, severe weather, floods, and wildfires.

Based on historic events, utility outages can occur anywhere in Bannock County.

The degree of severity of a utility outage varies depending on the type of utility lost, the extent of the outage, cause of the outage, and the time it takes for the outage to be resolved.

### Vulnerability Assessment

Characteristics and impacts of an extended utility outage are:

- Loss of potable water and sewer systems,
- Disruption of transportation services,
- Loss of communication,
- Increased exposure to extreme weather, and
- Potential loss of medical access.

Because power outages are the most common utility outage and, therefore, provide the most information, they are used as an example of utility outages. Within the United States, approximately 44% of power outages are due to weather-related events, with another 40% due to equipment failure and operator error. The duration of outage depends on the event that caused it. Typically, outages caused by weather-related events are longer than events caused by equipment failure. In the Bannock county service area, events that lasted longer than five minutes and affected more than 500 customers were identified as an extended outage event.

The overall loss is dependent on the geographic area where the outage occurred, event duration, time of the year, and extent of the outage. Direct costs include emergency responders, backup systems, utility crews to restore services, and other direct costs borne by the utility providers. Majority of utility outages are due to failed equipment, most of the losses are associated with the provider. The indirect costs include economic losses, which include commercial and industrial losses in productivity, transportation disruption, and losses to the residential population from a potential loss of work.

## Hazardous Material Events

Hazardous materials are substances that, because of their chemical or physical properties, are hazardous to humans and other living organisms, property, and the environment. These materials, when properly used, pose little risk to the community; however, accidental releases or exposure to them would be harmful and pose a risk to the community.

The U.S. Environmental Protection Agency (EPA) maintains lists of substances that are considered hazardous or extremely hazardous. Hazardous substances are generally materials that, if released into the environment, tend to persist for long periods and pose long-term health hazards for living

organisms. Extremely hazardous substances, when released, are immediately dangerous to living organisms and cause serious damage to the environment. When facilities have these materials in quantities at or above the threshold planning quantity, they must submit Tier II information to the OEM, local fire department, and local emergency planning services to facilitate emergency planning.

Transportation of hazardous material is regulated by the U.S. Department of Transportation (DOT). DOT defines a hazardous material as "A substance or material that… is capable of posing an unreasonable risk to health, safety, and property when transported in commerce." Any transport of material in commerce that meets the DOT definition must be completed in accordance with safety regulations providing for appropriate packaging, communication of hazards, and proper shipping controls.

The National Fire Protection Association (NFPA) develops codes and standards for the safe storage and use of hazardous materials. These codes and standards are generally adopted locally and include the use of the NFPA 704 standard communication of chemical hazards in terms of health, fire, and instability, and other special hazards. The most recognized feature of this organization is the diamond-shaped signs that are located on or near hazardous materials. The NFPA 704 signs are used to identify potential hazards related to that specific material.

Hazardous materials are widely used, stored, and transported. Additionally, the extent of an event varies depending on the quantity of the material that is being used, stored, or transported. Typically, hazardous material events, which can take place almost anywhere, are likely to occur during transport and, therefore, occur on major highways, railways, or near facilities that store hazardous materials.

## Vulnerability Assessment

During the 2019 reporting year, 42 facilities submitted Tier 2 EPA reports; which is a chemical inventory report submitted to regulatory agencies that is also provided to Emergency Planning Committee and Idaho Office of Emergency Management. This process is part of Emergency Planning and Community Right-to-Know Act (EPCRA) also known as the Superfund Amendments and Reauthorization Act (SARA), Title III.

Hazardous material events can have immediate direct impacts, as well as indirect long-term impacts. The degree of the impact is dependent on the material because the properties of the material determine how it will interact after an uncontrolled release. For this reason, impacts from an event are numerous. Possible impacts include water or soil pollution.

Because events are most likely to occur near transportation routes or storage facilities, developments in those areas are more likely to be impacted from an event. Continued growth and development are likely to increase vulnerability and potential loss from a hazardous material event.

Hazardous material may also be stored in residential buildings. Residents may be storing fuel, chlorine, or other chemicals that, in a release event, may severely impact the resident's home and neighbors. Because all home storage locations are not reported, their exact locations are unknown.

Although there is potential for a hazardous material event to occur anywhere, large-scale events are relatively rare because potential hazards are mitigated with regular inspections, regulations, codes, and safety procedures. Additionally, even in the event of an incident, emergency response minimizes the extent and impact of that incident. It is expected that hazardous material use will increase as the population increases and with further economic development. With this increase, the possibility of an event will increase slightly.

Losses due to hazardous materials event in Bannock County would be related to response activities which include evacuation-related business interruption and cleanup costs.

## Radiological Event

Natural radiation is always present in the environment. It includes cosmic radiation that comes from the sun and stars, terrestrial radiation that comes from the Earth, and internal radiation that exists in all living things. Many variables effect how much cosmic radiation we receive, such as elevation, atmospheric conditions, and variations in the Earth's magnetic field.
Terrestrial radiation is received from radioactive elements (i.e., uranium and thorium) that exist naturally in the rocks and the soil. Radon, a by-product of uranium decay, is a noble gas found in the air. All organic matter contains carbon and potassium. We ingest these as part of our diet, the water we drink, or the air we breathe. Other naturally occurring radioactive elements include primordial radionuclides (nuclides that existed or were created during the formation of the earth and have a sufficiently long half-life to be detected today) and their progeny, as well as radionuclides that are continually produced by natural processes other than the decay of the primordial nuclides. Exposure from terrestrial radiation can vary based on geographic location. Some of the variation is linked to location; however, factors such as soil moisture content, the presence and amount of snow cover, the radon daughter concentration in the atmosphere, the degree of attenuation offered by housing structures, and the amount of radiation originating in construction materials may also account for variation.

Exposure from internal radiation comes from naturally occurring radioactive elements present in the living tissue of the body. These elements are primarily potassium-40 (K-40) and carbon-14 (C-14). The average dose due to internal radiation received from person to person is relatively constant. The Nuclear Regulatory Commission states that the typical average individual exposure in the United States from natural background sources is approximately 300 millirem per year.

Unnatural sources of radiation are caused by man-made devices or events. Members of the general public receive minimal amounts of radiation every day from televisions, fluorescent lights, smoke detectors, luminous watches, tobacco, and X-ray machines. Other sources of man-made radiation come from the nuclear industry. Nuclear industry sources include the radioisotope production, waste, transportation, mining, and processing of radioactive materials, and atomic weapons testing and nuclear accidents such as occurred at Chernobyl in 1986 and Fukushima in 2011.

A radiological event is an event involving radiological material. The basic hazard associated with radioactive material is the emission of radiation. Radioactive material, whether naturally occurring or man-made, is unstable and is constantly seeking a stable atomic configuration through a process called radioactive decay. As radioactive material decays, energy in the form of radiation is emitted. The emitted radiation is either a particle or electromagnetic waveform. The four basic types of radiation are alpha, beta, gamma, and neutron. Each type of radiation can have significant impacts on the human body.

### Description

Under certain circumstances, accidents involving radiological materials can have consequences. While in most cases the likelihood of an event is small, the consequences may be severe. There are two primary concerns during an accident event that results in a release of radioactive material. These are:

- The release of radioactive material in a concentration great enough to have harmful effects on human health, wildlife, or the local environment; and
- The fear caused by such an event or perceived event.

Once released, radioactive material has the potential to travel great distances, and it may collect in concentrations that may be harmful to the ecosystem. Particulate material may eventually be incorporated into the food chain.

Radiological events can occur anywhere in Bannock County. Like hazardous material events, radiological events are most likely to occur near transportation routes or facilities that produce radiological material. The locations in Bannock County that have the potential for radiological events include medical imaging facilities located in Bannock County, and on transportation routes throughout the county.

## Extent

Several factors determine the extent of a radiological hazard. These factors include the type of radiation, the concentration, radioisotopes involved (e.g., uranium-238, cesium-137, cobalt-60, and plutionium-238), the composition of surface elements near the location of the incident, the meteorological conditions, the time of the event, and the duration and nature of the event (e.g., fire, impact accident, spill, etc.).

The International Atomic Energy Agency has developed the International Nuclear and Radiological Event Scale to explain the significance of events from a range of activities, including industrial and medical use of radiation sources, operations at nuclear facilities, and transport of radioactive materials.

The scale is designed so that the severity of an event is approximately 10 times greater for each increase in level on the scale (Figure 4-17). Each of the seven levels describes the event as either an accident or an incident.

## Vulnerability Assessment

Impacts from radiological events are similar to those described for hazardous materials.

The major sources of radiological material at INL are on the INL Site, which is located in adjacent counties. At the INL's in-town facilities, minimum impacts to Bannock County may come from emergency response actions.
Impacts from other (non-INL) events that result in a release of radiological material within Bannock County have the potential to injure or kill residents and harm the environment. These impacts may include:

- Damage and loss of structures;
- Soil, surface-water, and possibly groundwater contamination;
- Injury or loss of life; and/or
- Increased load on medical facilities during response and surveillance.

Direct costs are dependent on the magnitude, location, and type of event. Costs related to accidents could include materials, carrier damage, property damage, response, containment, remediation/cleanup, and recovery. Other potential costs could result from long-term response, health care, human factors, and post de facto litigation.

## Riot/Civil Disorder

The following descriptions of riots, unlawful assembly, and civil disorder are from the Idaho Statutes:

*Idaho Statue Title 18 – CRIMES AND PUNISHMENTS*

*Idaho Statute 18-6401. Riot defined. Any action, use of force or violence, or threat thereof, disturbing the public peace, or any threat to use force or violence, if accompanied by immediate power of execution, by two (2) or more persons acting together, and without authority of law, which results in:*

*(a) physical injury to any person; or*
*(b) damage or destruction to public or private property; or*
*(c) a disturbance of the public peace*

*Idaho Statute 18-6404. Unlawful assembly defined. Whenever two or more persons assemble together to do an unlawful act, and separate without doing or advancing it, or do a lawful act in a violent, boisterous or tumultuous manner, such an assembly is an unlawful assembly.*

*Idaho Statute 18-81020. "Civil disorder" means any public disturbance involving acts of violence by an assemblage of two (2) or more persons which acts cause an immediate danger of or result in damage or injury to the property or person of any other individual.*

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

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

Riots range in scope from very few people in a small area to thousands over an entire city. Once initiated, large riots are very difficult to suppress, particularly in the United States, where law enforcement is constrained by constitutional guarantees as well as personnel limits. Early and decisive action by law enforcement may be effective in suppressing a riot; however, it is possible that police actions may also lead to further escalation.

In Bannock County, the Bannock County Sheriff's Office is primarily responsible for law enforcement in the county as a whole. The Bannock County Sheriff's Office primarily services all of the unincorporated areas of the county.

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

Losses from riots, unlawful assembly, or civil disorder come primarily from damage to community and private property. It is difficult to estimate specific losses, but those losses would be consistent with those resulting from structure fires, vandalism, and similar incidents.

## Terrorism

The following descriptions are from federal and state of Idaho Statutes.

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

> *(5) the term "domestic terrorism" means activities that –*
>
> > *(a) involve acts dangerous to human life that are a violation of the criminal laws of the United States or of any State;*
> > *(b) appear to be intended to:*
> > > *a. intimidate or coerce a civilian population;*
> > > *b. influence the policy of a government by intimidation or coercion; or*
> > > *c. affect the conduct of a government by mass destruction, assassination, or kidnapping*
> >
> > *(c) occur primarily within the territorial jurisdiction of the United States.*

*Idaho Statute 18-8102*

> *(5) "Terrorism" means activities that:*
> > *(a) Are a violation of Idaho criminal law; and*
> > *(b) Involve acts dangerous to human life that are intended to:*
> > > *a. intimidate or coerce a civilian population;*
> > > *b. influence the policy of a government by intimidation or coercion; or*
> > > *c. affect the conduct of a government by mass destruction, assassination, or kidnapping*

Terrorists often use threats to create fear among the public, try to convince citizens that their government is powerless to prevent terrorism, and get publicity for their cause. Acts of terrorism include threats of terrorism, assassinations, kidnapping, hijackings, bomb scares and bombings, cyber-attacks, and the use of chemical, biological, and radiological weapons.

High-risk targets for acts of terrorism include military and civilian government facilities, international airports, large cities, and high-profile landmarks. Terrorists might also target large public gatherings, water and food supplies, utilities, and corporate centers (FEMA 2014). Furthermore, terrorists are capable of spreading fear by sending explosives or chemical and biological agents through the mail.

Acts of terrorism can occur anywhere and without warning. The entirety of Bannock County is susceptible to terrorism; however, it is more likely that military and civilian government facilities, international airports, large cities, and high-profile landmarks would be targeted.

### Vulnerability Assessment

Since the events of September 11, 2001, awareness of terrorism has come to the forefront. The emotional impacts serve to compound the enormous physical, economic, and social damage. The continuing terrorist threat itself has a profound impact on many aspects of everyday life in the country and the economy. Because terrorist acts are likely to target specific locations, the cost of the act would be defined by the targeted locations. Because the range of sites throughout the county vary and due to the lack of past occurrences, the overall loss estimate is difficult to determine.

## Cyber Security

Advancements in technology have increased the productivity of our nation and made daily operations and markets reliant on cyber systems. As a result, the United States has become, and will increasingly continue to be, vulnerable to non-traditional attacks, including cyberattacks on information and operations.

Cyberspace is the nervous system for all critical infrastructures and is composed of hundreds of thousands of interconnected computers, servers, routers, switches, and fiber optic cables that allow our critical infrastructures to work. Studies performed by the Government Accounting Office and the Computer Security Institute found that the number of cyber security threats to both public and private sectors are on the rise. In 2000, there were over 20,000 cyberattacks to commercial institutions and 30,000 cyberattacks to federal agencies. The aggressors range from nation-states to unorganized groups or individuals.

The attacks on computer systems can come in the form of viruses, Trojans, worms, spoofs, or hoaxes from virtually anywhere in the world. Computer viruses, ranging from devastating to simply annoying, are sent out daily by organizations and individual hackers, and intermittently by people who fail to protect their computer software.

There are many changes taking place in the computer security arena, including:

- Decline of unauthorized computer system use and reported dollar amount of annual financial losses resulting from security breaches, and
- Virus attacks and denial of service outpaced theft of proprietary information.

Cyberattacks can be divided into two main categories: (1) attacks against data and (2) attacks against physical infrastructure. Because our society is so dependent on technology, a large-scale cyberattack could overwhelm government and/or private-sector resources quickly, as well as threaten lives, property, the economy, and national security.
Attacks against data are more disruptive in nature, including:

- Denial of Service attacks (prevents legitimate usage of service or access of data),
- Malware (virus or worm) (can be essentially harmless),
- Unauthorized intrusions (compromise confidentiality or availability), and
- Website defacement (meant to send a message).

## Vulnerability Assessment

Cyber-attacks have increased nationwide in recent years and can have an extensive range of impacts, ranging from minimal to significant. Some of the attacks may be malicious and can result in catastrophic damages to the community's cyber infrastructure. Back-up systems, redundancy, heightened awareness, integrity restoration, and recovery will provide a means to adequately manage the consequences of an attack. Cyber security protection systems are being implemented throughout county and city agencies.

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# 4.0 COMMUNITY INFRASTRUCTURE

## 4.1 Building Replacement Value – County and City Owned

Table 4-1 lists the estimated replacement value of county and city owned buildings.

*Table 4- 1 Building Replacement Value - County and City Owned*

| Jurisdiction | 2021 Value ($) |
|---|---|
| Bannock County | 8,400,000,000 |
| Pocatello | 3,500,000,000 |
| Chubbuck | 1,500,000,000 |
| Inkom | 1,800,000 |
| Arimo | 1,250,000 |
| McCCammon | 1,600,000 |
| Lave Hot Springs | 2,350,000 |
| Downey | 3,565,600 |

## 4.2 Public Services and Facilities

Bannock County does not directly provide public services, nor does the County operate any sort of coordinating public service authority. All the County's necessary services are divided among individual public service districts and city offices near or within the boundaries of the areas of city impact. Most services are provided by the cities or their respective service districts. In other unincorporated areas of the County, services are provided either by the various public service districts or individual landowners.

## Sewer and Water

All incorporated areas of Bannock County provide residents with water and sewer utilities. The cities of Arimo, Chubbuck, Downey, Inkom, Lava Hot Springs, McCammon, and Pocatello have their own water supply systems and belong to the Idaho Rural Water Association.

The County does not provide sewer infrastructure or water treatment facilities. The cities of Chubbuck, Pocatello, Inkom, Lava Hot Springs, and McCammon operate water treatment facilities, and unincorporated areas of the County are on septic systems.

For any parcel of land, sewer and water arrangements must meet the standards of the Idaho Department of Health. All septic systems, regardless of size or location, must be approved by the Eastern Idaho Public Health District. In addition, standards may be required by the Idaho Department of Water Resources and the Idaho Department of Environmental Quality.

## Water Sources

Drinking water in Bannock County comes from the Lower Portneuf Valley Aquifer, no drinking water comes from the Snake River or Portneuf River. Mountain snowpack in the Bannock Range south of Kinport Peak provides the largest amount of recharge.

There are several wells and water associations serving the remainder of the County. The cities of Arimo, Chubbuck, Downey, Inkom, Lava Hot Springs, and McCammon have their own water supply systems and belong to the Idaho Rural Water Association. There are approximately 42 other public and private water systems in the County, each serving 25 to 675 people. Most of the water systems obtain water from wells, with a few also using springs. Individual wells provide water in rural areas of the County.

The City of Pocatello Water Department serves approximately 17,645 customers within the city limits and in portions of Bannock County. The Water Department personnel are responsible for operating and maintaining 291 miles of water pipe, 21 water supply wells, 16 water storage tanks, 12 booster pumping stations and 47 pressure reducing valves.

## Waste Management

The City of Pocatello Sanitation Department provides residential and commercial solid waste collection for the City of Pocatello. The Department also provides recycling throughout the city for public recycling. Two private collection companies provide solid waste collection for other incorporated cities in Bannock County. There are also two private companies providing recycling services in the County.

County disposal services are provided by Bannock County Solid Waste Management, located south of Pocatello in the Portneuf Gap Area at 1500 N. Fort Hall Mine Road. This site consists of administrative offices and the sub-title D landfill which sits on 24.05 acres, thirteen acres of which are lined. Solid Waste Management also operates a transfer station in McCammon, and both sites conduct oil and freon removal from refrigerator units and have construction/demolition debris disposal areas. Four household hazardous waste collection events are held each year in the recycling building.

## Fire Protection

The City of Pocatello is an All Hazards Fire Department (See Service List below), there are four (4) in town fire stations and one Aircraft Rescue Fire Fighting (ARFF) station.

1. Structure Fire
2. Wildland Fire
3. Fire Other
4. EMS Advance Life Support and Transport
5. Vehicle Extrication
6. Hazardous Materials Response
7. Technical Rescue Response
    a. High & Low Angle Rope
    b. Structural Collapse

c. Confined Space

d. Trench

e. Heavy & Light Extrication

8. ARFF (Aircraft Rescue Firefighting)
9. Emergency Management
10. Fire Code Enforcement
11. Fire Inspections
12. Public Safety Education

The eight fire districts in Bannock County are North Bannock, Pocatello Valley, Fort Hall, Jackson Creek (Inkom), McCammon, Lava, Arimo, and Downey.

All fire districts except McCammon and Downey have wildland fire training. The Arimo district has limited, but adequate wildland fire training for the demands of the area.

