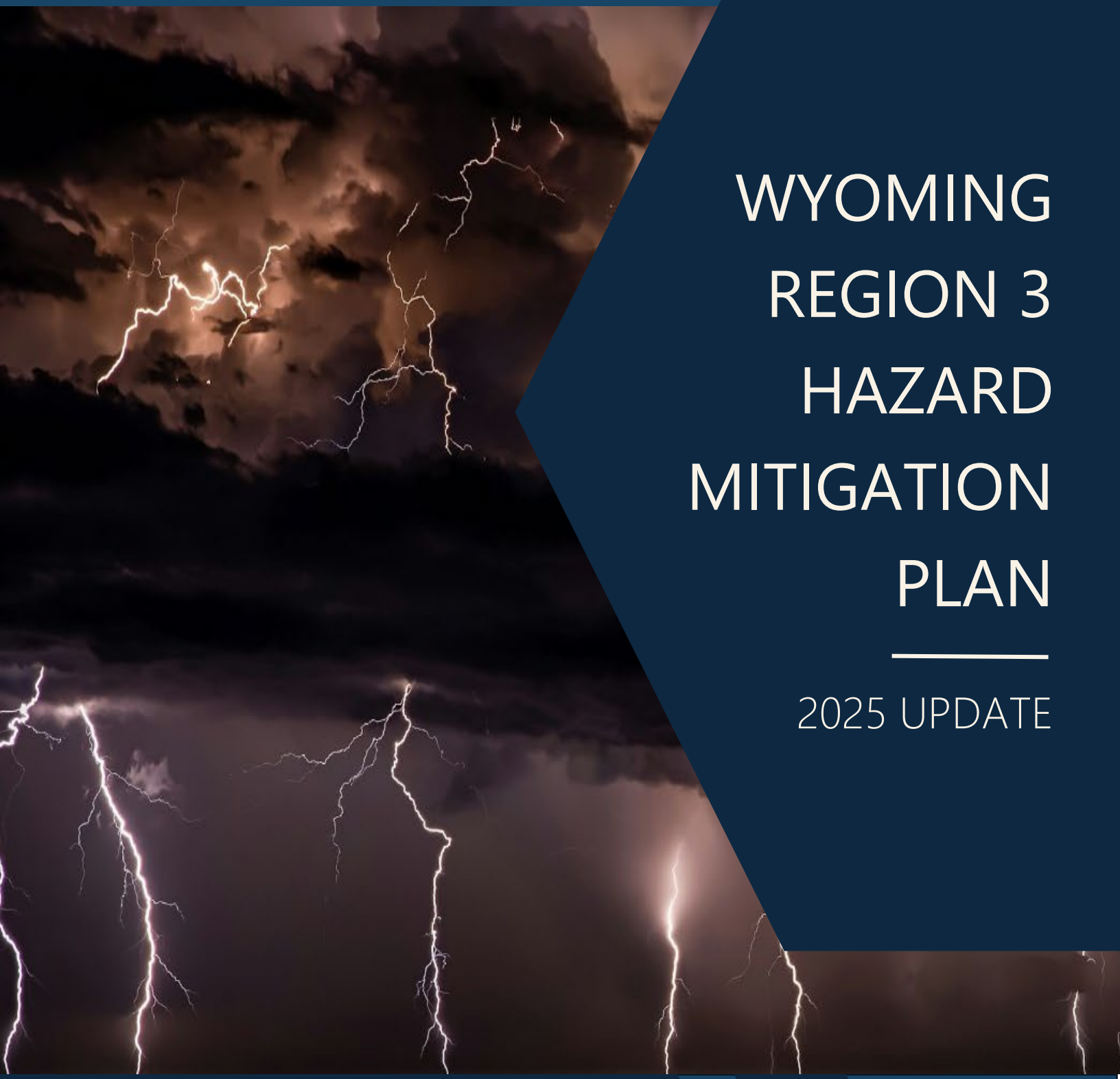
ALBANY & CARBON COUNTIES



WYOMING REGION 3 HAZARD MITIGATION PLAN

2025 UPDATE

ALBANY COUNTY WYOMING

OFFICIAL SEAL OF CARBON COUNTY, WY

Table of Contents

Table of Contents 2
Executive Summary 4
Mitigation Strategy 5
Mitigation Goals 5
Identification and Analysis of Mitigation Actions 5
Updated Mitigation Action Plan 6
Mitigation Capabilities 6
Compliance with Floodplain Requirements 7
Planning Process 9
Background 9
Purpose 9
Background 9
Scope 10
Authority 10
Update Process and Methodology 11
Timeline of Activities 12
Participating Local Governments 13
Local Planning Team 15
Planning Activities 15
Pre-kickoff Meeting 16
Kick-off Workshop 16
Risk Assessment Workshop 17
Mitigation Strategy Workshop 17
1-on-1 Work Sessions 18
Planning Committee Draft Plan Review 18
Public and Stakeholder Participation 18
Under-Resourced Communities 20
Community Survey 21
Public Plan Review and Comment 21
Hazard Identification and Risk Assessment (HIRA) 23

Identified Hazards of Concern 23
Disaster Declaration History 24
Hazard Risk Summary 25
County Annexes 26
Hazard Data Viewers 26
Wyoming Wildfire Risk Assessment Portal 26
FEMA National Risk Index (NRI) 27
Climate Mapping for Resilience and Adaptation (CMRA) Assessment 27
Climate Risk and Resilience Portal (ClimRR) 27
Resilience Analysis and Planning Tool (RAPT) 27
Exposure Analysis 27
Hazard Profiles 27
Avalanche 27
Drought 29
Earthquake 31
Flood/Dam, Dike & Levee Incident 33
Geologic Hazards (Landslide/Land & Mine Subsidence/Expansive Soils) 35
Severe Thunderstorm (Hail/Lightning/Thunderstorm Wind) 38
Tornado/Wind/Windblown Deposits 41
Wildfire 45
Winter Storm 47
Albany County Annex 50
Carbon County Annex 51
Appendix A: FEMA Approval 52
Appendix B: Local Planning Committee Roster 53
Appendix C: Mitigation Action Ideas Guide 61

Professional planning services for this plan update provided by:

Executive Summary

This Hazard Mitigation Plan is the product of a 2024-2025 planning process undertaken by the two counties in Wyoming Office of Homeland Security Region 3 – Albany and Carbon. It is an update to the 2019 Region 3 Hazard Mitigation Plan (HMP) and a living document. The primary purpose of this plan is to identify the risks posed by various hazards that impact communities in Albany and Carbon Counties, evaluate the community's vulnerabilities, and assess strategies to minimize losses from these events.

The Disaster Mitigation Act (DMA) of 2000 is a federal legislation that promotes proactive disaster planning and mitigation efforts as a prerequisite for some funding available under the Robert T. Stafford Act. The DMA encourages state and local authorities to work together on pre-disaster planning. The planning network called for by the DMA helps local governments articulate accurate needs for mitigation, resulting in faster allocation of funding and more cost-effective risk reduction projects.

Hazard mitigation is the use of long- and short-term strategies to reduce or alleviate the loss of life, personal injury, and property damage that can result from a disaster. It involves methods such as planning, policy changes, programs, projects, and other actions that can mitigate the impacts of hazards. It is impossible to predict precisely when and where disasters will occur or how much they will impact an area. However, with careful planning and collaboration among public agencies, stakeholders, and citizens, it is possible to minimize the losses that disasters can cause. The responsibility for hazard mitigation lies with many, including private property owners, businesses and industries, and local, state, and federal governments.

The two counties, along with a partnership of local governments and organizations, have developed and maintained this HMP to reduce risks from natural disasters and comply with the DMA. This 2025 plan update builds upon the community's previous efforts. It identifies the mitigation strategy Region 3 will follow over the next five years to protect citizens, preserve natural and built environments, and promote long-term sustainability and resiliency to disaster events.

Hazard Mitigation is any sustained action taken to reduce or eliminate long-term risk to people and property from hazards and their effects.

Mitigation Strategy

Mitigation Goals

The Local Planning Team (LPT) has identified the following hazard mitigation goals as the overarching framework for Region 3's hazard mitigation strategy. These broad goals express the overall, long-term vision for mitigating natural hazards throughout the counties.

- **Goal 1:** Reduce the potential for injury and loss of life from natural disasters.
- **Goal 2:** Minimize the potential for economic losses from natural disasters.
- **Goal 3:** Reduce the impact of natural disasters on critical infrastructure, communication systems, and facilities.
- **Goal 4:** Reduce the impact of natural disasters on private property.
- **Goal 5:** Increase public outreach to raise awareness of hazard mitigation and potential funding sources.

Identification and Analysis of Mitigation Actions

As part of the HMP update, the LPT developed a refreshed list of mitigation actions (i.e. – projects) to meet the abovementioned goals. In collaboration with local partners and stakeholders, the LPT will work towards accomplishing these mitigation actions over the HMP's next five-year lifespan. Throughout the plan update process, the LPT was informed of the comprehensive range of mitigation action types to consider. These types of action can include natural systems protection, education & awareness programs, structure & infrastructure projects, and local plans & regulations. Additionally, it was acknowledged that nature-based solutions can be incorporated into many of these mitigation types.

LPT workshops held throughout the planning process focused on educating committee members about the multitude of available mitigation idea resources. Emphasis was placed on identifying actions that would help mitigate the vulnerabilities of new and existing infrastructure, as well as under-resourced populations. As a final resource, the LPT was also provided a "Mitigation Strategy Action Idea" document developed over the planning process. See Appendix C: Mitigation Action Ideas Guide. This document presented several suggested actions based on community input received, conversations amongst the LPT over the course of the plan's development, and existing community plans.

Following the identification of the 2025 mitigation actions, the local government prioritized each action. According to the Federal Emergency Management Agency (FEMA) mitigation planning requirements, any prioritization system should emphasize the extent to which benefits are maximized. The LPT reviewed FEMA's STAPLEE methodology and several additional criteria to determine those that the counties would utilize. Ultimately, it was decided that the following criteria would be considered when prioritizing mitigation efforts, following a determination of positive cost-benefit:

- Social considerations – life/safety impact
- Administrative considerations – administrative/technical capability

- Economic considerations – project cost/reductions in future disaster costs
- Alignment with other local objectives
- Environmental considerations
- Lifeline protection
- Legal considerations
- Benefits to under-resourced communities

During the planning process, the LPT decided that each government would ultimately prioritize mitigation actions using a three-tiered High, Moderate, or Low methodology.

"**High**" priority was primarily designated to those actions with a:

- Moderate to High-risk ranking
- Potential high risk to life safety, property, or the environment
- Consideration for the impacts of new development and growth

"**Moderate**" priority was in general designated to actions for hazards that were:

- Slow onset
- Localized impact events
- Larger impact hazards with a sporadic occurrence

A "**Low**" priority was assigned to those remaining actions that typically address low probability or low impact hazards, ensuring they are not prioritized above or compete with other more practical actions.

To ensure this updated HMP meets FEMA policy, one mitigation action has been identified for all participating local governments per natural hazard profiled in this HMP.

Updated Mitigation Action Plan

All counties and participating governments have reported on the status of the 2019 HMP actions and have created new mitigation actions for this 2025 HMP. These are both found in each individual county annex.

Mitigation Capabilities

The mitigation capability assessment examines the ability of Region 3 local governments to implement and manage the comprehensive mitigation strategy laid out in this HMP. Each local government's capabilities and resources are identified here to evaluate and maintain the effective and appropriate management of the region's hazard mitigation program.

Local governments are encouraged to utilize this assessment to identify capabilities they want to expand and improve upon to enhance implementation efforts toward the region's mitigation strategy. Each local government's ability to do so is dictated by its elected leadership, management, and available funding and staffing. Grant funding opportunities are also noted to improve these capabilities.

Mitigation capabilities are classified into the following types:

- **Planning & Regulatory**
  - Plans
  - Building Code, Permitting, & Inspection
  - Land Use Planning & Ordinances
- **Administrative & Technical**
  - Administration
  - Staff
  - Technical
- **Financial**
  - Funding Resources
- **Education & Outreach**
  - Programs & Organizations

Counties and participating governments have reassessed their mitigation capabilities for this 2025 HMP. These are found in each county annex.

Compliance with Floodplain Requirements

The National Flood Insurance Program (NFIP) makes federally-backed flood insurance available to homeowners, renters, and business owners in participating communities. Base flood elevations and the boundaries of the 100- and 500-year floodplains are shown on Flood Insurance Rate Maps (FIRM), when available, which are the principal tool for identifying the extent and location of the flood hazard. FIRMs are the most detailed and consistent data sources available, and for many communities, they represent the minimum area of oversight under their floodplain management program.

Participants in the NFIP must, at a minimum, regulate development in floodplain areas in accordance with NFIP criteria. Before issuing a permit to build in a floodplain, participating jurisdictions must ensure the following criteria are met:

- New buildings and those undergoing substantial improvements must, at a minimum, be elevated to protect against damage by the 100-year flood.
- New floodplain development must not aggravate existing flood problems or increase damage to other properties.

The NFIP looks to reduce flood risk after a flood event. It does this through substantial damage/substantial improvement rules. These rules apply when a structure is more than 50% damaged or improved (by cost). The owner must build in a way that complies with current building codes and ordinances. This applies even if the structure was exempt from those rules before the damage or improvement. It also applies to damage from non-flood events like fire or wind. Substantial damage/substantial improvement allows communities to require owners of structures built before they joined the NFIP to comply with current standards. Communities are responsible for making substantial damage/substantial improvement determinations and notifying property owners.

All counties and participating governments have documented their NFIP compliance within each individual county annex.

Planning Process

Background

The 2025 Region 3 HMP is an update to the 2019 HMP. HMPs are community-led efforts designed to identify, manage, and avoid risks through pre-disaster event planning. This plan reduces the risks posed by hazards that affect Region 3 communities and must be updated and approved by FEMA every five years to maintain eligibility for FEMA Hazard Mitigation Assistance (HMA) Program Grants.

Purpose

The State of Wyoming's Office of Homeland Security (WOHS) coordinated with Region 3 counties to create a cross-regional Hazard HMP. The purpose of the HMP is to help plan for and implement hazard mitigation projects and activities to reduce or eliminate losses from future hazard events. The counties of Albany and Carbon, and with their respective local governments and communities, led these efforts to conduct local hazard assessment and analysis. Their efforts have demonstrated a commitment and perseverance to mitigating future risks. This plan will be used as a tool for Region 3 communities to guide resiliency and help decision-makers direct mitigation activities.

Background

No community is immune from disasters. Past disasters within and around the region have caused loss of life, damaged property and infrastructure, and have impacted local communities' economic, social, and environmental well-being. Local hazard mitigation planning is a process of organizing community resources, identifying and assessing hazard risks, and determining how to best minimize or manage those risks. This process results in the HMP, which identifies specific mitigation actions that are designed to achieve both short-term objectives and long-term community goals.

Hazard Mitigation Planning helps to reduce a community's risks and produce long-term and recurring benefits to break the cycle of disaster loss. This includes the identification of policies, capabilities, activities, and tools necessary to implement successful and sustainable risk reduction actions. Benefits of mitigation planning can be seen in many ways, including;

- Protecting lives and property
- Safeguarding economic health and public and private investments
- Ensuring quick and effective recovery following disasters
- Reducing future vulnerability through wise development and post-disaster recovery and reconstruction
- Enhancing coordination within and across participating jurisdictions
- Enabling and expediting the receipt of pre-disaster and post-disaster grant funding
- Demonstrating a firm commitment to improving community health and safety
- Allowing the jurisdictions to integrate hazard mitigation planning across all levels of government

A core assumption of hazard mitigation is that pre-disaster investments will significantly reduce the demand for post-disaster assistance by lessening the need for emergency response, repair, recovery, and reconstruction. Furthermore, mitigation practices enable local residents, businesses, and

industries to re-establish themselves in the wake of a disaster, getting the community economy back on track sooner and with less interruption.

The benefits of mitigation planning go well beyond reducing hazard vulnerability. Measures such as the acquisition or regulation of land in known hazard areas can help achieve multiple community goals, such as preserving open space, improving water quality, maintaining environmental health, and enhancing recreational opportunities. Thus, it is vitally important that any local mitigation planning process be integrated with existing local planning efforts. It's also important that any proposed mitigation strategies take into account broader community goals.

During the last two decades, emergency management has evolved considerably. A renewed emphasis has been placed on planning for disasters before they occur as a complement to effective response and recovery. As a result, hazard mitigation has gained increasing prominence as a critical part of emergency management. By taking sustained mitigation actions to reduce or eliminate the long-term risk to human life and property, hazard risks can be proactively combated in a systematic manner. This approach to emergency management is much more effective than reacting to a hazard once it has occurred.

This HMP is the result of continuing work by the citizens and stakeholders of Albany and Carbon Counties to guide these communities towards greater disaster resistance, but also respect the character and needs of local governments and their residents.

Scope

This 2025 HMP has been prepared to meet requirements set forth by FEMA in order for Region 3 local governments to be eligible for funding and technical assistance from state and federal hazard mitigation programs. This HMP will be updated and FEMA-approved within its five-year expiration date.

Authority

This HMP has been adopted by Region 3 counties and their participating local governments in accordance with the authority granted to counties and local governments by the State of Wyoming. This HMP was developed in accordance with current state and federal rules and regulations governing local HMPs and shall be monitored and updated on a routine basis to maintain compliance with the following legislation and guidance:

- Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 U.S.C., Section 322, Mitigation Planning, as enacted by Section 104 of the Disaster Mitigation Act of 2000 (P.L. 106-390) and by FEMA's Interim Final Rule published in the Federal Register on February 26, 2002, at 44 CFR Part 201
- The following FEMA guides and reference documents were used to prepare this document:
- FEMA. Local Mitigation Planning Policy Guide. April 19, 2022.
- FEMA. Local Mitigation Planning Handbook. May 2023.

Update Process and Methodology

The planning process involved a series of meetings and workshops with the LPT, coupled with public engagement efforts and the development of an updated risk assessment. The culmination of this process was an updated mitigation strategy for Region 3 counties and their local governments to work towards implementing over the next five years. A high-level summary of the components that contributed to the updated HMP is presented in **Figure 1**.

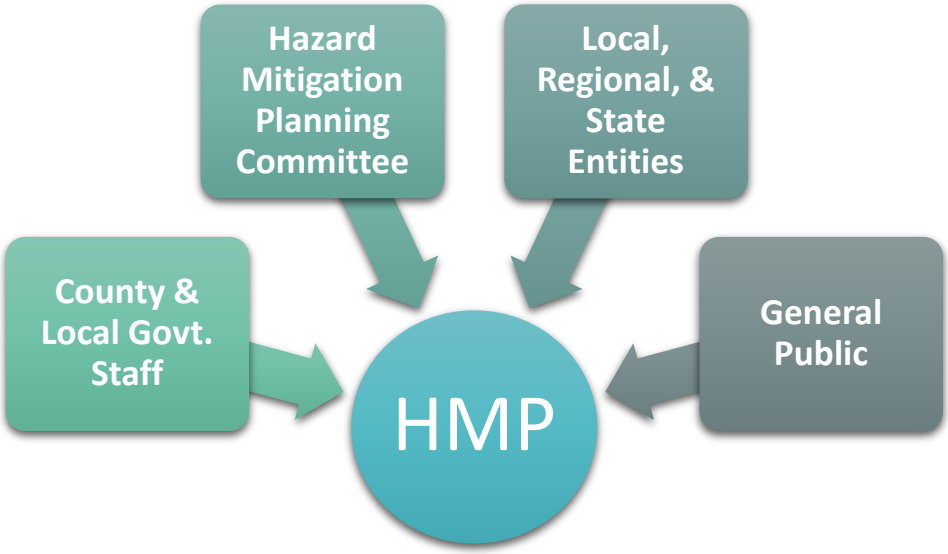
Figure 1 HMP Components

From a 'big picture' standpoint, the LPT identified the following overarching project goals:

- Obtaining FEMA Approval
- Broadening jurisdictional collaboration and participation
- Improving public engagement
- Increasing mitigation grant funding pursuits

Input into the planning process came from a number of entities, as shown in **Figure 2**.

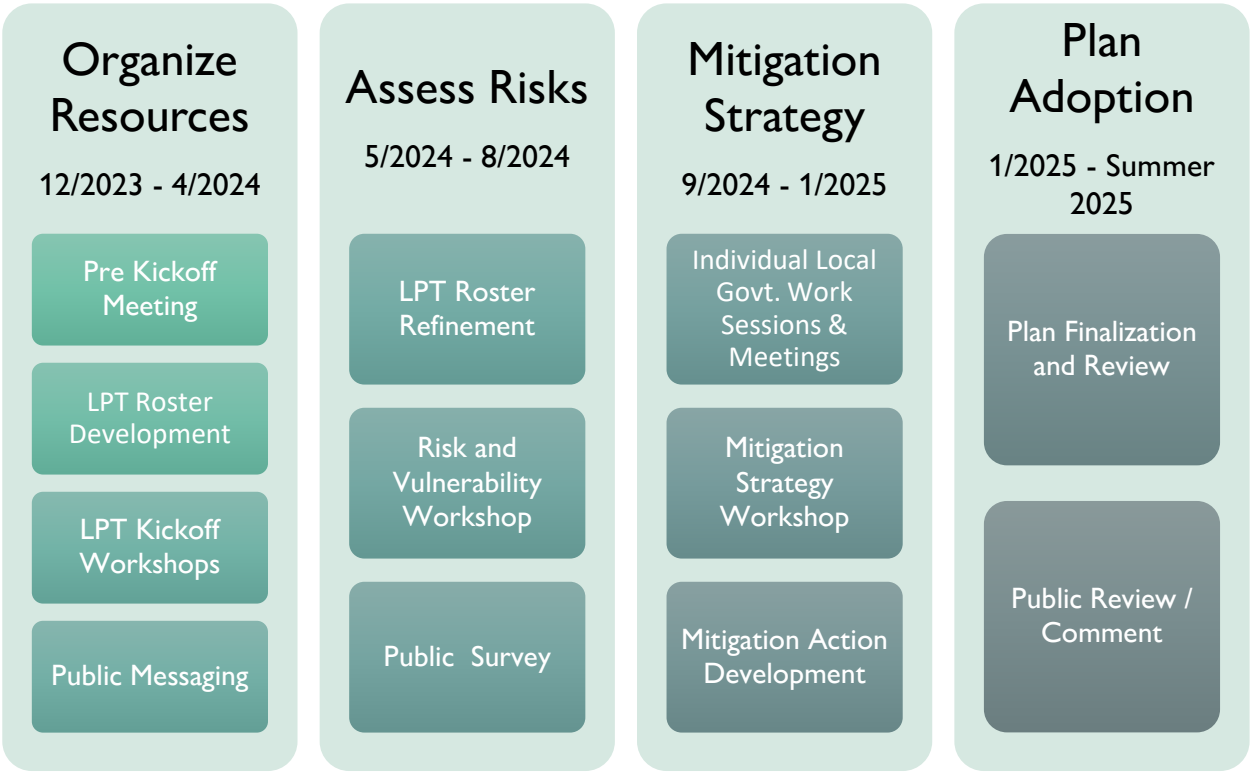
Figure 2 Planning Process Inputs



Timeline of Activities

Figure 3 summarizes the HMP's planning process schedule, including all LPT and public touchpoints.

Figure 3 Project Milestones



Participating Local Governments

All local governments in Region 3 were invited, via email, one-on-one conversations, and during other community meetings, by each County Homeland Security Coordinator to participate in the planning process. They were informed of the participation requirements and the formation of the LPT. The following organizations were formal participants in the planning process and have formally adopted this HMP:

- Albany County
    - City of Laramie
    - Town of Rock River
    - Albany County Fire District #1
    - Laramie Rivers Conservation District
    - Albany School District #1
    - Wold Improvement and Service District
    - Pioneer Canal – Lake Hattie Irrigation District
- Carbon County
    - City of Rawlins
    - Town of Baggs
    - Town of Dixon
    - Town of Elk Mountain
    - Town of Encampment
    - Town of Hanna
    - Town of Medicine Bow
    - Town of Riverside
    - Town of Saratoga
    - Town of Sinclair
    - SER (Saratoga-Encampment-Rawlins) Conservation District
    - Medicine Bow Conservation District
    - Little Snake River Conservation District
    - Carbon County School District 2
    - Carbon County Fire Protection District
    - Sierra Madre Water & Sewer Joint Powers Board

Local governments that decided not to be formal participants include:

- Albany County
    - Centennial Water District
    - South of Laramie Water District
- Carbon County
    - Carbon County School District 1

Participation in the planning process was closely tracked to ensure all entities remained engaged throughout. **Table 1** shows organizational participation at LPT meetings and webinars. Individual one-on-one discussions, emails, and meetings were also utilized as needed throughout the process

and were conducted by each county with all local governments seeking FEMA approval. Event agendas can be found in each county annex.

Table 1 Local Government Participation

Local Government	Pre-Kickoff	Kickoff Workshop	Risk Assessment Workshop	Mitigation Strategy Workshop	Work Sessions
Albany County	●	●	●	●	●
City of Laramie		●	●	●	●
Town of Rock River				●	●
Albany County Fire District #1		●	●	●	●
Laramie Rivers Conservation District		●	●	●	●
Albany School District #1					●
Wold Improvement & Service District				●	●
Pioneer Canal – Lake Hattie Irrigation District					●
Carbon County	●	●	●	●	●
City of Rawlins		●	●		●
Town of Baggs		●	●	●	●
Town of Dixon		●		●	●
Town of Elk Mountain				●	●
Town of Encampment		●	●	●	●
Town of Hanna					●
Town of Medicine Bow		●	●	●	●
Town of Riverside		●		●	●
Town of Saratoga				●	●
Town of Sinclair		●	●		●
SER (Saratoga-Encampment-Rawlins) Conservation District			●	●	●
Medicine Bow Conservation District		●	●	●	●
Little Snake River Conservation District					●
Carbon County School District 2		●	●	●	●
Carbon County Fire Protection District				●	●

Local Government	Pre-Kickoff	Kickoff Workshop	Risk Assessment Workshop	Mitigation Strategy Workshop	Work Sessions
Sierra Madre Water & Sewer Joint Powers Board		•	•	•	•

In addition to participating in planning events, formal participants were also required to complete a "Local Government HMP Workbook". This document, referenced at all planning events, requested those local inputs that are vital for a successful and ultimately, FEMA approvable HMP. Workbook responses were solicited over the course of the planning process.

Local Planning Team

The full LPT roster is included in **Appendix B: Local Planning Committee** Roster. This roster shows all of the invitees who were contacted via email to participate in, and contribute to, the planning process. In addition to local governments across the region, a number of other stakeholders were involved in the HMP update. The roster also highlights those primary community sectors that each individual represents. A summary of those sectors invited to the planning process includes:

- Emergency Management
- Economic Development
- Land Use & Development
- Housing
- Health & Social Services
- Infrastructure (Lifelines)
- Natural & Cultural Resources
- Under-resourced Communities & Socially Vulnerable Populations
- Management
- Elected Leadership
- Education
- Large Employers
- Neighboring Counties
- State Agencies
- Federal Agencies

Planning Activities

The following section details activities, including meetings and workshops, that were utilized as part of the HMP update. Major points of discussion and decisions made are provided. Detailed agendas and participation tracking documentation are included in each county annex.

Pre-kickoff Meeting

Pre-kickoff meetings were held between all Albany and Carbon County-designated project managers and the planning consultant from December 2023 to January 2024. Important discussions are summarized in the following list:

- Schedule: A detailed schedule was coordinated, including regular monthly meetings between the counties and consultant.
- Participating Local Governments: It was determined that all local governments within each county's boundary would be invited to participate in the HMP update. All previous FEMA approval-seeking agencies would once again seek FEMA approval, and Saratoga-Encampment-Rawlins (SER) Conservation District was added as a FEMA approval seeking entity.
- LPT Roster: The new FEMA planning policy was reviewed, specifically as it related to the roster. A detailed roster for both Albany and Carbon Counties would be drafted following the meeting.
- Hazards to Profile: An initial conversation about hazards to include or remove was had. This topic would be further discussed at the LPT Kickoff Workshop.
- Mitigation for Hazards: Specific notes from the LPT were provided regarding tornado early warning systems and funding for mine subsidence mitigation projects.
- Past Events: Hazard events occurring since the last HMP was developed were reviewed. The LPT mentioned the Mullen Fire and Hanna 316 Fire, as well as the severe winter weather experienced throughout Region 3 in 2022-2023.
- Public Engagement: The project's public engagement plan was initially discussed. This topic will be further discussed at the LPT Kickoff Workshop.
- High Hazard Potential Dams: It was determined that the updated HMP would aim to meet FEMA's HHPD planning policy requirements for some communities.
- Next Steps – It was agreed that the next step in the planning process would involve the kickoff meeting with the full LPT.

Kick-off Workshop

The LPT kickoff workshop was held in April of 2024. The entire LPT roster was invited to attend this hybrid-style workshop. Important discussions included:

- Public Involvement Strategy: Albany and Carbon Counties determined they would cover the public outreach and advertisement of the public risk perception survey at a county level.
- Hazards to Profile: Hazards from the previous HMP and the 2021 Wyoming State Hazard Mitigation Plan were reviewed for inclusion in the updated HMP. The LPT discussed adding solar flares to the hazard list, but determined this was not a high-risk hazard. Expansive soils was added in this HMP update The final list is documented in the **Identified Hazards of Concern** section.
- Past Events: Hazard events occurring since the last HMP was developed were reviewed, specifying details on Winter Storm Xylia in March of 2021

- LPT Roster: The new FEMA planning policy was reviewed, specifically as it related to the roster. LPT members were encouraged to help to further build out the roster, to ensure all community sectors were invited to the planning process. The LPT noted that senior centers, the Carbon County Fire Protection District, and Sierra Madre Water & Sewer Joint Powers Board should be added to the roster. The State Engineers Office, Public Health, Sheriff's Department, Bureau of Land Management, and Bureau of Reclamation would also be added to the roster.
- Updated Risk: The LPT noted that the City of Laramie is updating the floodplain for Spring Creek.
- Local Government HMP Workbook: This tool was presented to the LPT, explaining how this would help to guide and capture those local inputs that are vital for a successful and ultimately, FEMA-Approvable, HMP.

Risk Assessment Workshop

The individual, county-specific LPT risk assessment workshops were held on August 12th (Albany County) and August 13th (Carbon County) of 2024. The entire LPT roster was invited to attend these in-person workshops. Important discussions included:

- Geographic Information System (GIS) Data: The LPT decided that national datasets would work better for exposure analysis and creating local FEMA Lifeline and structure datasets would be a mitigation action to develop this data to use in future plan updates.
- Participating Local Governments: All participants were again informed of participation requirements necessary to receive FEMA-Approval of the updated HMP.
- Draft Risk Assessment Chapter: Extensive comments were provided on the draft plan chapter that would be shared with the LPT. Additional past hazard events were discussed to be added to the HMP, and the LPT provided local vulnerabilities to each hazard.
- Underserved/Socially Vulnerable Populations: The LPT noted that senior populations, college students, and those living in rural areas are disproportionately likely to experience losses from hazard events. Special considerations should be made for these populations in the planning process.
- Local Government HMP Workbook: This tool and the next round of local government input requests was reviewed with the LPT.
- Mitigation Strategy: Initial conversations relating to the updated mitigation strategy focused on the HMP's mitigation goals.
- Updated Community Wildfire Protection Plan (CWPP): Albany County is updating their CWPP and requested to use data from the this HMP update process to inform their wildfire risk.

Mitigation Strategy Workshop

The individual, county-specific LPT risk assessment workshops were held on August 29th (Albany County) and August 30th (Carbon County) of 2024. The entire LPT roster was invited to attend these in-person workshops. Important discussions included:

- Participating Local Governments – All participants were reminded of participation requirements necessary to receive FEMA-Approval of the updated HMP.

- Under-resourced Communities and Socially Vulnerable Populations – The LPT discussed previous and potential future HMP outreach directed specifically towards these groups.
- Review of the Mitigation Strategy – The LPT reviewed the updated mitigation goals which the committee agreed to align across all counties in the region. Ideas for potential new mitigation actions were reviewed, including public input from the public survey.
- Local Government HMP Workbook – This tool and the next round of local government input requests was reviewed with the LPT.
- HMP Maintenance – The LPT discussed what plan maintenance process will be following over the next five years.
- Action Prioritization – The LPT discussed mitigation action prioritization and what inputs should factor into these decisions.

1-on-1 Work Sessions

Each county also facilitated individual, local government-specific work sessions leading up to and following the final mitigation strategy workshops. All participating local governments participated in these in-person meetings and phone discussions. Many governments participated in multiple sessions. This provided participating local governments with a chance to ask questions about and review the various inputs being requested.

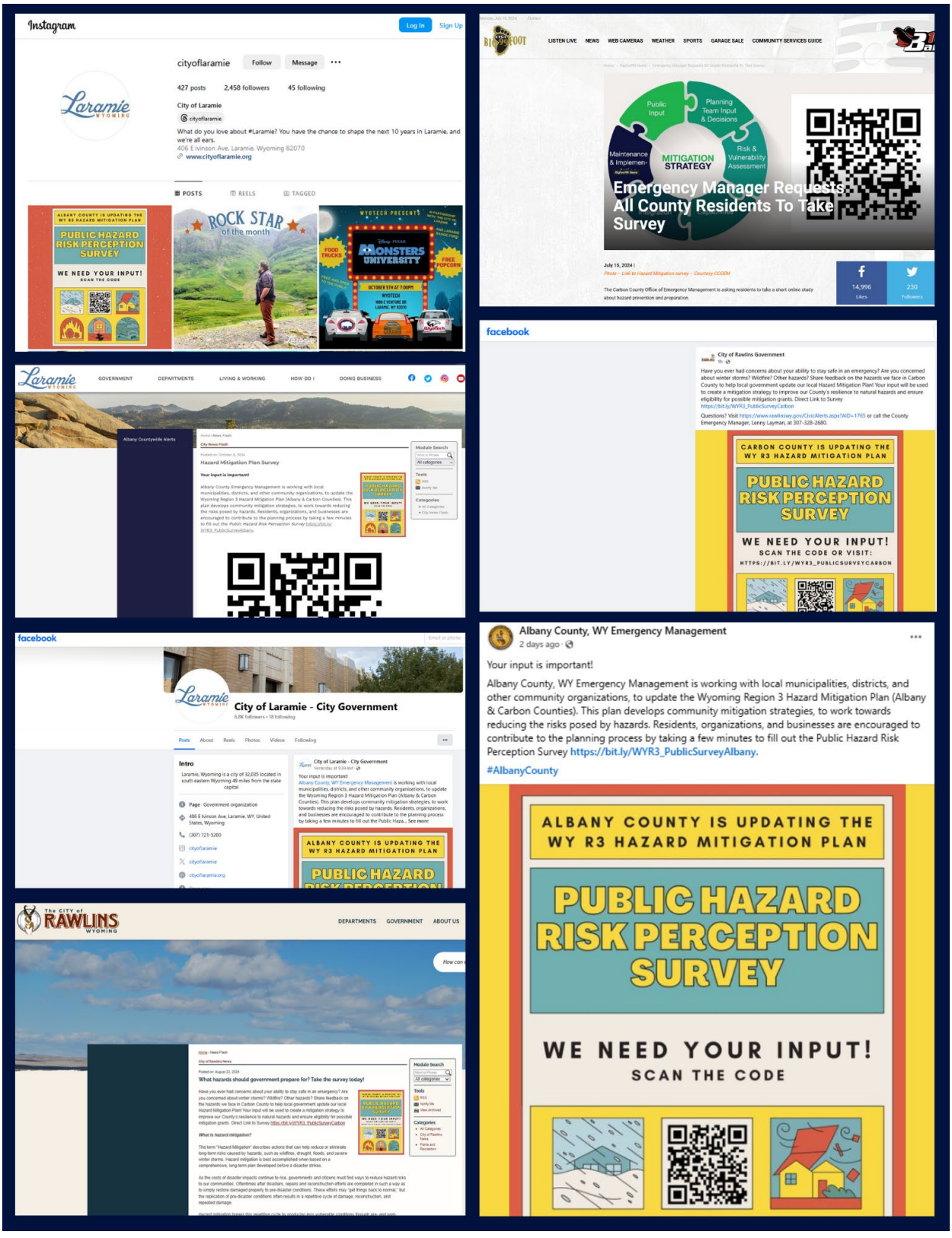
Planning Committee Draft Plan Review

Upon completion of the final draft plan, the LPT was provided a two week opportunity to review and comment on the document in January-February of 2025. All comments received from the LPT were incorporated.

Public and Stakeholder Participation

Public involvement is crucial to a representative hazard mitigation plan update. Each county assisted in community messaging via various channels including print, websites, and social media and provided residents and businesses with multiple opportunities to contribute to informing the HMP update. In addition to online postings on Instagram, Facebook, and local government websites, local governments also distributed the public survey in utility bills, placed posters and handouts in city facilities and City Hall, and put handouts in council members mailbox. Figure 4 provides some examples of the online postings.

Figure 4 Online Posts



Dam Safety

During the HMP update the Wyoming State Engineer's Office was invited to attend and participate in all three planning workshops. Additionally the office provided the inundation mapping that was used in the risk assessment and was given an opportunity to review the updated draft HMP.

Under-Resourced Communities

During the HMP update, the LPT roster was carefully crafted to ensure extensive representation from organizations supporting under-resourced and vulnerable populations in the region, including those with access and functional needs (AFN). This roster includes representatives from the University of Wyoming, Eppson Center (Senior Center), Carbon County Senior Services, Laramie Interfaith, St. Christophers's Highway of Carbon County, Ivinson Memorial Hospital, Memorial Hospital of Carbon County, American Red Cross of Wyoming, ARK Regional Services, and each county's Voluntary Organizations Active in Disasters (VOAD). A full list of these organizations can be found in **Appendix B: Local Planning Committee Roster**.

Those priority vulnerable populations that were identified to be specifically engaged during the planning process and through ongoing public engagement are detailed below. Engagement occurred in the following ways for each county:

- Albany County:
    - Older Adults: The public survey and public review were disseminated directly to this community through the Eppson (Senior) Center.
    - College Students: The public review was disseminated directly to this community through the University of Wyoming's Office of Emergency Management.
    - Rural Communities/Remote Subdivisions: The public review was disseminated to these communities through hardcopy flyers in the Centennial Post Office, Woods Landing Restaurant, and Rock River Town Hall. Social media posts were posted by Albany County through all of its social media platforms, including the EMA & Sheriff's Office Facebook sites,. The City of Laramie also utilized its Facebook. Additionally, the Wild Horse Ranch Facebook and North Fire social media sites were utilized to broadcast the public survey & public review, and public review, respectively. Other platforms utilized for spreading the word about the public review included: WyCo, Wold, VVFD, ACVFD, Sybille Fire Zone, Laramie Peak Fire Zone, and Word of Mouth Albany County.
    - AFN populations: The public review was disseminated through ARK Regional Services.
- Carbon County:
    - Older Adults: The public review was disseminated directly to this community through the Carbon County Senior Services, who then shared across all eight facilities across the county. The public review was also disseminated to these communities through hardcopy flyers in the county's Community Centers (Platte Valley Community Center/Valley Community Center) and the Carbon County Library System, who then shared across all seven libraries. The public review was also disseminated to the

Carbon County Public Health Department, who in turn shared it with their county partners.

- Transient Populations: The public review was disseminated directly to this community through the Saint Christopher's Highway of Carbon County (SCHCC) organization. Carbon EM also provided a presentation relating to the HMP in January 2025 to the SCHCC Board.
- Rural Communities/Remote Subdivisions: The public review was disseminated to these communities through the Carbon County Council of Government (CCCOG). Social media posts were posted by Carbon County through all of its social media platforms for the public survey & public review. The public review was also disseminated directly to this community through the Carbon County Senior Services, who then shared across all eight facilities in the county. The public review was additionally disseminated to these communities through hardcopy flyers in the County's Community Centers (Platte Valley Community Center/Valley Community Center) and the Carbon County Library System, who then shared across all seven libraries.

Community Survey

The community online survey was open to the public from July through November 2023 and received over 470 responses! These responses from the public were reviewed during LPT workshops and helped to inform the mitigation strategy and risk assessment chapters of this HMP. A summary of the results can be found in this HMP's Annexes.

The Survey was split into Carbon County and Albany County, allowing each county to better understand the input and needs of their communities. Being able to evaluate the survey results, knowing they are from a specific county and not the entire region, allows for greater understanding and creates value from each comment.

Public Plan Review and Comment

Following development of the updated HMP a public review and comment period was held. Announcements of the public review were posted widely to county websites and social media accounts. Additionally, under-resourced communities were engaged as detailed in the previous section.

Albany County placed flyers at the: Public Library, Public Health Building, Albany County Courthouse, City of Laramie Town Hall, Ivinson Memorial Hospital, Post Office, Laramie Plains Civic Center, Lincoln Community Center, and the Laramie Recreation Center (within the City of Laramie limits).

Carbon County placed flyers at the County's Community Centers and Library System buildings. The County Emergency Manager also presented a summary of the plan to the Board of Carbon County Commissioners and St. Christophers Highway of Carbon County.

There were three public comments received through the online survey that was advertised along with a link to the updated document. These all showed support for the plan document and planning process. Additionally, no comments were received outside of the online survey.

Hazard Identification and Risk Assessment (HIRA)

Identified Hazards of Concern

Building a clear understanding of the hazards that pose risks to the communities of Region 3 is a key step in preventing disaster losses. For this plan, the following terms facilitate community comparisons and can be found throughout the risk assessments and mitigation strategies.

- **Hazard:** Event or physical conditions that can potentially cause fatalities, injuries, property damage, infrastructure damage, agricultural loss, environmental damage, interruption of business, or other types of harm or loss.
- **Vulnerability:** The degree of susceptibility to physical injury, harm, damage, or economic loss; depends on an asset's construction, contents, and economic value of its functions.
- **Exposure:** The people, property, systems, or functions that could be lost to a hazard. Generally, exposure includes what lies in the area the hazard could affect.
- **Risk:** A hazard's likelihood of occurrence and its consequences to society; the estimated impact that a hazard would have on people, services, facilities, and structures in a community.

The Hazard Identification and Risk Assessment (HIRA) section involves a method for evaluating risk which is defined by the probability and frequency of occurrence of a hazard event, exposure of people and property to the hazard, and consequences of that exposure. Different methodologies exist for assessing the risk of hazard events, ranging from qualitative to quantitative approaches.

Region 3 communities are vulnerable to a wide range of natural and human-caused hazards that threaten life, property, and the environment. The ten hazards identified by the Local Planning Teams (LPTs) for inclusion in the plan are those determined to threaten residents, businesses, visitors, and commuters. The hazards profiled for the 2025 Plan are:

- Avalanche
- Drought
- Earthquake
- Flood/Dam, Dike & Levee Incident
- Geologic Hazards (Landslide/Land & Mine Subsidence/Expansive Soils)
- Severe Thunderstorm (Lightning/Hail)
- Tornado/Wind/Windblown Deposits
- Wildfire
- Winter Storm

One hazard profiled in the State of Wyoming HMP, Volcano, is not included due to this event's very low probability and minimal vulnerability posed to Region 3 communities. Several hazards identified in the 2019 Wyoming Region 3 HMP were combined in the 2025 update due to comparable impacts from these hazards on people and property. In the 2025 Wyoming Region 3 HMP, Tornado and Wind/Windblown Deposits are combined and profiled as one hazard, as are Dam Incidents and Flood.

It should be noted that many of these hazards are interconnected, and the risk assessment discusses how these hazards overlap. For example, prolonged drought impacts the likelihood of wildfire.

Disaster Declaration History

The counties in Wyoming Region 3 have experienced 5 federal-declared disasters or emergencies, 7 fire management assistance declarations, and 36 USDA disaster declarations. **Table 2** through **Table 4** provide details on these declarations in Region 3. No state-declared disasters have been made for Region 3 beyond those that rose to the level of a federal declaration.

Table 2 Region 3 Federal Disaster Declarations

Location	Date	Description	Disaster Number
Statewide	July 1963	Heavy Rains and Flooding	DR-155
Region 3 Counties	July 2011	Wyoming Severe Storms, Flooding, and Landslides	DR-4007
Albany County	July 2015	Wyoming Severe Storms and Flooding	DR-4227
Statewide	March 2020	Covid-19	EM-3479
Statewide	April 2020	Covid-19	DR-4535

Source: Wyoming State Hazard Mitigation Plan 2021-2026, FEMA

Table 3 Region 3 Fire Management Assistance Declarations

Location	Date	Description	Disaster Number
Albany County	June – July 2002	Wyoming Hensel Fire	FM-2427
Albany County	June-July 2002	Wyoming Reese Mountain Fire	FM-2436
Albany County	June-July 2012	Wyoming Arapahoe Fire	FM-2992
Albany County	July 2012	Wyoming Squirrel Creek Fire	FM-2993
Albany County	June 2018	Wyoming Badger Creek Fire	FM-5241
Region 3 Counties	September 2020	Wyoming Mullen Fire	FM-5375
Carbon County	September 2020	Wyoming 316 Fire	FM-5347

Source: Wyoming State Hazard Mitigation Plan 2021-2026, FEMA

Table 4 Region 3 USDA Disaster Declarations

Location	Date	Description	Disaster Number
Albany County	July 2012	Drought, high winds, and excessive heat	S3260
Albany County	July 2012	Drought	S3290
Carbon County	July 2012	Drought	S3298
Carbon County	July 2012	Drought	S3290
Carbon County	July 2012	Drought, high winds, and excessive heat	S3260
Albany County	Aug 2012	Drought	S3319
Region 3 Counties	Aug 2012	Excessive heat, high winds, drought, wildfires, and freezes	S3350
Carbon County	Aug 2012	Drought	S3319
Region 3 Counties	April 2013	Drought	S3508
Region 3 Counties	May 2013	Drought	S3548
Albany County	July 2016	Hailstorms	S4087

Location	Date	Description	Disaster Number
Carbon County	Aug 2018	Drought	S4357
Albany County	Sep 2018	Drought	S4386
Albany County	Sep 2018	Excessive rain, flash flooding, hail, high winds, lightning, and tornados	S4397
Albany County	Sep 2018	Drought	S4407
Carbon County	Sep 2018	Drought	S4386
Carbon County	Sep 2018	Drought	S4407
Carbon County	Oct 2018	Drought	S4410
Albany County	Oct 2018	Drought	S4408
Region 3 Counties	May 2019	Drought	S4481
Carbon County	August 2020	Drought	S4753
Region 3 Counties	September 2020	Drought	S4775
Region 3 Counties	September 2020	Drought	S4785
Region 3 Counties	September 2020	Drought	S4793
Region 3 Counties	September 2020	Drought	S4798
Albany County	October 2020	Drought	S4852
Region 3 Counties	March 2021	Drought	S4917
Region 3 Counties	March 2021	Drought	S4926
Region 3 Counties	April 2022	Drought	S5147
Region 3 Counties	April 2022	Drought	S5177
Region 3 Counties	June 2022	Drought	S5223
Albany County	July 2022	Drought	S5228
Region 3 Counties	March 2023	Drought	S5386
Region 3 Counties	March 2023	Drought	S5383
Albany County	May 2023	Drought	S5407
Region 3 Counties	March 2024	Drought	S5683

Source: USDA

Hazard Risk Summary

A qualitative risk ranking was performed by each participating local government for all 9 hazards profiled in this plan. This risk ranking assessed the probability of each hazard's occurrence and its likely impact on the people, property/environment, and economy of the planning area. The responses were collected utilizing a four-category qualitative scale. For the probability of a hazard, this included "unlikely (1)" "possible (2)", "probable (3)", and "likely (4)". For the impacts of the hazard to the three community sectors, the scale included "minor (1)", "limited (2), "critical (3)", and "catastrophic (4)". The responses were then calculated into a quantitative range by combining the impact scores and multiplying by the probability score, which correlates with the "high," "moderate," and "low" risk rankings.

Table 5 Region 3 County Hazard Risk Rankings

Hazard	Albany County	Carbon County
Avalanche	Low	Low
Drought	High	High
Earthquake	Low	Moderate
Flood/Dam, Dike, & Levee Incident	Moderate	Moderate
Geologic Hazards (Landslide/Land & Mine Subsidence/Expansive Soil)	Moderate	Low
Severe Thunderstorm (Lightning/Hail)	Moderate	Moderate
Tornado/Wind/Windblown Deposits	Moderate	High
Wildfire	Moderate	High
Winter Storm	High	High

County Annexes

County-specific annexes have been developed to streamline this document and provide each county with an individualized and succinct version of the vulnerability assessment results. Readers are encouraged to review these annexes for information and data specific to each county and their local governments.

Hazard Data Viewers

The information in the following risk and vulnerability assessments is considered a snapshot in time, based on the best available data during this plan's development. It is expected that over the 5-year life of this updated plan, many of these data sets will continue to be updated and enhanced while new data sources will become available. Communities must be aware of how to access this information to ensure they are referencing the latest and greatest hazard data.

Fortunately, communities can now leverage state and federal web map viewers to assess the most current hazard mapping available for many of the hazards profiled in this plan. Details on these currently available tools are shared below, and readers can access the platforms by clicking on the title of each viewer in the description.

Wyoming Wildfire Risk Assessment Portal

The Wyoming Wildfire Risk Assessment Portal (WYWRAP) delivers a web-based application designed to provide immediate, online access to Wyoming calibrated West Wide Wildfire Assessment data to help communities, fire departments, emergency planners, and land management agencies collectively prepare for and be resilient to wildfires by facilitating effective, efficient, and consistent data and information exchange. This allows for enhanced public awareness of wildfires and helps to build capacity for planning efforts and develop fuel treatment priorities at all levels. WYWRAP provides information designed to reduce the potential for catastrophic wildland fires through educating the public and assisting decision-makers to make informed choices regarding wildfire hazards, ecosystem enhancement, and public safety. West Wide Wildfire Assessment data was developed to cover the seventeen Western States. WYWRAP was specifically designed from the larger data set for use in Wyoming.

FEMA National Risk Index (NRI)

FEMA National Risk Index (NRI) – is a tool that helps illustrate the communities most at risk for 18 natural hazards. The Risk Index leverages available source data for natural hazards and community risk factors. The risk equation behind the Risk Index includes three components: a natural hazards component (Expected Annual Loss), a consequence-enhancing component (Social Vulnerability), and a consequence reduction component (Community Resilience).

Climate Mapping for Resilience and Adaptation (CMRA) Assessment

Climate Mapping for Resilience and Adaptation (CMRA) Assessment – is a tool that provides current and future climate hazard information to assist with prioritizing, identifying, and implementing climate-informed infrastructure investments. As a single source of historical and future climate data, the tool covers exposure to multiple hazards, the status of disadvantaged communities, and building codes. The information can support the planning and implementation of climate-resilient projects.

Climate Risk and Resilience Portal (ClimRR)

Climate Risk and Resilience Portal (ClimRR) – is a collection of tools and data related to estimated future climate-related variables: annual and seasonal averages of the maximum and minimum daily temperatures, total yearly precipitation, drought (consecutive days with no precipitation), and annual average wind speed.

Resilience Analysis and Planning Tool (RAPT)

Resilience Analysis and Planning Tool (RAPT) – is a geographic information system (GIS) tool to help emergency managers and community partners at all GIS skill levels visualize and assess potential challenges to community resilience. Hazard data include data layers of real-time radar and watch and warning notifications from the National Weather Service, live stream gauges, current wildfires, historical hazard data for tornados, floods, and seismic risk.

Exposure Analysis

Throughout the risk and vulnerability assessment, exposure analysis was conducted for hazards as best available data permitted. This analysis helped identify what assets, such as critical infrastructure and buildings, are in areas that could be affected by specific hazards. This information was then used to prioritize mitigation projects. FEMA's Hazus Inventory National Database was utilized for all Lifeline analyses. The US Army Corps of Engineers National Structure Inventory was utilized for all structure assessments. Additional details are provided in the individual county annexes.

Hazard Profiles

Avalanche

General Background

An avalanche is defined as a mass of snow moving down a slope and occurs when the stress from gravity trying to pull snow downhill exceeds the strength of bonds between snow grains. An avalanche has four components: a steep slope, snow cover, a weak layer in the snow cover, and a trigger. Avalanches are released most often on slopes above timberline that face away from prevailing winds. However, avalanches can also run on small slopes well below timberline, such as

gullies, road cuts, and small openings in the trees. Very dense trees can anchor the snow to steep slopes and prevent avalanches from starting; however, avalanches can release and travel through a moderately dense forest.

Skiers, snowboarders, and snowmobile operators are most associated with avalanche injuries and fatalities. However, motorists and others not engaging in recreation risk being caught in an avalanche. Wyoming is one of the top-ranking states for avalanche hazards because of its rural character and mountain recreation.

Severity

The severity of an avalanche can be measured using the destructive force scale (D-scale). The D-scale rates the danger of an avalanche based on its destructive potential:

- D1 avalanches are harmless;
- D2 avalanches can injure or kill people;
- D3 avalanches can destroy homes or vehicles;
- D4 avalanches can destroy buildings and mature forests, and;
- D5 avalanches can gouge the landscape

Severe avalanches are possible in Wyoming, with the primary impacts being injury or fatality and roadblocks. While avalanches are frequent in the Medicine Bow National Forest and typically do not result in injury or death, there have been 11 reported avalanche fatalities in Region 3 since 1877.

Warning Time

While it is possible to identify dangerous conditions that could lead to an avalanche, these events often occur suddenly with little warning time. If conditions for an avalanche are met and the snow slide is triggered, individuals in the path of the avalanche will have little time to respond or escape the hazard. The National Weather Service reports that in 90% of avalanche incidents, the snow slide is triggered by the victim or someone in the victim's party.

Secondary Hazards

Severe avalanches (D4 and D5) can result in landslides and mass earth movement that permanently gouge the landscape. Because of this mass movement of soil, rock, and snow, river damming and flooding can occur.

Climate Change Impacts

Changing climate conditions are likely to influence the frequency and severity of future avalanche events. There is high confidence that temperatures are warming across the mountain-west, but lower confidence in how this will affect changes in precipitation at any given location. Warmer temperatures are expected to lead to more rainfall as compared to snow. As a result, rain is likely to occur at higher elevations in the winter and earlier in the season. There will also be more rain-on-snow events, expected to increase wet avalanche activity in the spring and cause more weak crust layer issues earlier in the season.

In summary, the areas affected by avalanches are projected to shrink as warmer temperatures cause more precipitation to fall as rain. The Southwest Climate Change Assessment Report (SWCARR)

indicates that the duration of the avalanche season is likely to increase by as much as six weeks by the end of the century as there will be earlier wet snow avalanches.

Drought

General Background

The National Drought Mitigation Center defines drought as "a prolonged period of deficient precipitation resulting in extensive damage to crops, resulting in loss of yield." Although sometimes considered a rare and random event, drought is a normal, recurrent feature of climate. Climatic factors such as high temperatures, high wind, and low relative humidity are often associated with drought. Drought occurs in virtually all climatic zones, varying significantly from one region to another. There are four stages of drought, detailed below:

- **Meteorological Drought** is usually based on long-term precipitation departures from normal. Still, there is no consensus regarding the threshold of the deficit or the minimum duration of the lack of precipitation that makes a dry spell an official drought.
- **Hydrological Drought** refers to deficiencies in surface and subsurface water supplies. It is measured as stream flow and as lake, reservoir, and groundwater levels.
- **Agricultural Drought** occurs when there is insufficient soil moisture to meet the needs of a particular crop at a specific time. A deficit of rainfall over cropped areas during critical periods of the growth cycle can result in destroyed or underdeveloped crops with greatly depleted yields. Agricultural drought is typically evident after a meteorological drought but before a hydrological drought.
- **Socioeconomic Drought** associates the supply and demand of economic goods or services with meteorological, hydrologic, and agricultural drought elements. Socioeconomic drought occurs when the demand for water exceeds the supply because of a weather-related supply shortfall. This type of drought can increase because of a change in the amount of rainfall, societal demands for water (or vulnerability to water shortages), or both.

Severity

Wayne Palmer developed the Palmer Drought Severity Index (PDSI) in the 1960s and uses temperature and rainfall information in a formula to determine dryness. Over time it has become the semiofficial drought index for risk assessment and hazard analysis. The Palmer Index is most effective in determining long-term drought in several months and is not used for short-term forecasts (a matter of weeks). It uses a zero as normal conditions and drought is shown in terms of negative numbers; for example, -2 is moderate drought, -3 is severe drought, and -4 is extreme drought. **Table 6** provides an overview of the Palmer Index compared to other drought classification systems. The return period is related to how often the type of drought typically occurs. For example, a minor drought occurs every three to four years.

Table 6 Palmer Drought Severity Index (PDSI)

Drought Monitoring Indices					
Drought Severity	**NDMC* Drought Category**	**Return Period (years)**	**Description of Possible Impacts**	**Standardized Precipitation Index (SPI)**	**Palmer Drought Index**
Abnormal Drought	DO	3 to 4	Going into drought, short-term dryness slowing growth of crops or pastures. Fire risk above average. Coming out of drought, some lingering water deficits, pastures or crops not fully recovered.	-0.5 to -0.7	-1.0 to -1.9
Moderate Drought	D1	5 to 9	Some damage to crops or pastures, fire risk high, streams, reservoirs, or wells low, some water shortages developing or imminent, voluntary water use restrictions requested.	-0.8 to -1.2	-2.0 to -2.9
Severe Drought	D2	10 to 17	Crop or pasture losses likely, fire risk very high, water shortages common, water restrictions imposed.	-1.3 to -1.5	-3.0 to -3.9
Extreme Drought	D3	18 to 43	Major crop and pasture losses, extreme fire danger, widespread water shortages or restrictions	-1.6 to -1.9	-4.0 to -4.9
Exceptional Drought	D4	44+	Exceptional and widespread crop and pasture losses, exceptional fire risk, shortages of water in reservoirs, streams, and wells creating water emergencies.	Less than -2.0	-5.0 or less

Source: National Drought Monitoring Center

Warning Time

Due to the nature of droughts, these hazards develop gradually over a long time. The gradual nature of droughts can often prevent people from recognizing their true impact, unlike other natural hazards such as hurricanes and tornados that trigger a timely response. Drought early warning systems (DEWS) are used by federal, tribal, state, local, academic, and other partners to improve our capacity to monitor, forecast, and cope with the impacts of drought.[1]

[1] Drought Early Warning | Drought.gov

Secondary Hazards

Lower water levels in lakes and reservoirs due to long-term drought can cause land subsidence. Additionally, dry conditions from drought can increase the frequency and severity of wildland fires, as fuels are easier to ignite compared to humid conditions.

Climate Change Impacts

Droughts are projected to increase in frequency largely due to increased evaporation associated with higher temperatures. Additionally, the mountainous areas of Region 3 are expected to see changes in the amount and timing of mountain snowpack. With rising temperatures, the snowpack is expected to melt earlier in the spring, altering the timing of water availability in rivers. Droughts are also predicted to have a longer duration.

Earthquake

General Background

Earthquakes are the sudden release of strain (or displacement of rock) in the earth's crust, resulting in waves of shaking that radiate outward from the earthquake source. Earthquakes can result from crustal strain, volcanism, landslides, or the collapse of caverns and can occur underwater or on land. The point where an earthquake starts is termed the focus or hypocenter and may be several hundred miles deep within the earth. The earthquake's epicenter is the point at the surface directly above the focus. Earthquakes are measured in terms of their magnitude and intensity, as detailed below.

Severity

Earthquake damages range from very minor (shaking not detected by humans without instruments) to very violent (catastrophic in nature) and can affect hundreds of thousands of square miles. The Moment Magnitude scale (Mw, or M) and Richter scale measure the energy released by an earthquake, while the Modified Mercalli Intensity scale offers a human-centered narrative that describes what people felt and what damage occurred. The Richter scale is well-known among the public; however, scientists mainly use the Moment Magnitude scale for precise measurements. Intensities are a subjective measure of how an earthquake is felt. As a result, an earthquake with a single magnitude can have variable intensity associated with it, depending on the distance an observer is from the earthquake source and the response of surficial features. An abbreviated Modified Mercalli Intensity scale is presented in **Table 7** with corresponding Richter scale magnitudes.

Table 7 Earthquake Magnitude and Intensity Scale

Scale	Intensity	Description of Effects	Corresponding Richter Scale Magnitude
I	Not Felt	Detected only on seismographs.	
II	Weak	Some people feel it.	< 4.2
III	Weak	Felt by people resting; like a truck rumbling by.	
IV	Light	Felt by people walking.	
V	Moderate	Sleepers awake; church bells ring.	< 4.8

Scale	Intensity	Description of Effects	Corresponding Richter Scale Magnitude
VI	Strong	Trees sway; suspended objects swing, objects fall off shelves.	< 5.4
VII	Very strong	Mild alarm; walls crack; plaster falls.	< 6.1
VIII	Severe	Moving cars uncontrollable; masonry fractures, poorly constructed buildings damaged.	
IX	Violent	Some houses collapse; ground cracks; pipes break open.	< 6.9
X	Extreme	Ground cracks profusely; many buildings destroyed; liquefaction and landslides widespread.	< 7.3
XI	Disastrous	Most buildings and bridges collapse; roads, railways, pipes and cables destroyed; general triggering of other hazards.	< 8.1
XII	Catastrophic	Total destruction; trees fall; ground rises and falls in waves.	> 8.1

Source: USGS

Minor structural damage does not typically occur until intensity V is reached. It is more difficult to determine at what magnitude damage may occur, as factors such as the orientation of a fault plane, the depth of the rupture on the fault, the bedrock, and surficial sediments all affect the transmission and attenuation of seismic waves. The most severe earthquake reported by the USGS in Region 3 was recorded at a 5.3 magnitude on the Richter Scale, corresponding to an intensity V, almost VI, on the Modified Mercalli Intensity scale.

Warning Time

Most earthquakes are caused by the sudden release of stress accumulated by rock displacement in the Earth's crust along opposing plates. Due to their nature, this hazard typically occurs without warning, which can result in many deaths and injuries.

Secondary Hazards

Secondary hazards of earthquakes include liquefaction, avalanches, landslides, and land subsidence. Liquefaction is the phenomenon that occurs when the strength and stiffness of soil are reduced by earthquake shaking or other rapid loading. Essentially, the soil acts like a fluid, like wet sand near the beach, resulting in ground failure. Mass earth movements such as avalanches, landslides, and land subsidence can also occur due to ground shaking from an earthquake. Flooding can occur during an extreme earthquake event if a riverbed is moved or a dam is broken.

Climate Change Impacts

Changing climate conditions are not expected to impact earthquake events. Most earthquakes are caused by tectonic processes, the forces that exist within the solid Earth and its crust. Due to this, "most quakes occur far beneath Earth's surface, well beyond the influence of surface temperatures and conditions. Additionally, we know the statistical distribution of earthquakes is approximately

equal across all types of weather conditions".[2] Therefore, climate changes are unlikely to impact the frequency, location, or severity of future earthquake events.

