CASSIA COUNTY
HAZARD MITIGATION PLAN
2024

Table of Contents

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	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
ITD	Idaho Transportation Department
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
WUI	wildland-urban interface

EXECUTIVE SUMMARY

This 2024 Hazard Mitigation Plan is an update of the 2017 plan. The update was led by the Cassia 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 Cassia County, Albion, Burley, Declo, Malta, Oakley, 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.

Hazards were divided into Natural (severe weather, earthquake, etc.) and Non-natural hazards (pandemic, cyber security, etc.). 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 Cassia County at large are shown below. Non-natural hazards were assessed, but they were not ranked. Natural Hazards to align with the state Plan were ranked in 2024 that were not prioritized in 2017 (drought, impoundment structure failure).

Hazard	2017 Priority Ranking	2024 Ranking
Severe Weather	2	High
Flood	5	Moderate
Wildfire	3	Moderate
Flood	5	Low
Earthquake	7	Low
Dam Failure	None	Low

1.0 PLAN OVERVIEW AND PLANNING PROCESS

Cassia County 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 or re-occur.

This plan identifies the county's hazards, assesses the county's vulnerability to those hazards, and details proposed actions to reduce the loss of life and property from disasters. These actions are defined as mitigation. 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.

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

This is not an emergency response or management plan. The Plan can certainly 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.

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

Often, hazard mitigation is divided into three categories:

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

- Policies and actions that reduce the hazard impacts on people, property, and structures.

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

	type of mitigation reduces risk less directly than structural projects or regulation, it is an important foundation. A greater understanding and awareness of hazards and risk among local officials, stakeholders, and the public is more likely to lead to direct actions.	• Mailings to neighborhoods • Firewise • Stormready • Disease awareness • Cyber security training
Preparedness and Response Actions	Mitigation actions reduce or eliminate long-term risk and are different from actions taken to prepare for or respond to hazard events. Mitigation activities lessen or eliminate the need for preparedness or response resources in the future. When analyzing risks and identifying mitigation actions, the planning team may also identify emergency response or operational preparedness actions.	• Creating mutual aid agreements with neighboring communities • Purchasing radio communications equipment • Developing procedures for notifying citizens of available shelter locations during and following an event

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 2024 update reflects changes in development patterns, progress in local mitigation efforts, and changes in mitigation priorities within the county since the 2017 Plan.

1.1 Purpose

Cassia County's HMP identifies both short- and long-term local policies and actions that help reduce risk and future losses from hazards. These policies and actions are practical, cost effective, and politically, culturally, and environmentally acceptable. Local stakeholders and the public are engaged throughout the planning process, and feedback and perceptions are vital to a sound and comprehensive HMP. These policies and actions help to more efficiently and effectively focus

resources on hazards that present the greatest risks to the county's populations and resources, while also aligning with other community objectives. The HMP focuses on land use and capital investment, given the effect capital investments and land use have on modulating community and individual vulnerability.

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 Cassia County, Idaho, and the cities of Albion, Burley, Declo, Malta, and Oakley.

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 Mitigation Plan 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.

- **Cassia County Comprehension Plan (2013)** – (FINAL Cassia County Comprehension Plan) This plan indicates, in a general way, how the county should develop in the next 20 to 25 years and encourages sustainable development while enhancing Cassia County's rural, recreational, legislative, and agricultural character. Using this document as a foundation, the county will

adopt, administer and amend zoning and subdivision ordinances, which are more technical standards and procedures that govern development activities and which implement the policies in this plan. The purpose of this plan is to accommodate this modest growth in the most efficient, economical and well-planned manner that is possible and to encourage such growth to occur. As a general estimate, this plan can accommodate a minimum of 30,000 or more people. This plan is adopted with the intention that equitable policies and procedures have been prepared to protect the rights and liberties of all citizens, and that those who inherit Cassia County will not regret the decisions of the present generation. Using a combination of narrative, charts and illustrations, as well as detailed appendices including summary reports and maps, this plan will assist Cassia County's 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 09-2020) 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 Forest Action Plan Part Two: Resource Strategy (2020)** - (FINAL 2020-FAP-Resource-Strategy 07-2020) The Forest Resource Assessment provides a breakdown of key issues and threats for forest locations and priority landscapes. This plan provides implementation and strategies for protection of forests and landscape areas in Idaho.

- **Idaho State Hazard Mitigation Plan (2023)** – (State Hazard Mitigation Plan | Office of Emergency Management (idaho.gov)(ID-SHMP-Chapter-1-and-2)) 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 five years in compliance with appropriate laws and regulations. The State HMP was utilized as a reference throughout the Cassia HMP update. The State HMP was used to verify hazards and identify any specific hazard events in Cassia County.

- **State of Idaho Emergency Operations Plan (2021)** - (State of Idaho EOP (2021)) The purpose of this plan is to describe the array of state response, recovery, and mitigation resources available to augment state and local agency efforts to save lives, limit human suffering, and protect public health, safety, and property, including wildlife, natural resources, the environment, and local economies from the damaging effects of natural and human-caused emergencies and disasters.

This plan is also used to provide an overview of Idaho's emergency management organization, outline the concept of operations (CONOPS), define emergency management activities across all five mission areas (prevention, protection, mitigation, response, and recovery), maintain continuity of government, provide an overview of SERT and IRC activations, and outline disaster declaration processes.

- **Community Wildfire Protection Plans (CWPP, 2024**) - A Community Wildfire Protection Plan (CWPP) is similar in nature to the HMP, though primarily focuses on wildfire. Following the enactment of the Healthy Forests Restoration Act (HFRA) in 2003, communities can engage in comprehensive forest planning with federal partners through the creation of a CWPP, which identifies and prioritizes hazards and needs associated with wildfire. In the State of Idaho, the CWPP is under the purview of the Department of Lands (IDL), and county CWPPs tier to the Idaho State Implementation Strategy for the National Fire Plan.

1.5 Plan Organization

This plan is organized into the following sections:

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

1.6 Planning Process

1.6.1 Overview

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

- Plan Update Kick-Off – The planning process for the plan update began in September 2023 with a kick-off meeting between Jennifer Gee (Cassia County Emergency Manager) and the OEM planning committee. A work plan was proposed and agreed on, including hazards of focus, timelines, mitigation and adoption planning and stakeholder engagement, and more.
- Plan Review and Evaluation – The former plan was reviewed and evaluated according to the FEMA Local Mitigation Review Tool (2022).
- Risk Assessment – Hazard occurrences, damage assessments and estimations, and hazard impacts were collected for the county.
- Mitigation Strategy Review – The mitigation actions listed in the former plan were reviewed and their status determined by the responsible agencies and departments during a committee meeting. The committee reached out to individuals, agencies, and departments in the county in order to collect information on the progress, completion percent, timeline, and challenges of the mitigation actions. Overall mitigation goals and objectives were likewise visited and updated as necessary.
- Mitigation Strategy Update – New and additional mitigation actions were detailed and scored by the planning committee for inclusion into the plan update. Each jurisdiction was provided the opportunity to put forth mitigation actions for discussion and approval.
- Public Involvement and Outreach – The public was invited to complete a brief survey regarding hazards within Cassia County. A hazard survey provides opportunities for both the public and planning committee to provide local risk perceptions for inclusion into the plan update.
- Plan Completion and Adoption – A draft HMP plan was distributed to the planning committee, and the public for review and comment. Feedback and comments were incorporated into the second draft. After the review and edit period, the plan was formally submitted to IEOM and FEMA for approval.

FEMA Requirements

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

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

1.6.2 Jurisdiction Participation

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

Due to the rural nature of Cassia County, coordination of participation within each individual jurisdiction is limited due to time, geographic, and personnel constraints. Jurisdictional participation was achieved through the attendance by representatives at planning meetings, who provided input and feedback regarding the risk assessment and mitigation strategy. Individual meetings were also held as needed between the emergency manager and the jurisdictions throughout the planning process.

The Emergency Manager also met with individuals representing each jurisdiction to discuss the HMP update in smaller meetings.

1.6.3 Planning Committee

The planning committee helped steer the plan update and played a key role in the development and completion of the update. The planning committee was headed by Jennifer Gee (Cassia County Emergency Manager) and included representatives from various county and city departments and agencies. Consultant Saige Ballock-Dixon, PE, guided the update process. Members of the planning committee participated in meetings, provided input on the risk assessment and past hazard occurrences, discussed current issues and potential problems facing the county, reviewed the status of mitigation actions listed in the former HMP, and put forward new mitigation actions for inclusion in the 2024 plan update. Table 3-1 details the planning committee, their titles and representing jurisdictions or agencies, and their participation history.

Table 1- 1 Cassia County Planning Team

Name	Jurisdiction or Agency	Title
Jennifer Gee	Cassia County Office of Emergency Management	Director
Shaun Kidd	Holly Energy	Manager
Kim Razee	Cassia School District	
Jealsy Knuts	South Central Public Health District	
Garrison	South central Public Health District	
Mark Welch	Burley Irrigation	
Michael Phillips	Cassia County Sheriff's Office	
Jarrod Thompson	Cassia County Sheriff's Office	
Shannon Tolman	Burley Fire	
Brad Woodrow	City of Albion	
Brent Carver	City of Burley	
Chantily Whittle	Oakley Canal	

1.6.4 Planning Meetings

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

The planning process began 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:

September 15, 2023 Cassia- County Director of Emergency Management met with Bannock County Hazard Committee to kick-off the process.

January 9, 2024 - A follow up meeting was held to review the results of the survey that citizens were encouraged to participate in. Also updated the mitigation project list, examining goals, adding new mitigation projects.

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 August 30- September 30, 2024 to review and provide comments on the plan. No significant comments were received.

March 14th, 2024 -Discussion of Plan update process, call for projects from each jurisdiction or entity.

The planning process included the following steps:

1. **Origination of Resources** -Cassia 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, 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.

1.6.5 Public Involvement

An online survey for the residents of Cassia County was developed so that the planning committee could evaluate the concerns of the community members. The survey link was available on the Cassia County website under Hazard Concerns for the public for one month. The survey was used to gather community feedback on individual levels of concern, dissemination of safety and preparedness information, the vulnerability of community assets to hazards and mitigation actions by the county.

The top hazards, perceived by the community, are severe weather and wildfires. Power outages were also of concern for the community. The results of the survey are contained in Appendix B.

1.6.6 Plan Review and Approval

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

1.6.7 Identified Hazards/Vulnerabilities

All hazards from the 2017 HMP were reviewed and found to be applicable to Cassia 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
- Wildfire

Non-natural Hazards

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

1.6.8 Hazard Analysis

The hazard analysis was conducted using information gathered during the planning team committee meetings, the 2017 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 lest 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.

1.6.9 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.

1.6.10 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 IOEM for review and comments.

The IOEM 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 (Cassia County, Albion, Burley, Declo, Malta, and Oakley) 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 Cassia County and an agreement to endorse and participate for each participating jurisdiction.

1.7 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 Cassia 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.

1.8 Plan Maintenance

The Cassia 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.

1.8.1 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 Cassia County HMP, including all participating jurisdictions and affected stakeholders when changes have been made. Every five years the updated plan will be submitted to the IOEM and FEMA for review.

1.8.2 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 Cassia County Office of Emergency Management. The public will be provided with the opportunity to provide input into Plan revisions and updates at least every five years through the 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 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.

1.8.3 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 Cassia 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.

1.8.4 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 Cassia 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:

- 2024: Update HMP, including a series of committee meetings and public meetings. Submit 2024 HMP for FEMA approval.

Year 1:

- June – July 2025: Prepare for and promote first annual plan review and public meetings.
- August 2025: 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 2026: Prepare for and promote second annual plan review and public meetings.
- August 2026: Reconvene planning committee for second annual meeting. Review plan integration efforts. Host second annual public meeting.

Year 3:

- June – July 2027: Prepare for and promote third annual plan review and public meetings.
- August 2027: Reconvene planning committee for third annual meeting. Review plan integration efforts. Host second annual public meeting.

Year 4:

- June – July 2028: Prepare for and promote fourth annual plan review and public meetings.
- August 2028: Reconvene planning committee for fourth annual meeting. Review plan integration efforts. Host fourth annual public meeting.

Year 5:

- January - September 2029: Update 2023 HMP, including a series of planning committee meetings and public meetings.

- October 2029: Submit 2029 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.

1.8.5 Annual Planning Committee Meetings

During each annual meeting, the committee will be responsible for a brief evaluation of the 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.

1.8.6 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 Manager 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 CASSIA COUNTY DESCRIPTION

Cassia County is located in south-central Idaho on the eastern portion of the Magic Valley. It is bounded by Jerome, Minidoka, and Blaine Counties to the north, the states of Utah and Nevada to the south, Oneida and Power Counties to the east, and Twin Falls County to the west. Cassia County has close ties both geographically and economically with Minidoka County. They form what is called the Mini-Cassia Area.

The county covers approximately 1.6 million acres, making it the seventh largest county in the state. Dominant geographic features include the Snake River, which borders the county to the north, the Sawtooth National Forest, and Minidoka National Wildlife Refuge. The historical Oregon and California Trails also traverse parts of the county, and the county is home to City of Rocks National Reserve where columns of granite 60 stories high attract rock climbers and other recreationists from around the area.

Cassia County ranks 15th among Idaho counties in population and 7th in area. The primary areas of employment in Cassia County are agricultural, trade, and manufacturing. 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. Incorporated cities include Albion, Burley, Declo, Malta, and Oakley.

Cassia County is located in Southern Idaho and occupies an area of 2,567 square miles or 1,642,880 acres. It is bordered on the east by Power and Oneida Counties, on the north by Blaine, Minidoka, and Jerome Counties, and on the west by Twin Falls County. Cassia County is bordered on the south mainly by Utah and a small portion by Nevada.

2.1 Topography and Geography

Cassia County, on the south side of the Snake River forms much of Idaho's southern boundary with Utah and Nevada on the west. It contains a diverse assemblage of rocks, including the oldest rocks in Idaho, the metamorphic Green Creek gneiss in the Albion Mountains core complex. According to the U.S. Census Bureau, Cassia County has a total area of 2,580 square miles, of which 2,565 square miles is land and 15 square miles is water. The county's highest point is Cache Peak at an elevation of 10,339 feet above sea level in the Albion Mountains, and the lowest is Milner Lake, a reservoir on the Snake River, and 4,134 feet. The northern half of the county is part of the Magic Valley region of the Snake River Plain, and the numerous mountain ranges extend north from the southern boundary and diminish as they approach the river, which flows from east to west. The City of Rocks National Reserve, containing exposed granite batholith, is located in the southern part of the county. Part of the Minidoka National Wildlife Refuge, is located in the northeastern part of the county. Part of the Sawtooth National Forest, is located in the northwestern part of the county. Cassia County geography is shown on the map below (Figure 2-1).

2.2 Geology

There are several fault lines throughout the area, especially in the eastern portion of the County south of Albion and Malta and the central portion through the Albion Mountain Range. Figure 2-2 shows the

different types of rock found in Cassia County. Much of the geological profile is alluvial fans and volcanic rocks. The mountain areas are primarily Neoproterozoic sedimentary rocks.

2.3 Climate

The climate in Cassia County is generally milder than its surrounding counties. Summers are characterized by a sudden change to warm, dry weather at the beginning of June. However, chilly nights may continue to persist into July. Showers and thunderstorms are common during this season, producing localized precipitation. This is important to note as the fire season for Idaho is considered to last from July through October. Afternoon temperatures occasionally rise into the low 90s, but nighttime temperatures are usually in the 50s.

The fall brings cooler weather with daytime temperature rarely exceeding the 70s and dipping into the 40s by mid-November but remaining dry. The winter season usually arrives between late November and the end of December with the first cold wave. While cold temperatures may hover around zero or sub-zero during the winter, these severe temperatures seldom persist for long periods. Snowfall adds moisture to the higher elevations during winter months and may accumulate to depths of several feet on the lower benches and bottomlands. In general, higher elevations within the county receive a higher level of precipitation than valley areas.

Historically, the hottest and driest month is July and the coldest and wettest month is December. Average precipitation in the county is between 10-14 inches. Average annual snowfall is between 30 and 38 inches for cities in lower elevations.

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

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

	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
Average Max Temperature (F)	37.4	42.7	53.0	59.6	69.2	78.1	88.0	86.8	76.7	62.7	48.2	37.3	61.8
Average Min Temperature (F)	21.1	23.8	29.9	34.8	42.7	49.0	55.2	53.2	45.0	35.8	26.8	21.0	36.6
Average Total Precipitation (in)	1.0	0.6	1.0	1.1	1.6	0.8	0.3	0.4	0.7	0.8	0.8	1.1	10.1
Average Total Snowfall (in)	6.0	4.0	2.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	7.0	23.0
Source: https://www.extremeweatherwatch.com/cities/burley													

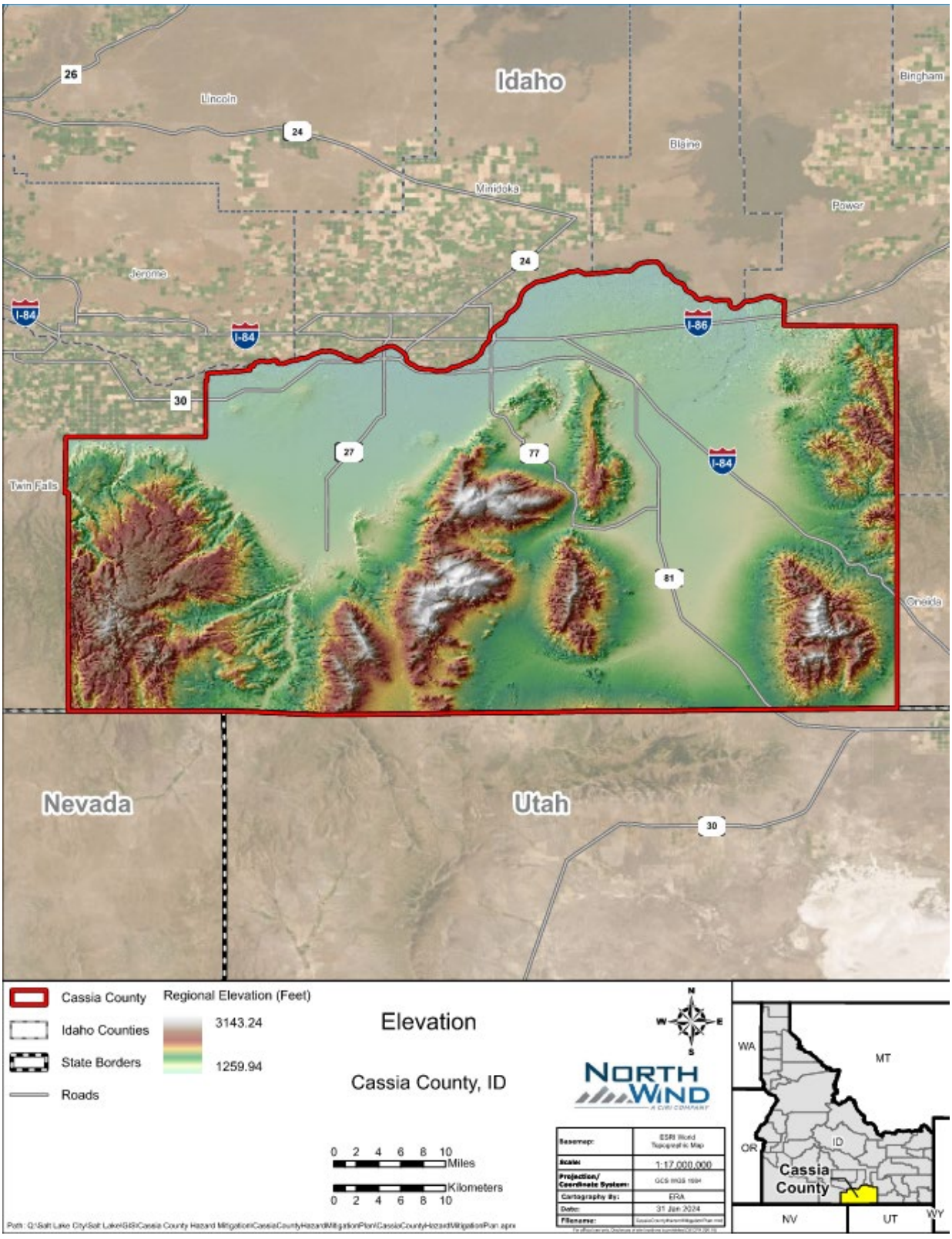

Figure 2- 1 Cassia County Geography Map

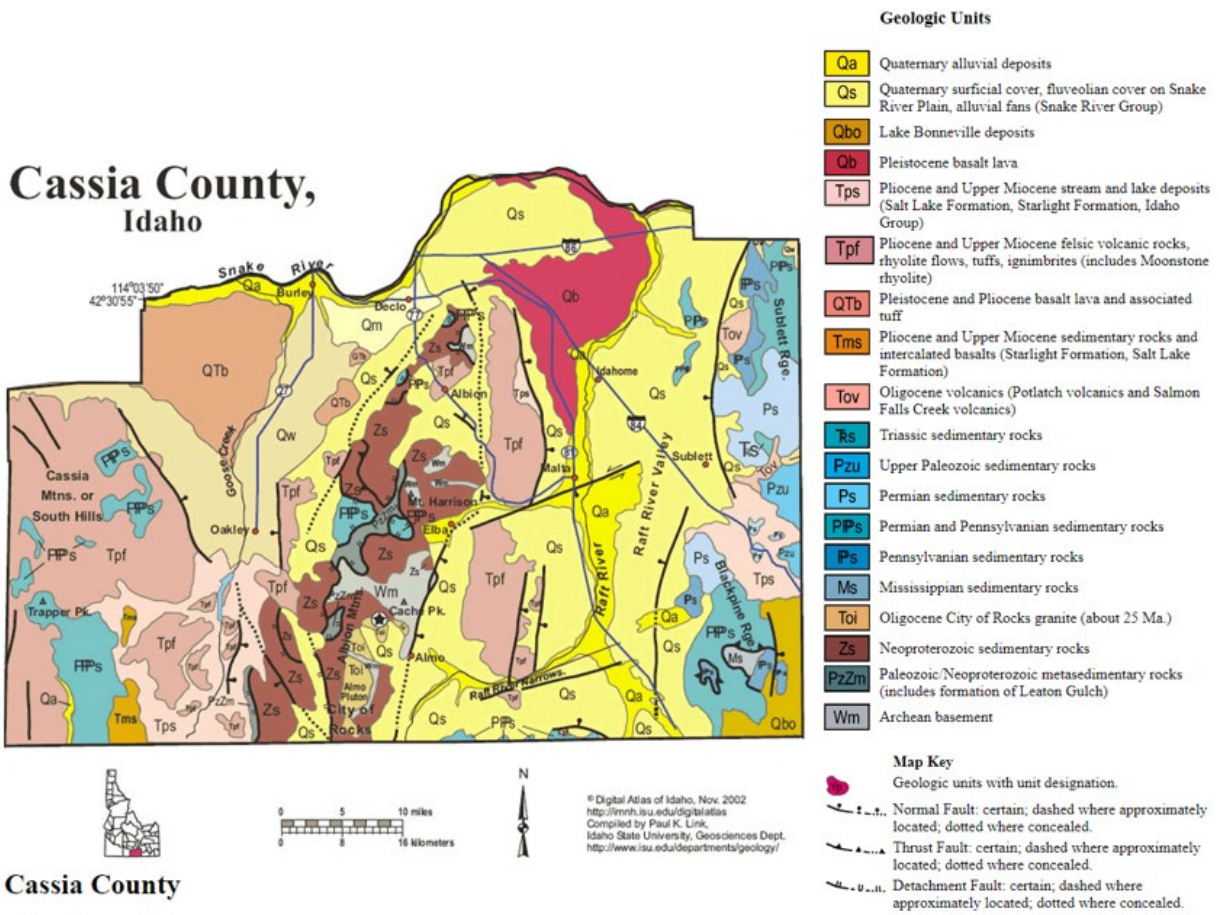

Figure 2- 2 Geologic Unit Map of Cassia County

2.4 Ownership

Cassia County is approximately 1.6 million acres. The majority of this land is owned by the federal government at 920,150 acres, or 58 percent of the total land area. Of those acres, 510,060 acres (58%) is owned by the Bureau of Land Management and 387,053 acres (42%) is National Forest Land. Private land makes up 40 percent of the county at 663,408 acres. State, county and city lands make up just over 3% of the area combined. Figure 2-3 shows the land ownership for Cassia County.