## Public Safety

The Bannock County Sherriff's Office is primarily responsible for the law enforcement in the county as a whole. The Sheriff's Department, the City of Pocatello Police, and City of Chubbuck Police provide 911 Emergency Services. They each have their own dispatch, but are linked together with high speed data lines. Thus, if one dispatch center goes down, the remaining two are able to handle all dispatch activity.

The cities of Pocatello, Chubbuck, Inkom, Lava Hot Springs, and Downey have their own police departments.

## Health Care

Portneuf Medical Center is a general medical and surgical hospital in Pocatello. Health West is a non-profit community health center, the Bureau of Primary Health Care funds Health West and has clinics in Pocatello, Downey, McCammon, and Lava Hot Springs.

There are several skilled nursing and assisted living facilities located in Bannock County, including the State Veterans Home in Pocatello.

## Emergency Management Services

The Bannock County Office of Emergency Management is responsible for the coordination of Federal, State, County, and municipal resources and services during emergencies and disaster events. The Department's Emergency Operations Plan, mirrors the Federal Office of Domestic Preparedness' National Response Plan, allows responding agencies within the County to draw upon listed resources and services in a coordinated manner when dealing with emergencies or disasters involving natural or man-made hazards or weapons of mass destruction.

## Public Utilities

Primary County utilities are electrical, gas, telecommunications, and irrigation.

- **The Idaho Power Company** supplies electric distribution lines for all homes and commercial areas in the northern part of the County.
- **Rocky Mountain Power** supplies electric distribution for all homes and commercial areas in the southern part of the County.
- **Intermountain Gas Company** provides services to cities in the northern part of the County. Most of the outlying unincorporated areas of the County rely on propane, home heating oil, coal, or electric heat.
- **Propane** services are provided by private companies.

## 4.3 Water Resources

### Surface Water

The main surface water in Bannock County is the Portneuf River, which flows through Lava Hot Springs and the City of Pocatello before draining into the Snake River at American Falls Reservoir. Its headwaters are in Bingham County, and over the course of its flow the Portneuf travels about 96 miles through Bingham, Caribou, and Bannock Counties. The river has been confined to a cement channel through most of Pocatello to control flooding in the city. Tributaries to the Portneuf include Pebble Creek, Marsh Creek, Mink Creek, Gibson Jack Creek, City Creek, and others. Marsh Creek, the largest Portneuf tributary, has headwaters in the Portneuf Range south of Downey, and flows north through Marsh Valley until it reaches the Portneuf River near Inkom.

Bannock County has no naturally occurring lakes; however, other bodies of water include American Falls Reservoir, Highway Pond (when water levels are high), Hawkins Reservoir and Wiregrass Reservoir. The American Falls Reservoir is on the Snake River at the northwest end of the County. Hawkins and Wiregrass reservoirs are in the southern part of the County. Highway Pond, located along Interstate-15 just south of Pocatello, is a gravel pit operated by the Idaho Transportation Department that fills when the water table is high. Potential exists for groundwater contamination resulting from anthropologic impacts to Highway Pond.

### Ground Water

The majority of Bannock County's water supply is the Portneuf Aquifer. Annual recharge is estimated to be 7.4 billion gallons per year. The greatest recharge sources are the Mink Creek, Gibson Jack Creek, and City/Cusik Creek watersheds. The Portneuf River accounts for only 5% of the annual recharge. Pocatello has obtained the rights to 50,000-acre feet of water from Palisades Reservoir.

## 4.4 Transportation

### Highways and Transportation

The distances and jurisdictions identified by the 2018 Rural County and Highway District for Bannock County are provided in Table 4-3.

*Table 4- 2 Miles and Types of County Highways*

| Responsible | Jurisdiction Total (miles) | Jurisdiction Improved (miles) | County Improved (miles) | Jurisdiction Unimproved (miles) |
|---|---|---|---|---|
| Bannock County Road and Bridge | 467.07 | 455.27 | 615.34 | 11.81 |
| Downey/Swan Lake Highway District | 162.91 | 160.07 | - | 2.84 |
| **County Total** | **621.98** | **615.34** | | **14.65** |

Roads are the primary mode of transportation in Bannock County. The roadway system is governed by different agencies that work together to unite the region and State highways in Bannock County are operated under the authority of the Idaho Transportation Department (ITD) (Figure 4-1). Federal highways in the County are Interstate 15, Interstate 86, and US Highways 91 and 30. Interstate-15 runs north and south from Oneida County to Bingham County. Interstate 86 connects I-15 at Pocatello to I-84 in Cassia County to the west and lies entirely within the State of Idaho. US Highway 91 runs north and south from Franklin County to Bingham County. It merges with I-15 at Virginia, and leaves I-15 just north of Pocatello, and from there runs parallel to the Interstate up to Blackfoot in Bingham County. US Highway 30 enters the County from Caribou County near Lava Hot Springs, continuing westward to merge with I-15.

Bannock County Road and Bridge has jurisdiction over county roads in the northern part of the County and Downey Swan Lake Highway has jurisdiction in the south. Important County roadways include: Buckskin Road, which provides an alternate connection route between Pocatello and Inkom; Mink Creek and Arimo Roads provide western connection routes in the southern portion of the County to adjacent Power County; and Hawkins Road which provides a connection route to Oneida County to the southwest.

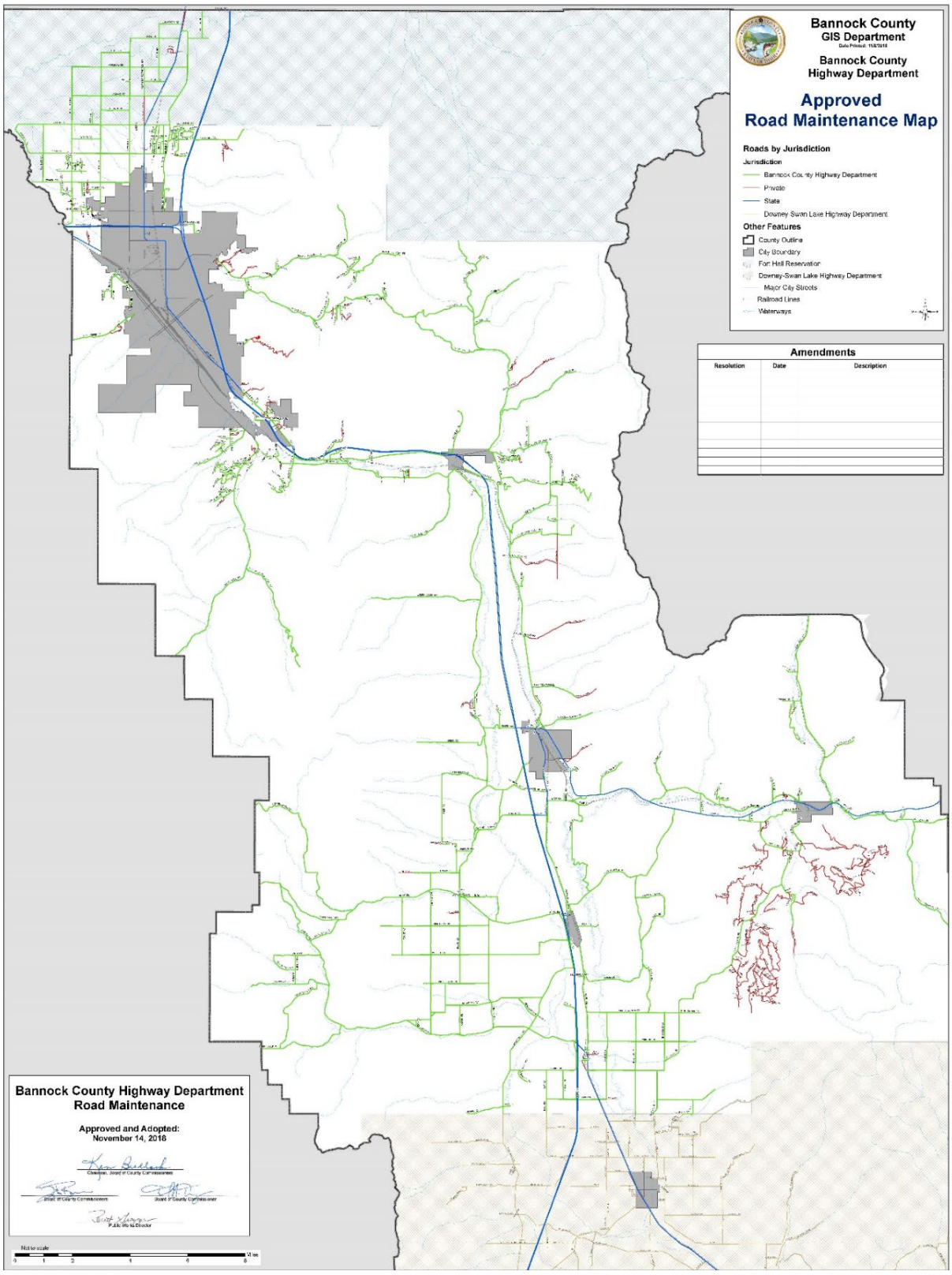


*Figure 4- 1 Road Maintenance Map*

# Bridges

Bannock County has 120 bridges that span more than 20 feet (Table 4-4).

*Table 4- 3 List of Bridges in Bannock County*

| Owner | Bridge ID | Route | Value ($ 2020) |
|---|---|---|---|
| Bureau of Indian Affairs | ID000011 | IRR BIA RTE 68 | **$1,498.64** |
| | ID000013 | IRR BIA RTE 68 | **$5,015.24** |
| | ID000024 | IRR BIA RTE 152 | **$5,424.15** |
| | | Subtotal | **$11,938.03** |
| City of Pocatello | ID001837 | STP 7151 | **$12,967.18** |
| | ID001838 | STP 7151 | **$12,967.18** |
| | ID001839 | STP 7151;BENTON ST | **$101,606.40** |
| | ID001849 | STP 7181;GOULD ST | **$8,323.91** |
| | ID001851 | STP 7181;GOULD ST | **$31,576.14** |
| | ID001852 | STP 7181;GOULD ST | **$8,323.91** |
| | ID001857 | STC 7221;CARSON ST | **$4,584.66** |
| | ID001864 | STC 7261;CUSTER ST | **$5,057.91** |
| | ID001865 | STC 7271;2ND AVE | **$3,020.23** |
| | ID001868 | STC7301;FREMONT ST | **$4,052.25** |
| | ID001883 | SMA 7391;S. MAIN | **$9,087.57** |
| | ID001982 | BENTON STREET | **$4,115.88** |
| | ID001983 | CENTER STREET | **$4,115.88** |
| | ID001984 | LEWIS STREET | **$3,767.76** |
| | ID001985 | WHITMAN STREET | **$3,421.96** |
| | ID001986 | BANNOCK STREET | **$4,733.62** |
| City of Inkom | ID001953 | STC 1764 | **$1,873.65** |
| | ID001954 | W. LINCOLN AVE | **$1,498.64** |
| City of Lava | ID001962 | STC 1757;MAIN ST | **$2,348.35** |
| City of McCammon | ID001960 | 12th STREET | **$1,190.85** |
| | | Subtotal | **$228,633.94** |
| Bannock County R&B | ID001444 | STC1762;PRTNEUF RD | **$5,776.93** |
| | ID001955 | 2-1/2 MILE ROAD | **$1,766.82** |
| | ID001956 | CO.RD;PLNG#058A | **$2,409.30** |
| | ID001957 | SYMONS ROAD | **$3,820.45** |
| | ID001958 | BROXON ROAD | **$3,786.04** |
| | ID001959 | CO.RD;PLNG#033A | **$2,258.00** |
| | ID001961 | CO.RD;PLNG#0072 | **$1,087.77** |
| | ID001963 | CO.RD;PLNG#049D | **$1,020.90** |
| | ID001964 | KRAFT ROAD | **$5,047.70** |

| Owner | Bridge ID | Route | Value ($ 2020) |
|---|---|---|---|
| | ID001966 | TYHEE ROAD | **$2,084.48** |
| | ID001967 | STC 7131 | **$1,687.94** |
| | ID001969 | ARKANSAS ROAD | **$1,112.33** |
| | ID001970 | COUNTY ROAD | **$1,234.23** |
| | ID001987 | STC 1759 | **$2,473.29** |
| | ID002247 | COUNTY ROAD | **$3,755.92** |
| Downy/Swan Lake R&B | ID001965 | COUNTY ROAD | **$7,216.24** |
| | | Subtotal | **$46,538.35** |
| ITD | ID000153 | I 86 EBL | **$6,032.03** |
| | ID000154 | I 86 WBL | **$6,032.03** |
| | ID000159 | I 86 EBL | **$8,268.52** |
| | ID000161 | I 86 WBL | **$8,268.52** |
| | ID000163 | I 86 EBL | **$11,328.72** |
| | ID000164 | I 86 WBL | **$11,328.72** |
| | ID000165 | I 86 EBL | **$13,209.55** |
| | ID000167 | I 86 WBL | **$13,209.55** |
| | ID000174 | I 86 RAMP EB OFF | **$9,713.20** |
| | ID000202 | I 15 NBL | **$9,226.86** |
| | ID000204 | I 15 SBL | **$9,226.86** |
| | ID000206 | I 15 NBL | **$10,109.01** |
| | ID000208 | I 15 SBL | **$10,109.01** |
| | ID000210 | I 15 NBL & SBL | **$8,335.39** |
| | ID000211 | I 15 NBL | **$11,777.95** |
| | ID000213 | I 15 SBL | **$11,777.95** |
| | ID000215 | I 15 NBL | **$8,703.58** |
| | ID000217 | I 15 SBL | **$8,703.58** |
| | ID000219 | I 15 NBL | **$8,841.26** |
| | ID000221 | I 15 SBL | **$8,841.26** |
| | ID000223 | I 15 NBL | **$10,060.25** |
| | ID000224 | I 15 SBL | **$10,060.25** |
| | ID000225 | I 15 NBL | **$22,536.25** |
| | ID000227 | I 15 SBL | **$23,106.31** |
| | ID000229 | I 15 | **$7,588.93** |
| | ID000231 | I 15 | **$7,588.93** |
| | ID000233 | I 15 NBL | **$10,060.25** |
| | ID000234 | I 15 SBL | **$10,060.25** |
| | ID000235 | I 15 NBL | **$8,266.90** |

| Owner | Bridge ID | Route | Value ($ 2020) |
|---|---|---|---|
| | ID000237 | I 15 SBL | **$8,266.90** |
| | ID000239 | I 15 NBL | **$7,588.93** |
| | ID000241 | I 15 SBL | **$7,588.93** |
| | ID000243 | I 15 NBL | **$2,283.81** |
| | ID000245 | I 15 SBL | **$2,283.81** |
| | ID000247 | I 15 NBL | **$11,000.67** |
| | ID000249 | I 15 SBL | **$11,000.67** |
| | ID000251 | I 15 NBL | **$15,498.38** |
| | ID000253 | I 15 SBL | **$15,498.38** |
| | ID000255 | I 15 NBL | **$7,206.38** |
| | ID000257 | I 15 SBL | **$7,206.38** |
| | ID000259 | I 15 NBL | **$9,959.87** |
| | ID000261 | I 15 SBL | **$9,959.87** |
| | ID000263 | I 15 NBL | **$9,236.89** |
| | ID000265 | I 15 SBL | **$9,236.89** |
| | ID000267 | I 15 NBL | **$15,037.67** |
| | ID000269 | I 15 SBL | **$15,280.22** |
| | ID000271 | I 15 SBL | **$14,390.53** |
| | ID000273 | I 15 SBL | **$15,265.34** |
| | ID000275 | I 15 NBL | **$2,067.62** |
| | ID000276 | I 15 SBL | **$2,067.62** |
| | ID000277 | I 15 NBL | **$2,067.62** |
| | ID000278 | I 15 SBL | **$2,067.62** |
| | ID000279 | I 15 NBL | **$7,518.84** |
| | ID000280 | I 15 SBL | **$7,457.70** |
| | ID000357 | I 15B | **$12,297.46** |
| | ID000359 | US 30 | **$13,347.59** |
| | ID000360 | US 30 | **$11,993.78** |
| | ID000361 | I 15B | **$12,243.68** |
| | ID000618 | US 30 ;W. POKY IC | **$32,642.58** |
| | ID000621 | US 30 | **$21,740.15** |
| | ID000622 | US 30 | **$8,246.11** |
| | ID000623 | US 30 | **$22,703.87** |
| | ID000624 | US 30 | **$6,695.84** |
| | ID000625 | US 30 | **$6,695.84** |
| | ID000626 | US 30 | **$8,317.81** |
| | ID000640 | US 30B | **$2,348.35** |

| Owner | Bridge ID | Route | Value ($ 2020) |
|---|---|---|---|
| | ID001217 | US 91 | **$14,774.88** |
| | ID001218 | US 91 | **$30,266.45** |
| | ID001220 | US 91 ;QUINN RD. | **$12,796.35** |
| | ID001221 | US 91 | **$31,678.50** |
| | ID001223 | US 91 | **$1,901.09** |
| | ID001224 | US 91 | **$1,656.39** |
| | ID001440 | STC 1718 | **$17,330.99** |
| | ID001824 | STP 7041;CHUBBUCK | **$7,607.04** |
| | ID001826 | STP 7041;CHUBBUCK | **$8,864.57** |
| | ID001971 | BOWMAN RD. | **$14,519.43** |
| | ID001974 | PHILBIN ROAD | **$13,494.22** |
| | ID001976 | MONTE VISTA AVENUE | **$22,637.36** |
| | ID001978 | 2-1/2 MILE ROAD | **$10,074.95** |
| | ID001980 | ROSS FORK RD | **$11,580.40** |
| | ID002245 | RAINBOW ROAD | **$17,330.99** |
| | | Subtotal | **$895,196.10** |
| | | **Total Value** | **$1,182,306.43** |

## Airports

Pocatello Regional Airport in Pocatello is Bannock County's only airport. It is served by one commuter airline with nonstop service to Salt Lake City. Charter services are also available to and from any destination.

## Railroads

Rail service in Bannock County is provided by the Union Pacific Railroad. The rail line parallels Highway 91 through the County and is a major corridor for freight. The Company has land holdings and a large rail yard in Pocatello.

# 4.5 Housing

There were an estimated 34,852 housing units in Bannock County July 2019 with a 67.5% ownership rate. The majority of housing units are located in the northern part of the county near Chubbuck and Pocatello. Events that occur in the northern part of the county are likely to have more overall damage and impact a larger number of residents than compared to other regions of the county.

## 4.6 Educational Facilities

There are two school districts in Bannock County, (Pocatello #25 and Marsh Valley #21), a total of 44 public and private schools, from preschool to twelfth grade. Four of the five private schools in the County are affiliated with churches. Fort Hall Indian Reservation operates the Sho-Ban Junior/High School on the Reservation. This school falls under the Fort Hall All Hazard Mitigation Plan.

There are two post-secondary schools operating in Bannock County, Idaho State University and a University of Idaho Extension campus.

## Idaho State University

Idaho State University (ISU or University) is a Carnegie-classified research University-high institution operated by the State of Idaho. It is Idaho's lead institution in health professions and medical education. ISU's main campus (Figure 4-2) is located in the city of Pocatello. ISU has campuses in Idaho Falls and Meridian. Spread out among our campuses is a rich array of assets.