Flood/Dam, Dike & Levee Incident

General Background

Flood

A flood is a naturally occurring event and takes place when a normally dry area is inundated with water. The inundation is caused by rising water in an existing waterway, such as rivers and streams, to the point where the flow of water is greater than the normal capacity of the channel. Lowlands adjacent to rivers, streams, and creeks subject to recurring floods are called floodplains.

The 1% annual chance flood event (i.e. – "100-year-flood") is the standard national measurement for flood mitigation actions and insurance and refers to a flood of great magnitude. The 100-year floodplain has a 1% annual chance of being equaled or exceeded in any given year. However, this measurement is a statistical probability and does not mean that the flood only happens every 100 years. A 0.2% annual chance flood event (i.e. – "500-year flood") has a 0.2% annual chance of being equaled or exceeded in any given year and refers to an even more rare and severe flood event. It should be noted that many floodplains were developed using historical data only, which may not represent current conditions.

Flash floods, usually resulting from heavy rains or rapid snowmelt, can flood areas not typically subject to flooding, including urban areas. Additionally, extreme cold temperatures can cause streams and rivers to freeze, causing ice jams and creating flood conditions. Causes of flooding relevant to Region 3 include:

- Dam failure
- Rain in a general storm system
- Rain in a localized intense thunderstorm
- Rain on fire-damaged watersheds
- Spring snowmelt
- Urban stormwater drainage

Dam, Dike, & Levee Incident

Dam failure incidents involve unintended releases or surges of impounded water. Dam failure can be caused by earthquakes, blockages, animal activity (such as burrowing), landslides, lack of maintenance, improper operation, poor construction, vandalism, and terrorism. There are numerous public and private dams in Region 3, some of which could pose a serious threat to the population if breached.

Dams are classified through the U.S. Army Corps of Engineers (USACE) based on hazard potential. This classification is based on the consequences if the dam were to fail, not the potential of failure or the existing condition of the dam. The dams are rated (1) high, (2) significant, or (3) low hazard. The Army Corps of Engineers based the hazard potential designation on such items as the acre-feet

[2] Can Climate Affect Earthquakes, Or Are the Connections Shaky? - NASA Science

capacity of the dam, distance from the nearest community downstream, that community's population density, and the dam's age.

- **High Hazard Dam:** Probable loss of life.
- **Significant Hazard Dam:** No probable loss of human life but can cause economic loss, environment damage, disruption of Lifeline facilities, or other major impacts; often located in predominantly rural or agricultural areas but could be in areas with population and significant infrastructure.
- **Low Hazard Dam:** No probable loss of human life and low economic and/or environmental losses; losses are principally limited to the owner's property.

Dikes, dams, and levees are infrastructure designed to prevent flooding; however, their purposes are distinguishable. Levees are embankments constructed along rivers, canals, and coastlines to protect adjacent lands from flooding by reinforcing the banks. Levees are designed to protect against a specific flood level and could be overtopped during severe weather events or fail due to the same causes of dam failure. Dikes are a barrier used to protect land that would naturally be underwater most of the time. Both dikes and levees only reduce the risk to individuals and structures behind them; they do not eliminate risk.

Severity

Floods can have significant economic, operational, and environmental impacts, as well as threaten human life and safety. Most injuries and deaths from flooding happen when people are swept away by flood currents, and most property damage results from inundation by sediment-filled water. Fast-moving water 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. Basement flooding can also cause extensive damage. Flooding can cause extensive damage to croplands and bring about the loss of livestock. Several factors determine the severity of floods, including rainfall intensity and duration, topography, and ground cover.

When considering the severity of a dam or levee incident, it is important to consider the location of these structures and their proximity to urban centers. Some events may result in shallow flooding or slow release of water with little impact on people and property. Other events, such as a high-hazard dam failure, could result in large volumes of water that severely damage property, shut down facilities and services for more than 30 days, and result in fatalities or stranded residents.

Warning Time

Floods can be slow or fast rising but generally develop over a period of many hours or days. However, flash floods can occur anywhere when a large volume of water flows or melts over a short period of time, generally less than 6 hours. Due to the short warning time of these events, most flood-related fatalities result from flash floods.

For levees, breaches and overtopping are the most common types of failure that occur. With an uncontrolled breach failure of a levee or dam, there is a sudden release of the water, sometimes with little warning. Some water releases from dams are intentional, to preserve safety and operations, and can be planned for. Evacuations and timely warnings are critical to reduce loss of life and injury.

Secondary Hazards

Flooding can result in dam and levee incidents when water overtops or breaches these structures. These hazards can also trigger landslides, debris flows, and mudslides when water saturates slope material and carries it away. These flows can pick up trees and other large materials that block bridges and tributaries, increasing the severity of the flood event.

Climate Change Impacts

Changing climate conditions can potentially impact the current flood season and the intensity of flood events in Region 3. Warming temperatures could lead to early seasonal runoff, contributing to earlier spring flooding. Mountainous areas of Region 3 may see a decline in snowmelt-driven spring and summertime floods, as seasonal snowfall levels are expected to decrease as more precipitation falls as rain. If Region 3 begins to see more frequent and severe wildfire events because of warming temperatures, flash flood frequency could increase in areas with wildfire burn scars.

With a potential for increases in the severity of flood events, climate change may result in large floods that could stress dams and levees and thus potentially increase the risk of failure of these structures. Dams and other hydrologic containment structures are designed based on calculations of a river's flow behavior, and any changes in weather patterns can significantly affect the hydrologic information used to design a dam or levee.

Geologic Hazards (Landslide/Land & Mine Subsidence/Expansive Soils)

General Background

Landslide

Landslides occur when masses of rock, earth, or debris move down a slope. There are several types of landslide movement as described by the United States Geological Survey (USGS):

- **Falls** are abrupt movements of masses of geologic materials, such as rocks and boulders that become detached from steep slopes or cliffs. Gravity typically influences falls after large rocks or boulders detach from their parent rock.
- **Topples** are when earth mass rotates forward around a center point, typically resulting in a tilt without total collapse. Usually, this is caused by cracks or fractures in the bedrock.
- **Slides** refer to mass movements where there is a distinct zone of weakness that separates the slide material from the more stable underlying material.
- **Spreads** occur when surface material extends or spreads on flat terrain or gentle slopes, generally associated with earthquake shaking.
- **Flows** occur when sheets or streams of soil and rock material are saturated with water and flow down slopes under the pull of gravity.

Areas generally prone to landslide hazards include existing old landslides, the bases of steep slopes, the bases of drainage channels, and developed hillsides where leach-field septic systems are used. Landslides are often a secondary hazard related to other natural disasters. Slides are more likely on days of intense rainfall or extensive snowmelt. Other contributing factors include erosion and alternating freezing and thawing. Vibrations or earth-shaking from construction and earthquakes

also trigger landslides and rockfalls. In areas burned by forest and brush fires, a lack of stabilizing vegetation can increase the risk of landslides.

Land Subsidence/Mine Collapse

The USGS defines land subsidence as the gradual settling or sudden sinking of the Earth's surface due to the removal or displacement of subsurface earth materials, often due to groundwater withdrawals, removal of organic soils, underground mining, and natural compaction such as sinkholes or thawing permafrost. The primary cause of land subsidence in Region 3 is mine collapse.

The Wyoming State HMP 2021-2026 describes the mine collapse hazard across the state: "Many of the early coal mines were not designed and constructed well, and as a result, the underground pillars failed. If enough pillars failed, the cap rock in the mine would collapse, and the effects of the collapse would reach the surface in some cases. If the effects of the collapse reached the surface, a subsidence pit would form. Not all subsidence was due to poor design, however. The pillars were sometimes pulled as mining retreated from an area. In other cases, fires would occur in mines, resulting in a loss of strength in the pillars and cap rock."[3]

Expansive Soils

Expansive, or swelling, soils are defined as soils or soft bedrock that increase in volume as they get wet and shrink as they dry out. These expansive soils contain specific clay minerals that expand upon contact with moisture. The more water the clay is exposed to the greater the expansion, as the minerals can grow in volume 10% or more. The force from this expansion can be anywhere from 15,000 to 30,000 pounds per square foot, which easily impacts the integrity of foundations, slabs, and structures.

When these soils begin to dry out and shrink, an additional threat to infrastructure exists. This shrinkage can result in dangerous land subsidence and interfere with the support of structures. As soils shrink, cracks and fissures are created, which present an opportunity for more moisture to enter deeper into the soil during the next wet event. A vicious cycle of swelling and shrinking creates repetitive stress on buildings and infrastructure, ultimately resulting in uninhabitable properties and infrastructure relocation.

Multiple factors affect the expansion of a specific soil. The type and amount of clay mineral content are fundamental to the extent of moisture that soil can retain. The concentration of clay particles will affect the quantity of moisture captured; not all clay types absorb large amounts of water. Particle arrangement, permeability, and soil density impact the degree to which soil can expand. Moisture availability, either through natural precipitation or human interference, and the cyclical patterns of wet and dry periods are key to how much expansion occurs. Human interference can cause soil expansion for various reasons, such as leakage from water supply pipes or drains, changes to surface drainage, and, in some cases, artificial wetting during the construction of new buildings.

Severity

Both landslides and land subsidence hazards destroy property and infrastructure and can take the lives of people. When deaths and injuries do occur, they are typically localized incidents. These

[3] Wyoming State HMP 2021-2026

hazards can also block roadways, causing closures and forcing vehicles to take alternate routes for days.

Expansive soil causes significant amounts of damage to homes, buildings, roads, and pipelines. Expansive soil is one of the most prevalent causes of damage to buildings and construction in the US, with annual losses estimated to be greater than that of tornados, floods, earthquakes, and hurricanes combined. Most of these losses are associated with highways and streets; however, expansive soils have also been known to severely damage the structure of buildings, crack driveways, sidewalks, and basement floors, condemn buildings, and disrupt sewer lines. Special considerations for structural design are common to mitigate against expansive soils.

Warning Time

Landslide events can occur suddenly or slowly. The movement velocity may range from a slow creep of inches per year to many feet per second, depending on slope angle, material, and water content. Some methods used to monitor mass movements can provide an idea of the type of movement and the amount of time before failure. However, there is no practical warning system for mass wasting events. The current standard operating procedure is to monitor situations on a case-by-case basis and respond after the event. Although infrequent, land/mine subsidence can occur abruptly and with little warning time, swallowing structures above that location and leaving a dangerous hole in the Earth's surface.

Expansive soils are a slow-onset hazard, but it is possible to monitor structures and infrastructure potentially at risk because hazard areas are generally known and identified. Soil composition varies greatly across geographies. Expansive soils should be identified by engineering geologists and soil engineers. The extensive damage caused by these soils occurs slowly and is not connected to a singular event.

Secondary Hazards

Mass wasting events can potentially cause dam, dike, and levee incidents and floods when debris blocks stream channels. These floods may trigger more soil erosion and debris flows, particularly when flashflood-producing rains fall on steep terrain.

Expansive soil can result in land subsidence, as these soils contract and compact when large amounts of groundwater are withdrawn. Additionally, these soils have the potential to cause a dam or levee incident if the infrastructure is built on these soils and is damaged over time.

Climate Change Impacts

The conditions required for landslide events are affected by climate, including the melt speed and snowpack level, rapid temperature fluctuations, and erratic precipitation amounts. The integrity of the soil and rock is affected with each freeze and thaw cycle, which occurs more often and more rapidly due to unseasonable temperature swings. Additionally, landslide events are more likely to occur in burn scar areas with little vegetation and darker soil that repels water instead of absorbing it. If higher temperatures and drier conditions lead to an increase in burn scars due to wildfires in Region 3, landslide frequency is likely to increase as well. Land subsidence is also more likely to occur in drier climates and periods of drought when the underground aquifers are depleted.

Climate change could impact the frequency of expansive soil events as well. As a result of extreme temperature fluctuations and unpredictable precipitation patterns, the cycling speed and duration of wet and dry periods are difficult to gauge. Areas exposed to expansive soils that may have a typically dry climate throughout the year can see unseasonable amounts of rain during precipitation events as weather patterns are affected. As the climate returns to the typical dry state, likely with higher-than-normal temperatures, episodes of swelling and shrinking can occur more rapidly and often. The increased cyclical impacts can quicken the damage potential of expansive soils.

Severe Thunderstorm (Hail/Lightning/Thunderstorm Wind)

General Background

Thunderstorm

Three conditions need to occur for a thunderstorm to form. First, it needs moisture to form clouds and rain. Second, it needs unstable air, such as warm air, that can rise rapidly (this is often referred to as the "engine" of the storm). Third, thunderstorms need a lift, which comes in the form of cold or warm fronts, sea breezes, mountains, or the sun's heat. When these conditions coincide, air masses of varying temperatures meet, and a thunderstorm is formed. These storm events can occur singularly, in lines, or clusters. Further, they can quickly move through an area or linger for several hours.

Straight-line winds, which in extreme cases have the potential to cause wind gusts that exceed 100 miles per hour, are responsible for most thunderstorm wind damage. One type of straight-line wind, the downburst, can cause damage equivalent to a strong tornado and can be extremely dangerous to aviation.

Lightning

Lightning is a discharge of electrical energy resulting from the buildup of positive and negative charges within a thunderstorm, creating a "bolt" when the buildup of charges becomes strong enough. This flash of light usually occurs within the clouds or between the clouds and the ground. A bolt of lightning can reach temperatures approaching 50,000 degrees Fahrenheit. Lightning rapidly heats the sky as it flashes but the surrounding air cools following the bolt. This rapid heating and cooling of the surrounding air causes thunder, often accompanying lightning strikes. While most often affiliated with severe thunderstorms, lightning may also strike outside heavy rain and might occur as far as 10 miles from rainfall.

Hail

Hailstorms are a potentially damaging outgrowth of severe thunderstorms. Early in the developmental stages of a hailstorm, ice crystals form within a low-pressure front due to the rapid rising of warm air into the upper atmosphere and the subsequent cooling of the air mass. Frozen droplets gradually accumulate on the ice crystals until they gain sufficient weight and fall as precipitation. The size of hailstones is a direct function of the size and severity of the storm. High-velocity updraft winds are required to keep hail in suspension in thunderclouds. The strength of the updraft is a function of the intensity of heating at the Earth's surface. Higher temperature gradients relative to elevation above the surface increase suspension time and hailstone size.

Hailstones can range in size from 5 millimeters (mm) (approximately pea-sized) to greater than 100mm (approximately melon-sized).

Severity

Thunderstorm

The National Weather Service classifies a thunderstorm as "severe" when it contains one or more of the following:

- Wind gusts of at least 58 mph
- Hail at least one inch in diameter
- Tornado

There are 5 categories of severe thunderstorms identified by the National Weather Service, detailed in **Table 8** below:

Table 8 Severe Thunderstorm Outlook Categories

Level	Category	Details
	General Thunderstorm	Although severe weather is not expected, all thunderstorms can produce deadly lightning, gusty winds, and small hail.
1	Marginal (MRGL)	Some storms could be capable of damaging winds and severe hail. Localized tornado threat could develop.
2	Slight (SLGT)	Increased confidence that some storms will contain damaging winds, severe hail, and/or tornado potential.
3	Enhanced (ENH)	High confidence that several storms will contain damaging winds, severe hail, and/or tornados.
4	Moderate (MDT)	High confidence that many storms will contain damaging winds, severe hail, and/or tornados.
5	High (HIGH)	High confidence that an outbreak of storms will contain tornados, damaging winds, and/or severe hail.

Source: National Weather Service

Lightning

Lightning can cause death, injury, and property damage, including damage to buildings, communications systems, power lines, and electrical systems. It also causes forest and brush fires. Lightning severity is measured by the Lightning Activity Level (LAL) scale, created by the National Weather Service to define lightning activity into a specific categorical scale. The LAL is a common parameter that is part of fire weather forecasts nationwide. The LAL is summarized in **Table 9**.

Table 9 Lightning Activity Level (LAL)

Lightning Activity Level	
LAL 1	No thunderstorms
LAL 2	Isolated thunderstorms. Light rain will occasionally reach the ground. Lightning is very infrequent, 1 to 5 cloud to ground strikes in a five-minute period
LAL 3	Widely scattered thunderstorms. Light to moderate rain will reach the ground. Lightning is infrequent, 6 to 10 cloud to ground strikes in a five-minute period.

Lightning Activity Level	
LAL 4	Scattered thunderstorms. Moderate rain is commonly produced. Lightning is frequent, 11 to 15 cloud to ground strikes in a five-minute period.
LAL 5	Numerous thunderstorms. Rainfall is moderate to heavy. Lightning is frequent and intense, greater than 15 cloud to ground strikes in a five-minute period.
LAL 6	Dry lightning (same as LAL 3 but without rain). This type of lightning has the potential for extreme fire activity and is normally highlighted in fire weather forecasts with a Red Flag warning.

Source: Red Zone

Hail

The National Weather Service (NWS) classifies hail by diameter size and corresponding everyday objects to help the population understand its scope and severity. **Table 10** below shows the hailstone measurements utilized by the NWS in relation to the TORRO Hailstorm Intensity Scale (H0 to H10).

Table 10 Hail Size Chart

	Intensity Category	Diameter (mm)	Diameter (inches)	Description	Typical Damage Impacts
H0	Hard Hail	5	0.25 or less	Pea	No damage
H1	Potentially Damaging	5-15	0.25 – 0.50	Mothball/Dime	Slight general damage to plants, crops
H2	Significant	10-20	0.50 – 0.75	Marble/Nickle	Significant damage to fruit, crops, vegetation
H3	Severe	20-30	0.75 – 1.0	Walnut/Quarter	Severe damage to fruit and crops, damage to glass and plastic structures, paint and wood scored
H4	Severe	25-40	1.0 - 1.5	Pigeon's egg/Half Dollar	Widespread glass damage, vehicle bodywork damage
H5	Destructive	30-50	1.5 – 2.0	Golf ball	Wholesale destruction of glass, damage to tiled roofs, significant risk of injuries
H6	Destructive	40-60	1.75 – 2.5	Hen's egg/Pool ball	Bodywork of grounded aircraft dented; brick walls pitted
H7	Destructive	50-75	2.0 – 3.0	Tennis ball	Severe roof damage, risk of serious injuries
H8	Destructive	60-90	2.5 – 3.5	Large orange/Baseball	Severe damage to aircraft bodywork
H9	Super Hailstorms	75-100	3.0 – 4.0	Grapefruit/Softball	Extensive structural damage. Risk of severe or even fatal injuries to persons caught in the open
H10	Super Hailstorms	>100	4.0 and greater	Melon/CD/DVD	Extensive structural damage. Risk of severe or even fatal injuries to persons caught in the open

Source: The Tornado and Storm Research Organization, The National Weather Service

Warning Time

Meteorologists can often predict the likelihood of a severe thunderstorm, which can give several days of warning time. However, meteorologists cannot predict the exact time of onset or severity of the storm, including the possibility and size of hail, the time of onset or severity of the storm, or the strength of wind gusts. Some storms may come on more quickly and have only a few hours of warning time.

Secondary Hazards

Lightning can ignite a wildfire, which can be spread with strong thunderstorm winds. Short-term heavy rain can result in flash floods, and thunderstorms that linger over an area can cause floods that threaten dam and levee structures.

Climate Change Impacts

Climate change can potentially increase the frequency and severity of severe weather events. As humidity is lowered due to rising temperatures, extended drought, and extreme heat events, convective instability increases. The movement of dry air into thunderstorms can increase the likelihood and size of hail due to evaporate cooling, which lowers the elevation of the freezing level in thunderstorm clouds. This creates an opportunity for hailstones to grow larger and become more dangerous, as well as appear in areas where hail was uncommon previously due to unpredictable weather patterns. The unpredictable number of storms and their characteristics indicate the amount of lightning they bring could change drastically. With the changing weather patterns, the potential increase in thunderstorm events can result in increased lightning occurrences.

Tornado/Wind/Windblown Deposits

General Background

Tornado

A tornado is a violent windstorm characterized by a twisting, funnel-shaped cloud extending to the ground. Tornados are most often generated by thunderstorm activity (but sometimes result from hurricanes and other tropical storms) when cool, dry air intersects and overrides a layer of warm, moist air, forcing the warm air to rise rapidly. The damage caused by a tornado results from the high wind velocity and wind-blown debris, often accompanied by lightning or large hail.

Wind/Windblown Deposits

Wind is the movement of air from areas of high pressure to areas of low pressure or can be the result of microbursts associated with temperature variations in the atmosphere. It is usually associated with thunderstorms or dry thunderstorms. Because of its constant presence in Wyoming, wind is taken in stride by the population and often overlooked as a hazard. However, the wind is a damage-causing hazard and warrants review in the Wyoming Region 3 HMP.

Windblown deposits are fine-grained materials such as sands and silts mobilized by wind. Wyoming has some of the most significant windblown deposits in the country. Strong winds can mobilize and significantly move sand or silt grains in much of Wyoming. Many of the mapped deposits in Wyoming are somewhat stabilized, but many are still active.

Severity

Tornado

Most tornados are a few dozen yards wide and touchdown briefly, but even small, short-lived tornados can inflict tremendous damage. Highly destructive tornados may carve out a path over a mile wide and several miles long.

The destruction and injury caused by a tornado varies significantly depending on several factors. Location is one of the key determinants of damage a tornado can cause; an unpopulated rural area will not see the same extent of damage or threats to life safety as an urban area with dense development. The factors of strength, duration, and if the funnel contacts the ground influence the severity of repercussions from the tornado. The size of the tornado and the length of the path, if it travels, also greatly impact potential devastation. Some tornados stay stationary, while others travel miles at great speeds. A low-rated tornado, which lasts for a few minutes and touches down briefly, may still cause extensive damage but is likely to wreak less havoc than a higher-rated tornado, which lasts for an hour, makes ground contact, and travels long distances.

According to the National Weather Service, tornado wind speeds normally range from 40 miles per hour to more than 300 miles per hour. The most violent tornados have rotating winds of 250 miles per hour or more. These tornados can cause extreme destruction by turning harmless objects into deadly missiles. Tornado magnitude is reported according to Fujita and Enhanced Fujita Scales. Tornado magnitudes before 2007 were determined using the traditional version of the Fujita Scale. The Enhanced Fujita Scale was developed to include more detailed descriptions of the tornado damage because the wind speeds of a tornado can be difficult to measure and has been used since 2007. A comparison of these scales is detailed in **Table 11** below.

Table 11 Fujita and Enhanced Fujita Scale

Fujita Scale		Enhanced Fujita Scale *In use since 2007		
F0	40-72 mph	EF0	65-85 mph	Minor damage: Peels surface off some roofs; some damage to gutters or siding; broken branches; shallow-rooted trees pushed over. Confirmed tornados with no reported damage (i.e., those that remain in open fields).
F1	73-112 mph	EF1	86-110 mph	Moderate damage: Roofs severely stripped; mobile homes overturned or badly damaged; loss of exterior doors; windows and glass broken.
F2	113-157 mph	EF2	111-135 mph	Considerable damage: Roofs torn off well-constructed houses; foundations of frame homes shifted; large trees snapped or uprooted; light-object missiles generated; cars lifted off ground.
F3	158-206 mph	EF3	136-165 mph	Severe damage: Entire stories of well-constructed houses destroyed; severe damage to large buildings such as shopping malls; trains overturns; trees debarked; heavy cars lifted off the ground and

Fujita Scale		Enhanced Fujita Scale *In use since 2007		
				thrown; structures with weak foundations blown away.
F4	207-260 mph	EF4	166-200 mph	Devestating damage: Well-constructed houses and whole frame houses completely leveled; cars thrown, and small missiles generated.
F5	261-318 mph	EF5	>200 mph	Extreme damage: Strong frame houses leveled off foundations and swept away; automobile-sized missiles fly in excess of 100 m. (300 ft.); steel reinforced concrete structures badly damaged; high-rise buildings have significant structural deformation.

Source: The National Weather Service

Wind/Windblown Deposits

High wind events can wreak havoc on above-ground infrastructure, such as homes, vehicles, and power and communication lines. Downed power and communications transmission lines, coupled with disruptions to transportation, create difficulties in reporting and responding to emergencies. Damaged roofs, toppled trees, broken branches, and blown-out windows are frequently reported during strong winds.

New developments in areas of windblown deposits have the potential to destabilize the deposit. Mobile, large deposits have been known to cover roads and, in some cases, build up around homes. These deposits can cause traffic accidents, negatively impact air quality, and potentially carry pathogens that cause disease.[4]

The Beaufort Wind Scale, summarized in **Table 12**, is also used to measure the severity of high winds. Hurricane-force winds are defined as a speed equal to or greater than 64 knots (73 mph) or Beaufort Number 12 (Force 12). Hurricane-force winds are not exclusive to hurricanes; they often occur in strong, non-tropical storms such as the northeaster or severe thunderstorms.

Table 12 Wind Speeds and Effects

Force	Wind Speed (knots)	Wind Speed (mph)	WMO Classification	Appearance of Wind Effects (on land)
0	< 1	0-1	Calm	Calm, smoke rises vertically
1	1-3	1-3	Light Air	Smoke drift indicated wind direction, still wind vanes
2	4-6	4-7	Light Breeze	Wind felt on face, leaves rustle, vanes begin to move
3	7-10	8-12	Gentle Breeze	Leaves and small twigs constantly moving, light flags extended
4	11-16	13-18	Moderate Breeze	Dust, leaves, and loose paper lifted, small tree branches move
5	17-21	19-24	Fresh Breeze	Small trees in leaf begin to sway

[4] Satellite Data Can Help Limit the Dangers of Windblown Dust - NASA Science

Force	Wind Speed (knots)	Wind Speed (mph)	WMO Classification	Appearance of Wind Effects (on land)
6	22-27	25-31	Strong Breeze	Larger tree branches moving, whistling in wires
7	28-33	32-38	Near Gale	Whole trees moving, resistance felt walking against wind
8	34-40	39-46	Gale	Twigs breaking off trees, generally impedes progress
9	41-47	47-54	Strong Gale	Slight structural damage occurs, slate blows off roofs
10	48-55	55-63	Storm	Seldom experienced on land, trees broken or uprooted, "considerable structural damage"
11	56-63	64-72	Violent Storm	
12	64+	72+	Hurricane	

Source: The National Weather Service

Warning Time

While meteorologists can predict conditions that are favorable for tornados to form, the prediction for when a tornado will touch down is not early enough to save lives. The lead time for tornado warnings is generally 10 to 15 minutes, giving residents little time to find proper shelter. Occasionally, tornados develop without any detection, and no warnings can be made before touchdown.

The National Oceanic and Atmospheric Administration's (NOAA) Storm Prediction Center issues tornado watches and warnings:

- Tornado Watch: Tornados are possible. Remain alert for approaching storms. Watch the sky and stay tuned to NOAA Weather Radio, commercial radio, or television for information.
- Tornado Warning: A tornado has been sighted or indicated by weather radar. Take shelter immediately.

Like tornadoes, meteorologists can often predict several days in advance when conditions will be right for a strong wind event to occur, but they cannot predict the speeds of wind gusts or precisely where they will occur.

Secondary Hazards

Strong winds can exacerbate wildfires by significantly influencing their ignition, spread, and intensity. A small, manageable wildfire can become a raging inferno, challenging even large-scale, prepared firefighting efforts. Tornado and wind events can also uproot vegetation and erode lateral slope support, enabling landslides to occur more easily.

Climate Change Impacts

Climate change can potentially increase the frequency and severity of tornado and wind events. While it is difficult to model how changing climate will influence these events, scientists can predict how climate change will affect the individual components that lead to a supercell thunderstorm that produces severe winds and tornados:

- Warm, moist air;
- Unstable atmosphere;
- Wind shear.

Changes in weather patterns include increases in warm, moist air, which creates an unstable atmosphere favorable for tornado formation. However, wind shear is likely to decrease as the planet warms. With one of these forces working against the others, it is difficult to accurately say how much warming global temperatures will impact the formation of tornados in the future.

Wildfire

General Background

A wildfire is any fire occurring in a wildland area (i.e., grassland, forest, brushland), except for fire under prescription. Wildfires are part of the natural management of forest ecosystems but may also be caused by human factors. The National Park Service reports that nearly 85% of forest fires are started by negligent human behavior, such as smoking in wooded areas or improperly extinguishing campfires.[5] The second most common cause of wildfires is lightning.

There are three classes of wildland fires: surface, ground, and crown. A surface fire is the most common of these three classes and burns along a forest floor, moving slowly and killing or damaging trees. A ground fire (muck fire) is usually started by lightning or human carelessness and burns on or below the forest floor. Crown fires spread rapidly by wind and move quickly by jumping along the tops of trees. Wildland fires are usually signaled by dense smoke filling the area for miles. The behavior of wildfire is influenced by three factors, the interaction between fuels (such as needles, leaves, and twigs), weather, and topography.

Many individual homes and cabins, subdivisions, resorts, recreational areas, organizational camps, businesses, and industries are located within high wildfire hazard areas, known as the Wildland-Urban Interface (WUI). The term "WUI" is widely used within the wildland fire management community to describe any area where buildings are constructed close to or within a natural terrain and fuel boundary, with high potential for wildland fires. According to the Wyoming Forest Fire Action Plan, the WUI is a threat that is significant and expanding. Further, the increasing demand for outdoor recreation places more people in the wildlands during holidays, weekends, and vacations. Unfortunately, wildland residents and visitors are rarely educated or prepared for wildfire events that can sweep through the brush and timber and destroy property within minutes.

Wyoming wildland fires are managed and supported to varying extents through cooperative efforts by the:

- Bureau of Land Management (BLM)
- Geospatial Multi-Agency Coordination (GeoMAC)
- Wyoming Fire Academy
- Wyoming Wildland Fire Plan Action Team
- National Park Service (NPS) Fire Management Program
- US Fish and Wildlife Service (FWS) Fire Management Branch

[5] Wildfire Causes and Evaluations (U.S. National Park Service) (nps.gov)

- National Interagency Fire Center (NIFC)
- Bureau of Indian Affairs (BIA) Fire and Aviation Management
- USDA Forest Service (USFS) Fire and Aviation Management
- Wyoming Department of Fire Prevention and Electrical Safety
- Wyoming Office of Homeland Security (WOHS)
- Wyoming State Forestry Division
- County and Local Fire Departments/Districts

Severity

Wildfire causes several impacts including structure damage or loss, reduced air quality due to smoke, timber damage and loss, hazardous driving conditions due to smoke and ash, evacuations, accelerated erosion, and increased flood risk. Several factors influence wildfire severity in Region 3:

- **Climatic conditions:** In times of drought, wildfires may ignite easier and spread faster. Further, water resources may be less available, hindering wildfire-fighting capabilities. Wind can exacerbate conditions and lead to unpredictable wildfire burn patterns. Rain, conversely, can help with the firefighting efforts. Climate change impacts may also increase fire seasons, with fires starting earlier and lasting longer.
- **Fuel:** The past 100 years of forest fire suppression has led to heavy vegetation growth and thus greatly increased the potential fuel load for a wildfire to burn. As the WUI has grown into these densely packed forests, the potential for catastrophic wildland fires has also increased. The mountain pine beetle epidemic has also impacted trees in the Medicine Bow National Forest. Although the epidemic has slowed in recent years, this is mostly because many of the trees have already been impacted. Fire danger will initially increase due to the standing dead trees. Fuel load can be reduced through integrated forest management techniques such as prescribed burns and mechanical thinning.
- **Location:** Areas abutting vegetated areas are most prone to wildfire impacts (known as the WUI). See the Location Section in the County Annexes for information on WUI locations in Region 3.
- **Season:** Wildfires are most common in the summer months. Lightning is more common, and fuel is drier during these months.

The magnitude of wildfires is typically measured by how many acres they burn. In Region 3, the largest wildfire occurred in 2020 and was named the Mullen Fire. This fire impacted both Carbon and Albany Counties, burning 176,878 acres of land and resulting in a Fire Management Assistance declaration for the Region. Additionally, many reported wildfire events burned below 100 acres, indicating that the region experiences a range of wildfire severity.

Wildfire has the potential to contaminate the water supply and burn crops in a prairie fire. It can also lead to debris flows and flooding, affecting the landscape, the habitats in the area, and any communities in the flow path.

Critical lifelines can be affected by wildfire. Transportation can be affected by roads closing due to the fire itself, responders needing access, or evacuated areas that are not open to the public. Communication equipment and infrastructure can be damaged, hindering responders' abilities.

Power can be affected if infrastructure is damaged, and depending on the length of the outage, it can impact residents' ability to stay at home. This can be especially dangerous for those who rely on powered medical equipment.

Warning Time

The National Weather Service issues a Red Flag Warning to alert agencies that conditions are highly unfavorable for prescribed burns and may lead to especially dangerous wildfire growth. While these conditions can be forecast, due to the nature of the hazard, there is no way to predict the time and location at which a wildfire will break out.

Fuels, weather, and topography all contribute to the fire spread rate. When considering fuels, there are multiple factors, including type, especially dry and small vegetation, the quantity, and spacing of fuels (both horizontal and vertical). Weather influences spread based on wind and moisture. Topography includes slope, aspect, and terrain that each impacts the rate of spread in various ways. Topography can increase the rate of spread up steep slopes, the amount of sunlight a fire gains heat from, and influence the behavior of winds. Topography can also affect the responder's ability to access certain areas and suppress fire activity.

If a fire does break out and spreads rapidly, residents may need to evacuate within hours or minutes. Once a fire has started, fire alerting is reasonably rapid in most cases. Improvements in communication technologies have further contributed to a significant improvement in warning time.

Secondary Hazards

Wildfires can cause or worsen flood and landslide events. Large-scale wildfires can dramatically alter the terrain. In areas that are normally covered with vegetation that absorbs rainfall, wildfire leaves the ground barren and unable to absorb water. These conditions lead to more surface runoff, resulting in flash floods that can carry away rock and sediment, which can cause landslides and debris flows.[6]

Smoke and ash from a fire can also affect public health, even a great distance away from the ignition point. This is dangerous for the entire population but especially hazardous to those with respiratory conditions, children, and the elderly.

Climate Change Impacts

Climate change (coupled with past forest management practices) has steadily increased the frequency and intensity of wildfires nationwide. Continued unpredictable precipitation and weather patterns will lead to increased occurrence, extended durations, and magnified severity. Drought, brought by drier and hotter climates, creates conditions that wildfires thrive in, and these fires have begun to spread consistently faster and farther. Hotter conditions fuel fires, and extreme temperature fluctuations and unseasonable increases in heat have created longer wildfire seasons.

Winter Storm

General Background

A winter storm is an event in which varieties of precipitation are formed that only occur at low temperatures, such as snow, sleet, freezing rain, or ice. Blizzards are defined as severe weather

[6] Flood Risks Increase After Fires | FEMA.gov

conditions characterized by high winds and reduced visibility due to falling or blowing snow. These storms can range from a few hours of moderate snowstorms to several days. They are typically accompanied by biting winds, poor visibility, sleet, and ice. The National Weather Service specifies the following criteria for a blizzard:

- Sustained winds or frequent gusts of 16 meters per second (35 miles per hour) or greater,
- Sustained winds accompanied by falling or blowing snow
- Frequently reduced visibility to less than 400 meters (0.25 miles) for 3 hours or longer.

Wind chill is also associated with winter storm events. Wind chill is not a direct measurement of temperature, but an index developed to describe the relative discomfort/danger resulting from the combination of wind and temperature. Wind chill is based on the rate of heat loss from exposed skin caused by wind and cold. As the wind increases, it draws heat from the body, driving down skin temperature and, eventually, the internal body temperature, increasing the likelihood of severe injury or death to exposed persons and animals.

Severity

Winter storms are defined differently in various parts of the country, relevant to their standard weather. Two inches of snow may create serious disruptions to traffic in areas where snowfall is not expected; however, this may be considered a light dusting in regions where snowfall is typical, such as Wyoming. Therefore, there are multiple ways to measure a winter storm based on snowfall, temperatures, wind speeds, societal impact, etc.

In Wyoming Region 3, severe storms have resulted in indirect deaths and injuries from traffic accidents due to heavy snow and strong winds. Additionally, the storms may result in closed highways and blocked roads. It is not unusual for motorists and residents to become stranded. Accumulating thick snow and ice can knock down powerlines and tree branches, resulting in power outages and disruptions in communication. In rare incidents, fatalities have been reported in Region 3 when residents are caught outside in a snowstorm or blizzard. Annually, heavy snow loads, and frozen pipes cause damage to residences and businesses. Late-season heavy snow will typically cause some plant and crop damage.

Warning Time

The forecasting of winter storms allows the public to prepare for the type of storm through Watch and Warning notifications. These are issued by the National Weather Service (NWS), depending on the characteristics of the weather conditions. A Winter Storm Watch is issued 12 to 48 hours before the onset of the conditions and may upgrade to a Warning depending on the storm's development. A Winter Storm Warning is issued 12 to 24 hours before the expected event and is issued when a combination of hazardous weather elements, including heavy snow, heavy freezing rain, or heavy sleet is imminent.

Secondary Hazards

The most significant secondary hazards associated with severe winter storms are avalanches, landslides, and flooding. Rapidly melting snow combined with heavy rain can overwhelm both natural and manmade drainage systems, causing overflow and property destruction due to localized

flooding. Landslides occur when the soil on slopes becomes oversaturated and fails. Avalanches can occur when winter storms bring a fresh layer of snowfall to the snowpack on a slope.

Climate Change Impacts

As climate change unpredictably affects weather patterns, the types and numbers of winter storms are being impacted. The intensity and frequency of storms have been notably different in recent history, from unexpectedly heavy precipitation and extreme cold temperatures to unseasonable temperatures and minimal precipitation. These drastic fluctuations are indicative of the impacts of climate change and are likely to create more dangerous and damaging winter storms. The limited ability to consistently predict accurate winter storm conditions can expose people and infrastructure unprotected.

Albany County Annex

Albany County Annex

Table of Contents

Albany County Annex 1
Albany County Community Profile 3
Geography and Climate 3
Population Change 4
Under-Resourced Communities and Socially Vulnerable Populations 5
Land Use and Development 11
Natural and Historic Resources 14
Albany County Mitigation Strategy 16
2020 Mitigation Strategies 16
2025 Mitigation Actions 25
Mitigation Capabilities 39
Compliance with Floodplain Requirements 57
Plan Monitoring and Maintenance 58
Continued Public Engagement 59
Changes in Government Priorities 60
Albany County Planning Process 61
Plan Integration 61
Incorporation of Existing Plans & Information 63
Albany County Hazard Identification and Risk Assessment 65
Local Government Risk Rankings 65
Exposure Analysis 66
Avalanche 73
Drought 77
Earthquake 81
Flood/Dam, Dike, & Levee Incident 88
Geologic Hazards (Landslide/Land & Mine Subsidence/Expansive Soils) 102

Severe Thunderstorm (Hail/Lightning/Thunderstorm Wind) 114
Tornado/High Wind/Windblown Deposits 122
Wildfire 133
Winter Storm 152
Albany County Adoptions 159
Albany County Public Survey Results 160
Albany County Hazus Earthquake Loss Model 161

Professional planning services for this plan update provided by:

Albany County Community Profile

Geography and Climate

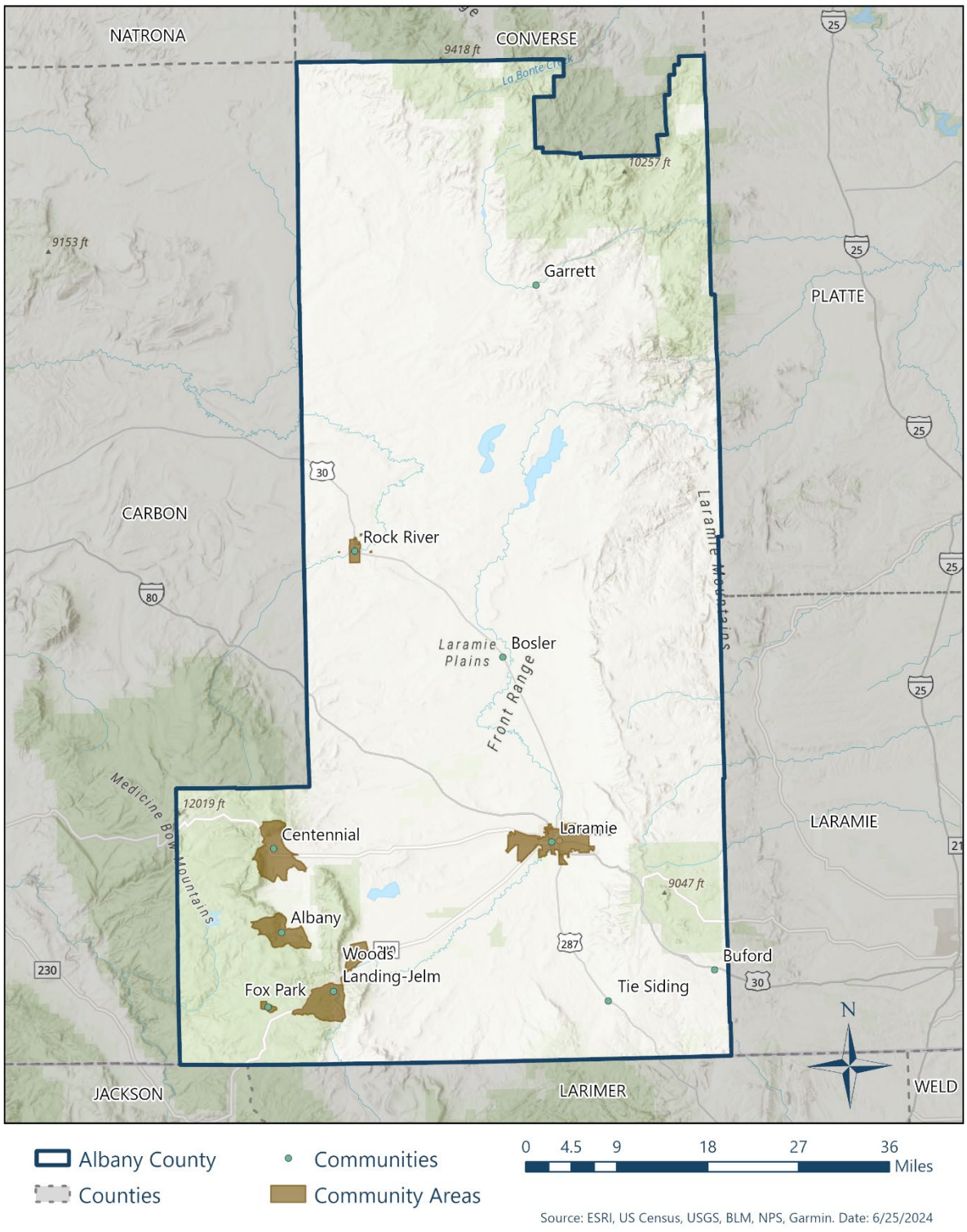
Albany County spans 4,309 square miles, with 4,273 square miles of land and 36 square miles of water. Predominantly frontier land is lightly populated, with the majority residing in Laramie, home to the University of Wyoming. Situated at the northern tip of the Colorado Front Range, Albany County includes the foothills of the Rocky Mountains, extending from Pikes Peak to the Colorado/Wyoming state line. It lies in a broad basin forming the Laramie Plains, flanked by the Medicine Bow Mountains to the west and the Laramie Mountains to the east. The county's terrain ranges from high-elevation basins and desert landscapes to pine-covered mountains, with an average elevation of 6,500 feet. Its highest peak, Medicine Bow Peak in the Snowy Range, reaches over 12,000 feet, while Laramie Peak in the Laramie Range stands over 10,200 feet.

The climate of Albany County is semi-arid, with snowy, cold winters and mild, dry summers. In the winter months, average temperatures typically range from around 14 degrees Fahrenheit to highs of 35 degrees Fahrenheit. The summer months are mild, with temperatures ranging from 50 degrees Fahrenheit and highs of 81 degrees Fahrenheit. Annual precipitation in the county is around 15 inches, most of which falls as snow in the winter months. The area is characterized by high winds, abundant sunshine, and significant temperature fluctuations between day and night.

Albany County boasts numerous parks and recreation areas, such as Medicine Bow National Forest and historic sites listed on the National Register of Historic Places, providing ample recreational opportunities. Interstate 80 and other major highways traverse the county alongside the Union Pacific Railroad and underground pipelines transporting various products. The county features several water sources, primarily the Laramie River, which occasionally causes flooding, along with tributaries and dams such as Rob Roy Reservoir, Lake Owen Reservoir, and others. **Figure 1** displays an overview of Albany County and its jurisdictions. It is important to note that only the incorporated municipalities of the county are seeking FEMA approval for this plan, in addition to the county and special districts listed below.

- Albany County
- City of Laramie
- Town of Rock River
- Albany County Fire District #1 (ACFD #1)
- Laramie Rivers Conservation District (LRCD)
- Albany School District #1 (ACSD #1)
- Albany County Hospital District [Ivinson] (ACHD)
- Wold Improvement and Service District (WISD)
- Pioneer Canal – Lake Hattie Irrigation District (PCLHID)

Figure 1 Albany County Overview



Population Change

It is important to understand population growth predictions in Albany County and its jurisdictions for emergency evacuation planning, resource allocation, community preparedness, and infrastructure

planning. The Wyoming Department of Administration and Information reports on population estimates for cities and counties across Wyoming, shown in **Table 1**. Based on this data, the State estimates Albany County and all its jurisdictions have experienced positive population growth over the past several years.

Table 1 Albany County Population Estimates 2020-2023

Jurisdiction	2020 Census	2021 Estimate	2022 Estimate	2023 Estimate	Percent Change 2020-2023
Laramie	31,405	31,986	32,181	32,152	2.4
Rock River	213	217	215	218	2.3
Unincorporated	5,451	5,651	5,782	5,887	8.0
Albany County Total	**37,069**	**37,854**	**38,178**	**38,257**	**3.2**

Source: The Wyoming Department of Administration and Information

Under-Resourced Communities and Socially Vulnerable Populations

Hazards disproportionately impact disadvantaged and under-resourced communities. These communities often live and work in historically under-resourced areas and are more prone to natural disasters. The degree to which a community exhibits certain social vulnerability conditions, including high poverty, low percentage of vehicle access, or crowded households, may also affect that community's ability to prepare for, respond to, and recover from disaster events.

Communities with access and functional needs (AFN) during disasters are often the most vulnerable populations. AFN are the factors that may limit a person's ability to communicate, maintain their health, act independently, access adequate transportation, and acquire necessary services and support before, during, and after a disaster. These needs encompass a variety of social and economic factors, which are critical to consider when developing inclusive community plans.

Throughout the planning process, it was important for the county to be cognizant of those communities and populations that disaster events may disproportionately impact. Several national tools were used to understand vulnerability in Albany County.

The Center for Disease Control and Prevention (CDC) developed the Social Vulnerability Index (SVI) tool to help identify communities that may need special considerations and support in preparing for and recovering from disaster events. The SVI tool assesses social vulnerability by evaluating demographic factors that can influence a community's ability to cope with disaster. These demographic factors are broken into four themes: Socio-Economic Status, Household Characteristics, Racial and Ethnic Status, and House Type and Transportation. The SVI tool uses data from the U.S. Census Bureau American Community Survey 2018-2022. These statistics for Albany County are presented in **Table 2.**

The SVI tool "flags" an indicator when the score of that indicator is in the highest quartile (top 25%). Flagged indicators mean that the county has a high percentage of people with that variable compared to other counties, and therefore the county is particularly vulnerable in that area. Special

considerations should be made for these groups when planning mitigation or disaster response and recovery projects.

Table 2 Albany County Social Vulnerability Index (SVI) Indicators

SVI Theme	Indicator Description	Estimated % of Total Population	Flag
Socio Economic Status	Percentage of persons below 150% poverty	31.5%	Yes
	Unemployment Rate	4.4%	No
	Percentage of housing cost-burdened occupied housing units with annual income less than $75,000 (30%+ of income spent on housing costs)	34%	Yes
	Percentage of persons with no high school diploma (age 25+)	3.4%	No
	Percentage uninsured in the total civilian noninstitutionalized population	7.8%	No
Household Characteristics	Percentage of persons aged 65 and older	12.5%	No
	Percentage of persons aged 17 and younger	15.5%	No
	Percentage of civilian noninstitutionalized population with a disability	10.3%	No
	Percentage of single-parent households with children under 18	3.9%	No
	Percentage of persons (age 5+) who speak English "less than well"	0.3%	No
Racial & Ethnic Minority Status	Percentage minority (Hispanic or Latino (of any race); Black and African American, Not Hispanic or Latino; American Indian and Alaska Native, Not Hispanic or Latino; Asian, Not Hispanic or Latino; Native Hawaiian and Other Pacific Islander, Not Hispanic or Latino; Two or More Races, Not Hispanic or Latino; Other Races, Not Hispanic or Latino)	19%	No
Housing Type & Transportation	Percentage of housing in structures with 10 or more units	9.5%	Yes
	Percentage of mobile homes	9.3%	No
	Percentage of occupied housing units with more people than rooms	0.5%	No
	Percentage of households with no vehicle available	4.9%	Yes
	Percentage of persons in group quarters	6.5%	Yes

Source: Center for Disease Control, American Community Survey 2018-2022

The following pages present overviews of national indexes that assist with identifying those under-resourced communities and socially vulnerable populations across Albany County. **Figure 2** displays the CDC SVI ranking for Albany County by census tracts. Most of the county is ranked as low vulnerability (25th percentile), with medium to high vulnerability rankings in the City of Laramie census tracts. Additionally, Albany County ranks as low-medium (25th to 50th percentile) vulnerability overall compared to other counties in Wyoming.

For the purpose of this 2025 HMP update, the LPT decided to focus engagement efforts towards the following under-resourced communities across the county. Additional details pertaining to these efforts can be found in the Base Plan's Planning Process chapter.

- Older Adults
- College Students
- Rural Communities/Remote Subdivisions
- Access and Functional Needs (AFN) Populations

Figure 2 Albany County Social Vulnerability Index (SVI)

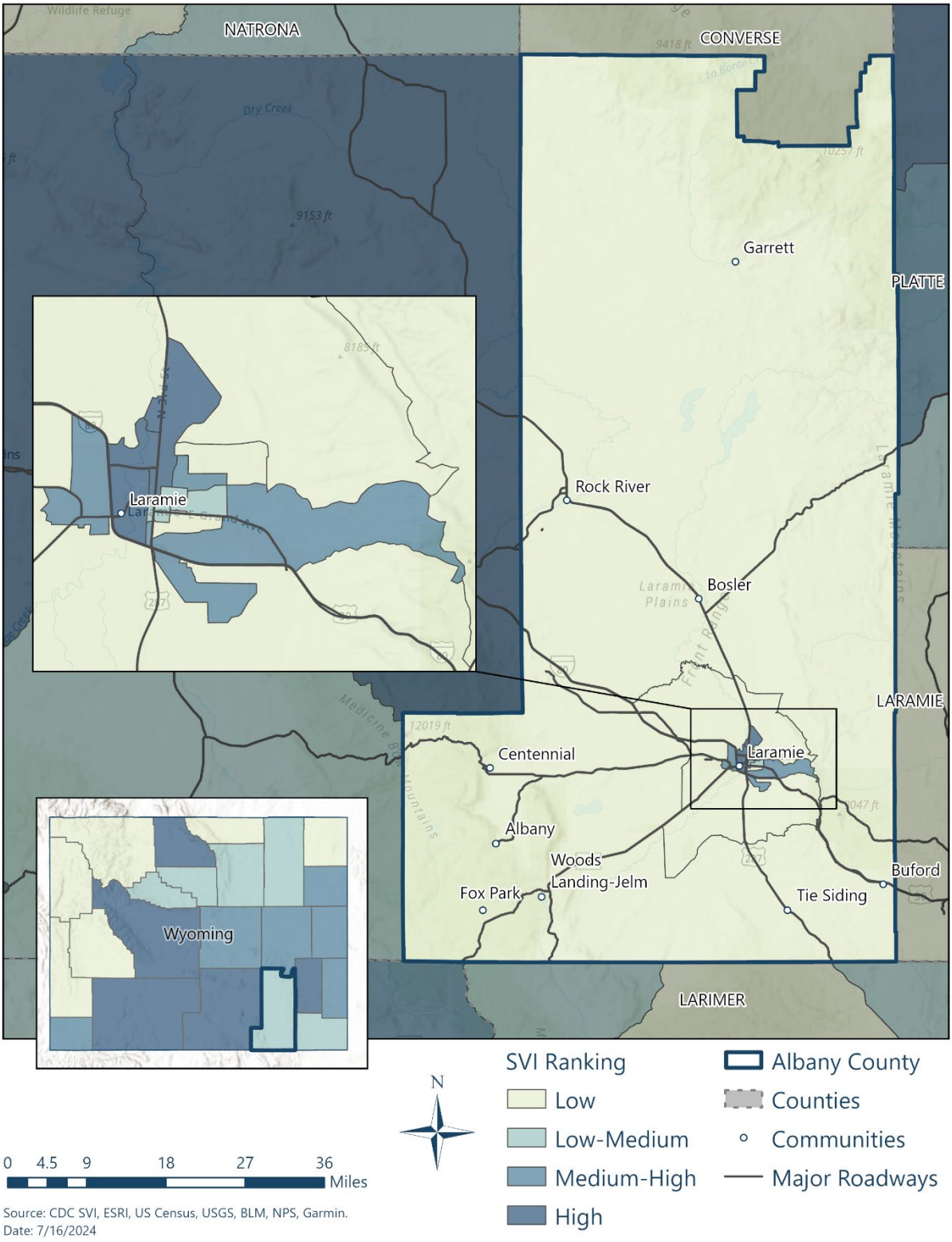


Figure 3 displays data from the Climate and Economic Justice Screening Tool (CEJST), which was developed by the U.S. government as part of the Justice40 initiative. The tool aims to identify communities that are underinvested in critical infrastructure/services and overburdened by pollution. According to CEJST, no census tracts in Albany County are identified as disadvantaged.

Figure 3 Albany County Climate and Economic Justice Screening Tool

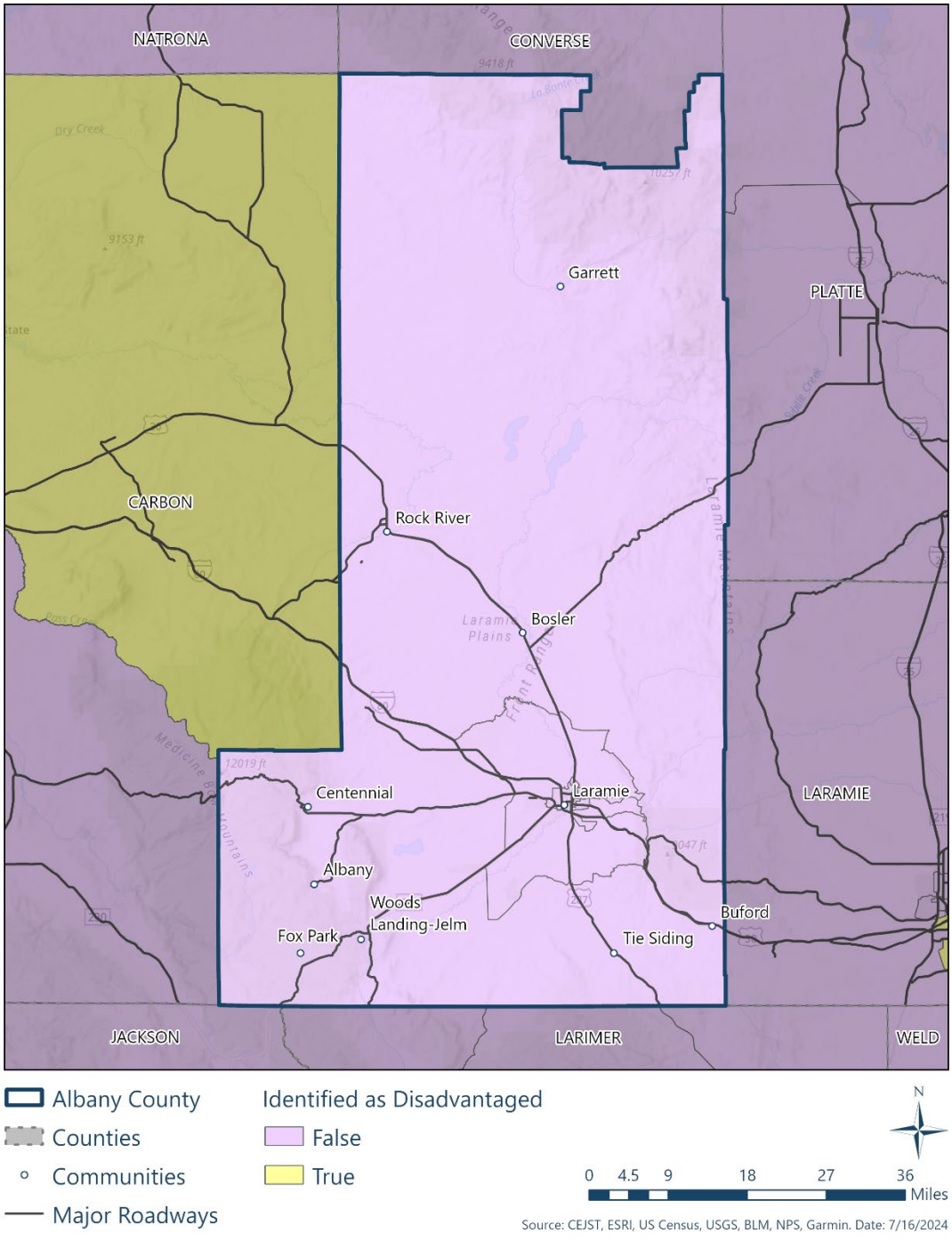
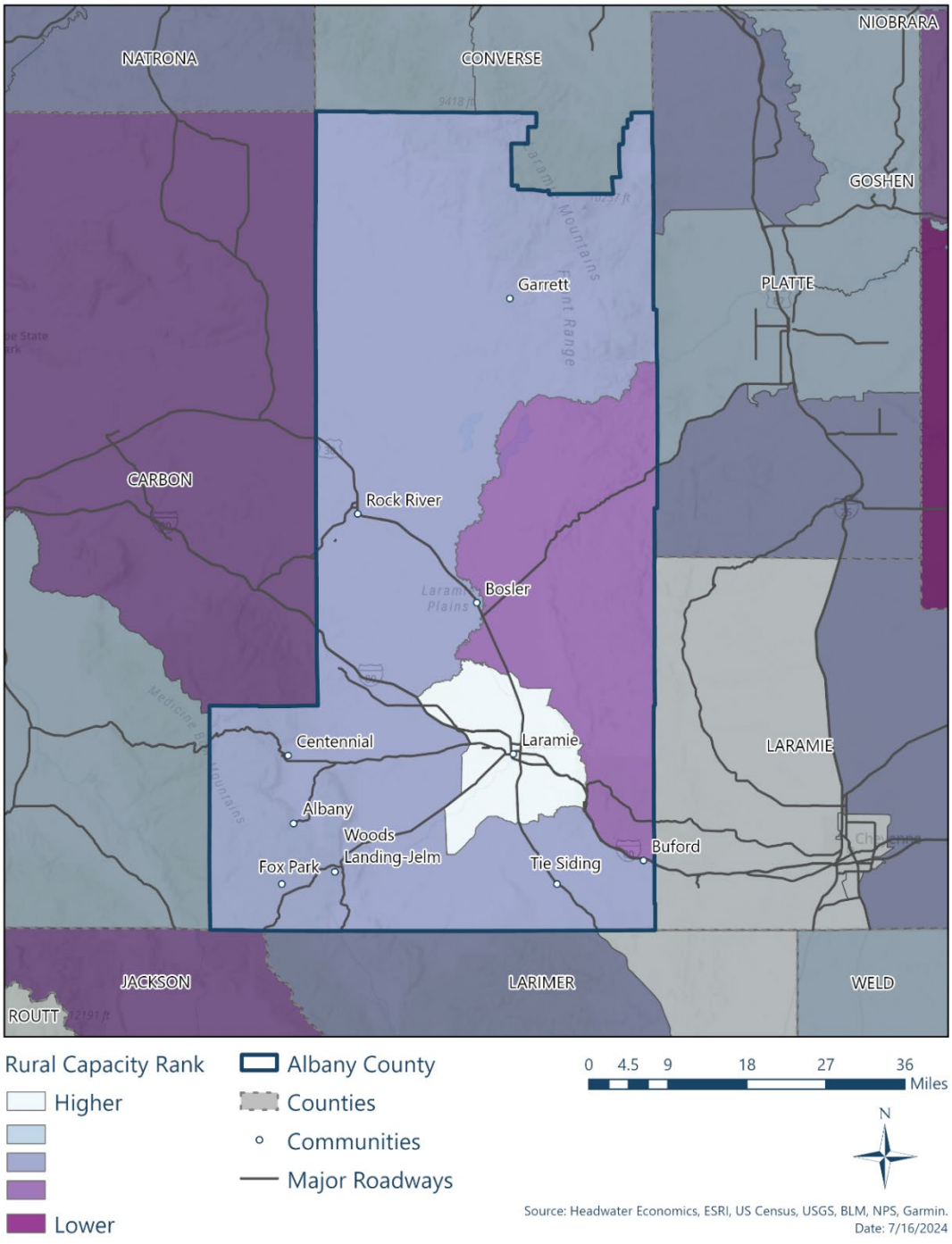


Figure 4 displays information from the Headwaters Economics Rural Capacity Index (RCI). This toolset evaluates various factors that influence a rural community's ability to access funding and resources. The data is displayed by sub-county areas, with the lowest capacity (and therefore greatest vulnerability) in eastern Albany County and the greatest capacity surrounding the City of Laramie. Visit the RCI website to see the rural capacity rankings for individual communities in Albany County.

Figure 4 Albany County Rural Capacity Index



Land Use and Development

Identifying land ownership is essential when conducting hazard mitigation projects for several reasons. First, knowing who owns the land helps determine who is responsible for maintaining mitigation measures, as well as ensuring these owners grant access and permission to conduct mitigation projects. Additionally, each owner may have different access to various resources and capabilities for hazard mitigation. **Table 3** summarizes landownership in Albany County. Most of the land in the county is used for agriculture (60.2%). Public lands run by State and Federal entities, such as the U.S. Forest Service, Bureau of Land Management, and the State of Wyoming, compose 34.8% of all land in the county.

Table 3 Albany County Land Ownership

Land Ownership	Number of Land Parcels	Total Acres	Percent of Total Land
Agricultural	1,253	1,649,847	60.2%
Commercial Vacant Land	209	1,085	0.0%
Commercial	1,351	3,090	0.1%
Public Lands (Federal/State)	1,077	952,553	34.8%
Industrial Vacant Land	14	820	0.0%
Industrial	35	530	0.0%
Residential Vacant Land	2,543	67,478	2.5%
Residential	1,1561	63,223	2.3%

Source: Albany County Assessor

Figure 5 and **Figure 6** below displays land ownership by parcel in Albany County and its jurisdictions. The checkerboard pattern of privately owned and state-owned land is due to federal land grants for railroads across Wyoming in the 1800s. Additionally, Albany County has a Conservation District, the Laramie Rivers Conservation District, which provides technical assistance to the county regarding soil, water, and all other natural resources.