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

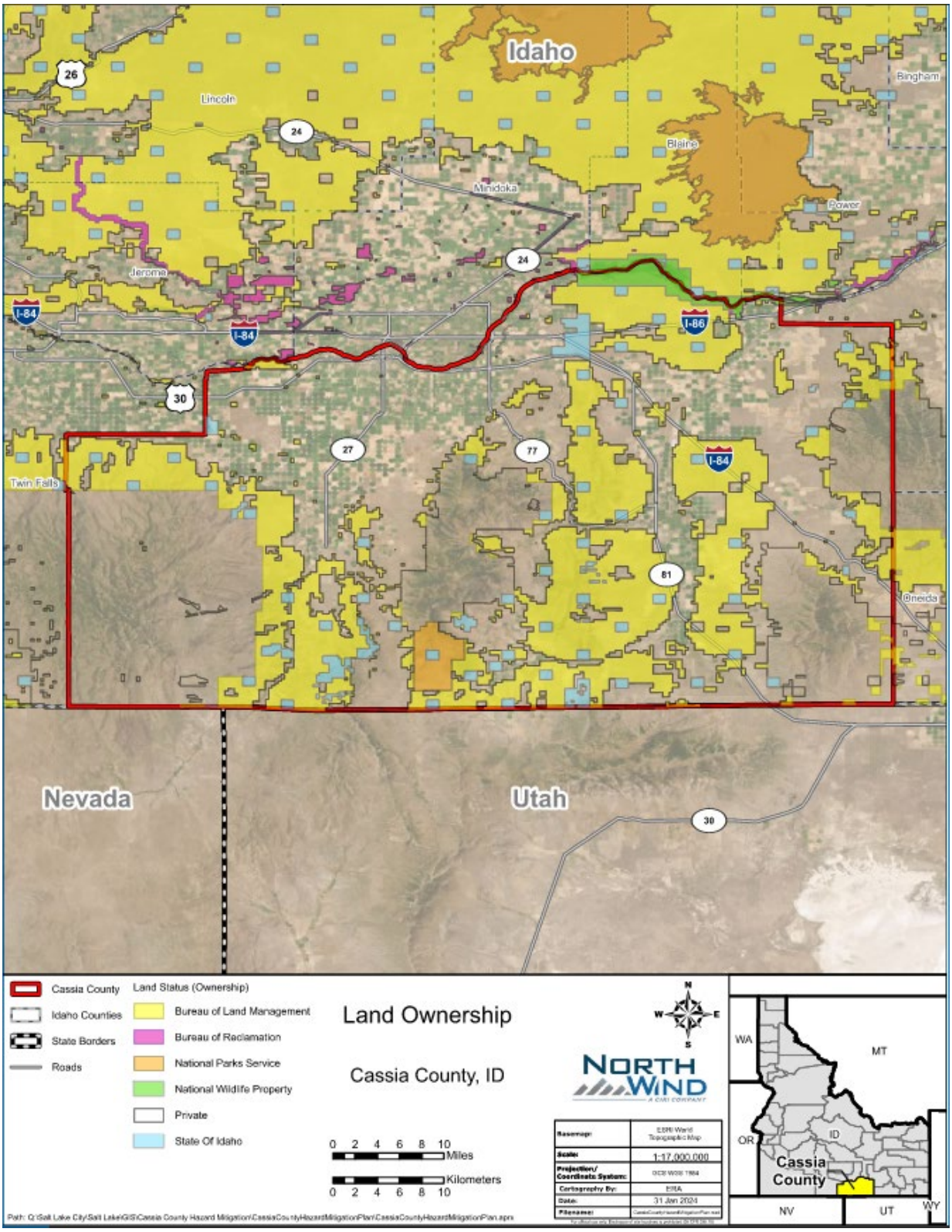

Figure 2- 3 Cassia County Land Ownership Map

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	Description
Barren Land	Areas of bedrock, desert pavement, scarps, talus, slides, volcanic material, glacial debris, sand dunes, strip mines, gravel pits and other accumulations of earthen material. Generally, vegetation accounts for less than 15% of total cover.
Cultivated Crops	Areas used for the production of annual crops, such as corn, soybeans, vegetables, tobacco, and cotton, and also perennial woody crops such as orchards and vineyards. Crop vegetation accounts for greater than 20% of total vegetation. This class also includes all land being actively tilled.
Deciduous Forest	Areas dominated by trees generally greater than 5 meters tall, and greater than 20% of total vegetation cover. More than 75% of the tree species shed foliage simultaneously in response to seasonal change.
Developed, High Intensity	Highly developed areas where people reside or work in high numbers. Examples include apartment complexes, row houses and commercial/industrial. Impervious surfaces account for 80% to 100% of the total cover.
Developed, Low Intensity	Areas with a mixture of constructed materials and vegetation. Impervious surfaces account for 20% to 49% percent of total cover. These areas most commonly include single-family housing units.
Developed, Medium Intensity	Areas with a mixture of constructed materials and vegetation. Impervious surfaces account for 50% to 79% of the total cover. These areas most commonly include single- family housing units.
Developed, Open Space	Areas with a mixture of some constructed materials, but mostly vegetation in the form of lawn grasses. Impervious surfaces account for less than 20% of total cover. These areas most commonly include large-lot single-family housing units, parks, golf courses, and vegetation planted in developed settings for recreation, erosion control, or aesthetic purposes.
Emergent Herbaceous Wetlands	Areas where perennial herbaceous vegetation accounts for greater than 80% of vegetative cover and the soil or substrate is periodically saturated with or covered with water.
Evergreen Forest	Areas dominated by trees generally greater than 5 meters tall, and greater than 20% of total vegetation cover. More than 75% of the tree species maintain their leaves all year. Canopy is never without green foliage.
Hay/Pasture	Areas of grasses, legumes, or grass-legume mixtures planted for livestock grazing or the production of seed or hay crops, typically on a perennial cycle. Pasture/hay vegetation accounts for greater than 20% of total vegetation.

Herbaceous	Areas dominated by graminoid or herbaceous vegetation, generally greater than 80% of total vegetation. These areas are not subject to intensive management such as tilling but can be utilized for grazing.
Mixed Forest	Areas dominated by trees generally greater than 5 meters tall, and greater than 20% of total vegetation cover. Neither deciduous nor evergreen species are greater than 75% of total tree cover.
Open Water	Areas of open water, generally with less than 25% cover of vegetation or soil.
Shrub/Scrub	Areas dominated by shrubs; less than 5 meters tall with shrub canopy typically greater than 20% of total vegetation. This class includes true shrubs, young trees in an early successional stage or trees stunted from environmental conditions.
Woody Wetlands	Areas where forest or shrubland vegetation accounts for greater than 20% of vegetative cover and the soil or substrate is periodically saturated with or covered with water.

2.6 Natural Resources

The Raft River Basin is located primarily in Cassia County, with extensions into Oneida and Power Counties. Much of the basin was designated a Critical Groundwater Management Area, pursuant to Idaho Code § 42, Chapter 233a, and 233b, on July 23, 1963 due to concerns regarding decreased aquifer water levels and flow in the Raft River.

In 2019, the Idaho Geologic Survey (IGS) in partnership with the IDWR and the Idaho Water Resource Board (IWRB), embarked on a four-year hydrologic characterization of the Raft River Basin. The monitoring infrastructure in the basin will be augmented with new wells and stream gages. The study will produce water-budget and hydrogeologic framework reports which, along with current and future data and reports, will be served from this webpage. Water users and resource managers will be able to use the information for water-supply planning and management. The framework and water budget will also provide a foundation for future groundwater model development.

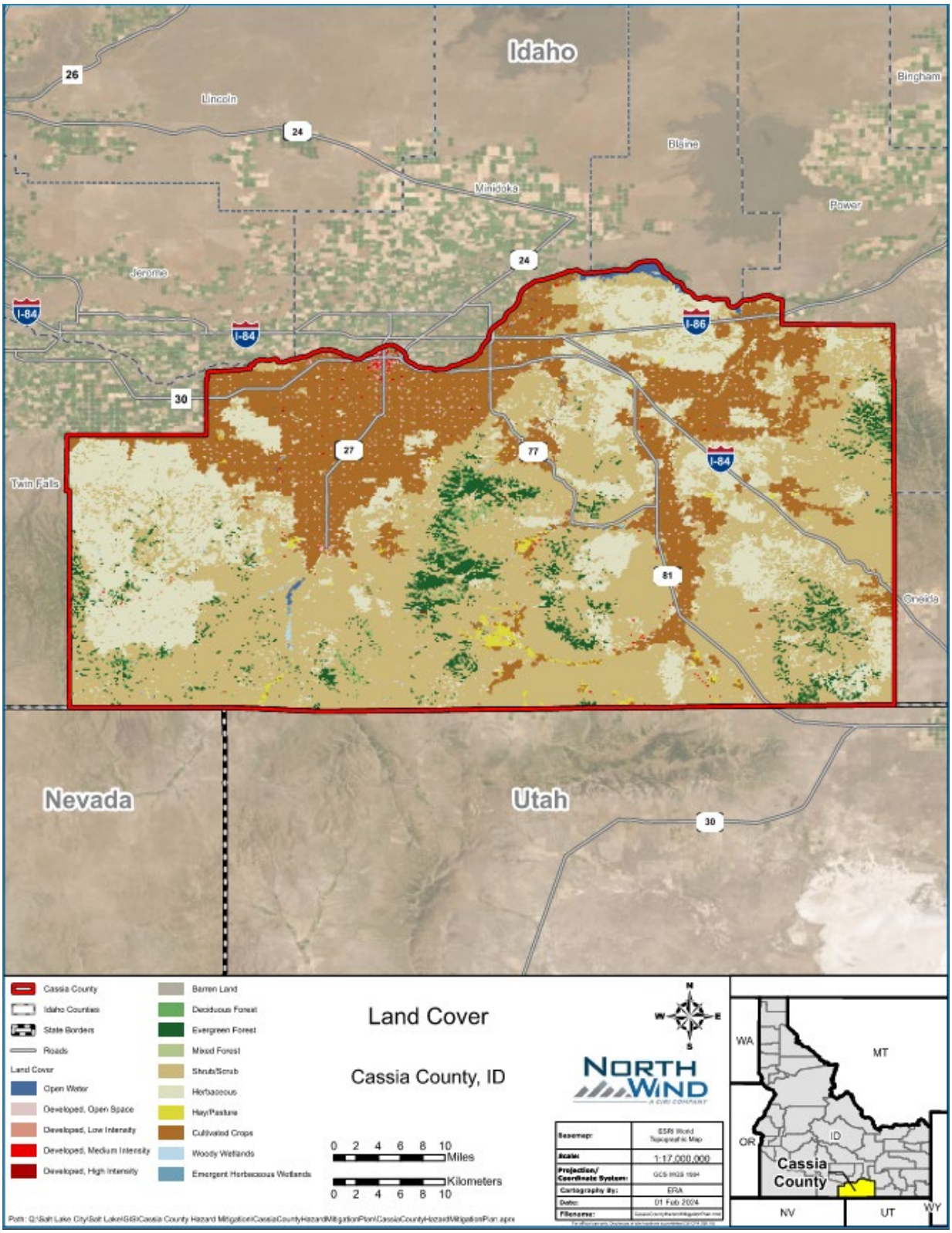

Figure 2- 4 Cassia County Land Cover

2.7 Demographics

The estimated population for Cassia County in 2020 was 24,655. The majority of the population lives in or near Burley, which is also the largest city in Cassia County. Other incorporated cities within the county include Albion, Declo, Malta, and Oakley. The population has continued to grow at a steady rate since 2000 (Table 2-3).

Cassia County maintains a rural character that guides population settlements. In general, the population density is light throughout the county with the densest populations occurring in the towns and communities. Due to farming and ranching there are several individual home sites scattered throughout the rural areas of the county.

Burley is the only city within the county that is considered to be an 'Urban Cluster', which is defined for the as an "urban area that contains a population of at least 2,500 and less than 50,000."

Table 2- 3 Population changes for incorporated cities in Cassia County

	Population Growth for Each Incorporated City of Cassia County		
	2013	2020	% change 2013-2020
Albion	309	422	366%
Burley	10,254	10,476	2.2%
Declo	462	471	1.9%
Malta	192	360	87.5%
Oakley	875	938	7.2%
County	23,054	23,847	3.4%
Source: U.S. Census Data 2013 Report, US Census Data Estimate 2020			

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 (Burley) naturally have a higher number of structures; therefore, they will experience greater loss during hazard events.

The county's population resides primarily in the northern portion of the county, in and around the City of Burley. There has been a significant population growth in the rural areas of Albion and Malta. Increased population in rural areas can increase the risk of hazards such as wildfire and increase vulnerability where access may be limited.

2.8 Socioeconomics

Cassia County has an estimated 8,838 housing units and a population density of 9.56 people per square mile. Ethnicity distribution in the county is as follows: 72.18% white, 29.15% Hispanic or Latino, 1.03%

American Native and Alaskan Native, 0.54% Asian, 0.28% Black or African American, 0.12% Native Hawaiian and Other Pacific Islander, 17.29% Some Other Race, 8.55% Two or More Races.

The estimated age distribution for the county is as follows: 7.84% under 5 years of age, 34.08% under 18 years of age and 14.2% are 65 years or older. Approximately 48.75% of the population are female persons.

2.9 Economy

Cassia County maintains an economy rooted in four sectors: agriculture and farming, manufacturing, retail trade, and health care. Most of the industries are related to agriculture products, their production, harvest or shipping. However, the county diversified beyond agriculture as national companies relocated and existing businesses survived the 2008 recession. Efforts to market Cassia and Minidoka counties together through a community partnership that spotlighted low land and labor costs were successful in landing new businesses.

Economic diversification is occurring as new businesses move into the area. The Mini-Cassia Region Development Commission was formed in order to market Minidoka and Cassia counties together through a community partnership that spotlighted low land and labor costs. This commission has developed a strategic plan to improve the overall economic well-being of the area through more jobs for the youth, high-quality community growth, better education and employment opportunities, better public facilities, affordable housing, and a more diverse and stable community.

The primary areas of employment in Cassia County are agricultural, trade, and manufacturing. According to the Idaho Department of Labor, the total employment within the County is about 63.5%. Local businesses serve the residents of the County and city in providing for commercial and service needs. These include a wide range of retail, convenience, and service establishments.

The average median household income for Cassia County is $63,525 with the per capita income being $28,209 according to 2020 Census data. The percentage of people living in poverty is 10.4%.

2.10 Transportation

2.10.1 Highways

There are approximately 98 miles of Interstate and US Highway in Cassia County that include 58.6 miles of Interstate 84 and 19.3 miles of Interstate 86 and 18 miles of US Highway 30. There are approximately 146.2 miles of state highways including State Highways 27, 77, and 81 within the county. The major cities in Cassia County are connected by the state highways.
There are seven major roadways in Cassia County which include Interstate 84 and 86, US Highway 30,and State Highways 25, 27, 77, and 81.
Interstate 84 enters Burley in a southward direction from Minidoka County. It is present only for a short segment before it turns into State Highway 27, which then travels south, turns slightly westward, and continues south again until it reaches Oakley. Interstate 84 re-enters Cassia County in the northeast, to the east of Burley. It travels due east, turns southeast at Interstate 86, and continues until it exits the county. In 2014, average daily traffic counts taken by the Idaho Department of Transportation totaled 101 vehicles (Idaho Department of Transportation). Traffic counts were also taken just after Interstate

84 turns in a southeastern direction, averaging 117 per day. Another traffic count in the southeast portion of the county before Interstate 84 exits averaged 101.

Interstate 86 enters Cassia County from Power County traveling west until it reaches the junction connecting it to State Highway 25 and Interstate 84. A few miles after entering the county, a traffic count was taken totaling 18.

State Highway 77 travels in a north to south fashion. It enters Cassia County from Minidoka County, crosses Interstate 81, and continues south. Once it is due west of Malta, State Highway 77 turns eastward until it reaches Malta.

US Highway 30 enters Cassia County in the northwest portion to the west of Burley. It then heads east towards Burley and travels directly through it. After meeting Interstate 84 and State Highway 27 at a parallel, US Highway 30 ends and becomes State Highway 81. State Highway 81 then passes through Burley, dips southward, and continues traveling east along the county border until it reaches Interstate 84. From here, it turns south and travels through Idahome. It then continues through Malta and exits the county towards Cedar Creek, Nevada.

In addition to these major roads, Cassia County contains the City of Rocks Back County Byway which runs between the Cities of Albion and Oakley through the landscapes of southern Cassia County, including the City of Rocks National Reserve. The City of Rocks National Reserve is the prerequisite for the City of Rocks Back Country Byway. It is where the most areas of historic and geologic interest are protected and accessible by the public and is the major draw for visitors to the area.

2.10.2 Rails

Within Cassia County, three rail lines are present. The Eastern Idaho Railroad runs along the northernmost portion of the county and through the City of Burley. It is a part of the southern segment of the statewide railway, called Twin Falls, which runs from Minidoka to Buhl. No access is available from Cassia County.

Another rail owned by the Eastern Idaho Railroad, the Oakley Industrial Spur rail, runs from Burley south towards Oakley. A third track, also owned by the Eastern Idaho Railroad, the Raft River Industrial Spur rail, runs east from Burley for approximately three miles. Both of these lines are for cargo purposes and do not offer passenger cabins.

2.10.3 Airports

There are three major airports located in Cassia County. These include Burley Municipal Airport, BLM Interstate Airport, and Oakley Municipal Airport. A helipad is also located at the Cassia Regional Medical Center and several private airstrips exist within the county.
The Burley Municipal Airport is located at an approximate elevation of 4,154 feet. It is one-mile northeast of Burley and is open to the public. Runway 2/20's asphalt airstrip is 4,092 feet long and 80 feet wide. It has no control tower or segmented circle. Runway 6/24's asphalt airstrip is 4,072 feet long and 75 feet wide. Parking tie downs are available and lights are continuously operational. There are 80 aircraft based on the field, 75 of which are single engine airplanes, four are multi engine airplanes, and one is an ultralight airplane. This airport sees approximately 76 aircraft operation per day, annually. 72

percent of this traffic is transient general aviation, 26 percent is local general aviation, one percent is air taxi, and less than one percent is military.

The Interstate Airport is owned and operated by the Bureau of Land Management and is located near Malta. It is a private airport with restricted use.

The Oakley Municipal Airport is located at approximately 4,664 feet in elevation near the city of Oakley. It is open to the public but is unattended, has no control tower, and is not maintained during winter. Runway 17/35 is gravel and is 3,795 feet long and 40 feet wide. It sees an average of 23 aircraft operations per week. 100 percent of this traffic is for transient general aviation.

2.10.4 Bridges

Cassia County has 116 bridges that span more than 20 feet (Table 4-4). Most of the bridges are listed as being in “fair” condition.

Table 2- 1 List of Bridges in Cassia County

Administrative Jurisdiction	Bridge Key	Length (ft)	Condition
Burley Highway District	19590	23	**Fair**
	19593	21	**Good**
	19595	27	**Fair**
	19598	20	**Good**
	19601	22	**Fair**
	19605	39	**Fair**
	23915	41	**Fair**
	23920	31	**Fair**
	23923	22	**Good**
	23930	47	**Fair**
	23933	43	**Good**
	23935	22	**Fair**
	23951	39	**Fair**
	23955	31	**Fair**
	23966	23	**Fair**
	23975	33	**Fair**
	23985	29	**Fair**
	23990	27	**Fair**
	24000	26	**Fair**
	24005	36	**Fair**
	24008	21	**Fair**
	24011	24	**Fair**
	24015	35	**Fair**
	24021	40	**Fair**

Administrative Jurisdiction	Bridge Key	Length (ft)	Condition
	24025	38	**Fair**
	24030	31	**Fair**
	24035	27	**Fair**
	24038	23	**Fair**
	24045	78	**Fair**
	24050	46	**Fair**
	24060	40	**Fair**
	24063	25	**Fair**
	24065	38	**Fair**
	24070	22	**Fair**
	24075	71	**Fair**
	24080	22	**Fair**
	24085	78	**Fair**
	24091	98	**Fair**
	24095	26	**Fair**
	24100	30	**Fair**
	24105	21	**Fair**
	24110	26	**Fair**
	24116	25	**Fair**
	24120	26	**Fair**
	24126	45	**Good**
	24130	67	**Fair**
	24136	80	**Fair**
	24145	52	**Fair**
	24150	39	**Fair**
	24153	48	**Good**
	24156	26	**Fair**
	24170	26	**Fair**
	24175	49	**Fair**
	24181	74	**Good**
	24185	24	**Fair**
	24188	22	**Fair**
	24192	27	**Good**
	24211	73	**Fair**
	24215	24	**Fair**
Cassia County	19609	44	**Fair**

Administrative Jurisdiction	Bridge Key	Length (ft)	Condition
	23946	105	**Good**
	23948	44	**Fair**
	34450	48	**Good**
City of Burley	24140	26	**Fair**
	21383	31	**Fair**
City of Declo	23925	26	**Fair**
District 4	10593	452	**Good**
	10603	395	**Good**
	10615	26	**Fair**
	10620	24	**Fair**
	10635	108	**Fair**
	10640	108	**Fair**
	10646	105	**Fair**
	10651	105	**Good**
	10655	108	**Fair**
	10660	108	**Fair**
	13090	212	**Fair**
	15230	32	**Fair**
	15235	23	**Fair**
	15245	24	**Fair**
	15250	36	**Fair**
	16405	211	**Fair**
	16410	211	**Fair**
	16415	108	**Fair**
	16420	108	**Fair**
	16435	27	**Fair**
	16606	58	**Fair**
	16611	52	**Fair**
	16625	220	**Fair**
	13670	1313	**Fair**
	13675	1313	**Fair**
	13331	850	**Fair**
	15240	24	**Fair**

Administrative Jurisdiction	Bridge Key	Length (ft)	Condition
	16616	47	**Fair**
	16621	23	**Good**
	16450	51	**Fair**
	16455	52	**Fair**
	16470	24	**Fair**
	16475	24	**Fair**
	16480	23	**Fair**
	16500	24	**Fair**
	16505	24	**Fair**
	16510	24	**Fair**
	16515	24	**Fair**
	24245	254	**Fair**
	24250	312	**Fair**
	24255	312	**Fair**
	24270	235	**Fair**
Oakley Highway District	23958	37	**Fair**
	23961	33	**Fair**
	23970	27	**Fair**
	23973	45	**Good**
Twin Falls Highway District	19430	23	**Fair**
	19435	23	**Good**

2.10.5 Water Resources

Surface Water and Groundwater

Less than one percent, or 15.2 square miles, of Cassia County's total area is surface water. Despite this, water is considered the life-blood of Cassia County. It is vital to the economy and continuance of the county.

There are major surface water flows within the county, including the Snake River and Goose Creek. These and other surface waters are located within five watersheds, including the Curlew Valley, Lake Walcott, Raft, and Upper Snake-Rock. A number of other notable surface waters include Lake Walcott, Milner Lake, Raft River, Calder Creek, Burley/Marsh Creek, and Goose Creek.

Within Cassia County, and Burley in particular, the Snake River provides many recreational and economic opportunities for resident and visitors. Riverfront Park and North Freedom Park both provide

boat ramps for boating, canoeing, and kayaking activities. The opportunity for popular activities such as skiing and fishing, in addition to a general aesthetic and historical appeal, draw tourists to the area. The Snake River also provides a physical boundary for the county line on the northern edge.

Goose Creek is a tributary of the Snake River and runs approximately 120 miles in length. It begins in the Sawtooth National Forest, flows into Nevada, and then loops back into Cassia County. Water from this tributary is stored in the Lower Goose Creek Reservoir and is used for irrigation. Another notable surface water feature is Lake Walcott, which serves as a popular destination for activities such as camping, hiking, and fishing. It also provides valuable habitat for wildlife including fish and birds as it is in close proximity to the Minidoka National Wildlife Refuge.

Cassia County contains many aquifers, including Goose Creek/Golden Valley, Raft River Valley, and Snake River Plain Aquifers. The Raft River basin covers approximately 1,500 square miles and is characterized by rugged ranges rising above alluvial plains. The topography in and around the basin influences the climate while local factors control runoff and ground water recharge. The northern portion of the Raft River basin also merges with southern portions of the Snake River Plain.

The Snake River Plain is a complex system with multiple layers of high permeability. It is the most famous aquifer in Idaho, as much of the economy in southern Idaho depends on this resource. Over three million acres of farmland on the Snake River Plain are irrigated, with approximately one third of this water coming from wells and canals. As such, extensive irrigation systems are the major contributing factor to Idaho's high level of water consumption. In addition to being the most famous aquifer, it is also one of the most vulnerable in the state. Water quality within the Snake River Plain is of great concern and can be adversely affected by serval activities including agricultural runoff from fertilizer, feedlots, and processing plants, as well as the presence of abandoned wells and storm water runoff. Water quality is also threatened where population density and intensity of groundwater use are high.