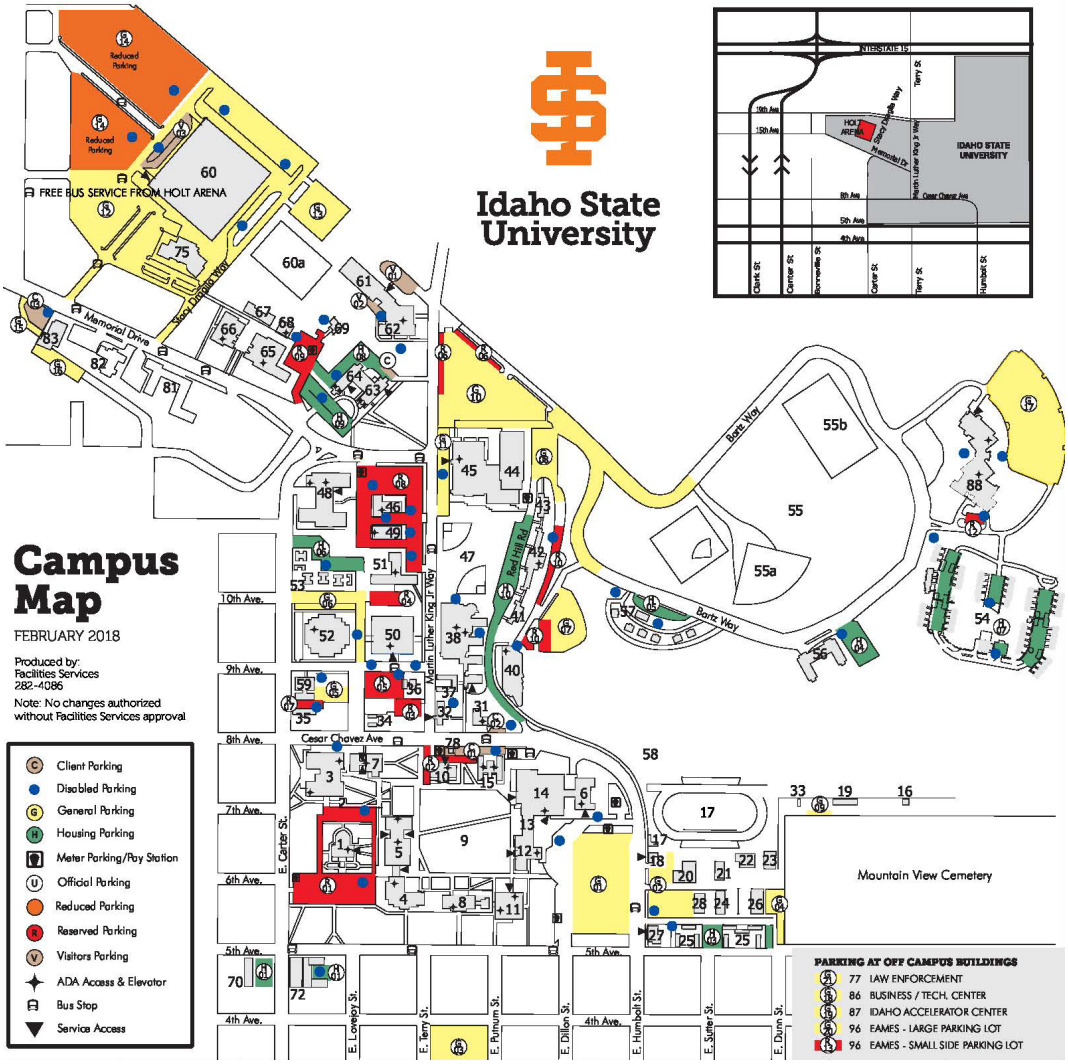


*Figure 4- 2 Map of Idaho State University*

The University enrolls over 12,000 students, and approximately 700 faculty and staff, with over 64 countries represented. ISU owns and operates over 100 buildings, some of which are geographically dispersed and isolated. This includes numerous academic and research facilities, an athletic arena, performing arts center, and gym. ISU offers a full-range of public services to those who visit, learn, and work on all of its campuses including medical, dental, and psychological care, and cultural, and sporting events.

## 4.7 Recreation Areas

Recreation areas in Bannock County include: Ross Park Zoo, Ross Park Aquatic Center, Lava Hot Springs, Downata Hot Springs, and a portion of American Falls Reservoir.

Pocatello Parks and Recreation Department operates 14 parks, the Ross Park Zoo and Ross Park Aquatic Center. American Falls Reservoir is operated by the Bureau of Reclamation. The Bannock County portion of the Reservoir lies within the Fort Hall Indian Reservation.

The County maintains two fairgrounds: North Bannock County Fair Grounds in Pocatello includes 160 acres with soccer fields, a racetrack, a rodeo arena, a grandstand with a capacity of 3,500, a motocross track, arena space, horse stalls, and an RV park. South Bannock County Fairgrounds is located in Downey. Current review to determine if both fairgrounds can be maintained is under way.

The County does not, itself, maintain any parks.

## 4.8 Cultural and Historical Sites

Much of the history and culture of Bannock County is tied to the railroad and other historic routes, including the Oregon Trail. Fort Hall, built in 1834 along the Snake River near present day Pocatello, was a major resupplying fort along the Oregon Trail. The County motto “Gateway to the West” came from the prominence of Fort Hall’s location along the Oregon Trail. The fort was torn down in 1864 to build a stage station. Today, the Fort Hall Replica, located in Upper Ross Park in Pocatello, is dedicated to preserving the history of the original Fort Hall.

Other historic trails in Bannock County include the Sublette cutoff over Fish Creek Pass near Lava Hot Springs and the Oliver and Conover (later the Halliday) Stage Line trail from Salt Lake.

The Pioneer Historic Byway follows Highway 91 north to Red Rock Pass where ancient Lake Bannock flooded 14,500 years ago and eroded the area of Marsh Creek Valley. Red Rock Pass was also the site of an early pioneer settlement.

Museums in Bannock County include: Fort Hall Replica and Bannock County Historical Museum (Pocatello), Shoshone Bannock Tribal Museum (Fort Hall), South Bannock County Historical Center Museum (Lava Hot Springs), and ISU Natural History Museum (Pocatello).

Cultural events in Bannock County include Shoshone Bannock Indian Festival (Fort Hall), Days of Thunder Rodeo (Pocatello), Fort Hall Indian Rodeo (Fort Hall), and McCammon Rodeo and Bannock County Fair Rodeo (Downey).

## 4.9 Participating Jurisdictions Vulnerability Assessment

The participating jurisdictions include Arimo, Chubbuck, Downey, Inkom, Lava, McCammon and Pocatello. As displayed in the 100-year flood plain and the WUI zones maps (Figures 4-3 through 4-16).