Figure 5 Albany County Land Ownership

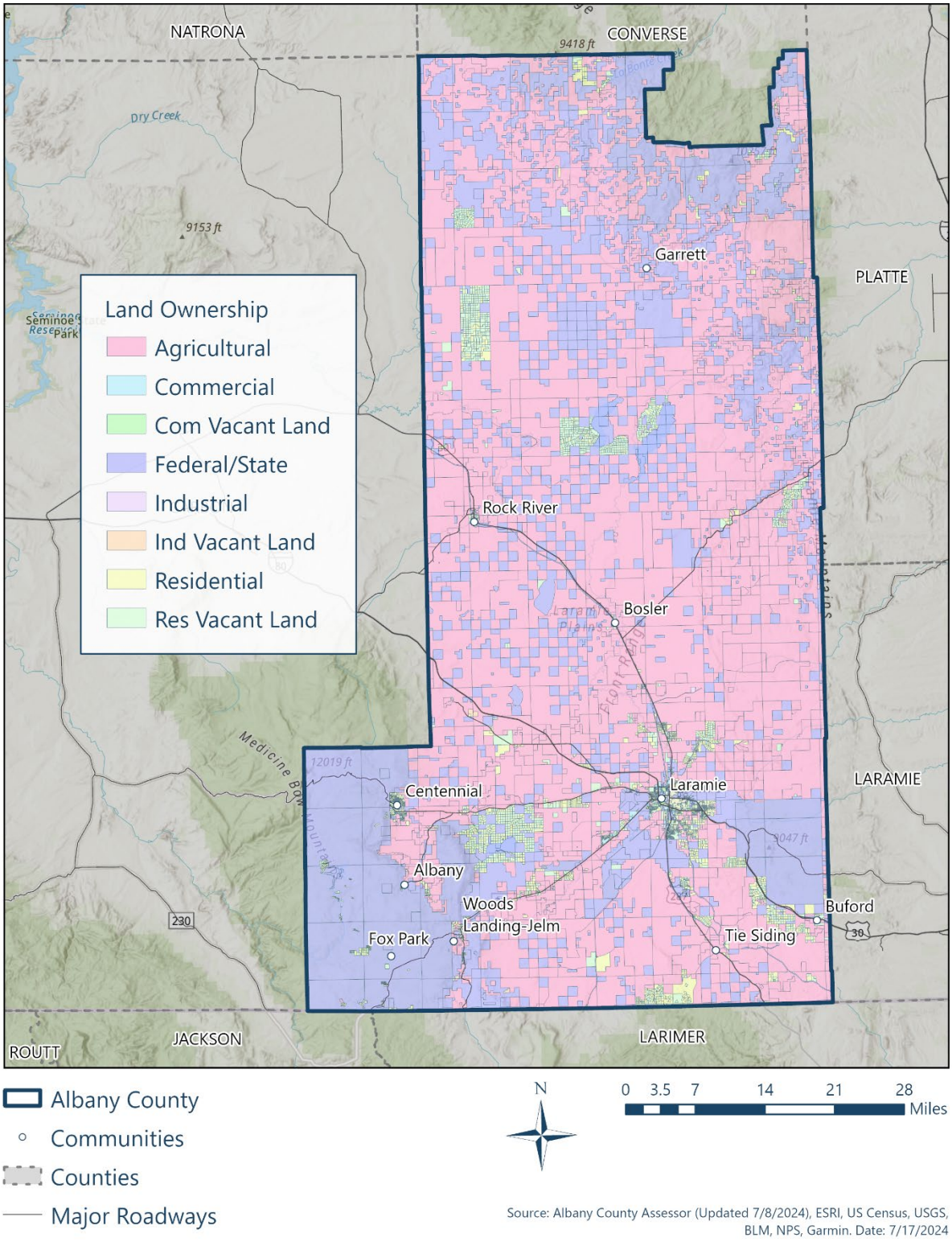
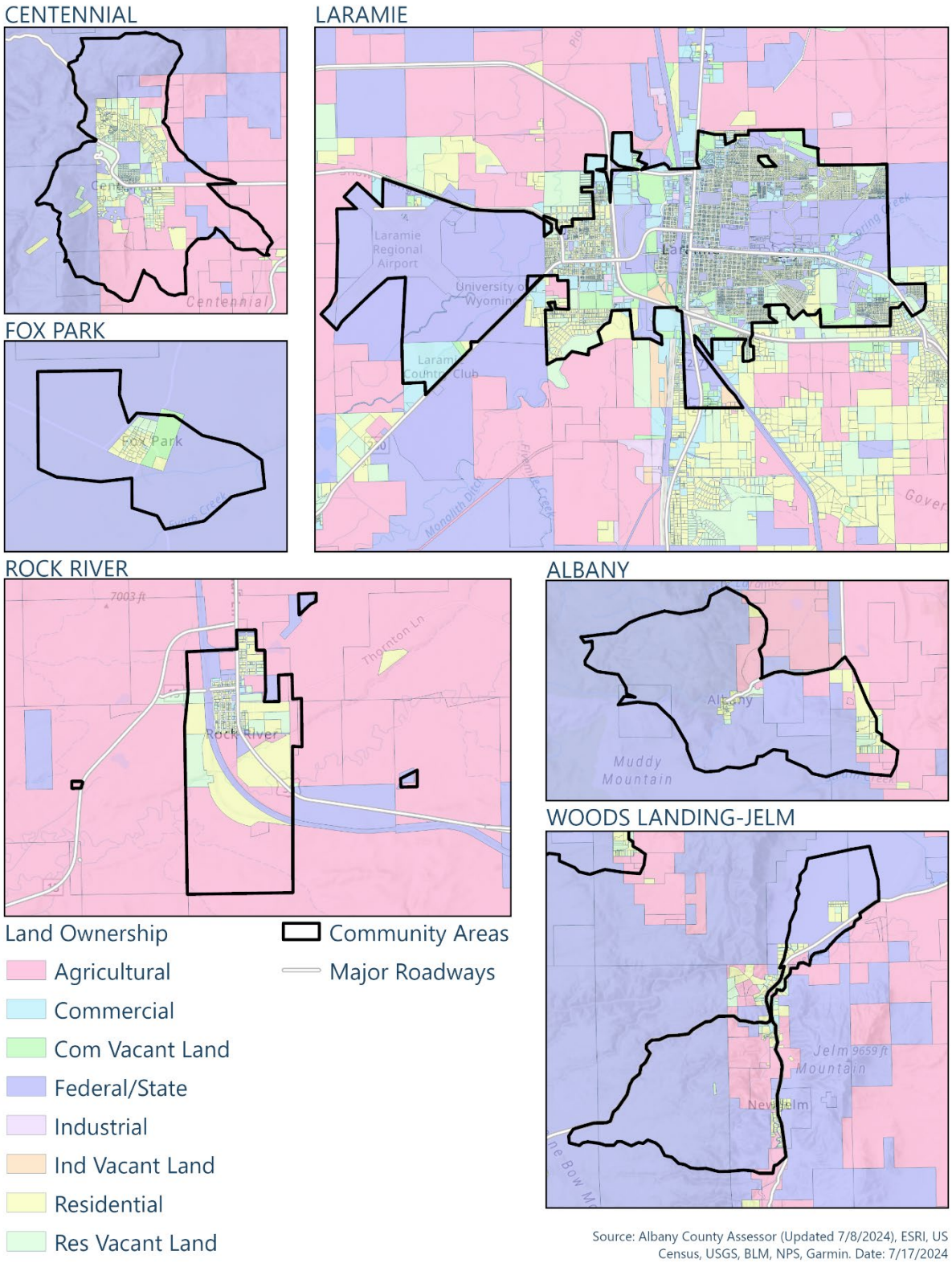


Figure 6 Inset Maps of Albany County Land Ownership



Source: Albany County Assessor (Updated 7/8/2024), ESRI, US Census, USGS, BLM, NPS, Garmin. Date: 7/17/2024

Natural and Historic Resources

Threatened and Endangered Species

Identifying natural and culturally significant resources in Albany County is important for several reasons. Knowledge of endangered or threatened species allows planners to make informed decisions about where and how to implement hazard mitigation strategies to minimize negative impacts on biodiversity and comply with laws such as the Endangered Species Act (ESA). Additionally, including endangered species considerations in mitigation projects can open additional conservation and habitat protection funding opportunities.

The U.S. Fish and Wildlife Service reports listed species that are known to occur in Albany County, Wyoming, listed in **Table 4**. While no critical habitats are currently established in Albany County, there may be in the future if populations of these species continue to decline. Proposed mitigation projects should still determine what effects they have on these listed species.

Table 4 Albany County Endangered and Threatened Species

Species Category	Species Name	Status
Mammal	Canada Lynx	Threatened
Mammal	Preble's Meadow Jumping Mouse	Threatened
Mammal	Tricolored Bat	Proposed Endangered
Birds	Piping Plover	Threatened
Birds	Whopping Crane	Endangered
Amphibians	Wyoming Toad	Endangered
Fishes	Pallid Sturgeon	Endangered
Insects	Monarch Butterfly	Candidate
Flowering Plants	Ute Ladies'-tresses	Threatened
Flowering Plants	Western Prairie Fringed Orchid	Threatened

Source: U.S. Fish and Wildlife Service

National protected areas in Albany County include the Bamforth National Wildfire Refuge, Hutton Lake National Wildlife Refuge, portions of the Medicine Bow National Forest, and the Mortenson Lake National Wildfire Refuge.

National Register of Historic Places

The National Park Service maintains the National Register of Historic Places, the official list of the Nation's historic places worthy of preservation. These historic places often hold significant cultural, architectural, or archaeological value and are important to identify to ensure efforts are made to protect and preserve them during disasters. These structures are also more vulnerable to hazard events, as they are often not built to modern building codes. **Table 5** lists historic places in Albany County and its jurisdictions.

Table 5 Albany County Historic Places

Resource Name	Resource Type	Jurisdiction
Ames Monument	Structure	Unincorporated
Bath Ranch	Building	Unincorporated

Resource Name	Resource Type	Jurisdiction
Blair, Charles E., House	Building	Laramie
Brooklyn Lodge	Building	Unincorporated
Centennial Depot	Building	Centennial
Centennial Work Center	District	Centennial
Conley, John D., House	Building	Laramie
DOE Bridge over Laramie River	Structure	Unincorporated
Durlacher House	Building	Laramie
First National Bank of Rock River	Building	Rock River
Goodale, William, House	Building	Laramie
Ivinson Mansion and Grounds	Building	Laramie
Lehman-Tunnell Mansion	Building	Laramie
Libby Lodge	Building	Unincorporated
Lincoln School	Building	Laramie
Mountain View Hotel	Building	Centennial
Snow Train Rolling Stock	District	Laramie
St. Paulus Kirche	Building	Laramie
Union Pacific Athletic Club	Building	Laramie
Woods Landing Dance Hall	Building	Woods Landing-Jelm
Wyoming Territorial Penitentiary	Building	Laramie

Source: National Parks Service

Albany County Mitigation Strategy

2020 Mitigation Strategies

As part of the plan update process, local participating governments reviewed and reported on the status of all mitigation actions (i.e. – projects) identified in the 2020 HMP. **Table 6** provides a summary of progress made towards making Albany County more resilient to the impacts of hazards.

As important as acknowledging projects that were accomplished, actions in a community that are ongoing are often overlooked as examples of positive implementation of the mitigation strategy. On-going projects are those without a timeline and that may not have deliverables that bring closure to a project but rather continued milestones. Examples include education and outreach efforts, maintenance activities, continual work on updating plans and organizational coordination, and constant work to improve processes and infrastructure.

Some 2020 actions did not see any progress made, but a portion of these projects retain community support and are being carried forward in this 2025 HMP ("No Progress – Continue Action).

Outside of those actions identified in the previous HMP, local governments did report on other mitigation successes that were accomplished since 2020. A summary of these efforts included:

- Albany County:
  - Private property mitigation funding for projects within the Mullen Fire boundary using a Mullen Fire FMAG.
  - Wyoming State Forestry has a very successful wildfire mitigation project.
  - FireWise Community participation in Albany County, especially WOLD and Tie Siding.
  - Stormwater Focus Group to set the wheels in motion for a plan to mitigate storm runoff in the City of Laramie
  - Worked with the NWS Cheyenne to adjust flood warning levels on the Little Laramie for advanced flood notice in the area.
  - Upgrades and public education of warning systems (ie alerts and sirens). More trained personnel on those systems to ensure appropriate notifications go out in a timely manner.
  - Carbon County EM secured and deployed Early Warning Gauges that can be deployed in burn scars or other areas of concern for earlier detection of potential flooding from storm runoff in both Carbon and Albany Counties.
- Albany County Fire District #1:
  - Boulder Ridge Road firebreak mitigation project completed.
  - Boulder Ridge BLM forest thinning completed.
  - WOLD Firewise program implemented.
  - Establishment of water well for Centennial VFD.

- City of Laramie:
    - City Council passed and approved an ordinance to create a Surface Water Drainage Fund. The fund will allow for increased maintenance activities regarding flooding mitigation and allow capital projects identified in the Storm Drainage Master plan to be completed.

Table 6 Past 2020 Mitigation Action Status

ID	Lead Jurisdiction	Hazard	Project	Priority	2024 Status	2024 Comments
2019.01	Albany County	Hazmat Release	Develop a system / process to contain hazmat spills from truck accidents along Hwy 230 before they reach the City's water source.	High	On-Going	RERT #3; BLVFD training and equipment
2019.02	Albany County	Multiple	Water/ wastewater assessment for the South Laramie Water District	Low	On-Going	Have not had an assessment completed yet, one is scheduled for this year.
2019.03	Albany County	Multiple	Generator for the Albany County Fire District facilities	Low	On-Going	Tie Siding. Centennial, WyCo have generators. The project is ongoing for other stations.
2019.05	Albany County	Drought	Promote xeriscaping projects within the Centennial Water District	Medium	Complete	Native dryland prairie grass seed put out under and around the lagoon and roadside to restore the surrounding areas.
2019.06	Albany County	Wildfire	Centennial – public education for retrofit of at-risk structures with ignition resistant materials for wildfire.	High	On-Going	This is ongoing. Public education materials are pushed out regularly to all citizens.

ID	Lead Jurisdiction	Hazard	Project	Priority	2024 Status	2024 Comments
2019.08	Albany County	Hail, Tornado	In coordination with Laramie, Public education in Laramie and surrounding areas for tornadoes and hailstorms	Medium	On-Going	This is ongoing. Public education materials are pushed out regularly to all citizens.
2019.09	Albany County	All	Increase communication capabilities for responders in and around HWY 10, HWY 230/HWY 130 and Northern Albany County for public and private owned areas.	High	On-Going	Upgraded equipment and capabilities have been, and continue to be provided to responders in areas with communication gaps. Studies are being done to increase communications across the County.
2019.10	Albany County	Wildfire	Education for the public regarding mitigation opportunities for development in wildfire hazard areas.	High	On-Going	This is ongoing. Public education materials are pushed out regularly to all citizens.
2019.12	Albany County	Drought	Centennial Water/ Wastewater assessment for unincorporated areas. Mitigation projects that may be related to that assessment are generators, Pumps, etc.	Medium	On-Going	No record of assessment in last 3 years. Assessment scheduled with CISA through EMA
2015.02	Albany County	Snow, Wildfire, Wind	Clearly identify parking areas for trucks during times of I-80 closure also for hazmat trucks	High	On-Going	Additional parking areas have been added along I-80. Additional spaces will be added in the future.

ID	Lead Jurisdiction	Hazard	Project	Priority	2024 Status	2024 Comments
2015.06	Albany County	Wildfire	Firewise programs with public and enforce these restrictions	High	On-Going	This is on-going. Firewise Public education events are scheduled for June of 2025 in Tie Siding, Wold and Centennial are working towards becoming FireWise Communities. We will be rolling the program out across additional communities in the near future.
2015.07	Albany County	All	Work with local phone service and internet providers as appropriate, to address communication gaps	High	On-Going	We constantly work with phone and internet providers to address communication gaps.
2015.09	Albany County	All	Educate citizens on being prepared for disasters of all types	High	On-Going	This is ongoing. Public education materials are pushed out regularly to all citizens.
2015.11	Albany County	Hazmat	Better education to the public on hazardous materials in County.	Low	On-Going	This is on-going through the Local Emergency Planning Committee, trainings and exercises attended by the public.

ID	Lead Jurisdiction	Hazard	Project	Priority	2024 Status	2024 Comments
2015.19	Albany County	Flooding	Complete Floodplain study for South Laramie and establish base flood elevations	Medium	On-Going	In May of 2017, a revised flood insurance rate map was issued for a Letter of Map Revision Case # 16-08-0896P for portions of the Laramie River on the west side of Laramie. A portion of Spring Creek at/near its confluence with the Laramie River is currently being mapped/reviewed. This portion of the project is still on-going.
2015.22	Albany County	Dam Failure	Inspections for private dams	Medium	On-Going	Ongoing - Wyoming Engineering Office has a set schedule for Dam inspections. They work with EMA office to update status when inspections have been completed.
2015.36	Albany County	Flooding	Create a critical facilities matrix/plan for county	Medium	On-Going	Critical facilities have been identified, however, no plan has been written to date.

ID	Lead Jurisdiction	Hazard	Project	Priority	2024 Status	2024 Comments
						Current EMA staff was not aware of this project, but plans to develop a plan in the near future.
2015.38	Albany County	All	Develop back- up comm. system for Laramie and Rock River during power outages	High	Complete	Sirens have backup batteries and are tested regularly.
2015.40	Albany County	EQ	Public awareness of Earthquakes, in coordination with Albany and Rock River.	Low	On-Going	This is ongoing. Public education materials are pushed out regularly to all citizens.
2015.41	Albany County	Avalanche	Public Awareness and education, in coordination with Albany and Rock River.	Low	On-Going	This is ongoing. Public education materials are pushed out regularly to all citizens.
2015.42	Albany County	Thunderstorm, wind, tornado, earthquake, Lightning, flash flooding	In coordination with Laramie and Rock River: Work with school district and utilities sheltering, lightning, and all weather hazards education for kids	Medium	On-Going	Ongoing - Public education to students of all schools, 4H, and Youth Camps for emergency/hazard education
2015.43	Albany County	Thunderstorm, wind, Lightning	In coordination with Laramie and Rock River: Work with local paper and radio stations to add info on lightning and other natural hazards including preparedness kits.	Medium	On-Going	Ongoing project. We continue to work with all media outlets, including social media and websites, and Public outreach events to push out

ID	Lead Jurisdiction	Hazard	Project	Priority	2024 Status	2024 Comments
						preparedness information.
2015.25	Albany County	Flood	Remove stream bed and storm water structure obstructions that impede storm water flow and cause flooding	Low	Complete	
2015.26	Albany County	Flood	Prevent new construction in flood plain which could be flooded	Medium	On-Going	Replaced with new actions 4E and 4F.
2015.29	Albany County	Wildfire	Promote the Fire Wise Mitigation Program to lesson the impact to private property. Identify Funding to assist in the promotion of the program and off set the cost to citizens.	Medium	On-Going	This is ongoing. Public education materials are pushed out regularly to all citizens.
2015.31	Albany County	Terrorism	Provide active shooter training for all interested persons. Include barriers to be used as a deterrent for vehicle attacks. Coordinate with ESF 13 Public Safety to identify Hazards and Risks for event planning	Medium	On-Going	Per Sheriff & Undersheriff - Always on-going. Can be removed as it is no longer relevant to this plan.
2015.32	Albany County	Terrorism	Public education for See Something Say Something	Medium	On-Going	This is ongoing. Public education materials are pushed out regularly to all citizens.
2019.04	Laramie	Multiple	Generator for the Laramie Airport	Low	No Progress - Continue Action	No generator has been secured for the airport to date
2019.07	Laramie	All natural hazards	Evaluate building standards for the City of Laramie for natural hazards.	Medium	On-Going	This is ongoing. The City uses International Building Code that consistently review and update their

ID	Lead Jurisdiction	Hazard	Project	Priority	2024 Status	2024 Comments
						code related to natural hazards for specific areas of the country.
2019.11	Laramie	Flood	8" pump for Water Waste Water operations as a related project based on our assessment from 2018.	High	Complete	
2015.36	Laramie	Flooding	Create a critical facilities matrix/plan for city	Medium	Complete	This has been Completed as part of the City-Wide Drainage Study.
2015.38	Laramie	All	Develop back- up comm. system for Laramie and Rock River during power outages	High	Complete	Sirens have backup batteries and are tested regularly.
2015.45	Laramie	Windblown Deposits	Stabilize vegetation on identified areas	Low	Complete	Per City Engineer, this action can be removed
2019.13	Rock River	Wildfire, Tornado	Public education for wildfire and tornadoes	Medium	On-Going	This is ongoing. Public education materials are pushed out regularly to all citizens.
2015.38	Rock River	All	Develop back-up comm. system for Laramie and Rock River during power outages	High	Complete	Sirens have backup batteries and are tested regularly.
2015.46	Rock River	Winter Storm	Build snow fences on the west side of town to protect homes and roads	High	No Progress - Continue Action	
2015.47	Rock River	Winter Storm, Snow, Wind	Purchase equipment (dump trucks, graters) to better respond and recovery to snow and wind event to remove debris (including snow) from roadways; currently the town the town is left immobilized in times of snowstorms and faces a long recovery time	High	On-Going	Skidsteer was acquired, still need dump truck and grader for most effective snow

ID	Lead Jurisdiction	Hazard	Project	Priority	2024 Status	2024 Comments
			frame. There are also access issues such as for emergency response. There is a water-main break that cannot be accessed due to impassible roads. Town would like to increase this capability on their own rather than relying on an outside party.			removal. **ACR&B can assist if needed with equipment stored in RR R&B if they are not busy elsewhere

2025 Mitigation Actions

Table 7 and **Table 8** include the full details of all new mitigation actions included in this updated 2025 HMP. It should be noted that for potential funding source(s), reference to a "general fund" includes staff time.

Table 7 New 2025 Mitigation Actions

ID & Action Title	Local Government	Lead Entity	Partner Organization(s)	Primary Hazard Mitigated	Relevant Goal(s)	Action Details & Benefits
1. Avalanche (no risk to local municipalities or special districts)						
1: Avalanche Reporting Tool	Albany County	EMA Coordinator	AC Sheriff's Office	Avalanche	3	Implement an avalanche reporting tool for Albany and Carbon Counties. ACEMA will develop the overall tool in coordination with Carbon County EMA.
2. Drought (no risk to special districts besides PCLHID)						
2A. Sustainable Water Source Study	Albany County, City of Laramie, Town of Rock River	Albany County EMA Coordinator, City of Laramie Public Works Director, Town of Rock River Water Department Director	LRCD	Drought	3, 4	ACEMA will lead efforts to hire a consultant to develop the study. The project will include research on additional sustainable water sources for consumption. Local governments contributing efforts toward the study are noted as such.
2B. Water Conservation Education	PCLHID	Director	ACEMA, LRCD	Drought	2, 5	District will disseminate water conservation educational materials to all district customers on an annual basis in the summer.
3. Earthquake (no risk to LRCD, PCLHID or WISD)						

ID & Action Title	Local Government	Lead Entity	Partner Organization(s)	Primary Hazard Mitigated	Relevant Goal(s)	Action Details & Benefits
3A. Earthquake Study	Albany County, City of Laramie	County and City Planning Directors	ACEMA	Earthquake	3, 5	Hire a geologist to conduct a study specifically focused on research of historical event data, including frequency, severity, and damages from earthquakes in Albany County. Efforts at hiring a consultant will be led by county planning.
3B. Retrofitting older portions of buildings	ACHD	District Director		Earthquake	3	Conduct a study on retrofitting older portions of the hospital building with seismic bracing
3C. Seismic Stability Study	Albany County, City of Laramie, Town of Rock River, ACFD #1, ACSD #1	County and City Planning Directors, Town of Rock River Mayor, ACFD #1 District Board Chair, ACSD #1 Chief Operations Officer	ACEMA	Earthquake	1, 2, 3	Hire a vendor to conduct a detailed study focused on the structural vulnerability of the county's most vulnerable structures and infrastructure to a seismic event. Efforts at hiring a consultant will be led by county planning. Local governments will contribute to the study as needed.
4. Flood/Dam, Dike, & Levee Incident (no risk to LRCD, ACHD, or WISD)						
4A. Flood Fight Equipment	Albany County	EMA Coordinator	AC Road & Bridge, City of Laramie Streets Dept., ACFD #1	Flood/Dam, Dike, & Levee Incident	2, 3, 4	Obtain additional sandbagging equipment to assist with flood fight efforts
4B. Flood Insurance Program Education	Albany County	EMA Coordinator	City of Laramie, Town of Rock River	Flood/Dam, Dike, & Levee Incident	2, 4, 5	Educate the public on the benefits and operation of the National Flood Insurance Program through annual spring workshops, public

ID & Action Title	Local Government	Lead Entity	Partner Organization(s)	Primary Hazard Mitigated	Relevant Goal(s)	Action Details & Benefits
						outreach events, flyers, media, social media, and our websites.
4C. Residential Structural Mitigation Study	Albany County, City of Laramie	County and City Planning Director		Flood/Dam, Dike, & Levee Incident	1, 2, 4	Conduct a study to identify mitigation projects that can be implemented in residential areas prone to flooding. Structural solutions include berms, dikes, etc.
4D. Dam Failure Public Awareness	Albany County	EMA Coordinator		Flood/Dam, Dike, & Levee Incident	1, 4, 5	Develop a public awareness campaign focused on dam/dike/levee risk
4E. Updated Flood Study & FEMA Flood Maps	Albany County, City of Laramie, Town of Rock River	County and City Planning Directors, Town of Rock River Mayor		Flood/Dam, Dike, & Levee Incident	1, 2, 3, 4, 5	Complete base flood elevation (BFE) studies and apply for revisions to the FEMA FIRM maps to include the BFEs in rural areas with higher residential density (North Fork area in the Centennial Valley, area along Big Laramie and Little Laramie with residential development). Better identification of the BFE in residential areas will mitigate the impacts of floods on future development. Also, existing residents will have a better understanding of their flood danger and can be better prepared. County will lead this effort with support from other local governments.

ID & Action Title	Local Government	Lead Entity	Partner Organization(s)	Primary Hazard Mitigated	Relevant Goal(s)	Action Details & Benefits
4F. Flood Mitigation Education	Albany County, Town of Rock River, ACFD #1, ACSD #1	County EMA Coordinator, Town of Rock River Clerk, ACFD #1 District Board Chair, ACSD #1 Chief Operations Officer		Flood/Dam, Dike, & Levee Incident	4, 5	Develop educational materials for homeowners within the flood plain that can be implemented (develop or provide a risk evaluation tool, mitigation ideas, using flood-resistant materials to build or remodel, etc.). The county will acquire/lead the development of all engagement materials. Local governments will provide support at events and will utilize their own media sources to disseminate these materials.
4G. Storm Drainage Capital Plan Projects	City of Laramie	Public Works Director		Flood/Dam, Dike, & Levee Incident	1, 2, 3, 4	Implement projects identified in the plan, including outlet structures, piping, detention ponds, culverts, and outlet structures.
4H. Diversion Installations	PCLHID	Director		Flood/Dam, Dike, & Levee Incident	1,2	Diversions on irrigation system to prevent downstream flooding
4I. Installation of Checks & Repairs	PCLHID	Director		Flood/Dam, Dike, & Levee Incident	2,3,4	Checks & Repairs on diversions, inlets, and outlets to prevent erosion
4J. Ditch Lining Project	PCLHID	Director		Flood/Dam, Dike, & Levee Incident	2,3,4	Lining ditches, canals, and laterals for erosion control
4K. Storage Facility Mitigation	PCLHID	Director		Flood/Dam, Dike, & Levee Incident	2,3,4	Erosion control on district storage facilities

ID & Action Title	Local Government	Lead Entity	Partner Organization(s)	Primary Hazard Mitigated	Relevant Goal(s)	Action Details & Benefits
4L. HHPD Inundation Mapping	Albany County	EMA Coordinator	Sheriff's Office	Flood/Dam, Dike, & Levee Incident		Inundation modeling and mapping for all high and significant hazard potential dams. Priority focus is for the Rob Roy, Lake Owen, and Lake Hattie dams. Additional development of related evacuation and response planning.
5. Geologic Hazards (Landslide/Land & Mine Subsidence/Expansive Soils) (no risk to LRCD, ACHD, PCLHID, or WISD)						
5. Detailed mapping of areas with land subsidence or expansive soil issues in the county	Albany County, City of Laramie, Town of Rock River, ACFD #1, ACSD #1	Albany County EMA Coordinator, City of Laramie Planning Director, Town of Rock River Clerk, ACFD #1 District Board Chair, ACSD #1 Chief Operations Officer	ACEMA, LRCD, University of Wyoming	Geologic Hazards (Landslide / Land & Mine Subsidence / Expansive Soils	1, 2, 4, 5	Funding to contract a professional geologist to map areas of concern throughout Albany County. ACEMA will lead the procurement of a vendor. Local governments will collaborate with the vendor to develop the mapping.
6. Severe Thunderstorm (Hail/Lightning/Thunderstorm Wind) (no risk to WISD or PCLHID)						
6A. Facility for equipment storage and protection	LRCD	District Director		Severe Thunderstorm (Hail / Lightning / Thunderstorm Wind)	4	Funding and construction of indoor storage space for equipment and vehicles to mitigate the risk posed by severe thunderstorm events.
6B. Severe Thunderstorm	Albany County, Town of Rock River, ACFD #1,	County EMA Coordinator, Town of Rock	NWS	Severe Thunderstorm (Hail / Lightning /	1, 4, 5	Educate the public on severe thunderstorm safety and mitigation through annual

ID & Action Title	Local Government	Lead Entity	Partner Organization(s)	Primary Hazard Mitigated	Relevant Goal(s)	Action Details & Benefits
Preparedness Education	ACSD #1, ACHD	River Clerk, ACFD #1 District Board Chair, ACSD #1 Chief Operations Officer, ACHD District Director		Thunderstorm Wind)		summer public outreach events, training, workshops, flyers, media, social media, and websites. The county will acquire/lead the development of all engagement materials. Local governments will provide support at events and will utilize their own media sources to disseminate these materials.
6C. Stormwater System Improvements	City of Laramie	Public Works Director	ACEMA	Severe Thunderstorm (Hail / Lightning / Thunderstorm Wind)	1, 2, 3	Implementation of improvement projects and equipment as identified in the City of Laramie Storm Drainage Capitol Plan.
7. Tornado/Wind/Windblown Deposits (no risk to WISD or PCLHID)						
7A. District structure and communication tower durability study	ACFD #1	District Board Chair	ACEMA, NWS	Tornado / Wind / Windblown Deposits	1, 3	Hire a vendor to conduct a detailed study on the structural vulnerability of the district's structures and infrastructure to an extreme wind/tornado event.
7B. Improvements/ Upgrades to Outdoor Warning System (Sirens)	Albany County, City of Laramie, Town of Rock River	Albany County EMA Coordinator, City of Laramie Public Works Director, Town of Rock River Mayor	City of Laramie, Town of Rock River	Tornado / Wind / Windblown Deposits	1	Install additional outdoor warning sirens in populated/expanding communities in tornado-prone areas of the county. ACEMA will lead the procurement of a vendor. Local governments will collaborate with the vendor to install, test, and maintain the sirens.

ID & Action Title	Local Government	Lead Entity	Partner Organization(s)	Primary Hazard Mitigated	Relevant Goal(s)	Action Details & Benefits
7C. Weather radar enhancement	Albany County	EMA Coordinator	NOAA	Tornado / Wind / Windblown Deposits	1, 3	Support the expansion of NOAA's weather radar coverage to address areas lacking visibility.
7D. Co-Generator for Primary Back Up Power	ACHD	District Director		Tornado / Wind / Windblown Deposits	1, 3	Co-generator for use at hospital - Developing a plan for a Co-Gen – power back up, currently not able to do surgeries if power outage resulting in the need to transfer patients
7E. Tornado Preparedness Education	Albany County, City of Laramie, Town of Rock River, LRCD, ACSD,	County EMA Coordinator, City Planning Director, Town Clerk, LRCD District Director, ACSD #1 Chief Operations Officer	NWS	Tornado / Wind / Windblown Deposits	1, 4, 5	Educate the public on tornado safety and mitigation through annual summer public outreach events, training, workshops, flyers, media, social media, and websites. The county will acquire/lead the development of all engagement materials. Local governments will provide support at events and will utilize their own media sources to disseminate these materials.
8. Wildfire (no risk to LRCD, PCLHID, or WISD)						
8A. WUI fire mitigation and public outreach	ACFD	District Board Chair	WY State Forestry	Wildfire	1, 3	Conduct wildfire mitigation focused on defensible space, home hardening, and related public outreach efforts.
8B. Public Education Events for	Albany County, City of Laramie, Town of Rock	County EMA Coordinator, City Planning	ACFD #1, Wyoming State Forestry, LRCD, UW Extension	Wildfire	5	"Coordinate and organize with partners for educational field events and workshops across

ID & Action Title	Local Government	Lead Entity	Partner Organization(s)	Primary Hazard Mitigated	Relevant Goal(s)	Action Details & Benefits
FireWise & Wildfire Mitigation	River, ACSD #1, ACHD	Director, Town Clerk, ACSD #1 Chief Operations Officer, ACHD District Director				the county. Events will focus on highlighting the benefits of the FireWise program and educating the public on individual mitigation actions for wildfires. An initial public event is scheduled for June 7, 2026. The county will acquire/lead the development of all engagement materials. Local governments will provide support at events and will utilize their own media sources to disseminate these materials.
8C. Water Storage/Cisterns for Firefighting Operations	ACFD #1	District Board Chair	ACEMA, Fire Warden	Wildfire	1, 2, 3, 4	Stage additional water storage/cisterns in areas of the County that do not have sufficient water sources for firefighting operations
9. Winter Storm (no risk to PCLHID)						
9A. FD Station Warming Center Upgrades	ACFD #1	District Board Chair	ACEMA	Winter Storm	2, 3	Implement station upgrades so that facilities can serve as warming shelters and emergency preparedness centers.
9B. FD generator sets	Albany County, ACFD #1	County EMA Coordinator, ACFD #1 District Board Chair	ACEMA	Winter Storm	1, 3	Purchase and install backup power generator sets to maintain operations and communication during power outages.

ID & Action Title	Local Government	Lead Entity	Partner Organization(s)	Primary Hazard Mitigated	Relevant Goal(s)	Action Details & Benefits
9C. Installation of shelter belts/living snow fences	LRCD	District Director	ACEMA, Wyoming State Forestry, AC Road & Bridge	Winter Storm	4	Funding for the planning and planting of shelterbelts/living snow fences to address ingress and egress vulnerabilities, protect roadways and shelter structures from wind
9D. Backup Power for Public Shelter Locations	Albany County, Town of Rock River, ACSD #1	County EMA Coordinator, Town Mayor, ACSD #1 Chief Operations Officer		Winter Storm	1	Identify potential sheltering locations and provide backup power/generators to those critical facilities.
9E. Snow fence – continued action	Albany County, Town of Rock River	County EMA Coordinator, Town Mayor		Winter Storm	1, 2, 3	Build snow fences on west side of town to protect homes and roads. Ongoing - It is difficult for the Town to get buy-in from landowners, but would like to continue to work on this. Consider living snow fences.
9F. Backup Power	City of Laramie	City Public Works Director	ACEMA	Winter Storm	3	Install backup power to the City of Laramie Municipal Operations equipment storage that houses snow removal equipment.
9G. Additional Equipment/Personnel for Snow Removal	City of Laramie, WISD	City Public Works Director, WISD District Director	ACEMA	Winter Storm	1, 2, 3, 4	"City to obtain additional equipment and qualified personnel for snow removal operations.
9H. Snow Fall Management - snow melt	ACHD	ACHD District Director		Winter Storm	1, 2, 3	Reduce the risk of falls and injuries caused by inadequate snow removal equipment,

ID & Action Title	Local Government	Lead Entity	Partner Organization(s)	Primary Hazard Mitigated	Relevant Goal(s)	Action Details & Benefits
system (sidewalks, driveways), snow removal equipment						install heated sidewalks and updated snow removal equipment to improve access to the facility.
9I. Courthouse Snowmelt System	Albany County	County Public Works Director		Winter Storm	3	Complete the Country Courthouse snowmelt project to include a boiler.
10. Multiple Hazards						
10A. Designated Storm Shelters	Albany County	Albany EMA Coordinator	Albany County, City of Laramie, Town of Rock River	Multiple	1	Identify, retrofit, and designate community storm shelter locations throughout the County
10B. Improvements/ Upgrades to Emergency Alert System	City of Laramie	City Police Chief	ACEMA	Multiple	1, 4	Increase the effectiveness of our alerting software by adding additional features/add-ons to expand our notification capabilities during emergencies
10C. Secure Information Sharing Platform	Albany County	Albany EMA Coordinator	Albany County, City of Laramie, Town of Rock River, Albany County Fire District #1, Hospital District, Albany County School District #1	Multiple	1, 2	Deploy a secure information-sharing platform for responders and stakeholders to share incident/operations updates. Resource/personnel requests, etc. Ability to share congruent public information messages amongst organizations. (virtual EOC)
10D. Establish Albany County CERT	Albany County	Albany EMA Coordinator	Albany County, City of Laramie, Town of Rock River, ACSSAR	Multiple	1, 5	Establish an Albany County Community Emergency Response Team (CERT) to help with mitigation actions and to

ID & Action Title	Local Government	Lead Entity	Partner Organization(s)	Primary Hazard Mitigated	Relevant Goal(s)	Action Details & Benefits
						assist responders during response and recovery operations.
10E. Urban Search & Rescue Operation training and Equipment	Albany County	ACSSAR Director	ACSO, LPD, LFD	Multiple	1	Fund training and additional equipment for urban search and rescue operations during tornadoes, earthquakes, or other incidents that can cause building collapse within the City and County.
10F. Additional Water storage	City of Laramie	Public Works Director	Laramie Fire Department, ACEMA	Multiple	1, 2, 3	Additional water storage for the City of Laramie is needed for city water supply during droughts and for firefighting operations during wildfires.
10G. Master Plan for Pioneer Canal-Lake Hattie Irrigation District	PCLHID	Director		Multiple	1,2,3,5	Master Plan for overall water control, erosion mitigation, public safety and recreational activities.
10H. Generator for the Laramie Airport – continued action	Albany County	Albany EMA Coordinator		Multiple	1,2,3	Purchase and install a backup generator for the Laramie Airport

Table 8 New 2025 Mitigation Actions - Additional Details

ID & Action Title	Priority (High, Medium, Low)	Timeframe for Completion (Estimated Year)	Potential Funding Sources
1. Avalanche			

ID & Action Title	Priority (High, Medium, Low)	Timeframe for Completion (Estimated Year)	Potential Funding Sources
1: Avalanche Reporting Tool	Medium	2027	General Fund, Donations
2. Drought			
2A. Sustainable Water Source Study	High	2029	General Fund, FEMA BRIC
2B. Water Conservation Education	Low	2029	General Fund
3. Earthquake			
3A. Earthquake Study	Low	2030	General Fund, FEMA BRIC/HMGP
3B. Retrofitting older portions of buildings	Low	2030	General Fund, FEMA BRIC/HMGP
3C. Seismic Stability Study	Low	2030	General Fund, FEMA BRIC/HMGP
4. Flood/Dam, Dike, & Levee Incident			
4A. Flood Fight Equipment	Medium	2027	General Fund
4B. Flood Insurance Program Education	Medium	2026	General Fund
4C. Residential Structural Mitigation Study	Medium	2026	General Fund
4D. Dam Failure Public Awareness	Low	2028	General Fund
4E. Updated Flood Study & FEMA Flood Maps	Medium	2027	General Fund, FEMA RiskMap/BRIC/HMGP/FMA, Farm Bill (EQIP, RCPP, and WFPO)
4F. Flood Mitigation Education	Medium	2026	General Fund
4G. Storm Drainage Capital Plan Projects	High	2026	General Fund, FEMA BRIC/HMGP
4H. Diversion Installations	Medium	2027	General Fund, FEMA BRIC/HMGP
4I. Installation of Checks & Repairs	High	2026	General Fund, FEMA BRIC/HMGP
4J. Ditch Lining Project	Medium	2027	General Fund, FEMA BRIC/HMGP
4K. Storage Facility Mitigation	Medium	2028	General Fund, FEMA BRIC/HMGP
4H. Diversion Installations	Medium	2027	General Fund, FEMA BRIC/HMGP
4L. HHPD Inundation Mapping	High	2027	General Fund, FEMA HHPD/BRIC/HMGP
5. Geologic Hazards (Landslide/Land & Mine Subsidence/Expansive Soils)			

ID & Action Title	Priority (High, Medium, Low)	Timeframe for Completion (Estimated Year)	Potential Funding Sources
5. Detailed mapping of areas with land subsidence or expansive soil issues in the county	Medium	2028	General Fund, FEMA BRIC/HMGP
6. Severe Thunderstorm (Hail/Lightning/Thunderstorm Wind)			
6A. Facility for equipment storage and protection	Low	2029	General Fund, FEMA BRIC/HMGP
6B. Severe Thunderstorm Preparedness Education	High	2026	General Fund
6C. Stormwater System Improvements	High	2030	General Fund, FEMA BRIC/HMGP/FMA
7. Tornado/Wind/Windblown Deposits			
7A. District structure and communication tower durability study	Medium	2028	General Fund, FEMA BRIC/HMGP
7B. Improvements/Upgrades to Outdoor Warning System (Sirens)	Medium	2028	General Fund, FEMA HMGP
7C. Weather radar enhancement	Medium	2030	General Fund
7D. Co-Generator for Primary Back Up Power	High	2028	General Fund, FEMA HMGP
7E. Tornado Preparedness Education	Medium	2027	General Fund
8. Wildfire			
8A. WUI fire mitigation and public outreach	High	2026	Wyoming State Forestry, General Fund, FEMA BRIC/HMGP
8B. Public Education Events for FireWise & Wildfire Mitigation	Medium	2026	LRCD, Barnyards & Backyards, General Fund
8C. Water Storage/Cisterns for Firefighting Operations	High	2027	Albany County Fire District, General Fund, FEMA BRIC/HMGP
9. Winter Storm			
9A. FD Station Warming Center Upgrades	Medium	2028	FEMA BRIC/HMGP, SAFER, AFG

ID & Action Title	Priority (High, Medium, Low)	Timeframe for Completion (Estimated Year)	Potential Funding Sources
9B. FD generator sets	Medium	2028	General Fund, FEMA HMGP
9C. Installation of shelter belts/living snow fences	Medium	2030	Wyoming State Forestry, General Fund, FEMA BRIC/HMGP
9D. Backup Power for Public Shelter Locations	High	2030	General Fund, FEMA HMGP
9E. Snow fence – continued action	High	2026	Wyoming State Forestry, General Fund, FEMA BRIC/HMGP
9F. Backup Power	Medium	2030	General Fund, FEMA HMGP
9G. Additional Equipment/Personnel for Snow Removal	Medium	2028	General Fund
9H. Snow Fall Management - snow melt system (sidewalks, driveways), snow removal equipment	Medium	2028	General Fund
9I. Courthouse Snowmelt System	Medium	2027	General Fund
10. Multiple Hazards			
10A. Designated Storm Shelters	High	2027	General Fund, FEMA BRIC/HMGP
10B. Improvements/Upgrades to Emergency Alert System	Medium	2030	General Fund
10C. Secure Information Sharing Platform	High	2026	General Fund
10D. Establish Albany County CERT	High	2026	General Fund
10E. Urban Search & Rescue Operation training and Equipment	Medium	2028	General Fund
10F. Additional Water storage	High	2030	General Fund
10G. Master Plan for Pioneer Canal-Lake Hattie Irrigation District	High	2027	General Fund, FEMA BRIC
10H. Generator for the Laramie Airport – continued action	Medium	2027	General Fund, FEMA HMGP

Mitigation Capabilities

Planning & Regulatory Capabilities

Planning and regulatory capabilities are powerful tools for implementing hazard mitigation. The county and local governments currently utilize or have implemented a number of these capabilities shown in **Table 9**, and the planning and regulatory capabilities for special districts are shown in **Table 10.** The county also supports local governments with some of these available capabilities.

Local governments are encouraged to utilize this assessment to identify those capabilities that they want to expand and improve upon, to enhance implementation efforts towards the county's mitigation strategy. The ability to do so is dictated by each local government's elected leadership, management, and available funding and staffing. It is also noted that grant funding opportunities are available to improve these capabilities. Some of the new mitigation actions identified in this HMP are also focused on enhancing these mitigation capabilities.

Table 9 Albany County & Local Governments - Planning & Regulatory Capabilities

Mitigation Capability	Albany County	City of Laramie	Town of Rock River
Comprehensive, Master, or General Plan	Yes	Comp Plan - https://cityoflaramie.org/230 City & County Growth Plan - https://cityoflaramie.org/1215/Laramie-GROWTH-AREA-Plan	No
Capital Improvement Program or Plan (CIP)	Yes	City of Laramie 10 year capital plan	No
Floodplain Management Plan	Yes	City of Laramie municipal code includes floodplain management	No
Stormwater Program / Plan	Yes, for the City of Laramie, not in the unincorporated County	Citywide Master Drainage Plan	No
Community Wildfire	Yes, updated November 2024	Yes, updated November 2024	Yes, updated

Mitigation Capability	Albany County	City of Laramie	Town of Rock River
Protection Plan (CWPP)			November 2024
Erosion / Sediment Control Program	Yes	Citywide Master Drainage Plan	No
Economic Development Plan	Yes	Thrive Laramie Economic Development Plan - https://cityoflaramie.org/DocumentCenter/View/18759/Thrive-Laramie-Community-and-Economic-Development-Action-Strategy-2020	No
Other Plans:	N/A	The City of Laramie has a lot of different plans. All of our plans can be found at the following links: https://cityoflaramie.org/225/Studies-Plans-and-Other-Information / https://cityoflaramie.org/841/Engineering-Resources One other plan is this one: https://www.cityoflaramie.org/760/Parks-Recreation-Master-Plan	Water Plan
Building Codes (Year)	No	IBC/IRC 2024. Use this link for all building code types and years: https://www.cityoflaramie.org/DocumentView.aspx?DID=7402	No
Building Code Effectiveness Grading Schedule (BCEGS) Rating	No	No	No
Site Plan Review Requirements	No	Site Plan Review and Design Requirement are found within Title 15 of LMC. Here is a link: https://www.cityoflaramie.org/444/Unified-Development-Code Site Plan Application: https://www.cityoflaramie.org/DocumentCenter/View/20362/SIte-Plan-Review-APPLICATION-ALL-2021	Building Permits
Other Codes, Permitting, or Inspections:	Small Wastewater Permits (including inspections)	https://cityoflaramie.org/942/Licenses-Permits	No

Mitigation Capability	Albany County	City of Laramie	Town of Rock River
		All other Design Requirement are found within Title 15 of LMC. Here is a link: https://www.cityoflaramie.org/444/Unified-Development-Code Many other codes are found in LMC: https://library.municode.com/wy/laramie/codes/code_of_ordinances Inspections are done for many activities in the City. Site Plan and Building Permits are often the two most thought of. Building Permit inspection information can be found here: https://www.cityoflaramie.org/432/Building-Permits-and-Inspections	
Zoning Ordinance (Land Use)	Yes	Zoning Ordinances are found within Title 15 of LMC. Here is a link: https://www.cityoflaramie.org/444/Unified-Development-Code Zoning Categories are found in LMC 15.08: https://www.cityoflaramie.org/DocumentCenter/View/27295/1508-Zone-Districts-1192023	No
Subdivision Ordinance	Yes	Subdivision Ordinances are found within Title 15 of LMC. Here is a link: https://www.cityoflaramie.org/444/Unified-Development-Code Subdivisions are found in LMC 15.16: https://www.cityoflaramie.org/DocumentCenter/View/27297/1516-Subdivision-1192023	No
National Flood Insurance Program (NFIP) Participant	Yes	Yes	No
Flood Insurance Study / Flood	Yes - Flood Insurance Study for Albany County,	Yes	No

Mitigation Capability	Albany County	City of Laramie	Town of Rock River
Insurance Rate Map / DFIRM	Wyoming and Incorporated Areas, dated June 16, 2011		
Floodplain Ordinance	Yes	Floodplain Ordinances are found within Title 15 of LMC. Here is a link: https://www.cityoflaramie.org/444/Unified-Development-Code Floodplain are found in LMC 15.20: https://www.cityoflaramie.org/DocumentView.aspx?DID=2219	No
Elevation Certificates for Floodplain Development	No, but working on it	The City of Laramie requires elevation certificates with building permits and development	No
Community Rating System (CRS) Participant	No	No	No
Open Space / Conservation Program	No	Yes. Parkland dedication requirement for residential development required. Found in LMC 15.14: https://www.cityoflaramie.org/DocumentCenter/View/28626/1514-Development-Standards--31124	No
Growth Management Ordinance	No, but working on it	No. Do have a Growth Management Plan: City & County Growth Plan - https://cityoflaramie.org/1215/Laramie-GROWTH-AREA-Plan	No
Stormwater Ordinance	No	Yes, updated in late 2024	No
Other Hazard Ordinance (steep slope, wildfire, snow loads, etc.)	No	This is all Found in LMC 15.14 (specifically LMC 15.14.020): https://www.cityoflaramie.org/DocumentCenter/View/28626/1514-Development-Standards--31124	No

Mitigation Capability	Albany County	City of Laramie	Town of Rock River
Other Land Use Planning and Ordinances:	Small Wastewater Regulations	All land use planning ordinances are found within Title 15 of LMC. Here is a link: https://www.cityoflaramie.org/444/Unified-Development-Code	No

Table 10 Albany County Special Districts - Planning & Regulatory Capabilities

Mitigation Capability	ACFD #1	ACHD	ACSD #1	LRCD	PCLHID	WOLD
Comprehensive, Master, or General Plan	Yes, Albany Fire District #1 (ACFD1) Strategic Plan dated 6/19/19	Yes, Emergency Preparedness Plan	Yes, Albany County School District #1 Emergency Preparedness Plan	Yes, 2025-2029 LRCD Long Range and Natural Resource Management Plan	No, need one	Yes, during 2024, WOLD has worked hard to write a general 3-year plan for mitigation.
Capital Improvement Program or Plan (CIP)	Yes, the ACFD #1 Budget, under Strategic Items, includes funding for capital improvements in Fire Departments, including a well, new fire engines, station upgrades for bathrooms, generators, and upgrades for	Yes, updated annually	Yes, Major Maintenance Plan	No	No	Yes. The only capital improvements in our community are road improvements and safety. Our road improvement plan is complete.

Mitigation Capability	ACFD #1	ACHD	ACSD #1	LRCD	PCLHID	WOLD
	communication equipment.					
Floodplain Management Plan	Yes, the Laramie Rivers Soil and Water Conservation District implements programs in rural communities, on private land and in areas affected by wildfire runoff, for the benefit of the ACFD1.	No, not located in a floodplain	Yes, City & County	No	No	No, we are not in a floodplain.
Stormwater Program / Plan	No Plan, but the ACFD1 VFD departments keep a supply of sandbags at their departments under a program implemented by Albany Co. Emergency Management.	Yes	Yes, the City of Laramie. But not in the greater Albany County.	No	No	No
Community Wildfire Protection Plan (CWPP)	Yes, updated November 2024	Yes, updated November 2024	Yes, updated November 2024	Yes, updated November 2024	Yes, updated November 2024	Yes, updated November 2024

Mitigation Capability	ACFD #1	ACHD	ACSD #1	LRCD	PCLHID	WOLD
Erosion / Sediment Control Program	Yes, the Laramie Rivers Soil and Water Conservation District implements programs in rural communities, on private land and in areas affected by wildfire runoff, for the benefit of the ACFD1. The Albany Co EMA has distributed seeds to private landowners. US Forest Service is engaged in burn scar remediation. The County Road and Bridge has responsibility to maintain drainage ditches and culverts.	Yes, reviewed with remodels	No	2025-2029 LRCD Long Range and Natural Resource Management Plan	As needed	No, we don't have a program. However, we do address erosion on our roads to determine improvements.
Other Plans:	No	No	No	No	No	No
Site Plan Review Requirements	Yes, Albany County Planning Office provides for property boundary setbacks for	Follow all city requirements	Follow City & County Requirements	No	No	All plans are reviewed annually, as needed.

Mitigation Capability	ACFD #1	ACHD	ACSD #1	LRCD	PCLHID	WOLD
	buildings, well and septic system setbacks.					
Other Codes, Permitting, or Inspections:	Yes, New construction Electrical Inspection by licensed electrical contractor is forwarded to County Planning Office. County approval of Septic System design as recommended by a licensed engineer.	City, State (AHJ), Federal Insurance Company	Follow City & County Requirements	No	No	No
Other Land Use Planning and Ordinances:	Yes, New development requires approval of driveway access to public roads Aquifer protection standards for new construction in the Casper Aquifer area.	City of Laramie	Wyoming Department of Education, Wyoming State Construction Department	No	No	No

Administrative & Technical Capabilities

Administrative and technical capabilities include staff, working groups, and technology which are vital for a community to be able to implement hazard mitigation. The county and local governments currently utilize or have implemented some of these capabilities shown in **Table 11**, and the administrative and technical capabilities for special districts are shown in **Table 12.**

Table 11 Albany County & Local Governments - Administrative & Technical Capabilities

Mitigation Capability	Albany County	City of Laramie	Town of Rock River
Planning Commission	Yes	Yes	Yes
Mitigation Planning Committee	Yes	Yes	Yes
Maintenance Programs (tree trimming, clearing drainage, etc.)	No	Yes	Yes
Emergency Manager	Yes – Albany County Emergency Management	Yes	Yes
Building Official	Yes	Yes	Yes
Floodplain Administrator	Yes - Lisa Erikson & David Gertsch County Planning	Yes	No
Community Planner	Yes	Yes	No
Transportation Planner	Yes	Yes	No
Civil Engineer	Yes	Yes	No
GIS Capability	Yes – Karen Bowman, Assessor's Office	Yes	Yes
Resiliency Planner	Yes	Yes	No
Other Related Staff:	N/A	Yes, Natural Resource Program Administrator	No
Warning Systems / Services (flood)	Yes – Everbridge/IPAWS	Yes	No
Warning Systems / Services (other / multi-hazard)	Yes – Everbridge/IPAWS	Yes	Yes, Town Siren
Grant Writing / Management	Yes – Bailey Quick, Brady Carrol	Yes	No, but can leverage the County capability

Mitigation Capability	Albany County	City of Laramie	Town of Rock River
Other Technical:	N/A	Yes	No

Table 12 Albany County Special Districts - Administrative and Technical Capabilities

Mitigation Capability	ACFD #1	ACHD	ACSD #1	LRCD	PCLHID	WOLD
Maintenance Programs (tree trimming, clearing drainage, etc.)	Yes, Albany Co. Road and Bridge maintains County roadways, drainage on same roadways, intersections and bridges in the ACFD1 Area of Responsibility.	Yes	Yes	Toltec Dam annual inspection with NRCS engineering	No	Yes, this is an active part of our plan. Wold exceeds Firewise standards for mitigation hours.
GIS Capability	Yes, Albany County Government and the Albany Co. Emergency Management provide a GIS specialist to ACFD1 when required. GIS maps can be printed on a large plotter during emergencies.	No	No	ArcGIS Pro – "limited experience"	Albany County	Yes, this is in progress. A mapping company is helping get our community map in the correct format.
Other Related Staff:	No	No	No	No	No	Wold has a 5-member Board of Directors that are volunteers elected to serve.
Grant Writing / Management	Yes, Albany County Government provides a	Yes	Yes	Yes	Albany County	The Board Secretary is just getting started on grants.

Mitigation Capability	ACFD #1	ACHD	ACSD #1	LRCD	PCLHID	WOLD
	Grant Writer to ACFD1 when required by the district.					
Other Technical:	Yes, The Albany Co. Emergency Management provides technical support to ACFD1 on structure fires, wildfires, MVAs, flooding and mass-casualty events.	No	No, contracted help when needed	Technical assistance with natural resource issues and natural events i.e. flooding and wildfires. Per Wyoming State Statue Chapter 16 "Conservation Districts"	No	Wold maintains an active website and email list to communicate with community. The Board Secretary maintains current contact information on every owner. Social media is also used to communicate.

Financial Capabilities

The ability of a community to implement a comprehensive mitigation strategy is largely dependent on available funding. The county and local governments currently utilize or have implemented some of these capabilities shown in **Table 13**, and the financial capabilities for special districts are shown in **Table 14.**

Table 13 Albany County & Local Governments - Financial Capabilities

Mitigation Capability	Albany County	City of Laramie	Town of Rock River
Levy for Specific Purposes with Voter Approval	Yes	Yes	Yes
Utility Fees	No	Yes	Yes
System Development / Impact Development Fee	Yes (through commissioner resolution to have a fee for any type of service)	Yes. We have plant investment fees: https://www.cityoflaramie.org/DocumentCenter/View/9587	Yes

Mitigation Capability	Albany County	City of Laramie	Town of Rock River
General Obligation Bonds to Incur Debt	Yes (must be within our debt capacity which is 2% of our assessed valuation)	Yes	Yes
Special Tax Bonds to Incur Debt	Yes (would need to be voter-approved)	Yes	Yes
Withheld Spending in Hazard-Prone Areas	No	No	No
Open Space / Conservation Fund	No	Yes. We have park in-lieu fund paid into by developers.	No
Stormwater Utility Fees	No	Yes, Adopted in late 2024	No
Capital Improvement Project Funding	Yes	Yes	Yes
Community Development Block Grants (CDBG)	We have had them in the past and are eligible to have them, we just haven't had one recently.	Yes, by application rather than entitlement.	Yes
Other Funding:	Yes	Yes	Yes

Table 14 Albany County Special Districts - Financial Capabilities

Mitigation Capability	ACFD #1	ACHD	ACSD #1	LRCD	PCLHID	WOLD
Levy for Specific Purposes with Voter Approval	No	Yes, charitable, Indigent care	Yes	Yes, Per Wyoming State Statue Chapter	No, landowners pay based on acreage –	Yes, this is an option outlined in our bylaws and Board Policy Handbook.

Mitigation Capability	ACFD #1	ACHD	ACSD #1	LRCD	PCLHID	WOLD
				16 "Conservation Districts"	Special Assessment	
Utility Fees	No	Yes	No	No	No	We have utility fees for one streetlight in our annual budget. We have no other utility fees.
System Development / Impact Development Fee	Windfarm Impact Mitigation funds.	No	No	No	No	No
General Obligation Bonds to Incur Debt	No	No	Yes	No	Mortgage debt	No, Wold District does not use bonds. However, the process is outlined in our bylaws.
Withheld Spending in Hazard-Prone Areas	No	No	No	No	No	No
Stormwater Utility Fees	No	No	No	No	No	No
Capital Improvement Project Funding	Yes, ACFD1 has acquired County funding and State Land Resource Board grants to upgrade rural VFD firehouses with ADA	Yes, through Ivinson Foundation	Yes, School Facilities Department	No	No	Yes, the bylaws outline our process. However, no capital improvements have ever been made

Mitigation Capability	ACFD #1	ACHD	ACSD #1	LRCD	PCLHID	WOLD
	compliant bathrooms and water wells.					within our community.
Other Funding:	Yes, the State Constitution Mill levy of 3 mills is the majority of operational funding for ACFD1. All rural VFD departments in ACFD1 get some private donations to their non-profit auxiliaries to assist with operational funding. Local unincorporated residential areas participate in State Forestry Grants for fuel mitigation programs, such as the Defensible Space, Fuel Treatments, and Fuel Breaks programs.	No	Wyoming Department of Education – Based on # of students	Seeking and applying for grants	No	No other funding is available.

Education & Outreach Capabilities

Education and outreach are important capabilities that allow a community to continue the conversation with the public regarding hazard risks and opportunities to mitigate. The county and local governments currently utilize the following capabilities as shown in **Table 15**, and these education and outreach capabilities for special districts are shown in **Table 16.**

Table 15 Albany County & Local Governments - Education & Outreach Capabilities

Mitigation Capability	Albany County	City of Laramie	Town of Rock River
Public Hazard Education / Outreach Program	Yes – Albany County Emergency Management – Public Outreach & Education	Yes	No
Local Citizen Groups that Communicate Hazard Risks	Yes – Local Emergency Planning Committee	Yes	No
Firewise	Not as a whole, several communities participate in Firewise: Wold, Tie Siding	No	Yes, in 2024, Wold worked hard to complete all requirements to be identified as a Firewise Community. We have a 3-year plan based on data collected in our community.
StormReady	No	No - Stormwater Group was disbanded when the plan was adopted.	No
Other Programs or Organizations:	No	Yes	No

Table 16 Albany County Special Districts - Education & Outreach Capabilities

Mitigation Capability	ACFD #1	ACHD	ACSD #1	LRCD	PCLHID	WOLD
Public Hazard Education / Outreach Program	Yes, Local unincorporated residential areas participate in State Forestry Grants for fuel mitigation programs, such as the Defensible Space, Fuel Treatments, and Fuel Breaks programs. Local VFDs participate in Fire Wise training for local rural communities.	No	Yes, Albany County Emergency Management	LRCD hosts a biennial conservation expo on the even-numbered years	Albany County EMA	
Local Citizen Groups that Communicate Hazard Risks	Yes, Albany Co EMA is starting a CERT program. The county has several COAD/VOAD organizations active during disaster events.	Local Emergency Preparedness Committee (LEPC)	Local Emergency Preparedness Committee (LEPC)	No	LEPC	Yes, our local volunteer fire department works closely with us.
Firewise	Local VFDs participate in Firewise training outreach with local rural communities.	No	Yes, will be participating	LRCD, State Forestry, and partners plan to host an educational field workshop discussing WUI and	No	Yes, we recently submitted our application to be identified as a Firewise

Mitigation Capability	ACFD #1	ACHD	ACSD #1	LRCD	PCLHID	WOLD
				wildfire preparation (2025)		Community. Part of our plan includes education and outreach goals. Application is submitted with approval pending.
Other Programs or Organizations:	No	Health Care Coalition, AHA Multiple community programs	No	USDA, Natural Resource Conservation Service (NRCS), Local natural resource working group identifying natural resource concerns/issues for funding opportunities.	No	No

Capabilities to Expand

Jurisdictions seeking FEMA approval were asked to identify local capabilities that they will work towards expanding over the next five years. These results are reported in **Table 17**.

Table 17 Albany County Primary Capabilities to Expand

Local Government	Capability
Albany County	Firewise Implementation
City of Laramie	Fundinng for Stormwater Master Plan Implementation
Town of Rock River	Public education
Albany County Fire District #1	Public education

Local Government	Capability
Albany County Hospital District	Collaboration with Local Government entities for planning exercise and mitigation
Albany County School District #1	Implementing Firewise within the School District
Laramie River Conservation District (LRCD)	Seeking and applying for grants
Wold Improvement & Service District	Educate ownership on how to mitigate property. Trim up & widen all roads to 12 ft. for emergency vehicles. Identify exit routes and water sources with signage. Community map in GIS and shape formats for emergency personnel to use. Encourage fire mitigation in each zone.
Pioneer Canal – Lake Hattie Irrigation District	Will work more closely with the LEPC & EMA now that the relationship has been better established. Need to develop a Master Plan.