Recognizing this, Cassia County is part of the Middle Snake Regional Water Resource Commission, along with the neighboring counties of Gooding, Jerome, Lincoln, Minidoka, and Twin Falls. This Commission has developed a "Coordinated Water Resource Management Plan" to preserve and improve water quality and quantity. This is important as the Idaho Department of Environmental Quality signified the Burley/Marsh Creek area as the third highest area of concern in the state. A Groundwater Management Plan has also been implemented with the of reducing the levels of nitrate in the groundwater and to educate domestic well owners on the ground water quality of their individual wells.

Water Use and Dams

Maintaining water quality of wells is important as there are approximately 4,900 wells within Cassia County, the majority of which serve domestic and irrigation purposes. Most of this ground water comes out of the Snake River Plain, with the remaining coming from the Raft River Basin. Within the city of Burley, water is pumped from six wells and is then stored in a large water tank.

In Cassia County, there are 57 active water systems, all of which use groundwater as their source. These water systems are broken down into three categories: community, which serve at least 15 service connections used by year-round residents or regularly serve 25 year-round residents; non-transient non-community, which serve at least the same 25 non-residential individuals during 6 months of the year;

and transient non-community, which regularly serve at least 25 non-residential individuals during 60 or more days per year (Idaho Department of Environmental Quality).

Community water systems include the Cities of Albion, Delco, and Oakley, Burley Water Department, Spring Creek Terraces, and Overlook Mobile Home Village. Non-transient non-community water systems include Americold, Malta Schools, and McCain Foods. Transient non-community water systems include Almo Elementary School, Bureau of Land Management Burley administration and operations sites, Idaho Parks and Recreation Rocks National Reserve, LDS Churches, Magic Mountain Ski Lodge, and Rock City Mercantile.

There are eight dams in Cassia County: Black Pine Valley Leach, Dewey (Marsh Creek Reservoir), J-Canal Reregulating, Lake Cleveland, Minidoka South Dike, Oakley (Goose Creek Reservoir), Point of Rock, and Sublett Dams.

Black Pine Valley Leach Dam was completed in 1991. It is a private earthen dam created for the purpose of tailings. It is 1,100 feet in length and 108 feet high, covering an impoundment area of 5 acres and a drainage area of 0.3 square miles. An emergency action plan is present. The dam is inspected every five years and is state regulated. The most recent condition assessment rated Black Pine Valley Leach Dam as satisfactory.

Dewey Dam, also known as Marsh Creek Reservoir, was completed in 1913. It is located approximately five miles from the city of Delco along Marsh Creek. It is a private earthen dam created for irrigation purposes. It is 2,300 feet in length and its structural height is 30 feet while its hydraulic height is 22.5 feet. The number of cubic feet per second which the spillway is capable of discharging when the reservoir is at its maximum designed water surface elevation is 687. Its normal storage in acre-feet, defined as the total storage space in a reservoir below the normal retention level, including dead and inactive storage and excluding any flood control or surcharge storage, is 225. It covers an impoundment area of 82 acres and a drainage area of 99 square miles. Its spillway type is described as controlled and there are 22 feet of spillway available for discharge when the reservoir is at its maximum designed water surface elevation. An emergency action plan is not present. The dam is inspected every 4 years and is state regulated. The most recent condition assessment rated Dewey Dam as satisfactory.

J-Canal Reregulating Dam was completed in 1994. It is a private earthen dam 450 feet in length with a dam height of 18.5 feet and a hydraulic height of 14.5 feet. The number of cubic feet per second which the spillway is capable of discharging when the reservoir is at its maximum designed water surface elevation is 150. Its normal storage in acre-feet is 25. It covers an impoundment area of five acres and a drainage area of 1.2 square miles. Its spillway type is described as controlled and there are 40 feet of spillway available for discharge when the reservoir is at its maximum designed water surface elevation. An emergency action plan is not present. The dam is inspected every five years and is state regulated. The most recent condition assessment rated J-Canal Reregulating Dam as satisfactory.

Lake Cleveland Dam was completed in 1914. It is located along Lake Cleveland. It is a private earthen dam 134 feet in length with a dam height of seven feet and a hydraulic height of six feet. Its normal storage in acre-feet is 120. It covers an impoundment area of 24 acres and a drainage area of 0.6 square miles. Its spillway is listed as uncontrolled with just nine feet of spillway available. The dam is inspected every five years and is state regulated. The most recent condition assessment rated Lake Cleveland Dam as fair.

Minidoka South Dike Dam is located along a tributary of the Snake River 22 miles away from the city of Delco and was completed in 1906. It is a federal rockfill earthen dam 98 feet in length with a dam height of 21 feet and a hydraulic height of 13 feet. Its normal storage in acre-feet is 220,200. It covers an impoundment area of 12,400 acres and has a drainage area of 15,700 square miles. It is inspected annually and is not state regulated. The most recent condition assessment rated Minidoka South Dike as poor and needing more analysis.

Oakley Dam, also called Goose Creek Reservoir, is located along Goose Creek, 4 miles from Oakley. It is a private earthen dam completed in 1916 and modified in 1987 for irrigation purposes. It is 1,070 feet in length with a dam height of 144.8 feet and a hydraulic height of 139 feet. The number of cubic feet per second which the spillway is capable of discharging when the reservoir is at its maximum designed water surface elevation is 1,240. The normal storage in acre-feet is 760,000. It covers an impoundment area of 1,350 acres and a drainage area of 729 square miles. Its spillway is listed as controlled with 555 feet of spillway available. The state regulated dam is inspected every two years. The most recent condition assessment rated Oakley Dam as unsatisfactory.

Point of Rock Dam is found along Marsh Creek. It is a private earthen dam and was built in 2004. It is 630 feet in length with a dam height of 30.2 feet and a hydraulic height of 23 feet. The number of cubic feet per second which the spillway is capable of discharging when the reservoir is at its maximum designed water surface elevation is 495. The normal storage in acre-feet is 358. It covers an impoundment area of 42 acres and a drainage area of 87.9 square miles. Its spillway is listed as uncontrolled with 18 feet of spillway available. The state regulated dam is inspected every three years. The most recent condition assessment rated Point of Rock Dam as satisfactory.

Sublett Dam is found along Sublett Creek, five miles from Sublett. It is a private earthen dam and was built in 1914 for irrigation purposes. It is 600 feet in length with a dam height of 47.7 feet and a hydraulic height of 42.6 feet. The number of cubic feet per second which the spillway is capable of discharging when the reservoir is at its maximum designed water surface elevation is 385. The normal storage in acre-feet is 2,400. It covers an impoundment area of 98 acres and a drainage area of 46 square miles. Its spillway is listed as uncontrolled with 70 feet of spillway available. The state regulated dam is inspected every three years. The most recent condition assessment rated Sublett Dam as satisfactory.

2.10.6 Critical Wildlife Habitat

The Federal government owns over half the land in Cassia County at 925,150 acres. Of those acres, 516,060 is owned by the Bureau of Land Management and 387,053 is National Forest land. The varied vegetation and topography of the county offer diverse habitat for a wide variety of wildlife. There are approximately 46,600 acres of forest within the county (2.8 percent of total lands) and 8,400 acres of barren land (0.5 percent). However, the majority of land is dedicated to agriculture (27.7 percent), and rangeland (67.9 percent), with the remainder constituting urban land (0.4 percent) which limits wildlife habitat. While the county aims to protect, maintain and enhance fish and wildlife resources of Cassia County and their associated habitats for present and future generations, these efforts will not be taken at the expense of reasonable agricultural activities, as stated in the Cassia County Comprehensive Plan.

The waters of the county's rivers, lakes, and streams serve as critical wintering and breeding grounds for colonial nesting birds like the American White Pelican and molting waterfowl. Cassia County is rich with this critical habitat. The county's uplands are a mix of rock, sand, and shallow soil habitat, areas which

support numerous small mammals, reptiles, and invertebrates. Additionally, basalt lava flows provide unique habitat for reptiles.

Despite critical the presence of critical habitats, fish and wildlife populations in the county are being lost to development and agriculture. Many of the sites that are of most value to fish and wildlife are also highly attractive to rural developers. Some wildlife may benefit by rural residential development, yet many highly valued fish and wildlife species are sensitive to disturbance and habitat alteration associated with rural developments. Some species (such as bald eagles) are highly sensitive to disturbance, while other species (such as mule deer) display considerable adaptability. To further complicate anticipated responses by wildlife, research has shown that deer, elk, many species of waterfowl, nesting and foraging bald eagles, and nesting great blue herons can habituate to certain human activities. In contrast to habituation, wildlife may become more sensitive with repeated disturbance, ultimately resulting in displacement from preferred habitat.

To preserve critical wildlife habitat, the county has three major protected areas including the Minidoka National Wildlife Refuge, the City of Rocks National Reserve, and the Sawtooth National Forest. These areas serve as oases for wildlife.

The Minidoka National Wildlife Refuge is located in the northeast portion of Cassia County to the east of Burley. Almost half of the Refuge's 20,699 acres are open water and wetlands. In a county characterized by such an arid landscape, these resources serve as a critical oasis, drawing in numerous wildlife species. Many of these species use the bulrush and cattail habitat that lines the lake's small bays while others use the various Willows, Cottonwoods, and other tree species growing near the shores. The remainder of the refuge is low, rolling uplands with sagebrush, grasses, and isolated juniper patches among scattered outcrops of basalt.

Over 235 species of birds have been spotted within the Minidoka National Wildlife Refuge, giving preference to its open water, marshes, and mudflats. These habitats provide for a variety of water birds including western and clark’s grebes, American coots, and killdeer. Colony nesters include grebes, cormorant, great blue heron, and American white pelican. The great blue heron in particular is one of the largest American birds, measuring about four feet in height with a six-foot wing span. The birds frequent shallow ponds, marshes, and the shores of lakes and rivers. Anywhere from a few to 50 or more birds may nest together in a colony. Great blue herons are very sensitive to human disturbance, but particularly so at rookery sites. Blue heron flushing distance at rookeries decrease as the nesting season progresses, and they habituate to fishermen boating past heronries, as opposed to unexpected disturbances such as people walking below the nest trees or motorcycles passing the heronry. Other species, such as waterfowl, lose their wing and tail feathers at one time instead of molting, causing them to remain flightless for a month while their feathers grow back. The Refuge’s secluded bays must remain free of disturbance during this critical period as the lush beds of vegetation attract some 100,000 molting ducks and geese annually.

Also present within the Refuge are a wide variety of mammals. These include large mammals such as mule deer and pronghorn, most often seen in areas of open sagebrush. Smaller mammals include beaver, cottontail, porcupine, raccoon, coyote, and bat species. Less common species include cougar, bobcat, elk, and moose. Mule deer in particular tend to occupy most areas below 3,000 feet elevation during winter, as low-elevation areas generally experience less snow accumulations and milder temperatures than high-elevation areas. They also select closed forest stands that are southwest or west in aspect in order to optimize security and thermal cover at the expense of forest availability.

Impacts of rural development on mule deer are magnified as development usually occurs in the small percentage (as little as five percent) of the land base that constitutes winter range. Development impacts include removal of forest canopy and hiding cover, and increased human-related disturbances such as free-ranging dogs, snowmobiling, and cross-country skiing. In addition to direct mortality events, harassment of mule deer during the winter stress period may predispose them to other forms of mortality such as starvation. Habitat losses associated with rural development tend to be permanent, and consequently, impacts compound as development proceeds.

The Minidoka National Wildlife Refuge also provides habitat for many fish species such as smallmouth bass, sturgeon, carp, rainbow trout, and yellow perch within Lake Walcott and the Snake River. An endangered species, the bald eagle, can also be found within the Refuge in large trees during the fall and winter seasons and do not adapt well to changes.

The City of Rocks National Reserve also provides ample habitat for wildlife including 56 mammal species such as desert bighorn sheep, ringtail, northern pocket gopher, and marmot. More elusive, though still documented, wildlife includes mountain lion, bobcat, coyote, and moose. In addition to this Reserve, The Sawtooth National Area exists in parts of Cassia County. It was established by the United States Congress in 1972 with the passage of Public Law 92-400. The law sought to preserve and protect the Area's "natural, scenic, historic, pastoral, and fish and wildlife values and to provide for the enhancement of the recreation values associated therewith" (United State Department of Agriculture). This effort was also taken to protect the Area by preventing the development of high-density subdivisions that were beginning to spread throughout the area.

2.10.7 Critical Facilities

Inventorying the county's building and facilities values is vital to assessing a hazard's potential impact. Census Block Tracts were analyzed to assess the structural values in Cassia County and the communities with GIS-ready boundary data. The inventory includes residential, commercial, industrial, agricultural, religious, government, and educational buildings and was developed by FEMA using information from the Bureau of Census, and the Department of Energy (DOE). US Census data was used to develop the building inventory, and reports from the DOE helped define regional variations. Baseline floor areas was based on a distribution from the DOE's Energy Consumption Report. The same report was then used to determine the valuation of single-family residential homes by accounting for income as a factor on the cost of housing. The building counts by type and Census Block Tracts are listed in in Table 2-4, and total building inventory listed.

Table 2-5. Building Counts by Type and Census Block

	Albion/Malta	Declo	Burley	Oakley	Unincorporated
Residential	118	92	2,627	212	3,812
Commercial	15	3	353	14	218
Industrial	3	5	52	6	69
Agriculture	2	1	10	3	142
Religion	1	0	32	4	8

Government	1		7	1	6
Education	4	2	15	2	10
Value	$23.5M	$16.2M	132.4M	$24.8M	$118M

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

- Essential Facilities – Those facilities that are vital to response and recovery from a disaster, including emergency operation centers, police stations, fire stations, schools, and medical care facilities.

- Transportation Facilities – Transportation is vital in all phases of disaster management, as moving people out of hazardous areas, moving supplies into staging or other areas, and response depends on well-connected and sound transportation infrastructure. This includes airports and runways, railroads, highways, and bridges.

- Utility Facilities – Often termed 'lifelines' due to their importance in community continuity and in the post-disaster recovery phases. This includes wastewater facilities, electric power facilities, and communication locations.

- High-Potential Loss Facilities – Facilities, staging areas, and other locations with the potential to cause significant life and economic losses are classified as high-potential loss facilities. This includes dams and hazardous materials sites.

3.0 RISK ASSESSMENT

3.1 Overview

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

- Assess the hazard (including the location, extent, magnitude, and frequency of hazard occurrence both in the past and the probability of future occurrence).

- Assess the number of individuals and property exposed to the hazard.

- Assess critical and essential facilities exposed to the hazard.

- Assess the socioeconomic vulnerability of the community to the hazard.

- Assess land use and future development in the county with regards to the hazard extent.
- Assess potential climate change impacts on the hazard.

3.2 Hazard Description and Assessment

The Cassia County Planning Committee reviewed the hazards identified in the 2017 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:

3.2.1 Natural Hazards

- Severe weather
- Drought
- Flooding
- Dam Failure
- Earthquake
- Wildfire

3.2.2 Non-natural Hazards

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

3.3 Severe Weather

Hazard Overview			
Location:		County-Wide	
Frequency/Previous Occurrence:		High	
Impact/Consequence:		High	
Community Vulnerability:		Moderate	
Overall Hazard Ranking by Jurisdiction			
Albion	Burley	Declo	Malta
High	High	High	High
	Oakley		
	High		

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

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.

Changes in the climate directly affect severe weather- increases in temperatures, increases in strength and intensity of storms, and an increase in the occurrences of severe weather. Communities will likely experience more frequent and intense weather patterns as changes in climate occur.

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 Cassia County (Albion, Burley, Declo, Malta, and Oakley).

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 Cassia County (Albion, Burley, Declo, Malta, and Oakley) 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 Cassia 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.

3.3.1 Extreme Heat

Also known as a heat wave, extreme heat is a period of significant above-normal temperatures in a locality. Urban development amplifies extreme heat effects due the heat island effect. Extreme heat impacts human health through heat exhaustion, sunstroke, and heat cramps. Most susceptible are age-dependent populations, including the elderly and small children, and those with other and chronic illness. Environmental impacts include loss of wildlife and increased wildfire probability. Extreme heat can stress power grids due to an increase in energy demand for cooling.

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).

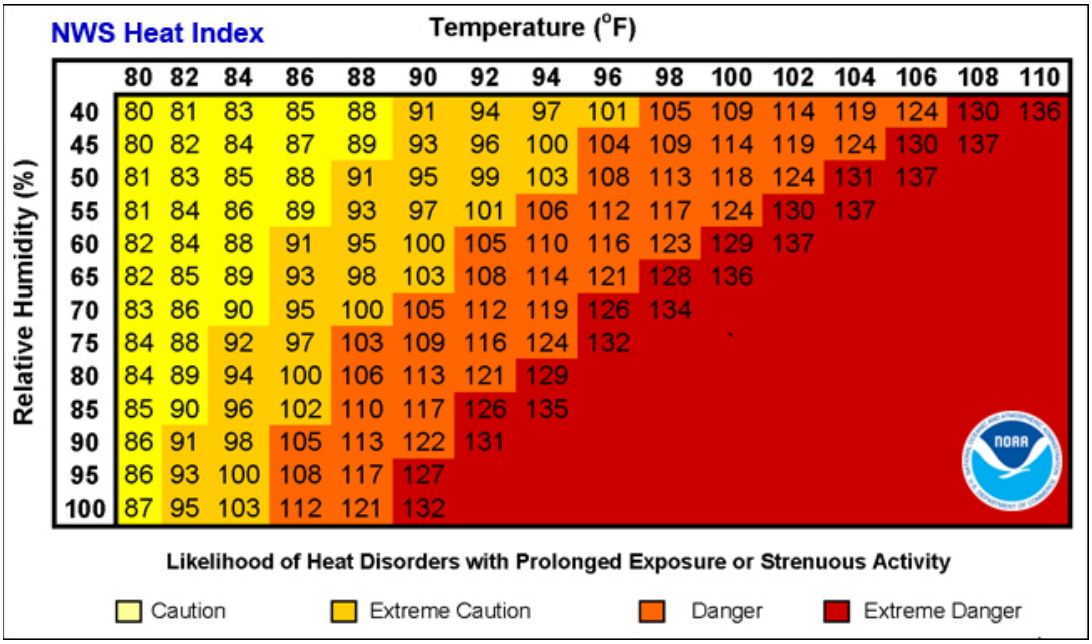

Figure 3- 1 NOAA's National Weather Service Heat Index

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

Extreme heat does no normally affect Cassia County, though a number of temperatures above 105F have been recorded. Cassia county has experienced six extreme heat events in July 2002, July 2003, June 2013 and September 2020. The record high for the county was 106.7°F, which was recorded July 13, 2002. Daily weather summaries were taken from the Burley 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

Return Period (Years)	Probability (%)	Maximum Temperature (F)
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.

3.3.2 Extreme Cold

A period of significant below-normal temperatures in a locality is defined as extreme cold. Winds of 10 mph or greater can amplify extreme cold impacts. Advisories are issued when wind chill temperatures reach -20 degrees F or lower with winds of 10 mph or higher for one hour or more. Similar to extreme heat, extreme cold is of greatest concern under persistence over an extended period of time, and like extreme heat, the most susceptible are the age-dependent and those with chronic illness. The environmental and other impacts are similar, though extreme cold can be associated with the formation of ice and freezing which can result in flooding.

Extreme cold events have historically occurred within Cassia 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.

Wind Chill Chart

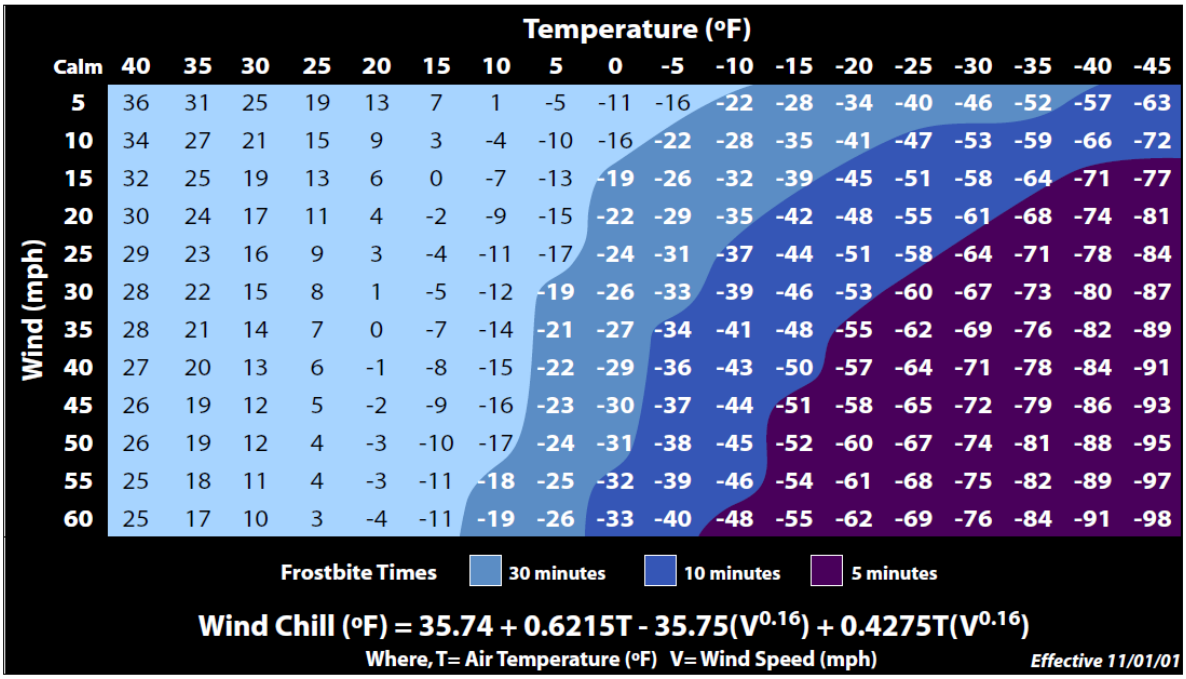

Figure 3- 2 National Weather Service Wind Chill Chart

Only 12 extreme cold/wind-chill events have occurred in Cassia County (Table 3-2) since 1980. 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 ($)	Crop Damage ($)
6/02/2001	South Central Highlands	Extreme Cold/Wind Chill	0	0	0	0
5/08/2002	South Central Highlands	Extreme Cold/Wind Chill	0	0	0	0
5/08/2002	Eastern Magic Valley	Extreme Cold/Wind Chill	0	0	0	0
12/06/2005	Eastern Magic Valley	Cold/Wind Chill	0	0	0	0
12/07/2005	Eastern Magic Valley	Cold/Wind Chill	0	0	0	0
1/03/2013	Eastern Magic Valley	Extreme Cold/Wind Chill	0	0	0	0
12/09/2013	South Central Highlands	Extreme Cold/Wind Chill	0	0	0	0
1/04/2017	Eastern Magic Valley	Extreme Cold/Wind Chill	0	0	0	0
1/04/2017	South Central Highlands	Extreme Cold/Wind Chill	0	0	0	0
2/22/2022	Raft River Region	Cold/Wind Chill	0	0	0	0
11/01/2022	Eastern Magic Valley	Extreme Cold/Wind Chill	0	0	0	0
1/29/2023	Raft River Region	Extreme Cold/Wind Chill	0	0	0	0

Impacts

There is no defined geographic boundary for extreme cold. Extreme cold events are not common to the county but are possible, 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 can drop low enough to produce frost. While such temperatures are not low enough to damage infrastructure or require extra heating costs, it can be devastating to crops. Warning lead times for Cassia County are usually a day or two, based on forecasts made by the National Weather Service.

3.3.3 Winter Storms

Characterized by low/freezing temperatures, blowing snow, and ice. Like all severe storms, winter storms range in size, duration, and intensity, with potential to impact both large and localized areas. Severe winter storms deposit four or more inches of snow during a 12-hour period, or six inches during a 24-hour period. To be classified as a blizzard, winds must exceed 35 mph with temperatures below 20 degrees F. Particularly damaging are ice storms, characterized by cold rain freezing immediately on contact with a surface. In general, the principal hazards associated with severe winter storms are snow/ice accumulation, extreme cold, and reduction of visibility. Such storms can also disrupt transportation, power and communication lines, and halt everyday activities.

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 2000, 60 winter storm events have been reported in Cassia County, primarily in South Central Highlands and Eastern Magic Valley areas (Table 3-3).