*Figure 4- 3 City of Arimo 100-Year Flood*

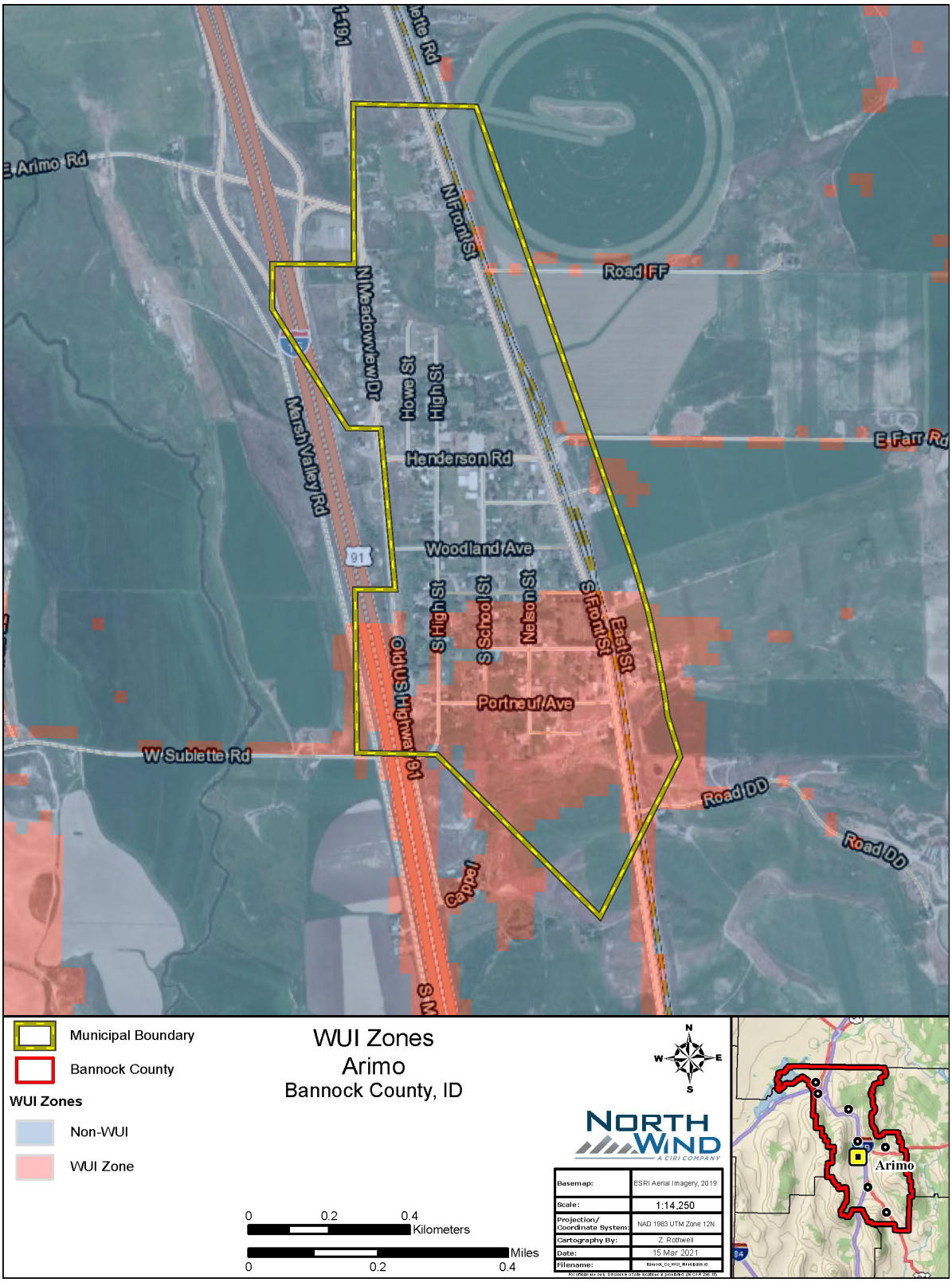


*Figure 4- 4 City of Arimo WUI Zone*

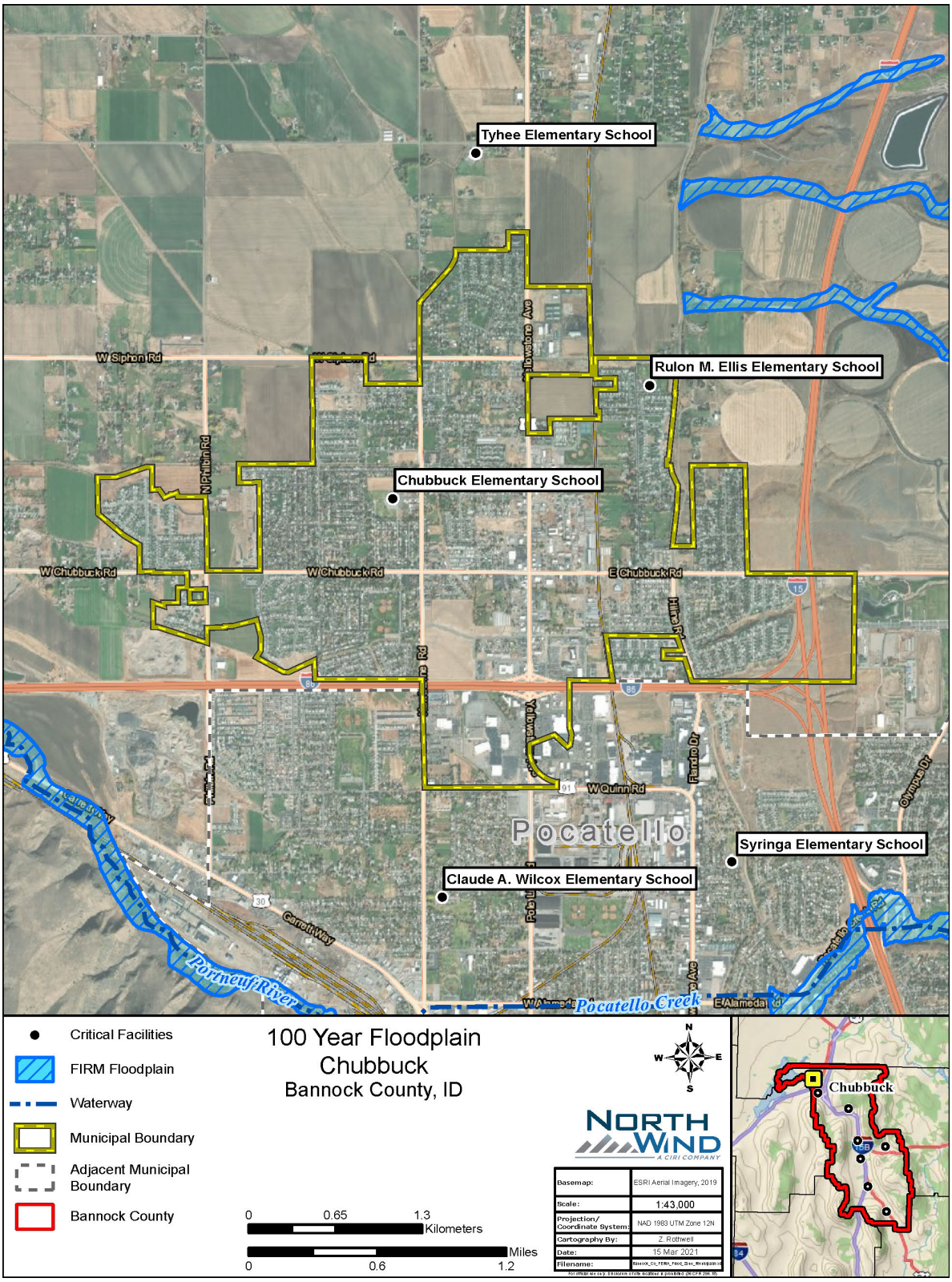


*Figure 4- 5 City of Chubbuck 100 Year Floodplain*

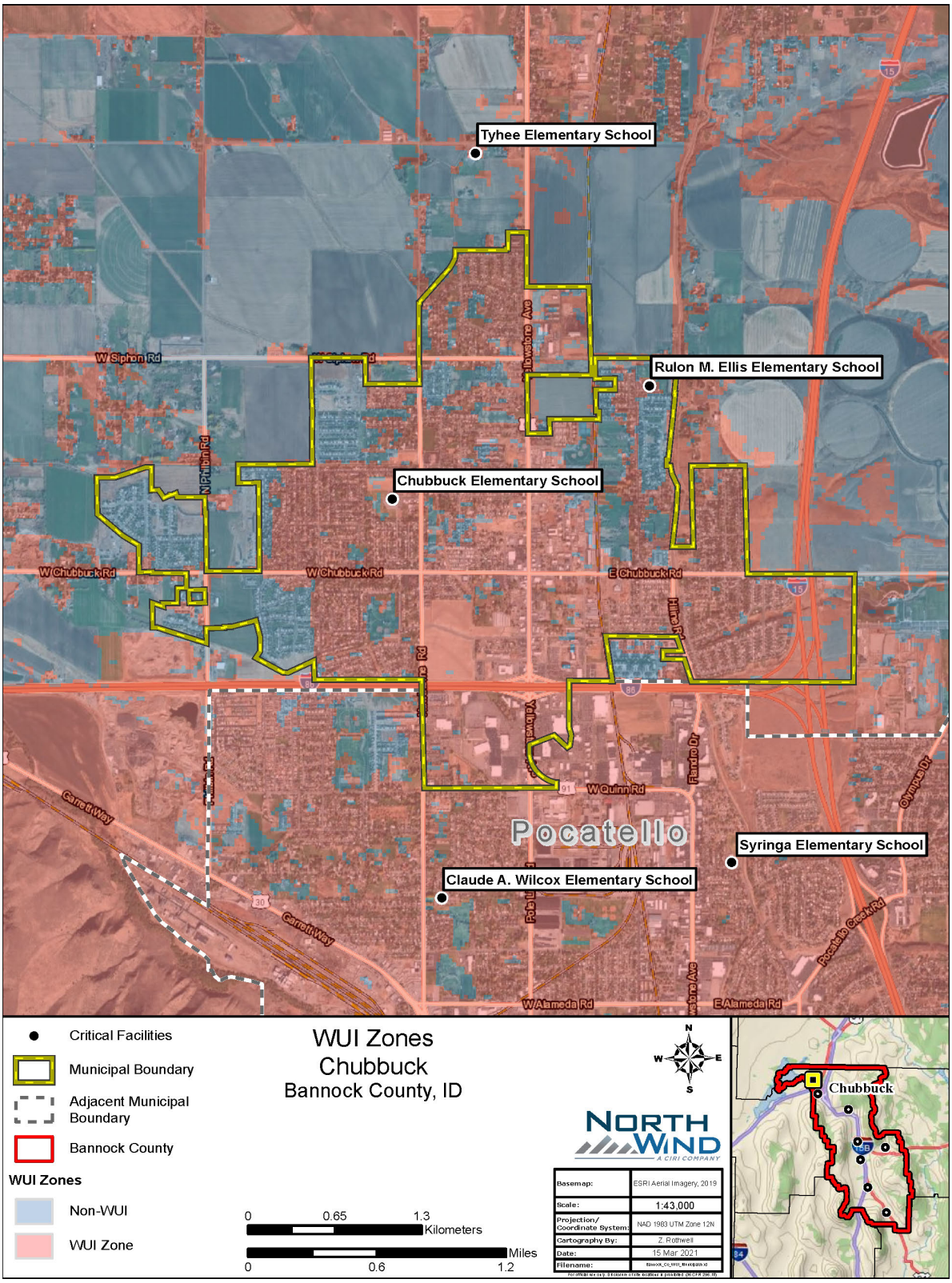


*Figure 4- 6 City of Chubbuck WUI Zones*

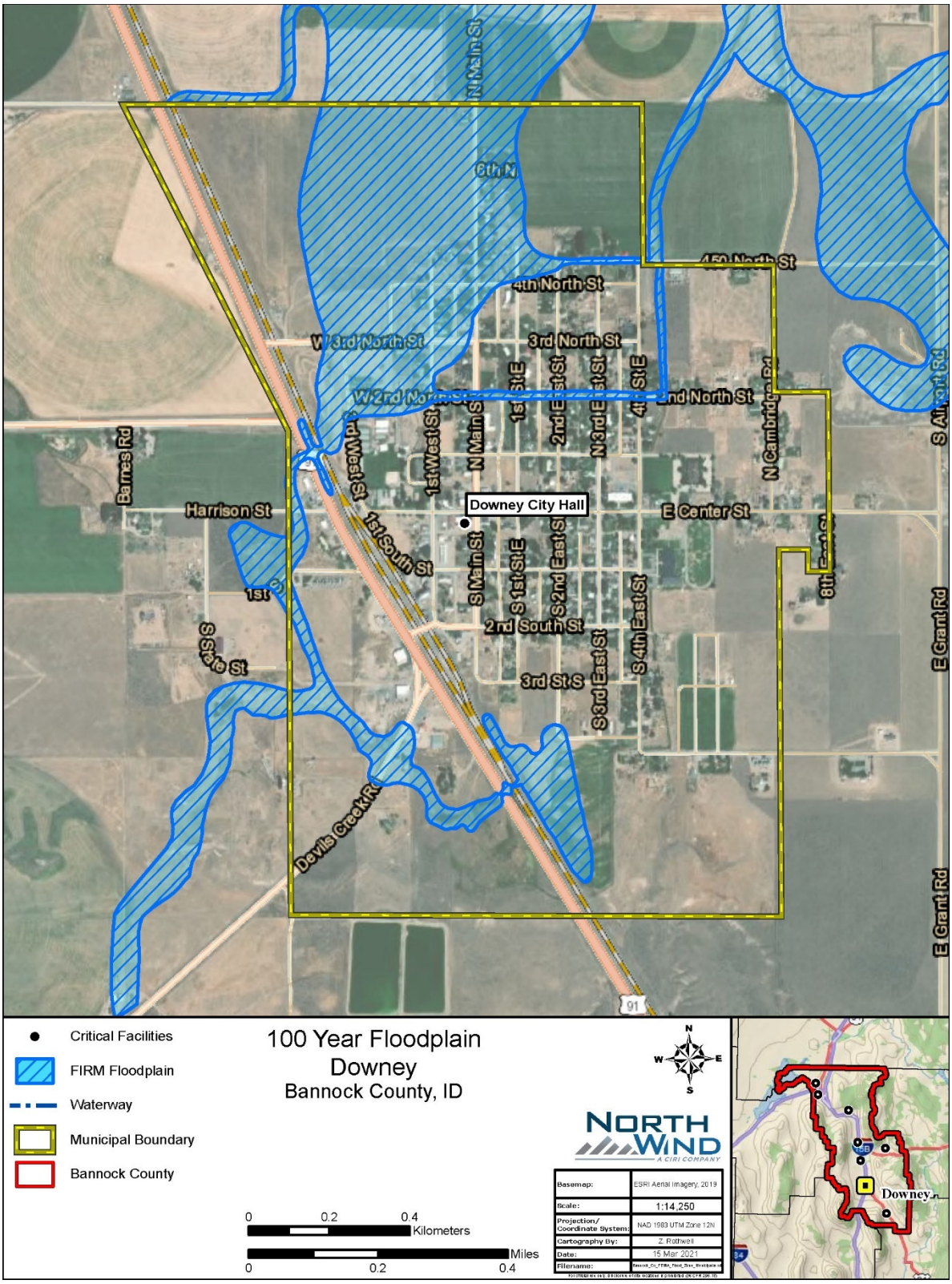


*Figure 4- 7 City of Downey 100 Year Floodplain*

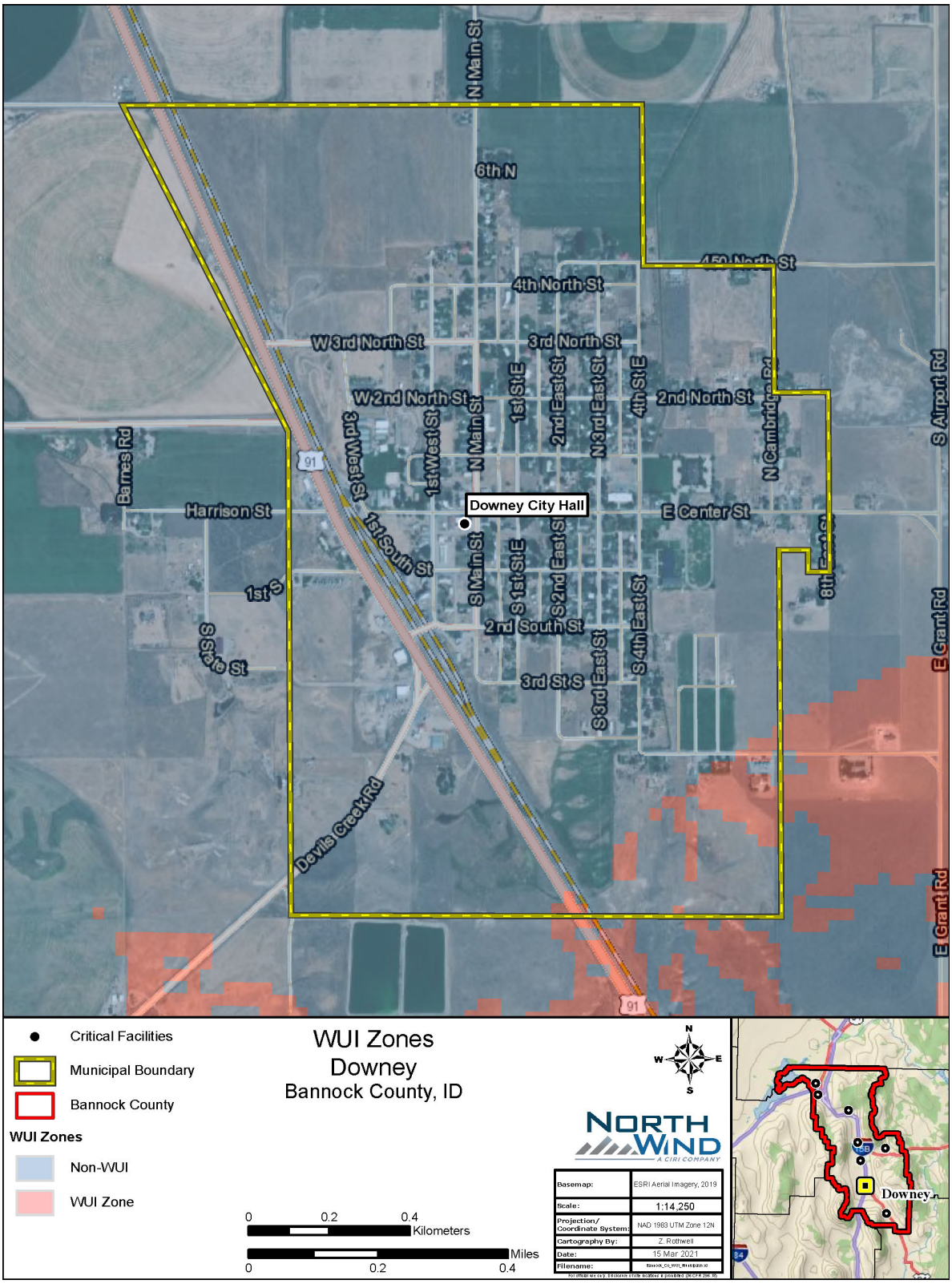


*Figure 4- 8 City of Downey WUI Zones*

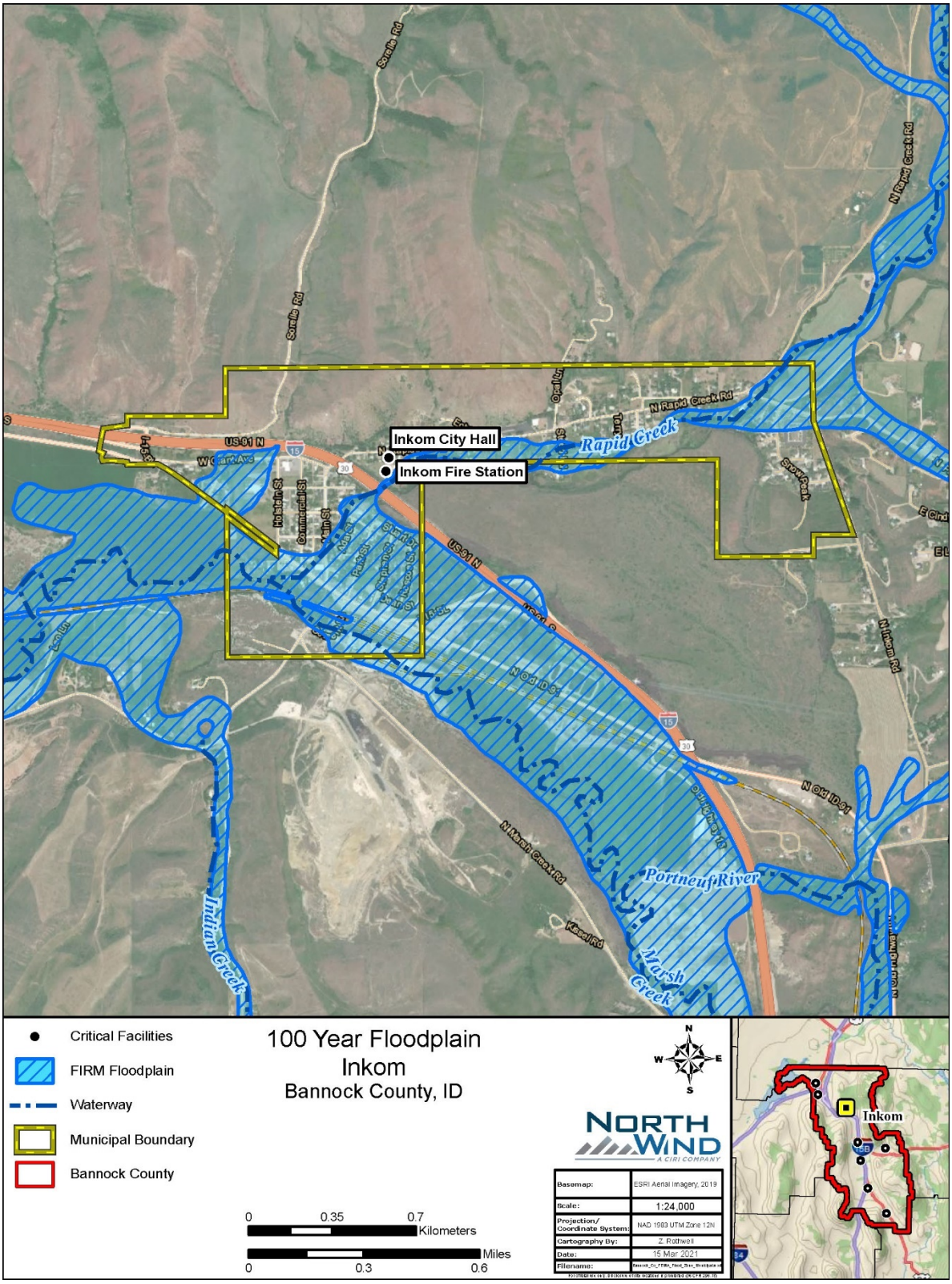


*Figure 4- 9 City of Inkom 100 Year Floodplain*

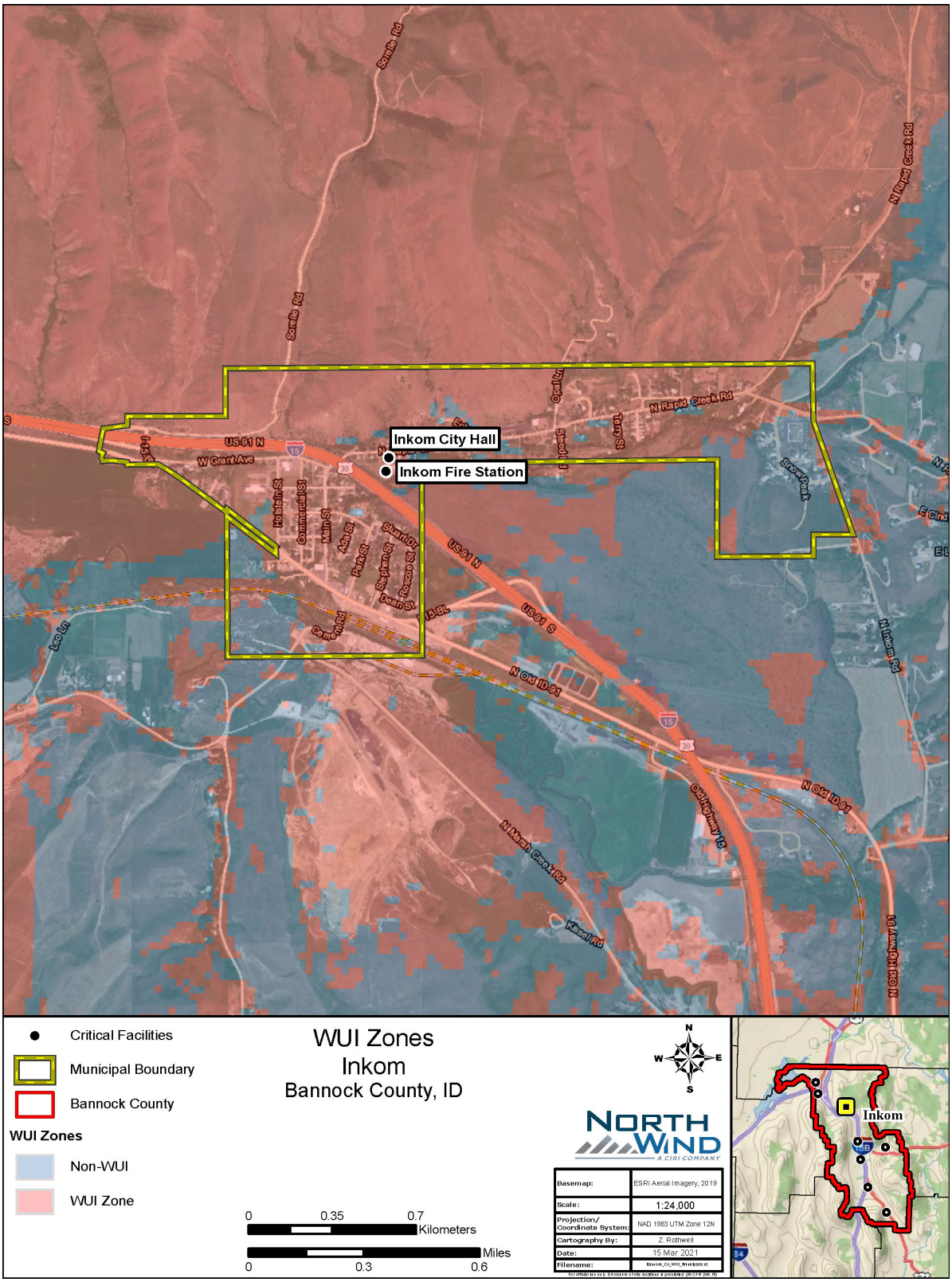


*Figure 4- 10 City of Inkom WUI Zones*

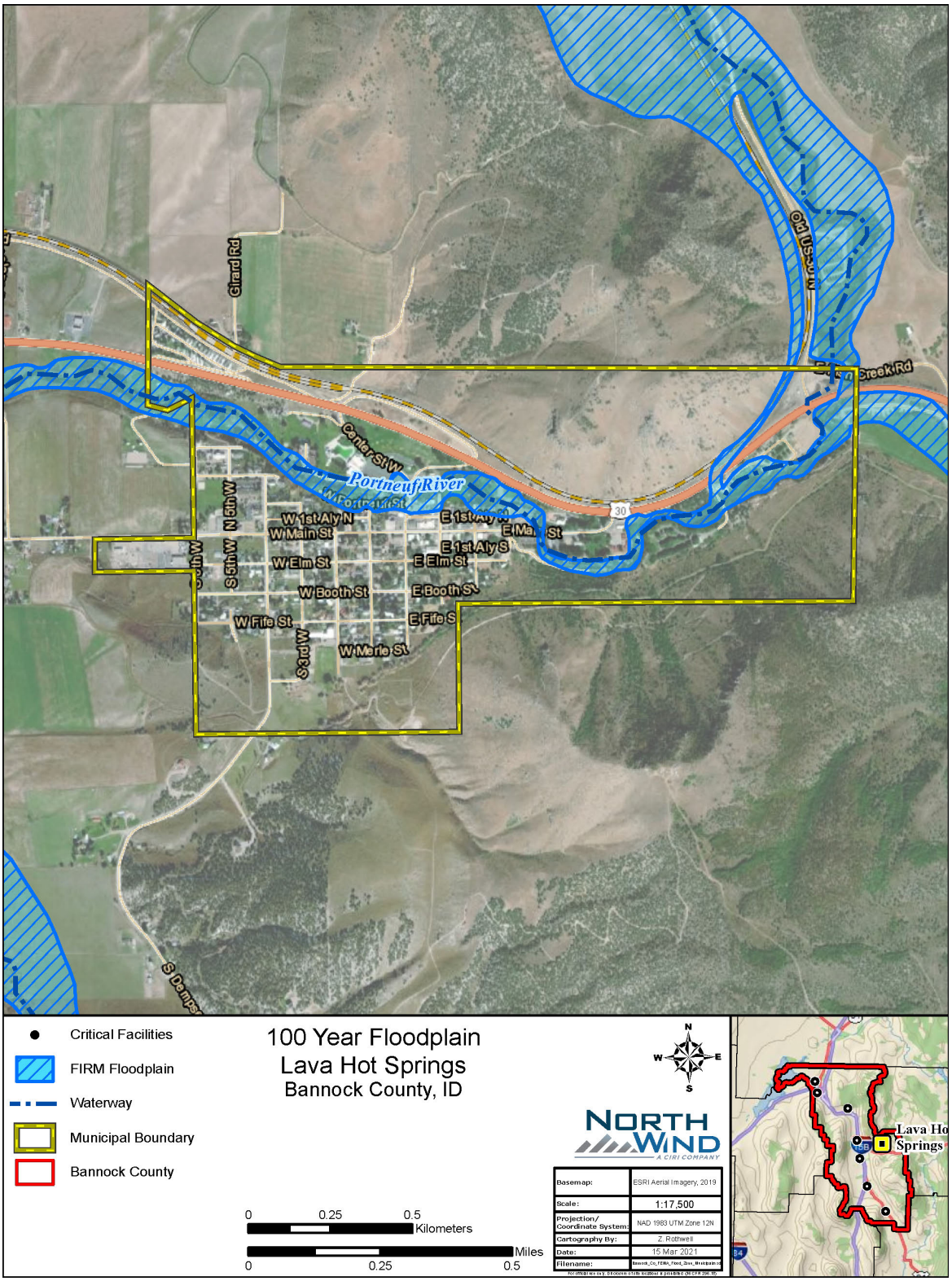


*Figure 4- 11 City of Lava Hot Springs 100 Year Floodplain*

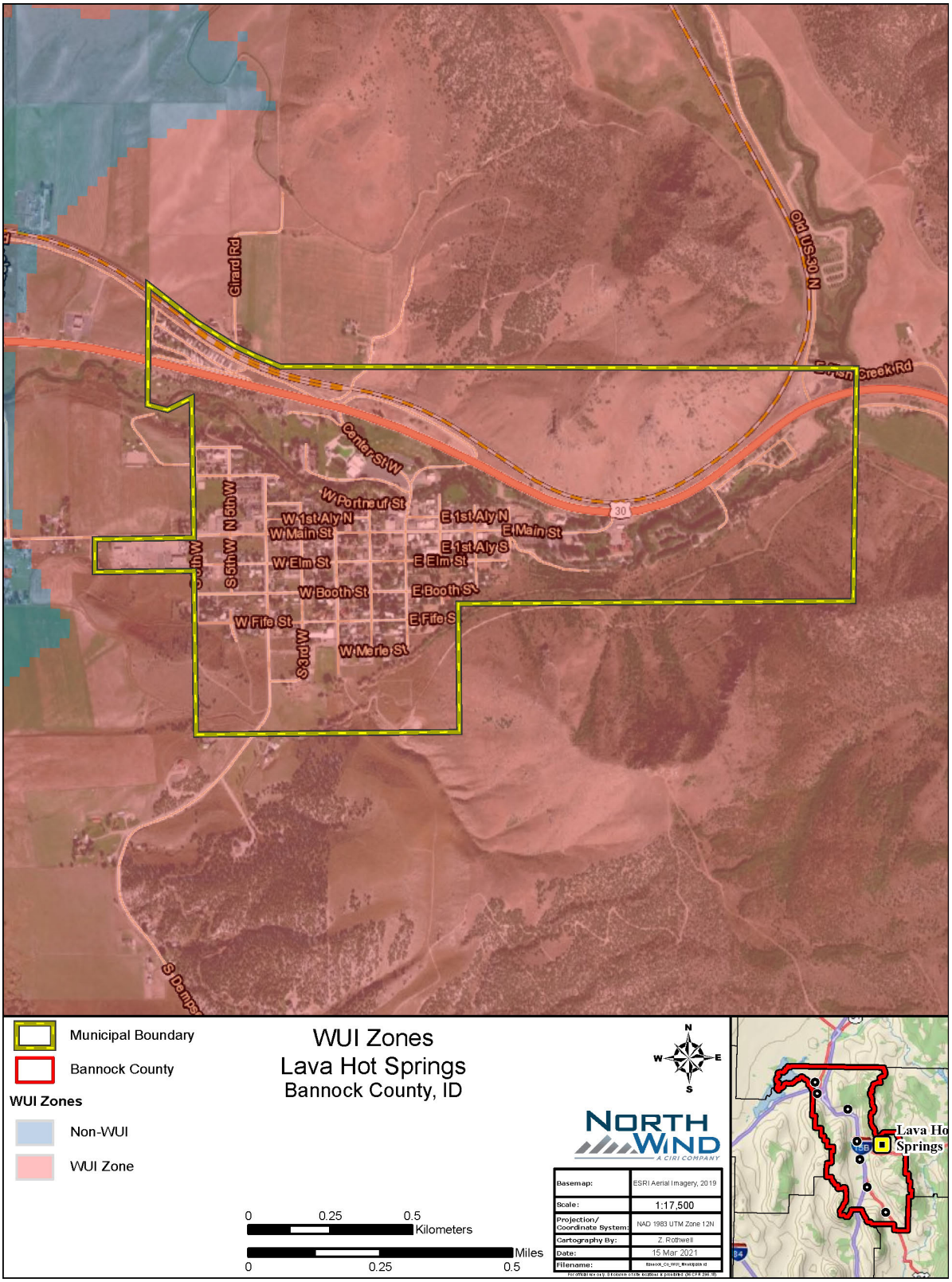


*Figure 4- 12 City of Lava Hot Springs WUI Zones*

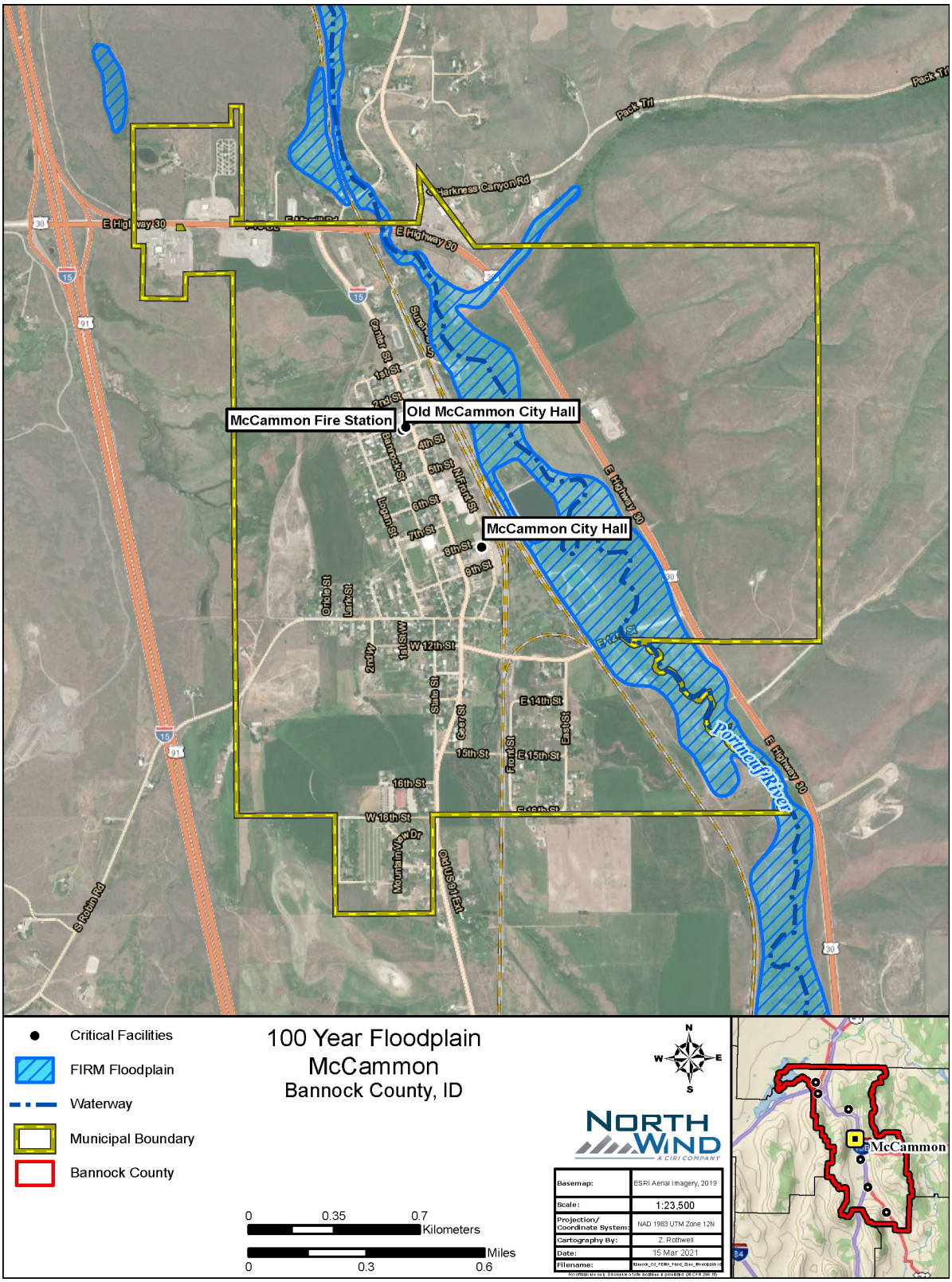


*Figure 4- 13 City of McCammon 100 Year Floodplain*

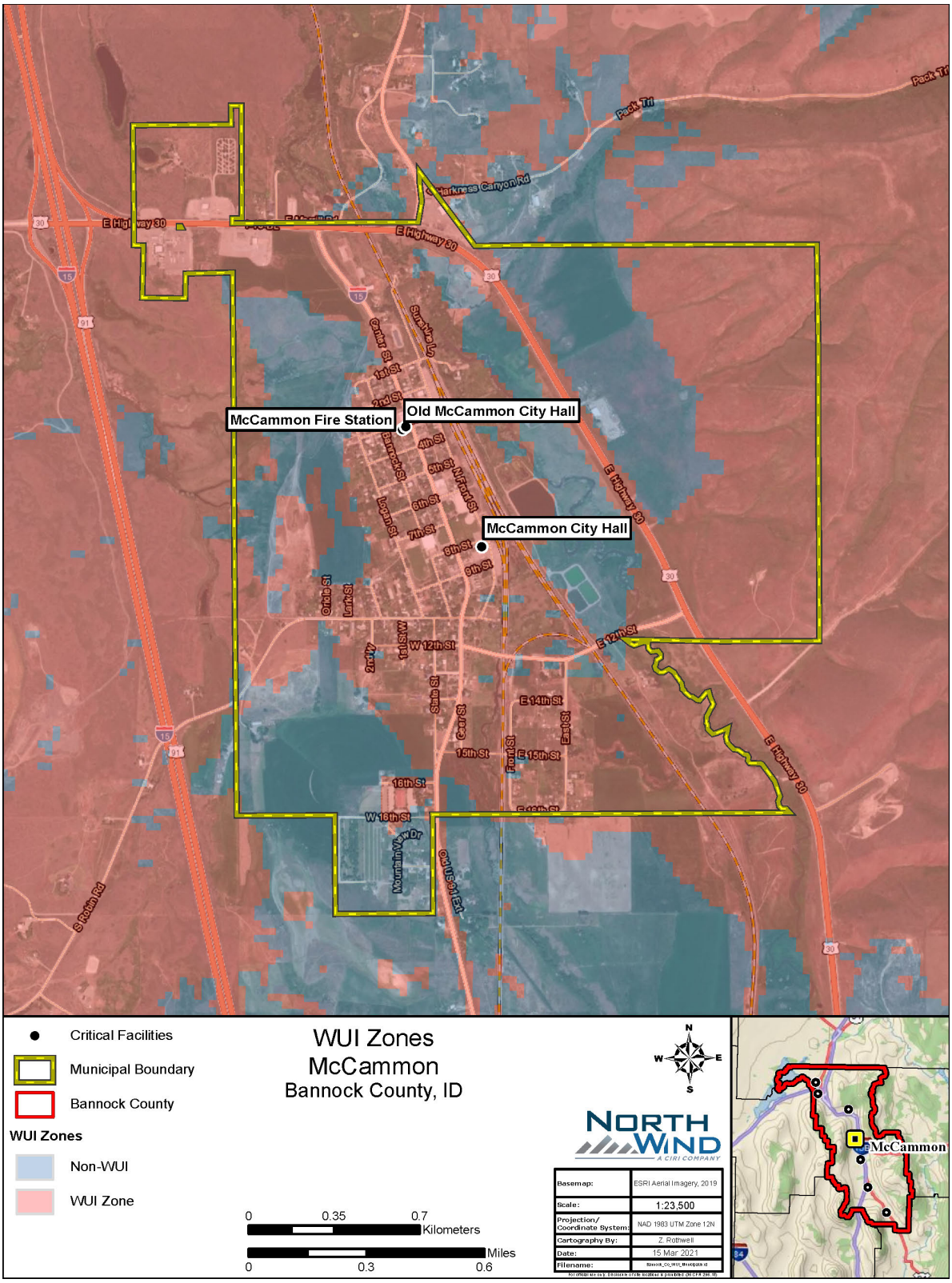


*Figure 4- 14 City of McCammon WUI Zones*

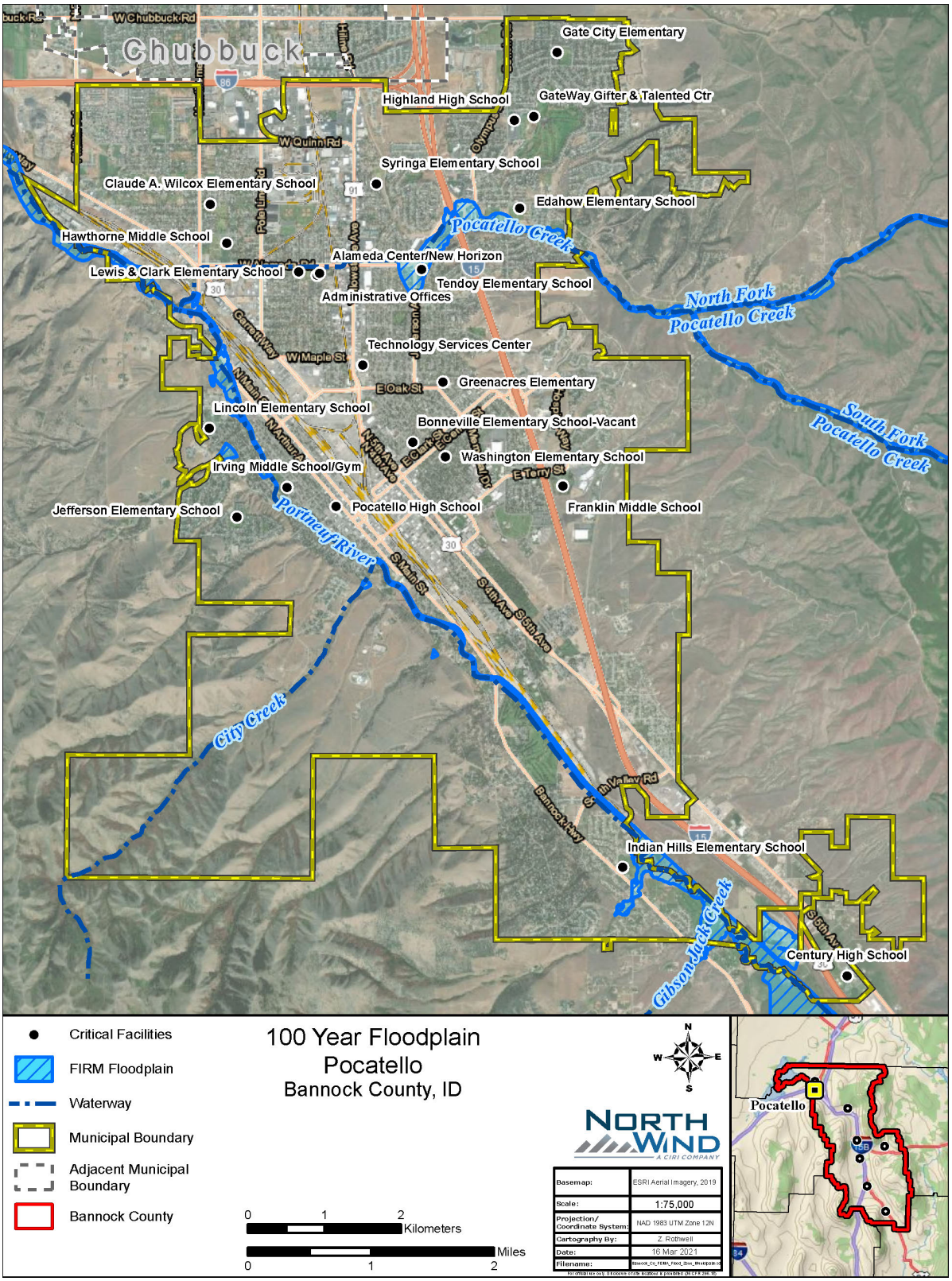


*Figure 4- 15 City of Pocatello 100 Year Floodplain*

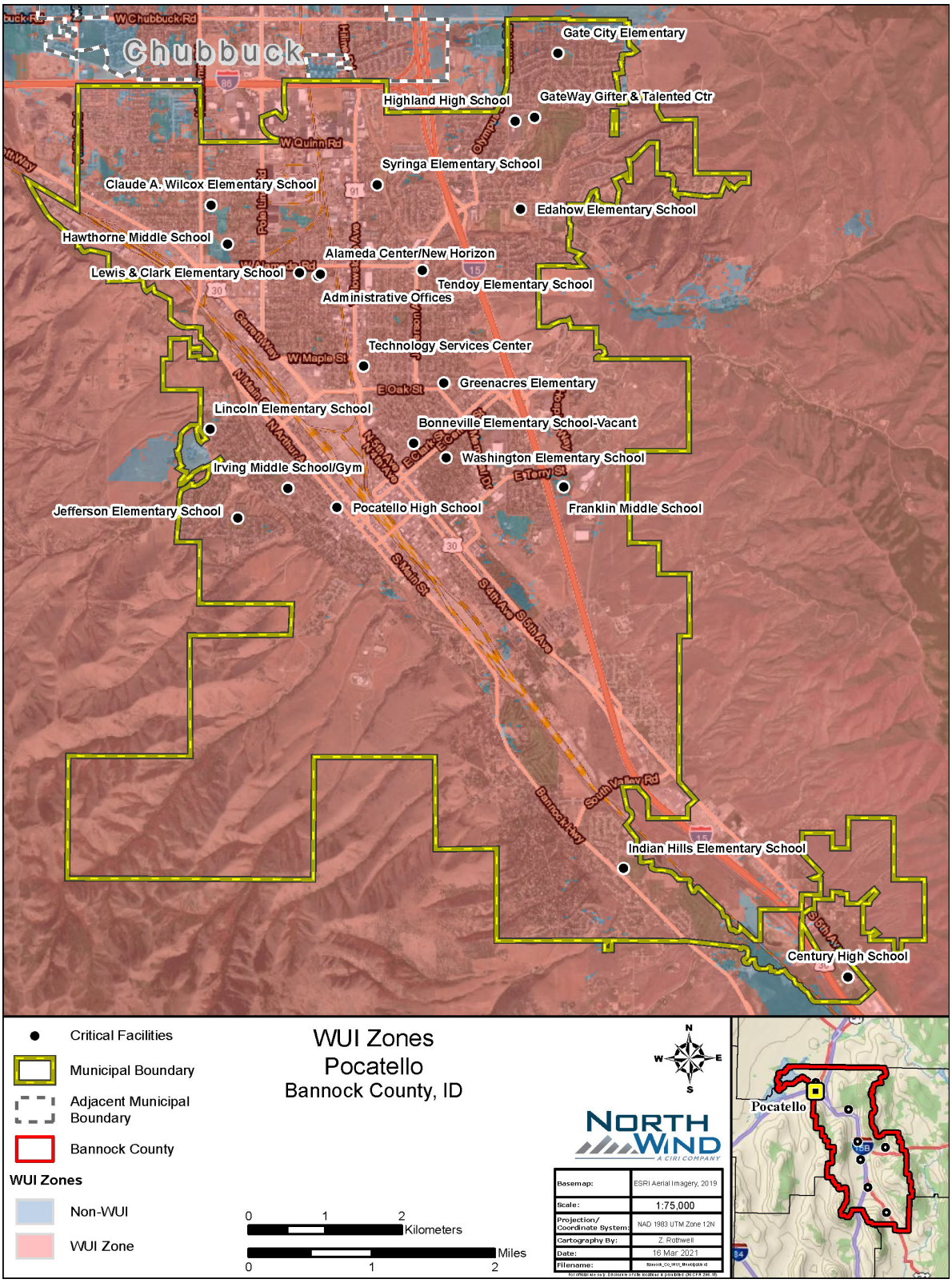


*Figure 4- 16 City of Pocatello WUI Zones*

# 5.0 MITIGATION GOALS

The goals from the 2015 HMP were revised during the 2021 Updating Process to develop more comprehensive goals. Goals reflect input from the online survey and committee meetings.

Overall, the goals include:

1. Prevent loss of life and reduce personal injury from future hazards.
    a. Identify natural and non-natural hazards that threaten life in Bannock County.

2. Reduce loss and damage to critical facilities and private and public property.
    a. Implement forward-looking standards, codes, and construction procedures to protect life and property.
    b. Implement programs and projects to protect lives by making homes, businesses, essential facilities, critical infrastructure, and other property more resistant to losses from hazards.

3. Increase public awareness and preparedness to reduce exposure to hazards.
    a. Conduct educational and outreach programs to various community groups in the county.
    b. Provide informational items, partnership opportunities, and funding resource information to assist in implementing mitigation activities.

4. Increase communication and cooperation among local, state, and federal agencies.
    a. Continue developing and strengthening multi-jurisdictional coordination and cooperation in emergency services.

5. Incorporate hazard mitigation into county and city plans and policies, when applicable.
    a. Increase public awareness of community hazards and how to reduce hazards by conducting educational and outreach programs to all groups in the county.
    b. Provide information, educational opportunities, and funding resource information to implement mitigation actions

## Changes In Priority

The planning committee adopted a common set of goals and priorities during the update process. In the 2008 and 2014 HMPs, goals were identified for each hazard. For the update, the committee adopted a broader set of goals that reflected the vision and priorities of the county and its municipalities in safeguarding life, property, and the environment. New goals, such as maintaining and improving the quality of life, enhancing individual preparedness, and an added emphasis on continuity of government and businesses services, were added during the update process. These new goals and priorities were added to address the increased growth and development in the county.