Compliance with Floodplain Requirements

Albany County, Laramie, and Rock River have been mapped by the NFIP. The county and city currently participate in the NFIP and have adopted NFIP minimum floodplain management criteria.

Table 18 includes the details for the NFIP participants in the county, as well as the current policy coverage and claims paid. There are no repetitive or severe repetitive loss properties within the county. Albany County and its jurisdictions do not participate in the NFIP Community Rating System (CRS). The Towns of Rock River has mapped floodplains but has chosen to opt out of the NFIP for the best interests of their local government.

Table 18 Albany County NFIP Summary

Local Government	Date of Entry	Initial FIRM ID	Current FIRM	Policies in Force	Coverage	Claims Paid	Value Claims Paid
Albany County	6/21/1984	10/1/1986	6/16/2011	33	$4,903,000	2	$5,898
City of Laramie	5/28/1976	9/28/1990	6/16/2011	34	$9,004,000	14	$115,871
Town of Rock River	NOT PARTICIPATING	6/16/2011	6/16/2011	0	0	0	$0

Maintaining compliance under the NFIP is an important component of flood risk reduction. All participating communities will continue to comply with all NFIP requirements, which are monitored by FEMA regional staff, including enforcing all locally adopted floodplain management regulations concerning existing structure improvements and new construction. The county and participating communities are currently in good standing with the provisions of the NFIP.

Adopting floodplain management rules is only effective if the rules are followed and enforced. Implementation and enforcement of local floodplain regulations (i.e. – "compliance") is achieved through the following:

- Continuing to participate in FIRM updates and adopt floodplain maps when created / updated
- Implementing, maintaining, and updating floodplain ordinances
- Continued designation of a local floodplain manager whose responsibilities include reviewing floodplain development permits to ensure compliance with local floodplain management ordinances and rules
- Suggest improvements to the enforcement of, and compliance with, regulations and programs
- Promote and educate the public on the benefits of flood insurance

After a flood event, or any event that may cause loss of a structure such as a fire or tornado, it is the role of the floodplain administrator to review and assess damaged structures located within the Special Flood Hazard Area (SFHA). "Substantial damage" occurs when the cost of restoring a

structure exceeds 50 percent of its market value before damage occurred. "Substantial improvement" occurs when the cost of improving a structure exceeds 50 percent of its market value before the start of construction. Property owners are advised that structures experiencing substantial damage, or undergoing substantial improvements, must go through the floodplain application and permit process. Additionally, these structures must be upgraded during the repair or reconstruction process to meet the minimum building standards stipulated in the regulations.

If it is determined substantial damage / improvement has occurred, those structures must be brought up to current floodplain management standards. This ensures compliance with floodplain management measures and contributes to the overall safety and resilience of the affected structures. These provisions are common to each community's floodplain management ordinances.

NFIP compliance is implemented through the following designations:

- Albany County: The County Planning Director has been appointed the Floodplain Administrator to administer and implement the provisions of the community floodplain ordinance and other appropriate sections of 44 CFR pertaining to floodplain management. Flood ordinances are also in place that:
    - Restrict and prohibit uses that could be dangerous to health, safety, and property due to water or erosion hazards, or that will result in damaging increases in erosion or in flood heights or velocities;
    - Require that uses vulnerable to floods, such as facilities that serve such uses, be protected against flood damage at the time of initial construction
    - Control the alteration of natural floodplains, stream channels, and natural protective barriers, which help channel flood waters;
    - Control the filling, grading, dredging, and other development which may increase flooding
    - Prevent or regulate the construction of flood barriers which will unnaturally divert flood waters or which may increase flooding in other areas.
- City of Laramie: The City Administrator, or their designated representative, has been appointed the Floodplain Administrator to administer and implement the provisions of the community floodplain ordinance and other appropriate sections of 44 CFR pertaining to floodplain management.

Also, to be considered are the flood mitigation actions contained in this HMP that support the ongoing efforts by participating communities to minimize the risk and vulnerability to the flood hazard.

Plan Monitoring and Maintenance

Albany County and the LPT agreed upon these HMP maintenance procedures. It was determined that the emergency manager will serve as the primary point of contact for these tasks. This position will coordinate all local efforts to monitor, evaluate, and update the HMP. Each participating local government will be responsible for implementing their specific mitigation actions and reporting on the status of these actions to the emergency manager.

Throughout the year, the emergency manager will monitor hazard events that may require the LPT to revisit sections of the HMP. Reasons for this may include but are not limited to: disaster events (affecting the county or other communities across the nation); changes in hazard risk or vulnerability due to population change, development, and/or climate change; changes in available funding resources; updated hazard studies or information; changes in governmental organizational structure; or public input / concerns.

Events that do not necessitate a HMP update at that time will be tracked by the emergency manager for integration into the five-year update.

Albany County Emergency Management will coordinate the on-going yearly maintenance for the HMP to include an annual progress report and action monitoring. This report will be compiled and shared at public meetings through the Local Emergency Planning Committee (LEPC). An annual HMP review questionnaire will be shared with the community to help incorporate changing concerns in future HMP updates. Other participating local governments will be asked to report their action statuses yearly to be included in the report.

An evaluation of the HMP's effectiveness will be directly measured from these annual progress reports. Effectiveness will be based upon progress made in implementing the HMP's actions.

Continued Public Engagement

Continuing public engagement over the HMP's next five-year lifespan is paramount to retaining community momentum as it relates to implementing the mitigation strategy. It is also important to use this opportunity to identify additional ways that the county's underserved communities and populations can be best represented by the HMP (detailed in the **Under-Resourced Communities and Socially Vulnerable Populations** section). **Table 19** identifies these planned public engagement efforts for each local government.

Table 19 Albany County Planned Continued Public Engagement Efforts

Local Government	Public Engagement
Albany County	Albany County will continue to work with the public through education and outreach programs and seek public input on ideas to help mitigate the hazards identified in the HMP through public surveys and community events.
City of Laramie	The city will continue to work with the public through education and outreach programs and seek public input on ideas to help mitigate the hazards identified in the HMP through public surveys and community events. The city currently utilizes public meetings, social media, and city web pages to disseminate public information.
Town of Rock River	Continued public engagement through EMA and through annual campaigns with flyers in the town hall, post office and via the Rock River Resident facebook page. Annual public engagement campaigns, tied to the newly identified mitigation actions.

Local Government	Public Engagement
Albany County Fire District #1	Additional Fire Wise programs in the WUI community. EMA and VFD Fire Mitigation outreach programs. Supporting & amplifying county public engagement efforts.
Albany County Hospital District	Supporting & amplifying county public engagement efforts.
Albany County School District #1	Supporting & amplifying county public engagement efforts.
Laramie River Conservation District (LRCD)	Hosting our biennial conservation exposition and collaboration with our partners at EMA and LEPC. Supporting & amplifying county public engagement efforts.
Wold Improvement & Service District	We will work to have a representative from our Board participate at the local level. We have joined Firewise, which will closely relate to the work that needs to be done. Supporting & amplifying county public engagement efforts.
Pioneer Canal – Lake Hattie Irrigation District	Supporting & amplifying county public engagement efforts.

Changes in Government Priorities

Communities are continually evolving over the HMP's five-year lifespan. For some, this can lead to changes in local government priorities, as it relates to hazard mitigation. Factors potentially influencing these priorities can include but are not limited to: recent disaster events; changing local resources, needs, or capabilities; new state or federal policies and funding resources; new hazard impacts identified by the updated risk assessment; or changes in growth and development. At the same time, other communities may have experienced no major changes that would influence the updated HMP. **Table 20** presents how this HMP was revised due to these potential changes in each local government.

Table 20 Albany County Changes in Government Priorities

Local Government	Change in Priorities
Albany County	Our Local Planning Committee reviewed the hazards addressed in the previous HMP and adjusted the focus to hazards that pose the greatest risk to our community. This allowed for a more relevant plan.
City of Laramie	The City formed a stakeholders group from all Departments including Police, Fire and Public Works to review and update the HMP. The city plans to review and revise (if necessary) the HMP annually.
Town of Rock River	Changing priorities were dictated by the updated risk assessment and identified vulnerabilities. There have been no major changes to community priorities relating to hazards and related mitigation since the previous plan.

Local Government	Change in Priorities
Albany County Fire District #1	The district did not participate in the previous HMP, so no changes to report.
Albany County Hospital District	The district did not participate in the previous HMP, so no changes to report.
Albany County School District #1	The district did not participate in the previous HMP, so no changes to report.
Laramie River Conservation District (LRCD)	The district did not participate in the previous HMP, so no changes to report.
Wold Improvement & Service District	The district did not participate in the previous HMP, so no changes to report.
Pioneer Canal – Lake Hattie Irrigation District	The district did not participate in the previous HMP, so no changes to report.

Albany County Planning Process

Plan Integration

Integration of the HMP into other planning mechanisms is vital for the overall implementation of the mitigation strategy. This also benefits a community by ensuring that there are no strategic conflicts across planning documents. **Table 21** documents opportunities for integration of the 2020 HMP into other planning efforts.

Table 21 Albany County Integration of the 2020 HMP

Local Government	2020 Plan Integration
Albany County	Albany County has referenced the 2020 HMP for multiple grant applications, to identify and prioritize projects, for additional plan development, and to help identify which hazards are of most concern within in the community to help guide public outreach and education programs. • Grants: Mullen FMAG – Used to help guide best practices for Wildfire mitigation projects, Casper Aquifer Protection Plan Studies. • Projects: Reconnecting Communities Project (additional ingress and egress routes), Albany County School District #1 Safety Assessment recommendations – ie backup power, all projects outlined in Task 2 from previous updates of the HMP. • Plans: Community Evacuation Plan development, Community Wildfire Protection Plan updates, Lake Owen Dam EAP development, Casper Aquifer Protection Plan. • Community Outreach/Education: Wildfire, Winter Storm, Severe Storm/Tornado and general preparedness education is our main focus.

City of Laramie	Identified mitigation concerns were referenced to update and develop plans. Improved Intergovernmental cooperation.
Town of Rock River	The HMP's risk assessment and mitigation strategy will be integrated into the CWPP that is in progress. Improved Intergovernmental cooperation.

Table 22 details each local government's planned integration efforts for the 2025 HMP.

Table 22 Albany County Integration of the 2025 HMP

Local Government	2025 Plan Integration
Albany County	The HMP's updated risk assessment and mitigation strategy were integrated into the recent November 2024 CWPP. Albany County has, and will continue to, utilize the HMP to assess the biggest hazards to our community and develop plans and projects to mitigate those risks. The plan has been referenced for the updates of the Community Wildfire Protection Plan, The Threat Identification and Risk Assessment and Stakeholder Preparedness Review, the Emergency Operations Plan, the Albany County Courthouse Emergency Action Plan and others. We will continue to reference this plan, and those developed with the information within the HMP, to implement future mitigation projects, exercises and trainings.
City of Laramie	The HMP's updated risk assessment and mitigation strategy were integrated into the recent November 2024 CWPP. The City updates its Capital Improvement Plans and reviews equipment needs annually. The City will review and reference the HMP during at the same time to ensure they are meeting the objectives of the HMP while preparing plans and annual budget items. The City will continue to reference this plan, and those developed with the information within the HMP, to implement future mitigation projects, exercises and trainings.
Town of Rock River	The HMP's updated risk assessment and mitigation strategy were integrated into the recent November 2024 CWPP.
Albany County Fire District #1	The HMP's updated risk assessment and mitigation strategy were integrated into the recent November 2024 CWPP. Work with EMA for communication upgrade grants. Work with LRCD, WYGS and USGS on studies and with WY Divison Forestry on wildfire mitigation grants.
Albany County Hospital District	The HMP's updated risk assessment and mitigation strategy were integrated into the November 2024 CWPP.

	Ivinson is undergoing an electrical infrastructure upgrade and this mitigation plan supports the findings that a Co-Generator option is needed to eliminate the need to transfer patients requiring surgery during power outage due to lack of redundant power source.
Albany County School District #1	The HMP's updated risk assessment and mitigation strategy will help inform the development of the Albany County School District #1 Emergency Preparedness Plan. Additionally, the district will review and reference the HMP during the annual development of the district budget.
Laramie River Conservation District (LRCD)	Referenced in the 2025-2029 LRCD Long Range and Natural Resource Management Plan. Support best forestry management practices to reduce the fuel loads and minimize wildfire risks.
Wold Improvement & Service District	The HMP's updated risk assessment and mitigation strategy were integrated into the recent November 2024 CWPP. The districts will use HMP as a resource and guide for the decisions we make for our community. The HMP is an important tool to inform district plans.
Pioneer Canal – Lake Hattie Irrigation District	The HMP will be utilized to develop and support grant applications.

Incorporation of Existing Plans & Information

All HMP-relevant existing plans, studies, reports, and technical information were reviewed during the update process. **Table 23** provides an overview of how each of these resources were incorporated into the HMP.

Table 23 Albany County Existing Resource Incorporation

Local Government	Plan	Incorporated
All	Wyoming State HMP	Hazard Profile Sections
All	National Oceanic and Atmospheric Administration (NOAA) National Centers for Environmental Information	Hazard Profile Sections
All	NOAA National Weather Service (NWS) Storm Prediction Center	Hazard Profile Sections
Albany County/ City of Laramie	Inclement Weather Plan	Mitigation Capabilities
Albany County/ City of Laramie	Casper Aquifer Protection Plan	Mitigation Capabilities
Albany County/ City of Laramie	Stormwater Plan	Mitigation Capabilities

Albany County/ City of Laramie	Siren/Alert Protocols	Mitigation Capabilities
Albany County/ City of Laramie	Lake Owen Dam EAP	Mitigation Capabilities
Albany County/ City of Laramie	I-80 Marginal Closure Plan	Local Vulnerability
Albany County/ City of Laramie	Community Evacuation Plans	Local Vulnerability
City of Laramie	Continuity Plans (COOP & COG)	Mitigation Capabilities
City of Laramie	Water/Wastewater Plans	Mitigation Capabilities
City of Laramie	Citywide Master Drainage Plan	Mitigation Capabilities
Albany County	Rural Community Evacuation Plans	Local Vulnerability
ACFD #1	Wind Farm Impact Plans	Mitigation Capabilities
ACHD	Tornado plan	Hazard Profile Sections
ACSD #1	Albany County School District #1 Inclement Weather Plan	Mitigation Capabilities
WOLD	Wold Firewise Community Assessment	Wildfire Profile Section
Town of Rock River	Rock River Inclement Weather Plan	Mitigation Strategy

Albany County Hazard Identification and Risk Assessment

Local Government Risk Rankings

A qualitative risk ranking was performed by each participating local government for the hazards profiled in this plan. This risk ranking assessed the probability of each hazard's occurrence and its likely impact on the people, property/environment, and economy of the planning area. The responses were collected utilizing a four-category qualitative scale. For the probability of a hazard, this included "unlikely (1)," "possible (2)", "probable (3)", and "likely (4)". For the impacts of the hazard to the three community sectors, the scale included "minor (1)", "limited (2), "critical (3)", and "catastrophic (4)". The responses were then calculated into a quantitative range by combining the impact scores and multiplying by the probability score, which correlates with the "high," "moderate," and "low" risk rankings. **Table 24** presents each local government's hazard risk ranking.

For some local governments, selecting hazards identified as affecting the county may not currently present an immediate or impactful risk. Those hazards are denoted as not applicable (N/A).

Table 24 Albany County Local Government Hazard Risk Ranking

Hazard	Albany County	City of Laramie	Town of Rock River	ACFD #1	ACHD	ACSD #1	LRCD	WISD	PCLHID
Avalanche	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Drought	High	High	High	N/A	N/A	N/A	N/A	N/A	High
Earthquake	Low	Low	Low	Low	Moderate	Low	N/A	N/A	N/A
Flood/Dam, Dike, & Levee Incident	Moderate	Moderate	Moderate	Moderate	N/A	Moderate	N/A	N/A	Moderate
Geologic Hazards (Landslide/Land & Mine Subsidence/Expansive Soil)	Moderate	High	Low	Low	N/A	High	N/A	N/A	N/A
Severe Thunderstorm (Lightning/Hail)	Moderate	Moderate	High	Moderate	High	Moderate	Moderate	N/A	N/A
Tornado/Wind/Windblown Deposits	Moderate	High	High	Low	High	Moderate	Moderate	N/A	N/A
Wildfire	Moderate	Moderate	Moderate	High	Moderate	Low	N/A	N/A	N/A
Winter Storm	High	High	High	Moderate	Moderate	High	N/A	High	N/A

Exposure Analysis

The exposure analysis identifies what assets, such as critical infrastructure and buildings, are in areas that hazard events in each jurisdiction in Albany County could impact. The following Lifelines and Structure Inventory sections provide information on the total number of critical infrastructure and buildings in Albany County and its jurisdictions to be used as a baseline for the exposure analysis.

It is important to note that all maps in the Albany County Annexes display both incorporated jurisdictions and census-designated places (CDPs). CDPs are displayed due to the concentration of valuable assets such as people and property in these areas. It is important to note that not all unincorporated communities in Albany County are CDPs, and there are over a dozen unincorporated communities in the county not displayed in detail on the maps. For hazard exposure analysis, the CDPs are combined with other unincorporated communities to assess total FEMA Lifelines, total structures, and structure values at risk. The distinction between incorporated jurisdictions, unincorporated jurisdictions, and census-designated places is as follows:

Incorporated jurisdictions are legally recognized municipalities with their own government structure, elected officials, and ability to pass ordinances and provide municipal services. In Albany County, this includes the:

- City of Laramie
- Town of Rock River

Unincorporated jurisdictions are areas that do not fall under the jurisdiction of a municipal government. Instead, they are managed directly by the county or a higher level of government. In Albany County, this includes:

- Albany*
- Bosler
- Buford
- Centennial*
- Cooper Lake
- Dale Creek
- Deerwood
- Douglas Creek
- Fox Park*
- Garrett
- Gramm
- Harmony
- Hermosa
- Jelm
- Keystone
- Mountain Home
- Red Buttes
- The Buttes
- Tie Siding
- Toltec
- Woods Landing*
- Wyocolo

Census-designated places (CDPs) are geographic areas identified for census and statistical purposes due to their concentration of people but are not legally incorporated and do not have their own government or elected officials. These areas rely on the county or other local government entities for services and government. In Albany County, this includes the:

- Town of Albany
- Town of Centennial
- Town of Fox Park
- Town of Woods Landing

See the Exposure and Vulnerability subsection under each hazard for more information on what assets are exposed to specific hazards in both incorporated jurisdictions and CDPs in Albany County.

Lifelines

FEMA's *Hazus Inventory National Database* was utilized for all Lifeline analyses. Lifelines are critical infrastructure and services essential for ensuring communities' health, safety, and security during and after disasters. A baseline of this data is presented in **Table 25** and **Table 26.** It is important to note that **Table 26** displays system Lifelines (recorded in miles). Impacts or disruptions along these continuous networks could affect large areas or multiple jurisdictions.

These Lifelines are mapped in **Figure 7** and **Figure 8**.

Table 25 Albany County Lifeline Inventory – Total Count

Jurisdiction	Communication	Energy	Hazmat	Medical	Safety	Shelter	Transportation	Water	Total Count
Laramie	-	-	-	1	5	12	18	-	**36**
Rock River	-	-	-	-	1	-	2	1	**4**
Unincorporated	8	2	-	-	6	8	134	1	**159**
Total Count	**8**	**2**	**0**	**1**	**12**	**20**	**154**	**2**	**199**

Source: FEMA's Hazus Inventory National Database

Table 26 Albany County Lifeline Inventory – Total Miles

Jurisdiction	Airport	Highway	Natural Gas Pipeline	Railway	Total Miles
Laramie	2.8	15.5	10.5	6.0	**34.8**
Rock River	-	2.3	-	4.1	**6.3**
Unincorporated	-	262.7	283.5	118.4	**664.6**
Total Miles	**2.8**	**280.5**	**294.0**	**128.5**	**705.7**

Source: FEMA's Hazus Inventory National Database

Figure 7 Albany County FEMA Lifelines

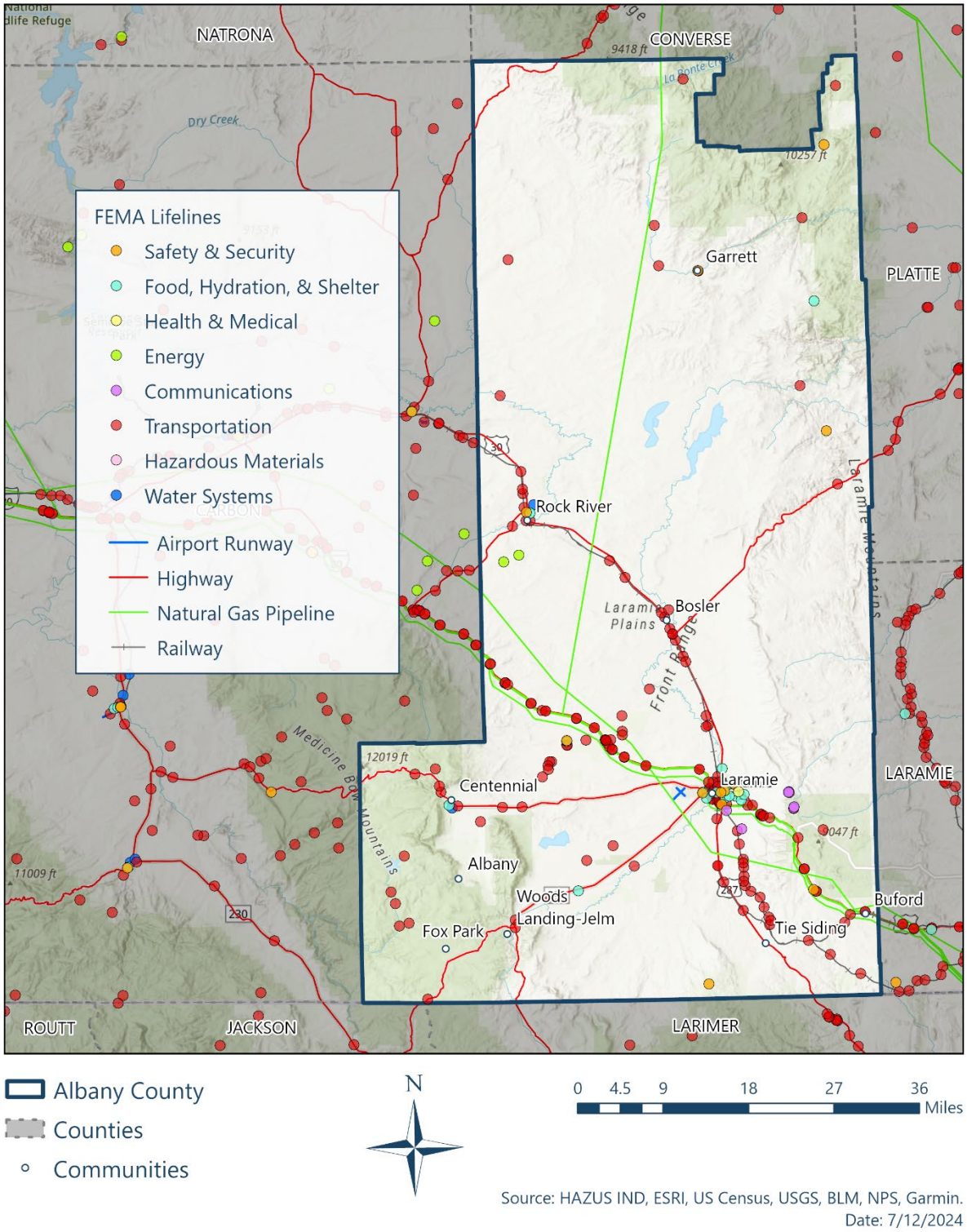
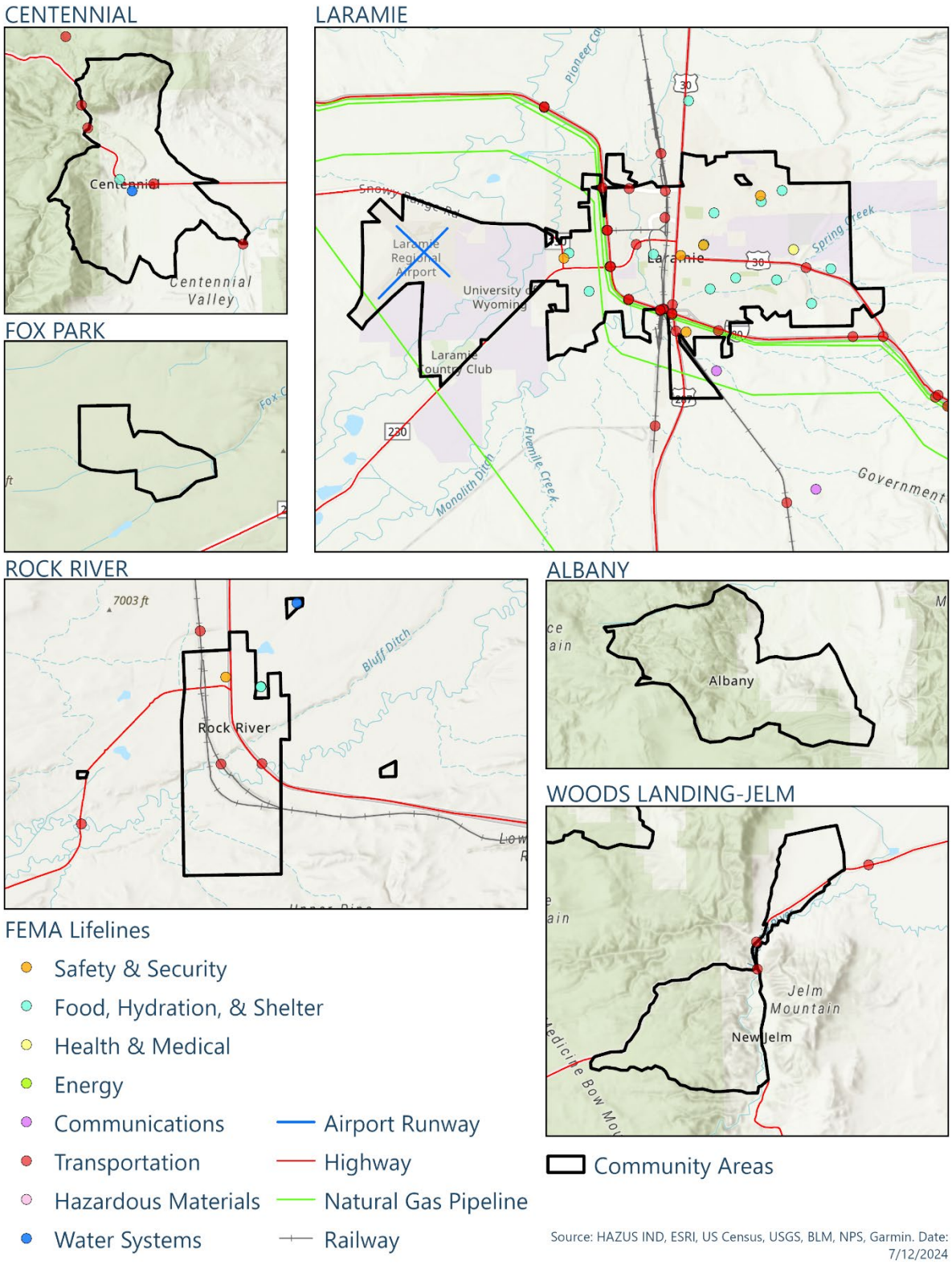


Figure 8 Inset Maps of Albany County FEMA Lifelines



Structure Inventory

The US Army Corps of Engineers *National Structure Inventory* was utilized for all structure assessments. A baseline of this data is presented in **Table 27** and mapped in **Figure 9** and **Figure 10**.

Table 27 Albany County Total Structure Inventory

Jurisdiction	Structure Type	Structure Count	Total Structure Value	Total Structure Content Value
Laramie	**Total**	**11,063**	**$3,905,025,113**	**$2,665,837,512**
	Commercial	1,006	$1,013,889,570	$974,605,492
	Industrial	183	$142,984,473	$190,673,389
	Public	143	$214,249,975	$233,608,083
	Residential	9,731	$2,533,901,095	$1,266,950,548
Rock River	**Total**	**192**	**$30,888,946**	**$21,189,551**
	Commercial	11	$5,975,301	$6,311,549
	Industrial	7	$2,851,933	$3,685,649
	Public	2	$322,994	$322,994
	Residential	172	$21,738,718	$10,869,359
Unincorporated	**Total**	**5,482**	**$1,343,699,825**	**$989,018,267**
	Commercial	308	$260,052,975	$271,915,944
	Industrial	100	$169,250,660	$244,024,648
	Public	27	$31,759,158	$31,759,158
	Residential	5,047	$882,637,032	$441,318,516
Grand Total		**16,737**	**$5,279,613,885**	**$3,676,045,329**

Source: US Army Corps of Engineers National Structure Inventory (NSI)

Figure 9 Albany County National Structure Inventory

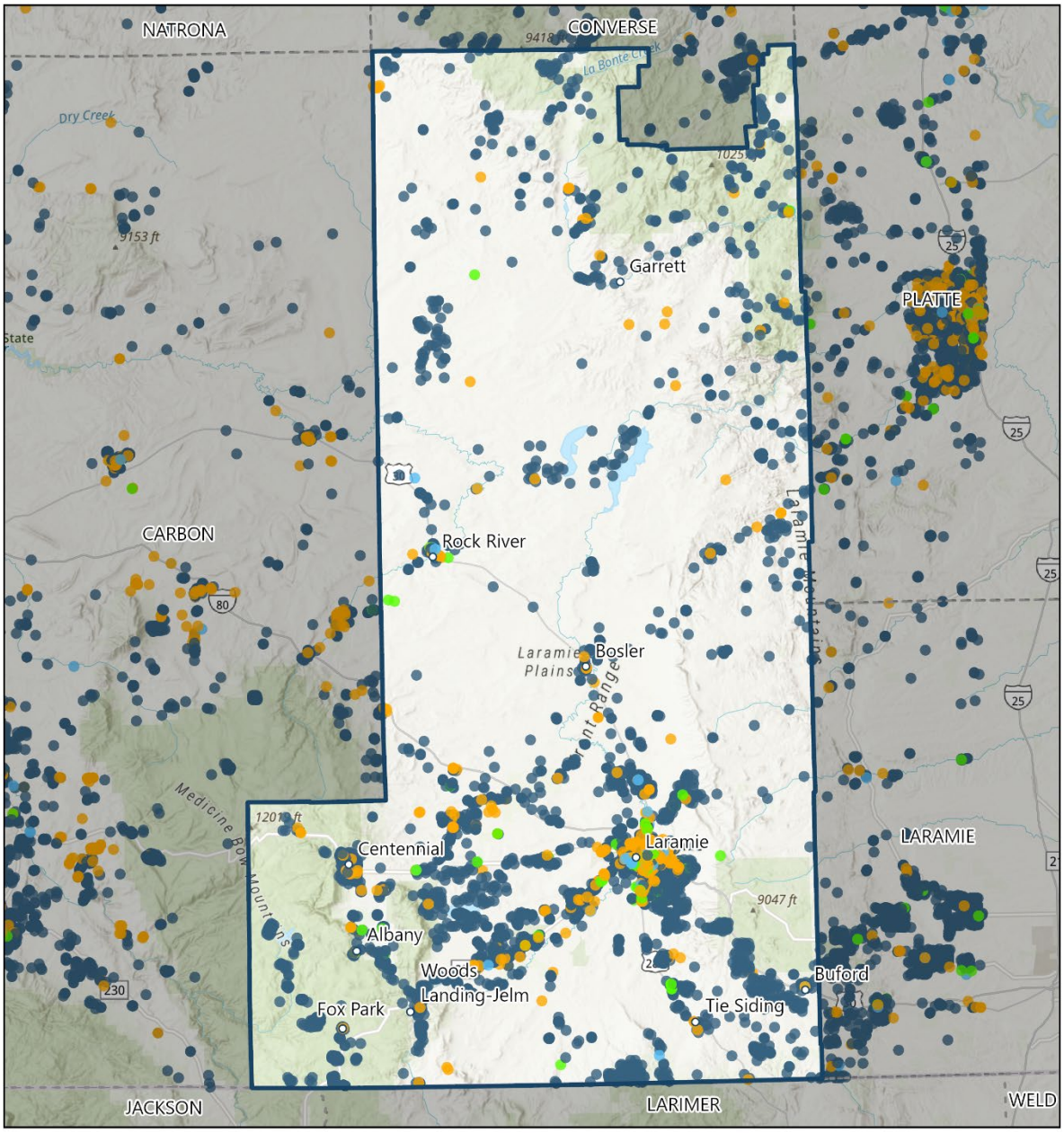
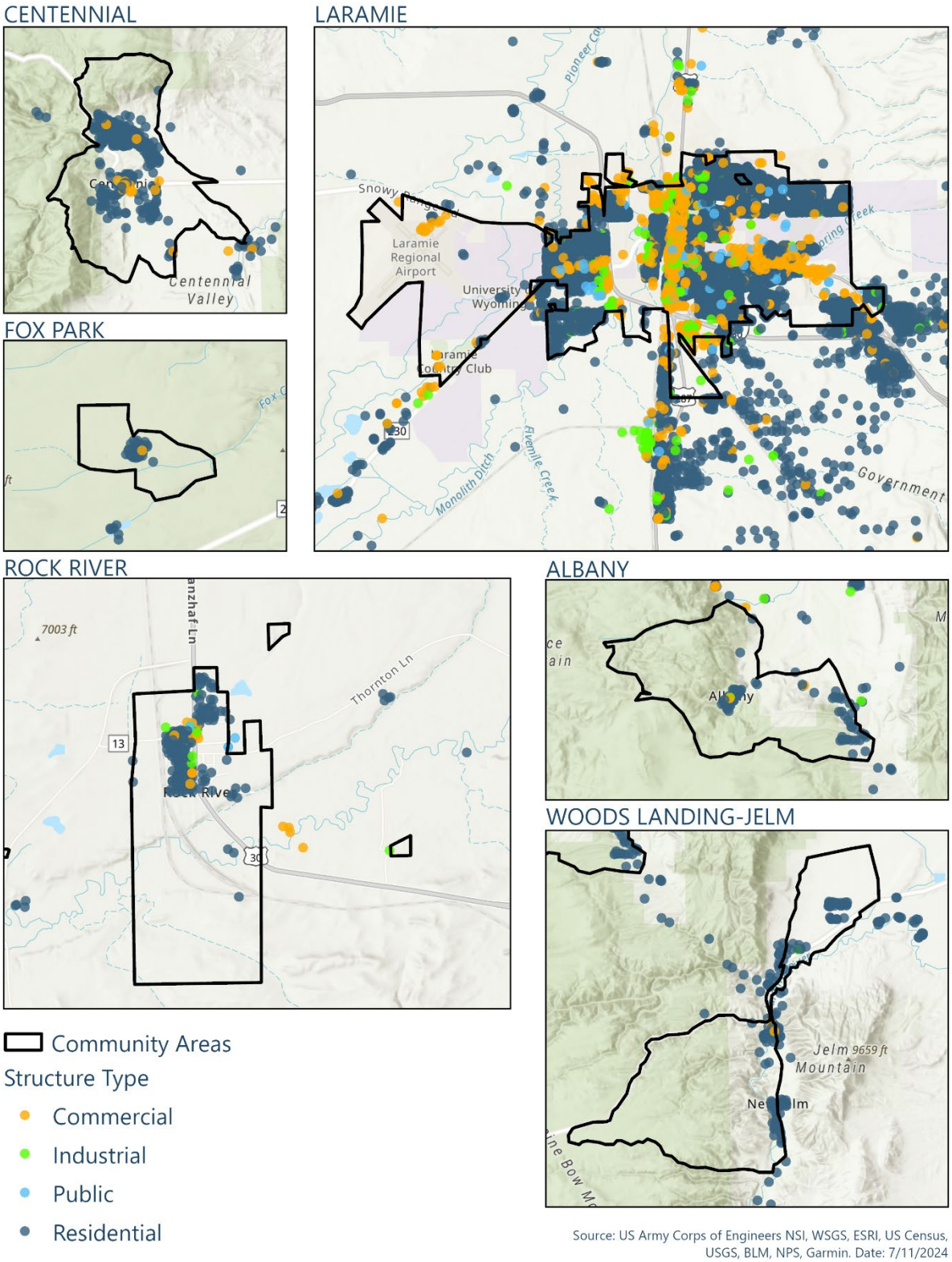


Figure 10 Inset Maps of Albany County National Structure Inventory



Source: US Army Corps of Engineers NSI, WSGS, ESRI, US Census, USGS, BLM, NPS, Garmin. Date: 7/11/2024

Avalanche

Previous Occurrences

The Bridger-Teton Avalanche Center records avalanche fatalities in Wyoming. Albany County has had 4 reported fatalities due to avalanche events since the mid-1800s. These events are detailed in **Table 28** below.

Table 28 Albany County Avalanche Fatalities

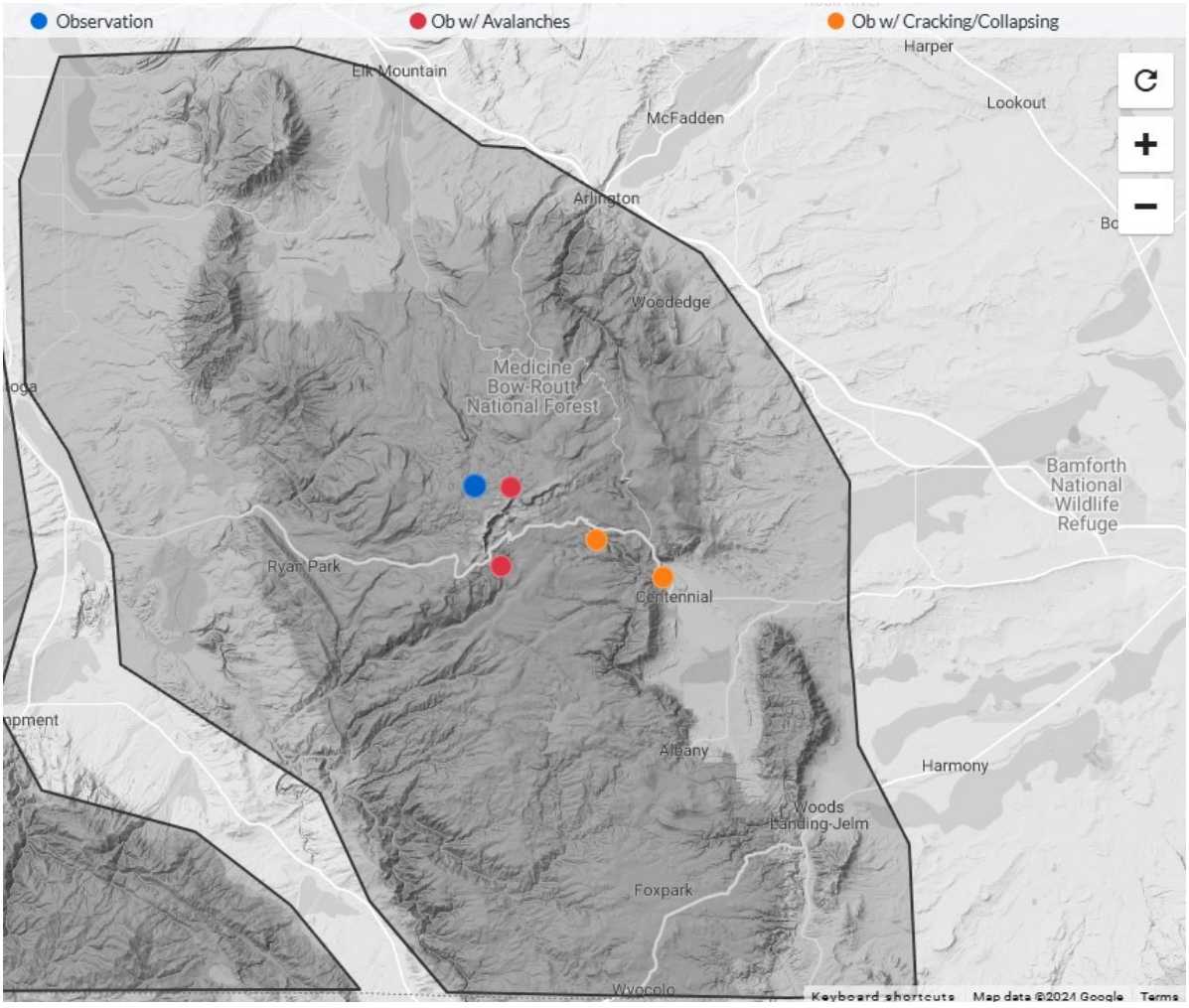
County	Date	Location	Activity
Albany	1/23/1877	Centennial Mine	Mining
Albany	2/8/1975	Centennial	A 14-year-old playing in the snow died while tubing
Albany	2/9/1985	Rock Creek Knoll, Snowy Range	Snowmobiler
Albany	1/21/1996	Centennial Ridge, Snowy Range	Backcountry skier

Source: Brider-Teton Avalanche Center

Location

The two main mountain ranges in Albany County are the Laramie Mountains in the eastern portion of the county and the Snowy Range Mountains in the west. Each receives large amounts of snowfall and has very steep terrain, making the areas susceptible to avalanches. Generally, avalanches occur in remote areas and have little impact on people or property in cities and towns within the county. However, Fox Park, Woods Landing-Jelm, Centennial, Ryans Park, and Woodedge are all within the avalanche observation area. In the 2023-2024 winter season, Albany County experienced two observed avalanches in the Snowy Range Mountains (indicated by red dots on the map), two collapsing/cracking hazards (indicated by orange dots), one of which was near the Town of Centennial, and one observation of potential instability (indicated by the blue dot). These events were reported near Highway 130, which runs from Ryan Park to Centennial in the Medicine Bow National Forest, as shown in **Figure 11.**

Figure 11 Avalanche Observations in WY Region 3 Sep 1, 2023 - Jul 9, 2024



Source: Eastern Wyoming Avalanche Information Exchange

Exposure and Vulnerability

Lifelines

The most significant impacts of avalanches affect the Transportation Lifeline, which can have cascading consequences to safety and security. Roadblocks can hinder rescue and emergency assistance efforts, necessitate traffic detours, and spur costly debris clearance. Fortunately, most avalanche areas are on public lands, limiting risk to major thoroughfares such as Interstate 80, U.S. 30, and U.S. 287. However, several state and local roads, including 130 and 230, cross through the Medicine Bow National Forest. There are also major costs associated with rescuing motorists if they are involved in an avalanche. The LPT noted that Road 130 is closed in the late fall through the winter to mitigate impacts to motorists. Energy and Communication Lifelines can also be impacted if an avalanche damages utility lines, resulting in electricity disruptions or complete power outages. Communication fields, such as cable and telephone lines, could be damaged by avalanches, causing a delay in response time and rescue from first responders.

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

People

The Wyoming State HMP 2021-2026 reports that avalanche deaths primarily occur in the backcountry, where access is limited, and people recreate in pursuit of beautiful terrain. Skiers, snowboarders, and snowmobilers are most commonly victims of avalanche hazards. Albany County continues public awareness efforts for backcountry travelers (especially for tourists) for this hazard. Highway maintenance crews, motorists, and others not engaging in recreation risk being caught in an avalanche.

Populations identified as vulnerable or under-resourced are more likely to experience losses from hazard events and face barriers in recovery. See **Table 2** for more information on demographic factors that contribute to vulnerability in Albany County.

Structures

While it is not possible to analyze county asset risk to avalanches due to a lack of comprehensive avalanche path mapping in GIS format for the state of Wyoming, the Wyoming State HMP 2021-2026 noted that there were no recorded losses to state facilities from avalanches. Due to the destructive potential of avalanche events, structures that are in the path of this hazard could sustain significant damage. Air blasts from powder avalanches have the capacity to knock out windows and doors on buildings and vehicles. Personal property losses are also possible if homes constructed in the mountainous terrain of Albany County are in the path of an avalanche. Of the structures located in avalanche-prone areas, roadways are the most exposed asset to these hazards.

Natural, Historic, and Cultural Resources

The greatest avalanche risk in Albany County is on public lands, including the Medicine Bow National Forest. Localized impact related to tree and vegetation damage may be found in the path of an avalanche. Cascading impacts from vegetation displacement include landslides or rock falls as slope stability is reduced. If an avalanche does cross paths with a waterway, damming and sudden release of water could occur. Possible short-term blockage of roadways that prevent recreationists and tourists from entering the Medicine Bow National Forest could result in economic loss, but these losses are likely to be limited.

Natural and historic resources were identified in Albany County to ensure these assets are considered and protected. See **Table 4** for a list of endangered and threatened species and **Table 5** for a list of historic places in Albany County.

Local Vulnerability

In addition to the general impacts that avalanches can have on Lifelines, people, structures, and cultural resources in Albany County, representatives of each participating jurisdiction identified unique local vulnerabilities that avalanches present to their community, summarized in **Table 29**.

Table 29 Local Government Vulnerability to Avalanche

Local Government	Local Vulnerability
Albany County	Avalanches can affect highway and roadway travel, delay emergency response and patient transportation, disrupt supply chains, contaminate or obstruct water sources, damage communication infrastructure, and hinder access to recreational activities.
City of Laramie	Local community & government assets are not at risk from avalanches.
Town of Rock River	Local community & government assets are not at risk from avalanches.
Albany County Fire District #1	Local government assets are not at risk from avalanches.
Albany County Hospital District	Local government assets are not at risk from avalanches.
Albany County School District #1	Local government assets are not at risk from avalanches.
Laramie River Conservation District (LRCD)	Local government assets are not at risk from avalanches.
Wold Improvement & Service District	Local government assets are not at risk from avalanches.
Pioneer Canal – Lake Hattie Irrigation District	Local government assets are not at risk from avalanches.

Trends in Development

It is crucial to consider the hazards posed by avalanches when making any future development and construction decisions, to ensure new construction does not increase the county's risk. **Table 30** summarizes development trends in potential avalanche risk areas in each jurisdiction.

Table 30 Local Government Development Trends - Avalanche

Local Government	Development Trends
Albany County	We are currently not expecting any growth in avalanche prone areas of the County.
City of Laramie	Development is not expected to place any local community & government assets at risk from avalanches.
Town of Rock River	Development is not expected to place any local community & government assets at risk from avalanches.
Albany County Fire District #1	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Albany County Hospital District	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Albany County School District #1	No construction has recently occurred, or is expected, which would impact hazard vulnerability.

Laramie River Conservation District (LRCD)	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Wold Improvement & Service District	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Pioneer Canal – Lake Hattie Irrigation District	No construction has recently occurred, or is expected, which would impact hazard vulnerability.

Probability of Future Occurrences

The Bridger-Teton Avalanche Center's oldest record in Wyoming dates to 1877 and continues until 2024. In the 147 years of data collection, 4 avalanche fatalities were reported in Albany County. This equates to a 3% chance that a fatality will occur somewhere in the county each year due to an avalanche event.

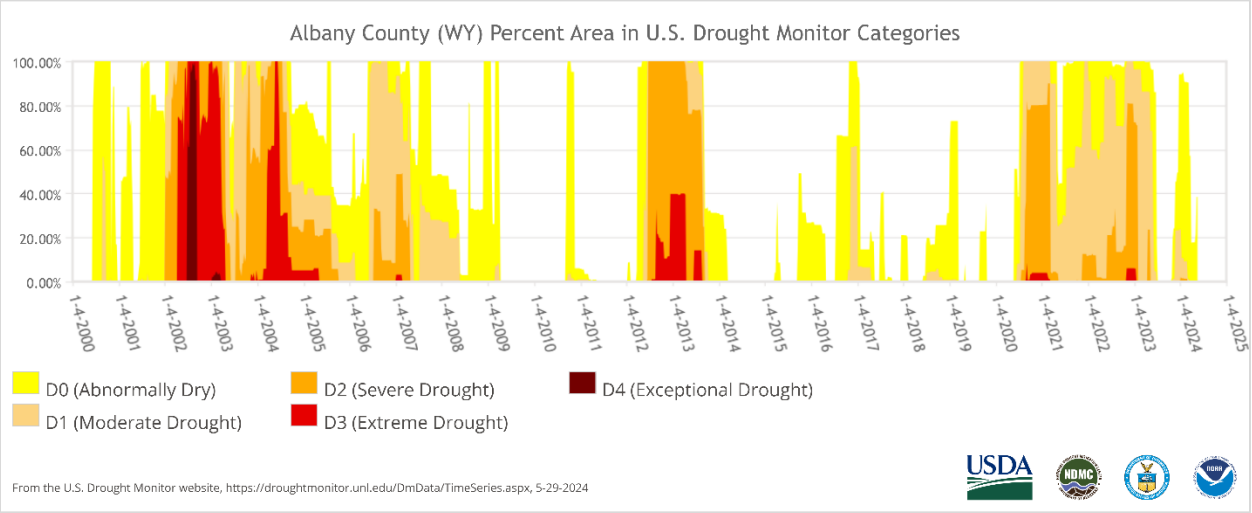
Drought

Previous Occurrences

The U.S. Drought Monitor reports on drought conditions in Albany County from 2000 to May 2024, as shown in **Figure 12**. Extreme drought conditions (D3) were reported in Albany County in the years 2002-2004, 2007, 2012-2013, 2020-2021, and 2022-2023. Exceptional drought conditions (D4) were reported from June 2002 to September 2002 and January 2003 to March 2003. The LPT noted that the Squirrel Creek wildfire occurred during extreme drought conditions in 2012. See the **Wildfire** Section for more information.

The county has experienced 27 USDA disaster declarations for drought from 2012-2024 as shown in the Base Plan document.

Figure 12 U.S. Drought Monitor Albany County



Source: U.S. Drought Monitor

Location

A drought is a regional event that is not confined to geographic or political boundaries; it can affect several areas at once and range in severity across those areas. All of Albany County and its

jurisdictions are at risk of drought. While drought can impact the entire county, its impacts are likely to be felt disproportionately, with the greatest impacts affecting agricultural communities.

Exposure and Vulnerability

Lifelines

Drought can impact people and their livelihoods in various ways, most critically being the detrimental impacts on the Food, Hydration, and Shelter Lifeline. The prairie land in Albany County relies on spring rains that grow the grass to sustain livestock. Agricultural crops can be irrigated; however, in times of drought the precipitation is limited, and water shortages may exist. Drought can, therefore, impact local food supply availability and price.

Drought can negatively impact the Water System's Lifeline, leading to higher water temperatures, eutrophication, and heavy metals entering the water supply. Additional treatment may be required to meet drinking water standards. Droughts can also impact water utility operations through loss of water pressure and supply. In severe cases, there may be an inability to access alternative and supplementary water sources because of increased customer demand and competition from other users.

Safety and Security	**Food, Hydration, Shelter**	Health and Medical	Energy	Communications	Transportation	Hazardous Materials	**Water Systems**

People

Water quality can be reduced from drought, and in some extreme cases, municipalities may need to enforce water restrictions to conserve available water supply and protect supply facilities. These restrictions are not likely to interfere with normal water drinking availability but could reduce water quality. Specific groups of people most likely to be financially impacted by drought are those working in agriculture, landscape, or water recreation jobs.

Additionally, extreme heat that may accompany a drought can be dangerous for community members, especially for the elderly, children, those with chronic health conditions, and those who do not have a way to cool their homes. Those with breathing difficulties may be impacted if the soil is dry and strong winds occur, as air quality can worsen due to dust particles.

Populations identified as vulnerable or under-resourced are more likely to experience losses from hazard events and face barriers in recovery. See **Table 2** for more information on demographic factors that contribute to vulnerability in Albany County.

Structures

It should be noted that most drought impacts are not structural but societal and economic. However, some critical infrastructure related to water systems, such as dams, transmountain ditches, and irrigation ditches, can be damaged when drought conditions cause expansive soils to contract. Additionally, a decrease in water pressure can stress water systems. Damage caused by high sediment loads is possible when pulling water from the bottom of reservoirs.

Natural, Historic, and Cultural Resources

Drought may impact water supply, prompt water conservation measures, compromise wildfire protection/increase fire risk, hinder tourism, and damage crops or livestock. Substantial water is needed to fight more frequent wildfires in dry conditions. A lack of availability could limit this capability.

Drought can also impact local tourism and recreation. Hiking trails and hunting areas can be closed due to potential fire danger. In extreme cases, drought can result in the loss of biodiversity of plants or wildlife. Loss of vegetation in both rural and urban areas is possible, and degradation or complete loss of wetland habitats is possible. There are cascading economic impacts to these damages as well.

Natural and historic resources were identified in Albany County to ensure these assets are considered and protected. See **Table 4** for a list of endangered and threatened species and **Table 5** for a list of historic places in Albany County.

Local Vulnerability

In addition to the general impacts that drought can have on Lifelines, people, structures, and cultural resources in Albany County, representatives of each participating jurisdiction identified unique local vulnerabilities that drought present to their community, summarized in **Table 31**.

Table 31 Local Government Vulnerability to Drought

Local Government	Local Vulnerability
Albany County	Many rural farms and ranch businesses will face adverse effects. Mountain communities will experience increased wildfire risks due to drought conditions. Irrigation infrastructure will be severely impacted. Numerous local communities rely on natural water resources in this area, and many historic local ranches will be affected. The local economy depends significantly on water sports and winter sports activities. Additionally, a Local Planning Team (LPT) member noted that extreme drought conditions contributed to the rapid spread of the Squirrel Creek Wildfire in 2012. Refer to the Wildfire section for more details on this event. Another planning team member reported that the 2011 drought caused a substantial increase in hay prices within the county, affecting local agriculture. The hospital, school district, and residents may need to implement water use restrictions during an extreme drought. The community is at risk due to increased wildfire likelihood, tree mortality, and low water tables. Recreational activities such as fire pits and grilling are also restricted during drought conditions affecting our region.
City of Laramie	Drought may affect water supply, increase the likelihood of wildfires, and impact wildfire suppression efforts. Property values could be influenced by tree loss. The quality of parks, landscaping, and crops might diminish, impacting agriculture and recreation. Irrigation and gardening could also be affected.

Local Government	Local Vulnerability
Town of Rock River	Water supply, increased wildfire possibility, wildfire suppression, property values. Tree loss in town parks, landscaping, water systems, hay, crops, & cattle.
Albany County Fire District #1	Local government assets are not at risk from drought.
Albany County Hospital District	Local government assets are not at risk from drought.
Albany County School District #1	Local government assets are not at risk from drought.
Laramie River Conservation District (LRCD)	Local government assets are not at risk from drought.
Wold Improvement & Service District	Local government assets are not at risk from drought.
Pioneer Canal – Lake Hattie Irrigation District	Loss of water available for irrigation.

Trends in Development

It is crucial to consider the hazards posed by drought when making any future development and construction decisions, to ensure new construction does not increase the county's risk. **Table 32** summarizes development trends in each jurisdiction.

Table 32 Local Government Development Trends - Drought

Local Government	Development Trends
Albany County	The County's population is slowly but steadily increasing. As the county continues to grow, the need for additional, reliable water sources will also increase.
City of Laramie	More competition for water resources as the population grows.
Town of Rock River	Development is not expected to place any local community & government assets at risk from drought.
Albany County Fire District #1	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Albany County Hospital District	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Albany County School District #1	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Laramie River Conservation District (LRCD)	No construction has recently occurred, or is expected, which would impact hazard vulnerability.

Wold Improvement & Service District	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Pioneer Canal – Lake Hattie Irrigation District	No construction has recently occurred, or is expected, which would impact hazard vulnerability.

Probability of Future Occurrences

The U.S. Drought Monitor reports 424 nonconsecutive weeks of severe to exceptional drought conditions from January 2000 to May 2024. Based on the 424 weeks of severe to exceptional drought conditions over the 1,274 weeks of recorded data, there is a 33% chance that Albany County will be experiencing severe or more critical drought conditions at any given time.

Earthquake

Previous Occurrences

The USGS earthquake catalog compiles data from various sources to provide a comprehensive database of historic earthquake events. In Albany County, the USGS reported 16 events of 2.5 magnitude or greater earthquakes since the first record in 1983, summarized in **Table 33.** The northern portion of the county along the Front Range is the most seismically active area in Albany County. The greatest magnitude earthquake reported by the USGS was a 5.3-magnitude earthquake on October 18th, 1984. This earthquake damaged chimneys in several nearby towns and caused cracks in the exterior brick walls of a public school in Medicine Bow and the Douglas City Hall building. The most recent event in Albany County occurred on November 23rd, 2019, and was a magnitude 2.8 earthquake.

Table 33 Albany County Summary of Earthquake Events

Date	Magnitude	Location
2/13/1983	4.0	36 km WSW of Esterbrook
10/18/1984	5.3	29 km W of Esterbrook
10/18/1984	4.5	36 km W of Esterbrook
10/18/1984	3.8	33 km W of Esterbrook
10/19/1984	3.3	33 km W of Esterbrook
10/20/1984	3.5	42 km W of Esterbrook
10/22/1984	3.1	42 km W of Esterbrook
10/24/1984	3.2	30 km WSW of Esterbrook
11/06/1984	3.3	30 km WSW of Esterbrook
12/17/1984	3.3	31 km W of Esterbrook
6/12/1986	3.0	27 km W of Esterbrook
10/10/1993	3.7	41 km W of Esterbrook
4/13/2000	2.9	37 km W of Esterbrook
12/19/2013	2.8	33 km NE of Rock River
9/7/2019	2.9	23 km WSW of Esterbrook
11/23/2019	2.8	13 km NNE of Laramie

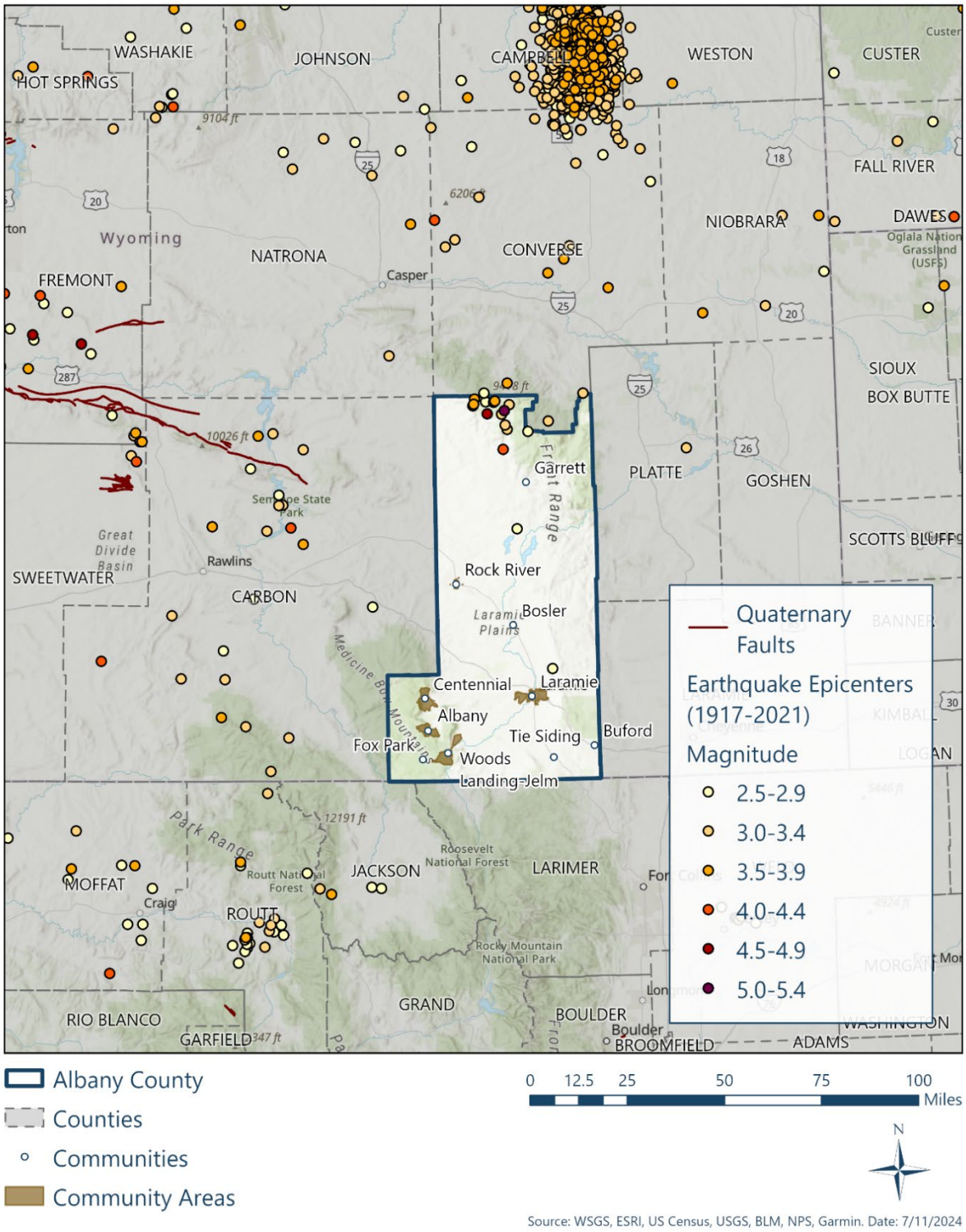
Source: USGS

Location

An earthquake event would impact the entire county. Earthquake faults and earthquake risk areas help define locations. Albany County has no known active or suspected faults; however, there is one active system in Carbon County, the South Granite Mountain Fault System. An earthquake along this fault system could be felt in Albany County. Additionally, there are active faults in areas surrounding the County. Earthquakes from the Estes Park, Colorado, area (Northern Boundary Fault System) has resulted in earthquakes being felt in Albany County. Major earthquakes from Yellowstone would also be felt in Region 3.

Figure 13 displays historic earthquake epicenters and quaternary faults in Albany County.