Table 3- 3 NCDC Reported Winter Storms

Date	Location	Deaths	Injuries	Property Damage ($)	Crop Damage ($)
1/25/2001	South Central Highlands	0	0	0	0
1/21/2002	South Central Highlands	0	0	0	0
2/07/2002	South Central Highlands	0	0	0	0
2/07/2002	Eastern Magic Valley	0	0	0	0
11/08/2002	South Central Highlands	0	0	0	0
12/25/2003	Eastern Magic Valley	0	0	0	0
12/25/2003	South Central Highlands	0	0	0	0
1/24/2004	South Central Highlands	0	0	0	0
1/07/2005	Eastern Magic Valley	0	0	0	0
1/07/2005	South Central Highlands	0	0	0	0
1/27/2008	South Central Highlands	0	0	0	0
1/31/2008	South Central Highlands	0	0	0	0
1/31/2008	Eastern Magic Valley	0	0	0	0
2/07/2008	South Central Highlands	0	0	0	0
10/11/2008	South Central Highlands	0	0	0	0
12/27/2008	South Central Highlands	0	0	0	0
1/10/2013	South Central Highlands	0	0	0	0
1/10/2013	Eastern Magic Valley	0	0	0	0
2/22/2013	South Central Highlands	0	0	0	0
3/22/2013	South Central Highlands	0	0	0	0
3/01/2014	South Central Highlands	0	0	0	0
12/24/2014	South Central Highlands	0	0	0	0
12/24/2014	Eastern Magic Valley	0	0	8k	0
12/23/2015	South Central Highlands	0	0	0	0
12/24/2016	Eastern Magic Valley	0	0	0	0
1/07/2017	South Central Highlands	0	0	0	0
1/07/2017	Eastern Magic Valley	0	0	0	0
1/22/2017	South Central Highlands	0	0	0	0

Date	Location	Deaths	Injuries	Property Damage ($)	Crop Damage ($)
1/22/2017	Eastern Magic Valley	0	0	0	0
2/22/2017	South Central Highlands	0	0	0	0
2/22/2017	Eastern Magic Valley	0	0	0	0
3/01/2018	South Central Highlands	0	0	0	0
3/02/2018	Eastern Magic Valley	0	0	0	0
1/05/2019	Raft River Region	0	0	0	0
2/06/2019	Raft River Region	0	0	0	0
2/10/2019	Eastern Magic Valley	0	0	0	0
2/12/2019	Raft River Region	0	0	0	0
2/12/2019	Southern Hills-Albion Mountains	0	0	0	0
2/23/2019	Southern Hills-Albion Mountains	0	0	0	0
1/10/2020	Southern Hills-Albion Mountains	0	0	0	0
1/17/2020	Eastern Magic Valley	0	0	0	0
1/17/2020	Raft River Region	0	0	0	0
1/17/2020	Southern Hills-Albion Mountains	0	0	0	0
2/02/2020	Southern Hills-Albion Mountains	0	0	0	0
2/02/2020	Raft River Region	0	0	0	0
2/02/2020	Eastern Magic Valley	0	0	0	0
2/05/2020	Southern Hills-Albion Mountains	0	0	0	0
2/11/2021	Southern Hills-Albion Mountains	0	0	0	0
2/25/2021	Southern Hills-Albion Mountains	0	0	0	0
2/26/2021	Raft River Region	0	0	0	0
2/27/2021	Eastern Magic Valley	0	0	0	0
12/24/2021	Eastern Magic Valley	0	0	0	0
12/29/2021	Raft River Region	0	0	0	0
12/29/2021	Eastern Magic Valley	0	0	0	0
1/03/2022	Eastern Magic Valley	0	0	0	0
3/08/2022	Southern Hills-Albion Mountains	0	0	0	0
4/10/2022	Eastern Magic Valley	0	0	200k	0

Date	Location	Deaths	Injuries	Property Damage ($)	Crop Damage ($)
11/07/2022	Eastern Magic Valley	0	0	0	0
2/26/2023	Southern Hills-Albion Mountains	0	0	0	0
12/08/2023	Raft River Region	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 typically minimal, with the only recorded losses being $8,000 in 2014 and a large loss recorded in 2022 of $200,000. The description for the event in 2014 is as follows: “Four to 8 inches of snow fell in the Eastern Magic Valley with road conditions becoming dangerous with several accidents reported on interstates 84 and 86. The westbound lanes of interstate 84 were closed between Burley and Twin Falls due to an accident involving a semi between 330 am and 530 am on Christmas Day. White out conditions were reported on interstate 84.” The description for the event in 2022 is as follows: “Snow and strong winds caused whiteout conditions on

interstate 84 with a multiple vehicle accident influenced by the weather occurring just south of the Yale Road Exit at around 5:30 MDT. RWIS station ITD 12 near the incident reported 0.24 mile visibility at 415 PM and wind gusts as high as 66 mph at 445 PM. Wind gusts over 50 mph through 645 PM. Nine people were transported to hospitals. AS many as 12 semi tractor trailers were involved. Interstate 86 then closed from 630 PM MDT until 115 AM MDT on the 12th."

3.3.4 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.

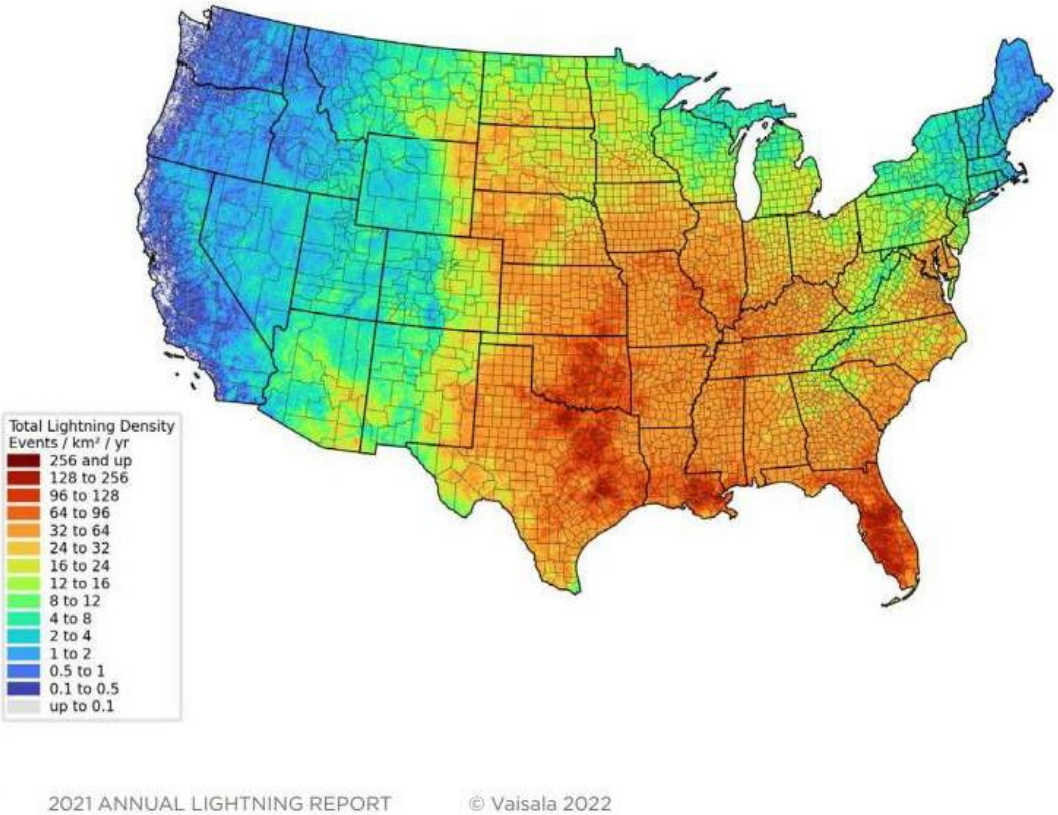

Figure 3- 3 Lightning Flash Density

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 Cassia County, although strikes affecting the public are rare with only two recorded instances since 2000 (Table 3-4).

Table 3- 4 Past Occurrences of lightning in Cassia County

Date	Fatalities	Injuries	Property Damage ($)	Crop Damage ($)
5/29/2005	0	0	10k	0
8/04/2015	0	0	1.5k	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 is less than one per year. Despite the enormous energy carried by lightning, only about 10% of strikes are fatal. Injuries include central nervous system damage, burns, cardiac effects, hearing loss and trauma. The effects of central nervous system 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 Cassia County. Of special concern are the wide-open fields and metal farm equipment.

3.3.5 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 Cassia 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 Cassia 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 1980, 34 hailstorm events have been reported in Cassia County (Table 3-6). No deaths or injuries related to hailstorms have been reported in Cassia 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 Cassia County

Date	Location	Magnitude	Deaths	Injuries	Property Damage ($)	Crop Damage ($)
7/06/1981	Cassia County	0.75	0	0	0	0
5/10/1989	Cassia County	1.00	0	0	0	0

Date	Location	Magnitude	Deaths	Injuries	Property Damage ($)	Crop Damage ($)
5/30/1996	Almo	0.75	0	0	0	0
5/21/1997	Idahome	1.75	0	0	0	0
5/31/1997	Sublett	1.00	0	0	0	0
7/10/1997	Strevell	1.0	0	0	0	0
8/10/1997	Almo	0.75	0	0	0	0
8/12/1997	Burley	1.75	0	0	0	0
6/25/1998	Albion	0.75	0	0	0	0
7/15/2001	Burley	0.75	0	0	0	0
7/15/2001	Oakley	1	0	0	0	0
7/15/2001	Burley	0.75	0	0	0	0
6/18/2004	Burley	1	0	0	0	0
6/18/2004	Albion	0.75	0	0	0	0
6/18/2004	Albion	0.75	0	0	0	0
6/19/2004	Oakley	1	0	0	0	0
7/26/2004	Oakley	0.75	0	0	0	0
7/26/2004	Oakley	0.75	0	0	0	0
5/29/2005	Oakley	0.75	0	0	0	0
5/29/2005	Oakley	0.88	0	0	0	0
5/29/2005	Elba	1	0	0	0	0
5/29/2005	Elba	1.25	0	0	0	0
6/11/2006	Burley	1	0	0	0	0
8/22/2007	Burley	1	0	0	0	0
8/22/2007	Albion	1.75	0	0	0	0
6/21/2009	Idahome	1.5	0	0	0	0
6/1/2015	Almo	1	0	0	0	0
6/15/2015	Malta	1	0	0	0	0
5/26/2018	Burley	1.25	0	0	0	0
5/30/2018	Almo	1.25	0	0	0	0
9/10/2019	Burley	1.75	0	0	0	0
5/24/2023	Burley	1.75	0	0	0	0
5/26/2023	Heglar	1	0	0	0	0
8/26/2023	Churchill	1	0	0	0	0

Impacts

The severity of hailstorm impacts in Cassia 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 Cassia 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. Cassia County has no reported damages to property or crops from hail.

3.3.6 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 Cassia 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 numerous high wind, strong wind, and thunderstorm events recorded in Cassia County, since 1980. Incidents with reported deaths, injuries or damage are shown below. (Table 3-8a). There have been no deaths reported due to high winds but there have been 13 injuries reported and $109,000 in property damage. Numerous events have been recorded due to thunderstorm winds (Table 3-8b). Two deaths were reports in 1988 as severe thunderstorm winds caused reduced visibility conditions on I- 84 causing an eight vehicle pile-up. Ten injuries have been reported and $456,000 in property damage. 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 eight tornado events recorded since 2000 in Cassia County (Table 3-10).

Table 3- 8a Cassia County High Wind Events (High Wind)

Date	Region	Magnitude (kts)	Deaths	Injuries	Property Damage ($)	Crop Damage ($)
6/08/2000	South Central Highlands	37	0	0	1k	0
6/15/2000	Eastern Magic Valley	42	0	60k	0	0
5/07/2002	Eastern Magic Valley	40	0	13	0	0

Date	Region	Magnitude (kts)	Deaths	Injuries	Property Damage ($)	Crop Damage ($)
12/14/2003	Eastern Magic Valley	43	0	0	2k	0
4/13/2005	Eastern Magic Valley	44	0	0	5k	0
3/17/2014	Eastern Magic Valley	63	0	0	4k	0
3/28/2021	Eastern Magic Valley	57	0	0	1k	0
3/10/2023	Eastern Magic Valley	65	0	0	36k	0
Total			0	13	109k	0

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

Date	Region	Magnitude (mph)	Deaths	Injuries	Property Damage ($)	Crop Damage ($)
8/10/1988	Cassia County	52	2	10	0	0
5/03/1993	Cassia County	0	0	0	50k	0
7/05/2001	Malta	60	0	0	70k	0
6/22/2005	Cassia County	55	0	0	200k	0
3/25/2006	Oakley	60	0	0	43k	0
9/04/2007	60	0	0	0	2k	0
5/18/2009	Burley	56	0	0	30k	0
3/10/2011	Burley	52	0	0	10k	0
7/9/2012	Burley	68	0	0	4k	0
7/07/2013	Burley	56	0	0	2k	0
5/20/2014	Declo	56	0	0	2k	0
10/19/2019	View	70	0	0	40k	0
8/06/2021	Burley	52	0	0	1k	0
5/13/2024	Burley	52	0	0	1k	0
Total			2	10	456k	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

Return Period (Years)	Probability (%)	Maximum Wind (mph)
200	0.5	55

Table 3- 10 Historic Tornado Events in Cassia County

Date	Location	Fatalities	Injuries	Property Damage ($)	Crop Damage ($)
8/24/1986	Cassia	0	0	0	0
8/04/1991	Cassia	0	0	0	0
6/14/1992	Cassia	0	0	0	0
6/08/1998	Burley	0	0	4k	0
6/24/2004	Burley	0	0	0	0
4/08/2009	Burley	0	0	0	0
9/01/2012	Declo	0	0	0	0
9/01/2012	Albion	0	0	0	0
8/02/2019	Burley	0	0	0	0
5/26/2023	Almo	0	0	0	0

Loss Estimates

Based on past occurrences in Cassia County, the estimated damages from 1980 to 2023 from wind total approximates to $566,000, and the damage that occurred from the 1980 to 2023 from tornadoes totals approximately to $4,000. 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 Flooding

Hazard Overview			
Location:	County-Wide		
Frequency/Previous Occurrence:	Low		
Impact/Consequence:	Moderate		
Community Vulnerability:	Moderate		
Overall Hazard Ranking by Jurisdiction			
Albion	Burley	Declo	Malta
Low	High	Moderate	Low
	Oakley		
	High		

Description

Floods are one of the most common hazards across the US, and FEMA's administration of the National Flood Insurance Program (NFIP) makes it one of the highest profile hazards.

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

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 every one 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.

The following are terms commonly used when discussing flooding:

- *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.

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.

A flood hazard map for Cassia County is shown below (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.

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.

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

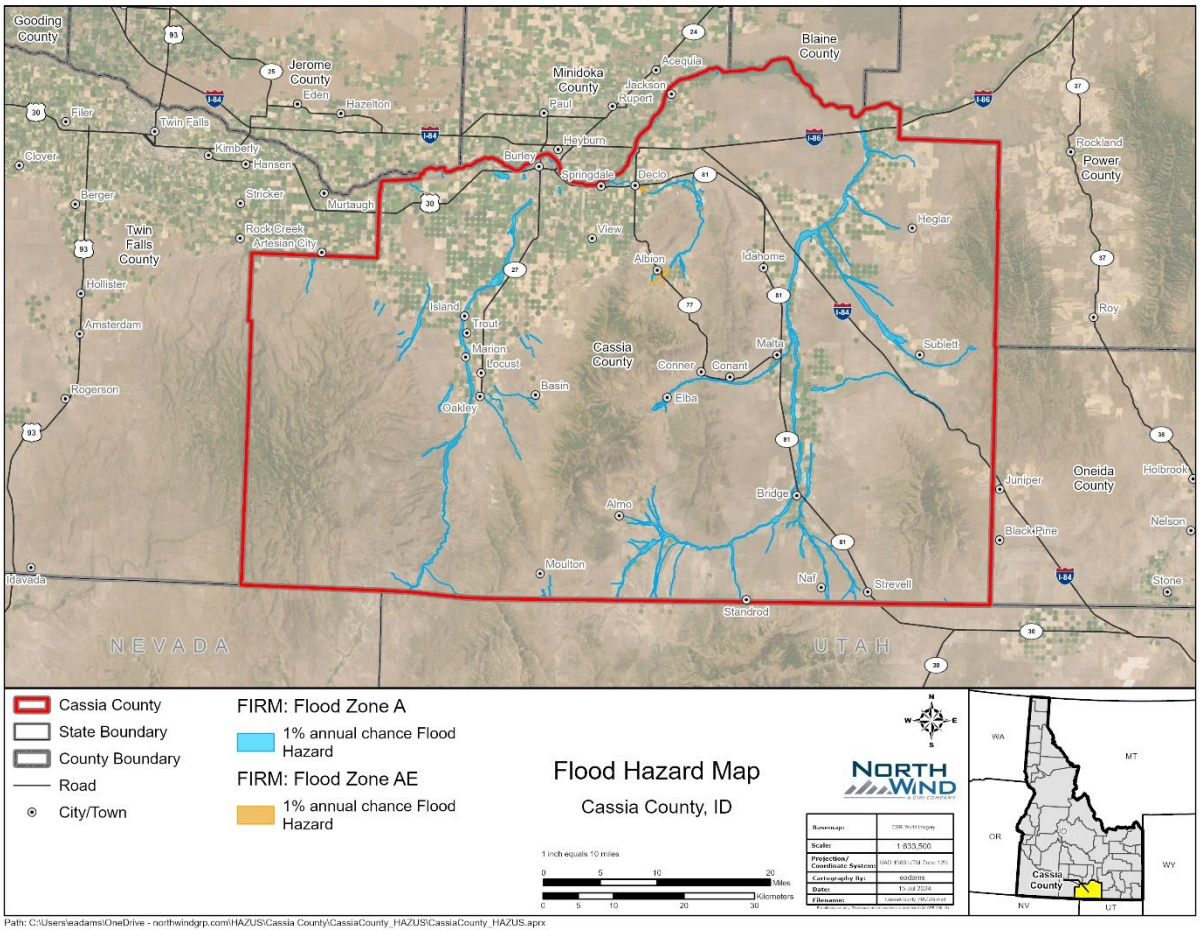

Figure 3- 4 Cassia Flood Hazard Map

Past Occurrences

Most of the flooding that has historically occurred in Cassia County can be ascribed to flash flooding in intermittent streams. Review of local news sources, state and national databases, and discussion with county officials indicated that the majority of flooding events happen in the early spring to early summer. The most damaging events happen in January and February when an early thaw runoff is compounded by rain. The Snake River, Raft River, Goose Creek, Trapper Creek, Birch Creek, and Cottonwood Creek are the major rivers and streams in the county that have a flooding potential. There is fairly good historic stream gage data for the flow on these streams, but a flood stage has not been calculated at those gauges.

Cassia County has recorded five flood events from 1980 to present, with 2017 being the worst year on record resulting in $5.415 million in property damage.

Cassia County has reported 22 flash flood events from 1980 through 2023 amounting to $129,500 and one death.

Flooding events in Cassia County are seasonal, primarily occurring in the spring due to snow runoff. There have been five total flood events recorded between 1980 and 2023 (Table 3-11) amounting to $5.415 million in damages.

Table 3- 11 Cassia County Historic Floods

Date	Location	Flooding Type	Deaths	Injuries	Property Damage ($)	Crop Damage ($)
5/16/1996	Burley	Flash Flood	0	0	0	0
5/16/1996	Malta	Flash Flood	1	1	0	0
4/21/1997	Cassia Power	Flood	0	0	0	0
6/01/1997	Eastern Magic Valley	Flood	0	0	0	0
6/13/1997	Oakley	Flash Flood	0	0	0	0
8/12/1997	Heglar	Flash Flood	0	0	0	0
8/12/1997	Heglar	Flash Flood	0	0	0	0
7/11/2001	South Central Portion	Flash Flood	0	0	0	0
7/14/2001	Oakley	Flash Flood	0	0	0	0
8/03/2003	Malta	Flash Flood	0	0	0	0
8/21/2003	Burley	Flash Flood	0	0	0	0
7/26/2004	Oakley	Flash Flood	0	0	0	0
7/26/2004	Oakley	Flash Flood	0	0	3k	0
8/17/2004	Oakley	Flash Flood	0	0	0	0
5/11/2005	Albion	Flash Flood	0	0	6.5k	0
5/16/2005	Central Portion	Flash Flood	0	0	110k	0
7/04/2009	Almo	Flash Flood	0	0	0	0
9/02/2013	Oakley	Flash Flood	0	0	4k	0
9/03/2013	Oakley	Flash Flood	0	0	6k	0
1/08/2017	Burley	Flood	0	0	0	0
2/04/2017	Burley	Flood	0	0	5.24M	0
3/01/2017	Burley	Flood	0	0	175k	0
7/30/2021	Heglar	Flash Flood	0	0	0	0
7/30/2021	Oakley	Flash Flood	0	0	0	0
7/31/2021	Oakley	Flash Flood	0	0	0	0
5/24/2023	Churchill	Flash Flood	0	0	0	0
5/24/2023	Burley	Flash Flood	0	0	0	0

Future Occurrences

Flooding is somewhat frequent in Cassia County and 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 1980 through 2023, flooding events occurred once every year. A major flood event has every few years.

[(Current Year)2023] – [(Historical Year)1990] = 43 years

[(Years on Record) 43] / [(Number of Events) 27] = 1.6 years

Based on historical probability, a significant flood may occur every 1.6 years in Cassia County.

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.

High levels of vulnerability are limited to the northern border of the county along the Snake River and near the Sawtooth National Forest in the southern portion of the county. The highest levels of vulnerability are in Burley near the Snake River and Oakley near the Sawtooth National Forest.

Most of Cassia County's population does not reside in a flood-exposed area; however, more than 8,000 people are located in census blocks that can in some way be inundated by either the 100-year or 500-year flood events. The communities of Burley, Declo, and Oakley all exhibit some level of exposure, as does the unincorporated areas. Structures and structural values show similar patterns of exposure. Although the Cities of Albion and Malta do not show any structural and population exposure to floods, the cities may be at risk to future flood events as both cities have had flash floods occur within the past 20 years resulting in property damage.

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 and 50-yearflood.

The number of structures and estimated damages for each area as follows:

Albion and Malta have no populations exposed to floods. No structures would be exposed to a 100-year and 500-year flood.

Burley has approximately 2,464 people that would be impacted by a flood and approximately 854 structures resulting in $350M in damages.

It is estimated that Declo has 56 people exposed to 100-year and 500-year floods and 21 structures resulting in $6M in damages.

Oakley has 156 people in flood zones and approximately 58 structures resulting in $10M in potential damages.

Cassia County has approximately 6,120 people in flood zones and 2,125 structures that would result in $900M in potential 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 Cassia County, the estimated loss is in the $1,000,000s. 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 27 have occurred in the county since 1980; therefore, the overall frequency for these events is somewhat high.

3.5 Dam Failure

Hazard Overview			
Location:		County-Wide	
Frequency/Previous Occurrence:		Low	
Impact/Consequence:		Low	
Community Vulnerability:		Moderate	
Overall Hazard Ranking by Jurisdiction			
Albion	Burley	Declo	Malta
Low	Moderate	Low	Low
	Oakley		
	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

During the winter of 1983-1984 record amounts of snowfall accumulated in the hills above the Oakley Reservoir on Goose Creek. In January of 1984, SCS issued a bulletin stating that the snowpack amounts in Southern Idaho were as much as 300 percent of normal. By March, more 50,000 acre feet of water was in the reservoir, and the SCS estimated that runoff in the period April to July would be 48, 500 acre feet. The bulletin for the first of April estimated drainage of the snowpack into Oakley Reservoir at 132 percent of normal. With rainfall in early April and more snowfall adding inches to both the reservoir and the hills in mid to late April concern for how much water the reservoir would be able to hold grew. It became apparent that the reservoir was not going to be able to contain all of the runoff and would spill over threatening the community.

In an “unprecedented” effort between the U.S. Army Corps of Engineers, the National Guard, canal companies, businesses, religious organizations, local civic groups and private citizens a canal was built to safely channel the water to the Snake River. This project was accomplished in a record breaking three days and prevented serious damage to farmland and the community. An ASCS estimate of the value of protecting the farmland alone was approximately sixty million dollars. This amount does not include an estimate of damages to the communities downstream or the buildings and infrastructure within Oakley.