The decision to adopt a broader set of goals and priorities was made to enable the planning committee to better prioritize individual mitigation actions/projects, and to drive what new actions were needed.

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# 6.0 MITIGATION STRATEGY

A mitigation strategy is a long-term plan for reducing the potential losses identified in the hazard description and vulnerability assessment. The strategy describes how Bannock County and participating jurisdictions will integrate the plan through existing programs and resources, maintain the HMP, define mitigation priorities, and develop mitigation plans or actions.

Priorities within each jurisdiction have remained the same. As described in Section 2 – Bannock County Description, the largest change from the last HMP update was population growth and hazard consolidation. The population growth has resulted in expansion into WUI areas increasing the risk to populations within the WUIs. Mitigation actions to address wildfires were a high priority in the previous plan and remain a high priority. The other high priorities from the previous plan include flooding and severe weather and mitigation actions for these hazards remain high priority.

## 6.1 Integration

Implementing the HMP into local planning efforts is essential for disaster resistance in Bannock County and associated jurisdictions. The HMP and the associated hazard research, local knowledge, and documentation of hazard conditions have been coalesced in this document to serve as a tool for decision-makers as new policies, plans, and projects are evaluated.

The HMP is most effective when incorporated into daily government operation plans and procedures. Local plans, such as comprehensive plans and those addressing storm water management, sustainability, economic development, land use, and emergency operation, present an opportunity to address hazard mitigation that can support long-term community objectives.

Mitigation planning is on a different schedule than comprehensive planning, with most comprehensive plans likely to be updated no more frequently than once per decade. While the mitigation plan was not specifically referenced in most participant plans, some of the mitigation recommendations are included as comprehensive plan policies.

As the mitigation plan strategies reflect, Bannock County and incorporated cities will continue to work with the Planning and Zoning Department and local municipalities to encourage coordination and consistency between comprehensive planning and the hazard mitigation plan and provide instruction on how to incorporate mitigation strategies into their comprehensive plans and other planning mechanisms. The Bannock County mitigation capability assessment information is provided in Table 6-1.

Bannock County and the incorporated cities encourage the philosophy of installing disaster resistance in normal day-to-day operations by implementing plan activities through existing programs and resources, the cost of mitigation is often a small portion of the overall cost of a project's design or program. Through their resolution of adoption as well as their participation on the planning 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 in Bannock County and cities that will either use the risk assessment information presented in this document to make informed decisions or integrate the mitigation strategies directly into capital improvement, infrastructure enhancement and training projects; prevention campaigns; land use and development plans. Although not inclusive, the following is a list of mechanisms available to each jurisdiction for incorporating the mitigation requirements.

Bannock County Mechanisms

1. Comprehensive Plan – Amended 2020
2. Metropolitan Transportation Plan 2040 – Updated 2019
3. Bannock County Emergency Operations Plan – December 2015
4. Building Codes and Ordinances – New codes Effective January 1, 2021
5. Department Budgets
6. Site Master Plan.

Incorporated Cities (Arimo, Chubbuck, Downey, Inkom, Lava Hot Springs, McCammon, and Pocatello)

1. Comprehensive Plan
2. City Budgets
3. Building Codes and Ordinances.

Agencies and Other Organization Mechanisms

1. Annual Budget
2. Preventative Programs
3. Training Programs
4. Long Term Land Use Plans (Forest Plans and Wildlife Management Plans).

The state hazard mitigation plan provides a framework for participating jurisdictions to build from. Counties typically have their own HMPs. As for most counties, Bannock County and participating jurisdictions rely on the County HMP for guidance on prioritizing and funding hazard mitigation projects when developing budgets.

The Pocatello comprehensive plan was updated in 2015 and the HMP was used to develop goals and planning strategies.

Bannock County, Pocatello, Arimo, Chubbuck, Downey, Inkom, Lava Hot Springs, McCammon rely on the HMP for guidance on prioritizing and funding hazardous mitigation projects when developing budgets.

Bannock County, Pocatello, and Chubbuck leaned on the HMP to highlight and identify risks throughout the county when developing Emergency Operation Plans.

*Table 6- 1 Bannock County Local Mitigation Capability Assessment*

| Agency Name (Mission/Function | Programs, Plans, Policies, Regulations, Funding, ,or Practices | Entity Contact, Address, Phone | Effect of Loss Reduction* | | | Comments |
|---|---|---|---|---|---|---|
| | | | Support | Facilitate | Hinder | |
| Bannock County Emergency Management | Emergency Operations Plan | 5500 South 5th Avenue, Pocatello, ID 83204 208-236-7104 | X | | | |
| Bannock County Emergency Management | Continuity of Operations Plan | | X | X | | |
| Bannock County Planning and Zoning | Comprehensive Plan | 5500 S. 5th Avenue Pocatello, ID 83204 208-236-7230 | X | X | | |
| Bannock County Planning and Zoning | Land Use Ordinances | | X | X | | |
| Bannock County Public Works | Transportation Plan | 5500 S 5th Avenue, Pocatello, ID 83204 208-233-9591 | X | X | | Includes all jurisdictions in the County, School District 25, the Shoshone Bannock Tribes and the ITD. |
| City of Arimo | Land Use Ordinances | City Hall Arimo P.O. Box 61 Arimo, ID 83214 United States | X | X | | |
| City of Arimo | Continuity of Operations Plan | | X | X | | |
| Arimo Fire District | Fire Protection | 115 Henderson Road Arimo, ID 83214 208-254-3507 | X | | | |
| City of Arimo Public Works | Utilities | City hall Arimo P.O. Box 61 Arimo, ID 83214 United States | X | X | | |
| City of Chubbuck | Emergency Operations Plan | 4727 Yellowstone Chubbuck ID 83202 (208) 237-3212 | X | | | |

| Agency Name (Mission/Function | Programs, Plans, Policies, Regulations, Funding, ,or Practices | Entity Contact, Address, Phone | Effect of Loss Reduction* | | | Comments |
|---|---|---|---|---|---|---|
| | | | Support | Facilitate | Hinder | |
| City of Chubbuck | Continuity of Operations Plan | TBD | X | X | | |
| City of Chubbuck Planning and Zoning | Comprehensive Plan | 208.237.2430 ext. 139 | X | X | | |
| City of Chubbuck Planning and Zoning | Land Use Ordinances | 208-237-2400 | X | X | | |
| City of Chubbuck Police Department | Law Enforcement | 5160 Yellowstone Ave,<br>Pocatello, ID 83202<br>208-237-7172 | X | | | |
| City of Chubbuck Fire Department | Fire Protections, Emergency Management | 4727 Yellowstone<br>Chubbuck, ID 83202<br>208-237-3212 | X | | | |
| City of Chubbuck Public Works | Road and Bridge Maintenance, Utilities | 5160 Yellowstone Ave,<br>Pocatello, ID 83202<br>208-237-2430 | X | X | | |
| City of Downey | Continuity of Operations Plan | City of Downey<br>15 South Main Street<br>Downey, ID 83234<br>208-897-5342 | X | X | | |
| City of Downey Planning and Zoning | Comprehensive Plan | | X | X | | |
| City of Downey Planning and Zoning | Land Use Ordinances | | X | X | | |
| City of Downey Public Works | Road and Bridge Maintenance, Utilities | | X | X | | |
| City of Downey Fire Department | Fire Protections, | Downey Fire Department<br>135 US-91<br>208-705-8593 | X | | | |

| Agency Name (Mission/Function | Programs, Plans, Policies, Regulations, Funding, ,or Practices | Entity Contact, Address, Phone | Effect of Loss Reduction* | | | Comments |
|---|---|---|---|---|---|---|
| | | | Support | Facilitate | Hinder | |
| City of Inkom | Emergency Operations Plan | City of Inkom<br>208-775-3372<br>inkomcityoffices@cableone.net | X | | | |
| City of Inkom | Continuity of Operations Plan | | X | X | | |
| City of Inkom Land Use Board | Comprehensive Plan | | X | X | | |
| City of Inkom Land Use Board | Land Use Ordinances | | X | X | | |
| City of Inkom Public Works | Road and Bridge Maintenance, Utilities | | X | X | | |
| City of Inkom Police Department | Law Enforcement | 364 Rapid Creek Rd<br>Inkom, ID 83245<br>208-775-3372 | X | | | |
| City of Inkom Fire Department | Fire Protections, Emergency Management | 365 N Rapid Creek Rd<br>Inkom, ID 83245<br>208-775-4423 | X | | | |
| City of Lava Hot Springs | Comprehensive Plan | City of Lava Hot Springs<br>115 W Elm Street<br>Lava Hot Springs, ID 83246<br>lavahotspringscity@gmail.com | X | X | | |
| City of Lava Hot Springs | Land Use Ordinances | | X | X | | |
| City of Lava Hot Springs | Continuity of Operations Plan | | X | X | | |
| City of Lava Public Works | Utilities | | X | X | | |
| Lava Hot Spring Fire District | Fire Protection | Lava Hot Springs<br>Volunteer Fire Department<br>PO Box 187<br>Lava Hot Springs, ID 83246<br>(208) 776-5366 | X | | | |

| Agency Name (Mission/Function | Programs, Plans, Policies, Regulations, Funding, ,or Practices | Entity Contact, Address, Phone | Effect of Loss Reduction* | | | Comments |
|---|---|---|---|---|---|---|
| | | | Support | Facilitate | Hinder | |
| City of McCammon | Comprehensive Plan | City of McCammon<br>802 Front St<br>PO Box 9<br>McCammon, ID 83250<br>802-254-3200<br>mccammoncity@gmail.com | X | X | | |
| City of McCammon | Land Use Ordinances | | X | X | | |
| City of McCammon | Continuity of Operations Plan | | X | X | | |
| McCammon Fire District | Fire Protection | | X | | | |
| City of McCammon Public Works | Utilities | | X | X | | |
| City of Pocatello | Emergency Operations Plan | 911 N 7th Avenue<br>Pocatello, ID 83201<br>208-234-6184 | X | | | |
| City of Pocatello | Continuity of Operations Plan | | X | X | | |
| City of Pocatello Planning and Zoning | Comprehensive Plan | | X | X | | |
| City of Pocatello Planning and Zoning | Land Use Ordinances | | X | X | | |
| City of Pocatello Police Department | Law Enforcement | 911 N 7th Avenue<br>Pocatello, ID 83201<br>208-234-6100 | X | | | |
| City of Pocatello Fire Department | Fire Protections, Emergency Management | 408 E Whitman<br>Fire Station #1<br>Pocatello, ID 83205<br>208-234-6201 | X | | | |
| City of Pocatello Public Works | Road and Bridge Maintenance, Utilities | 2405 Garrett Way<br>Pocatello, ID 83201<br>208-234-6250 | X | X | | |

| Agency Name (Mission/Function | Programs, Plans, Policies, Regulations, Funding, ,or Practices | Entity Contact, Address, Phone | Effect of Loss Reduction* | | | Comments |
|---|---|---|---|---|---|---|
| | | | Support | Facilitate | Hinder | |
| Idaho State University | Emergency Response Plan | Public Safety<br>208-285-2515<br>pubsafe@isu.edu | | | | |
| Idaho State University | Emergency Management Multi-Year Strategic Plan | | | | | |
| Idaho State University | Campus Master Plan | | | | | |
| Idaho State University | Continuity of Operations Plans for Identified Essential Functions | | | | | |
| Idaho State University | Hazardous Waste Policies Procedures Manual | | | | | |
| Idaho State University | Annual Security Report | | | | | |
| Idaho State University | Memoranda of Understanding with External Stake | | | | | |
| Idaho State University | Hazard Mitigation Education Awareness | | | | | |
| Idaho State University | Campus Emergency Management Response | | | | | |

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# 7.0 PLAN MAINTENANCE

As described in Section 1, the HMP should be reviewed annually by the planning committee to review and update mitigation plans, estimated values, and hazard occurrences. The Bannock County Emergency Management is responsible for the scheduling, publicizing, and leadership of the annual review meeting. During the meeting, committee members should report the status of mitigation projects and identify changes and updates to the existing plan. Maintenance of the plan should be detailed at this meeting, documented, and attached to the formal plan as an amendment. Every five years, any changes should be incorporated into the five-year update. Below is a proposed committee meeting agenda for yearly reviews and five-year update reviews.

## 7.1 Annual Review Agenda

The focus of the planning committee at the annual review should include some of the following topics:

- Update hazard past occurrences based on any event in the past year;
- Review the county profile and individual community assessment for each hazard, and note any major changes or mitigation projects that have altered the vulnerability of each jurisdiction;
- Add a section to note accomplishments or current mitigation projects; and
- Address updated local planning efforts (comprehensive plans, emergency management plans, etc.).

## 7.2 Five-Year Update Review Agenda

- Update county demographic and socioeconomic data;
- Address new planning documents, ordinances, codes, etc., that have been developed by the county or associated jurisdictions;
- Review hazards and address risk assessments that have changed in the past five years;
- Update county and associated jurisdiction hazard risk severities; and
- Incorporate new methods for analyzing risk and vulnerabilities.

## 7.3 Hazard Mitigation

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

1. Those that keep the hazard away from people, property, and structures;
2. Those that keep people, property, or structures away from the hazard; and
3. Those that reduce the impact of the hazard on victims (i.e., insurance).

The HMP identifies three key strategies: (1) practicality, (2) cost effectiveness, and (3) culturally, environmentally, and politically acceptable. Actions taken to limit the vulnerability of society to hazards must not in themselves be more costly than the anticipated damages.

The primary focus of the HMP is to be a tool for decision-makers for new policies, plans, and projects in the development of mitigation plans and actions. Mitigation actions are proposed and prioritized based on risk assessment that considers the magnitude of hazards, their frequency of occurrence, and the vulnerabilities of the community to them. This helps to ensure that risk reduction efforts, whether for homes, roads, public utilities, pipelines, power plants, public works, or other projects, are both necessary and cost effective.

In the past, hazard mitigation has been one of the most neglected emergency management programs. Because disaster events are generally infrequent and the nature and magnitude of the threat are often ignored or poorly understood, the priority to fund and implement mitigation measures is low. Mitigation success can be achieved, however, if accurate information is portrayed to decision-makers and the public through complete hazard identification and impact studies, followed by effective mitigation management.

## 7.4 Prioritization Process

Initial prioritization of the mitigation projects will occur when representatives from the county and associated jurisdictions come together to review mitigation goals, the risk-severity ranking, and any proposed mitigation projects. Mitigation projects are those that can potentially prevent a hazard from occurring or reduce the magnitude or frequency of that hazard. These projects are selected based on the mitigation goals and related objectives of the HMP. The basic tenets of the process, as discussed in the scope and mission statement of the HMP, include (1) life safety, (2) protection of critical infrastructure, and (3) reduction of repetitive loss.

## 7.5 Future Prioritization Process

Differing prioritization processes will occur within the county and associated jurisdictions after the HMP update is adopted and then becomes a living document with annual evaluation and updating.

The prioritization process will continue to be based on the four basic tenants of Mitigation Planning: (1) life safety, (2) protection of existing buildings and infrastructure, (3) protection of new buildings and infrastructure, and (4) reduction of repetitive loss.

The process will reflect that a key component in funding a decision is a determination that the project will provide an equivalent (or more) in benefits over the life of the project when compared with the costs. Projects will be administered by the county and associated jurisdictions with overall coordination provided by the county emergency management coordinator.

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

## 7.6 Mitigation Projects

Mitigation actions and projects for Bannock County and participating jurisdictions are described below. Committee members updated the 2014 mitigation actions and projects and included new actions that are planned in the 2021 HMP Update.

The mitigation projects that were described in the 2015 HMP along with their status are provided below. Projects were either listed as being “completed”, “removed” with an explanation of removal, or “ongoing”. Projects listed as “ongoing” are still being implemented and are either explicitly listed on the new mitigation projects table or are assumed to be part of a new mitigation project.

During a two-hour working meeting with committee members and county and city officials (public works, fire, emergency response, school districts, etc.) new mitigation projects (Section 7.7) were developed. The new projects were based on recognized vulnerabilities throughout the county and individual jurisdictions. The projects were kept broad to allow more flexibility to mitigate similar vulnerabilities that may be applicable to all jurisdictions or numerous locations throughout a jurisdiction (i.e. flooding on multiple roadways in one jurisdiction or flooding roadways in multiple jurisdictions). It is for this reason that the county and jurisdictions may be listed in the Applicable Jurisdiction section of one mitigation project table.

Bannock County and participating jurisdictions followed the prioritization scheme described in Sections 6.4 and 6.5 to identify the project’s priority for implementation. Projects that were not identified by the prioritization scheme will be analyzed prior to implementation.

## 7.7 Mitigation Projects

Bannock County and participating Mitigation Projects are provided in Table 7-1.