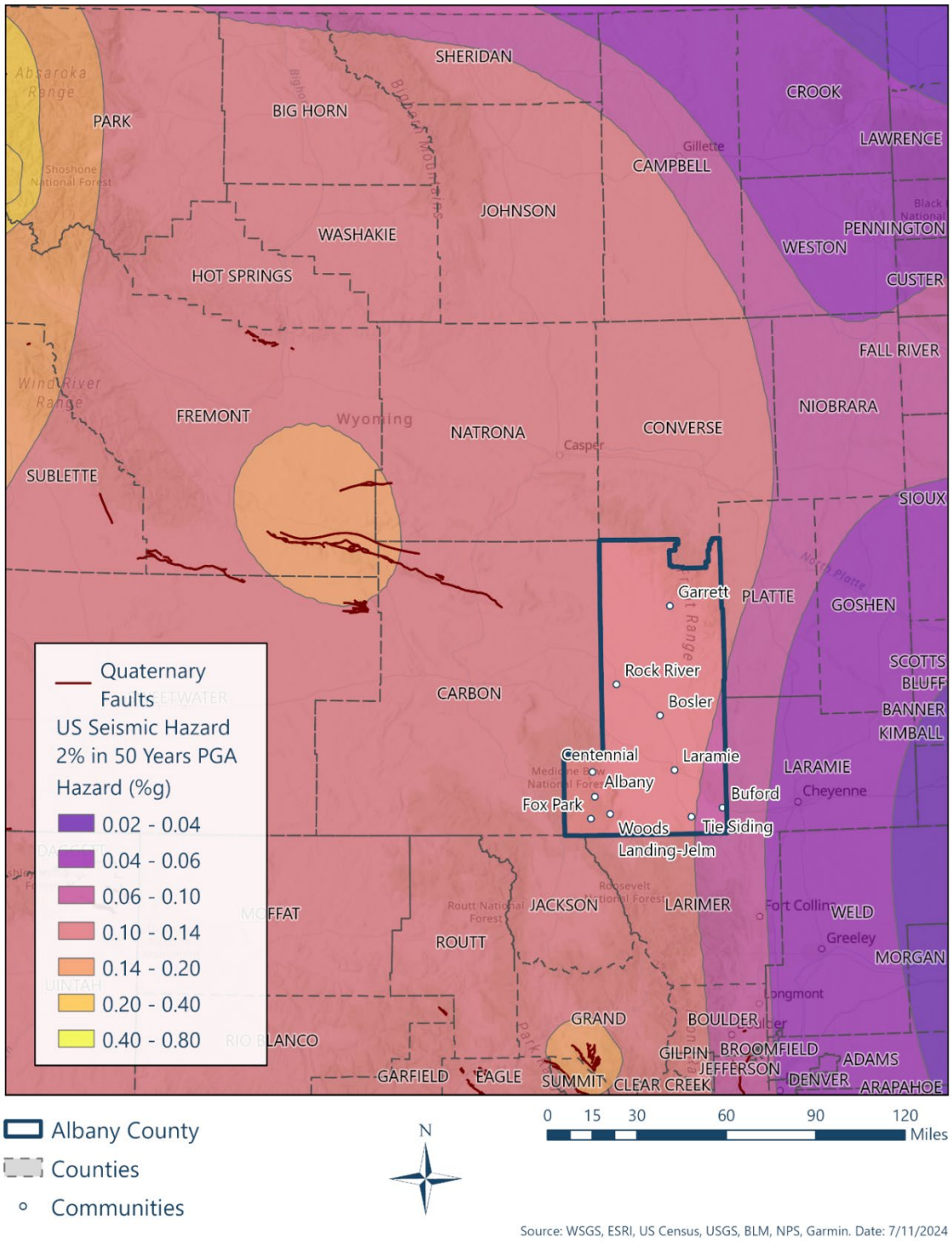
Figure 13 Albany County Earthquake Epicenters and Faults



Peak ground acceleration (PGA) is a measure of the maximum force experienced at the surface of the ground during an earthquake. A higher PGA roughly equates to more intense shaking. **Figure 14**

illustrates the PGA for Albany County. Most of the county is in a moderate PGA zone relative to the region, with a slightly lower PGA in the southeast corner.

Figure 14 Albany County Earthquake Peak Ground Acceleration (PGA)



Exposure and Vulnerability

Lifelines

All Lifelines can be impacted significantly by an earthquake. Even with minimal damage, Food, Hydration, & Shelter can be greatly affected due to the need for sheltering displaced individuals, the likelihood of water pipelines leaking and breaking, and the possible contamination of the drinking water supply, therefore also impacting the Water Systems Lifeline.

Infrastructure damage to Communications, Energy, and Transportation can range from minimal impacts on functionality to systems completely unable to provide information and power to the community. Small upheavals in pavements can slow transportation or completely halt it due to downed bridges or impassable roadways.

Health and Medical operations can be disrupted due to building damage or inability to transport patients. Fatality management may be needed on a large scale. Safety and Security may be unable to meet community needs if buildings or equipment is damaged. Hazardous Materials can be released from facilities or impacted in transit.

Based on 2,500-year probabilistic modeling of a 5.3 magnitude event, which was the largest recorded magnitude earthquake recorded in Albany County, FEMA's Hazus loss estimation tool estimates the following impacts in the county (the full report is located at Albany County Hazus Earthquake Loss Model).

- Safety and Security: 1 Hospital, 22 Schools, 1 Emergency Operation Center, 3 Police Stations, 14 Fire Stations
- Transportation Lifeline: $2.9 billion in replacement value
- Water Systems Lifeline (Potable and Waste): $601.4 million in replacement value
- Energy (Natural Gas): $1.3 billion in replacement value
- Communication: $720,000 in replacement value

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

People

All populations in Albany County are at risk of an earthquake. Under-resourced communities are more likely to experience difficulties in recovering from a severe earthquake, such as issues finding housing and delays in returning to work. Isolated populations and those with preexisting health conditions are at risk of poor health outcomes if hospitals are at capacity or not functional because of a severe earthquake. Community members residing in multi-unit structures are vulnerable to earthquakes, especially if their building is unstable or not built according to current building codes.

Based on the FEMA Hazus 2,500-year probabilistic modeling of a 5.3 magnitude event, 36 households will be displaced because of an earthquake, with 21 people seeking temporary public shelter. In the most severe scenario, the model reported 17 injuries that would require medical

attention but not hospitalization and no deaths. Additionally, income losses are estimated to be over $25.7 million.

See **Table 2** for more information on demographic factors that contribute to vulnerability in Albany County.

Structures

Many factors affect the property damage an earthquake can inflict. The age and type of a building, as well as the materials used in construction, all contribute to the likelihood of withstanding an earthquake with minimal damage. Historic buildings are especially at risk for these reasons.

An earthquake's damage can be broad, from minor cosmetic cracking to rendering a building uninhabitable. The variables of an event, as well as the characteristics and the specifics of each building, make estimating damages difficult. Buildings constructed to meet updated codes or retrofitted to bring them up to code are at an advantage if an event were to happen. These codes are rated to a certain level of seismic activity; however, serious damage is still possible if an event of higher magnitude happens. Structures not built to modern seismic building codes are most vulnerable to earthquake damage. Previous earthquake events in Albany County have resulted in cracked plaster and chimneys, broken windows, and shaken buildings.

Earthquakes can also rupture water pipelines, leading to sinkholes and damaging roads. If seismic waves damage or destroy bridges, tunnels, sewer lines, and railways, transportation disruptions can occur. This could also increase first responder response time. Communication towers are vulnerable to earthquake events and can limit first responder communication.

The FEMA Hazus model estimates that a 5.3 magnitude event will generate 23,000 tons of debris in Albany County. About 616 buildings will be at least moderately damaged, which is over 4% of the structures in the modeling area. Out of these buildings, 5 will be damaged beyond repair. Most of these exposed structures are single-family residential homes.

Natural, Historic, and Cultural Resources

Earthquakes can change the landscape of an environment, as ground openings, liquefaction, and landslides are possible. Wildlife may leave the area for an extended period, especially if an ecosystem is impacted. The secondary impacts of a dam failure or fire being ignited could have devastating effects in addition to the damage from the earthquake. As mentioned above, historic buildings are especially at risk of earthquakes as they are not built to modern codes.

Natural and historic resources were identified in Albany County to ensure these assets are considered and protected. See **Table 4** for a list of endangered and threatened species and **Table 5** for a list of historic places in Albany County.

Local Vulnerability

In addition to the general impacts that earthquakes can have on Lifelines, people, structures, and cultural resources in Albany County, representatives of each participating jurisdiction identified unique local vulnerabilities that earthquakes present to their community, summarized in **Table 34**.

Table 34 Local Government Vulnerability to Earthquake

Local Government	Local Vulnerability
Albany County	Local water and gas pipelines are vulnerable. Roadways and rural bridges face potential hazards. Numerous historic structures, constructed with older brick and wood designs, may not endure a significant earthquake. Such an event could alter the natural flow of creeks and rivers, leading to localized flooding. It could disrupt travel on roadways, hinder emergency response access, and affect the supply chain. Housing and shelters might be damaged, limiting access to healthcare and food resources. Power grids and gas infrastructure could be compromised, and communication towers and facilities might suffer damage, resulting in overloaded systems. All natural resources, including water sources and systems, as well as historical and cultural sites, could be impacted.
City of Laramie	Significant damage may occur due to inadequate earthquake-proofing in buildings, potentially affecting all systems, including water and wastewater management, fiber optics, communications, and more. Such an event could impact all activities and individuals within the affected area.
Town of Rock River	All systems. Water/wastewater, fiber, communications, etc. Historic bank and other buildings, dinosaur dig site, water supply.
Albany County Fire District #1	Many firefighters live in this rural area and serve in the local fire department. Destroyed roads and downed powerlines may hinder their access to water and supplies, and block their response to the firehouse. Most firehouses, built with post-and-beam metal structures, may sustain minimal structural damage. However, their water wells and electrical systems might be adversely affected.
Albany County Hospital District	An earthquake could disrupt medical equipment like imaging machines, ventilators, and surgical tools. Damage to medical supplies and pharmaceuticals may occur if the local supply chain is affected. Patients might need relocation if hospital infrastructure is damaged, and an influx of injured residents could overwhelm hospital staff.
Albany County School District #1	Ability to provide education if schools had to be closed. Damage to structures, loss of power, water, etc.
Laramie River Conservation District (LRCD)	Local government assets are not at risk from earthquake.
Wold Improvement & Service District	Local government assets are not at risk from earthquake.
Pioneer Canal – Lake Hattie Irrigation District	Local government assets are not at risk from earthquake.

Trends in Development

It is crucial to consider the hazards posed by earthquakes when making any future development and construction decisions, to ensure new construction does not increase the county's risk. **Table 35** summarizes development trends in each jurisdiction.

Table 35 Local Government Development Trends – Earthquake

Local Government	Development Trends
Albany County	Steady growth and development within the County will lead to more construction. There are currently no seismic stability codes in place.
City of Laramie	More structures and infrastructure that could be damaged, more people that would be affected
Town of Rock River	Development is not expected to place any local community & government assets at risk from earthquake.
Albany County Fire District #1	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Albany County Hospital District	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Albany County School District #1	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Laramie River Conservation District (LRCD)	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Wold Improvement & Service District	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Pioneer Canal – Lake Hattie Irrigation District	No construction has recently occurred, or is expected, which would impact hazard vulnerability.

Probability of Future Occurrences

The oldest earthquake recorded by the USGS in Albany County dates to 1983. In the 41 years of data collection, 16 magnitude 2.5 or greater earthquakes were documented in the county. This equates to a 39% chance of an earthquake occurring somewhere in the county each year.

Flood/Dam, Dike, & Levee Incident

Previous Occurrences

Flood

The NCEI database reports on flash floods, floods, and heavy rain events from 1996 to February 2024. In total, 27 events over 20 unique days resulted in $91,380 in property damage. It is important to note that these dollars are not adjusted to 2024 values, and reported losses are likely lower than actual losses due to data limitations, insurance coverage gaps, and because the NCEI database focuses on major events. The Local Planning Team (LPT) also reported $115,300 in property damage and 1 death from 1905 to 2024. **Table 36** below summarizes these events in Albany County.

Table 36 Albany County Summary of Flood Events

Hazard	Total # of Events	# Days with Events	Deaths	Injuries	Damages
NCEI Flash Flood	21	16	0	0	$91,380
NCEI Flood	2	2	0	0	$0
NCEI Heavy Rain	4	2	0	0	$0
LPT	26	25	1	0	$115,300
Total	**53**	**45**	**1**	**0**	**$206,680**

Source: Storm Events Database | National Centers for Environmental Information (noaa.gov), University of Wyoming

Of these 27 recorded events in the NCEI database, 2 resulted in damage to property. These notable events are detailed below:

- **August 13th, 2022, in the Town of Albany:** Heavy rainfall and hail resulted in flooding near Lake Owen. The creek washed out a 5-mile stretch of road, resulting in $76,380 in reported damage.
- **June 11th, 2023, in the Town of Garrett:** Flash flooding resulted in 5 feet of water washing out part of Tunnel Road and carrying away a horse trailer. $15,000 was reported in estimated property loss.

Additionally, there were 26 notable flood events reported by the University of Wyoming and LPT members. From these events dating back to 1905, $115,300 in property damage and 1 death was reported. It is important to note that actual losses are likely greater than those reported. Details on these events are noted below:

- **May 8th, 1905, Spring Creek:** Thunderstorms caused Spring Creek to overflow, resulting in damaged property and washed-out roads disrupting transportation.
- **June 12th, 1923, Rock Creek, Spring Creek, and the City of Laramie:** A flash flood due to heavy rains damaged roads, ranches, outbuildings, fences, haystacks, corrals, and machinery, resulting in $1,800 in reported damages.
- **June 9th, 1957, in the City of Laramie:** Flooding occurred from late spring snowmelt. Silt and debris deposited along the river resulted in quarries flooding and homes and bridges were washed out. Families were evacuated from the area.
- **July 23rd, 1984, in the City of Laramie:** Flash flooding occurred from a thunderstorm and damaged homes and businesses. Damage to the University of Wyoming was estimated to be $100,000 and $12,000 in damages were estimated to the Wyoming School of Gymnastics. Flood channels along the river were damaged and erosion to bridges occurred.
- **August 15th, 1984, in the City of Laramie:** Thunderstorms dumped rain that resulted in damage to basements of residents and their vehicles.
- **July 19th, 1985, in the City of Laramie:** Storms dumped 1.26 inches of rain in Laramie, causing urban flooding.
- **August 20th, 1990, near Wheatland:** A thunderstorm washed out parts of bridges and corrals, with Highway 34 being covered in 4 to 5 feet of water in some areas.

- **July 25th, 1991, in the Town of Centennial:** The town received 0.75 inches of rain in a short period of time, resulting in little to no damage.
- **June 2004, in Albany County:** Curtis Street bridge nearly overtopped with water during a flood event.
- **August 1st, 2007, in the Town of Rock River:** A flash flood covered portions of U.S. Highway 30/287 in up to 8 inches of water.
- **June 2010 in the City of Laramie:** Greenbelt flooding.
- **July 20th, 2010, in the Town of Garrett:** Heavy rain resulted in 2 inches of waterfall in less than an hour.
- **May 2011 in Albany County:** Heavy rain persisted over the entire county. The Laramie River Greenbelt was closed due to potential damage from flash flooding. The river crested at 5.8 feet, 8 inches above flood stage.
- **July 5th, 2012, in Fletcher Park:** Heavy rain resulted in flash flooding along Cottonwood Creek just north of Laramie.
- **July 5th, 2012, in the City of Laramie:** Heavy rainfall caused flash flooding in parts of downtown, closing Fourth Street.
- **2012 in the Town of Centennial:** A LPT team member reported a death due to flooding. The individual was investigating the edge of a flooding river, and the bank gave way, washing them away.
- **August 22nd, 2013, in the Town of Bolser:** Thunderstorms brought 3-4 inches of rain, resulting in flash flooding along Highway 34.
- **September 12th, 2013, in Albany County:** Heavy rainfall produced flash flooding along Squirrel Creek burn scar in southwest Albany County.
- **May 25th, 2014, in Woods Landing:** A late snowmelt resulted in record flooding. Voluntary evacuations near Woods Landing were issues and volunteer firefighters helped with sandbagging. The water breached its channel, likely because of previous wildfires, and carried away substantial debris. The flood stage was surpassed by over 1.5 feet. Black River Road and Boswell Ranch Road were washed out and the Greenbelt remained closed for weeks. $1,500 was reported in costs for sandbags, dump trucks, and checking pumps.
- **July 2014, in Albany County:** A flash flood resulted in the closure of 3rd Street and the Greenbelt was closed.
- **July 12th, 2018, in Woods Landing:** Local heavy rain led to flash flooding and debris flows across Highway 230.
- **July 23rd, 2018, in Woods Landing:** Over an inch of rain caused flash flooding and debris flows from the Badger Creek burn scar.
- **March 19, 2019, in Albany County:** The NWS issued flood warnings in Albany County as warm temperatures were predicted to cause early snowmelt in the Snowy Range Mountains. Residents living near creeks and rivers were urged to monitor these water systems throughout the week.
- **July 29, 2021, in Woods Landing:** Flooding on the Mullen Burn Scar caused severe debris flows across roads (Highway 230) due to flooding. Woods Creek flooding impacted Woodslanding.

- **August 14, 2022, in Laramie and rural Albany County:** The NWS reported that heavy rain over Laramie caused flash flooding in much of the city. Fox Creek Road was closed at Highway 230, and parts of the road were damaged.

Dam, Dike, & Levee Incident

In addition to flood events in Albany County, three dam incidents have been reported since the mid-1900s by the Association of State and Dam Safety Officials. None of these events resulted in death or injury, but $300,000 in costs for dam repair was reported. Details of these events are summarized in **Table 37** below.

Table 37 Albany County Summary of Dam and Levee Incidents

Date	Location	Description
6/28/1955	Double Four Ranch	Cloudbursts above the North Laramie River raised the river 6-8 feet around midnight, washing out a dam and flooding ditches.
6/10/1986	35 NW Laramie	Pierce Dam failed, spilling water into Rock Creek near the Albany/Carbon County line. A bridge over Rock Creek along Highway 13 was undercut, and there was flooding of buildings and ranch lands near Rock River
7/15/2014	Albany County/Carbon County line	King No. 1 Dam breached after a ditch diversion structure was damaged. Due to limited water in the reservoir, there was no significant damage downstream. The cost to repair the dam was bid at $300,000.

Source: Association of State and Dam Safety Officials

Location

FEMA flood maps and input from the LPTs and the public were used to identify flood areas in Albany County. Major water systems in Albany County include the Laramie River, which runs through the City of Laramie, and the Little Laramie River, which runs north-northeast from Centennial. In addition, an expansive stream system (many intermittent) contributes to flood risk in the county.

In 2011, updated DFIRMs were published by FEMA for Albany County in support of the National Flood Insurance Program (NFIP), designating zones according to potential risk and impact due to flooding. The FEMA flood hazard maps indicate that there are areas of 1% annual chance (100-year flood) or 0.2% annual chance (500-year flood) floodplain areas in the county. This is shown in **Figure 15** and **Figure 16** below, which highlights regulated floodplain boundaries. However, it should be noted that flooding outside of the FEMA-designated flood areas is possible. Flash flooding can occur anywhere in the planning area, and a severe flood caused by abnormally heavy rains or because of a dam incident could exceed the 500-year flood zone boundaries.

Figure 15 Albany County Flood Zones

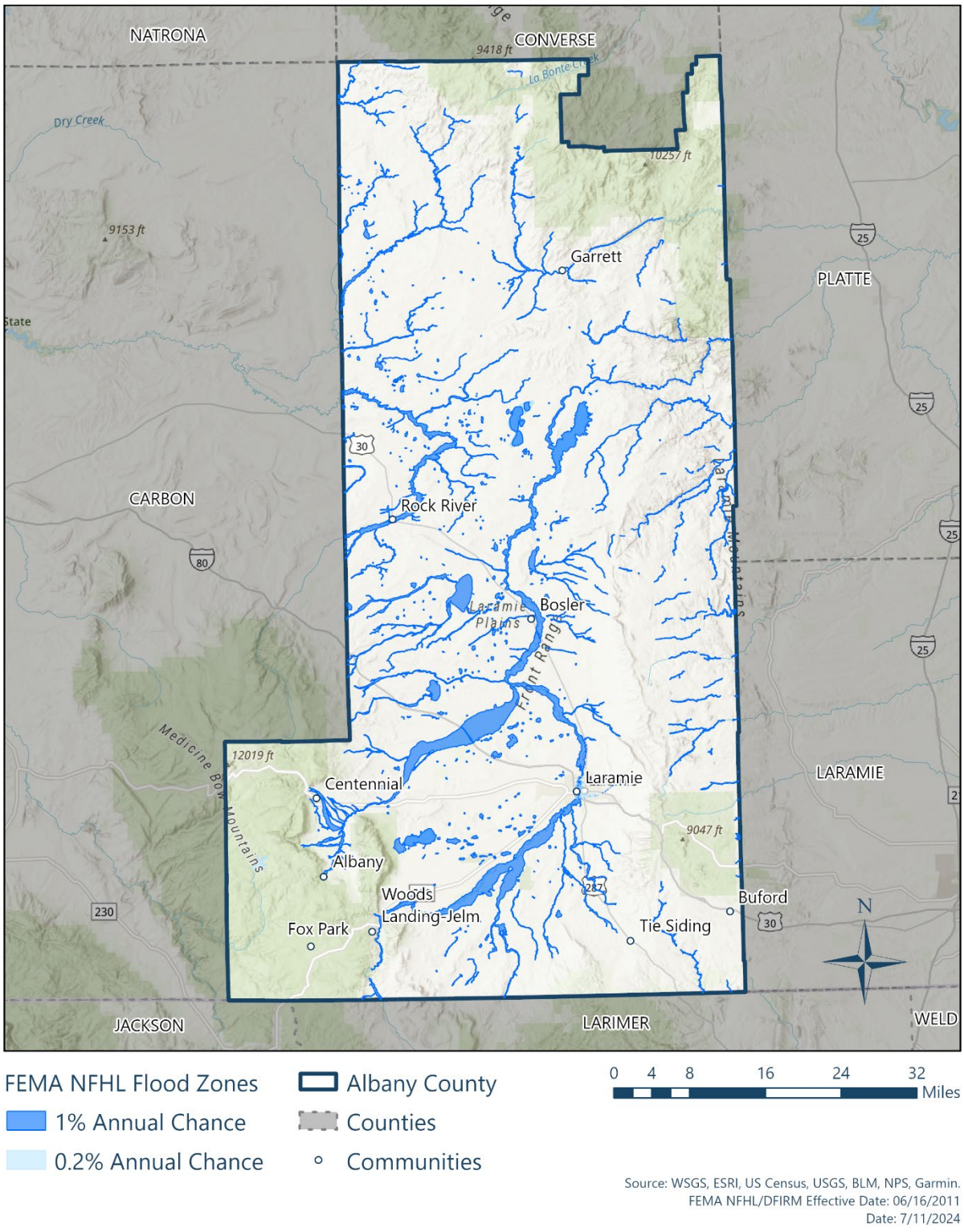
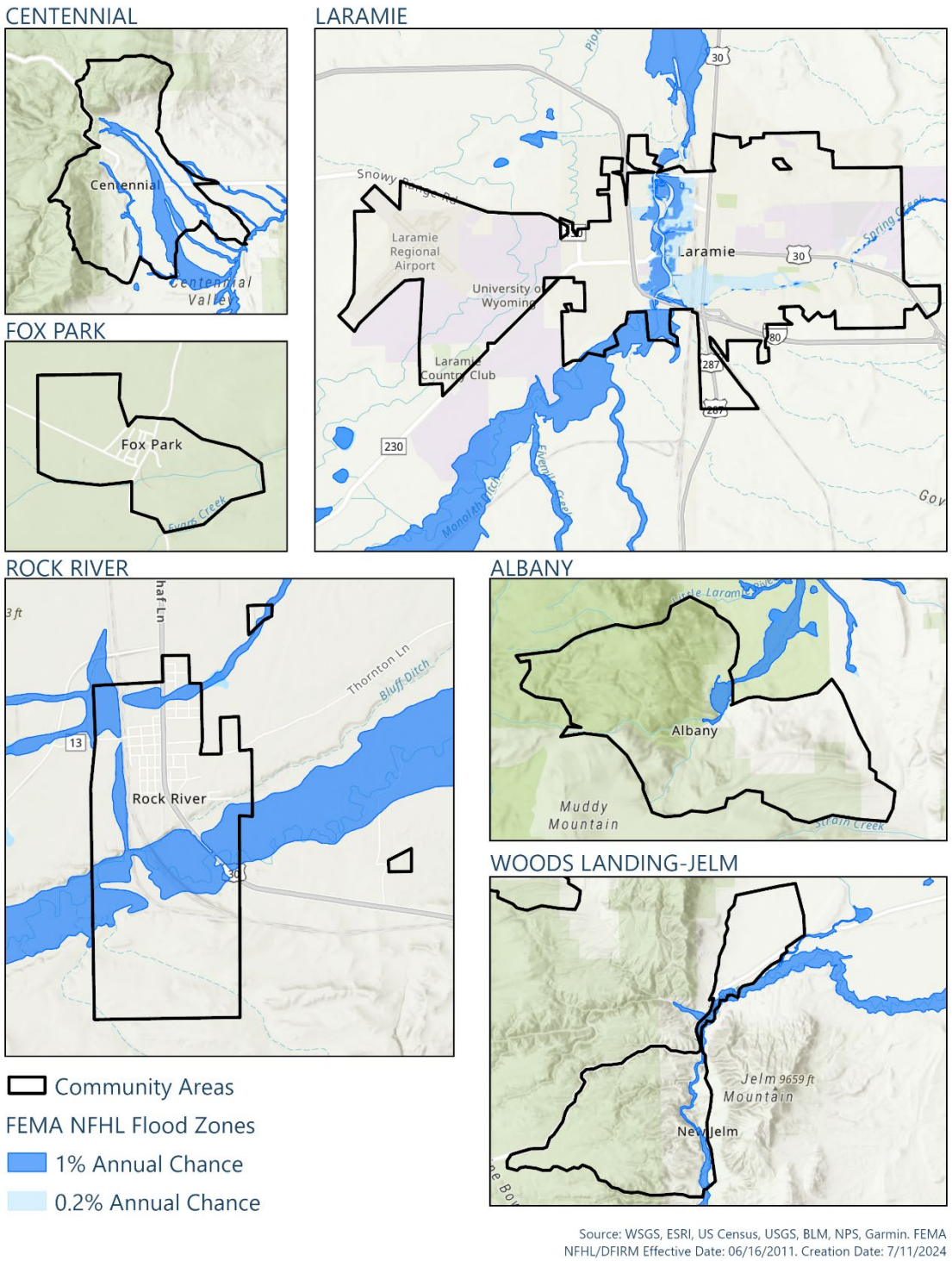


Figure 16 Inset Maps of Albany County Flood Zones



Source: WSGS, ESRI, US Census, USGS, BLM, NPS, Garmin. FEMA NFHL/DFIRM Effective Date: 06/16/2011. Creation Date: 7/11/2024

In addition to the FEMA-designated flood areas, several flood-risk areas were noted by the LPT and the public. These include:

- Areas on the Laramie River southwest of the City

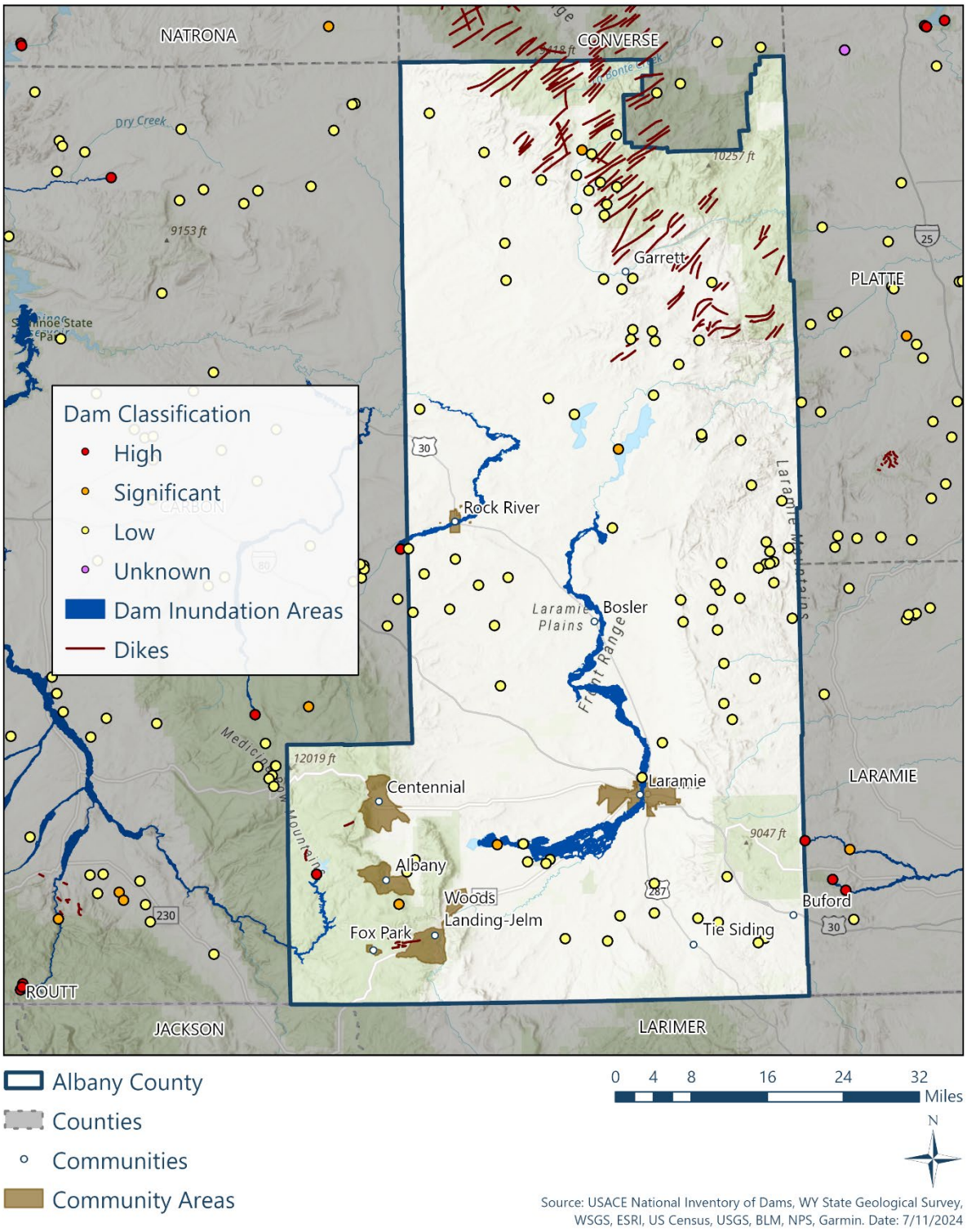
- Areas along Spring Creek
- Flash flooding in the previous 2-3 years in areas north of the City of Laramie
- Ranches are impacted by development related to interstate infrastructure (currently not being mitigated)
- Browns Creek and Little Laramie flooding impacts ranches and some County roads
- Northern Albany County is at risk of flash floods from previous years' wildfires
- Drainage problems in downtown Laramie continue to contribute to flash flooding
- Concerns of landslides in burn scar areas of the Badger Creek and Britania wildfires that may jam the Laramie River and cause flooding
- Creeks, in general, pose a risk for flooding. They are easily overwhelmed by heavy rain events.
- Spring Creek Basin (South Laramie)
- North Fork Brook, including the North Fork subdivision (near Centennial)
- West side of Laramie River (river flooding)
- Canyon flooding, specifically along Roger Canyon Road, where homes have been damaged from flood events, and Bonny and Palmer Canyons
- 4th Street in Laramie, which FEMA has funded some mitigation projects for in the past, but the area continues to experience flood events
- Other areas identified by the City of Laramie's Master Study

Additionally, according to the National Inventory of Dams (NID), there are 85 dams in Albany County. Of these, 76 are privately owned, 3 are federally owned, 2 are state-owned, and 3 are locally owned. There are two high-hazard dams, three significant-hazard dams, and 79 low-hazard dams. The Rob Roy dam, located near Keystone in unincorporated Albany County, and the Lake Owen dam, located outside the City of Laramie, are the two high-hazard dams identified in the county by the NID.

Also of concern is Peirce Dam. Although this dam is in Carbon County, it drains into Albany County (Rock River) and has failed in the past. Lastly, state dam safety officials note that in this area, water can drain in many directions, so it is difficult to determine exact risk areas without detailed studies. **Figure 17** shows the locations of dams in Albany County as well as their hazard rating. Additionally, locations of dikes are reported by the NID and included on the map, most of which are in the northern portion of the county.

A solution to the lack of detailed studies is captured within a new mitigation action in this plan (4L. HHPD Inundation Mapping).

Figure 17 Albany County Dam and Dike Locations



Exposure and Vulnerability

Lifelines

All Lifelines can be significantly impacted by a flood, dam, dike, or levee incident. These hazards impact Lifelines through the closure of businesses and government facilities, disrupted communications, interruption in the delivery of utilities such as water and sewer, excess burden on emergency response resources, and generally hindering the normal functions of a community.

The Hazardous Material Lifeline can also be affected, as flood waters can lead to the release of materials from facilities downstream and private properties, especially unsecured propane tanks. If Communication infrastructure is damaged, the disruption or failure of communications can be dangerous for the community, as they may not receive alerts, and dispatch can be interrupted. This would also greatly hinder response efforts.

The Water System Lifeline can be affected by flooding. Floodwater can back up drainage systems, and debris can block culverts, causing localized flooding. Floodwater can also get into drinking water supplies, contaminating them. Sewer systems can also back up, causing wastewater to spill into homes, neighborhoods, rivers, and streams.

Flooding events can disrupt transportation. Blocked or damaged roads or railroads can isolate residents and prevent access throughout the county. This is especially critical for those needing emergency service providers or for getting crews in to make repairs. Bridges washed out or blocked by floods or debris can also cause isolation. **Table 38** summarizes the Lifeline infrastructure in Albany County, which is located in flood zones, with Transportation Lifelines being the most exposed infrastructure in the county.

In addition to the Lifelines identified in the table below, 19.96 miles of natural gas pipeline, 6.23 miles of highway, and 3.83 miles of railway are in flood zones across Albany County. No airport runways are in flood hazard areas. A flood event that impacts any part of these Lifeline systems could have cascading effects to other locations in the county and region.

Table 38 Albany County Lifelines Exposed to Flood

Jurisdiction	Communication	Energy	Hazmat	Medical	Safety	Shelter	Transportation	Water	Total Count
Laramie	-	-	-	-	-	-	1	-	**1**
Rock River	-	-	-	-	-	-	1	-	**1**
Unincorporated	-	-	-	-	-	-	44	-	**44**
Total Count	**0**	**0**	**0**	**0**	**0**	**0**	**46**	**0**	**46**

Source: FEMA's Hazus Inventory National Database

Dam, levee, and dike incidents impact Lifelines similarly to flood incidents. A reservoir that serves as the primary source of drinking water can be disrupted or halted entirely, affecting the day-to-day lives of those who rely on the source, not only those who are in proximity downstream of the dam.

An incident may displace community members, which could be for a short period or, if the homes of residents are destroyed, for an extended duration. Utilities, including power lines, cable, and phone lines, may be knocked down or rendered unusable by the waters. **Table 39** summarizes Lifelines located in the dam inundation zones in Albany County.

In addition to the Lifelines identified in the table below, 2.33 miles of natural gas pipeline, 5.13 miles of highway, and 6.11 miles of railway are in dam inundation zones across Albany County. No airport runways are in dam inundation hazard areas. A dam incident that impacts any part of these Lifeline systems could have cascading effects on other locations in the county and region.

Table 39 Albany County Lifelines Exposed to Dam Inundation

Jurisdiction	Communication	Energy	Hazmat	Medical	Safety	Shelter	Transportation	Water	Total Count
Laramie	-	-	-	-	-	-	4	-	**4**
Rock River	-	-	-	-	-	-	2	-	**2**
Unincorporated	-	-	-	-	-	-	12	-	**12**
Total Count	**0**	**0**	**0**	**0**	**0**	**0**	**18**	**0**	**18**

Source: FEMA's Hazus Inventory National Database

In summary, all Lifelines can be significantly impacted by a flood, dam, dike, or levee incident; however, the Transportation Lifeline has the greatest exposed structures to flood and dam incident hazards in Albany County.

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

People

People living in floodplains, known flooding areas, or near areas where flash floods can occur are at an increased risk from the hazard. Floods can cause serious injury and death if people cannot get to safe locations. Some of the population may be displaced from their homes for varying durations, which can strain community resources. Those in the community with access and functional needs (AFN), including the elderly, children, those with mobility or communication issues, those with low incomes, institutionalized, and people who may be unfamiliar with the area, may have problems evacuating and accessing proper medical care.

The dangers of flash flooding pose an even greater risk, as those in these populations may not be able to extricate themselves from an immediately threatening situation. Emergency responders must prioritize these populations, as this is crucial to the best possible outcomes. In the event of a dam or levee incident, those in the community located downstream in dam inundation areas (or within levee-protected areas) may be incapable of evacuating the area within the necessary time frame.

Non-English-speaking populations are also included as having a higher vulnerability, as communications and emergency messaging may not be available in languages other than English. In general, anyone who does not have adequate access to warnings from an emergency warning system may be disproportionately impacted by the hazard.

See **Table 2** for more information on demographic factors that contribute to vulnerability in Albany County.

Based on the structure exposure analysis in the following section, it is estimated that ~1,067 people (2.11 per household for Albany County) live in dam inundation areas. This equates to roughly 905 persons in the unincorporated county and the following for impacted municipalities: Laramie (154) and Rock River (8). This does not take into account other people who might be in those areas at the time of an event.

Structures

All current and future buildings and populations should be considered at risk of flooding, although buildings located in the 100 or 500-year floodplain are at a higher risk. The impacts of flooding can be severe, including business interruption, mold issues, and damaged contents and equipment. Just a few inches of water in a building could cause thousands of dollars in damage to the flooring and foundation of the structure. In cases where water rises above a few inches, electrical systems and appliances may need to be replaced.

Many properties in the county are vulnerable to flooding, including those that may not be within a mapped floodplain. While some properties may be flood-proofed, most are likely to be significantly damaged if flooded. Properties near waterways may have stability issues as the flood waters erode the banks and carry debris. In contrast, properties in low-lying areas are more vulnerable as these are where water collects. **Table 40** summarizes the number of structures, as well as their structure and content value, that are in the 100 and 500-year floodplains in Albany County as reported by FEMA's Hazus Inventory National Database. In total, 506 structures worth over $140.4 million in structure value and estimated over $106.7 million in content value are in these floodplains in Albany County.

Table 40 Albany County Structures Exposed to Flood

Municipality	Structure Type	Total Structure Count	Estimated Content Value	Total Structure Value
Laramie	**Total**	**73**	**$10,015,558.30**	**$14,007,569.84**
	Commercial	9	$5,590,208.73	$5,156,870.71
	Residential	64	$4,425,349.57	$8,850,699.13
Rock River	**Total**	**4**	**$169,589.82**	**$339,179.64**
	Residential	4	$169,589.82	$339,179.64
Unincorporated	**Total**	**429**	**$96,557,448.74**	**$126,093,099.04**
	Commercial	36	$53,308,159.48	$42,355,636.04
	Industrial	1	$1,117,956.94	$1,117,956.94

Municipality	Structure Type	Total Structure Count	Estimated Content Value	Total Structure Value
	Public	5	$1,643,158.60	$1,643,158.60
	Residential	387	$40,488,173.72	$80,976,347.41
Grand Total		**506**	**$106,742,596.90**	**$140,439,848.50**

Source: US Army Corps of Engineers National Structure Inventory (NSI)

All hazard potential classes of dams pose a risk to properties downstream. Vulnerable properties are those closest to, or within, the dam inundation or levee-protected areas. Based on an evaluation of the best available structure footprint data for the county, there are numerous properties within levee inundation areas. **Table 41** summarizes the structure counts as well as the valuation of these structures located in dam inundation areas. In total, 411 structures are worth over $131.9 million in value and $106.2 million in estimated content value.

Table 41 Albany County Structures Exposed to Dam Inundation

Municipality	Structure Type	Total Structure Count	Estimated Content Value	Total Structure Value
Laramie	**Total**	**156**	**$71,319,102.98**	**$78,872,620.75**
	Commercial	35	$32,867,824.81	$36,201,329.34
	Industrial	13	$18,645,456.41	$16,245,819.70
	Public	1	$13,186,171.80	$13,186,171.80
	Residential	107	$6,619,649.96	$13,239,299.91
Rock River	**Total**	**2**	**$118,672.32**	**$237,344.64**
	Residential	2	$118,672.32	$237,344.64
Unincorporated	**Total**	**253**	**$34,841,581.69**	**$52,829,746.64**
	Commercial	24	$14,834,806.65	$14,834,806.65
	Industrial	1	$816,186.71	$544,124.48
	Public	2	$930,361.15	$930,361.15
	Residential	226	$18,260,227.18	$36,520,454.36
Grand Total		**411**	**$106,279,357.00**	**$131,939,712.00**

Source: US Army Corps of Engineers National Structure Inventory (NSI)

Natural, Historic, and Cultural Resources

Flooding is a natural event, and floodplains provide many natural and beneficial functions. However, with the natural flood process being altered due to human development in floodplain areas, flooding can negatively impact the environment. Wildlife habitats can be affected due to altered food availability and interrupted breeding patterns. The effects on water quality due to silt and debris can impact wildlife downstream of the flooding. Erosion of riverbanks can permanently alter a waterway, and vegetation on the banks may not recover from the damage. Aquatic life can wash onto roads or over dikes into flooded fields. Pollution from roads, such as oil and hazardous materials, can wash

into rivers and streams. These can settle onto normally dry soil during floods, polluting them for agricultural uses.

Dam incidents pose a great risk to the environment in the affected area. Flooding can change the local ecosystem, including permanent displacement of animals and extensive damage to vegetation. Damage to vegetation can contribute to erosion of riverbanks. Erosion can alter the waterway and push silt and debris downstream. The environment closest to the incident will likely be the most impacted; however, the repercussions of flooding can be felt much farther downstream.

Reservoirs held behind dams and rivers held behind levees affect many ecological aspects of a river. River topography and dynamics depend on a wide range of flows. Rivers below dams often experience long periods of very stable flow conditions or saw-tooth flow patterns caused by releases followed by no releases. Water released from dams usually contains very little suspended sediment, which can lead to the scouring of riverbeds and banks.

Natural and historic resources were identified in Albany County to ensure these assets are considered and protected. See **Table 4** for a list of endangered and threatened species and **Table 5** for a list of historic places in Albany County.

Figure 18 Removal of Evergreens from Toltect Dam

Source: Laramie Rivers Conservation District

Local Vulnerability

In addition to the general impacts that flood/ dam, dike, and levee incidents can have on Lifelines, people, structures, and cultural resources in Albany County, representatives of each participating jurisdiction identified unique local vulnerabilities that these hazards present to their community, summarized in **Table 42**.

Table 42 Local Government Vulnerability to Flood/Dam, Dike, & Levee Incidents

Local Government	Local Vulnerability
Albany County	Several significant dams are located in the mountains, with nearby local communities such as Laramie and Rock River situated downstream. These dams pose potential risks to structures, water resource infrastructure, sewage systems, and roadways. Patient movement and access to healthcare services may be hindered due to restricted accessibility. Additionally, healthcare facilities may have sustained damages, and local water sources could be contaminated.
City of Laramie	Individuals residing in floodplain areas or regions of the City with inadequate drainage systems may be impacted. This includes infrastructure such as pump stations, pressure reduction valves, bridges, roads, overpasses, and buildings situated in flood-prone zones. Any resources located within these vulnerable areas could be adversely affected.
Town of Rock River	Lift station, bridges, water/wastewater & electrical systems. All infrastructure in the floodplain.
Albany County Fire District #1	Flooding can disrupt roadways and hinder firefighters' ability to reach the firehouse, as well as access personal food and supplies. Firehouses situated near rivers or within floodplains are at risk of becoming inoperable. Additionally, powerline infrastructures may be affected, potentially leading to power and communication outages at firehouses.
Albany County Hospital District	Local government assets are not at risk of Flood/Dam, Dike, & Levee Incidents.
Albany County School District #1	Long term damage to power/electrical and water/wastewater systems damage due to land subsidence and/or mold from flood waters. The ability to provide education and other school activities could be hindered.
Laramie River Conservation District (LRCD)	Local government assets are not at risk from Flood/Dam, Dike, & Levee Incidents.
Wold Improvement & Service District	Local government assets are not at risk of Flood/Dam, Dike, & Levee Incidents.
Pioneer Canal – Lake Hattie Irrigation District	Flooding or damage to the irrigation system could damage additional diversions, ditches, canals, and laterals. Could also impact the City of Laramie as PCLHID serves as flood control for the city.

Trends in Development

It is crucial to consider the hazards posed by flood/dam, dike, and levee incidents when making any future development and construction decisions, to ensure new construction does not increase the county's risk. **Table 43** summarizes development trends in each jurisdiction.

Table 43 Local Government Development Trends – Flood/Dam, Dike, & Levee Incidents

Local Government	Development Trends
Albany County	As the population of the County grows, development in flood prone areas increases. Education or building restrictions for flood prone areas may become necessary.
City of Laramie	There are more structures and infrastructure that could be damaged in areas prone to flooding, and more people who would be affected.
Town of Rock River	Development is not expected to place any local community & government assets at risk from Flood/Dam, Dike, & Levee Incidents.
Albany County Fire District #1	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Albany County Hospital District	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Albany County School District #1	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Laramie River Conservation District (LRCD)	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Wold Improvement & Service District	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Pioneer Canal – Lake Hattie Irrigation District	No construction has recently occurred, or is expected, which would impact hazard vulnerability.

Probability of Future Occurrences

Between the NCEI database, the University of Wyoming, and the LPT, there were 53 recorded flood events between 1905 and 2024. This equates to a 44% chance of a flood event occurring somewhere in Albany County each year. Of these reported events, 25 have resulted in injury to people and/or damage to property, therefore, there is a 21% chance that a notable flood event will occur in the county each year.

There have also been 3 dam or levee incident events in the 69 years between 1955 to 2024, equating to a 4% annual chance of a dam incident occurring in the county.

Geologic Hazards (Landslide/Land & Mine Subsidence/Expansive Soils)

Previous Occurrences

Landslide

There is not a well-documented database of historic landslide events in Region 3, but susceptibility indicates that landslides are likely to occur east of the City of Laramie and in the Medicine Bow National Forest, along the western border of the Towns of Centennial, Albany, and Woods Landing-Jelm. The planning team also noted a landslide event occurred after the Mullen Fire in July of 2021, resulting in the closure of Highway 230.

Land & Mine Subsidence

No reported mine subsidence events have occurred in Albany County. Additionally, many mines have been reclaimed or sealed, limiting future risk.

Expansive Soils

Due to the slow nature and primarily localized effects of expansive soils, they are often not reported as events. Therefore, there has been little work done to document past events in Wyoming. Effects on supply lines, railways, bridges, and utility infrastructure are repaired or relocated without further investigation. Individual property owners become aware of damage to their homes and typically will handle repairs without informing towns or counties of the issue. Despite a lack of records on previous expansive soil incidents, there is susceptibility data available for expansive soils.

Location

Landslide

Landslides are possible but not a frequently damaging occurrence in Albany County, given the relatively flat terrain in developed areas. According to the USGS Landslide Susceptibility Index, most of the county and jurisdictional areas reside in an area with the lowest risk of landslides. However, there are areas in southwestern Albany County with moderate to high landslide susceptibility, and another higher susceptibility area east of the City of Laramie. **Figure 19** and **Figure 20** shows these areas. There is low risk in Laramie and Rock River due to limited slopes.

Figure 19 Albany County Landslide Susceptibility

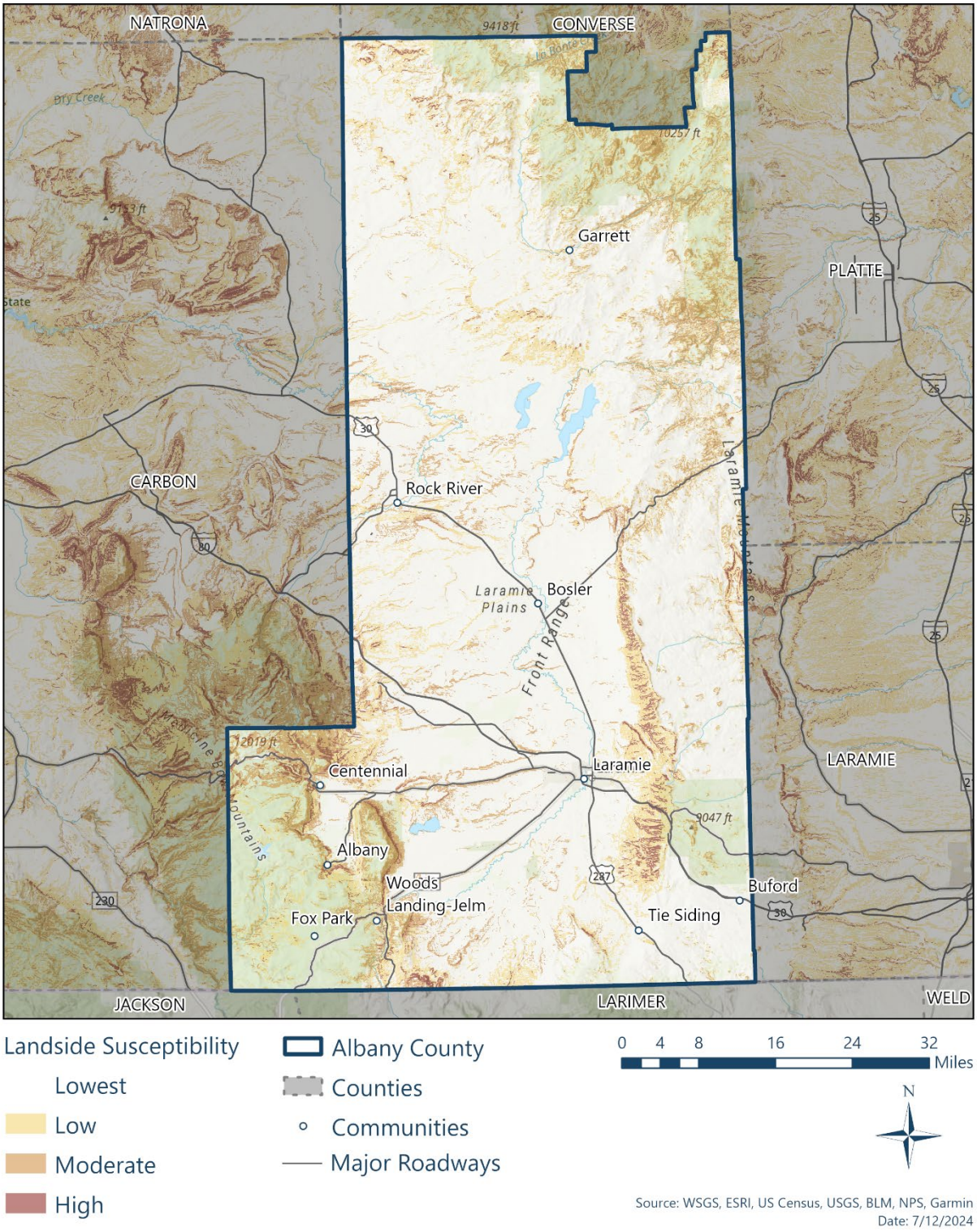
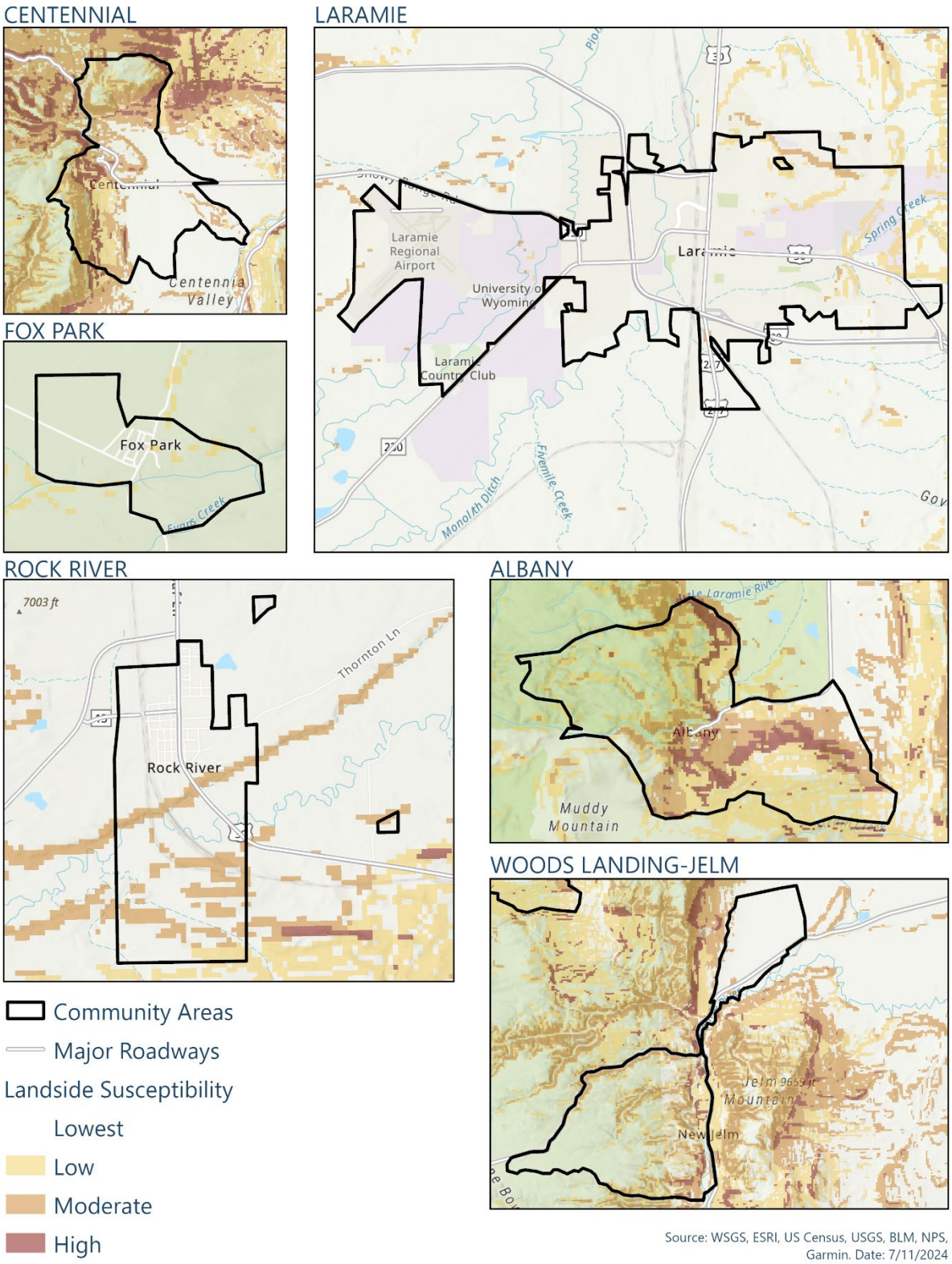


Figure 20 Inset Maps of Albany County Landslide Susceptibility

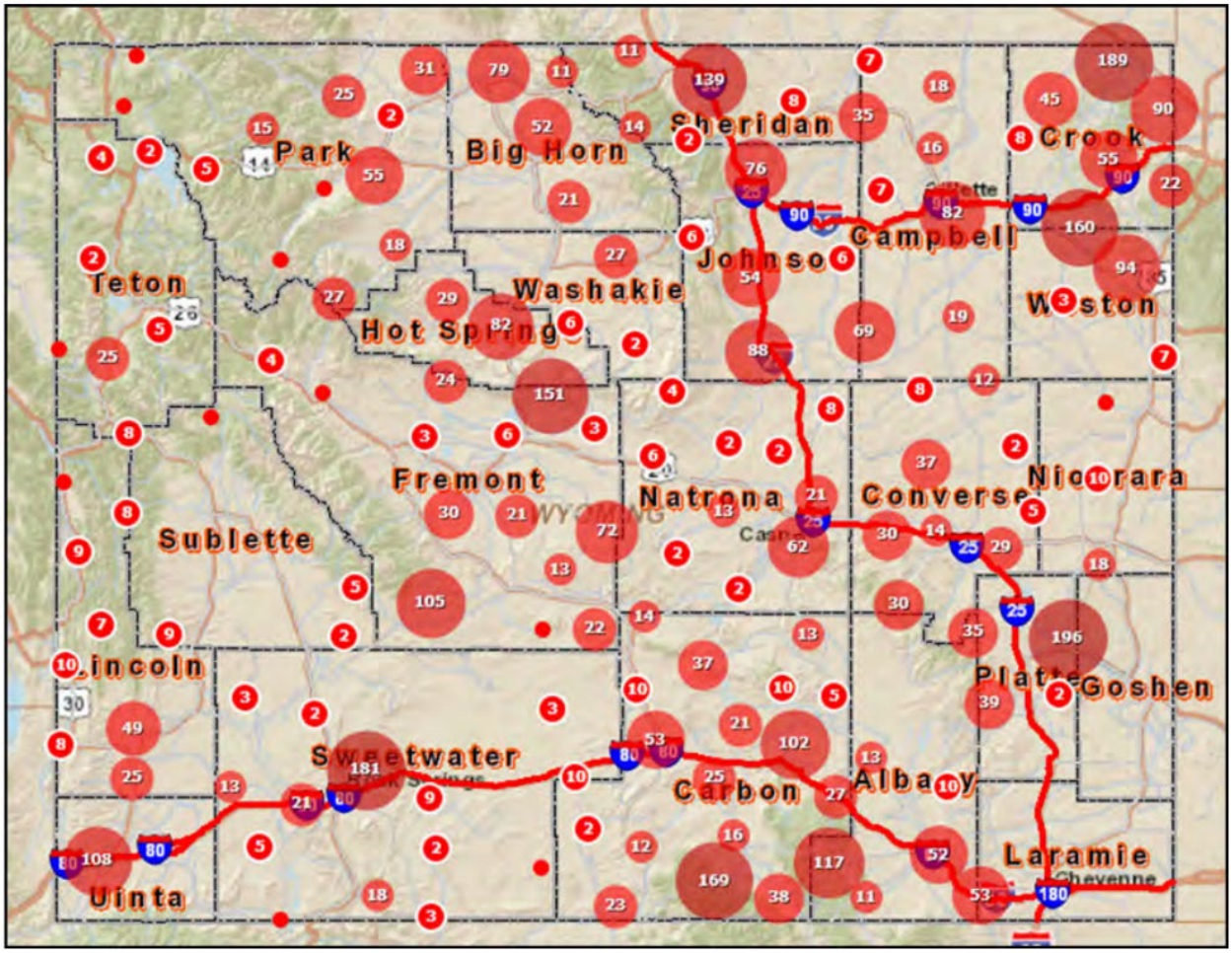


Land & Mine Subsidence

Albany County has well over 100 abandoned mine sites (primarily from coal mining). There are also several hard-rock mines in Medicine Bow National Forest near the Centennial Ridge area located west and southwest of Centennial.

While there is no publicly available data with detailed locations of mine sites in Region 3, the State of Wyoming HMP 2021-2026 provides a figure with general locations across the state. **Figure 21** displays a dot representing the number of abandoned mines in that area. It should be noted that exact locations are not released due to public safety and liability concerns. Abandoned mines are very hazardous and the public should avoid such areas.

Figure 21 Known Abandoned Mine Sites of All Types in Wyoming



Source: State of Wyoming Hazard Mitigation Plan 2021-2026

Expansive Soils

Numerous areas fall within identified expansive soil areas and could be impacted by this hazard in Albany County. Most of this soil is concentrated in the northwest portion of the county, near the Town of Rock River and west of the Town of Garrett. Additional areas have been identified in the county's southern portion. **Figure 22** and **Figure 23** display these areas in Albany County. The City of Laramie believes the risk to expansive soils is underrepresented by the current best available mapped data.