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

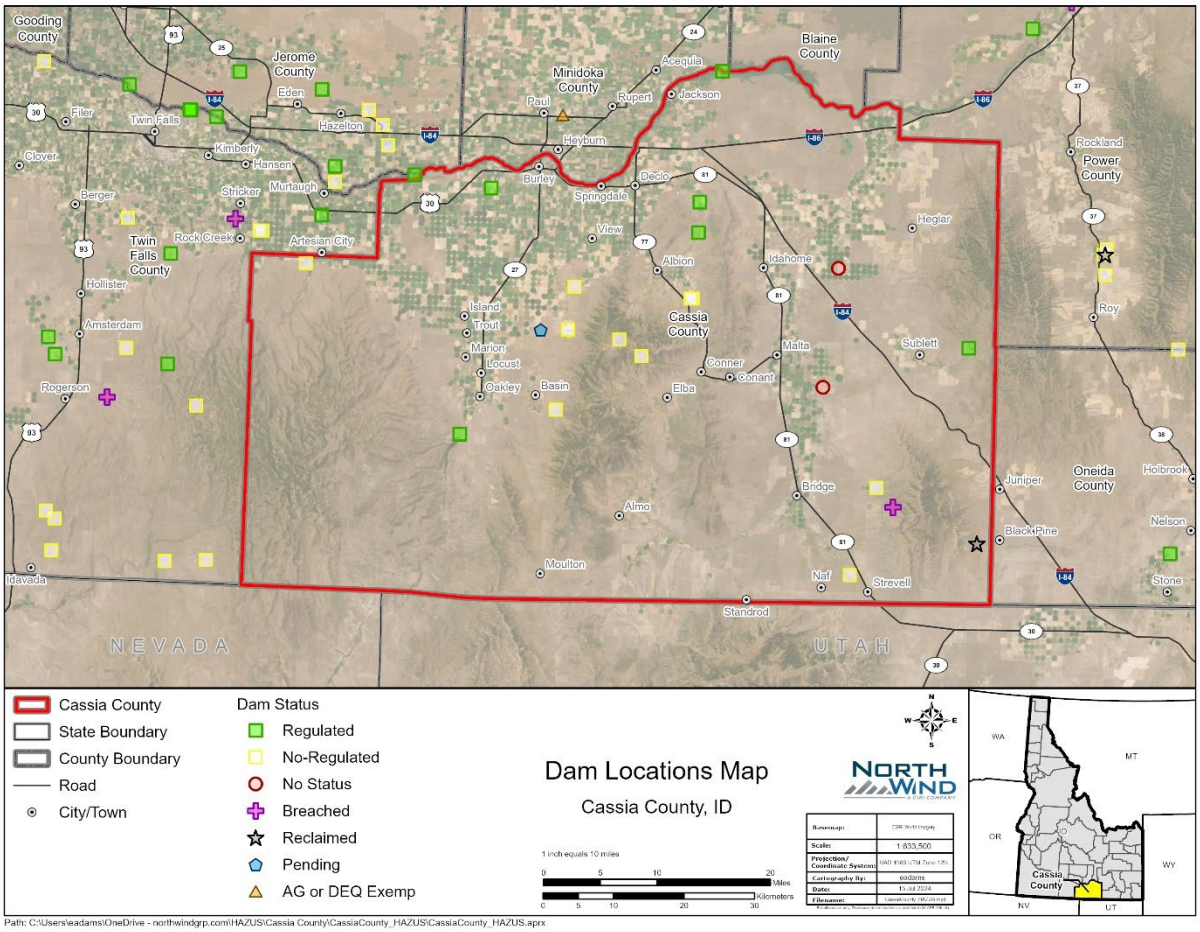

Figure 3- 5 Dams in Cassia County

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.

Table 3- 12 Cassia County Regulated Dams

Name	Source	Status	Year Completed	Dam Height (ft)	Normal Storage (acre-ft)	Downstream Hazard Potential	Size Classification
Oakley Dam	Goose Creek / Snake River	Regulated	1916	144	76,000	Significant	Large
Lake Cleveland Dam	Lake Cleveland / Marsh Creek	Regulated	1914	6	58.6	Low	Small
Sublett Dam	Sublett Creek	Regulated	1914	47	2,400	High	Intermediate
Dewey Dam	Marsh Creek / Snake River	Regulated	1913	30	225	Significant	Small
Minidoka Dam	Snake River / Columbia River	Regulated	1906	88	210,200	High	Large

Source: Dam Safety Program Research (idaho.gov)

Hazard Summary

Impacts from dam failures in Cassia County could be high and extremely severe that could lead to direct loss of life and extensive property damage. The major use for dams is irrigation in very rural parts of the County.

Property and populations located in the downstream inundation areas of dams, and development and populations proximate to levees and canals are at risk of exposure to impoundment structure failure. A failure of the Oakley Reservoir Dam would have significant impacts on the City of Oakley and Burley. While the area is fairly flat much of the City of Burley and all of the City of Oakley would be inundated.

3.6 Earthquake

Hazard Overview	
Location:	County-Wide
Frequency/Previous Occurrence:	Low
Impact/Consequence:	Low
Community Vulnerability:	Moderate
Overall Hazard Ranking by Jurisdiction	

Albion	Burley	Declo	Malta
Low	Low	Low	Low
	Oakley		
	Low		

Description

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

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

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. According to USGS, there are no Quaternary faults located in Cassia County.

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 3-8). 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.

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

Damages associated with earthquakes are influenced by the following:

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

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

- Shaking – Ranging from minor to severe, minor shaking can cause objects to fall and other minimal damage, while severe shaking causing large structures to collapse and extensive damages. Unreinforced masonry and wood frame structures are most prone to earthquake damage. Non-structural falling hazards include loose or poorly secured objects, and include objects such as bookcases, wall hangings, and building facades. These objects can cause additional structural damage, and injury or fatality. Shaking can also rupture dams, destroy power and telephone lines, gas, sewer, or water mains, and can cause fires or other hazards that impair response and recovery efforts.

- Ground Displacement – The most dramatic visual evidence of an earthquake, ground displacement often occurs along a fault line. Ground can be thrust upward, subside, or move laterally given a severe enough earthquake. Damages from ground displacement is normally limited to utility lines and transportation infrastructure, though structures situated on fault lines can also be impacted.

- Landslides and Avalanches – Earthquakes often cause cascading hazards. If meteorological conditions are right, such as in-place snowpack or recent rain events, even small earthquakes can cause rock falls, landslides, or debris flows.

- Liquefaction and Subsidence – Liquefaction occurs when the energy released from an earthquake weakens the strength and stiffness of a soil, while subsidence is the caving in or sinking of an area. Fill and saturated soils are notably at risk of liquefaction, which can result in widespread structural damage. Liquefaction and subsidence can also impact surface and subsurface water flow, which can impair individual or community wells as well as flash flood-like water flow. These impacts can likewise impact septic systems, which create additional health risks.

- Seiches – Oscillating waves in an enclosed body of water caused by an earthquake are termed seiches. Although not commonly damaging given their rarity, seiches can resemble tsunami characteristics and destructive potential. Shoreline development along a lake in earthquake- prone areas are then at risk of damage, as well as dams or flood mitigation structures such as levees. Seiches can also cause hydrothermal explosions. 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 3-9, the figure displays a 2% probability exceedance over 50 years.

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 3-8 Modified Mercalli Intensity Scale

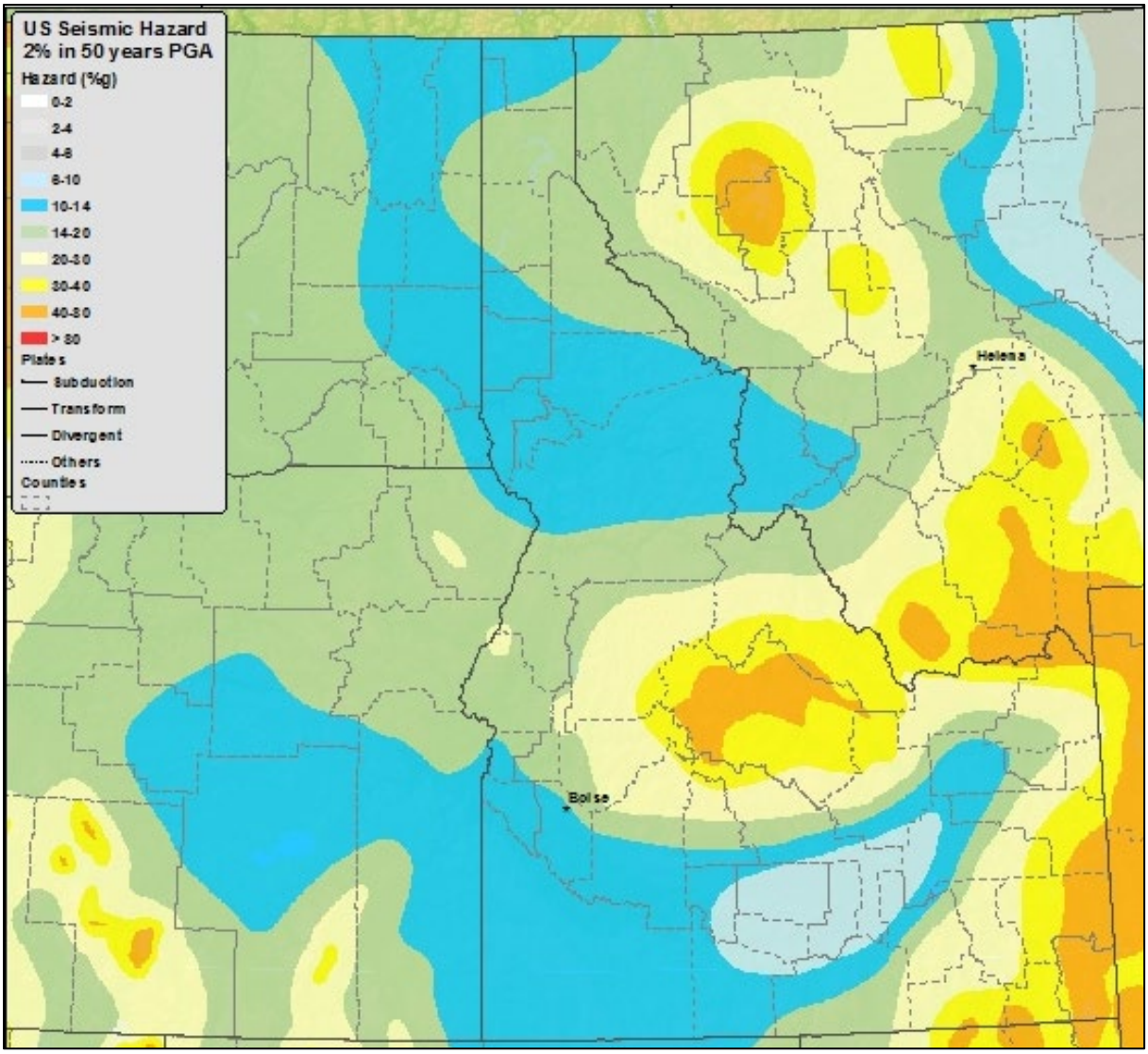

Figure 3- 9 Seismic Acceleration Map of Idaho

Past Occurrences

The County doesn't have any epicenters of major historic earthquakes and only two major earthquakes have been felt within the County. Table 3-13 captures major earthquake events from 1900 to 2023 that have been felt in Cassia 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 10-20% chance that an earthquake could happen in Cassia County in any given year.

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

Table 3- 13 Historic Earthquakes in Cassia County

Date	Magnitude	Location
10/03/1915	7.8	Pleasant Valley, Nevada
03/12/1934	6.6	Kosomo, Utah
05/06/1934	5.5	UNK
10/19/1935	6.3	Helena, Montana
10/31/1935	6	Helena, Montana
11/23/1947	6.3	Southwest, Montana
12/16/1954	7.1	Fairview Peak, Nevada
8/18/1595	7.1	Hebgen Lake, Montana
8/30/1962	5.7	Cache Valley
2/16/1963	4.5	UNK
3/28/1975	6.1	Pocatello, Idaho
3/29/1975	4.7	Pocatello, Idaho
11/30/1983	4.7	Borah Peak, Idaho
11/19/1983	7.3	Challis Area, Idaho
8/22/1984	5.8	

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.

Cassia County's population is located in a low PGA zone (10-20%).

Based on a 7.0 magnitude earthquake, approximately 132 structures valued at $16 million in Albion would be damaged, 3,050 structures valued at over $750 million in Burley would be damaged, 102 structures valued at $9 million would be damaged in Declo, 60 structures valued at $7 million would be damaged in Malta, 230 structures valued at $26 million in Oakley would be damaged, and approximately 3,600 structures valued at over $800 million would be damaged in the incorporated Cassia County.

3.7 Wildfire

Hazard Overview			
Location:		County-Wide	
Frequency/Previous Occurrence:		Moderate	
Impact/Consequence:		High	
Community Vulnerability:		Moderate	
Overall Hazard Ranking by Jurisdiction			
Albion	Burley	Declo	Malta
Moderate	Low	Low	High
	Oakley		
	Moderate		

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 Cassia 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 Cassia County include Ace Fire Protection Association, Albion Fire Protection District, Burley Fire Department, Declo Fire Department, Oakley Fire Department, and Raft River Fire Protection District.

Wildfires that occur in the WUI were examined because they pose risk to county vulnerabilities. WUI zones have been generated as displayed in Figure 3-10. 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.

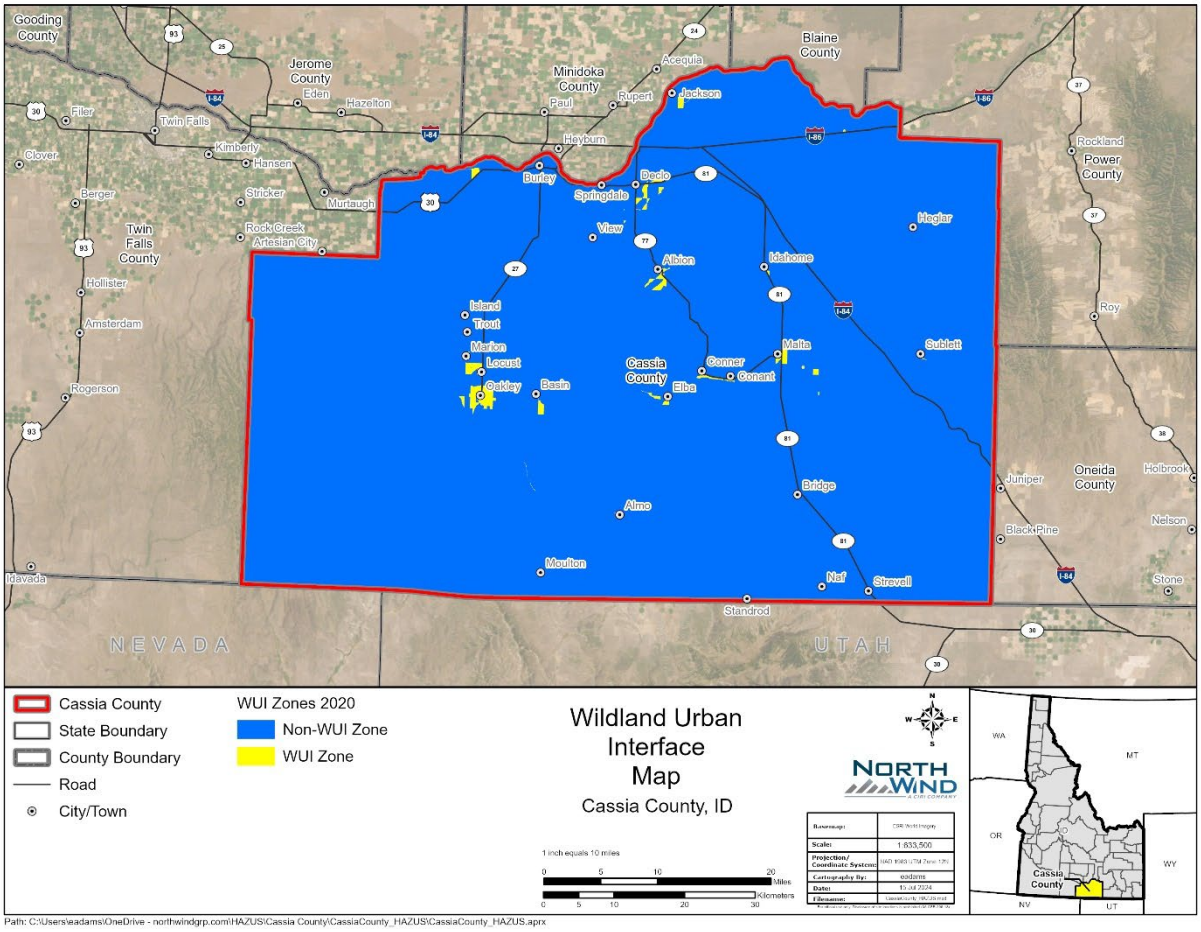

Figure 3-10. WUI Zones

Past Occurrences

To establish a frequency, historic fire data was collected. Naturally occurring wildfires are typically located in the forested areas. Human-caused wildfires are typically located nearer developed areas. The table below (3-14) shows historical fires in Cassia County since 1980.

Table 3- 14 Cassia County Historic Fires

Year	Fire Name	Cause	Acres Burned
1980	Pasture 1	Human	3,315
1980	Nilesgulch	Humna	1,322
1981	Raft River	Natural	1,800
1981	Basalt	Natural	11,134
1981	Water Cyn	Natural	3,800
1981	Hepworth	Human	2,200
1981	SK East 2	Natural	4,160
1985	Cliff Holl	Human	2,600
1986	Mackay	Natural	3,530
1986	Red Rock	Natural	1,800
1987	Harrington	Human	1,768
1987	Red Rock	Human	1,200
1988	Middle Mtn	Natural	1,500
1992	Heglar Cyn	Natural	1,920
1996	Shoepasture	-	1,640
1996	Wilson Gul	-	3,400
1996	Lakewalcot	Natural	12,986
1996	Elba	Human	11,320
1996	Sweetzer	Natural	1,000
1999	Cottonwood	Natural	1,526
1999	I86 MP4	Human	1,330
1999	Wilson Gulch	Human	3,709
1999	3S Milner Bt	Human	1,037
2000	Birch Creek2	Natural	1,198
2000	Devine Can	Natural	2,435
2000	Refuge	Natural	1,838
2000	E Fall creek	Natural	8,136
2000	Kane Creek	Natural	1,503
2000	Naf	Natural	6,835
2000	5N Mlata	Natural	1,300
2000	Calder Creek	Natural	7,087
2000	Coal Banks	Natural	5,933
2000	Sand	Natural	2,898
2000	C Rocks	Natural	10,586
2000	MNWR	Natural	1,102
2001	Black Ridge	Natural	2,759
2001	Main Heglar	Natural	6,475
2001	I84 MP223	Human	1,521

Year	Fire Name	Cause	Acres Burned
2001	Sublett Res	Natural	3,873
2002	Walcott 1	Natural	1,300
2002	Horse Butte	Natural	10,422
2006	Raft River	Natural	1,158
2006	Conner	Human	1,025
2006	March Creek	Human	1,144
2007	Two Spots	Natural	3,086
2007	Black Pine 2	Natural	73,148
2007	Jim Sage	Natural	5,265
2007	Gun Canyon	Natural	7,030
2007	Middle Mountain	Natural	2,300
2010	Rainbow Road	Human	4,388
2010	Emery	Natural	3,785
2010	MM 11	Human	1,826
2012	Hotwell	Natural	3,056
2012	Conner Creek	Human	1,994
2012	Caulder Creek	Human	3,217
2012	Cave Canyon	Natural	88,909
2012	Deer Hollow	Natural	5,441
2014	Woodworth	Human	1,198

Figure 3-11, Figure 3-12, Figure 3-13, and Figure 3-14 show the risk of wildfires based on multiple categories including WUI zones, fire history, vegetation class, and wildfire risk. Figure 3-15 displays the overall fire risk in Idaho. 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 Cassia 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 Cassia 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.

Albion, Burley, Declo, and Malta are not located in WUI zones. Oakley is located in the southern part of the county with a low-moderate to moderate fire hazard. The majority of residents and structures are located in the northern part of the county with a low-moderate to moderate fire hazard.

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.