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*Table 7- 1 2015 Bannock County and Participating Jurisdictions Mitigation Projects*

| Jurisdiction | Hazard | Goal | Objective | Project | Responsible Entity | Status |
|---|---|---|---|---|---|---|
| **Bannock County** | Severe Weather | Bannock County will develop methods to mitigate the losses due to severe weather in the County. | Improve the Safety of County Roads and Brides | Construct Recreational Parking Areas | Road and Bridge | Ongoing. Add to 2020 list. |
| | | | | Place Seasonal Road Signage | Road and Bridge | Ongoing. Add to 2020 list. |
| | | | Develop Methods to Reduce Straight Line Wind Damage | Plant Living Windbreaks/Snow Fences along Interstate 86 | Private Landowners/Road and Bridge | Ongoing. Add to 2020 list. |
| | Flooding | Bannock County will continue to participate in the National Flood Insurance Program and develop actions to reduce damage to County infrastructure due to flooding. | Maintain the NFIP Program in Bannock County | Adoption and enforcement of floodplain management requirements, including regulating new construction in Special Flood Hazard Areas (SFHAs); | Floodplain Administrator | Ongoing. Add to 2020 list. |
| | Flooding | | | Reduce Spring Flooding through a flood mitigation project in the flood prone areas | Floodplain Administrator/ Swan Lake Highway District | Ongoing. Add to 2020 list. |
| | Flooding | | Improve Drainage Systems | Develop a Culvert Maintenance Program for areas prone to spring runoff and flash flooding | Road and Bridge | Ongoing. Add to 2020 list. |
| | Flooding | | | Develop storm water collection systems along the drainages into Marsh Creek | Road and Bridge/ Floodplain Administrator | Ongoing. Add to 2020 list. |
| | Flooding | | | Improve Storm Water Collection along Highway 91 in flood prone areas | Road and Bridge/Swan Lake Highway District | Ongoing. Add to 2020 list. |

| Jurisdiction | Hazard | Goal | Objective | Project | Responsible Entity | Status |
|---|---|---|---|---|---|---|
| | Flooding | | | Repair culvert at the end of Steed Lane | Mayor & City Council / Bannock County Road & Bridge | Ongoing. Add to 2020 list. |
| | Geologic | Bannock County will reduce potential damage to County infrastructure and structures through implementation of earthquake mitigation techniques. | Protect Critical Buildings | Develop a listing of schools and public buildings that need to be seismically retrofitted. | Emergency Services/ Building Official Emergency Services/ Sheriff's Office / Building Official | Ongoing. Add to 2020 list. |
| | | Bannock County will reduce the potential damage to property from Landslides by adopting codes and standards for construction in landslide prone areas. | Protect Highway 30 from Landslide Events | Move Highway 30 at the away from the high-risk landslide area near the City of Lava Hot Springs | ITD/County Road and Bridge | Ongoing. Add to 2020 list. |
| | | | Protect Rail Line from Landslide Events | Move the Union Pacific Rail Line away from the high-risk landslide area near the City of Lava Hot Springs | ITD/Union Pacific Railroad | Ongoing. Add to 2020 list. |
| | Wildfire | Bannock County will reduce the losses caused by wildfire by continuing the Wildland Urban Interface Mitigation Program. | Improve access to areas prone to Wildland Fire | Develop a listing of roads, bridges, cattle guards, culverts, and other limiting conditions and incorporate improvements into the Highway District Transportation Plans | WUI Working Group | Ongoing. Add to 2020 list. |

| Jurisdiction | Hazard | Goal | Objective | Project | Responsible Entity | Status |
|---|---|---|---|---|---|---|
| | | | Improve Hazard Communications Tools | Use GIS Technology to Link Red Zone Data to Landowner Parcel Maps | WUI Working Group/P & Z Administrator | Ongoing. Add to 2020 list. |
| | | | Balance watershed planning, natural resource management, and land use planning with natural hazard mitigation to protect life, property, and the environment | Develop a standard practice for roadside vegetation management | WUI Working Group | Ongoing. Add to 2020 list. |
| | | | | Conduct Fuel Reduction Projects in fire prone areas | WUI Working Group | Ongoing. Add to 2020 list. |
| | | | | Conduct Fuel Reduction Projects in the fire prone areas | WUI Working Group/Private Property Owners | Ongoing. Add to 2020 list. |
| | | | Preserve, rehabilitate, and enhance natural systems to serve natural hazard mitigation functions. | Develop wildfire fuel breaks around CRP Land | WUI Working Group | Ongoing. Add to 2020 list. |
| | | | Develop Additional Water Supplies for Fire Protection | Develop an agreement with developers and private landowners for access and use of water sources for fire protection. | WUI Working Group/Fire Districts | Ongoing. Add to 2020 list. |

| Jurisdiction | Hazard | Goal | Objective | Project | Responsible Entity | Status |
|---|---|---|---|---|---|---|
| | | | | Develop county wide code for roads and parking areas located in WUI to facilitate emergency vehicle traffic. | | Ongoing. Add to 2020 list. |
| | | | | Institute a working group to evaluate the water supply issue within the County. This should include both fixed and mobile supply issues | WUI Working Group/Fire Districts | Ongoing. Add to 2020 list. |
| | | | Update and Improve Road Signing and Rural Addressing | Install Road Signs as prescribed by NFPA Standards | Road and Bridge | Ongoing. Add to 2020 list. |
| | | | Reduce Wildfire Damage | Replace Wood Shake Roofs | Working Group | Ongoing. Add to 2020 list. |
| | | | | Reduce Fuels in fire prone areas | Chubbuck Fire District | Ongoing. Add to 2020 list. |
| | | | | Defensible Space around homes | McCammon Fire District | Ongoing. Add to 2020 list. |
| | Structural Fire | Bannock County will seek to reduce losses from Structure fire. | Develop Additional Water Supplies for Fire Protection | Develop an agreement with developers and private landowners for access to and use of water sources for fire protection | Fire Districts | Ongoing. Add to 2020 list. |
| | Hazardous Material Event | Bannock County will identify hazardous materials transported through the County. | Protect citizens from releases of hazardous materials in transportation | Conduct an update of the hazardous materials flow study for Interstates 15 and 86, Highway 30, and the railroad line running through the County | Emergency Services | Ongoing. Add to 2020 list. |

| Jurisdiction | Hazard | Goal | Objective | Project | Responsible Entity | Status |
|---|---|---|---|---|---|---|
| | Riot/ Demonstration/ Civil Disorder | Bannock County will develop methods to identify and report Civil Disobedience activities. | Educate the Public on Civil Disobedience Reporting | Bannock County will conduct a public education program to assist the citizens of the County in recognizing and reporting civil disobedience events to County Law Enforcement | Sheriff's Office | Ongoing. Add to 2020 list. |
| | Terrorism | Bannock County will identify measure to protect critical County infrastructure and facilities from potential terror incidents. | Identify and protect potential terrorism targets | Conduct a County Terrorism assessment | Emergency Services | Ongoing. Add to 2020 list. |
| | | | | Protect Critical Infrastructure based on the assessment | Emergency Services | Ongoing. Add to 2020 list. |
| **Pocatello** | Severe Weather | The City of Pocatello will develop methods to protect the life safety of its citizens from harm due to severe weather events. | Protect isolated individuals from Severe Winter Storms and Extreme Cold | Identify Evacuation Shelters and equip with Emergency Generators | Emergency Services | Ongoing. Add to 2020 list. |
| | Flooding | The City of Pocatello will continue to participate in the National Flood Insurance Program and protect City infrastructure from flood damage. | Improve Drainage Systems | Replace the undersized culvert at the bottom of Trail Canyon | Road and Bridge/City of Pocatello Public Works | Ongoing. Add to 2020 list. |
| | | | Reduce Risk in Floodplain | Participate in the Portneuf River Management Program to remove properties from Floodplain | Public Works | Ongoing. Add to 2020 list. |

| Jurisdiction | Hazard | Goal | Objective | Project | Responsible Entity | Status |
|---|---|---|---|---|---|---|
| | | | | Install a drainage system to collect flash flood and spring runoff along Gathe Road | Road and Bridge/City of Pocatello Public Works | Ongoing. Add to 2020 list. |
| | Geological | The City of Pocatello will reduce potential damage to City infrastructure and structures through implementation of earthquake mitigation techniques | Protect Library Patrons from tipping shelves and falling books | Place restraining hardware on the City Library Shelves. Secure furniture that may be susceptible to structural failure during an earthquake. | City Librarian | Ongoing. Add to 2020 list. |
| | Hazardous Material Event | City of Pocatello will identify hazardous materials transported through the County. | Protect citizens from releases of hazardous materials in transportation | Participate in the hazardous materials flow study update for Interstates 15 and 86, Highway 30, and the railroad line running through the County | Emergency Services | Ongoing. Add to 2020 list. |
| | | The City of Inkom will develop methods to protect the life safety of its citizens from harm due to severe weather events. | Protect isolated individuals from Severe Winter Storms and Extreme Cold | Identify Evacuation Shelters and Equip with Emergency Generators | Emergency Services | Ongoing. Add to 2020 list. |
| **Inkom** | Severe Weather | The City of Inkom will develop methods to protect the life safety of its citizens from harm due to severe weather events. | Protect isolated individuals from Severe Winter Storms and Extreme Cold | Identify Evacuation Shelters and Equip with Emergency Generators | Emergency Services | Ongoing. Add to 2020 list. |

| Jurisdiction | Hazard | Goal | Objective | Project | Responsible Entity | Status |
|---|---|---|---|---|---|---|
| | Flood | The City of Inkom will continue to participate in the National Flood Insurance Program and protect City infrastructure from flood damage. | Improve Drainage Systems | Drainage improvement on Opal Lane. | Mayor & City Council | Ongoing. Add to 2020 list. |
| | | | | Install additional storm drain along Rapid Creek Rd. | Mayor & City Council | Ongoing. Add to 2020 list. |
| | | | Manage Floodplain | Construct Greenway Along Rapid Creek to protect Floodway | Land Use Board | Ongoing. Add to 2020 list. |
| | Hazardous Material Event | City of Inkom will identify hazardous materials transported through the County. | Protect citizens from releases of hazardous materials in transportation | Participate in the update of the hazardous materials flow study for Interstates 15 and 86, Highway 30, and the railroad line running through the County | Emergency Services | Ongoing. Add to 2020 list. |
| **Chubbuck** | Severe Weather | The City of Chubbuck will develop methods to protect the life safety of its citizens from harm due to severe weather events. | Protect isolated individuals from Severe Winter Storms and Extreme Cold | Identify Evacuation Shelters and Equip with Emergency Generators | Emergency Services | Ongoing. Add to 2020 list. |
| | Flooding | The City of Chubbuck will continue to participate in the National Flood Insurance Program. | Protect Property | Adoption and enforcement of floodplain management requirements, including regulating new construction in Special Flood Hazard Areas (SFHAs) | Planning and Zoning | Ongoing. |
| | Hazardous Materials Event | City of Chubbuck will identify hazardous materials transported through the County. | Protect citizens from releases of hazardous materials in transportation | Participate in the update of the hazardous materials flow study for Interstates 15 and 86, Highway 30, and the railroad line running through the County | Emergency Services | Ongoing. Add to 2020 list. |

| Jurisdiction | Hazard | Goal | Objective | Project | Responsible Entity | Status |
|---|---|---|---|---|---|---|
| **Lava Hot Springs** | Severe Weather | The City of Lava Hot Springs will develop methods to protect the life safety of its citizens from harm due to severe weather events. | Protect isolated individuals from Severe Winter Storms and Extreme Cold | Identify Evacuation Shelters and Equip with Emergency Generators | Emergency Services | Ongoing. Add to 2020 list. |
| | Flood | The City of Lava Hot Springs will continue to participate in the National Flood Insurance Program and protect City infrastructure from flood damage. | Improve Drainage Systems | Adoption and enforcement of floodplain management requirements, including regulating new construction in Special Flood Hazard Areas (SFHAs); | Mayor & City Council | Ongoing. |
| | Hazardous Material Event | City of Lava Hot Springs will identify hazardous materials transported through the County. | Protect citizens from releases of hazardous materials in transportation | Participate in the update of the hazardous materials flow study for Interstates 15 and 86, Highway 30, and the railroad line running through the County | Emergency Services | Ongoing. Add to 2020 list. |
| **Lava Hot Springs** | All Hazards | Establish “stand-by” power at the Fire House. | Sustain operation while power is unavailable. | Install emergency generators at emergency responder facilities (e.g., Fire Station). | Lava Fire District | 2026 – Project Completion Goal |
| | All Hazards | Create city/county code for displaying residential and commercial addresses. | Improve communication to emergency responders. | | Bannock County | 2021 – Create project<br>2026 – Project Completion Goal |

| Jurisdiction | Hazard | Goal | Objective | Project | Responsible Entity | Status |
|---|---|---|---|---|---|---|
| | All Hazards | Improve GIS and mapping for emergency response plans. | Require County/State support for GIS layers in emergency planning. | Emergency Response Pre-Plan Project | Lava Falls Fire Department | 2021 – Create project<br>2023 – Project Completion Goal |
| | All hazards | Wildfire Reduction | Reduce amount of wildfire fuels in fire prone areas. | Remove down timber and cut back heavy brush areas on common areas adjacent to public lands that are susceptible to wildfire. | Lava Falls Fire Department | 2021 – Create Project<br>2026 – Project Completion Date |
| **McCammon** | Severe Weather | The City of McCammon will develop methods to protect the life safety of its citizens from harm due to severe weather events. | Protect isolated individuals from Severe Winter Storms and Extreme Cold | Identify Evacuation Shelters and Equip with Emergency Generators | Emergency Services | Ongoing. Add to 2020 list. |
| | Flood | The City of McCammon will continue to participate in the National Flood Insurance Program and protect City infrastructure from flood damage. | Improve Drainage Systems | Adoption and enforcement of floodplain management requirements, including regulating new construction in Special Flood Hazard Areas (SFHAs) | Mayor & City Council | Ongoing. Add to 2020 list. |
| | Hazardous Material Event | City of McCammon will identify hazardous materials transported through the County. | Protect citizens from releases of hazardous materials in transportation | Participate in the update of the hazardous materials flow study for Interstates 15 and 86, Highway 30, and the railroad line running through the County | Emergency Services | Ongoing. Add to 2020 list. |

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# 8.0 BANNOCK COUNTY 2020 MITIGATION PROJECTS

| Mitigation Actions | | | | | |
|---|---|---|---|---|---|
| **Mitigation Action:** Outreach to community about Emergency Shelter locations | | | | | |
| **Applicable Jurisdiction:** Bannock, Pocatello, Arimo, Lava, Downey, McCammon, Inkom, Chubbuck | | | | | |
| **Responsible Agency:** OEM | | | | | |
| **Mitigation Goal:** Increase public awareness and preparedness to reduce exposure to hazard | | | | | |
| **Priority** | **Status** | **Benefit to Jurisdiction** | **Est. Cost** | **Funding Source** | **Target Date** |
| L | New | Protect people | $5,000 | Grants, local budgets | 2022 |
| Hazard Mitigated: General | | | | | |

| Mitigation Actions | | | | | |
|---|---|---|---|---|---|
| **Mitigation Action:** Public outreach for wildfire reduction and structural fire reduction | | | | | |
| **Applicable Jurisdiction:** Bannock, Pocatello, Arimo, Lava, Downey, McCammon, Inkom, Chubbuck | | | | | |
| **Responsible Agency:** Fire Departments, OEM | | | | | |
| **Mitigation Goal:** Increase public awareness and preparedness to reduce exposure to hazards | | | | | |
| **Priority** | **Status** | **Benefit to Jurisdiction** | **Est. Cost** | **Funding Source** | **Target Date** |
| M | New | Protect people and property | $1,000 | Grants, local budgets | 2022 |
| Hazard Mitigated: Wildfire, Structural Fire | | | | | |

| Mitigation Actions | | | | | |
|---|---|---|---|---|---|
| **Mitigation Action:** Install lightening protection at IT buildings and critical infrastructure buildings | | | | | |
| **Applicable Jurisdiction:** Bannock, Pocatello, Arimo, Lava, Downey, McCammon, Inkom, Chubbuck | | | | | |
| **Responsible Agency:** Public Works | | | | | |
| **Mitigation Goal:** Reduce loss and damage to facilities and private public property | | | | | |
| **Priority** | **Status** | **Benefit to Jurisdiction** | **Est. Cost** | **Funding Source** | **Target Date** |
| M | New | Protect property | $75,000 | Grants, local budgets | 2023 |
| Hazard Mitigated: Severe weather | | | | | |

| Mitigation Actions | | | | | |
|---|---|---|---|---|---|
| **Mitigation Action:** Public outreach on landslide and avalanche prone areas | | | | | |
| **Applicable Jurisdiction:** Bannock, Pocatello, Arimo, Lava, Downey, McCammon, Inkom, Chubbuck | | | | | |
| **Responsible Agency:** OEM | | | | | |
| **Mitigation Goal:** Increase public awareness and preparedness to reduce exposure to hazards | | | | | |
| **Priority** | **Status** | **Benefit to Jurisdiction** | **Est. Cost** | **Funding Source** | **Target Date** |
| L | New | Protect property | $1,500 | Grants, local budgets | 2022 |
| Hazard Mitigated: Landslide, Avalanche | | | | | |

| Mitigation Actions | | | | | |
|---|---|---|---|---|---|
| **Mitigation Action:** Redirect stormwater flow in flood prone areas | | | | | |
| **Applicable Jurisdiction:** Bannock, Pocatello, Arimo, Lava, Downey, McCammon, Inkom, Chubbuck | | | | | |
| **Responsible Agency:** Public Works | | | | | |
| **Mitigation Goal:** Reduce loss and damage to facilities and private public property | | | | | |
| **Priority** | **Status** | **Benefit to Jurisdiction** | **Est. Cost** | **Funding Source** | **Target Date** |
| M | Previous | Protect property and life | $1.2 M | Grants, local budgets | 2025 |
| Hazard Mitigated: Severe Weather, Flooding | | | | | |

| Mitigation Actions | | | | | |
|---|---|---|---|---|---|
| **Mitigation Action:** Plant fire buffers using drought resistant species | | | | | |
| **Applicable Jurisdiction:** Bannock, Pocatello, Arimo, Lava, Downey, McCammon, Inkom, Chubbuck | | | | | |
| **Responsible Agency:** Park and Rec., Fire Districts, Public Works | | | | | |
| **Mitigation Goal:** Reduce loss and damage to facilities and private public property | | | | | |
| **Priority** | **Status** | **Benefit to Jurisdiction** | **Est. Cost** | **Funding Source** | **Target Date** |
| H | New | Protect life and property | $400,000 | Grants, local budgets | 2024 |
| Hazard Mitigated: Severe Weather, Wildfire | | | | | |

| Mitigation Actions | | | | | |
|---|---|---|---|---|---|
| **Mitigation Action:** Work with landowners to establish emergency exits for fires and severe weather | | | | | |
| **Applicable Jurisdiction:** Bannock County, Arimo, Lava, Downey, McCammon, Inkom | | | | | |
| **Responsible Agency:** Fire Districts, OEM | | | | | |
| **Mitigation Goal:** Reduce loss and damage to facilities and private public property | | | | | |
| **Priority** | **Status** | **Benefit to Jurisdiction** | **Est. Cost** | **Funding Source** | **Target Date** |
| H | New | Protect life and property | $250,000 | Grants, local budgets | 2025 |
| Hazard Mitigated: Severe Weather, Wildfire | | | | | |

| Mitigation Actions | | | | | |
|---|---|---|---|---|---|
| **Mitigation Action:** Paint power poles with fire resistant coatings | | | | | |
| **Applicable Jurisdiction:** Bannock, Pocatello, Arimo, Lava, Downey, McCammon, Inkom, Chubbuck | | | | | |
| **Responsible Agency:** OEM, Fire Districts, Public Works | | | | | |
| **Mitigation Goal:** Reduce loss and damage to facilities and private public property | | | | | |
| **Priority** | **Status** | **Benefit to Jurisdiction** | **Est. Cost** | **Funding Source** | **Target Date** |
| M | New | Protect life and property | $600,000 | Grants, local budgets | 2024 |
| Hazard Mitigated: Severe Weather, Wildfire | | | | | |

| Mitigation Actions | | | | | |
|---|---|---|---|---|---|
| **Mitigation Action:** Add water tanks for drought and fire suppression in WUI areas | | | | | |
| **Applicable Jurisdiction:** Bannock, Pocatello, Arimo, Lava, Downey, McCammon, Inkom, Chubbuck | | | | | |
| **Responsible Agency:** OEM, Public Works, Fire Districts | | | | | |
| **Mitigation Goal:** Reduce loss and damage to facilities and private public property | | | | | |
| **Priority** | **Status** | **Benefit to Jurisdiction** | **Est. Cost** | **Funding Source** | **Target Date** |
| M | Previous | Protect property and life | $125,000 | Grants, local budgets | 2024 |
| Hazard Mitigated: Severe Weather, Wildfire | | | | | |

| Mitigation Actions | | | | | |
|---|---|---|---|---|---|
| **Mitigation Action:** Inspect and upgrade critical infrastructure for terrorism | | | | | |
| **Applicable Jurisdiction:** Bannock, Pocatello, Arimo, Lava, Downey, McCammon, Inkom, Chubbuck | | | | | |
| **Responsible Agency:** Police, OEM | | | | | |
| **Mitigation Goal:** Reduce loss and damage to facilities and private public property | | | | | |
| **Priority** | **Status** | **Benefit to Jurisdiction** | **Est. Cost** | **Funding Source** | **Target Date** |
| M | New | Protect property | $1.5 M | Grants, local budgets | 2024 |
| Hazard Mitigated: Terrorism | | | | | |

| Mitigation Actions | | | | | |
|---|---|---|---|---|---|
| **Mitigation Action:** Evaluate damage to bridges and road by pests | | | | | |
| **Applicable Jurisdiction:** Bannock, Pocatello, Arimo, Lava, Downey, McCammon, Inkom, Chubbuck | | | | | |
| **Responsible Agency:** Public Works, ITD | | | | | |
| **Mitigation Goal:** Reduce loss and damage to facilities and private public property | | | | | |
| **Priority** | **Status** | **Benefit to Jurisdiction** | **Est. Cost** | **Funding Source** | **Target Date** |
| M | New | Protect property | $200,000 | Grants, local budgets | 2023 |
| Hazard Mitigated: General | | | | | |