Figure 22 Albany County Expansive Soils

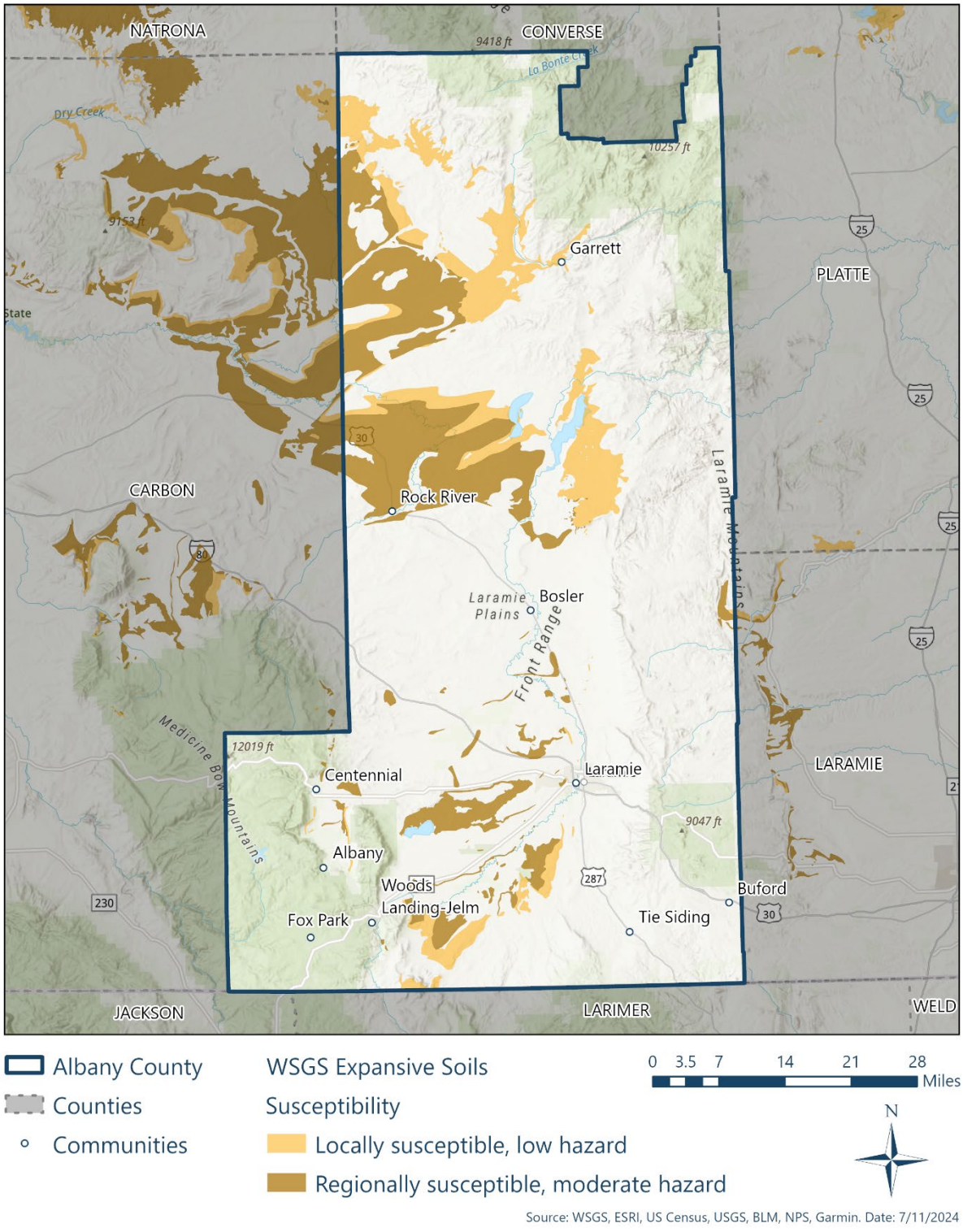
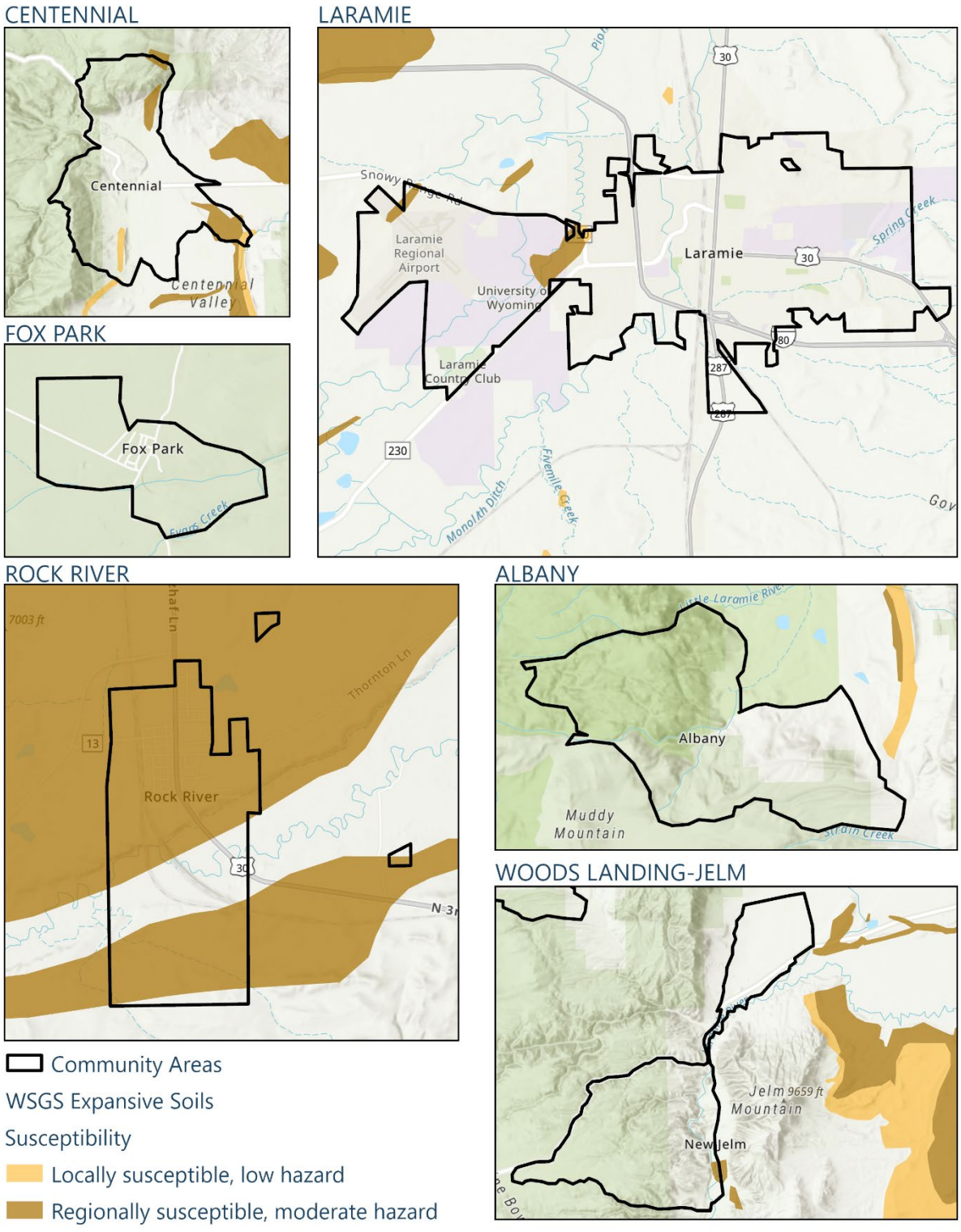


Figure 23 Inset Maps of Albany County Expansive Soils



Source: WSGS, ESRI, US Census, USGS, BLM, NPS, Garmin. Date: 7/11/2024

Exposure and Vulnerability

Lifelines

Geologic hazards, including expansive soils, mine/land subsidence, and landslides, have the potential to impact all FEMA Lifelines, most significantly the Transportation and Energy Lifelines. Expansive soil can disrupt underground gas, oil, and water pipelines, leading to leaks or ruptures. Additionally, expansive soil causes roadways, railways, and bridges to heave, crack, or sink. This can interrupt transportation services, including the movement of emergency supplies during and after a disaster. Food, Hydration, and Shelter lifelines can also be impacted if mine/land subsidence damages homes and food storage facilities. Generally, any critical infrastructure, including hazardous material storage facilities, that are constructed above expansive soils or areas with the potential for land subsidence could experience damage over time by these hazards. **Table 44** presents the lifelines that are located within expansive soil hazard areas in Albany County.

In addition to the Lifelines identified in the table below, 27.65 miles of natural gas pipeline, 27.28 miles of highway, and 18.92 miles of railway are in expansive soil areas across Albany County. No airport runways are in expansive soil hazard areas. An incident that impacts any part of these Lifeline systems could have cascading effects on other locations in the county and region.

Table 44 Albany County Lifelines Exposed to Expansive Soils

Jurisdiction	Communication	Energy	Hazmat	Medical	Safety	Shelter	Transportation	Water	Total Count
Laramie	-	-	-	-	-	-	-	-	**0**
Rock River	-	-	-	-	1	-	1	1	**3**
Unincorporated	-	-	-	-	-	4	7	-	**11**
Total Count	**0**	**0**	**0**	**0**	**1**	**4**	**8**	**1**	**14**

Source: FEMA's Hazus Inventory National Database

The most significant impacts of landslides affect the Transportation Lifeline, which can have cascading consequences to Safety and Security. Roadblocks can hinder rescue and emergency assistance efforts, necessitate traffic detours, and spur costly debris clearance. Energy and Communication Lifelines can also be impacted if an avalanche damages utility lines. Broken power lines could result in disruptions of electricity or complete power outages. Communication fields, such as cable and telephone lines, could be damaged by avalanches, causing a delay in response time and rescue. **Table 45** summarizes the lifelines that are located within landslide susceptible areas in Albany County. It is important to note that all landslide susceptibility classes (low-extreme) were used for the Lifeline analysis.

In addition to the Lifelines identified in the table below, 46.69 miles of natural gas pipeline, 40.80 miles of highway, and 9.38 miles of railway are in landslide areas across Albany County. No airport

runways are in landslide hazard areas. An incident that impacts any part of these Lifeline systems could have cascading effects on other locations in the county and region.

Table 45 Albany County Lifelines Exposed to Landslides

Jurisdiction	Communication	Energy	Hazmat	Medical	Safety	Shelter	Transportation	Water	Total Count
Laramie	-	-	-	-	-	1	-	-	**1**
Rock River	-	-	-	-	-	-	-	-	**0**
Unincorporated	5	-	-	-	-	1	14	-	**20**
Total Count	**5**	**0**	**0**	**0**	**0**	**2**	**14**	**0**	**21**

Source: FEMA's Hazus Inventory National Database

While no data is available on the locations of mine/land subsidence in Albany County, the potential impacts of this hazard are similar to the other geologic hazards in Albany County. Based on Lifeline analysis, the Transportation Lifeline has the greatest number of critical structures in areas prone to geologic hazards in Albany County.

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

People

People living or working in landslide-prone areas, such as on slopes or hillsides, are the most likely population to experience negative impacts from landslides. Residents living in these areas, or areas constructed above abandoned mines, who do not have the financial resources to relocate are disproportionately likely to experience losses and be unable to rebuild after an event.

Expansive soil does not pose an immediate threat to the public. Since the ground does not suddenly shift, people can notice structure changes caused by the soil expansion over time. Observed changes in the structure can be addressed and repaired, or people can be relocated if necessary. While small, there is a chance that damage to a structure would pose a threat to people if it went unnoticed for a long period and failed.

Populations identified as vulnerable or under-resourced are more likely to experience losses from hazard events and face barriers in recovery. See **Table 4** for more information on demographic factors that contribute to vulnerability in Albany County.

Structures

Expansive soil can damage building foundations, pavement, supply lines, and utility infrastructure. **Table 46** outlines the properties within each jurisdiction that are exposed to expansive soil hazards. Due to the slow nature of soil swelling and shrinking, damage may not be apparent for years, and estimating the overall costs in the affected area can be difficult. In total, 542 structures are in areas

with expansive soils in Albany County, with an estimated $110.2 million in structure value and $76.7 million in estimated content value at risk.

Table 46 Albany County Structures Exposed to Expansive Soils

Municipality	Structure Type	Total Structure Count	Estimated Content Value	Total Structure Value
Laramie	**Total**	**90**	**$7,692,676.89**	**$13,076,434.85**
	Commercial	1	$1,703,055.24	$1,135,370.16
	Industrial	1	$38,178.60	$38,178.60
	Residential	88	$5,951,443.06	$11,902,886.09
Rock River	**Total**	**190**	**$21,070,878.42**	**$30,651,601.29**
	Commercial	11	$6,311,548.84	$5,975,301.06
	Industrial	7	$3,685,649.25	$2,851,933.41
	Public	2	$322,993.82	$322,993.82
	Residential	170	$10,750,686.51	$21,501,373.01
Unincorporated	**Total**	**252**	**$46,917,429.39**	**$64,268,827.23**
	Commercial	12	$9,625,375.04	$9,625,375.04
	Industrial	5	$5,881,636.25	$4,562,016.60
	Public	6	$12,739,400.59	$12,739,400.59
	Residential	239	$19,773,714.48	$39,547,428.93
Grand Total		**542**	**$76,783,681.66**	**$110,202,257.30**

Source: US Army Corps of Engineers National Structure Inventory (NSI)

Landslides can cause extensive damage to structures, burying homes and damaging critical infrastructure. **Table 47** outlines the properties within each jurisdiction that are exposed to landslide susceptibility. In total, 1,002 structures are in areas with landslide susceptibility in Albany County, with an estimated $271.1 million in structure value and $176.2 million in estimated content value at risk. It is important to note that these structures are in areas ranging from low to extreme landslide susceptibility.

Table 47 Albany County Structures Exposed to Landslides

Municipality	Structure Type	Total Structure Count	Estimated Content Value	Total Structure Value
Laramie	**Total**	**311**	**$78,125,199.81**	**$116,646,496.20**
	Commercial	18	$27,417,650.41	$22,957,921.23
	Industrial	1	$226,269.27	$226,269.27
	Public	1	$7,500,254.62	$7,500,254.62
	Residential	291	$42,981,025.51	$85,962,051.08
Rock River	**Total**	**3**	**$224,118.19**	**$448,236.38**
	Residential	3	$224,118.19	$448,236.38

Municipality	Structure Type	Total Structure Count	Estimated Content Value	Total Structure Value
Unincorporated	**Total**	**688**	**$97,856,643.66**	**$154,018,703.96**
	Commercial	25	$19,235,374.90	$19,032,155.75
	Industrial	5	$16,789,547.63	$11,938,336.38
	Public	1	$615,230.42	$615,230.42
	Residential	657	$61,216,490.71	$122,432,981.42
Grand Total		**1,002**	**$176,205,961.70**	**$271,113,436.60**

Source: US Army Corps of Engineers National Structure Inventory (NSI)

Natural, Historic, and Cultural Resources

Landslides can drastically impact the topography of the Earth's surface, destroy strips of forested areas, alter the quality of rivers and streams, and ultimately impact the habitats of wildfires that exist in the region. Mine/land subsidence can alter waterways and drainage, leading to erosion and sedimentation in waterways. Additionally, mine/land subsidence under a historic building could lead to structural instability and potential collapse.

Soil expansion does not have a large immediate impact on the environment as the effects occur over extended periods. Overall, expansive soils have the potential to alter the landscape of an area, but not drastically, and should not affect wildlife and plant life in an ecosystem. Mine/Land subsidence is also not likely to have large-scale impacts on plants or wildlife but can result in increased flood risks and permanent reduction in an aquifer.

Natural and historic resources were identified in Albany County to ensure these assets are considered and protected. See **Table 4** for a list of endangered and threatened species and **Table 5** for a list of historic places in Albany County.

Local Vulnerability

In addition to the general impacts that geologic hazards can have on Lifelines, people, structures, and cultural resources in Albany County, representatives of each participating jurisdiction identified unique local vulnerabilities that these hazards present to their community, summarized in **Table 48**.

Table 48 Local Government Vulnerability to Geologic Hazards

Local Government	Local Vulnerability
Albany County	Mountain roadways and rural bridges may experience detrimental effects. Landslides can obstruct natural waterways, consequently affecting outdoor recreational activities. The planning team has additionally observed that frost, which causes expansive soils to contract, has been reported to heave and damage U.S. Route 30 and State Highway 230 in Albany County.
City of Laramie	Infrastructure, transportation, and utilities may be affected. Hay crop yields at ranches could decrease, impacting economic value.
Town of Rock River	Water supply, wastewater, hay crops at ranches.

Local Government	Local Vulnerability
Albany County Fire District #1	Landslides have the potential to damage roadways and power lines, thereby hindering firefighters' access to essential supplies and their ability to reach the firehouse. Additionally, compromised power lines may lead to power outages, impacting firehouses and communication systems.
Albany County Hospital District	Local government assets are not at risk from Geologic Hazards.
Albany County School District #1	Concerns include sinkholes, structural damage, power/electrical issues, and water/wastewater problems. Any of these events could potentially disrupt the education of community residents.
Laramie River Conservation District (LRCD)	Local government assets are not at risk from Geologic Hazards.
Wold Improvement & Service District	Local government assets are not at risk from Geologic Hazards.
Pioneer Canal – Lake Hattie Irrigation District	Local government assets are not at risk from Geologic Hazards.

Trends in Development

It is crucial to consider the hazards posed by geologic hazards when making any future development and construction decisions, to ensure new construction does not increase the county's risk. **Table 49** summarizes development trends in each jurisdiction.

Table 49 Local Government Development Trends – Geologic Hazards

Local Government	Development Trends
Albany County	Several areas within Albany County experience land subsidence or expansive soil issues. Studies for new buildings are necessary for critical facilities, roadways, new structures, and other infrastructure.
City of Laramie	More structures and infrastructure that could be damaged, more people that would be affected
Town of Rock River	Development is not expected to place any local community & government assets at risk from Geologic Hazards.
Albany County Fire District #1	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Albany County Hospital District	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Albany County School District #1	No construction has recently occurred, or is expected, which would impact hazard vulnerability.

Laramie River Conservation District (LRCD)	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Wold Improvement & Service District	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Pioneer Canal – Lake Hattie Irrigation District	No construction has recently occurred, or is expected, which would impact hazard vulnerability.

Probability of Future Occurrences

While there is no comprehensive list of reported landslides in Albany County (0% annual chance), landslides are expected to continually occur in areas with steep slopes, mostly outside jurisdictional areas.

Mine subsidence, however, has not been reported in the county. While there is potential for mine subsidence to occur in Albany County in the future, mitigation projects have remediated many of the known locations of mines. Based on the lack of previous mine subsidence events in the county, there is a very low probability of an event occurring in the future (less than 1% annual probability).

The composition of expansive soils does not change and is, therefore, capable of swelling and shrinking. Due to this, soil can impact buildings and infrastructure in the region over many years. This likelihood can increase if new development is built in expansive soil areas without addressing the risks posed by the hazard. There is a 100% chance that expansive soil will impact some portion of the county each year.

Severe Thunderstorm (Hail/Lightning/Thunderstorm Wind)

Previous Occurrences

The NCEI database recorded 83 thunderstorm wind events and 119 hail events in Albany County from 1955 to February 2024. The dataset also reported 5 lightning events in the county since 1996. In total, these severe thunderstorm hazards resulted in 2 deaths, 1 injury, and $416,000 in damages across the county. It is important to note that these dollars are not adjusted to 2024 values, and reported losses are likely lower than actual losses due to data limitations, insurance coverage gaps, and because the NCEI database focuses on major events. The Local Planning Team (LPT) also reported several severe thunderstorm events from 2019-2024 that the NCEI database did not report. A summary of these events is outlined in **Table 50.**

Table 50 Albany County Summary of Severe Thunderstorm Events

Hazard	Total # of Events	# Days with Events	Deaths	Injuries	Damages
Hail	119	77	0	0	$61,000
Lightning	5	5	2	1	$306,000
Thunderstorm Wind	83	56	0	0	$49,000
LPT	3				
Total	**210**	**138**	**2**	**1**	**$416,000**

Source: Storm Events Database | National Centers for Environmental Information (noaa.gov)

The NCEI database records 119 hail events in Albany County. Most of these events (40.3%) had hail recorded at 1 inch in diameter, classified as quarter-size hail by the National Weather Service. The largest hail recorded in the county reached 4.5 inches in diameter, which is approximately the size of a CD or DVD. This event occurred on September 8th, 1973, and had no reported property damage, injuries, or fatalities. **Table 51** provides a breakdown of historic hail events in Albany County by the diameter of hail recorded.

Table 51 Albany County Hail Event Severity

Description	Hail Diameter (in inches)	Total # of Events	% of Total Events
Nickle	0.75	18	15.1%
Quarter	0.88	12	10.1%
	1	48	40.3%
Half Dollar	1.1	1	0.8%
	1.25	12	10.1%
	1.5	4	3.4%
Golf Ball	1.75	19	16.0%
Pool Ball	2	1	0.8%
Tennis Ball	2.5	1	0.8%
Baseball	2.75	1	0.8%
	3	1	0.8%
CD/DVD	4.5	1	0.8%

Source: Storm Events Database | National Centers for Environmental Information (noaa.gov)

Of these 207 thunderstorm events, 12 resulted in losses to life or property. These notable events are detailed below:

- **July 16, 1994, in the City of Laramie:** Golf ball size hail (1.75 inches in diameter) resulted in $500 in recorded property damages.
- **July 16, 1994, in Albany County:** Penny-size hail (0.75 inches in diameter) resulted in $500 in recorded property damages.
- **June 26, 1996, in the City of Laramie:** Lightning struck several trees in the City of Laramie, causing a 40-foot cottonwood tree to fall onto a home and another tree to fall and cause a small house fire. These events resulted in a total of $4,000 in reported property damage.
- **July 7, 1996, in the City of Laramie:** Lightning struck a tree and home in the City of Laramie, causing damage to the tree and destroying a television and VCR in the home. A total of $2,000 was reported in property damage.
- **August 5, 1996, in the Town of Wheatland:** A lightning strike caused a fire that burned 5,000 acres over the course of a week before it was contained on August 12th. Several buildings were destroyed in the fire, resulting in $300,000 in reported property losses.
- **October 16, 1996, in the City of Laramie:** Thunderstorm wind gusts reaching up to 81 mph caused damage to trees and other infrastructure in Laramie, resulting in $20,000 in reported damages.

- **July 14, 1998, in the City of Laramie:** Thunderstorm winds reached gusts of 70 mph and downed two power poles. A total of $4,000 was reported in damages.
- **July 24, 1999, in the Town of Centennial:** Two hikers were killed on Medicine Bow Peak near the Town of Centennial after being struck by lightning.
- **July 3, 2001, in the City of Laramie:** Golf ball size hail (1.75 inches in diameter) resulted in $50,000 in recorded property damages.
- **August 19, 2001, in the City of Laramie:** Quarter-size hail (1 inch in diameter) damaged several windshields, resulting in $10,000 in reported property damages.
- **June 21, 2002, in the City of Laramie:** Thunderstorm winds resulted in several trees falling onto homes and caused $25,000 in reported damages.
- **June 6, 2019, in Albany County:** The LPT reported a damaging hail event.
- **July 6, 2019, near Bosler:** A supercell thunderstorm produced a tornado that crossed Highway 30 just south of the Bosler. The tornado caused the complete destruction of a pole barn and snapped several wooden power poles. A NWS survey team reported this as an EF-1 tornado.
- **May 23, 2023, in Albany County:** A landspout occurred, lasting 2 to 3 minutes, near the City of Laramie. Landspouts are typically short-lived and don't cause direct threats to people and property. However, the NWS issued a tornado warning for the City of Laramie due to potential damage.
- **June 27, 2023, Albany County:** 2.5-inch hail from supercell storm.
- **August 7th, 2024, in Albany County:** A quarter-sized hail warning was posted from the Albany County EM FB page. A member of the planning team also noted a lightning injury that occurred in Albany County and resulted in a horse death.

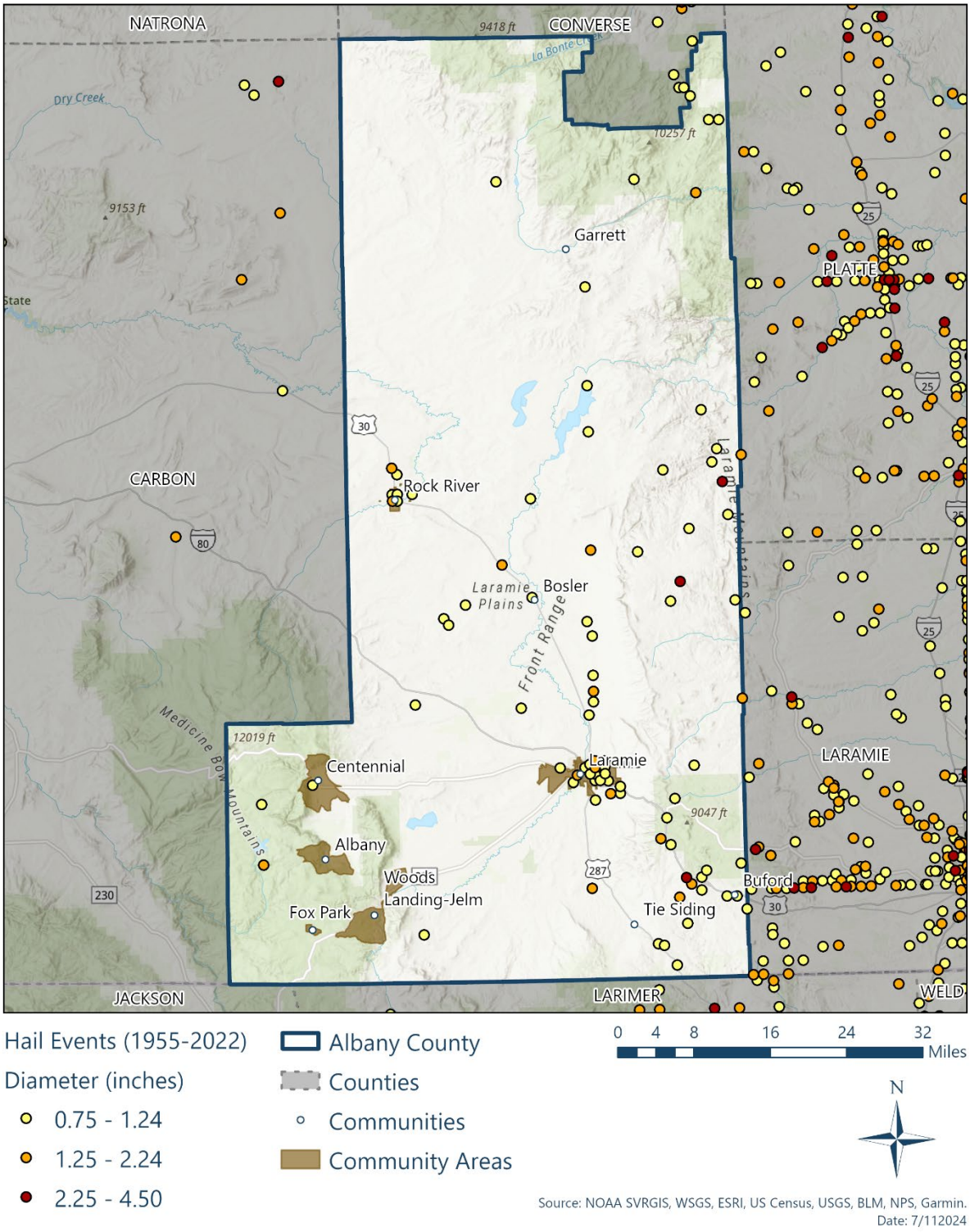
Location

Thunderstorms, lightning, and hail have the potential to occur everywhere throughout Albany County. However, historical data indicates that some locations in the county experience a greater frequency of these hazard events.

Hail

The southeastern corner of Wyoming, where Colorado, Wyoming, and Nebraska meet, is known as Hail Alley. This area receives more hailstorms than other areas of the country. While Region 3 is not directly in Hail Alley, Albany County is located near this area. **Figure 24** displays historic hail events in Albany County. The greatest concentration of reported hail events is in the southeast corner of the county, specifically near the City of Laramie. The planning team also noted concerns with hail in the canyons, specifically in Roger, Bonny, and Palmer Canyons.

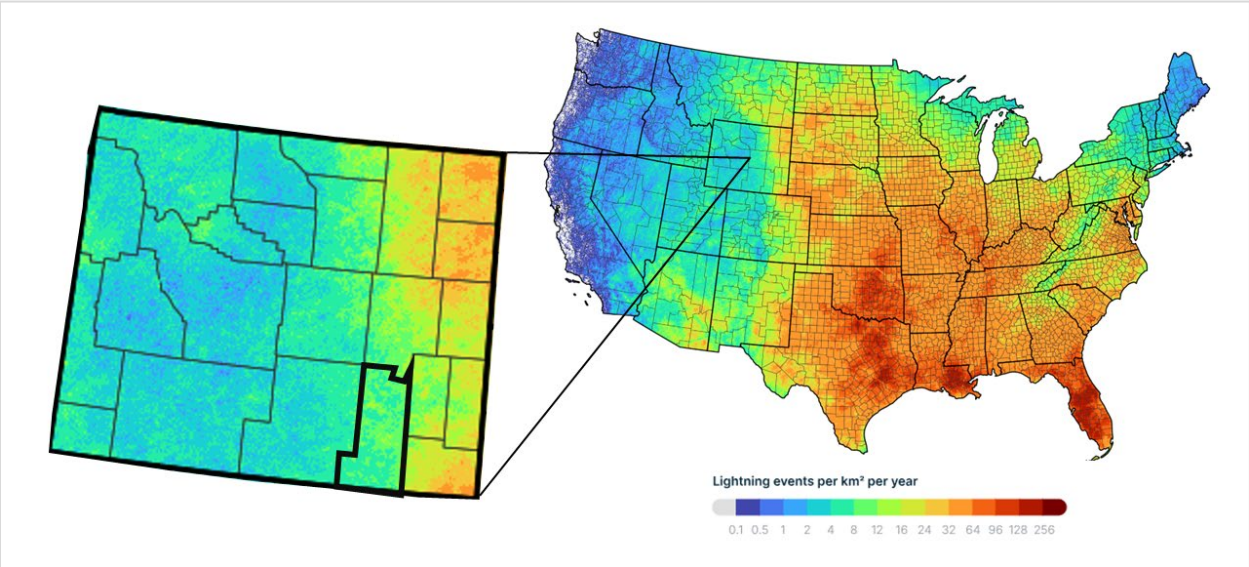
Figure 24 Albany County Historic Hail Events



Lightning

Vaisala monitors and reports lightning statistics worldwide each year. In the Annual Lightning Report 2023, Vaisala noted that Albany County experiences a typical lightning density of 8-12 lightning events per square kilometer annually, which is nearly average compared to the rest of the United States. Eastern portions of the county are likely to experience a slightly higher lightning density than the western portions. **Figure 25** displays average lightning density across the United States.

Figure 25 Albany County Lightning Density 2016-2022



Source: Vaisala Weather Annual Lightning Report 2023

Exposure and Vulnerability

Lifelines

All Lifelines can be impacted by severe thunderstorm events. Communication and Energy Lifelines are the most frequently impacted by lightning. Lightning strikes can cause power outages by directly hitting lines, substations, or transformers. This can lead to widespread blackouts that have cascading impacts on Health and Medical Lifelines, as hospitals and clinics rely on uninterrupted power to support their operations and medical equipment. Lightning can also damage telecommunications, including cell towers, TVs, and radios that are used for emergency broadcast systems. A lightning strike can damage electric systems in a water treatment plant or pumping station, interrupting water supply and wastewater treatment. A chemical plant or storage site is at risk of fire or explosion if lightning strikes, which can release dangerous hazardous materials.

Hail and thunderstorm winds can also damage power lines and cell towers. Any large-scale outage resulting from a thunderstorm can damage cold storage facilities and potentially spoil food and other perishable goods, impacting the Food, Hydration, and Shelter Lifeline. Road transportation can be disrupted if a power outage affects airport control towers, navigation systems, and traffic signals. Hail can also create slick driving conditions and delay airplane departure, which could delay the movement of first responders and emergency response resources.

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

People

It can be assumed that the entire planning area is exposed to hail, thunderstorms, and lightning events. Areas of greater exposure are where higher population densities exist. Certain areas are more exposed due to geographic location and local weather patterns.

Populations with access and functional needs (AFN), including the elderly, those with low income, linguistically isolated populations, people with mobility issues, and residents living in areas that are isolated from major roads may see more impacts from severe weather events. Power outages can be life-threatening to those dependent on electricity for medical support. The isolation of these populations is a significant concern. Those working outdoors or recreating in the area are more vulnerable to severe weather events.

Individuals caught in the path of severe weather who cannot seek appropriate shelter are especially at risk. This may include individuals who are out in the open, in cars, or those who do not have access to basements, cellars, or safe rooms. Non-English-speaking populations may experience a lack of warning communications.

See **Table 2** for more information on demographic factors that contribute to vulnerability in Albany County.

Structures

All buildings are exposed to hail, thunderstorms, and lightning hazards, but structures in poor condition or particularly vulnerable locations (located on hilltops or exposed open areas) may risk the most damage. The frequency and degree of damage will depend on specific locations and the condition of the building. Building codes can help to mitigate damage from thunderstorm events, including using hail-protective roof materials and strengthening the common building component failure points.

Depending on size, hail can damage roofs, break windows, and tear up siding, all of which can lead to significant water damage. Hail also damages HVAC systems installed on buildings' exteriors and solar panels on roofs. Additionally, hail can cause damage to concrete, resulting in dents, cracks, and surface spalling that can occur on sidewalks and roads. Over time the damage caused by hail can wear down concrete, compromising its strength.

Older buildings are often not retrofitted to newer building codes due to cost and capacity, typically in rural areas where communities were built decades ago. Lightning strikes can also damage county infrastructure, such as power lines and cellphone towers.

Natural, Historic, and Cultural Resources

Natural habitats risk major damage and destruction from hail. Large hail has the potential to damage vegetation, tree canopies, and harm animals. Crop yields can be significantly reduced in the event of a hailstorm, and farmers will also experience damage to their physical equipment. Large hail can

cause significant bruising, injury, and even death to livestock and wild animals, disrupting agricultural yields and natural ecosystems.

Hail can also cause major damage to and destruction of historical buildings. Large hail can break slate and tile roofing, shatter windows, and dent copper flashings, causing irreparable damage to historical buildings. Additionally, this damage can allow water to enter the building and its foundations, causing water damage. However, under freezing temperatures, hail will expand once frozen, causing further fissures to the structure of a building.

Lightning strikes can be destructive to the natural resources of a community. Strikes can hit trees with the potential to cause wildfires. Lightning strikes can also damage historical buildings that may not be able to be repaired.

Natural and historic resources were identified in Albany County to ensure these assets are considered and protected. See **Table 4** for a list of endangered and threatened species and **Table 5** for a list of historic places in Albany County.

Local Vulnerability

In addition to the general impacts that severe thunderstorms can have on Lifelines, people, structures, and cultural resources in Albany County, representatives of each participating jurisdiction identified unique local vulnerabilities that these hazards present to their community, summarized in **Table 52**.

Table 52 Local Government Vulnerability to Severe Thunderstorm

Local Government	Local Vulnerability
Albany County	There is a high likelihood of damage to agricultural crop income and structural damage to outbuildings, barns, windmills, and solar panels. Hail can clog drainage systems, causing flooding that impacts homes and buildings. Additionally, there is a significant risk of wildfires caused by lightning strikes, which could affect mountain recreational activities and associated income. Wildfires may also impact rural historical buildings and ranches.
City of Laramie	Any and all facilities or infrastructure could be impacted, community events would need to be rescheduled in the event of a severe thunderstorm.
Town of Rock River	All structures are vulnerable to the impacts of hail and lightning. Community outdoor activities could be impacted.
Albany County Fire District #1	Thunderstorms may disrupt electrical distribution to firefighters' residences, affecting communications with dispatch and the firehouse. Short-term and periodic power outages could impact water pumping, sewage treatment, and emergency communication services.
Albany County Hospital District	Lightning can harm medical equipment, IT systems, and backup generators. It may also disrupt cell towers and communication networks, impacting emergency coordination.
Albany County School District #1	Damage to roofs, electrical, HVAC systems. Potential down communication and internet systems.

Local Government	Local Vulnerability
Laramie River Conservation District (LRCD)	Property damage to district owned vehicles (such as broken windshields).
Wold Improvement & Service District	Local government assets are not at risk from Severe Thunderstorms.
Pioneer Canal – Lake Hattie Irrigation District	Local government assets are not at risk from Severe Thunderstorms.

Trends in Development

It is crucial to consider the hazards posed by severe thunderstorms when making any future development and construction decisions, to ensure new construction does not increase the county's risk. **Table 53** summarizes development trends in each jurisdiction.

Table 53 Local Government Development Trends – Severe Thunderstorms

Local Government	Development Trends
Albany County	An increase in population/development should not change the vulnerabilities to severe thunderstorms aside from an increased number of citizens affected.
City of Laramie	More structures and infrastructure that could be damaged, more people that would be affected
Town of Rock River	Development is not expected to place any local community & government assets at risk from Severe Thunderstorms.
Albany County Fire District #1	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Albany County Hospital District	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Albany County School District #1	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Laramie River Conservation District (LRCD)	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Wold Improvement & Service District	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Pioneer Canal – Lake Hattie Irrigation District	No construction has recently occurred, or is expected, which would impact hazard vulnerability.

Probability of Future Occurrences

The NCEI database has recorded 207 severe thunderstorm events on 113 unique days in the 69 years between 1955 and 2024, meaning there is a 100% chance of a severe thunderstorm event occurring somewhere in Albany County each year.

Since 1955, 12 notable severe thunderstorm events have resulted in loss of life or property, which equates to a 17% annual chance of a damaging event. However, these reported notable lightning events largely underrepresent all lightning strikes that occur in Albany County, and it is more accurate to assume lightning has a 100% probability of striking in any given year in Albany.

Tornado/High Wind/Windblown Deposits

Previous Occurrences

Since 1950, the NCEI database has recorded 30 tornado events in Albany County. The dataset also reported 4,434 high wind events and 1 strong wind event in the county since 1996. These tornado and wind hazards resulted in 1 death, 4 injuries, and $352,150 in damages across the county. It is important to note that these dollars are not adjusted to 2024 values, and reported losses are likely lower than actual losses due to data limitations, insurance coverage gaps, and because the NCEI database focuses on major events. An additional 20 injuries and 1 death were reported as *indirect* impacts from tornado and wind events. A summary of these events is outlined in **Table 54**.

Table 54 Albany County Summary of Tornado / Wind Events

Hazard	Total # of Events	# Days with Events	Deaths	Injuries	Damages
Funnel Cloud	7	4	0	0	$0
High Wind	4,434	864	1	2	$2,000
Strong Wind	1	1	0	0	$0
Tornado	30	26	0	2	$350,150
Total	**4,472**	**893**	**1**	**4**	**$352,150**

Source: Storm Events Database | National Centers for Environmental Information (noaa.gov)

Of these 30 tornado events, 13 were rated F0 (40-72 mph winds with minor to no damage), and 6 were rated F1 (73-112 mph winds with moderate damage associated) on the Fujita Scale. The most severe tornado was rated as an EF3 (136-165 mph winds with severe damage associated) on the Enhanced Fujita Scale. This tornado occurred on June 6th, 2018, in rural Albany County over mainly open fields and did not result in reported property damage, injuries, or fatalities. **Table 55** below is a breakdown of tornado events in Albany County by their associated Fujita/Enhanced Fujita Scale rating.

Table 55 Albany County Tornado Event Severity

Severity (Fujita/Enhanced Fujita Scale)	Total # of Events	% of Total Events
EF0	3	10.0%
F0	13	43.3%
EF1	1	3.3%

Severity (Fujita/Enhanced Fujita Scale)	Total # of Events	% of Total Events
F1	6	20.0%
EF2	2	6.7%
EF3	1	3.3%
EFU	4	13.3%

Source: Storm Events Database | National Centers for Environmental Information (noaa.gov)

Table 56 summarizes wind events in Albany County based on their wind speeds in knots and miles per hour (mph). The NCEI database reported 4,434 high wind events and 1 strong wind event in Albany County. Of these 4,435 total wind events, over half (50.3%) recorded 40-51 mph wind speeds. Only two recorded wind events in Albany County reached speeds of over 98 mph. The first occurred on February 21, 2021, when wind speeds were recorded at 102 mph, and the second occurred on February 19, 2022, with recorded wind speeds of 99 mph. However, no property damage, injuries, or fatalities were reported due to these two severe wind events.

Table 56 Albany County High/Strong Wind Event Severity

Wind Speeds (knots)	Wind Speeds (mph)	Total # of Events	% of Total Events
35-45	40-51	2,233	50.3%
46-55	52-63	1,002	22.6%
56-65	64-74	935	21.1%
66-75	75-86	238	5.3%
76-85	87-97	25	.6%
86+	98+	2	.1%

Source: Storm Events Database | National Centers for Environmental Information (noaa.gov)

Of the 4,472 recorded tornado and wind events in Albany County, 12 resulted in direct losses to life or property, and 2 resulted in indirect losses. It is important to note that detailed accounts of tornado events before 1996 are limited. The notable events are detailed below:

- **July 3rd, 1960, in Albany County:** An F1 tornado resulted in 1 injury in Albany County.
- **August 9th, 1974, in Albany County:** Two records of F1 tornados in Albany County resulted in $30 of property damage each on August 9th.
- **June 5th, 1977, in Albany County:** An F1 tornado resulted in $30 of property damage**.**
- **June 25th, 1982, in Albany County:** An F0 tornado resulted in $30 of property damage.
- **August 18th, 1983, in Albany County:** An F0 tornado resulted in $30 of property damage.
- **May 23rd, 1996, in the City of Laramie:** An F0 tornado briefly touched down in the City of Laramie. The tornado downed a large spruce tree and damaged a metal shed, resulting in $50,000 in property damages.
- **May 22nd, 2008, in the City of Laramie:** An EF2 tornado overturned a tractor-trailer on Interstate 80 and damaged a boat after blowing it off another trailer. Reported damage totaled $300,000, and one person was injured.

- **June 17th, 2010, in Albany County:** High winds reaching 59 mph blew over a semi and trailer on the interstate near Wheatland.
- **February 11th, 2011, in Albany County:** High winds with gusts of 82 mph caused 1 death.
- **January 13th, 2014, in Albany County:** Two semi-trailers were blown over on Interstate 25 from high winds with recorded speeds of 40 mph. One driver was injured and taken to the Cheyenna hospital.
- **December 19th, 2016, in Albany County:** High winds with gusts up to 85 mph caused power outages and property damage and blew over semi-trailers on Interstate 80 and 25. The interstate was closed by the WYDOT for several hours due to accidents and a state trooper was struck and injured while seated in a patrol car by another accident related to high wind.
- **December 11th, 2018, in Laramie Valley:** Strong wind with reported speeds reaching 50 mph resulted in an indirect death after a driver lost control of their vehicle and overturned. The driver succumbed to their injuries on the scene.
- **January 31st, 2020, in South Laramie Range:** High Wind with gusts in the upper 50 mph range resulted in a 24-vehicle accident. This incident resulted in multiple injuries, and Interstate 80 was closed in both directions.

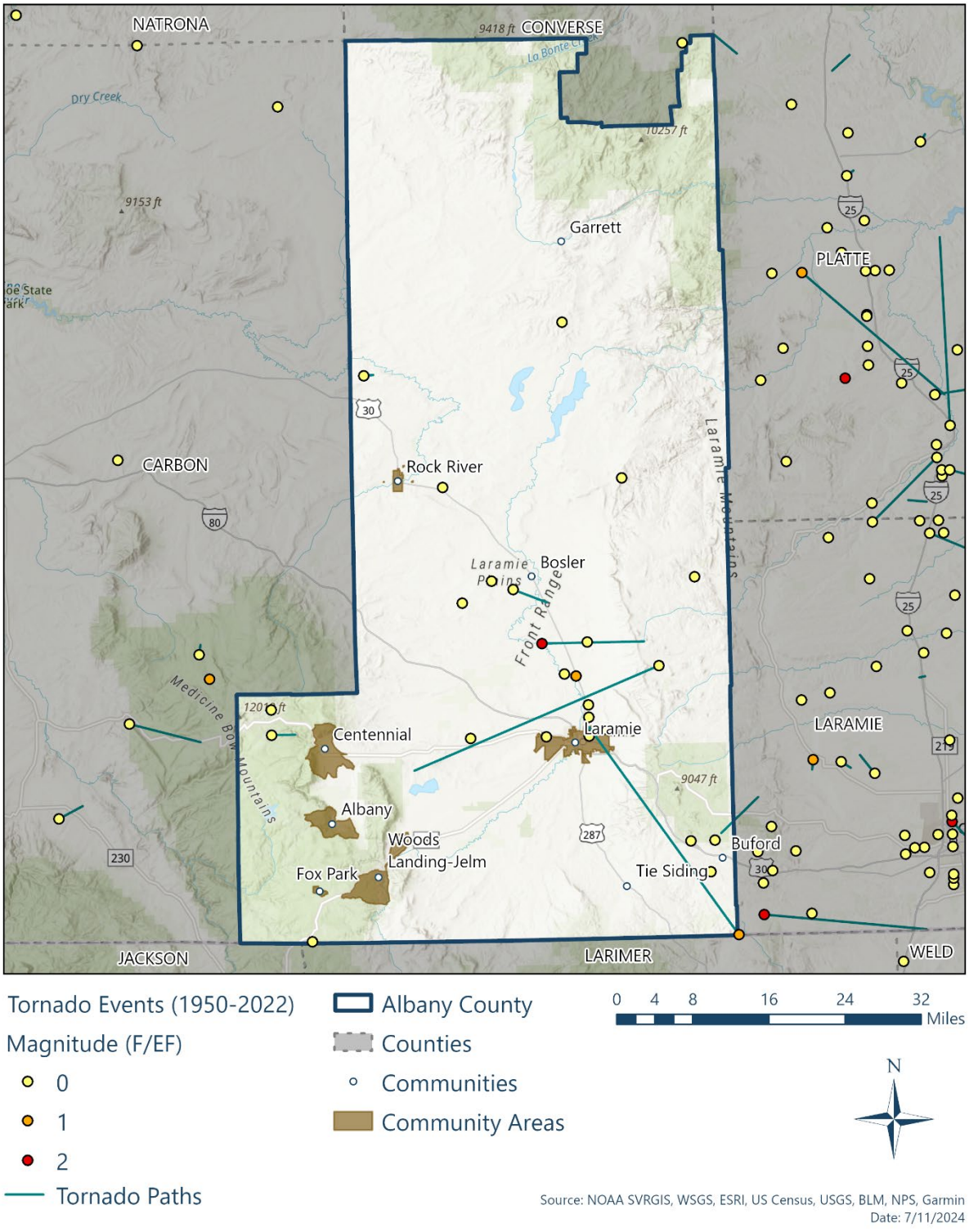
Persistent wind in Albany Couty makes windblown deposits more likely to cause damage because of the force of the wind carrying the deposits. However, there is no well-documented history of problems associated with windblown deposits in Albany County or the rest of Wyoming.

Location

Tornado

Tornados are possible anywhere in Albany County. Once a touchdown occurs, it may only affect a small area or could travel for miles, leaving substantial destruction in its wake. **Figure 26** displays historic tornado events and their associated paths in Albany County.

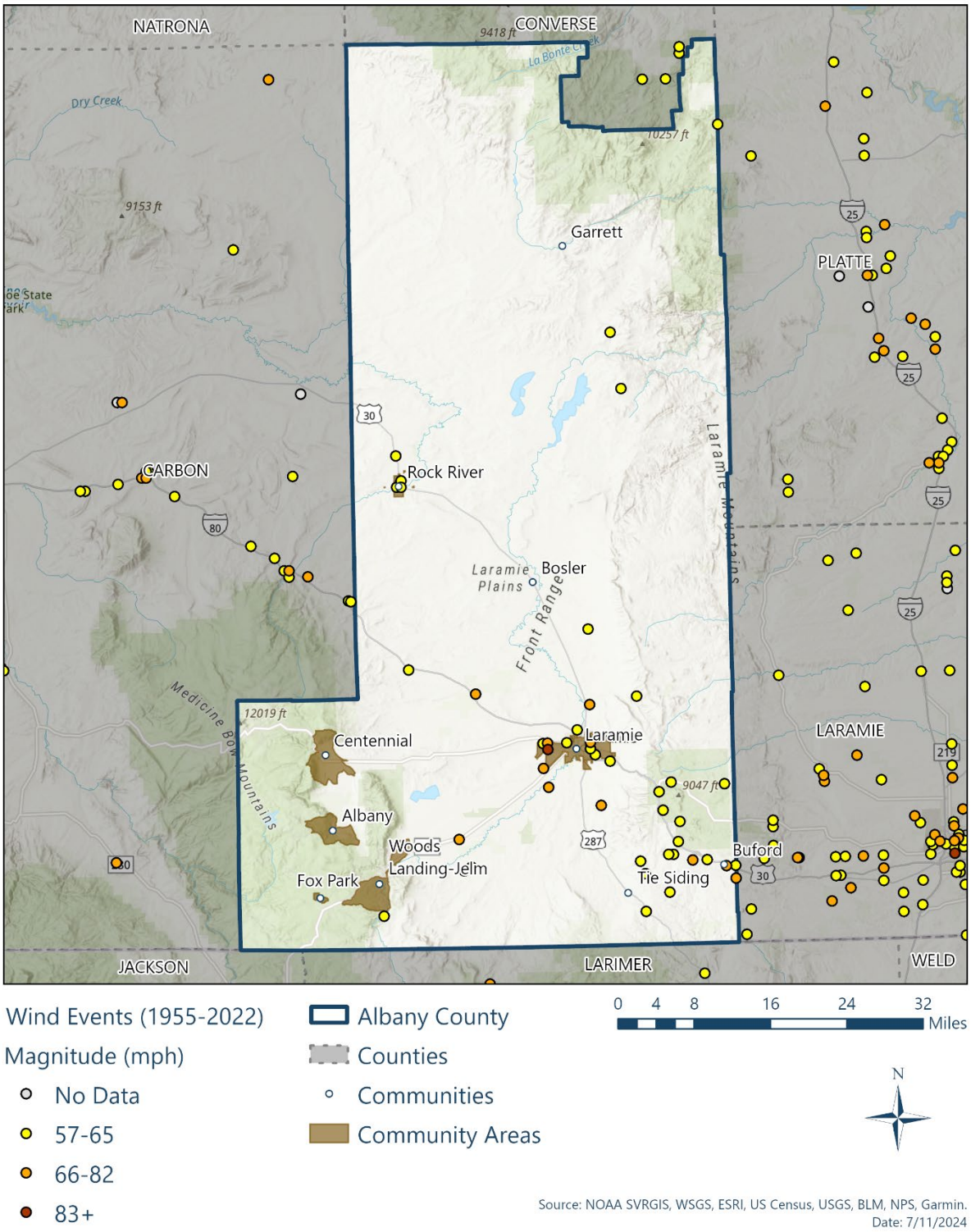
Figure 26 Albany County Historic Tornado Events



High Wind

While wind is present across Albany County, one area experiences a significant amount. Just west of Laramie is The Big Hollow, the second-largest wind basin in the world. The 40-square-mile basin was created entirely by wind erosion. It is approximately 9 miles long and 165 feet deep. It's listed on the National Natural Landmarks program through the National Park Service. **Figure 27** displays significant wind events in Albany County, as reported by the National Weather Service.

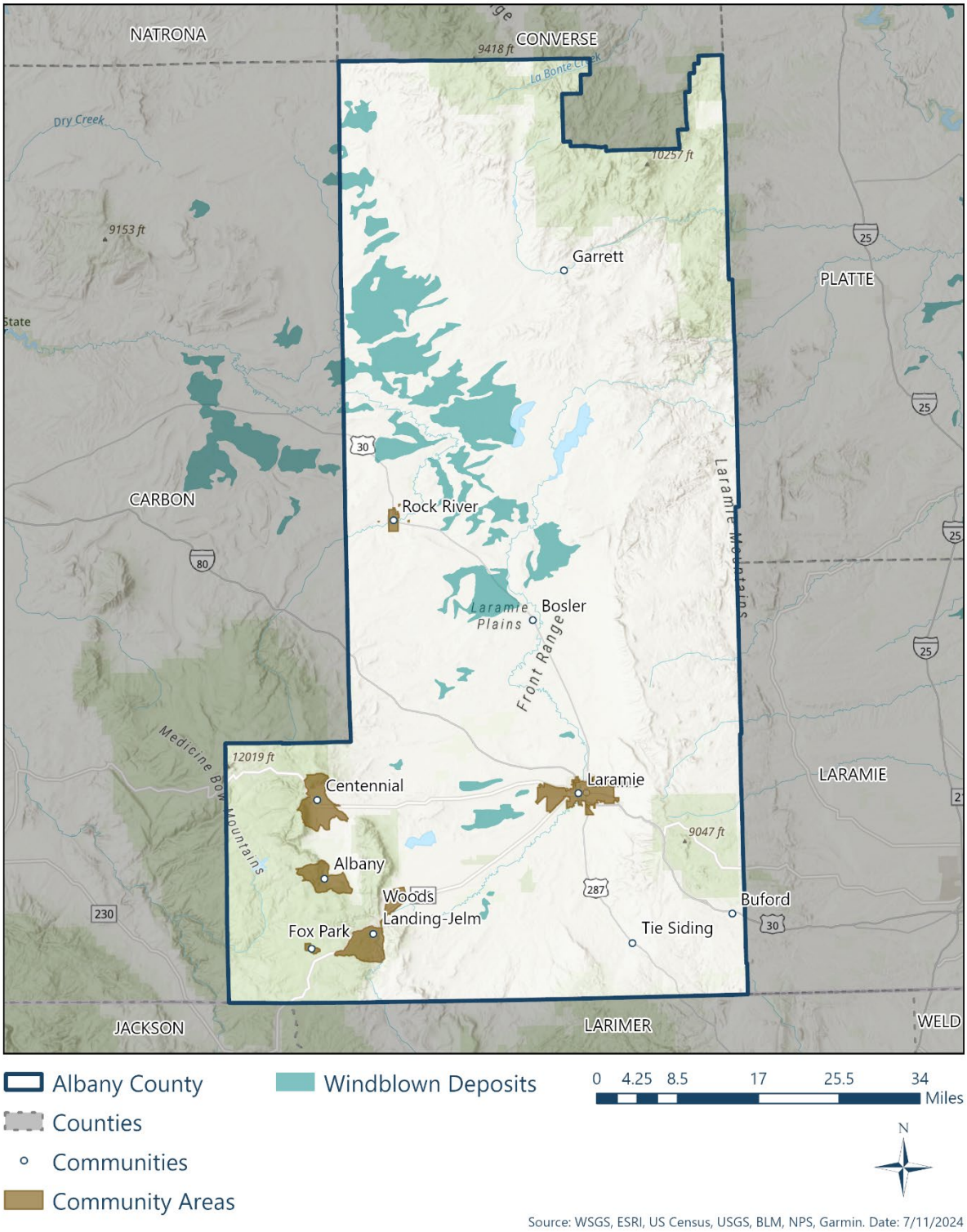
Figure 27 Albany County Wind Events



Windblown Deposits

Areas of windblown deposits are minimal but present in Albany County. In Albany County, windblown deposit locations are located north-northwest from Cooper Lake South to Squaw Spring, north of Bosler and Rock River. In addition, there are areas located west of Laramie. **Figure 28** shows the windblown deposits in Albany County.

Figure 28 Albany County Windblown Deposits



Exposure and Vulnerability

Lifelines

All Lifelines are exposed to tornados and wind. The most common problems associated with this hazard are utility losses, which fall under the Energy and Communications Lifeline. Downed power lines can cause blackouts, leaving large areas isolated. Phone, water, and sewer systems may not function. An event may affect communication infrastructure, creating issues with dispatching first responders, keeping the public informed, and requesting aid and supplies.

The Transportation Lifeline can be impacted if debris caused by tornados and strong winds blocks roads, incapacitates transportation corridors, isolates populations, and disrupts ingress and egress. Any facility in the path of a tornado is likely to sustain damage, which could result in the release of hazardous materials if a chemical plant or storage site is damaged. Medical or sheltering facilities that sustain damage could have cascading impacts on the community.

Windblown deposits can impact Lifelines through sand, dust, and sediment accumulation. This hazard has a slow onset and can typically be mitigated before serious damage occurs. These deposits can contaminate water supplies and clog filters in water treatment facilities and pipes in irrigation systems. Additionally, the accumulation of sand and dust on roads and rail tracks can reduce visibility and create dangerous driving conditions. These issues can be compounded by high wind hazards that accelerate windblown deposit accumulation.

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

People

Deaths and injuries will continue to be a potential impact of tornados in Albany County. While less likely, injury or death could also occur in an extreme wind event if objects such as branches or road signs become dangerous projectiles. Individuals caught in the path of a tornado who are unable to seek appropriate shelter are especially at risk. This may include individuals out in the open, in cars, or those who do not have access to basements, cellars, or safe rooms.

Populations with access and functional needs (AFN), including the elderly, those with low income, linguistically isolated populations, people with mobility issues, and residents living in areas isolated from major roads, may see more impacts from severe wind or tornado events. Non-English-speaking populations may experience a lack of warning communications, putting them at higher risk of being unprepared or unsheltered during an event. Power outages can be life-threatening to those dependent on electricity for medical support. The isolation of these populations is a significant concern.

The availability of sheltered locations such as basements, buildings constructed using tornado-resistant materials and methods, and public storm shelters all help minimize tornado impacts. The population needs to be aware of how to seek shelter during a tornado and avoid behaviors or decisions that place them in greater danger. Additionally, the National Weather Service issues tornado watches (conditions are favorable for a tornado) and warnings (a tornado has been sighted or indicated by weather radar nearby) to reduce the risk of tornado impacts on the public.

Windblown deposits threaten human safety less than tornados and high wind events but can affect people in several ways. Individuals with respiratory problems may experience issues when inhaling fine particles such as dust and sand. Over long-term exposure, this can aggravate asthma and lead to other lung diseases. Additionally, dust and sand can irritate the eyes and contaminate water sources, reducing water quality.

See **Table 2** for more information on demographic factors that contribute to vulnerability in Albany County.

Structures

All buildings are considered exposed to tornados, wind, and windblown deposits. Vulnerable structures such as those in poor condition or mobiles or in often affected locations (such as hilltops or exposed open areas) may risk the most damage. The frequency and degree of damage will depend on specific locations and the behavior of the winds.

Wind pressure can create a direct and frontal assault on a structure, pushing walls, doors, and windows inward. Conversely, passing currents can create lift and suction forces that pull building components and surfaces outward. The effects of winds are magnified in the upper levels of multi-story structures. As positive and negative forces impact the building's protective envelope (doors, windows, and walls), the result can be roof or building component failures and considerable structural damage. presents the number and valuation of structures located in areas of windblown deposits.

Windblown deposits may cause nuisance problems that are easily fixed. Examples include dunes caused by windblown deposits encroaching onto subdivision properties, temporarily closed roads, and impinging on homes.

Natural, Historic, and Cultural Resources

Habitats may be exposed to tornado risk, and an event could destroy critical components of these areas. If tornados impact facilities that store hazardous materials, the surrounding areas may be especially vulnerable to contamination from a hazardous materials release, which can permanently alter natural landscapes and jeopardize local species extinction in extreme cases.

Additionally, severe winds can have tremendous impacts on a community's natural, historic, and cultural resources. Strong winds can damage buildings, especially older historic buildings, and public community spaces, such as parks and public art. The environment is highly exposed to high winds. Natural habitats risk major damage and destruction. Severe winds can strip and uproot vegetation, affecting natural ecosystems and agricultural crop yields.

Windblown deposits can bury vegetation and reduce both air and water quality. Dust and sand can settle into rivers and lakes, potentially impacting aquatic habitats. Additionally, wind erosion can strip away topsoil and lead to habitat degradation.

Natural and historic resources were identified in Albany County to ensure these assets are considered and protected. See **Table 4** for a list of endangered and threatened species and **Table 5** for a list of historic places in Albany County.

Local Vulnerability

In addition to the general impacts that severe thunderstorms can have on Lifelines, people, structures, and cultural resources in Albany County, representatives of each participating jurisdiction identified unique local vulnerabilities that these hazards present to their community, summarized in **Table 57**.

Table 57 Local Government Vulnerability to Tornado/High Wind/Windblown Deposits

Local Government	Local Vulnerability
Albany County	Tornadoes, wind, and windblown deposits have the potential to damage structures, power utilities, and communication facilities. Impacts can also include road closures limiting emergency response capabilities. Additionally, healthcare facilities may have sustained damages, and patient movement and access to healthcare services may be hindered due to restricted accessibility.
City of Laramie	Any and all facilities or infrastructure could be impacted
Town of Rock River	All structures are vulnerable to the impacts of a tornado event. Community outdoor activities could be impacted by all types of events.
Albany County Fire District #1	The LPT noted that overturned semis and other lightweight, high-center-of-gravity vehicles on I-80 due to high winds are a common accident the district responds to. These vehicle turnovers can increase road closures and car accidents. The LPT also noted that windblown deposits and blowing dust and debris across the interstates have resulted in road closures and vehicle accidents.
Albany County Hospital District	Wind can result in the loss of electrical power and the destruction of medical supplies and equipment.
Albany County School District #1	Outdoor activities, transportation to and from school. Roofs, windows, electrical, structural integrity. Communication and internet are vulnerable.
Laramie River Conservation District (LRCD)	No shelter at the current office location, which could result in potential loss of life or injury. Wind and tornadoes can damage district-owned vehicles and electronic equipment in the building.
Wold Improvement & Service District	Local government assets are not at risk from tornado/high wind/windblown deposits.
Pioneer Canal – Lake Hattie Irrigation District	Local government assets are not at risk from tornado/high wind/windblown deposits.

Trends in Development

It is crucial to consider the hazards posed by tornadoes, high wind, and wind deposits when making any future development and construction decisions, to ensure new construction does not increase the county's risk. **Table 58** summarizes development trends in each jurisdiction.

Table 58 Local Government Development Trends – Tornado/High Wind/Windblown Deposits

Local Government	Development Trends
Albany County	As the County continues to develop in new areas, additional outdoor notification sirens will need to be installed to warn a larger percentage of our population. Increased education and public awareness efforts for our emergency alert system.
City of Laramie	More structures and infrastructure that could be damaged, more people that would be affected
Town of Rock River	Development is not expected to place any local community & government assets at risk from tornado/high wind/windblown deposits.
Albany County Fire District #1	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Albany County Hospital District	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Albany County School District #1	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Laramie River Conservation District (LRCD)	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Wold Improvement & Service District	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Pioneer Canal – Lake Hattie Irrigation District	No construction has recently occurred, or is expected, which would impact hazard vulnerability.

Probability of Future Occurrences

The NCEI database has recorded 30 tornado events in the 74 years between 1950 and 2024, meaning there is a 41% chance of a tornado event occurring somewhere in Albany County each year. Of these reported tornado events, only 8 have resulted in injury to people and/or damage to property; therefore, there is an 11% chance that a notable tornado event will occur in the county each year.

There have also been 4,435 high/strong wind events in the 28 years from 1996 to 2024, equating to a 100% chance of a wind event occurring in the county each year. Of these recorded events, only 6 have resulted in death, injury, or property damage, which equates to a 21% chance that a notable wind event will occur in the county each year.

Wildfire

Previous Occurrences

The National Interagency Fire Center compiles wildfire data from various sources and presents the data in two formats: one as a geospatial dataset of historical wildfire perimeters (noted as blue events in **Table 59** below) and the other as a list of point locations with fire discovery and containment dates (noted as white events in the table). Together, this data provides a comprehensive list of wildfires in Albany County from 1960 to 2021. The most recent data update occurred in 2022

to include wildfires from the 2021 season. The datasets report 251 wildfire events in Albany County during the 61-year timeframe, with the most significant wildfire events (with daily burned acres equaling 100 or greater) summarized in **Table 59** below.

Table 59 Albany County Wildfire Events (1960-2021)

Incident Name	Acres Burned	Fire Discovery	Fire Containment	Days Before Containment
Mullen	176,878	9/17/2020	12/3/2020	77
Arapaho	98,037	2012	-	-
Britania Mountain	32,089	8/26/2018	9/9/2018	14
Badger Creek	21,310	6/10/2018	7/28/2018	48
Reese	18,608	2002	-	-
Hensel	14,630	2002	-	-
Squaw Mountain	14,496	2011	-	-
Squirrel Creek	10,587	2012	-	-
Cow Camp	8,491	2012	-	-
Leroy	2,001	2001	-	-
Collins Peak	1,986	1986	-	-
Murphy Ridge	1,996	1996	-	-
Bear Creek	3,403	1996	-	-
Keystone	2,527	7/3/2017	8/9/2017	37
Christnick	1,303	2011	-	-
Isabelle	1,184	2006	-	-
Bar M Prescription	889	2003	-	-
Unknown	744	1986	-	-
Gramm	729	2003	-	-
Dry Gulch	672	2010	-	-
Smith Mountain	630	9/27/2015	10/12/2015	15
La Bonte Canyon	500	8/6/2015	8/18/2015	12
Owen	450	7/7/2014	7/16/2014	9
Brush Creek	330	9/15/2019	9/21/2019	6
Clemons	287	7/9/2020	7/15/2020	6
Book Out	232	8/27/2016	9/1/2016	5
Cabin	221	7/11/2020	7/24/2020	13
Lewis Creek	172	1960	-	-
Brandel	168	8/7/2020	8/16/2020	9
Smith North	134	1964	-	-
Hwy 34	120	9/16/2018	9/17/2018	1
Illinois Creek	115	2010	-	-
Foxbourgh Rx	110	2/24/2020	-	-

Source: National Interagency Fire Center

It is important to note that the Mullen Fire burned 176,878 acres in Region 3 between Carbon and Albany Counties. In addition to the fires reported by the NIFC, the planning team noted several other wildfires that have occurred since 2021 in Albany County:

- The **Poe Mountain Fire** occurred on July 9th, 2021, near Milepost 29th off Highway 34. Albany County Fire Departments and other local, state, and federal resources responded to the event. The fire burned over 280 acres and was managed by a team of 100 personnel. It is believed that the fire was started due to lightning.
- The **Sugarloaf Fire** was spotted in July 2022 in northern Albany County near Laramie Peak on Forest Road 637 and forced a widespread wildfire response and evacuations in the areas. The fire encroached on the Friend Park Campground and burned nearly 699 acres. Around 454 personnel from local fire departments responded along with regional groups and the U.S. Forest Service responded to the event. **Figure 29** displays an image of the wildfire event.