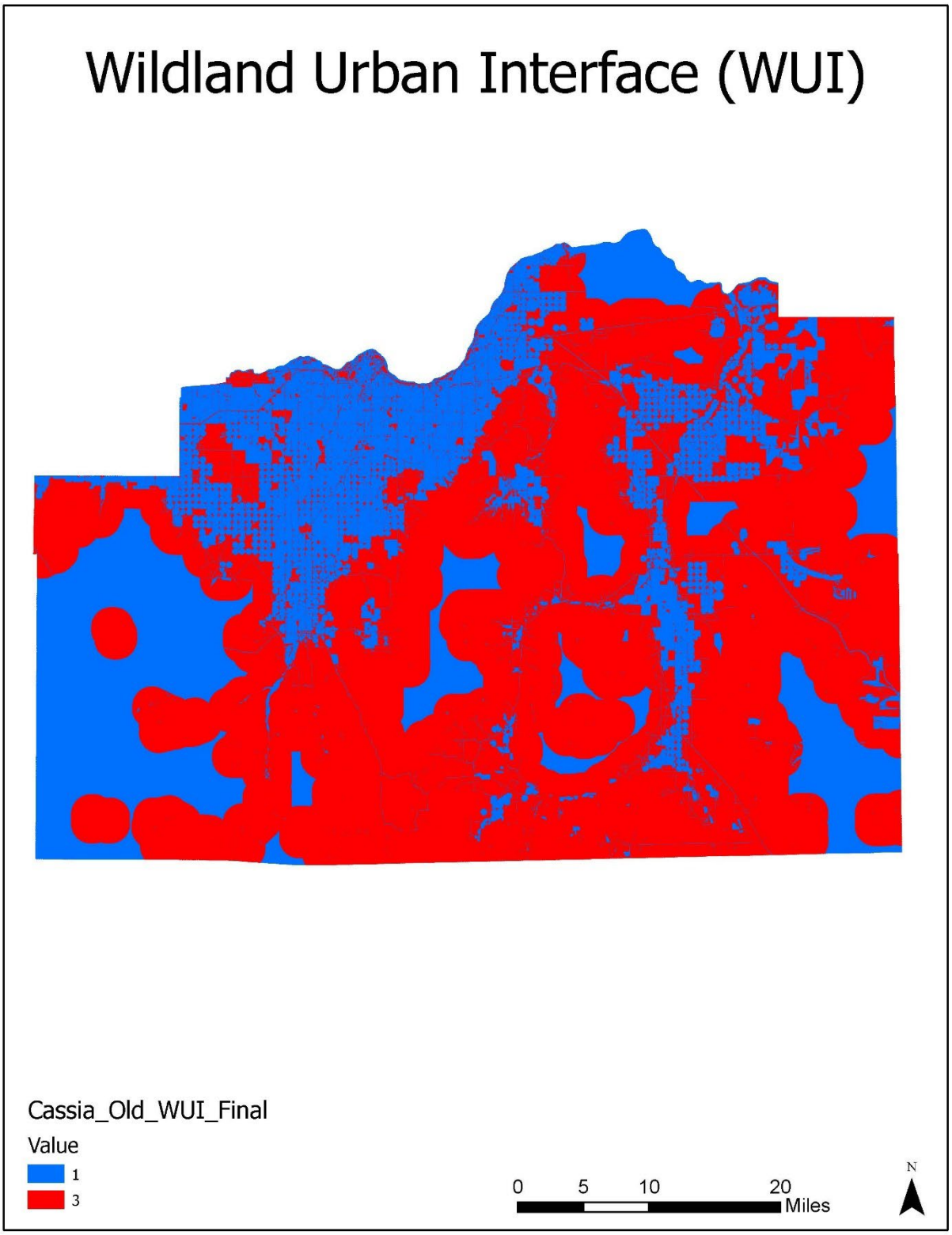

Figure 3- 6 WUI Zones

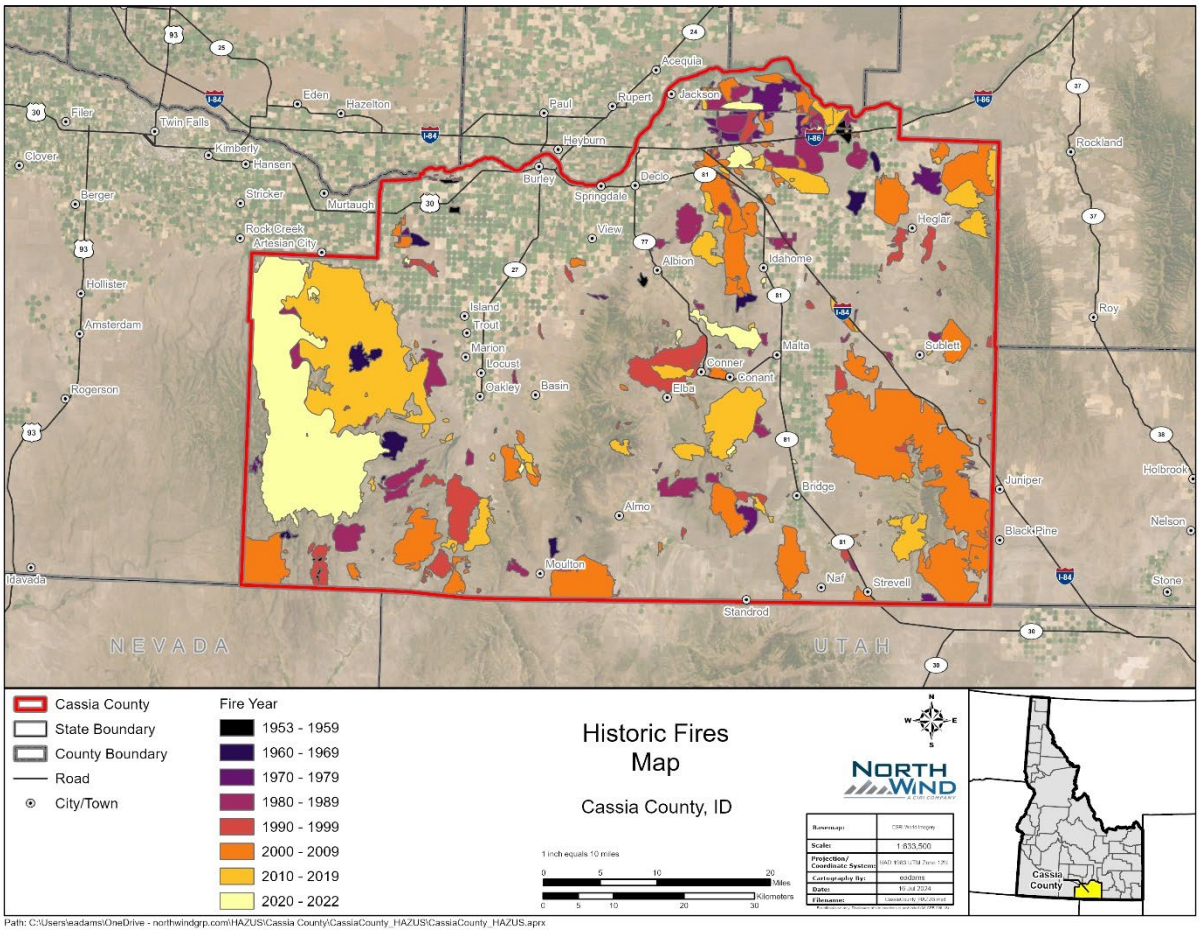

Figure 3- 7 Cassia County Fire History

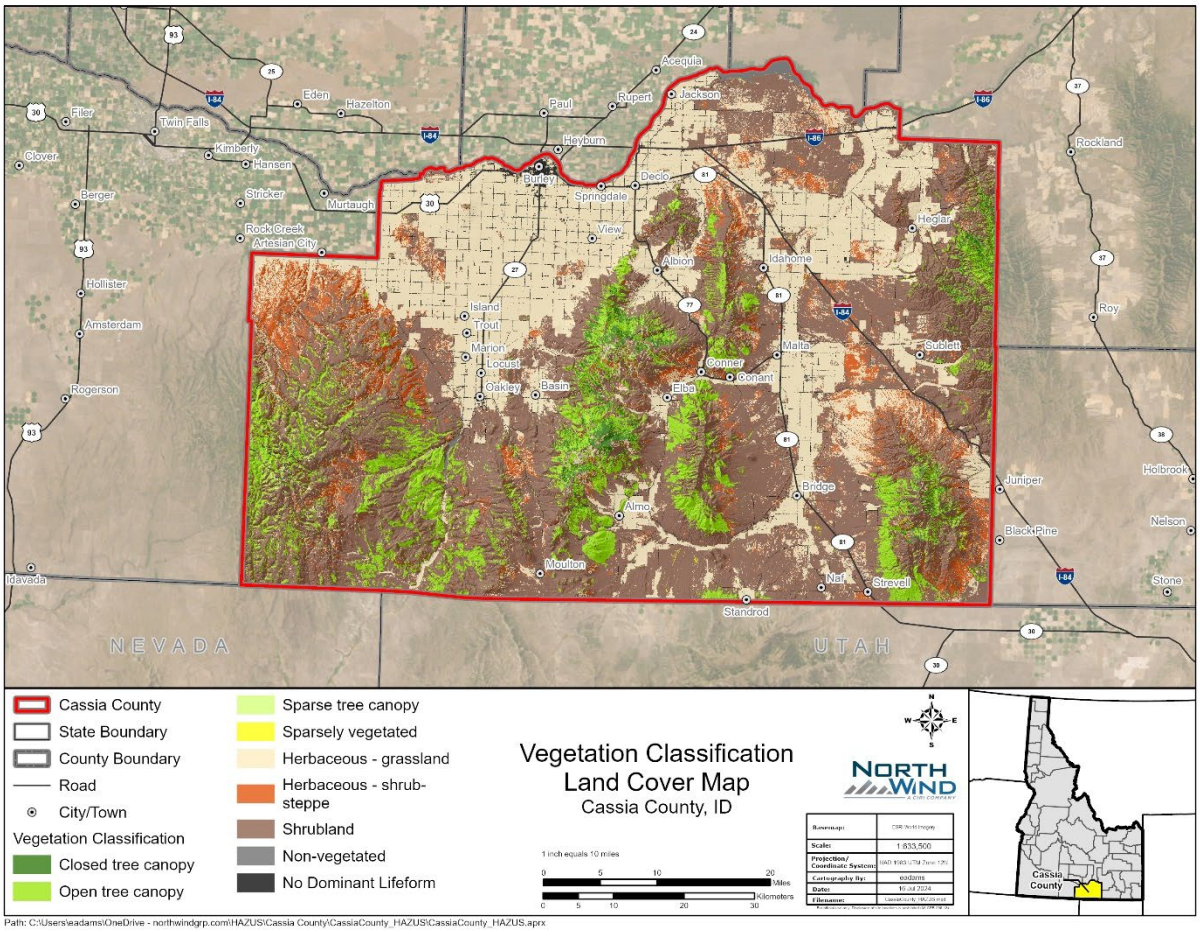

Figure 3-8 Vegetation Class in Cassia County

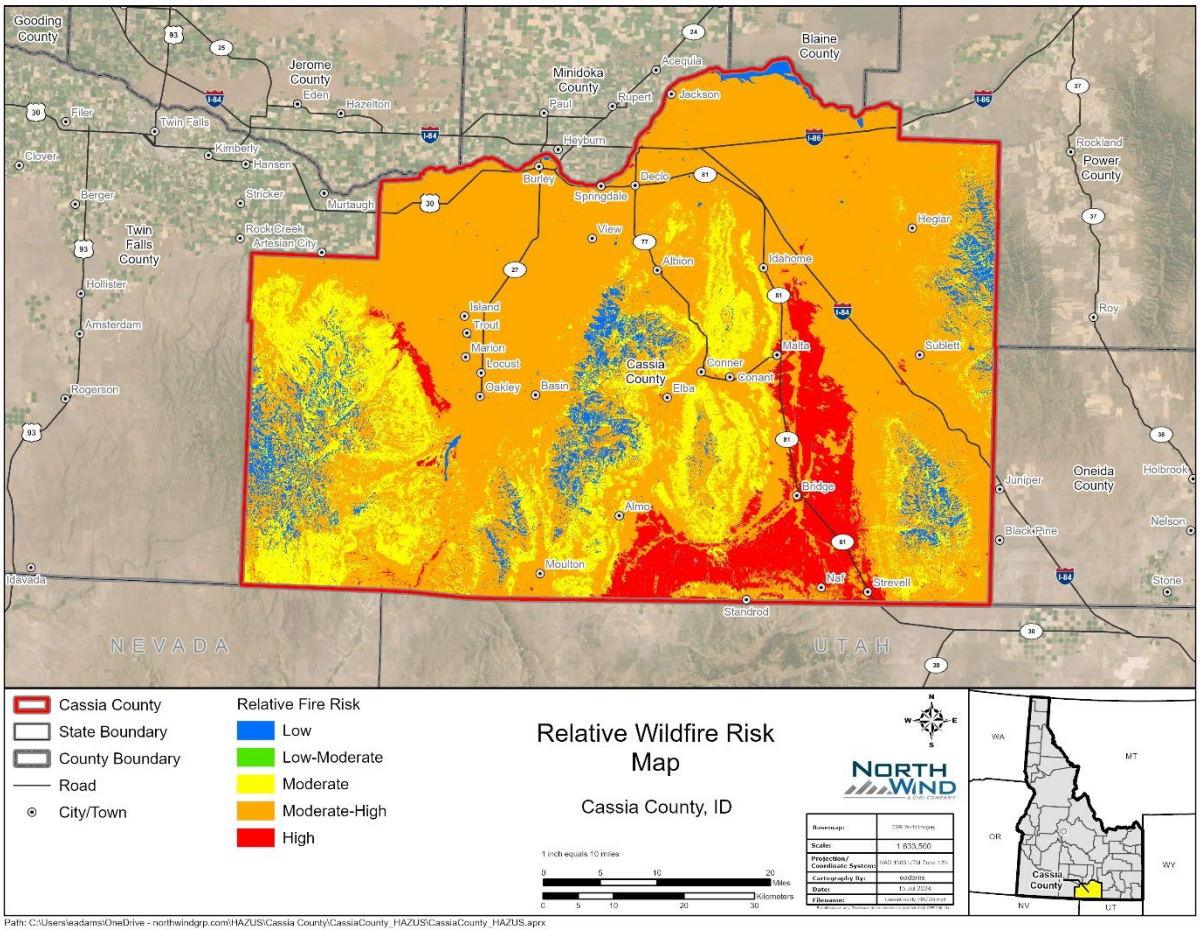

Figure 3- 9 Fire Risk

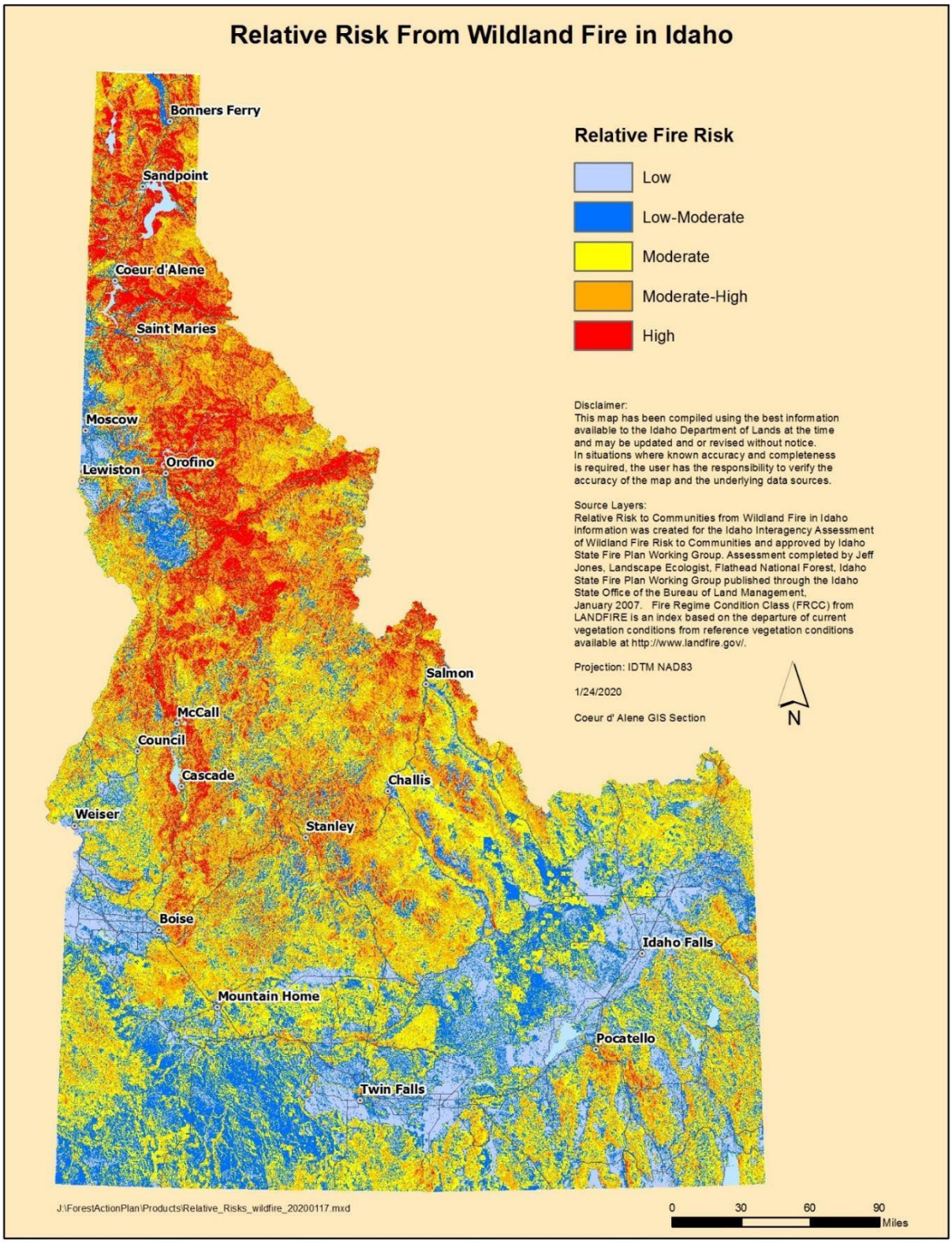

Figure 3- 10 Idaho Relative Wildfire Risk Map

3.8 Non-Natural Hazards

3.8.1 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 2024 there were approximately 770 million cases and 7 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.

3.8.2 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.

3.8.3 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.

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.

3.8.4 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 2023 reporting year, 30 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 Cassia County would be related to response activities which include evacuation-related business interruption and cleanup costs.

3.8.5 Civil Disturbances

Civil disturbances can occur in all communities given the myriad of reasons that often drive civil unrest, protest, and terrorism. They 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.

Civil disturbances 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.

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.

3.8.6 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.

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- 2 Building Replacement Value - County and City Owned

Jurisdiction	2024 Value ($)
Cassia County	7,572,033
Albion/Malta	1,666,605
Burley	955,712
Declo	933,910
Oakley	1,325,018
Unincorporated	2,690,788

4.2 Public Services and Facilities

Cassia 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 Cassia County provide residents with water and sewer utilities. The cities of Burley and Oakley have their own water supply systems and belong to the Idaho Rural Water Association. Albion, Declo and Malta do not have their own water supply systems and are supplied by the Burley Water department and Rupert Water Department.

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 South

Central 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 Cassia County comes from surface water, spring water and active wells; no drinking water comes from the Snake River. Mountain snowpack in the Sawtooth National Forest provides a large amount of recharge.

There are several wells and water associations serving the County. There are approximately 30 wells, 7 spring sources and private water systems in the County. 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 Burley Water Department serves approximately 10,345 customers within the city limits and in portions of Cassia County. The Water Department personnel are responsible for operating and maintaining water pipe, water supply wells, water storage tanks, booster pumping stations and pressure reducing valves.

Waste Management

The City of Burley Sanitation Department provides residential and commercial solid waste collection for the City of Burley. The Department also provides recycling throughout the city for public recycling. The city of Declo waste is managed by the Minidoka waste service. Malta waste is handled by AA Trash Removal and the Southern Idaho Solid Waste Dump. Oakley waste management is handled by Western Waste Services. Albion waste is handled by the Southern Idaho Solid Waste Dump.

Fire Protection

Cassia County has eight Fire Districts that operate within the county for fire protection and response. Of the eight districts, six fire departments are located within Cassia County (listed below):

1. ACE Fire District (Malta, ID)
2. Albion Volunteer Fire Protection District (Albion, ID)
3. Minidoka Fire District (Heyburn, ID)
4. Oakley Fire Protection District (Oakley, ID)
5. Raft River Fire District (Malta, ID)
6. Rock Creek Fire District (Kimberly, ID)
7. Burley Fire Department (Burley, ID)
8. North Cassia Rural/Declo Fire (Declo, ID)

Public Safety

The Cassia County Sherriff's Office is the governing body responsible for law enforcement in the county as a whole. The Sheriff's Department provides 911 Emergency Services.

The cities of Albion, Burley, Declo, Malta, and Oakley do not have their own police departments.

Health Care

Intermountain Cassia Regional Hospital is a general medical center located in Burley, Idaho. The Idaho Department of Health and Welfare has an office located in Burley that provides Child and Family health services.

Emergency Management Services

The Cassia 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.

- **Albion Light** supplies electric for the City of Albion
- **Burley Municipal** provides electrical service in Burley and surrounding areas.
- **Declo Municipal** provides electrical service within Declo.
- **Raft River Coop** provides electrical service in the City of Malta.
- **The Idaho Power Company** supplies electric distribution lines for the City of Oakley.
- **ATC** supplies telecom service within Albion and Malta.
- **CenturyLink** supplies telecom service in the northern part of the County.
- **Project Mutual** supplies telecom service in the City of Oakley.
- **Intermountain Gas Company** provides services to the northern cities in the County. Albion and Oakley do not have gas service within the city. 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

The main surface water in Cassia County is the Snake River, which flows along the northern border of the County and splits Minidoka County and Cassia County. Other main resources include the Oakley Valley Area and the Raft River Basin. Sub-resources for the Raft River Basin include Lower Raft River, Upper Raft River, Cassia Creek and Almo Creek. Sub-resources for the Oakley Valley Area include Basin Creek, Birch Creek, Goose Creek, Marsh Creek, Big Cottonwood Creek, Dry Creek, and Golden Valley.

As a part of the Clean Water Act, the County and city must comply with the State of Idaho water quality standards. This includes wellhead protection and frequent well testing programs to assist in monitoring nitrate levels found in groundwater.

Cassia County has no naturally occurring lakes, as Lake Walcott is located in Minidoka County.

4.4 Housing

There were an estimated 8,838 housing units in Cassia County according to the 2020 Decennial Census with a 69.3% ownership rate. The majority of housing units are located in the northern part of the county near Burley. 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.

4.5 Educational Facilities

The Cassia County Joint District is the only school district in Cassia County and has 16 schools ranging from kindergarten through grade 12. The city of Albion has one primary school. The city of Burley has five primary schools and four secondary schools. The city of Declo has one primary school, one intermediate school and one secondary school. This city of Malta has one primary school and one secondary school. The city of Oakley has one primary school and one secondary school.

There are no post-secondary schools operating in Cassia County.

4.6 Recreation Areas

Historical recreation sites in Cassia County include: Big Cottonwood Wildlife Management Area, California Trail Sites, Castle Rocks State Park, City of Rocks National Reserve, Diamondfield Jack, Hudspeth's Cutoff, Lake Walcott, Milner Dam, Minidoka Dam, Oakley Dam – Goose Creek Reservoir, Oregon Trail, Pomerelle Ski Resort, Sawtooth National Forest, Snake River, and Starrh's Ferry Site.

The Cities of Albion, Malta, and Oakley all have one park located within the city limits. The City of Declo contains two parks within the city limits. The City of Burley contains five public parks within the city and one golf course within the city limits.

The County maintains one fairground: Cassia County Fair & Rodeo in Burley with a racetrack, rodeo arena and grandstands. Declo has a mobile home RV park located in the city.

4.7 Cultural and Historical Sites

Historically, Cassia County is located along the Oregon Trail. The Oregon Trail passes through Milner which is a few miles southwest of Burley. In 2019 an updated path and trailhead marker was constructed along the original trail within the Milner Recreational Area. Other historical trails located in Cassia County include Granite Pass which was an emigrant trail route along the California Trail and located in the southern part of Idaho near the state border with Utah and Nevada.

According to the National Register of Historic Places, Cassia County has five buildings listed as historic places including Albion Methodist Church (Albion), Albion Normal School Campus (Albion), Swanger Hall (Albion), Cassia County Courthouse (Burley), and Oakley Historic District (Oakley).

Museums in Cassia County include: Albion Valley Historical Society (Albion), Cassia County Historical Society and Museum (Burley), Oakley Valley Historical Museum (Oakley). The Burley Discovery Museum (Burley) is proposed to open in the near future.

Cultural events in Cassia County include the Wildflower Weekend (Almo), Cassia County Fair (Burley), the Idaho Regatta (Burley), Magic Valley Folk Festival (Burley/Rupert), Mini-Cassia Spring/Fall Craft Fair (Burley), Declo Days (Declo), Oakley Historic Home Tours (Oakley), and Pioneer Days (Oakley).

4.8 Participating Jurisdictions Vulnerability Assessment

The participating jurisdictions include Albion, Burley, Declo, Malta, and Oakley. As displayed in the Flood Hazard and the WUI zones maps (Figures 4-1 through 4-10).