| Mitigation Actions | | | | | |
|---|---|---|---|---|---|
| **Mitigation Action:** Inspect and update infrastructure and buildings for seismic events | | | | | |
| **Applicable Jurisdiction:** Bannock, Pocatello, Arimo, Lava, Downey, McCammon, Inkom, Chubbuck | | | | | |
| **Responsible Agency:** OEM, Public Works, ITD | | | | | |
| **Mitigation Goal:** Prevent loss of life and reduce injury from future hazards | | | | | |
| **Priority** | **Status** | **Benefit to Jurisdiction** | **Est. Cost** | **Funding Source** | **Target Date** |
| M | Previous | Protect property and life | $1.2 M | Grants, local budgets | 2024 |
| Hazard Mitigated: Earthquakes | | | | | |

| Mitigation Actions | | | | | |
|---|---|---|---|---|---|
| **Mitigation Action:** Upgrade electronics and equipment that are seismic hazards | | | | | |
| **Applicable Jurisdiction:** Bannock, Pocatello, Arimo, Lava, Downey, McCammon, Inkom, Chubbuck | | | | | |
| **Responsible Agency:** School Districts, Fire Departments, Public Works, OEM | | | | | |
| **Mitigation Goal:** Prevent loss of life and reduce injury from future hazards | | | | | |
| **Priority** | **Status** | **Benefit to Jurisdiction** | **Est. Cost** | **Funding Source** | **Target Date** |
| M | Previous | Protect life | $125,000 | Grants, local budgets | 2023 |
| Hazard Mitigated: Earthquakes, Structural Fires | | | | | |

| Mitigation Actions | | | | | |
|---|---|---|---|---|---|
| **Mitigation Action:** Update messaging systems for severe weather notification | | | | | |
| **Applicable Jurisdiction:** Bannock, Pocatello, Arimo, Lava, Downey, McCammon, Inkom, Chubbuck | | | | | |
| **Responsible Agency:** OEM, police, fire | | | | | |
| **Mitigation Goal:** Reduce loss and damage to facilities and private public property | | | | | |
| **Priority** | **Status** | **Benefit to Jurisdiction** | **Est. Cost** | **Funding Source** | **Target Date** |
| M | New | Protect life | $100,000 | Grants, local budgets | 2023 |
| Hazard Mitigated: Severe Weather | | | | | |

| Mitigation Actions | | | | | |
|---|---|---|---|---|---|
| **Mitigation Action:** Road repair and mitigation from flooding events | | | | | |
| **Applicable Jurisdiction:** Bannock, Pocatello, Arimo, Lava, Downey, McCammon, Inkom, Chubbuck | | | | | |
| **Responsible Agency:** ITD, OEM | | | | | |
| **Mitigation Goal:** Reduce loss and damage to facilities and private public property | | | | | |
| **Priority** | **Status** | **Benefit to Jurisdiction** | **Est. Cost** | **Funding Source** | **Target Date** |
| M | Previous | Protect property | $1.2 M | Grants, local budgets | 2023 |
| Hazard Mitigated: Severe Weather, Landslide, Flooding | | | | | |

| Mitigation Actions | | | | | |
|---|---|---|---|---|---|
| **Mitigation Action:** Provide back up power to evacuation centers | | | | | |
| **Applicable Jurisdiction:** Bannock, Pocatello, Arimo, Lava, Downey, McCammon, Inkom, Chubbuck | | | | | |
| **Responsible Agency:** OEM | | | | | |
| **Mitigation Goal:** Reduce loss of life and reduce injury from future hazard | | | | | |
| **Priority** | **Status** | **Benefit to Jurisdiction** | **Est. Cost** | **Funding Source** | **Target Date** |
| L | Previous | Protect people | $250,000 | Grants, local budgets | 2023 |
| Hazard Mitigated: General | | | | | |

| Mitigation Actions | | | | | |
|---|---|---|---|---|---|
| **Mitigation Action:** Upgrade cyber security for city entities | | | | | |
| **Applicable Jurisdiction:** Bannock, Pocatello, Arimo, Lava, Downey, McCammon, Inkom, Chubbuck | | | | | |
| **Responsible Agency:** OEM, City Departments, County Departments | | | | | |
| **Mitigation Goal:** Reduce loss and damage to facilities and private public property | | | | | |
| **Priority** | **Status** | **Benefit to Jurisdiction** | **Est. Cost** | **Funding Source** | **Target Date** |
| H | New | Protect property | $650,000 | Grants, local budgets | 2024 |
| Hazard Mitigated: Cyber Security | | | | | |

| Mitigation Actions | | | | | |
|---|---|---|---|---|---|
| **Mitigation Action:** Establish public health outreach clinics for vaccinations and communicable diseases | | | | | |
| **Applicable Jurisdiction:** Bannock, Pocatello, Arimo, Lava, Downey, McCammon, Inkom, Chubbuck | | | | | |
| **Responsible Agency:** Public Health District | | | | | |
| **Mitigation Goal:** Prevent loss of life and reduce injury from future hazards | | | | | |
| **Priority** | **Status** | **Benefit to Jurisdiction** | **Est. Cost** | **Funding Source** | **Target Date** |
| M | Previous | Protect life | $5,000 | Grants, local budgets | 2022 |
| Hazard Mitigated: General | | | | | |

| Mitigation Actions | | | | | |
|---|---|---|---|---|---|
| **Mitigation Action:** Conduct hazardous material flow studies | | | | | |
| **Applicable Jurisdiction:** Bannock, Pocatello, Arimo, Lava, Downey, McCammon, Inkom, Chubbuck | | | | | |
| **Responsible Agency:** ITD, OEM | | | | | |
| **Mitigation Goal:** Prevent loss of life and reduce injury from future hazards | | | | | |
| **Priority** | **Status** | **Benefit to Jurisdiction** | **Est. Cost** | **Funding Source** | **Target Date** |
| M | Previous | Protect life | $90,000 | Grants, local budgets | 2022 |
| Hazard Mitigated: Hazardous material | | | | | |

| Mitigation Actions | | | | | |
|---|---|---|---|---|---|
| **Mitigation Action:** Provide drought/water use information for homeowners | | | | | |
| **Applicable Jurisdiction:** Bannock, Pocatello, Arimo, Lava, Downey, McCammon, Inkom, Chubbuck | | | | | |
| **Responsible Agency:** Irrigation Districts, OEM | | | | | |
| **Mitigation Goal:** Increase public awareness and preparedness to reduce exposure to hazard | | | | | |
| **Priority** | **Status** | **Benefit to Jurisdiction** | **Est. Cost** | **Funding Source** | **Target Date** |
| L | Previous | Protect property | $5,000 | Grants, local budgets | 2021 |
| Hazard Mitigated: Severe Weather | | | | | |

| Mitigation Actions | | | | | |
|---|---|---|---|---|---|
| **Mitigation Action:** Provide public awareness education on weather hazards and mitigation strategies | | | | | |
| **Applicable Jurisdiction:** Bannock, Pocatello, Arimo, Lava, Downey, McCammon, Inkom, Chubbuck | | | | | |
| **Responsible Agency:** OEM | | | | | |
| **Mitigation Goal:** Increase public awareness and preparedness to reduce exposure to hazard | | | | | |
| **Priority** | **Status** | **Benefit to Jurisdiction** | **Est. Cost** | **Funding Source** | **Target Date** |
| M | Previous | Protect property | $7,000 | Grants, local budgets | 2020 |
| Hazard Mitigated: Severe Weather, Landslide, Wildfire | | | | | |

| Mitigation Actions | | | | | |
|---|---|---|---|---|---|
| **Mitigation Action:** Develop methods to mitigate losses due to electrical outages | | | | | |
| **Applicable Jurisdiction:** Bannock, Pocatello, Arimo, Lava, Downey, McCammon, Inkom, Chubbuck | | | | | |
| **Responsible Agency:** OEM, Fire Department | | | | | |
| **Mitigation Goal:** Prevent loss of life and reduce injury from future hazards | | | | | |
| **Priority** | **Status** | **Benefit to Jurisdiction** | **Est. Cost** | **Funding Source** | **Target Date** |
| M | Previous | Protect property | $100,000 | Grants, local budgets | 2024 |
| Hazard Mitigated: General | | | | | |

| Mitigation Actions | | | | | |
|---|---|---|---|---|---|
| **Mitigation Action:** Install electric road signs throughout county | | | | | |
| **Applicable Jurisdiction:** Bannock, Pocatello, Arimo, Lava, Downey, McCammon, Inkom, Chubbuck | | | | | |
| **Responsible Agency:** ITD | | | | | |
| **Mitigation Goal:** Prevent loss of life and reduce injury from future hazards | | | | | |
| **Priority** | **Status** | **Benefit to Jurisdiction** | **Est. Cost** | **Funding Source** | **Target Date** |
| M | Previous | Protect property | $100,000 | Grants, local budgets | 2023 |
| Hazard Mitigated: Winter Storms, Fire, Earthquake, Landslide | | | | | |

| Mitigation Actions | | | | | |
|---|---|---|---|---|---|
| **Mitigation Action:** Flood Plain Re-Classification | | | | | |
| **Applicable Jurisdiction:** Downey | | | | | |
| **Responsible Agency:** Mayor and City Council | | | | | |
| **Mitigation Goal:** Reduce loss and damage to facilities and private public property | | | | | |
| **Priority** | **Status** | **Benefit to Jurisdiction** | **Est. Cost** | **Funding Source** | **Target Date** |
| M | New | Protect property | $100,000 | Grants, local budgets | 2023 |
| Hazard Mitigated: Flooding | | | | | |

| Mitigation Actions | | | | | |
|---|---|---|---|---|---|
| **Mitigation Action:** Procure Floodplain & Engineering Consultants to Identify, Assess and categorize Potential Hazards within the NFIP SFHA. | | | | | |
| **Applicable Jurisdiction:** The NFIP SFHA along the Portneuf River reach, Trail Creek reach, Pocatello Creek reach, Indian Creek reach, Rapid Creek reach, Jacobson Creek reach, and Marsh Creek reach, in addition to the minor tributaries to Portneuf River and Marsh Creek within the City of Inkom's municipal boundaries. | | | | | |
| **Responsible Agency:** City of Inkom | | | | | |
| **Mitigation Goal:** Reduce loss and damage to facilities and private / public property within the NFIP SFHA | | | | | |
| **Priority** | **Status** | **Benefit to Jurisdiction** | **Est. Cost** | **Funding Source** | **Target Date** |
| H | New | Protect Life & Property | $200,000 | FEMA, NFIP, Grants, local Budgets | 2024 |
| Hazard Mitigated: Protect Life & Property within the City of Inkom | | | | | |

| Mitigation Actions | | | | | |
|---|---|---|---|---|---|
| **Mitigation Action:** Public outreach to residences and landowners within the NFIP SFHAs . | | | | | |
| **Applicable Jurisdiction:** Bannock County, Pocatello, Arimo, Lava, Downey, McCammon, Inkom, Chubbuck | | | | | |
| **Responsible Agency:** Bannock County | | | | | |
| **Mitigation Goal:** Increase public awareness and preparedness to reduce exposure of living in a identified floodplain area and to educate the residents of the hazards associated with living in a NFIP SFHA. | | | | | |
| **Priority** | **Status** | **Benefit to Jurisdiction** | **Est. Cost** | **Funding Source** | **Target Date** |
| M | New | Protect Life & Property | $200,000 | FEMA, NFIP, Grants, local Budgets | 2023 |
| Hazard Mitigated: Flooding and Floodplain | | | | | |

| Mitigation Actions | | | | | |
|---|---|---|---|---|---|
| **Mitigation Action:** Procure Floodplain & Engineering Consultants to Identify, Assess and categorize Potential Hazards within the NFIP SFHA. | | | | | |
| **Applicable Jurisdiction:** The NFIP SFHA along the Portneuf River reach, Trail Creek reach, Pocatello Creek reach, Johnny Creek reach, Gibson Jack Creek reach, Mink Creek reach, Fort Hall Mine Creek reach, Indian Creek reach, Rapid Creek reach, Jacobson Creek reach, Marsh Creek reach, Walker Creek reach, Quinn Creek reach, Bell Marsh Creek reach, Two Mile Creek, Canyon Creek reach, Harkness Creek reach, Goodenough Creek reach, Garden Creek reach, Hawkins Creek reach, Dempsey Creek reach, Fish Creek reach, in addition to the minor tributaries to Portneuf River and Marsh Creek within Bannock County | | | | | |
| **Responsible Agency:** Bannock County Floodplain Administrator | | | | | |
| **Mitigation Goal:** Reduce loss and damage to facilities and private / public property within the NFIP SFHA | | | | | |
| **Priority** | **Status** | **Benefit to Jurisdiction** | **Est. Cost** | **Funding Source** | **Target Date** |
| H | New | Protect Life & Property | $750,000 | FEMA, NFIP, Grants, local Budgets | 2024 |
| Hazard Mitigated: Protect life and property | | | | | |

| Mitigation Actions | | | | | |
|---|---|---|---|---|---|
| **Mitigation Action:** Emergency Generator and system to maintain power to the Public Works Compound and the EOC. | | | | | |
| **Applicable Jurisdiction:** Bannock County | | | | | |
| **Responsible Agency:** Bannock County | | | | | |
| **Mitigation Goal:** Reduce loss and damage to facilities and private / public property. | | | | | |
| **Priority** | **Status** | **Benefit to Jurisdiction** | **Est. Cost** | **Funding Source** | **Target Date** |
| M | New | Protect Life & Property | $200,000 | FEMA, Grants, local Budgets | 2023 |
| Hazard Mitigated: Severe Storm | | | | | |

| Mitigation Actions | | | | | |
|---|---|---|---|---|---|
| **Mitigation Action:** Procure water resources, floodplain, and structural engineering consultants to identify, assess and categorize potential hazards at the existing waterways crossing (bridges and culverts) through the NFIP SFHA | | | | | |
| **Applicable Jurisdiction:** The NFIP SFHA at the existing waterway crossing (culverts and bridges) within the NFIP SFHA along the Portneuf River reach, Trail Creek reach, Pocatello Creek ranch, Johnny Creek reach, Gibson Jack reach, Mink Creek reach, Fort Hall Mine Creek reach, Indian Creek reach, Rapid Creek reach, Jacobson Creek reach, March Creek reach, Walker Creek reach, Quinn Creek reach, Bell March Creek reach, Two Mile Creek, Canyon Creek reach, Harkness Creek reach, Goodenough Creek reach, Garden Creek reach, Hawkins Creek reach, Dempsey Creek reach, Fish Creek reach, in addition to the minor tributaries to Portneuf River and March Creek within Bannock County | | | | | |
| **Responsible Agency:** Bannock County Floodplain Administrator | | | | | |
| **Mitigation Goal:** Reduce loss and damage to facilities and private / public property within the NFIP SFHA | | | | | |
| **Priority** | **Status** | **Benefit to Jurisdiction** | **Est. Cost** | **Funding Source** | **Target Date** |
| H | New | Protect Life & Property | $1,000,000 | FEMA, NFIP, Grants, local Budgets | 2024 |
| Hazard Mitigated: Protect life and property | | | | | |

| Mitigation Actions | | | | | |
|---|---|---|---|---|---|
| **Mitigation Action:** Procure Next-Gen 911 upgrade for 911 organization. | | | | | |
| **Applicable Jurisdiction:** Bannock County | | | | | |
| **Responsible Agency:** Bannock County | | | | | |
| **Mitigation Goal:** Prevent loss of life and reduce injury from future hazards | | | | | |
| **Priority** | **Status** | **Benefit to Jurisdiction** | **Est. Cost** | **Funding Source** | **Target Date** |
| H | New | Protect Life | $200,000 | FEMA, | 2022 |
| Hazard Mitigated: Protect Life | | | | | |

# 9.0 NFIP PARTICIPATION

## Floodplain Management

Bannock County participates in the National Flood Insurance Program as well as the Pocatello, Chubbuck, Downey, Inkom, Lava Hot Springs, and McCammon. Arimo does not have a mapped FHBM or FIRM. The County and the Cities will continue adoption and enforcement of floodplain management requirements, including regulating new construction and all other development in the special Flood Hazard Areas (SFHAs). Arimo does not participate in the NFIP and does not have a mapped floodplain.

All communities within Bannock County with an identified Special Flood Hazard Area participate in the NFIP. No communities are under probation or suspension of the NFIP.

An important part of being an NFIP Community is the availability of flood insurance for those homes and businesses within Special Flood Hazard Areas (SFHA), and even to those areas outside of the mapped SFHA.

As evidenced in the 2021 Community Questionnaire, overall participation by individuals and business in the NFIP appears to be low. Potential reasons for continuing low participation in the program are:

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

The last two reasons can be addressed through public education. The first could be addressed by all communities in the County taking advantage of the Community Rating System (CRS). CRS may lead to insurance discounts, but each community would need to weigh the costs to implement. For example, if a staff person was trained to review elevation certificates (the tool for insurance ratings) for compliance and help local constituents figure out what is causing higher flood insurance rates, often times a simple fix to the home or correction to the Elevation Certificate will drive the price of insurance down.

To qualify for CRS, communities can do things like make building codes more rigorous, maintain drainage systems, and inform residents of flood risk. In exchange for becoming more flood ready, the CRS community's residents are offered discounted premium rates. Of the Bannock County communities that participate in the NFIP, several have earned a discount on their flood insurance rates through the CRS. Bannock County has a Community Rating System designation of 8 which translates to a 5-10% discount on flood insurance.

The repetitive loss structure identified in Pocatello is a single family residential structure.

| NFIP Participation Category | Bannock County | City of Pocatello | City of Downey | City of Chubbuck | City of Inkom | City of Lava Hot Springs | City of McCammon |
|---|---|---|---|---|---|---|---|
| Number of properties in NFIP floodplain | 1762 | 591 | 114 | 0 | 207 | 53 | 40 |
| Date Participating in Regular Phase of NFIP | 9/5/1979 | 5/1/1980 | 2/8/1985 | 7/7/2009 | 7/7/2009 | 8/1/1979 | 12/21/1978 |
| Participating in CRS (class) | 9 | 8 | N/A | N/A | N/A | N/A | N/A |
| Date of current FIRM | 7/22/2020 | 7/22/2020 | 7/7/2009 | 7/22/2020 | 7/7/2009 | 7/7/2009 | 7/7/2009 |
| Number of NFIP Policies | 27 | 45 | 2 | 1 | 11 | 7 | 0 |
| Are FIRMs digital or paper | Digital | Digital | Digital | Digital | Digital | Digital | Digital |
| Insurance in Force (Total Coverage) | $5,584,000 | $10,599,000 | $276,500 | $70,000 | $3,209,000 | $790,600 | $194,499 |
| Total Premiums | $22,349 | $41,323 | $1,162 | $250 | $59,536 | $7,786 | $0 |
| Number Claims Paid | 16 | 12 | 0 | 0 | 10 | 0 | 0 |
| $ Total Claims Paid | $29,008 | $26,023 | $0 | $0 | $54,253 | $0 | 0 |
| # Substantial Damage Claims | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Rep Loss Properties | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| Severe Rep Loss Properties | 0 | 0 | 0 | 0 | 0 | 0 | 0 |