Figure 29 Sugarloaf Wildfire July 2022

Source: Laramie Boomerang

- The **Mason Fire** occurred on November 16th, 2023, just south of Highway 230 by Mason Land and Lewis Road. Due to dry conditions and high wind, the fire burned around 100 acres near the Laramie River. Albany County Fire responded with 18 personnel and 6 apparatus, and residents were asked to avoid the area. **Figure 30** displays a photo of the event.

Figure 30 Mason Fire November 2023

Source: Albany County, WY Emergency Management Facebook

- The **Bear Creek Fire**, which was first reported on September 11th, 2024, and burned 1,444 acres of private, state, and Bureau of Land Management (BLM) land. The fire is believed to have been caused by lightning. While no damage, injury, or evacuations were reported, Albany County received eligibility for a Small Business Administration (SBA) Economic Injury Disaster Loan, along with 18 other Wyoming counties and neighboring counties in Colorado, Montana, Nebraska, and South Dakota.

Additionally, Albany County has received 6 Fire Management Assistance (FMAG) Declarations for wildfires, as described in the Base Plan document. Details on wildfires that warranted an FMAG declaration in Albany County are detailed below:

2002 Hensel Fire (FM-2427)

The Hensel Fire was started by lightning on June 7th, 2002, and burned over 3,000 acres. It was fueled by bug-killed Ponderosa Pine in the Medicine Bow National Forest and high winds reaching 40 mph. An evacuation notice was given to the owners of around 30 cabins and homes near Harris Park and anyone at the nearby Boy Scout camp. Conditions for the 343 firefighters responding to the fire were worsened by steep hillsides, rolling rocks, and limited access to helicopters to drop water and transport crews.

2002 Reese Mountain Fire (FM-2436)

A wildfire began at the end of June 2002, just west of Wheatland in the Laramie Mountains. Dry conditions and high winds caused the fire to move quickly and threaten homes and businesses.

2012 Arapaho Fire (FM-2992)

The Arapaho Fire was ignited on June 27th, 2012, due to lightning near Wheatland. It burned for several weeks until the fire was declared contained on August 23rd, 2012. Over 98,000 acres were burned, and 1,000+ personnel responded to the event at its peak. Evacuation notices were issued for Laramie Peak Ranch, Cottonwood Park, Friend Park, North Laramie Trailhead, and Harris Park. All Forest Service lands, recreation sites, roads, and trails east of Esterbrook Road were also closed. The fire consumed around 90 buildings and cost more than $16 million.

2012 Squirrel Creek Fire (FM-2993)

The Squirrel Creek Fire was first discovered on June 30th, 2012. It burned for five months until it was declared "out" in December 2012. Hundreds of residents were ordered to evacuate, and at least three outbuildings and one residence were destroyed. The fire's ignition was determined to be human caused.

2018 Badger Creek Fire (FM-5241)

The Badger Creek Fire began on June 10th, 2018, in the Medicine Bow National Forest, just two miles northwest of Mountain Home. The fire consumed 21,310 acres and was contained over a month later on July 26th, 2018. The fire resulted in highway closures and several evacuations, impacting Mountain Home, Wyocolo, Beehive, Miller Lake residents, and areas around Highway 230 and 10. The cause of the fire is still unknown.

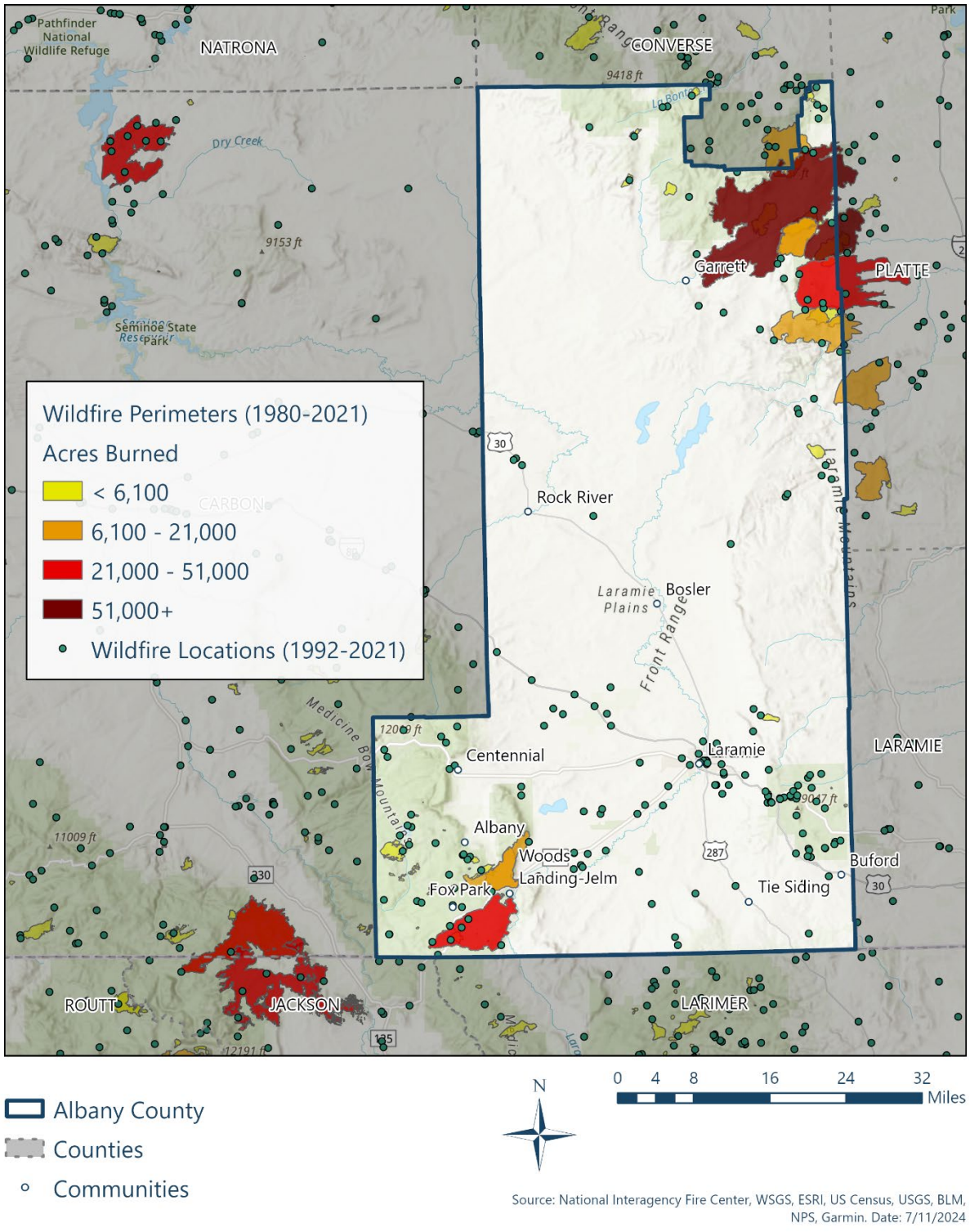
2020 Mullen Fire (FM-5375)

The Mullen Fire started on September 17th, 2020, in the Savage Run Wilderness in Carbon County and later spread to Albany County west of Laramie. By September 30th, the fire had spread into Jackson County, Colorado. The fire burned 176,878 acres of land and consumed 66 structures before it was contained on January 4th, 2021, and 423 personnel responded to the event. While the fire is believed to be human-caused, details remain limited.

Location

All of Albany County is susceptible to wildfire, though certain areas are more at risk than others. Wyoming Region 3 has a semi-arid climate and is very rural in character, leading to a greater chance for wildland fires. Albany and Carbon counties have heavy fuel continuity across forested areas and a history of wind-driven fires. The National Forest lands experience frequent fires. **Figure 31** displays historic wildfire locations in Albany County. It is important to note that only some wildfires have fire perimeter data (those wildfires that are highlighted in blue in **Table 59**) and those without fire perimeter data are displayed as point locations on the map. The most severe wildfire events have occurred in the northwest portion of the county, with additional pockets of wildfires in the Medicine Bow Mountains.

Figure 31 Albany County Historic Wildfires



Wildfire intensity represents the heat released by a fire or the total energy emitted by a fire. Wildfire intensity is calculated by considering the types of fuel and their heat yield during combustion, density, and arrangement of fuel, as well as the linear rate of fire spread. **Figure 32** and **Figure 33**

displays wildfire intensity in Albany County. A majority of the county is in a moderate wildfire intensity area, with the highest wildfire intensity area located in the Medicine Bow Mountains.

Figure 32 Albany County Wildfire Intensity

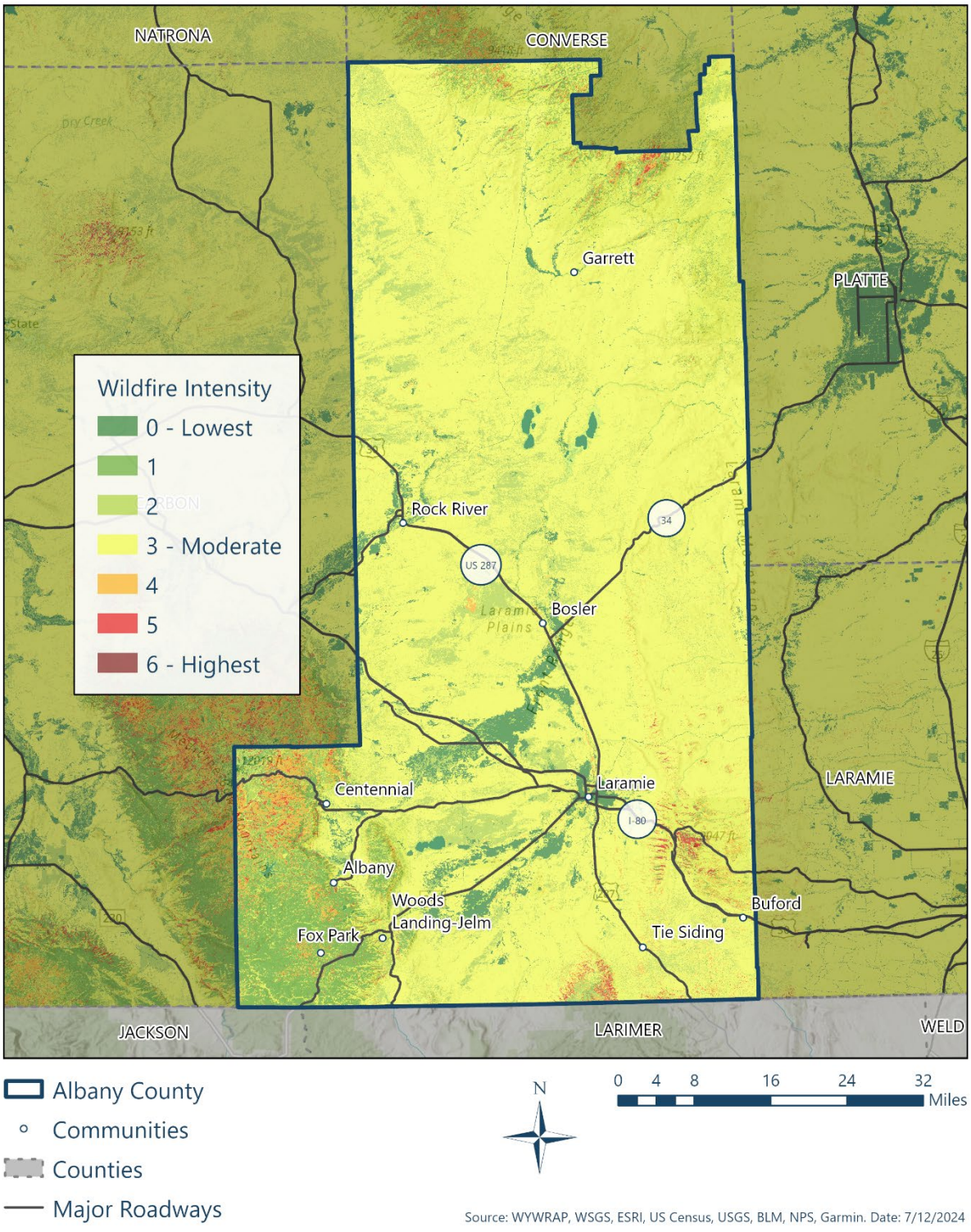
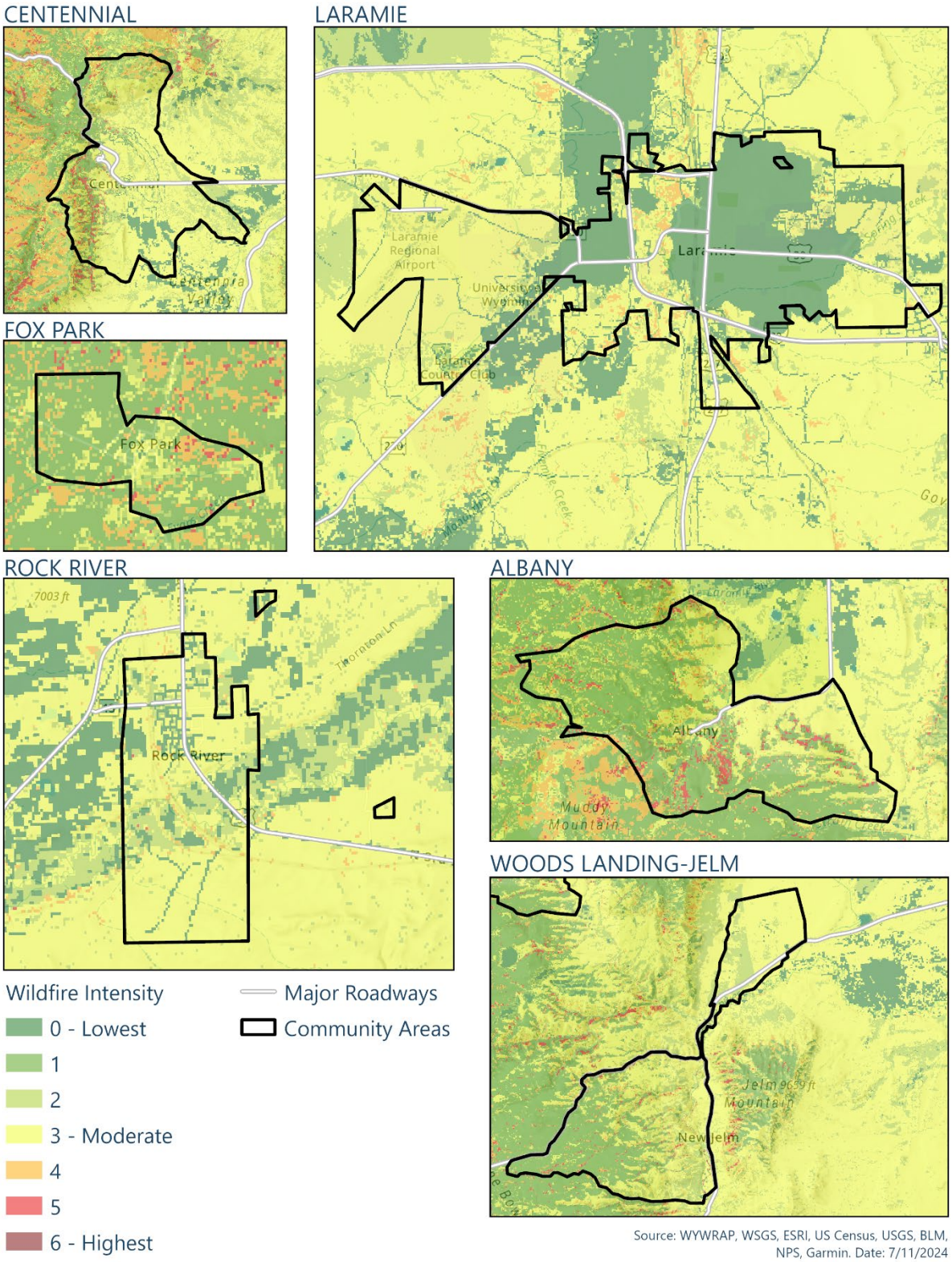


Figure 33 Inset Maps of Albany County Wildfire Intensity



Wildfire risk refers to the likelihood and intensity of a wildfire in combination with the vulnerability of that community. **Figure 35** and **Figure 36** show wildfire risk potential across Albany County. Wildfire potential generally increases moving east and is highest in the county's northeast corner. However, pockets of high potential are in the southwest corner of the county, in the Medicine Bow National Forest.

Figure 34 Mastication Work in the Medicine Bow National Forest

Source: Laramie Rivers Conservation District

Figure 35 Albany County Wildfire Risk

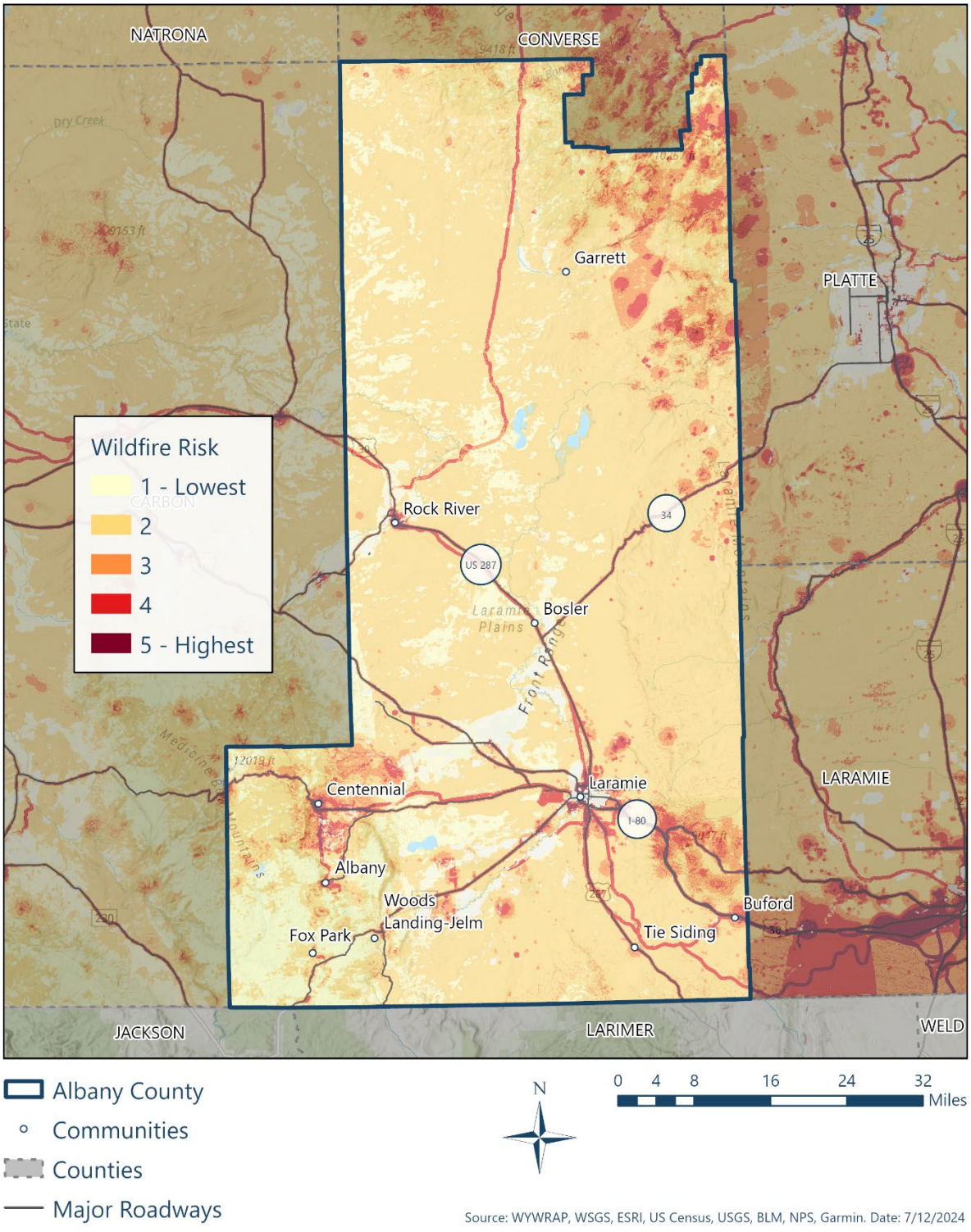
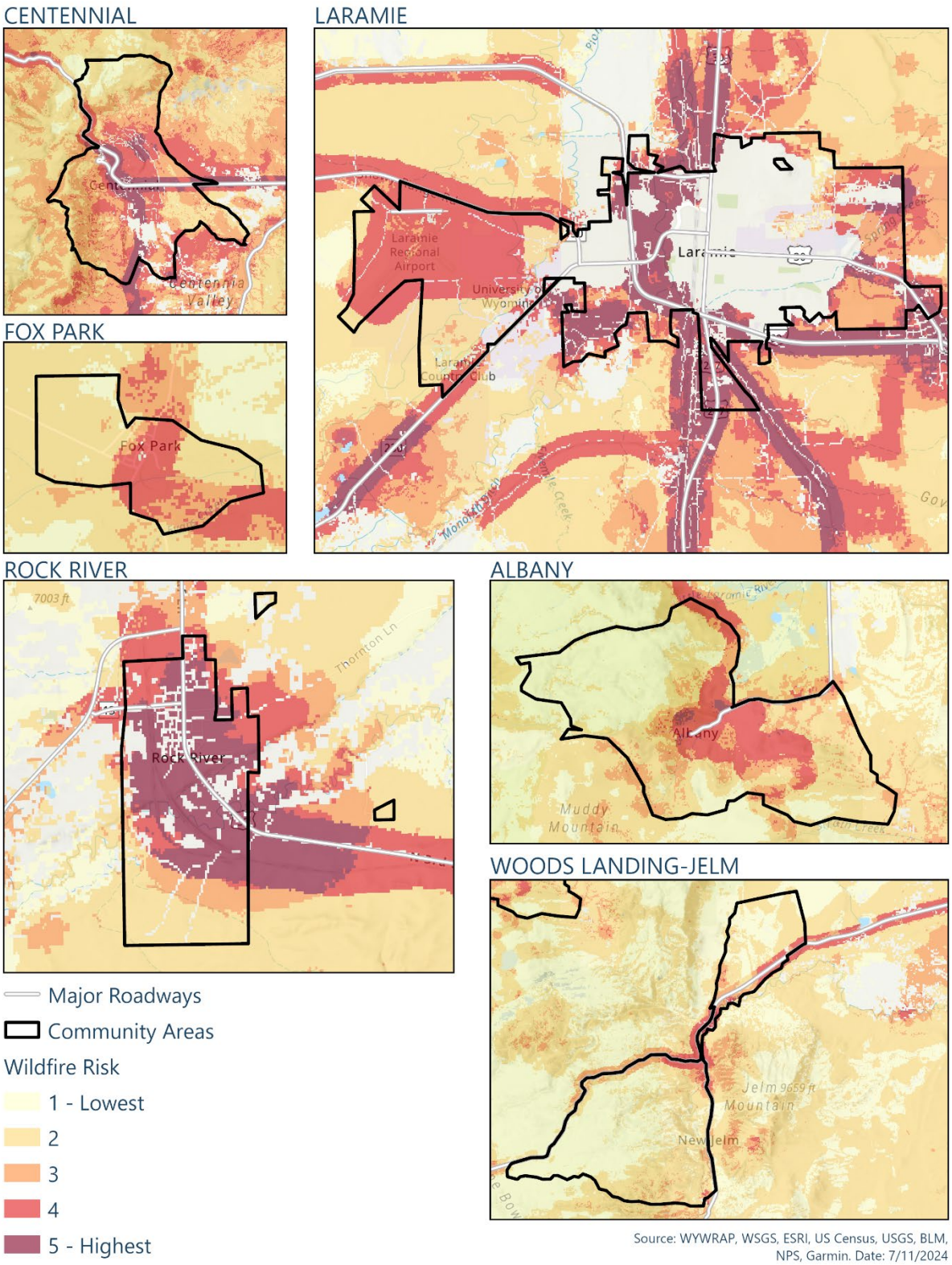


Figure 36 Inset Maps of Albany County Wildfire Risk



Source: WYWRAP, WSGS, ESRI, US Census, USGS, BLM, NPS, Garmin. Date: 7/11/2024

Additionally, there are several Wildland Urban Interface (WUI) areas in Albany County where development is at higher risk of wildfire. **Figure 37** and **Figure 38** display the WUI areas for Albany County. Many unincorporated areas, such as Centennial, Fox Park, and Albany, have portions of the community in the WUI. These communities are near the vegetated areas of the Medicine Bow National Forest. Additionally, Laramie has considerable portions of the community in WUI interface areas along the southern border. There are also areas of WUI just outside of the city boundaries. Rock River contains WUI areas in the central and northeastern portions of the town.

Figure 37 Albany County Wildland Urban Interface (WUI)

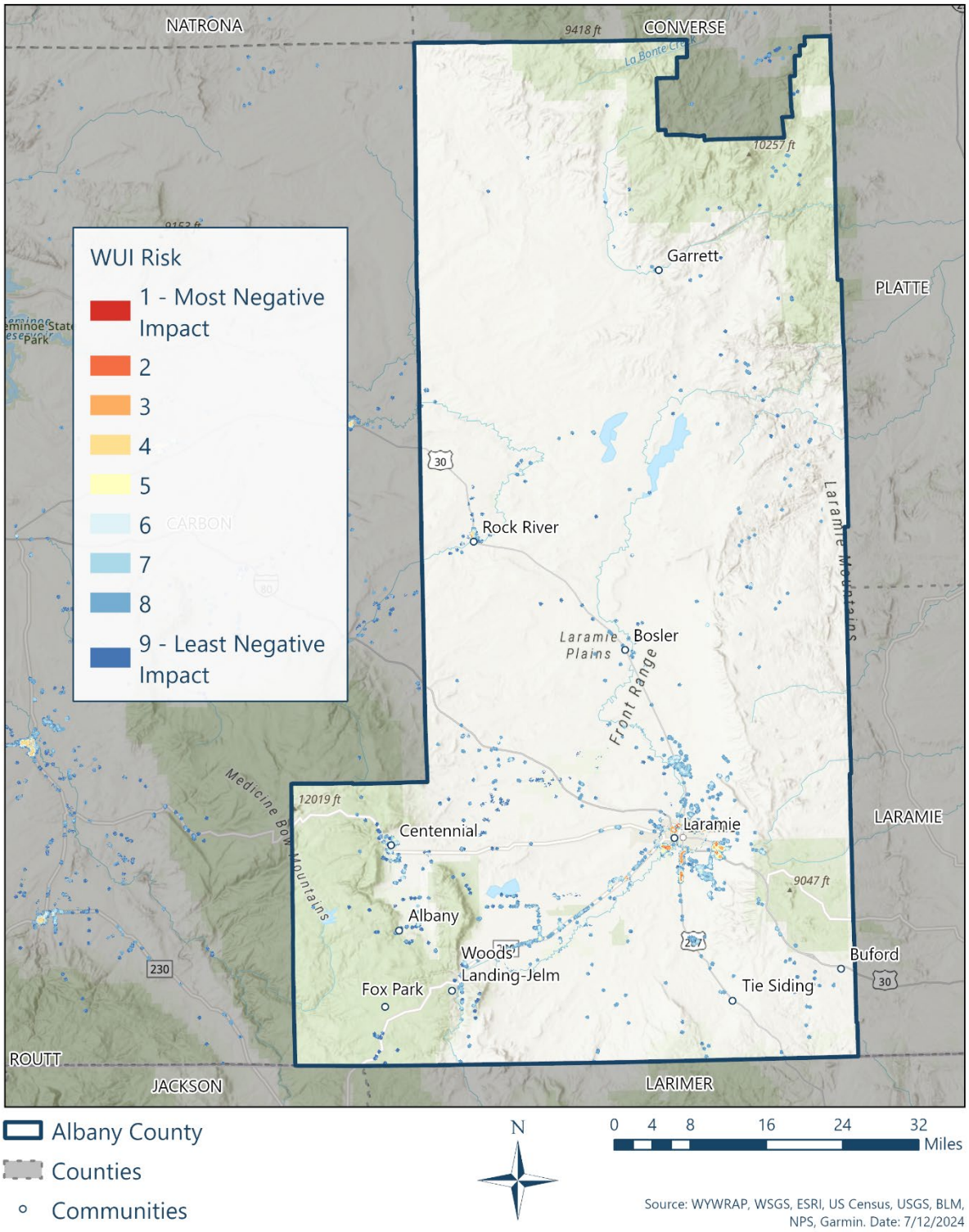
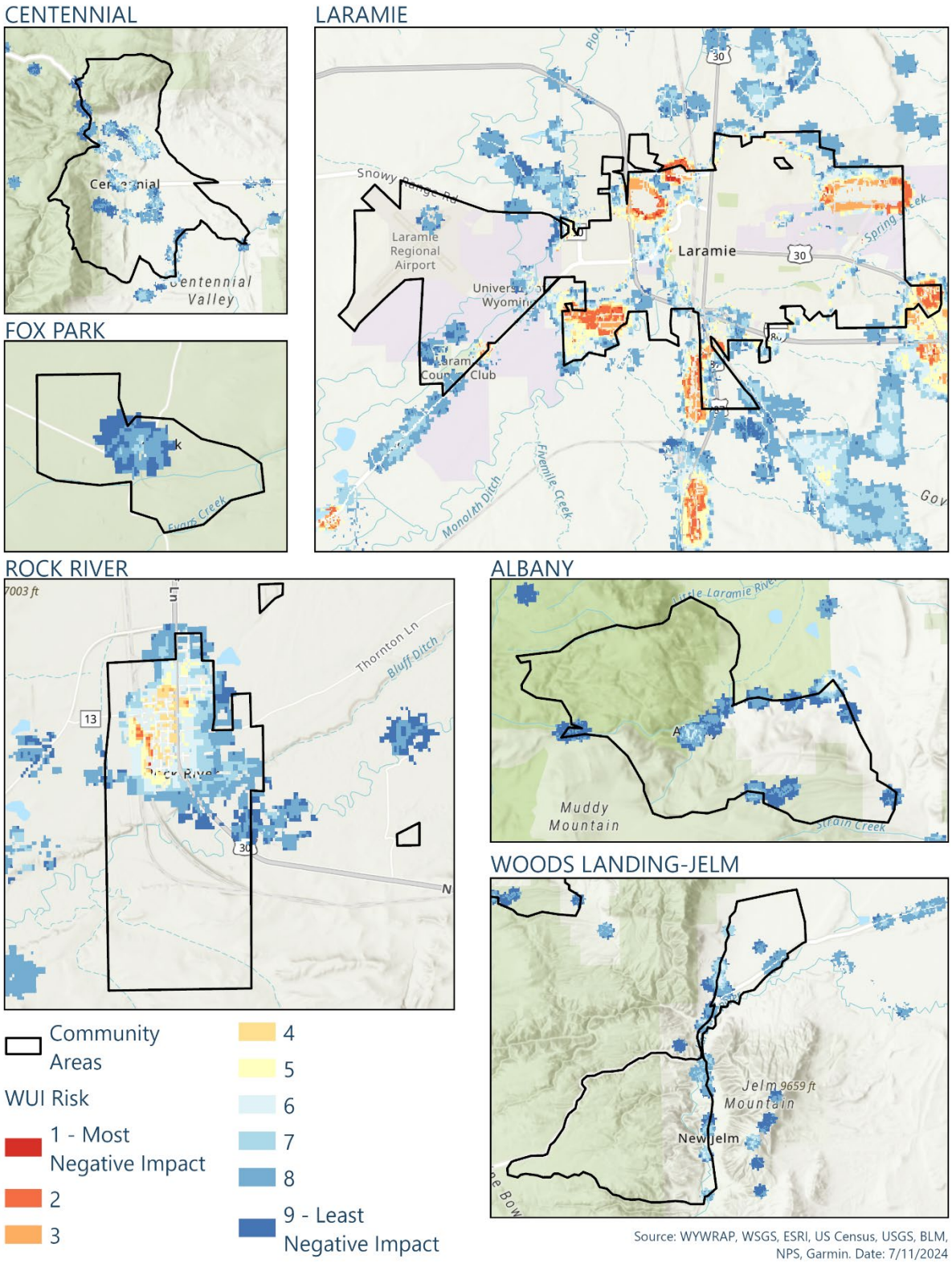


Figure 38 Inset Maps of Albany County Wildland Urban Interface (WUI)



Source: WYWRAP, WSGS, ESRI, US Census, USGS, BLM, NPS, Garmin. Date: 7/11/2024

Exposure and Vulnerability

Lifelines

All community Lifelines across Albany County are vulnerable to the impacts of wildfire events. Each wildfire can tax countywide resources, impacting public safety and government services. Fires can create conditions that block or prevent ingress/egress and can isolate residents and emergency service providers.

Energy infrastructure can be impacted as power line poles made of wood are susceptible to burning. Pipelines carrying fuel can be damaged, potentially leading to a catastrophic explosion and interruption of resource delivery. Any Lifeline infrastructure with wood frame construction is especially vulnerable during wildfire events. Most roads and railroads would be without damage except in the worst scenarios, however, roads can be closed to the public for extended periods during a wildfire event. Health & Medical services, as well as Food, Water, & Shelter, may be impacted if there is a need to evacuate the public and citizens or first responders need medical care. Ash and contaminants produced during active burning can pollute waterways, and water supplies can be impaired by increased erosion after a wildfire. Error! Reference source not found. displays Lifelines in areas identified as moderate to extreme risk of wildfire (classes three to five).

In addition to the Lifelines identified in **Table 60**, 130.74 miles of natural gas pipeline, 56.35 miles of highway, 119.69 miles of railway, and 2.72 miles of airport runway are in wildfire risk areas across Albany County. There is also concern about additional water and shelter lifelines. An incident that impacts any part of these Lifeline systems could have cascading effects on other locations in the county and region.

Table 60 Albany County Lifelines Exposed to Moderate-Extreme Wildfire Risk

Jurisdiction	Communication	Energy	Hazmat	Medical	Safety	Shelter	Transportation	Water	Total Count
Laramie	-	-	-	-	-	2	5	-	**7**
Rock River	-	-	-	-	-	-	1	-	**1**
Unincorporated	6	-	-	-	3	3	76	1	**89**
Total Count	**6**	**0**	**0**	**0**	**3**	**5**	**82**	**1**	**97**

Source: FEMA's Hazus Inventory National Database

Additionally, **Table 61** summarizes lifelines in areas of the wildland urban interface (WUI), where human development meets wildland vegetation. In addition to the Lifelines identified in the table below, 14.84 miles of natural gas pipeline, 15.34 miles of highway, 15.95 miles of railway, and 0.04 miles of airport runway are in WUI areas across Albany County. An incident that impacts any part of these Lifeline systems could have cascading effects on other locations in the county and region.

Table 61 Albany County Lifelines in the WUI

Jurisdiction	Communication	Energy	Hazmat	Medical	Safety	Shelter	Transportation	Water	Total Count
Laramie	-	-	-	-	-	-	3	-	**3**
Rock River	-	-	-	-	-	-	-	-	**0**
Unincorporated	4	-	-	-	-	1	21	1	**27**
Total Count	**4**	**0**	**0**	**0**	**0**	**1**	**24**	**1**	**30**

Source: FEMA's Hazus Inventory National Database

In Albany County, the greatest number of Lifeline structures exposed to wildfire are Transportation, however, critical infrastructure in most other Lifeline categories exist within wildfire risk areas.

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

People

Smoke and air pollution from wildfires can be a severe health hazard, especially for sensitive populations, including children, the elderly, and those with respiratory and cardiovascular diseases. Smoke generated by wildfire consists of visible and invisible emissions that contain particulate matter (soot, tar, water vapor, and minerals), gases (carbon monoxide, carbon dioxide, nitrogen oxides), and toxins (formaldehyde, benzene). Emissions from wildfires depend on the type of fuel, the moisture content of the fuel, the efficiency (or temperature) of combustion, and the weather. Public health impacts associated with wildfire include difficulty breathing, odor, and reduction in visibility.

Wildfires may also threaten the health and safety of those fighting them. First responders are exposed to the dangers of the initial incident and the after-effects of smoke inhalation and heat stroke.

Populations identified as vulnerable or under-resourced are more likely to experience losses from hazard events and face barriers in recovery. These populations may also experience difficulties evacuating during a wildfire event. See **Table 2** for more information on demographic factors that contribute to vulnerability in Albany County.

Structures

All current and future buildings in Albany County should be considered at risk of wildfire. However, some communities are at higher risk due to their location in the WUI or proximity to areas with high wildfire potential.

Table 62 summarizes the building exposure to wildfire risk by jurisdiction. The data classifies wildfire risk ranging from one to five, with five equating to the most statewide risk. For this analysis, only classes three to five were used (moderate to extreme wildfire risk). Within each jurisdiction, most residential properties are exposed to moderate-extreme wildfire risk. The total value of properties

exposed to wildfire risk is over $1.2 billion, with $913.7 million in estimated building content value. While this analysis attempts to quantify those structures at most risk across the county, it should be noted that all property is potentially vulnerable to wildfire.

Table 62 Albany County Structures Exposed to Moderate-Extreme Wildfire Risk

Municipality	Structure Type	Total Structure Count	Estimated Content Value	Total Structure Value
Laramie	**Total**	**1,361**	**$373,959,961.40**	**$507,783,751.50**
	Commercial	110	$161,618,178.60	$173,119,282.30
	Industrial	36	$36,926,237.15	$28,180,314.60
	Public	16	$38,559,831.34	$32,772,725.93
	Residential	1,199	$136,855,714.30	$273,711,428.70
Rock River	**Total**	**101**	**$11,183,285.22**	**$16,425,143.07**
	Commercial	5	$2,664,409.58	$2,664,409.58
	Industrial	4	$2,617,001.86	$2,117,320.22
	Public	1	$160,334.28	$160,334.28
	Residential	91	$5,741,539.49	$11,483,078.99
Unincorporated	**Total**	**2,744**	**$528,617,065.54**	**$683,340,944.06**
	Commercial	174	$178,099,609.43	$165,002,374.59
	Industrial	61	$130,990,107.10	$91,402,639.77
	Public	15	$12,118,768.27	$12,118,768.27
	Residential	2,494	$207,408,580.68	$414,817,161.44
Grand Total		**4,206**	**$913,760,312.20**	**$1,207,549,839.00**

Source: US Army Corps of Engineers National Structure Inventory (NSI)

Structures in the WUI are at greater risk from wildfires. This area is where human development meets undeveloped wildland vegetation. Proximity to fuels, access challenges, and increased human activity in these areas contribute to its increased risk. **Table 63** summarizes the building exposure in the WUI by jurisdiction. The total value of properties exposed in the WUI is over $845.8 million, with over $614.3 million in estimated building content value.

Table 63 Albany County Structures in the WUI

Municipality	Structure Type	Total Structure Count	Estimated Content Value	Total Structure Value
Laramie	**Total**	**1,141**	**$264,035,369.80**	**$363,278,323.40**
	Commercial	95	$117,804,217.80	$120,915,117.70
	Industrial	28	$23,897,598.31	$18,978,849.03
	Public	5	$16,419,058.80	$11,555,366.88

Municipality	Structure Type	Total Structure Count	Estimated Content Value	Total Structure Value
	Residential	1,013	$105,914,494.90	$211,828,989.80
Rock River	**Total**	**100**	**$10,551,159.94**	**$16,106,379.97**
	Commercial	5	$2,836,879.06	$2,836,879.06
	Industrial	3	$1,499,044.92	$999,363.28
	Public	1	$160,334.28	$160,334.28
	Residential	91	$6,054,901.67	$12,109,803.35
Unincorporated	**Total**	**2,013**	**$339,800,724.78**	**$466,454,944.05**
	Commercial	110	$81,139,681.41	$80,449,975.17
	Industrial	46	$95,041,052.91	$65,347,246.43
	Public	10	$6,582,258.54	$6,582,258.54
	Residential	1,847	$157,037,731.91	$314,075,463.92
Grand Total		**3,254**	**$614,387,254.50**	**$845,839,647.40**

Source: US Army Corps of Engineers National Structure Inventory (NSI)

Natural, Historic, and Cultural Resources

Wildfire is a natural and critical ecosystem process in most terrestrial ecosystems, dictating in part the types, structure, and spatial extent of native vegetation. However, wildfires can cause severe environmental impacts. After a wildfire, the protective covering provided by foliage and dead organic matter is removed, leaving the soil exposed to wind and water erosion. Accelerated soil erosion can occur, causing landslides and threatening aquatic habitats. Additionally, topsoil exposed to extreme heat can become water-repellant, and soil nutrients may be lost. Ecosystems can take decades or even centuries to recover from a fire. Some fires burn so hot they can sterilize the soil.

Non-native woody plant species frequently invade burned areas. When weeds become established, they can dominate the plant cover over broad landscapes and become difficult and costly to control. This can result in invasive plant species dominating the local species. Additionally, disease and insect infestations can occur in areas affected by wildfires. Unless diseased or insect-infested trees are swiftly removed, infestations and disease can spread to healthy forests and private lands. Timely active management actions are needed to remove diseased or infested trees.

Catastrophic fires can have devastating consequences for endangered species. If a wildfire results in habitat fragmentation, these species can be isolated into patches and have difficulty finding resources and mates. A damaged habitat for these already vulnerable species can also result in immediate population declines or localized extinction.

Natural and historic resources were identified in Albany County to ensure these assets are considered and protected. See **Table 4** for a list of endangered and threatened species and **Table 5** for a list of historic places in Albany County.

Local Vulnerability

In addition to the general impacts that severe thunderstorms can have on Lifelines, people, structures, and cultural resources in Albany County, representatives of each participating jurisdiction identified unique local vulnerabilities that these hazards present to their community, summarized in **Table 64**.

Table 64 Local Government Vulnerability to Wildfire

Local Government	Local Vulnerability
Albany County	Wildland urban interface (WUI) communities face a high wildfire risk. Many buildings are underinsured or uninsured, and rural businesses risk crop loss. Powerlines and cell towers in these areas may be destroyed or disrupted. Historic and cultural resources are vulnerable due to limited fire response. Outdoor recreational activities, especially in mountainous areas, will be impacted. Wildfires can also block highways and roadways, making passage dangerous.
City of Laramie	Any and all facilities or infrastructure could be impacted
Town of Rock River	All structures and infrastructure are vulnerable to the impacts of a wildfire. Impacts on wildfire smoke on at risk and the general population.
Albany County Fire District #1	Firefighters living in wildland urban interface (WUI) communities face a high risk of wildfire impact. Many of their homes are underinsured or uninsured, potentially forcing relocation if destroyed by fire, thus losing valuable firefighter resources. Firehouses, often located in WUI areas, are typically metal-clad with metal roofs but may still be surrounded by flammable vegetation. Wildfires can also damage power lines, causing outages that hinder water pumping and disrupt cell tower communication, affecting emergency responses.
Albany County Hospital District	Fires can obstruct roadways, hindering the movement of staff, patients, and supplies to the facility. Patients may need to be evacuated, and there could be logistical challenges for those dependent on life-support systems.
Albany County School District #1	Indoor air quality, inability to provide education, and other school activities.
Laramie River Conservation District (LRCD)	Local government assets are not at risk from Wildfire.
Wold Improvement & Service District	Local government assets are not at risk from Wildfire.
Pioneer Canal – Lake Hattie Irrigation District	Local government assets are not at risk from Wildfire.

Trends in Development

It is crucial to consider the hazards posed by wildlife when making any future development and construction decisions, to ensure new construction does not increase the county's risk. **Table 65** summarizes development trends in each jurisdiction.

Table 65 Local Government Development Trends – Wildfire

Local Government	Development Trends
Albany County	Increased education in wildfire mitigation and fire-resistant building materials for new or remodeled structures will help to protect citizens and structures as the County grows.
City of Laramie	More structures and infrastructure that could be damaged, more people that would be affected
Town of Rock River	Development is not expected to place any local community & government assets at risk from Wildfire.
Albany County Fire District #1	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Albany County Hospital District	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Albany County School District #1	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Laramie River Conservation District (LRCD)	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Wold Improvement & Service District	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Pioneer Canal – Lake Hattie Irrigation District	No construction has recently occurred, or is expected, which would impact hazard vulnerability.

Probability of Future Occurrences

The National Interagency Fire Center reports 251 wildfire events in Albany County from 1960-2021. Based on these 61 years of data, Albany County is 100% likely to experience a wildfire event of any severity each year.

From 2002-2024, Albany County has received 6 Fire Management Assistance (FMAG) Declarations for wildfires, indicating that the county has a 27% likelihood of experiencing a severe wildfire in any given year.

Winter Storm

Previous Occurrences

Since 1996, the NCEI database has recorded 1,455 winter storm-related events in Albany County. None of these events resulted in reported *direct* deaths, injuries, or property damage. However, 50 *indirect* injuries and 4 deaths were reported because of hazardous conditions created by winter

storm events. It is important to note that these dollars are not adjusted to 2024 values, and reported losses are likely lower than actual losses due to data limitations, insurance coverage gaps, and because the NCEI database focuses on major events. The Local Planning Team (LPT) also noted 2 additional severe weather events in Albany County since the previous plan update was not covered by the NCEI from 2019-2024. A summary of these events is outlined in **Table 66.**

Table 66 Albany County Summary of Winter Storm Events

Hazard	Total # of Events	# Days with Events	Deaths	Injuries	Damages
Blizzard	60	34	0	0	$0
Cold/Wind Chill	6	3	0	0	$0
Extreme Cold/Wind Chill	95	34	0	0	$0
Heavy Snow	332	122	0	0	$0
Winter Storm	647	151	0	0	$0
Winter Weather	315	126	0	0	$0
LPT	2	2	0	0	0
Total	**1,457**	**414**	**0**	**0**	**$0**

Source: Storm Events Database | National Centers for Environmental Information (noaa.gov)

Of these 1,457 recorded winter storm events, 7 resulted in indirect losses. All indirect injuries and deaths from these 7 events were due to hazardous road conditions because of winter storm conditions. These events are detailed below:

- **December 25, 2009, in Laramie Valley:** A wave of winter weather resulted in closures on Interstates 80 and 25 and two deaths, one of which occurred in Laramie.
- **October 31, 2019, in Central Laramie Range and Southwest Platte County:** A State Highway Patrol Trooper was injured after a semi-truck hit their patrol car while they were assisting a stranded motorist in a winter storm.
- **November 20, 2019, in North Snowy Range Foothills:** A single vehicle rollover incident occurred due to icy road conditions. The driver was not wearing their seatbelt and succumbed to their injuries on the scene.
- **October 22, 2020, in Shirley Basin:** Snowfall and freezing rain resulted in dangerous road conditions. Two vehicles collided, and four people were injured, including one who died.
- **March 2021:** The North American blizzard, unofficially given the name Winter Storm Xylia, brought record-breaking snowfall to Wyoming, Colorado, and other parts of the country. Across the country, tens of thousands of homes and businesses lost power, roads and schools were closed, and icy interstates resulted in crashes and stranded motorists. Snowdrifts were reported to reach 4 to 5 feet across Interstate 80 in Wyoming. This event caused major impacts to the agriculture community.

- **April 9-10, 2021, in Laramie Valley:** A tractor-trailer exited the road after light snowfall created slick conditions on Interstate 80. The driver suffered minor injuries.
- **January 28, 2023, in North Snowy Range Foothills:** A total of 44 vehicles were involved in a pile-up after over 25 inches of snowfall accumulated on Interstate 80. In total, 40 injuries were reported and 1 death. An image from the incident is shown in **Figure 39**.

Figure 39 I-80 Vehicle Pileup - Winter Storm

Source: The Cowboy State

- **February-March 2023, Albany County:** Winter storms and heavy snow caused road closures along I80 and US30/287. During this time, the NWS issued multiple snow squall warnings and winter weather advisories, with wind gusts over 60 mph, wind chills reaching -40 degrees F, and over 2 feet of snowfall in the Snowy Range Mountains. Due to blizzard-like conditions, several semis and light, high-profile vehicles left the road.
- **November 23, 2023, in South Laramie Range:** Interstate 80 was closed after a 30-vehicle accident resulted in 4 people being taken to the hospital from heavy snow and icy road conditions.

Location

Winter storms are a yearly feature of the Wyoming climate and may occur anywhere in the state. Generally, severe winter storm events are considered regional, implying that the storms impact multiple counties simultaneously, often for extended periods. It is possible for the geographic extent of the hazard to vary significantly within a single county. A regional storm may directly impact only a small portion of the planning area while extending over a large portion of the surrounding area. However, even in these instances, the impacts and effects of a regional hazard are still felt elsewhere within the planning area. All of Albany County is subject to the winter storm hazard.

Exposure and Vulnerability

Lifelines

All community lifelines are vulnerable to the impacts of severe winter weather. Severe winds, downed trees, and ice accumulation can create serious impacts on Energy and Communications infrastructure, including power lines and above-ground communication lines. Transportation Lifeline failures, due to loss and interruption of roadway capacity, are a secondary hazard often most associated with severe winter weather. The closure of Interstate 80 during winter storms can have significant impacts on the economy, both locally and nationally. These road closures can limit residents' ability to seek health and medical care and increase response time for first responders. Distribution in transportation can delay food deliveries, leading to shortages in stores and food banks. Snow and ice on roads can delay or disrupt the safe transportation of hazardous materials and increase the risk of a spill or accident. Electrical outages are also prevalent during winter snowstorms and blizzards, limiting or eliminating household heating and cooking capability. Extreme cold temperatures can freeze water pipes, sometimes causing them to rupture or break.

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

People

The populations most likely to suffer the negative effects of severe winter weather events are motorists who may be stranded, those participating in outdoor recreation activities, and those with access and functional needs (AFN). The elderly population is more susceptible to cold-related illnesses like hypothermia and frostbite. They also are more likely to have chronic health conditions that severe winter storm events or power outages can exacerbate.

Low-income residents and those living below the poverty line are susceptible to the impacts of severe winter weather. For these community members, heating in extremely cold temperatures can be financially inaccessible. Using fuel-burning heaters indoors poses the potential for poisoning and asphyxiation. Additionally, residents may be unable to remain at home during extreme winter weather and can place themselves in danger when traveling in dangerous road conditions.

Rural areas tend to be more susceptible to power outages in winter storms, and those in rural areas tend to be longer than those in more populated areas. Rural locations are more likely to have livestock and farming economic factors, which winter weather can significantly impact. Blizzards and winter storms have resulted in livestock deaths and livestock rescue efforts.

Preparation for winter storms is needed to ensure successful weathering. Some winter storm preparations to be considered by residents include creating and maintaining adequate water and food within a 72-hour kit both in vehicles and at home, backup power generation capabilities, and backup household heating options. Winter storms are best weathered by sheltering in place during the storm and attempting to go out only after the storm has ended.

See **Table 13** for more information on demographic factors that contribute to vulnerability in Albany County.

Structures

All buildings in the county are exposed to severe winter weather. Still, structures in poor condition or particularly vulnerable locations (located on hilltops or exposed open areas) may risk the most damage. Those located under or near overhead lines or large trees may be vulnerable to falling ice or damage in the event of a tree or limb collapse. Buildings with flat roofs or poor drainage will likely experience greater snow accumulation, which can threaten the structure's integrity. The frequency and degree of damage will depend on specific locations.

Natural, Historic, and Cultural Resources

Natural habitats risk major damage and destruction from severe winter weather. Heavy snowfall and high winds can collapse trees. Freezing temperatures can kill crops, vegetation, and animals. Mass die-offs of wildlife are possible as snow covers vegetation and freezes as temperatures drop. These events alter the ecosystem and hunting quotas in the following season. Livestock are also vulnerable to severe winter weather without proper shelter.

Natural and historic resources were identified in Albany County to ensure these assets are considered and protected. See **Table 15** for a list of endangered and threatened species and **Table 16** for a list of historic places in Albany County.

Local Vulnerability

In addition to the general impacts that winter storms can have on Lifelines, people, structures, and cultural resources in Albany County, representatives of each participating jurisdiction identified unique local vulnerabilities that these hazards present to their community, summarized in **Table 67**.

Table 67 Local Government Vulnerability to Winter Storm

Local Government	Local Vulnerability
Albany County	The planning team noted that frost has damaged U.S. Route 30 and State Highway 230 in Albany County. Power loss can affect networks, communications, and water systems. A winter storm could disrupt many activities in the County due to access and power issues.
City of Laramie	All facilities and infrastructure, particularly transportation, could be affected as roads close due to winter weather.
Town of Rock River	All structures are vulnerable to the impacts of a winter storm event; historic structures are most at risk structurally. Community outdoor activities could be impacted as would potential egress/ingress to town.
Albany County Fire District #1	Winter storms severely affect the district. Impassable roads hinder fire response and firefighter mobility. Road blockages may prevent access to supplies, disrupt supply lines and power infrastructure, and impede travel to fire stations.
Albany County Hospital District	Winter weather conditions can obstruct roadways and result in delays for ambulance services. Additionally, there may be an increase in patient admissions due to weather-related injuries such as slips on ice, vehicular accidents, or cases of hypothermia.

Albany County School District #1	Ability to keep people warm, provide meals, ability to provide education and other School activities. Heavy snow loads could impact roofs.
Laramie River Conservation District (LRCD)	Local government assets are not at risk from Winter Storm.
Wold Improvement & Service District	Road closures can leave people stranded, unable to get medical help, cause accidents, or lead to frostbite.
Pioneer Canal – Lake Hattie Irrigation District	Local government assets are not at risk from Winter Storm.

Trends in Development

It is crucial to consider the hazards posed by winter storms when making any future development and construction decisions, to ensure new construction does not increase the county's risk. **Table 68** summarizes development trends in each jurisdiction.

Table 68 Local Government Development Trends – Winter Storm

Local Government	Development Trends
Albany County	Additional personnel and equipment for snow removal will be necessary as new development occurs and the population grows for transportation and emergency response access. Need for additional sheltering locations with backup power increases.
City of Laramie	More structures and infrastructure that could be damaged, more people that would be affected
Town of Rock River	Development is not expected to place any local community & government assets at risk from Winter Storm.
Albany County Fire District #1	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Albany County Hospital District	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Albany County School District #1	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Laramie River Conservation District (LRCD)	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Wold Improvement & Service District	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Pioneer Canal – Lake Hattie Irrigation District	No construction has recently occurred, or is expected, which would impact hazard vulnerability.

Probability of Future Occurrences

The NCEI database has recorded 1,457 winter storm events on 414 unique days in the 28 years between 1996 and 2024, meaning that there is a 100% chance of a winter storm event occurring somewhere in Albany County each year. Of these events, 7 have resulted in indirect losses of people and property, equating to a 25% annual chance that a notable winter storm event will occur in the county.

Albany County Adoptions

☐ Consent Agenda
☑ Regular Agenda

MEETING AGENDA ITEM COVER SHEET

Meeting Date: 05/20/2025

Title of Item to Appear on Agenda:Resolution 2025-011, a Resolution adopting Wyoming Region 3 Hazard Mitigation Plan 2025 Update.

Contract Term:

Options:

Approve
Deny

Recommended Commission Action:

Included in Existing Budget: ☐ **Yes** ☐ **No** ☐ N/A
If No:
Cost:

Funding Source/Account(s):

Contact for Additional Information: Kate Allred, EMA Coordinator

Attachments:

Resolution 2025-011
RESOLUTION ADOPTING THE WYOMING REGION 3 HAZARD MITIGATION PLAN 2025 UPDATE

Whereas, the Albany County Board of Commissioners, Council for the City of Laramie, Wyoming and the Council for the Town of Rock River, Wyoming recognize the threat that natural hazards pose to people and property within our community;

Whereas, undertaking hazard mitigation actions will reduce the potential for harm to people and property from future hazard occurrences;

Whereas, the U.S. Congress passed the Disaster Mitigation Act of 2000 ("Disaster Mitigation Act") emphasizing the need for pre-disaster mitigation of potential hazards;

Whereas, the Disaster Mitigation Act made available hazard mitigation grants to state and local governments;

Whereas, an adopted Multi-Hazard Mitigation Plan is required as a condition of future funding for mitigation projects under multiple FEMA pre- and post-disaster mitigation grant programs;

Whereas, representatives of Albany County, City of Laramie, Wyoming and Town of Rock River, Wyoming fully participated in the FEMA-prescribed mitigation planning process to prepare this Multi-Hazard Mitigation Plan Update;

Whereas, the Wyoming Office of Homeland Security and the Federal Emergency Management Agency Region VIII officials have reviewed the "Wyoming Region 3 Hazard Mitigation Plan 2025 Update" and approved it contingent upon its official adoption by each participating governing body;

Whereas, the Albany County Commissioners, City of Laramie Council and Town of Rock River Council desire to comply with the requirements of the Disaster Mitigation Act and to augment their emergency planning efforts by formally adopting the Wyoming Region 3 Hazard Mitigation Plan 2025 Update;

Whereas, adoption by the governing bodies for Albany County, the City of Laramie and the Town of Rock River demonstrates the jurisdiction's commitment to fulfilling the mitigation goals and objectives outlined in this Multi-Hazard Mitigation Plan Update.

Whereas, adoption of the Wyoming Region 3 Hazard Mitigation Plan 2025 Update legitimizes the plan and authorizes responsible agencies to carry out their responsibilities under the plan.

NOW THEREFORE THE BOARD OF COUNTY COMMISSIONERS OF ALBANY COUNTY, WYOMING, RESOLVES:

Section 1. That the foregoing recitals are incorporated in and made a part of this resolution by this reference.

Section 2. That the Wyoming Region 3 Hazard Mitigation Plan 2025 Update is hereby adopted.

PASSED, APPROVED, AND ADOPTED this 20th day of May 2025.

THE BOARD OF COUNTY COMMISSIONERS OF ALBANY COUNTY, WYOMING

Terri Jones, Chairperson

ATTEST:

Kayla White,
Albany County Clerk

Albany County Emergency Management
Kate Allred, Coordinator
525 Grand Ave Suite 101, Laramie, WY 82070
(307) 721-1815 (Office) (307) 721-1826 (Fax)
kallred@co.albany.wy.us

MEMORANDUM

Date: May 20th, 2025
To: Albany County Commissioners
From: Kate Allred, Emergency Management Coordinator
Re: Resolution Adopting the Wyoming Region 3 Hazard Mitigation Plan 2025 Update

The Wyoming Region 3 Hazard Mitigation Plan has been updated by Albany County Emergency Management (ACEMA) with the cooperation of Albany County, the City of Laramie, The Town of Rock River, Albany County Fire District #1, Laramie Rivers Conservation District, Albany County School District #1, Albany County Hospital District, Wold Improvement District, the Pioneer Canal-Lake Hattie Irrigation District, and the Wyoming Office of Homeland Security (WOHS) under Federal Emergency Management Agency (FEMA) guidelines. This is a recurrent plan that is updated every five years. Working with a contractor hired by the WOHS, ACEMA began the update process early in 2024 that included multiple partner and committee meetings, as well as public input and review. The updated plan is now complete, and we are requesting the adoption of the plan by Albany County Commissioners through a resolution.

The plan update consists of a base Hazard Mitigation Plan plan with an appendix for each county within Region 3, Albany and Carbon. The plan's purpose is to document the hazards that each county faces and provide possible mitigation actions to help lessen or prevent the impacts to our community. Adoption of the plan does not obligate local governments to any of the mitigation actions listed in the annex. However, failure to adopt the plan precludes eligibility for FEMA'a Hazard Mitigation Assistance program.

The updated plan can be accessed here: Wyoming Region 3 - 2025 HMP 20250425.pdf

Kate Allred
Coordinator
Albany County Homeland Security/Emergency Management
Office: (307) 721-1815
Cell: (307) 399-3576
Email: kallred@albanycountywy.gov

RESOLUTION 2025- 46

RESOLUTION ADOPTING THE WYOMING REGION 3 HAZARD MITIGATION PLAN 2025 UPDATE

Whereas, the Albany County Board of Commissioners, Council for the City of Laramie, Wyoming, the Council for the Town of Rock River, Wyoming, Albany County Fire District #1, Laramie Rivers Conservation District, Albany County School District #1, Albany County Hospital District, Wold Improvement District, and the Pioneer Canal-Lake Hattie Irrigation District recognize the threat that natural hazards pose to people and property within our community;

Whereas, undertaking hazard mitigation actions will reduce the potential for harm to people and property from future hazard occurrences;

Whereas, the U.S. Congress passed the Disaster Mitigation Act of 2000 ("Disaster Mitigation Act") emphasizing the need for pre-disaster mitigation of potential hazards;

Whereas, the Disaster Mitigation Act made available hazard mitigation grants to state and local governments;

Whereas, an adopted Multi-Hazard Mitigation Plan is required as a condition of future funding for mitigation projects under multiple FEMA pre- and post-disaster mitigation grant programs;

Whereas, representatives of Albany County, City of Laramie, Wyoming, Town of Rock River, Wyoming, Albany County Fire District #1, Laramie Rivers Conservation District, Albany County School District #1, Albany County Hospital District, Wold Improvement District, and the Pioneer Canal-Lake Hattie Irrigation District fully participated in the FEMA-prescribed mitigation planning process to prepare this Multi-Hazard Mitigation Plan Update;

Whereas, the Wyoming Office of Homeland Security and the Federal Emergency Management Agency Region VIII officials have reviewed the "Wyoming Region 3 Hazard Mitigation Plan 2025 Update" and approved it contingent upon its official adoption by each participating governing body;

Whereas, the Albany County Commissioners, City of Laramie Council, Town of Rock River Council, Albany County Fire District #1 Board, Laramie Rivers Conservation District Board, Albany County School District #1 Board, Albany County Hospital District Board, Wold Improvement District Board, and the Pioneer Canal-Lake Hattie Irrigation District Board desire to comply with the requirements of the Disaster Mitigation Act and to augment their emergency planning efforts by formally adopting the Wyoming Region 3 Hazard Mitigation Plan 2025 Update;

Whereas, adoption by the governing bodies for Albany County, the City of Laramie, the Town of Rock River, Albany County Fire District #1, Laramie Rivers Conservation District, Albany County School District #1, Albany County Hospital District, Wold Improvement District, and the Pioneer Canal-Lake Hattie Irrigation District demonstrates the jurisdiction's commitment to

fulfilling the mitigation goals and objectives outlined in this Multi-Hazard Mitigation Plan Update.

Whereas, adoption of the Wyoming Region 3 Hazard Mitigation Plan 2025 Update legitimizes the plan and authorizes responsible agencies to carry out their responsibilities under the plan.

NOW THEREFORE THE COUNCIL OF THE CITY OF LARAMIE, WYOMING, RESOLVES:

Section 1. That the foregoing recitals are incorporated in and made a part of this resolution by this reference.

Section 2. That the Wyoming Region 3 Hazard Mitigation Plan 2025 Update is hereby adopted.

PASSED, APPROVED, AND ADOPTED this 3rd day of June, 2025.