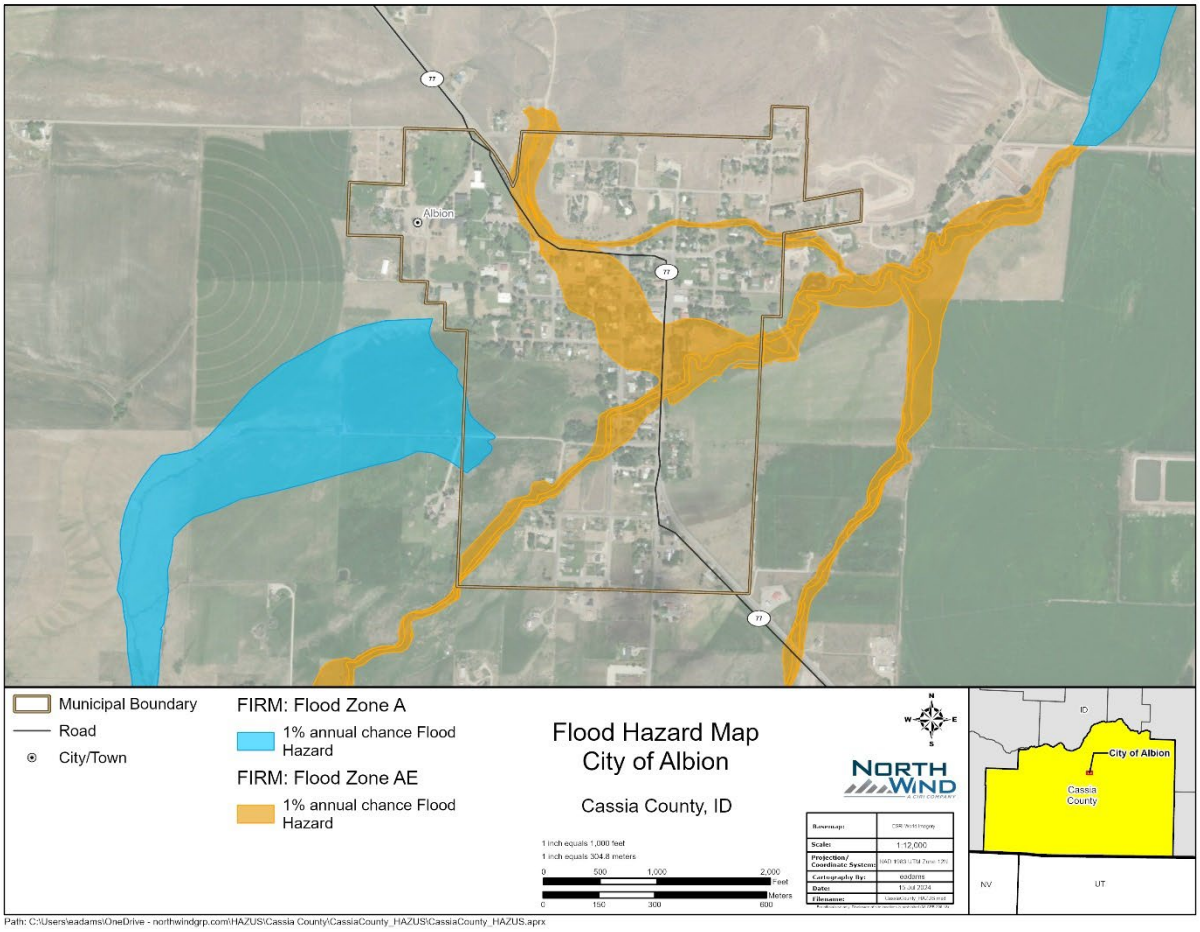

Figure 4- 1 City of Albion Flood Hazard

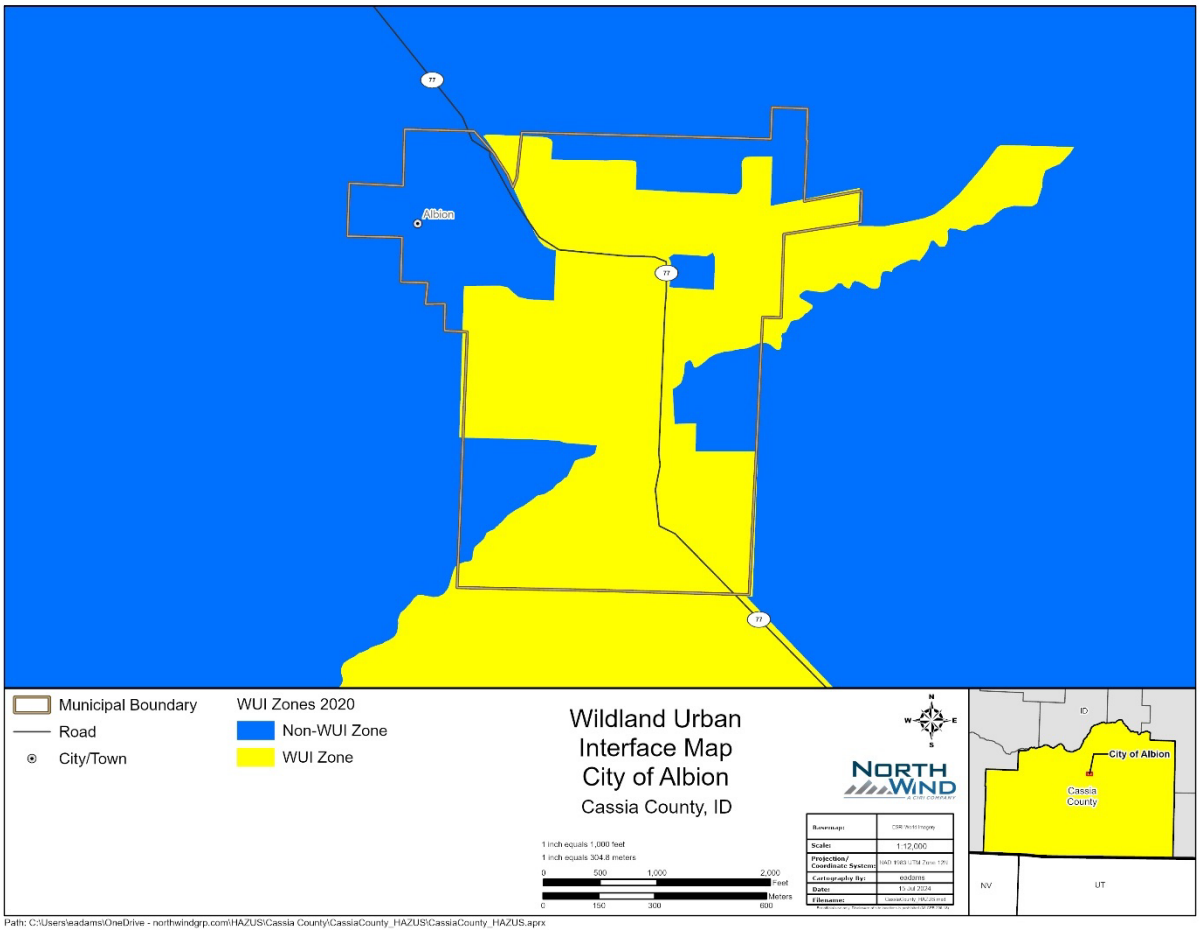

Figure 4- 2 City of Albion WUI Zone

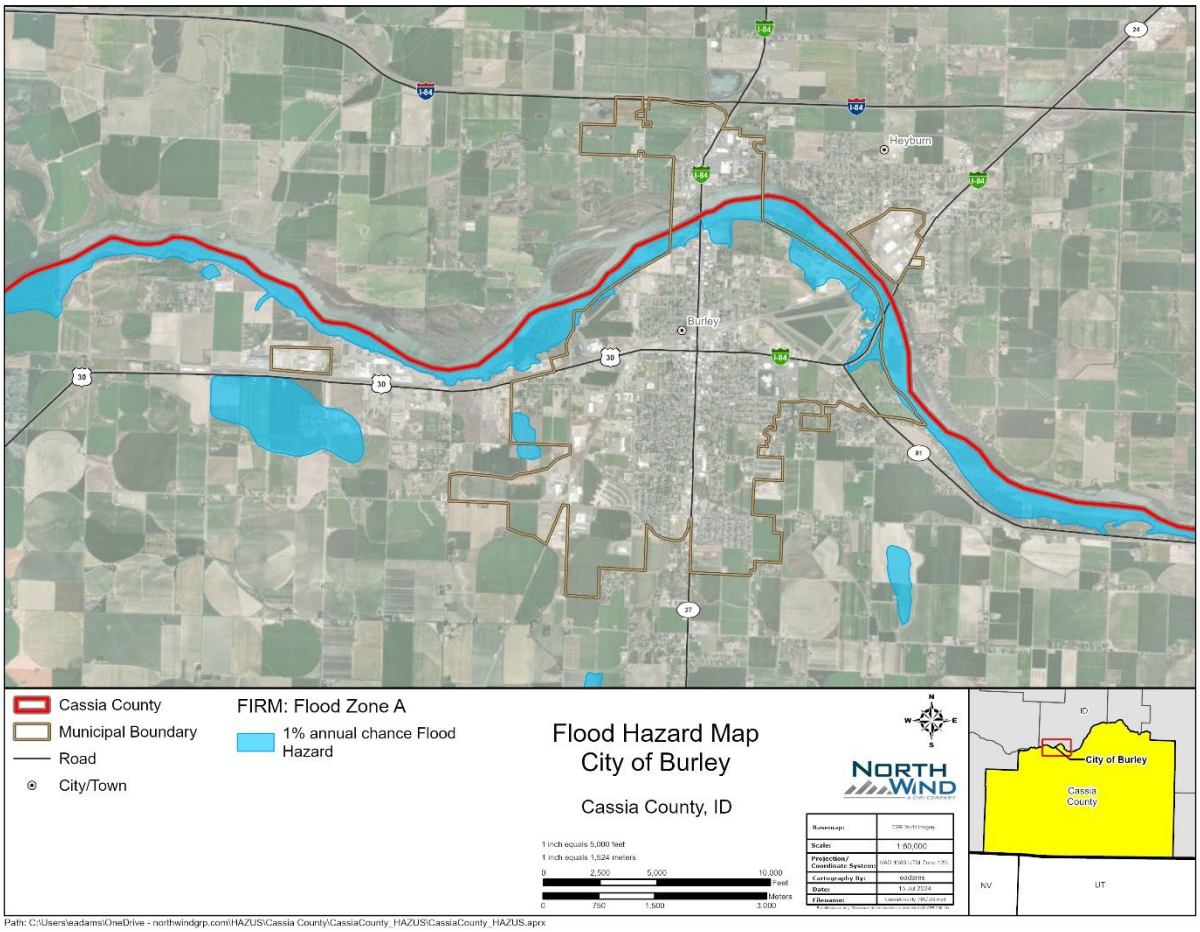

Figure 4- 3 City of Burley Flood Hazard

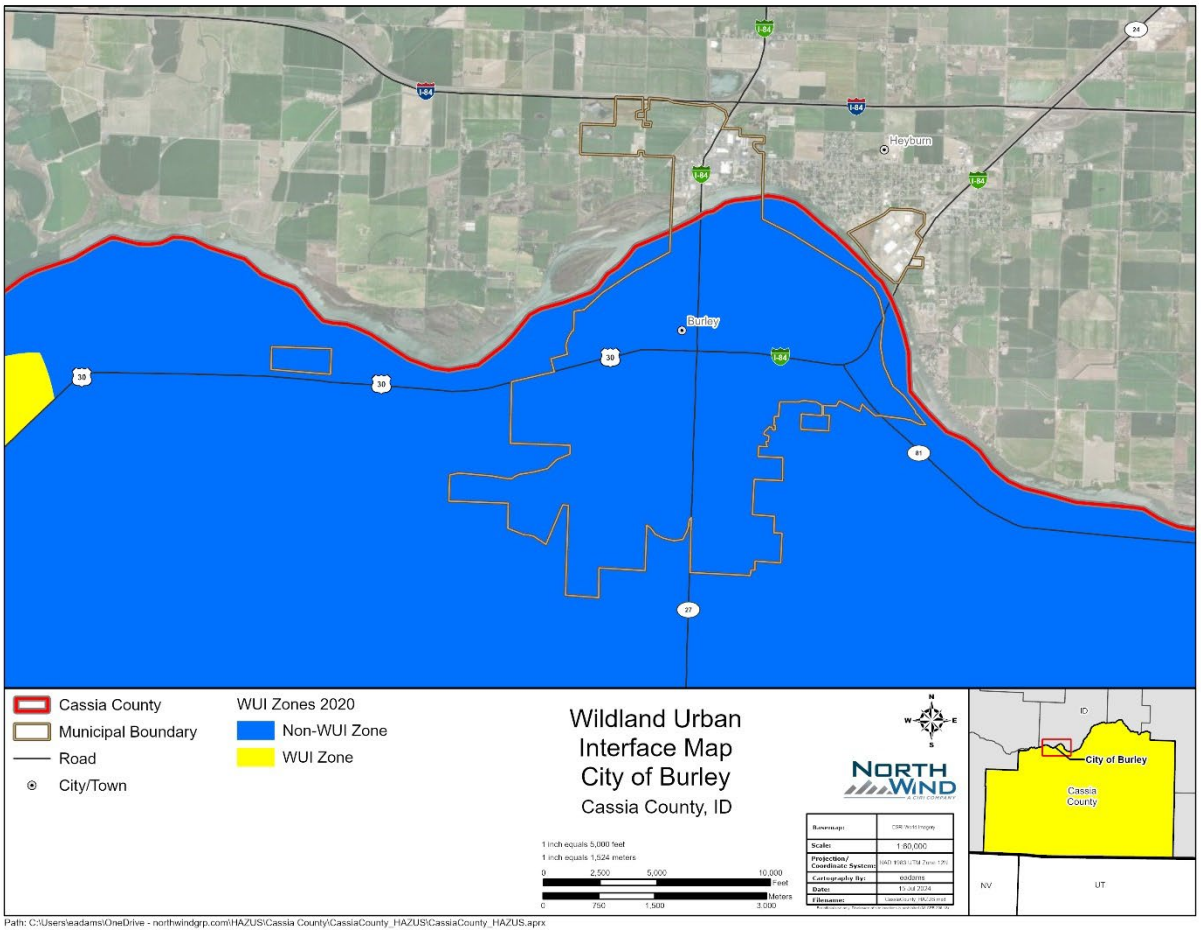

Figure 4- 4 City of Burley WUI Zones

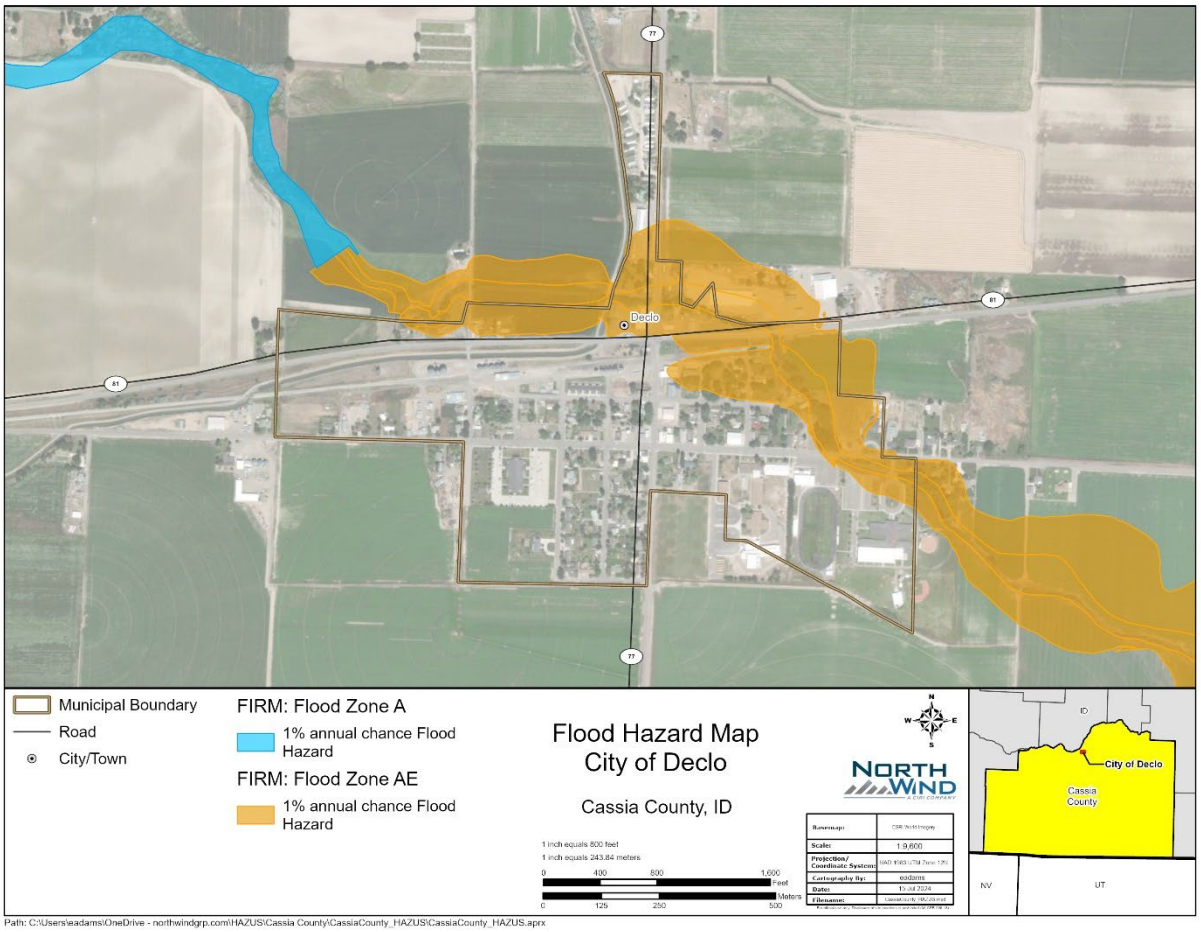

Figure 4- 5 City of Declo Flood Hazard

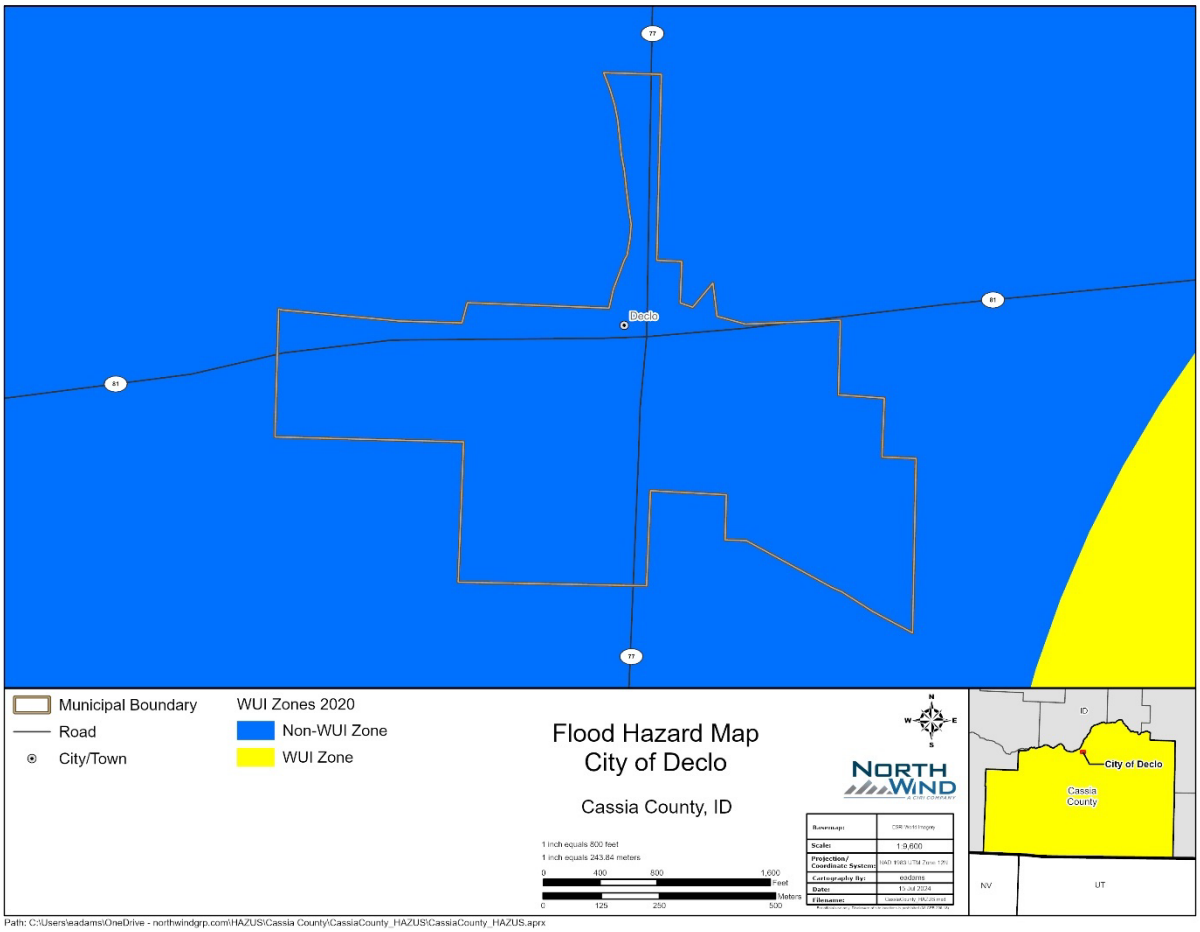

Figure 4- 6 City of Declo WUI Zones

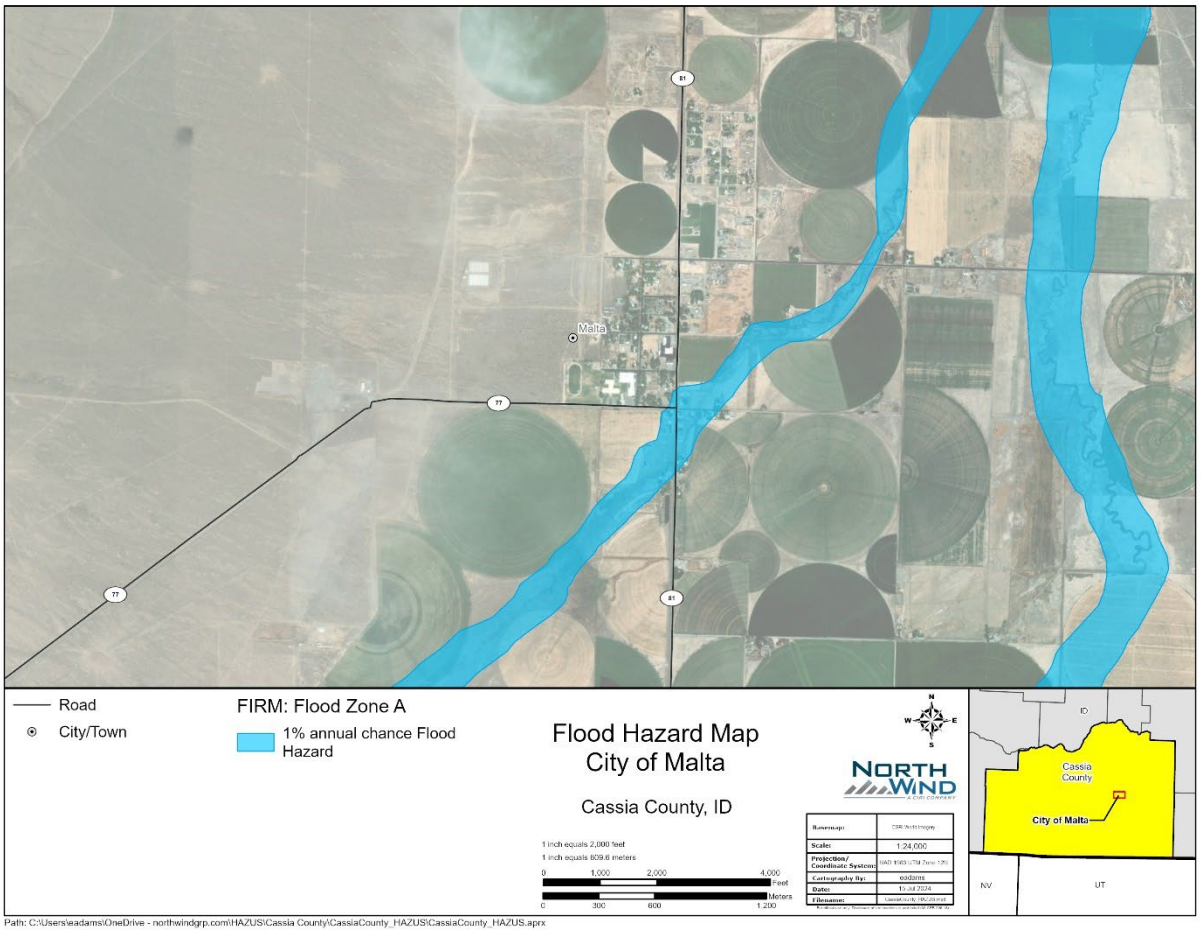

Figure 4- 7 City of Malta Flood Hazard

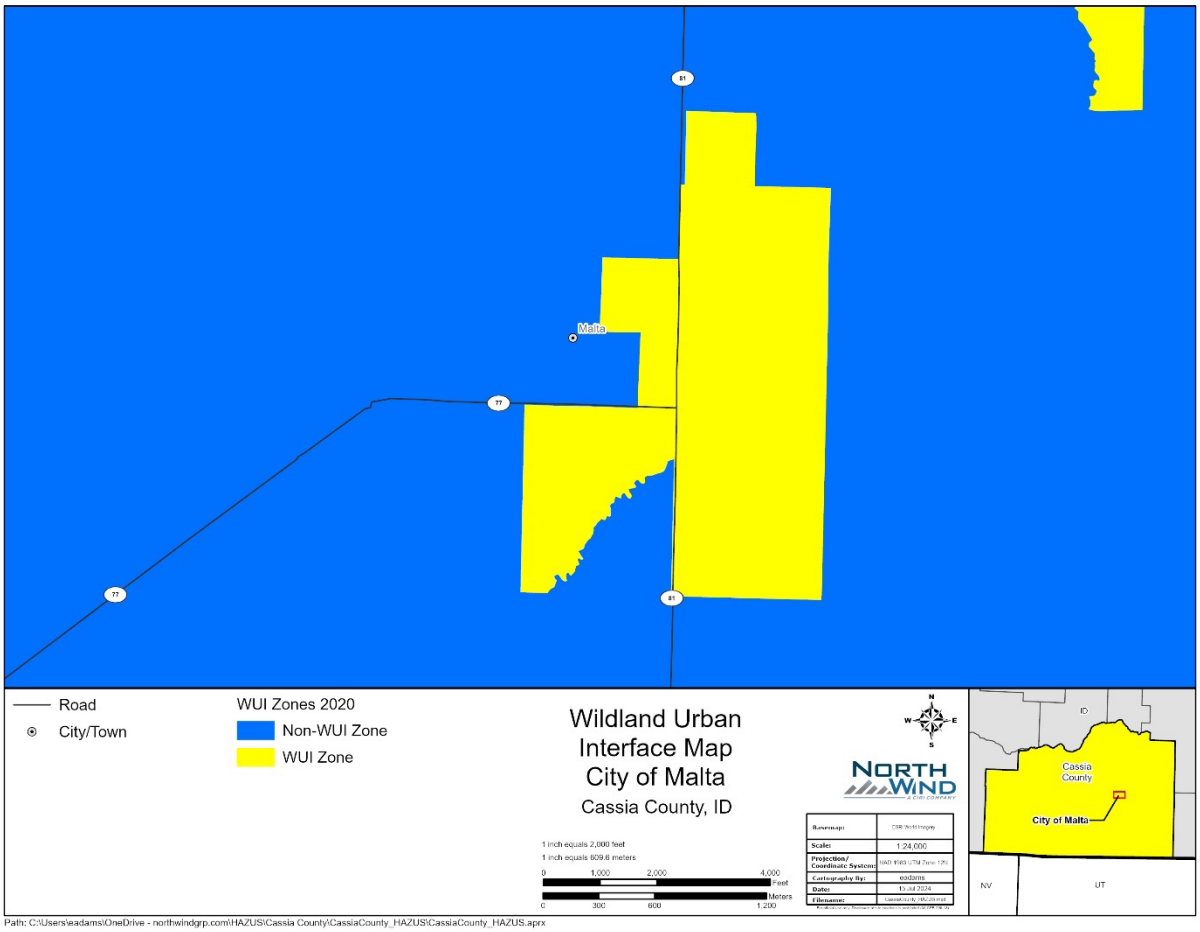

Figure 4- 8 City of Malta WUI Zones

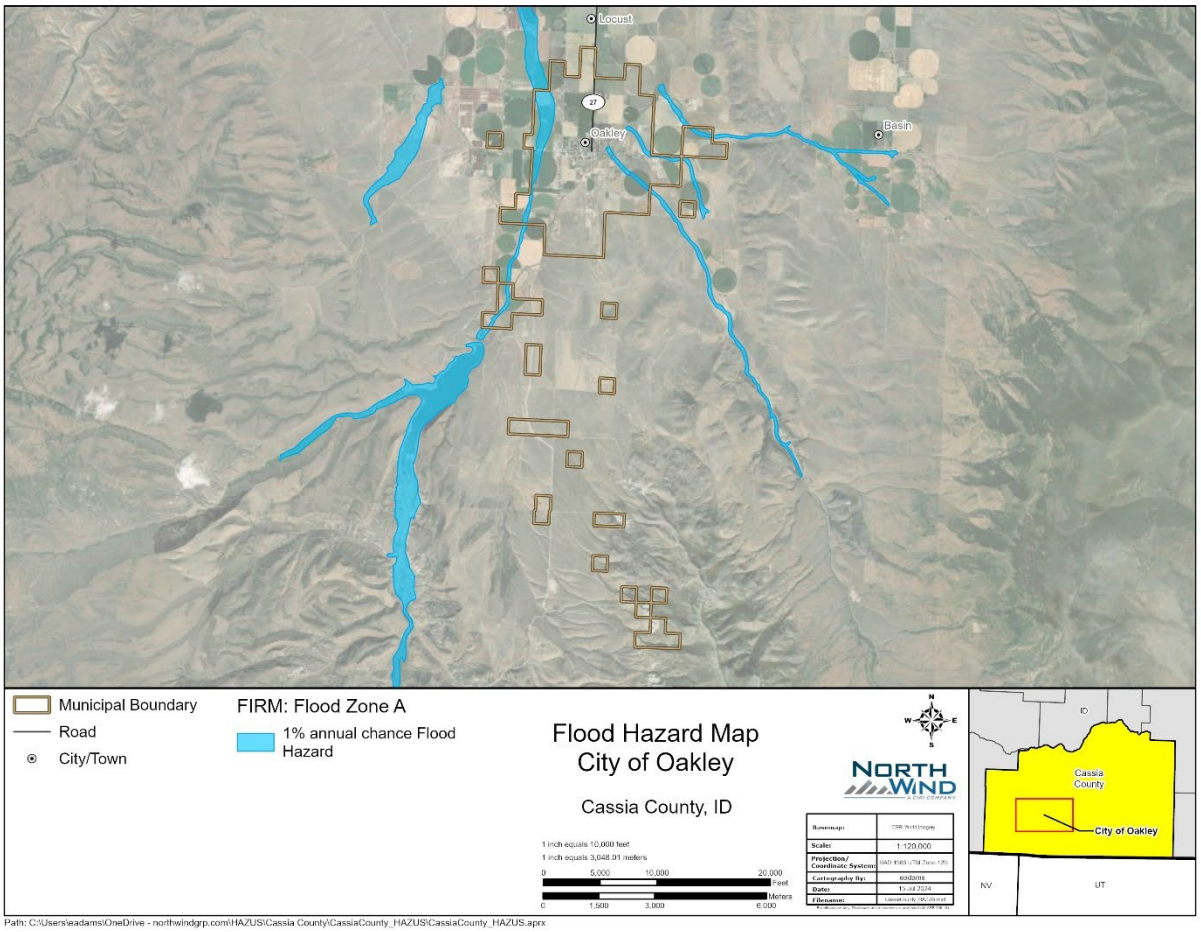

Figure 4- 9 City of Oakley Flood Hazard

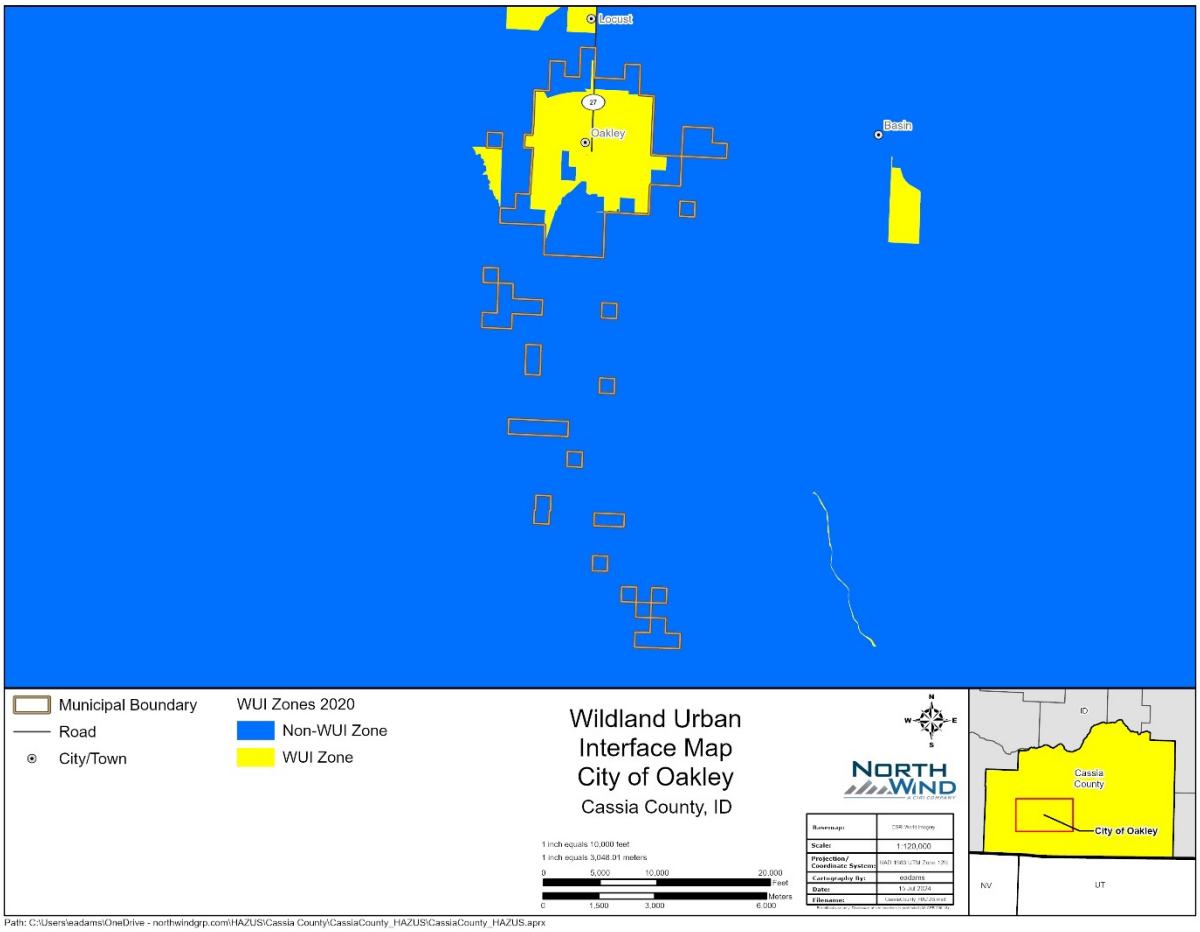

Figure 4- 10 City of Oakley WUI Zone

5.0 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 Cassia 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.

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

6.0 MITIGATION GOALS

The goals from the 2017 HMP were revised during the 2023 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 Cassia 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.

6.1 Integration

Implementing the HMP into local planning efforts is essential for disaster resistance in Cassia 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, Cassia 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 Cassia County mitigation capability assessment information is provided in Table 6-1.

Cassia 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 Cassia 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.

Cassia County Mechanisms

1. Cassia County Comprehensive Plan – Amended 2022
2. State of Idaho Emergency Operations Plan – November 2021
3. Building Codes and Ordinances – New codes Effective January 1, 2021
4. Department Budgets
5. Site Master Plan.

Incorporated Cities (Albion, Burley, Declo, Malta, Oakley)

1. City Budgets
2. 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, Cassia County and participating jurisdictions rely on the County HMP for guidance on prioritizing and funding hazard mitigation projects when developing budgets.

Cassia County, Albion, Burley, Declo, Malta, and Oakley rely on the HMP for guidance on prioritizing and funding hazardous mitigation projects when developing budgets.

Table 6- 1 Cassia County Local Mitigation Capability Assessment

Agency Name (Mission/Function)	Programs, Plans, Policies, Regulations, Funding, or Practices	Entity Contact, Address, Phone	Effect of Loss Reduction*		
			Support	Facilitate	Hinder
Cassia County Emergency Management	Emergency Operations Plan	Cassia Regional Hospital 1501 Hiland Ave Burley, ID 83318 208-677-6560	X		
Cassia County Emergency Management	Continuity of Operations Plan	Cassia County Courthouse 1459 Overland Avenue Burley, ID 83318 208-878-7302	X	X	
Cassia County Planning and Zoning	Comprehensive Plan		X	X	
Cassia County Sheriff	Law Enforcement	Cassia County Sheriff Office 129 E 14th St Burley, ID 83318 208-878-2251	X		
City of Albion	Land Use Ordinances	City of Albion Office 225 Main St Albion, ID 83311	X	X	
Albion Volunteer Fire District	Fire Protection	1047 E 1000 S Albion, ID 83311 208-312-5359	X		
City of Burley Planning and Zoning	Comprehensive Plan	Building Department 2020 Parke Avenue Burley, ID 83318 208-647-7086	X	X	
City of Burley Planning and Zoning	Land Use Ordinances		X	X	
Burley Fire Department	Fire Protection	1235 Miller Ave Burley, ID 83318 208-878-7371	X		
North Cassia Rural/Declo Fire	Fire Protection	West Center Street Declo, ID 83323 208-654-2473	X		
ACE Fire District	Fire Protection	2123 S Elba-Almo Rd Malta, ID 83342 208-312-9697	X		

Agency Name (Mission/Function)	Programs, Plans, Policies, Regulations, Funding, or Practices	Entity Contact, Address, Phone	Effect of Loss Reduction*		
			Support	Facilitate	Hinder
Raft River Fire District	Fire Protection	PO Box 114 Malta, ID 83342 208-431-9894	X		
City of Oakley Planning and Zoning	Comprehensive Plan	City of Oakley 195 N. Center St Oakley, ID 83346 208-862-3313	X	X	
City of Oakley Planning and Zoning	Land Use Ordinances		X	X	
Oakley Fire Protection District	Fire Protection	315 East Main Street Oakley, ID 83346 208-862-4911	X		

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 Cassia 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 Actions

Mitigation actions and projects for Cassia County and participating jurisdictions are described below. Committee members updated the 2017 mitigation actions and projects and included new actions that are planned in the 2024 HMP Update.

The mitigation projects that were described in the 2017 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.

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

Table 7- 1 2017 Cassia County and Participating Jurisdictions Mitigation Projects

Jurisdiction	Hazard	Action Item	Goals & Objective Addressed	Former Est. Cost & Timeline	Lead Agency	Status
Cassia County	Flooding	Seek CRS Status for the County (Unincorp)	2.1	No Cost 2019 – Complete CRS Requirements	Floodplain Administrator	Ongoing.
		Request Updates of the FIRM Maps (Unincorp)	2.2	ROM - $150,000 2018 – Request FEMA to Update Maps	Floodplain Administrator	Ongoing.
		Construct Injection Capability for floodwaters on Raft River and Land Creek (Unincorp)	2.2 2009 Priority Project	Cost Estimate - $316,500 2018 – Seek HMA Funding 2019 – Construct Injection System	Flood District	Complete
		Conduct a study for recharge in flood prone areas	2.2	ROM - $50,000 2018 – Seek funding for study and develop Scope of Work 2019 – Conduct Study	Recharge District	Ongoing.
		Install Culverts to protect roadways in Basin Creek Area (Unincorp)	2.2	ROM - $300,000 2019 – Conduct Engineering Design 2020 – Apply for HMA Funding	Highway District	Ongoing.
		Install Culverts as needed to protect roadways in Sludge Creek, Boulder Creek, and White Creek (Unincorp)	2.2	ROM - $150,000 2020 – Conduct Engineering Design 2021 – Apply for Funding	Highway District	Ongoing.
		Install Culverts as needed to protect	2.2	ROM - $150,000 2020 – Conduct Engineering Design	Highway District	Ongoing.

Jurisdiction	Hazard	Action Item	Goals & Objective Addressed	Former Est. Cost & Timeline	Lead Agency	Status
		roadways in Higler Area		2021 – Apply for funding		
		Rip the West Flood Channel to improve flow (Unincorp)	2.2	ROM - $10,000 2017 – Conduct Ripping	Flood District	Complete
		Develop a Culvert Maintenance Program	2.3	ROM - $150,000 plus annual maintenance cost. 2018 – Develop a LHTAC Grant to evaluate all culverts in the County. Determine priority replacement. 2019 – Ongoing, Repair or Replace damaged culverts.	Road and Bridge	Ongoing..
		Require Storm Water Collection Systems in New Subdivisions (Unincorp)	2.3	ROM - $5,000 2017 – Develop and Adopt Ordinance	P & Z Administrator	Ongoing
		Improve Storm Water Drainage in the Sublet Area (Unincorp)	2.3	ROM - $300,000 2018 – Conduct Engineering Analysis and Design 2019 – Apply for HMA Funding	Flood District	Ongoing
	Geological	Earthquake Protection or Hardening County facilities	3.1	ROM - $250,000 2017 – Seek funding to conduct conceptual hardening designs. 2018 – Conduct Designs and Benefit Cost Analysis. Apply for HMA Funding	Emergency Services	Ongoing

Jurisdiction	Hazard	Action Item	Goals & Objective Addressed	Former Est. Cost & Timeline	Lead Agency	Status
				2019 – Protect Buildings as designed and funded.		
		Develop a listing of schools and public buildings that need to be seismically retrofitted	3.1	ROM - $50,000 2017 – Seek funding to evaluate structures. 2018 – Develop priorities list of buildings to be retrofitted	Emergency Services/Building Official	Complete
		Publish a special section in newspapers with emergency information on earthquakes.	3.2	NO COST 2017 – Obtain information from BHS Mitigation Officer	Emergency Services	Ongoing
	Wildfire	Develop a Wildland Fire Ordinance which establishes the road widths, access, water supply, and building regulations suitable to ensure new structures can be protected. (Unincorp)	5.1	ROM - $10,000 2017 – Seek Funding from County to develop Ordinance 2018 – Develop Ordinance and Adopt	P & Z Administrator/Fire Districts	Complete
		Designate the WUI areas as a special land use category in the County	5.1	ROM - $2,000 2018 – Incorporate in next Plan revision	P & Z Administrator	Ongoing.

Jurisdiction	Hazard	Action Item	Goals & Objective Addressed	Former Est. Cost & Timeline	Lead Agency	Status
		Comprehensive Plan (Unincorp)				
		Develop a listing of roads, bridges, cattle guards, culverts, and other limiting conditions and incorporate improvements into the County Transportation Plan	5.2	ROM - $150,000 plus annual maintenance cost. 2020 – Develop a LHTAC Grant to evaluate all roadways in the County. Determine Priority actions. 2021 - Ongoing: Repair or Replace damaged culverts, bridges, etc.	Fire Districts/Road and Bridge	Ongoing.
		Maintain and update GIS and Bulberry Mapping Data that links landowner parcel maps (Unincorp)	5.3	ROM - $5,000 2017 – Seek Funding from BLM to integrate Red Zone data. 2018 – Integrate Data	Fire District	Complete
		Develop wildfire fuel breaks around CRP Land (Unincorp)	5.5	Insufficient Data to Estimate Cost. 2017 – WUI Working group develop priority list of CRP Land to be protected included acreage and linear feet of fuel breaks	Fire District	Ongoing
		Develop an agreement with developers and private landowners for access to and use	5.7	ROM - $5000 2017 – Seek Funding from BHS SHSP and develop standard agreement and requirements. 2018 – Execute Agreements	Fire District/P & Z Administrator	Complete

Jurisdiction	Hazard	Action Item	Goals & Objective Addressed	Former Est. Cost & Timeline	Lead Agency	Status
		of water sources for fire protection.				
	Biological	Maintain public education programs for viral/biological agents	6.1	No Cost 2017 – Continue Program	Health District/Emergency Management	Ongoing
	Structural Fire	Encouraging private property owners to install and maintain smoke detectors on all levels of residences and to place detectors in all bedrooms	7.1	ROM - $65,000 2018 – Seek Funding for the Assistance to Fire Fighters Safety Grant Program 2019 – Distribute Detectors	Fire District	Ongoing
		Develop an agreement with developers and private landowners for access to and use of water sources for fire protection.	7.2	$5,000 2017 – Seek Funding from BHS SHSP and develop standard agreement and requirements. 2018 – Execute Agreements.	Fire District	Ongoing.
	Terrorism	Conduct a County Terrorism assessment.	10.1	No Cost 2017 – Work with LEPC to conduct assessment.	Emergency Services	Deferred
City of Burley	Severe Weather	Identify Evacuation Shelters Equipped with Emergency Generators.	12.1	No Cost 2017 – Work with City Council, Church, and volunteer organizations.	Mayor/Public Works	Deferred

Jurisdiction	Hazard	Action Item	Goals & Objective Addressed	Former Est. Cost & Timeline	Lead Agency	Status
	Flooding	Seek CRS Status for the City	13.1	No Cost 2019 – Complete CRS Requirements	Floodplain Administrator	Deferred
		Request updated FEMA floodplain maps in the City of Burley	13.2	ROM - $10,000 2017 – Seek Funding from FEMA 2018 – Conduct Mapping	City Engineer	Ongoing.
		Develop Ordinances to Manage Storm Water in Subdivisions	13.3	ROM - $5,000 2017 – Develop Ordinances and Adopt	City Engineer	Deferred. City requires each subdivision HOA to maintain its own.
	Geological	Place restraining hardware on the City Library Shelves. Place restraining bars or trim along the front of the book shelves.	14.1	ROM - $10,000 2017 – Seek funding in City budget and install hardware.	City Librarian	Complete
		Harden city water supply against damage from earthquakes.	14.2	ROM - $250,000 2018 – Develop Project, Conduct Engineering, and BCA 2019 – Apply for HMA Grant 2020 – Harden System	Mayor/Public Works	Deferred. Possible funding challenges.
		Harden city sewer system against damage from earthquakes.	14.2	ROM - $250,000 2019 – Develop Project, Conduct Engineering, and BCA 2020 – Apply for HMA Grant	Mayor/Public Works	Deferred. Possible funding challenges.

Jurisdiction	Hazard	Action Item	Goals & Objective Addressed	Former Est. Cost & Timeline	Lead Agency	Status
				2021 – Harden System		
		Harden the city computer equipment and records storage	14.3	ROM - $20,000 2017 – Seek City Budget Funds 2018 – Harden Equipment	City Clerk	Complete
		Replace or reinforce masonry on older structures in the City of Burley	14.3	Develop Cost Estimate 2017 – Develop List of Buildings to Retrofit 2018 – Conduct Engineering to determine cost and benefit 2019 – Apply for funding 2020 – Retrofit Structures	Building Official/Private Property Owners	Deferred. Possible funding challenges.
	Structure Fire	Encouraging private property owners to install and maintain smoke detectors on all levels of the residences and to place detectors in all bedrooms.	15.1	ROM - $25,000 2017 – Seek funding for the assistance to Fire Fighters Safety Grant Program 2018 – Distribute Detectors	Fire Department	Ongoing
City of Oakley	Flooding	Request updated FEMA floodplain maps in the City of Oakley	17.1	No Cost 2019 – Complete CRS Requirements	Floodplain Administrator	Ongoing.
		Review and Redraw City Floodplain Maps as necessary.	17.2	ROM - $10,000 2018 – Seek funding from FEMA 2019 – Conduct Mapping	Floodplain Administrator	Ongoing.

Jurisdiction	Hazard	Action Item	Goals & Objective Addressed	Former Est. Cost & Timeline	Lead Agency	Status
		Construct Storm Water Catchment System in the Church Street Area of the City	17.2 2009 Priority Project	Cost Estimate - $120,000 2018 – Apply for HMA funding 2019 – Construct Catchment System	Mayor	Deferred
	Geological	Harden city water supply against damage from earthquakes.	18.1	ROM - $150,000 2020 – Develop Project, Conduct Engineering, and BCA 2021 – Apply for HMA Grant 2022 – Harden System	Mayor/Public Works	Ongoing.
City of Malta	Flooding	Seek CRS Status for the City	19.1	No Cost 2019 – Complete CRS Requirements	Floodplain Administrator	Deferred
		Request updated FEMA floodplain maps in the City of Malta	19.2	ROM - $10,000 2017 – Seek funding from FEMA 2018 – Conduct Mapping	City Engineer	Revised. Revised to include FIRM updates.
		Develop an injection capability for Cassia Creek	19.3 2009 Priority Project	Cost Estimate - $339,000 2017 – Apply for HMA Funding 2018 – Construct	Flood District	Complete
	Geological	Investigate Land Cracking and Subsidence in South Malta	20.1	ROM - $25,000 2017 – Conduct Geological Engineering System 2018 -Make Mitigation Recommendations	Mayor/Public Works	Ongoing

8.0 CASSIA COUNTY 2024 MITIGATION PROJECTS

Mitigation Actions					
Mitigation Action: Update dam operations plan for Oakley Dam					
Applicable Jurisdiction: Cassia County, Oakley					
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	2025
Hazard Mitigated: General					

Mitigation Actions					
Mitigation Action: Public outreach for wildfire reduction and structural fire reduction					
Applicable Jurisdiction: Cassia County, Burley, Malta, Oakley, Albion, Declo					
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	2025
Hazard Mitigated: Wildfire, Structural Fire					

Mitigation Actions					
Mitigation Action: New FIRM Maps for County					
Applicable Jurisdiction: Cassia County, Burley, Malta, Oakley, Albion, Declo					
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	2026
Hazard Mitigated: Severe Weather, Wildfire					

Mitigation Actions					
Mitigation Action: Inspect and upgrade critical infrastructure for terrorism					
Applicable Jurisdiction: Cassia County, Burley, Malta, Oakley, Albion, Declo					
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	2027
Hazard Mitigated: Terrorism					

Mitigation Actions					
Mitigation Action: Inspect and update infrastructure and buildings for seismic events					
Applicable Jurisdiction: Cassia County, Burley, Malta, Oakley, Albion, Declo					
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	New	Protect property and life	$1.2 M	Grants, local budgets	2030
Hazard Mitigated: Earthquakes					

Mitigation Actions					
Mitigation Action: Update messaging systems for severe weather notification					
Applicable Jurisdiction: Cassia County, Burley, Malta, Oakley, Albion, Declo					
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	2025
Hazard Mitigated: Severe Weather					

Mitigation Actions					
Mitigation Action: Provide back-up power to evacuation centers					
Applicable Jurisdiction: Cassia County, Burley, Malta, Oakley, Albion, Declo					
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	$200,000	Grants, local budgets	2026
Hazard Mitigated: General					

Mitigation Actions					
Mitigation Action: Upgrade cyber security for city entities					
Applicable Jurisdiction: Cassia County, Burley, Malta, Oakley, Albion, Declo					
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	$150,000	Grants, local budgets	2027
Hazard Mitigated: Cyber Security					

Mitigation Actions					
Mitigation Action: Establish public health outreach clinics for vaccinations and communicable diseases					
Applicable Jurisdiction: Cassia County, Burley, Malta, Oakley, Albion, Declo					
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	2025
Hazard Mitigated: General					

Mitigation Actions					
Mitigation Action: Provide drought/water use information for homeowners					
Applicable Jurisdiction: Cassia County, Burley, Malta, Oakley, Albion, Declo					
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	2025
Hazard Mitigated: Severe Weather, Drought					

Mitigation Actions					
Mitigation Action: Provide public awareness education on weather hazards and mitigation strategies					
Applicable Jurisdiction: Cassia County, Burley, Malta, Oakley, Albion, Declo					
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	$1,000	Grants, local budgets	2025
Hazard Mitigated: Severe Weather, Wildfire					

Mitigation Actions					
Mitigation Action: Develop methods to mitigate losses due to electrical outages					
Applicable Jurisdiction: Cassia County, Burley, Malta, Oakley, Albion, Declo					
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	$25,000	Grants, local budgets	2027
Hazard Mitigated: General					