THE COUNCIL OF THE CITY OF LARAMIE, WYOMING

Sharon Cumbie, Mayor

ATTEST:

Nancy Bartholomew,
City Clerk

Resolution 2025-02
RESOLUTION ADOPTING THE WYOMING REGION 3 HAZARD MITIGATION PLAN 2025 UPDATE

Whereas, the Albany County Board of Commissioners, Council for the City of Laramie, Wyoming, the Council for the Town of Rock River, Wyoming, Albany County Fire District #1, Laramie Rivers Conservation District, Albany County School District #1, Albany County Hospital District, Wold Improvement District, and the Pioneer Canal-Lake Hattie Irrigation District recognize the threat that natural hazards pose to people and property within our community;

Whereas, undertaking hazard mitigation actions will reduce the potential for harm to people and property from future hazard occurrences;

Whereas, the U.S. Congress passed the Disaster Mitigation Act of 2000 ("Disaster Mitigation Act") emphasizing the need for pre-disaster mitigation of potential hazards;

Whereas, the Disaster Mitigation Act made available hazard mitigation grants to state and local governments;

Whereas, an adopted Multi-Hazard Mitigation Plan is required as a condition of future funding for mitigation projects under multiple FEMA pre- and post-disaster mitigation grant programs;

Whereas, representatives of Albany County, City of Laramie, Wyoming, Town of Rock River, Wyoming, Albany County Fire District #1, Laramie Rivers Conservation District, Albany County School District #1, Albany County Hospital District, Wold Improvement District, and the Pioneer Canal-Lake Hattie Irrigation District fully participated in the FEMA-prescribed mitigation planning process to prepare this Multi-Hazard Mitigation Plan Update;

Whereas, the Wyoming Office of Homeland Security and the Federal Emergency Management Agency Region VIII officials have reviewed the "Wyoming Region 3 Hazard Mitigation Plan 2025 Update" and approved it contingent upon its official adoption by each participating governing body;

Whereas, the Albany County Commissioners, City of Laramie Council, Town of Rock River Council, Albany County Fire District #1 Board, Laramie Rivers Conservation District Board, Albany County School District #1 Board, Albany County Hospital District Board, Wold Improvement District Board, and the Pioneer Canal-Lake Hattie Irrigation District Board desire to comply with the requirements of the Disaster Mitigation Act and to augment their emergency planning efforts by formally adopting the Wyoming Region 3 Hazard Mitigation Plan 2025 Update;

Whereas, adoption by the governing bodies for Albany County, the City of Laramie, the Town of Rock River, Albany County Fire District #1, Laramie Rivers Conservation District, Albany County School District #1, Albany County Hospital District, Wold Improvement District, and the Pioneer Canal-Lake Hattie Irrigation District demonstrates the jurisdiction's commitment to

fulfilling the mitigation goals and objectives outlined in this Multi-Hazard Mitigation Plan Update.

Whereas, adoption of the Wyoming Region 3 Hazard Mitigation Plan 2025 Update legitimizes the plan and authorizes responsible agencies to carry out their responsibilities under the plan.

NOW THEREFORE THE COUNCIL FOR THE TOWN OF ROCK RIVER, WYOMING, RESOLVES:

Section 1. That the foregoing recitals are incorporated in and made a part of this resolution by this reference.

Section 2. That the Wyoming Region 3 Hazard Mitigation Plan 2025 Update is hereby adopted.

PASSED, APPROVED, AND ADOPTED this 2ND DAY OF JUNE 2025

TOWN COUNCIL OF TOWN OF ROCK RIVER, WYOMING

Cathy Leslie

Cathy Leslie, Mayor

ATTEST:

Jodi Newkirk

Jodi Newkirk,
Town of Rock River Clerk

RESOLUTION ADOPTING THE WYOMING REGION 3 HAZARD MITIGATION PLAN 2025 UPDATE

Whereas, the Albany County Board of Commissioners, Council for the City of Laramie, Wyoming, the Council for the Town of Rock River, Wyoming, Albany County Fire District #1, Laramie Rivers Conservation District, Albany County School District #1, Albany County Hospital District, Wold Improvement District, and the Pioneer Canal-Lake Hattie Irrigation District recognize the threat that natural hazards pose to people and property within our community;

Whereas, undertaking hazard mitigation actions will reduce the potential for harm to people and property from future hazard occurrences;

Whereas, the U.S. Congress passed the Disaster Mitigation Act of 2000 ("Disaster Mitigation Act") emphasizing the need for pre-disaster mitigation of potential hazards;

Whereas, the Disaster Mitigation Act made available hazard mitigation grants to state and local governments;

Whereas, an adopted Multi-Hazard Mitigation Plan is required as a condition of future funding for mitigation projects under multiple FEMA pre- and post-disaster mitigation grant programs;

Whereas, representatives of Albany County, City of Laramie, Wyoming, Town of Rock River, Wyoming, Albany County Fire District #1, Laramie Rivers Conservation District, Albany County School District #1, Albany County Hospital District, Wold Improvement District, and the Pioneer Canal-Lake Hattie Irrigation District fully participated in the FEMA-prescribed mitigation planning process to prepare this Multi-Hazard Mitigation Plan Update;

Whereas, the Wyoming Office of Homeland Security and the Federal Emergency Management Agency Region VIII officials have reviewed the "Wyoming Region 3 Hazard Mitigation Plan 2025 Update" and approved it contingent upon its official adoption by each participating governing body;

Whereas, the Albany County Commissioners, City of Laramie Council, Town of Rock River Council, Albany County Fire District #1 Board, Laramie Rivers Conservation District Board, Albany County School District #1 Board, Albany County Hospital District Board, Wold Improvement District Board, and the Pioneer Canal-Lake Hattie Irrigation District Board desire to comply with the requirements of the Disaster Mitigation Act and to augment their emergency planning efforts by formally adopting the Wyoming Region 3 Hazard Mitigation Plan 2025 Update;

Whereas, adoption by the governing bodies for Albany County, the City of Laramie, the Town of Rock River, Albany County Fire District #1, Laramie Rivers Conservation District, Albany County School District #1, Albany County Hospital District, Wold Improvement District, and the Pioneer Canal-Lake Hattie Irrigation District demonstrates the jurisdiction's commitment to fulfilling the mitigation goals and objectives outlined in this Multi-Hazard Mitigation Plan Update.

Whereas, adoption of the Wyoming Region 3 Hazard Mitigation Plan 2025 Update legitimizes the plan and authorizes responsible agencies to carry out their responsibilities under the plan.

NOW THEREFORE THE BOARD OF ALBANY COUNTY FIRE DISTRICT #1 OF ALBANY COUNTY, WYOMING, RESOLVES:

Section 1. That the foregoing recitals are incorporated in and made a part of this resolution by this reference.

Section 2. That the Wyoming Region 3 Hazard Mitigation Plan 2025 Update is hereby adopted.

PASSED, APPROVED, AND ADOPTED this 16th day of July 2025.

THE BOARD OF ALBANY COUNTY FIRE DISTRICT #1 OF ALBANY COUNTY, WYOMING

SECRETARY AFD#1

TREASURER AFD#1

ATTEST:

SCOTT KUGEL / ACEMA

Resolution 2025-
RESOLUTION ADOPTING THE WYOMING REGION 3 HAZARD MITIGATION PLAN 2025 UPDATE

Whereas, the Albany County Board of Commissioners, Council for the City of Laramie, Wyoming, the Council for the Town of Rock River, Wyoming, Albany County Fire District #1, Laramie Rivers Conservation District, Albany County School District #1, Albany County Hospital District, Wold Improvement District, and the Pioneer Canal-Lake Hattie Irrigation District recognize the threat that natural hazards pose to people and property within our community;

Whereas, undertaking hazard mitigation actions will reduce the potential for harm to people and property from future hazard occurrences;

Whereas, the U.S. Congress passed the Disaster Mitigation Act of 2000 ("Disaster Mitigation Act") emphasizing the need for pre-disaster mitigation of potential hazards;

Whereas, the Disaster Mitigation Act made available hazard mitigation grants to state and local governments;

Whereas, an adopted Multi-Hazard Mitigation Plan is required as a condition of future funding for mitigation projects under multiple FEMA pre- and post-disaster mitigation grant programs;

Whereas, representatives of Albany County, City of Laramie, Wyoming, Town of Rock River, Wyoming, Albany County Fire District #1, Laramie Rivers Conservation District, Albany County School District #1, Albany County Hospital District, Wold Improvement District, and the Pioneer Canal-Lake Hattie Irrigation District fully participated in the FEMA-prescribed mitigation planning process to prepare this Multi-Hazard Mitigation Plan Update;

Whereas, the Wyoming Office of Homeland Security and the Federal Emergency Management Agency Region VIII officials have reviewed the "Wyoming Region 3 Hazard Mitigation Plan 2025 Update" and approved it contingent upon its official adoption by each participating governing body;

Whereas, the Albany County Commissioners, City of Laramie Council, Town of Rock River Council, Albany County Fire District #1 Board, Laramie Rivers Conservation District Board, Albany County School District #1 Board, Albany County Hospital District Board, Wold Improvement District Board, and the Pioneer Canal-Lake Hattie Irrigation District Board desire to comply with the requirements of the Disaster Mitigation Act and to augment their emergency planning efforts by formally adopting the Wyoming Region 3 Hazard Mitigation Plan 2025 Update;

Whereas, adoption by the governing bodies for Albany County, the City of Laramie, the Town of Rock River, Albany County Fire District #1, Laramie Rivers Conservation District, Albany County School District #1, Albany County Hospital District, Wold Improvement District, and the Pioneer Canal-Lake Hattie Irrigation District demonstrates the jurisdiction's commitment to

fulfilling the mitigation goals and objectives outlined in this Multi-Hazard Mitigation Plan Update.

Whereas, adoption of the Wyoming Region 3 Hazard Mitigation Plan 2025 Update legitimizes the plan and authorizes responsible agencies to carry out their responsibilities under the plan.

NOW THEREFORE THE BOARD OF SUPERVISORS OF LARAMIE RIVERS CONSERVATION DISTRICT, RESOLVES:

Section 1. That the foregoing recitals are incorporated in and made a part of this resolution by this reference.

Section 2. That the Wyoming Region 3 Hazard Mitigation Plan 2025 Update is hereby adopted.

PASSED, APPROVED, AND ADOPTED this 23rd day of July 2025.

THE BOARD OF SUPERVISORS OF LARAMIE RIVERS CONSERVATION DISTRICT

Larry Munn, Vice Chair
Laramie Rivers Conservation District Board of Supervisors

ATTEST:

Katie Wynne, District Manager
Laramie Rivers Conservation District

Resolution 2025-01
RESOLUTION ADOPTING THE WYOMING REGION 3 HAZARD MITIGATION PLAN 2025 UPDATE

Whereas, the Albany County Board of Commissioners, Council for the City of Laramie, Wyoming, the Council for the Town of Rock River, Wyoming, Albany County Fire District #1, Laramie Rivers Conservation District, Albany County School District #1, Albany County Hospital District, Wold Improvement District, and the Pioneer Canal-Lake Hattie Irrigation District recognize the threat that natural hazards pose to people and property within our community;

Whereas, undertaking hazard mitigation actions will reduce the potential for harm to people and property from future hazard occurrences;

Whereas, the U.S. Congress passed the Disaster Mitigation Act of 2000 ("Disaster Mitigation Act") emphasizing the need for pre-disaster mitigation of potential hazards;

Whereas, the Disaster Mitigation Act made available hazard mitigation grants to state and local governments;

Whereas, an adopted Multi-Hazard Mitigation Plan is required as a condition of future funding for mitigation projects under multiple FEMA pre- and post-disaster mitigation grant programs;

Whereas, representatives of Albany County, City of Laramie, Wyoming, Town of Rock River, Wyoming, Albany County Fire District #1, Laramie Rivers Conservation District, Albany County School District #1, Albany County Hospital District, Wold Improvement District, and the Pioneer Canal-Lake Hattie Irrigation District fully participated in the FEMA-prescribed mitigation planning process to prepare this Multi-Hazard Mitigation Plan Update;

Whereas, the Wyoming Office of Homeland Security and the Federal Emergency Management Agency Region VIII officials have reviewed the "Wyoming Region 3 Hazard Mitigation Plan 2025 Update" and approved it contingent upon its official adoption by each participating governing body;

Whereas, the Albany County Commissioners, City of Laramie Council, Town of Rock River Council, Albany County Fire District #1 Board, Laramie Rivers Conservation District Board, Albany County School District #1 Board, Albany County Hospital District Board, Wold Improvement District Board, and the Pioneer Canal-Lake Hattie Irrigation District Board desire to comply with the requirements of the Disaster Mitigation Act and to augment their emergency planning efforts by formally adopting the Wyoming Region 3 Hazard Mitigation Plan 2025 Update;

Whereas, adoption by the governing bodies for Albany County, the City of Laramie, the Town of Rock River, Albany County Fire District #1, Laramie Rivers Conservation District, Albany County School District #1, Albany County Hospital District, Wold Improvement District, and the Pioneer Canal-Lake Hattie Irrigation District demonstrates the jurisdiction's commitment to

fulfilling the mitigation goals and objectives outlined in this Multi-Hazard Mitigation Plan Update.

Whereas, adoption of the Wyoming Region 3 Hazard Mitigation Plan 2025 Update legitimizes the plan and authorizes responsible agencies to carry out their responsibilities under the plan.

NOW THEREFORE THE BOARD OF EDUCATION OF ALBANY COUNTY, WYOMING, RESOLVES:

Section 1. That the foregoing recitals are incorporated in and made a part of this resolution by this reference.

Section 2. That the Wyoming Region 3 Hazard Mitigation Plan 2025 Update is hereby adopted.

PASSED, APPROVED, AND ADOPTED this 13th day of August 2025.

THE BOARD OF EDUCATION OF ALBANY COUNTY, WYOMING

Beth Bear, Chair

ATTEST:

Janice Marshall, Clerk

RESOLUTION ADOPTING THE WYOMING REGION 3 HAZARD MITIGATION PLAN 2025 UPDATE

Whereas the Albany County Board of Commissioners, Council for the City of Laramie, Wyoming, the Council for the Town of Rock River, Wyoming, Albany County Fire District #1, Laramie Rivers Conservation District, Albany County School District #1, Albany County Hospital District, Wold Improvement District, and the Pioneer Canal-Lake Hattie Irrigation District recognize the threat that natural hazards pose to people and property within our community;

Whereas undertaking hazard mitigation actions will reduce the potential for harm to people and property from future hazard occurrences.

Whereas the U.S. Congress passed the Disaster Mitigation Act of 2000 ("Disaster Mitigation Act") emphasizing the need for pre-disaster mitigation of potential hazards.

Whereas the Disaster Mitigation Act made hazard mitigation grants available to state and local governments.

Whereas an adopted Multi-Hazard Mitigation Plan is required as a condition of future funding for mitigation projects under multiple FEMA pre- and post-disaster mitigation grant programs.

Whereas representatives of Albany County, City of Laramie, Wyoming, Town of Rock River, Wyoming, Albany County Fire District #1, Laramie Rivers Conservation District, Albany County School District #1, Albany County Hospital District, Wold Improvement District, and the Pioneer Canal-Lake Hattie Irrigation District fully participated in the FEMA-prescribed mitigation planning process to prepare this Multi-Hazard Mitigation Plan Update;

Whereas the Wyoming Office of Homeland Security and the Federal Emergency Management Agency Region VIII officials have reviewed the "Wyoming Region 3 Hazard Mitigation Plan 2025 Update" and approved it contingent upon its official adoption by each participating governing body.

Whereas the Albany County Commissioners, City of Laramie Council, Town of Rock River Council, Albany County Fire District #1 Board, Laramie Rivers Conservation District Board, Albany County School District #1 Board, Albany County Hospital District Board, Wold Improvement District Board, and the Pioneer Canal-Lake Hattie Irrigation District Board desire to comply with the requirements of the Disaster Mitigation Act and to augment their emergency planning efforts by formally adopting the Wyoming Region 3 Hazard Mitigation Plan 2025 Update;

Whereas, adoption by the governing bodies for Albany County, the City of Laramie, the Town of Rock River, Albany County Fire District #1, Laramie Rivers Conservation District, Albany County School District #1, Albany County Hospital District, Wold Improvement District, and the Pioneer Canal-Lake Hattie Irrigation District demonstrates the jurisdiction's commitment to fulfilling the mitigation goals and objectives outlined in this Multi-Hazard Mitigation Plan Update.

Whereas adoption of the Wyoming Region 3 Hazard Mitigation Plan 2025 Update legitimizes the plan and authorizes responsible agencies to fulfill their responsibilities under the plan.

NOW THEREFORE THE WOLD IMPROVEMENT AND SERVICE DISTRICT BOARD OF DIRECTORS RESOLVES:

Section 1. That the foregoing recitals are incorporated in and made a part of this resolution by this reference.

Section 2. That the Wyoming Region 3 Hazard Mitigation Plan 2025 Update is hereby adopted.

PASSED, APPROVED, AND ADOPTED this 24th day of June 2025.

THE WOLD IMPROVEMENT AND SERVICE DISTRICT BOARD OF DIRECTORS

Ann Erickson, President

Julie Kokes, Secretary

RESOLUTION ADOPTING THE WYOMING REGION 3 HAZARD MITIGATION PLAN 2025 UPDATE

Whereas, the Albany County Board of Commissioners, Council for the City of Laramie, Wyoming, the Council for the Town of Rock River, Wyoming, Albany County Fire District #1, Laramie Rivers Conservation District, Albany County School District #1, Albany County Hospital District, Wold Improvement District, and the **Pioneer Canal-Lake Hattie Irrigation District** recognize the threat that natural hazards pose to people and property within our community;

Whereas, undertaking hazard mitigation actions will reduce the potential for harm to people and property from future hazard occurrences;

Whereas, the U.S. Congress passed the Disaster Mitigation Act of 2000 ("Disaster Mitigation Act") emphasizing the need for pre-disaster mitigation of potential hazards;

Whereas, the Disaster Mitigation Act made available hazard mitigation grants to state and local governments;

Whereas, an adopted Multi-Hazard Mitigation Plan is required as a condition of future funding for mitigation projects under multiple FEMA pre- and post-disaster mitigation grant programs;

Whereas, representatives of Albany County, City of Laramie, Wyoming, Town of Rock River, Wyoming, Albany County Fire District #1, Laramie Rivers Conservation District, Albany County School District #1, Albany County Hospital District, Wold Improvement District, and the **Pioneer Canal-Lake Hattie Irrigation District** fully participated in the FEMA-prescribed mitigation planning process to prepare this Multi-Hazard Mitigation Plan Update;

Whereas, the Wyoming Office of Homeland Security and the Federal Emergency Management Agency Region VIII officials have reviewed the "Wyoming Region 3 Hazard Mitigation Plan 2025 Update" and approved it contingent upon its official adoption by each participating governing body;

Whereas, the Albany County Commissioners, City of Laramie Council, Town of Rock River Council, Albany County Fire District #1 Board, Laramie Rivers Conservation District Board, Albany County School District #1 Board, Albany County Hospital District Board, Wold Improvement District Board, and the **Pioneer Canal-Lake Hattie Irrigation District Board** desire to comply with the requirements of the Disaster Mitigation Act and to augment their emergency planning efforts by formally adopting the Wyoming Region 3 Hazard Mitigation Plan 2025 Update;

Whereas, adoption by the governing bodies for Albany County, the City of Laramie, the Town of Rock River, Albany County Fire District #1, Laramie Rivers Conservation District, Albany County School District #1, Albany County Hospital District, Wold Improvement District, and the **Pioneer Canal-Lake Hattie Irrigation District** demonstrates the jurisdiction's commitment to fulfilling the mitigation goals and objectives outlined in this Multi-Hazard Mitigation Plan Update.

Whereas, adoption of the Wyoming Region 3 Hazard Mitigation Plan 2025 Update legitimizes the plan and authorizes responsible agencies to carry out their responsibilities under the plan.

NOW THEREFORE the Board Members of the Pioneer Canal-Lake Hattie Irrigation District resolve:

Section 1. That the foregoing recitals are incorporated in and made a part of this resolution by this reference.

Section 2. That the Wyoming Region 3 Hazard Mitigation Plan 2025 Update is hereby adopted.

In a motion passed, approved and adopted this 12th day of August 2025.

PIONEER CANAL-LAKE HATTIE IRRIGATION DISTRICT,
a Wyoming Irrigation District

Cody Humphrey, President/Chair

Attest:

Tammy J. Powell, Secretary-Treasurer

Albany County Public Survey Results

Public Hazard Risk Perception Survey (Albany County)

This survey is being conducted as part of the ongoing WY Region 3 hazard mitigation planning process. This plan covers Albany & Carbon Counties, including local municipalities, special districts, and other community organizations. Your response is appreciated and will remain anonymous.

This survey should take only five minutes and the results will help to inform and educate the hazard mitigation planning committee.

If you have any questions about this project, please contact Michael Garner (mgarner@synergy-dr.com), the project manager from Synergy Disaster Recovery, whom was hired by the Wyoming Office of Homeland Security to lead this plan's development.

HMP COMPONENTS

What is Hazard Mitigation?

Hazard mitigation is a: "Sustained action taken to reduce or eliminate long-term risk to people and property from hazards and their effects."

A hazard mitigation plan (HMP) is required for communities to become eligible for certain mitigation grant funding programs. This community plan documents the overall mitigation strategy and specific mitigation actions and projects that your communities would like to implement to increase resiliency to future disaster events.

For context, below is a list of those hazards addressed in the hazard mitigation plan:

-Avalanche

-Drought

-Earthquake

-Expansive Soils

-Flood / Dam & Levee Incident

-Geologic Hazards (Landslide / Land & Mine Subsidence)

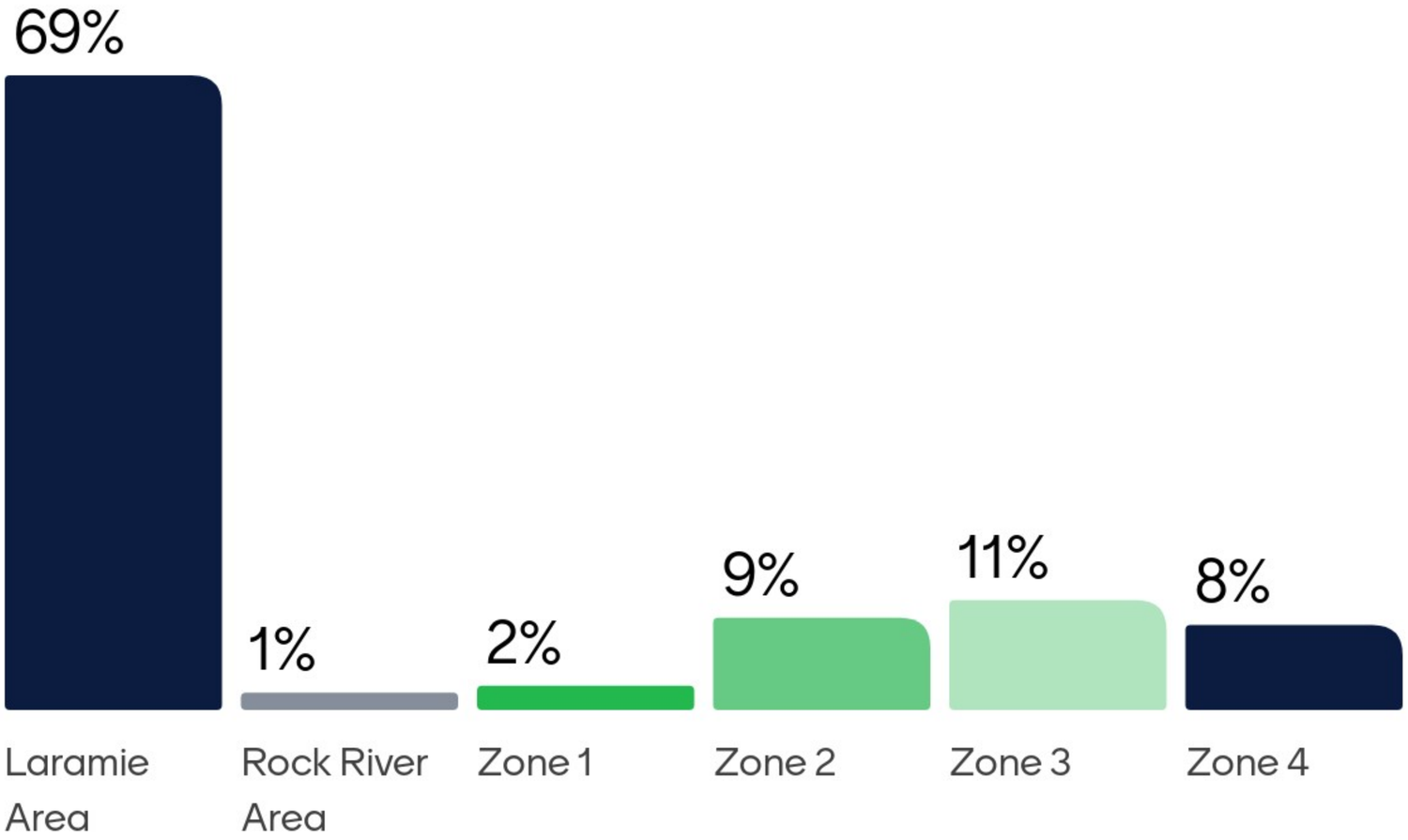
-Severe Thunderstorm (Lighting / Hail)

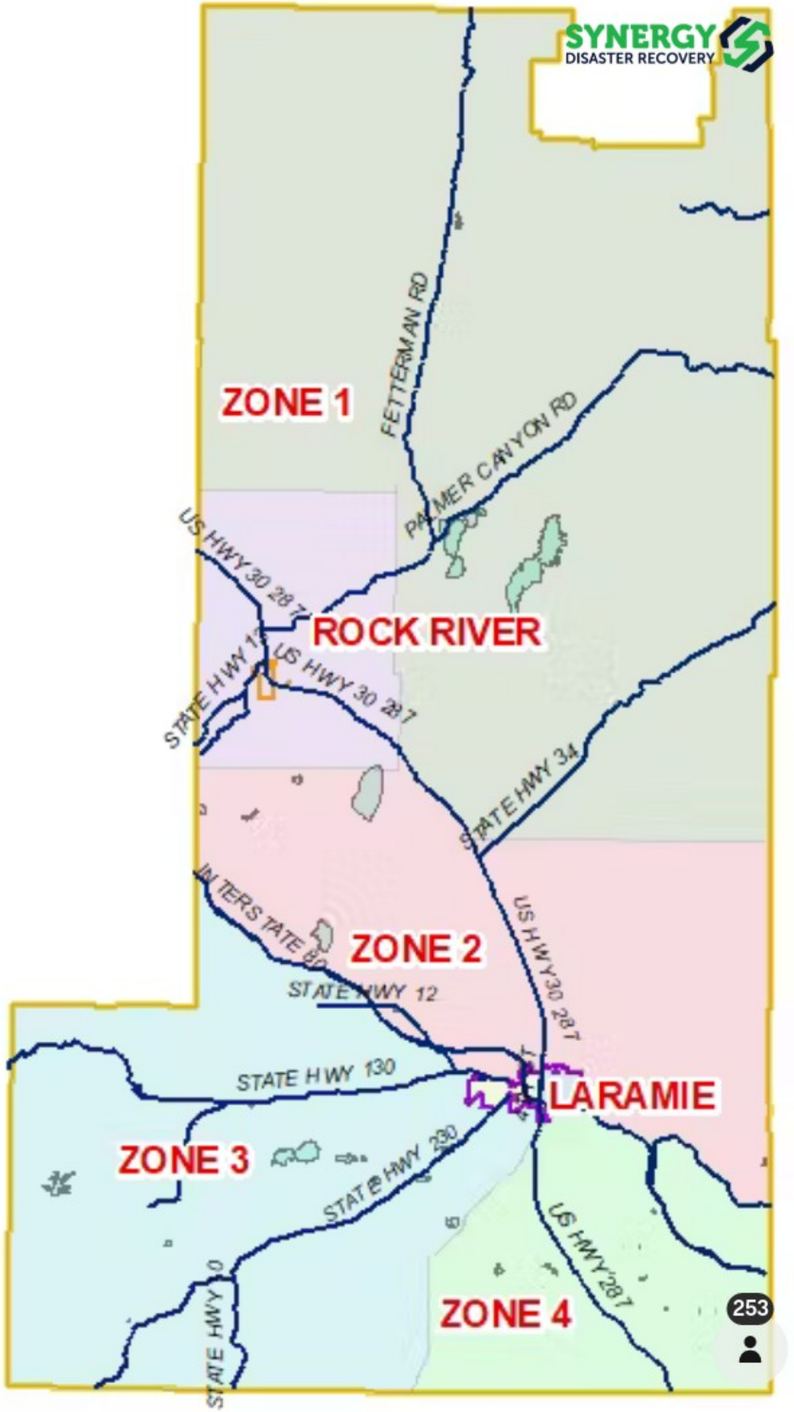
-Tornado / Wind / Windblown Deposits

-Wildfire

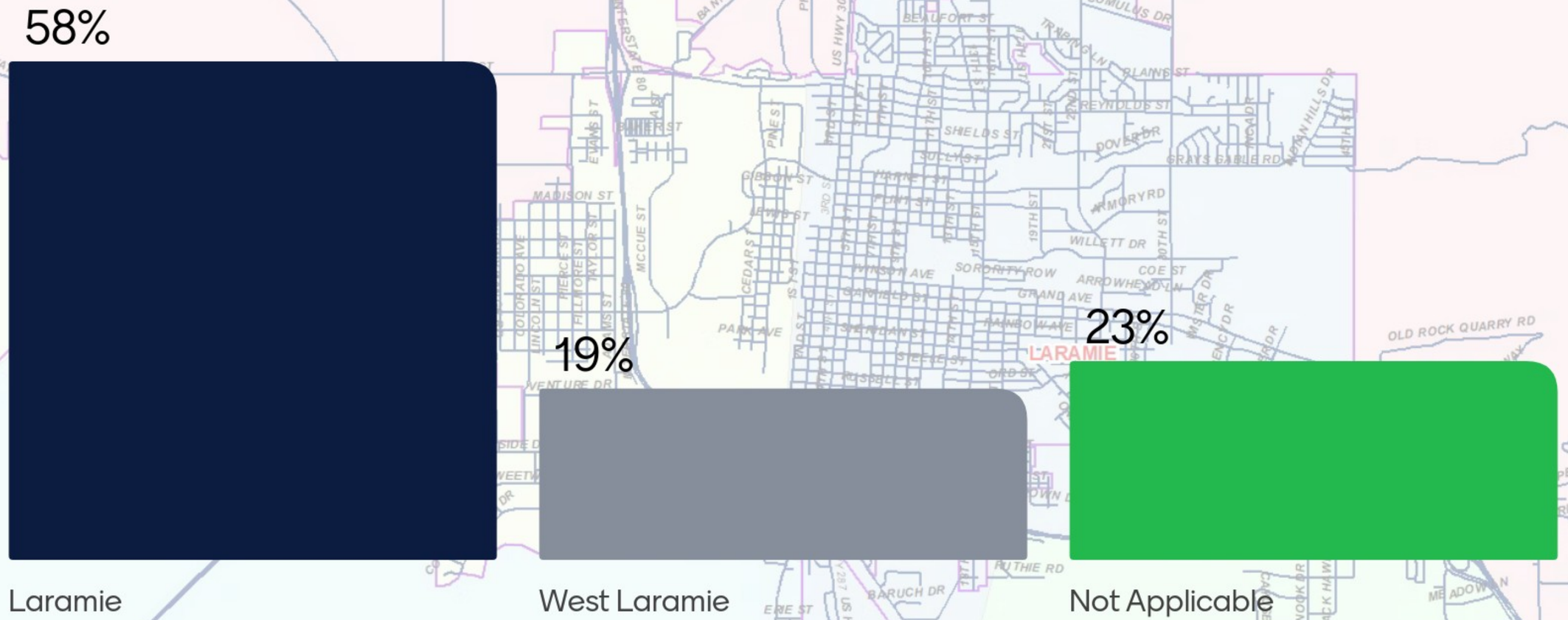
-Winter Storm

In what area of the county do you reside?



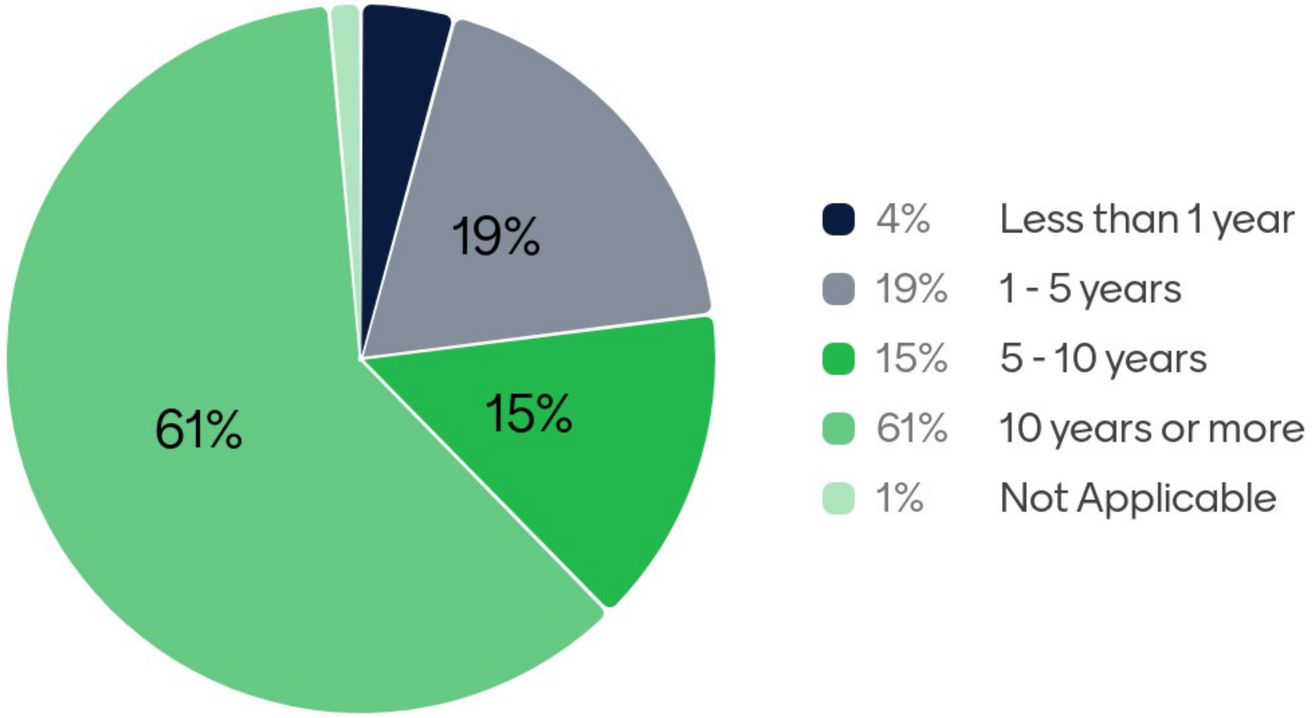


If in the Laramie Area, which side?

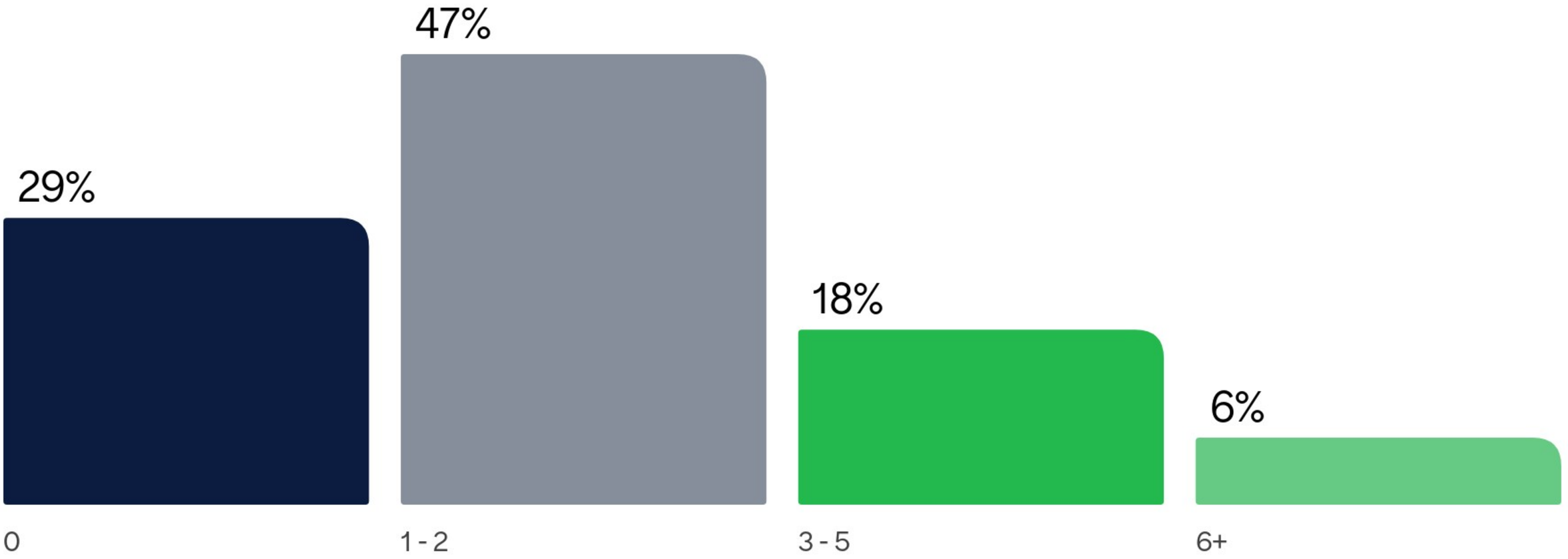


248

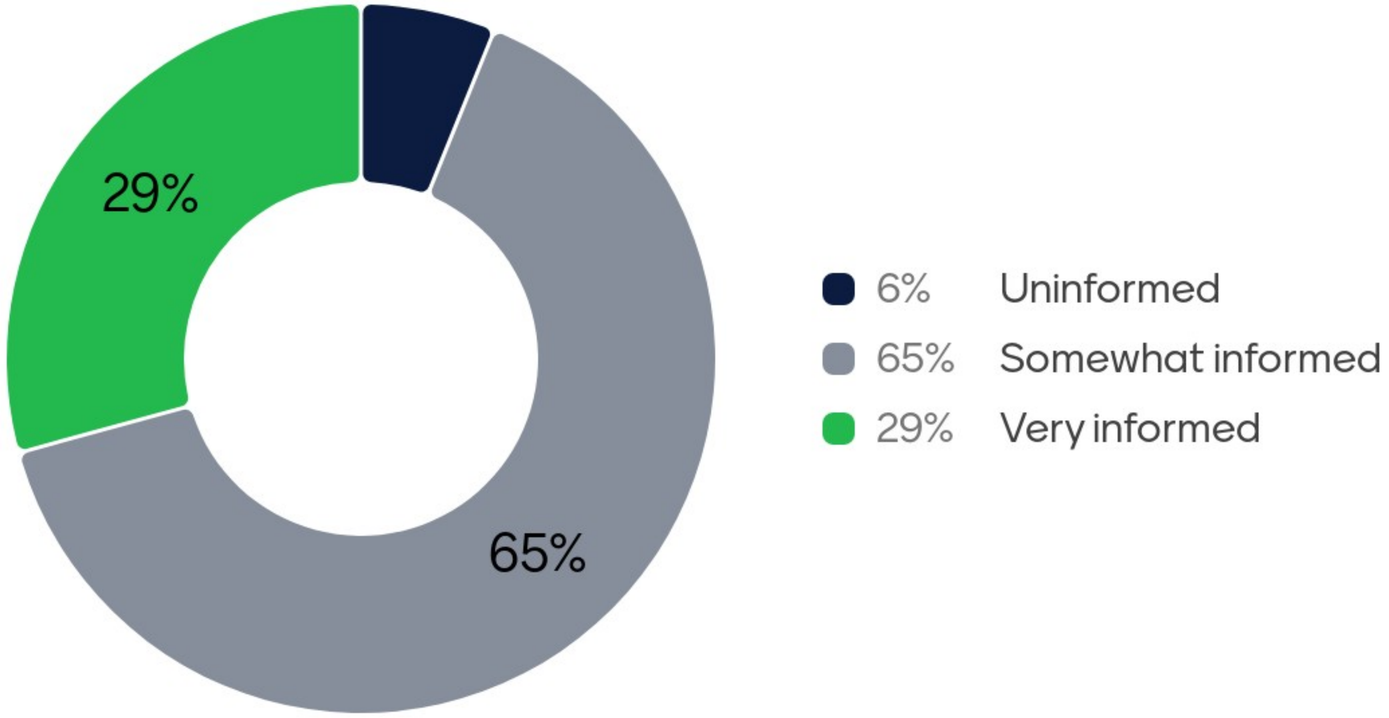
How long have you lived here?



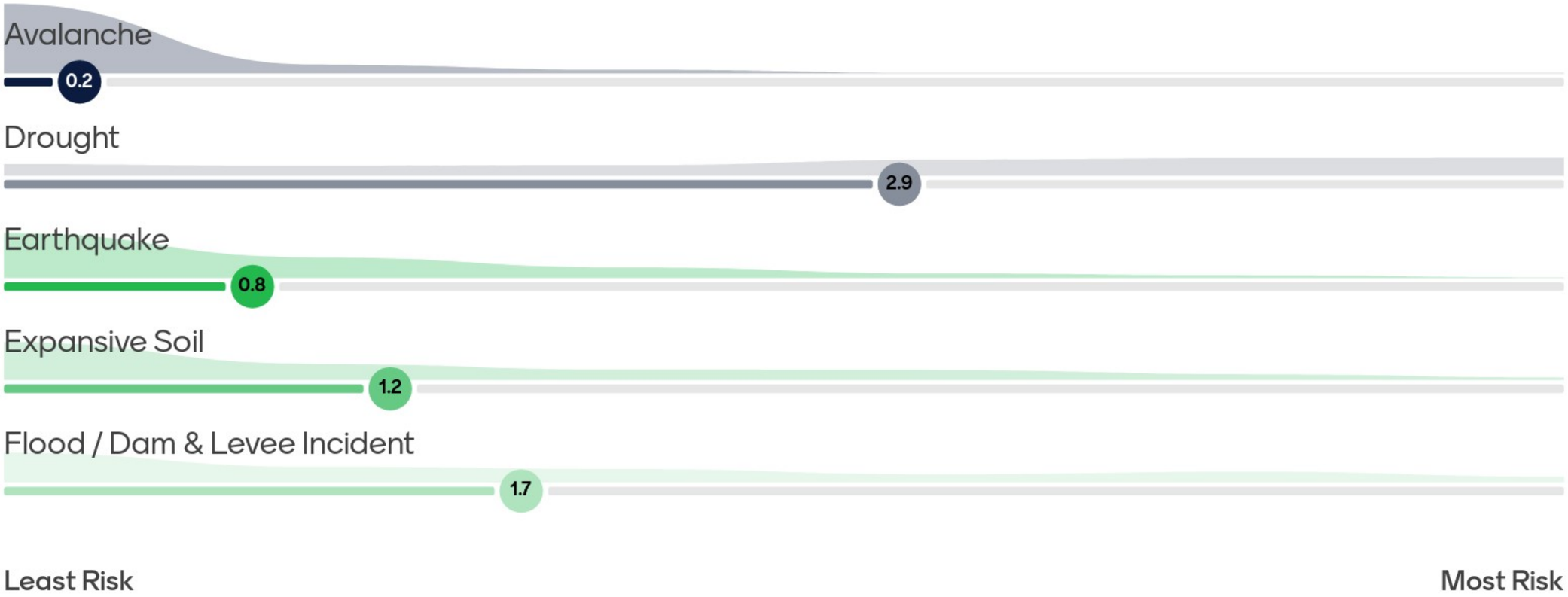
How many times has a hazard event significantly impacted your daily life (in last 5 years)?



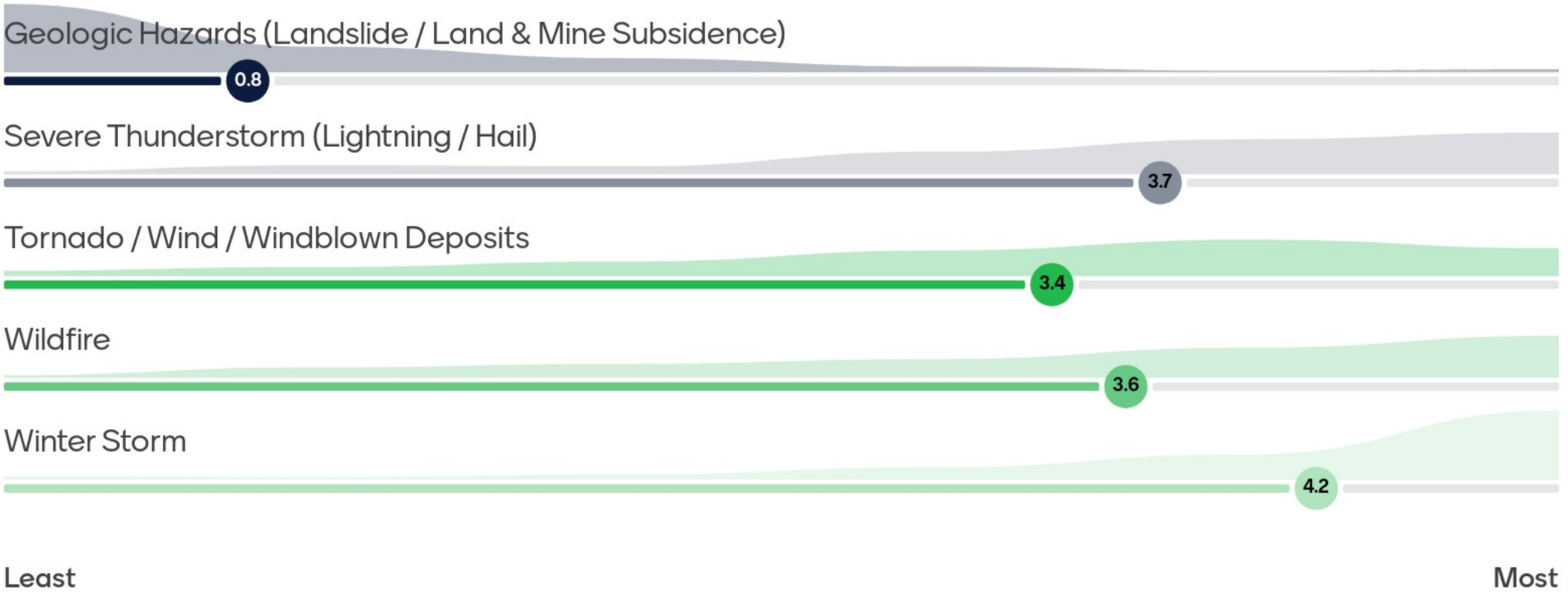
How well do you understand the risks posed by hazards that can impact your community?



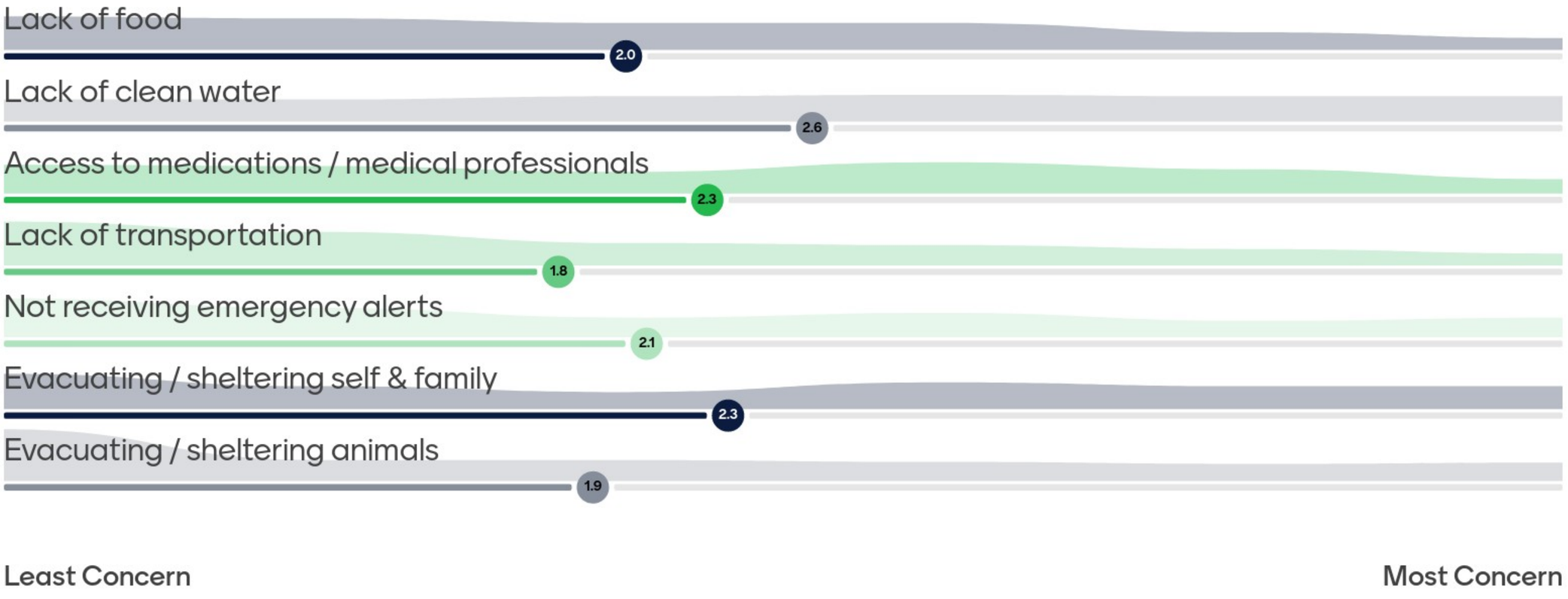
Please rank the following hazards based on the potential risk you feel they pose to you and your community:



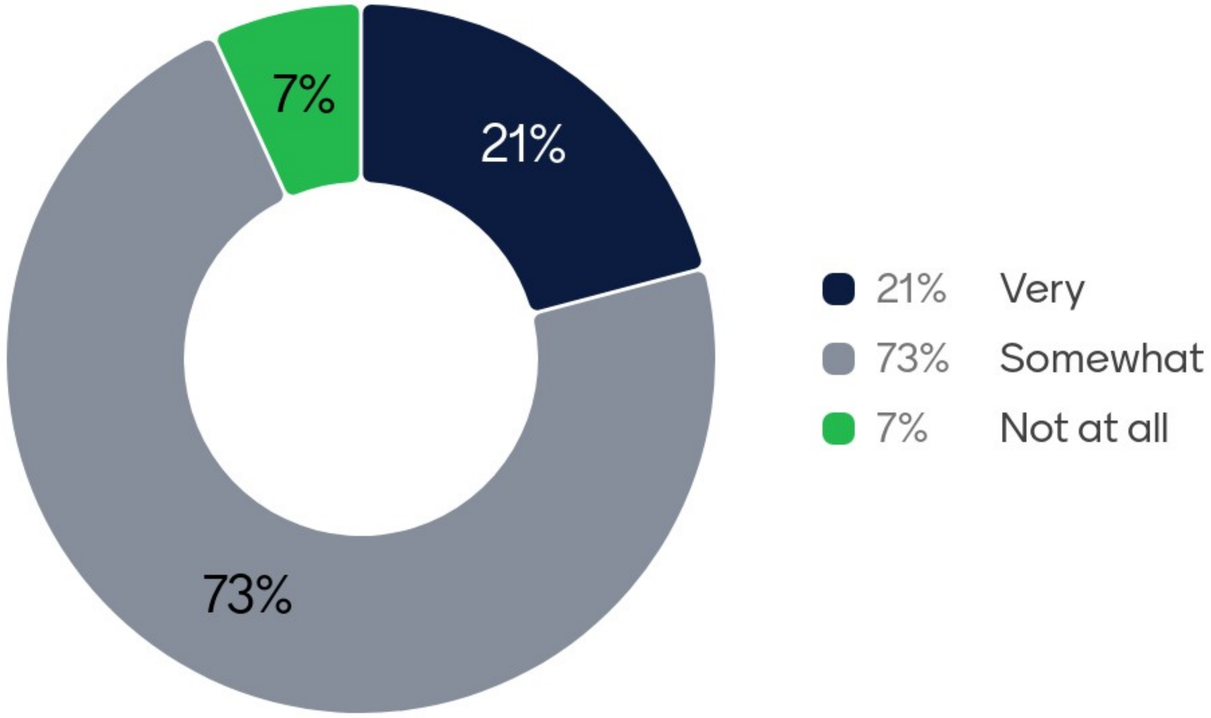
Please rank the following hazards based on the potential risk you feel they pose to you and your community (continued 2):



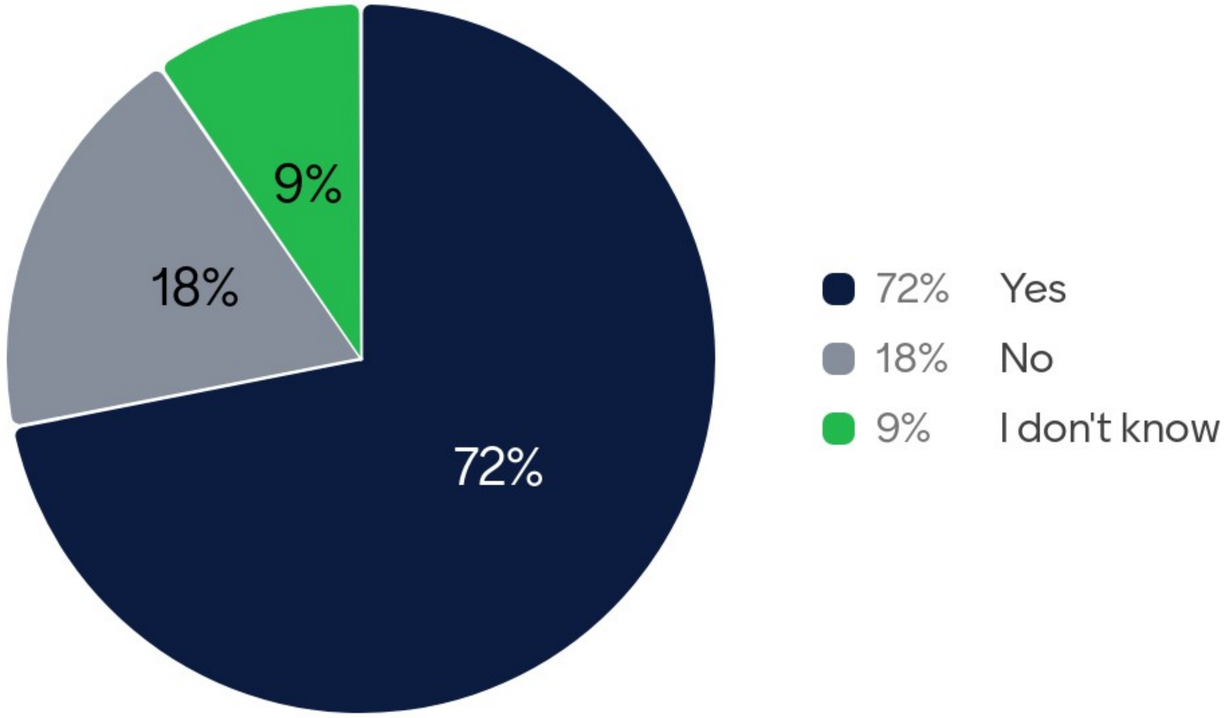
How concerned are you about the following scenarios during and following a disaster?



How prepared do you feel you and your household are for a hazard event?



Have you personally taken actions to make your home or business more resilient to hazards?



Albany County Hazus Earthquake Loss Model

Hazus: Earthquake Global Risk Report

Region Name: AlbanyWY_5M_prob

Earthquake Scenario: Albany5.3M

Print Date: August 06, 2024

Disclaimer:

Totals only reflect data for those census tracts/blocks included in the user's study region.

The estimates of social and economic impacts contained in this report were produced using Hazus loss estimation methodology software which is based on current scientific and engineering knowledge. There are uncertainties inherent in any loss estimation technique. Therefore, there may be significant differences between the modeled results contained in this report and the actual social and economic losses following a specific earthquake. These results can be improved by using enhanced inventory, geotechnical, and observed ground motion data.

Table of Contents

Section	Page #
General Description of the Region	3
Building and Lifeline Inventory	4
Building Inventory	
Critical Facility Inventory	
Transportation and Utility Lifeline Inventory	
Earthquake Scenario Parameters	7
Direct Earthquake Damage	8
Buildings Damage	
Essential Facilities Damage	
Transportation and Utility Lifeline Damage	
Induced Earthquake Damage	14
Fire Following Earthquake	
Debris Generation	
Social Impact	15
Shelter Requirements	
Casualties	
Economic Loss	17
Building Related Losses	
Transportation and Utility Lifeline Losses	

Appendix A: County Listing for the Region

Appendix B: Regional Population and Building Value Data

General Description of the Region

Hazus-MH is a regional earthquake loss estimation model that was developed by the Federal Emergency Management Agency (FEMA) and the National Institute of Building Sciences. The primary purpose of Hazus is to provide a methodology and software application to develop multi-hazard losses at a regional scale. These loss estimates would be used primarily by local, state and regional officials to plan and stimulate efforts to reduce risks from multi-hazards and to prepare for emergency response and recovery.

The earthquake loss estimates provided in this report was based on a region that includes 1 county(ies) from the following state(s):

Wyoming

Note:
Appendix A contains a complete listing of the counties contained in the region.

The geographical size of the region is 4,304.60 square miles and contains 11 census tracts. There are over 15 thousand households in the region which has a total population of 37,066 peopleF. The distribution of population by Total Region and County is provided in Appendix B.

There are an estimated 16 thousand buildings in the region with a total building replacement value (excluding contents) of 8,782 (millions of dollars). Approximately 90.00 % of the buildings (and 63.00% of the building value) are associated with residential housing.

The replacement value of the transportation and utility lifeline systems is estimated to be 2,962 and 2,232 (millions of dollars) , respectively.

Building and Lifeline Inventory

Building Inventory

Hazus estimates that there are 16 thousand buildings in the region which have an aggregate total replacement value of 8,782 (millions of dollars) . Appendix B provides a general distribution of the building value by Total Region and County.

In terms of building construction types found in the region, wood frame construction makes up 71% of the building inventory. The remaining percentage is distributed between the other general building types.

Critical Facility Inventory

Hazus breaks critical facilities into two (2) groups: essential facilities and high potential loss facilities (HPL). Essential facilities include hospitals, medical clinics, schools, fire stations, police stations and emergency operations facilities. High potential loss facilities include dams, levees, military installations, nuclear power plants and hazardous material sites.

For essential facilities, there are 1 hospitals in the region with a total bed capacity of 99 beds. There are 22 schools, 14 fire stations, 3 police stations and 1 emergency operation facilities. With respect to high potential loss facilities (HPL), there are no dams identified within the inventory. The inventory also includes no hazardous material sites, no military installations and no nuclear power plants.

Transportation and Utility Lifeline Inventory

Within Hazus, the lifeline inventory is divided between transportation and utility lifeline systems. There are seven (7) transportation systems that include highways, railways, light rail, bus, ports, ferry and airports. There are six (6) utility systems that include potable water, wastewater, natural gas, crude & refined oil, electric power and communications. The lifeline inventory data are provided in Tables 1 and 2.

The total value of the lifeline inventory is over 5,194.00 (millions of dollars). This inventory includes over 280.24 miles of highways, 123 bridges, 10,708.09 miles of pipes.

Table 1: Transportation System Lifeline Inventory

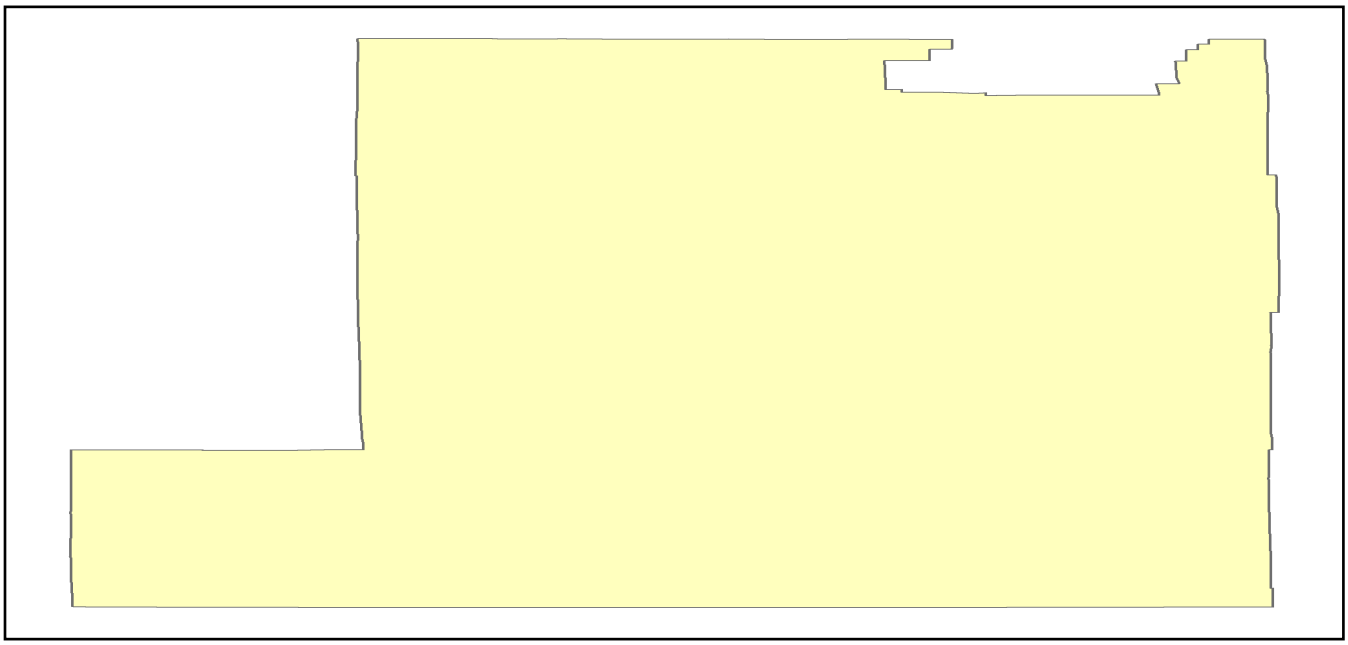
System	Component	# Locations/ # Segments	Replacement value (millions of dollars)
Highway	Bridges	123	230.3199
	Segments	48	2360.7317
	Tunnels	0	0.0000
		Subtotal	**2591.0516**
Railways	Bridges	40	176.2000
	Facilities	0	0.0000
	Segments	121	169.9601
	Tunnels	0	0.0000
		Subtotal	**346.1601**
Light Rail	Bridges	0	0.0000
	Facilities	0	0.0000
	Segments	0	0.0000
	Tunnels	0	0.0000
		Subtotal	**0.0000**
Bus	Facilities	0	0.0000
		Subtotal	**0.0000**
Ferry	Facilities	0	0.0000
		Subtotal	**0.0000**
Port	Facilities	0	0.0000
		Subtotal	**0.0000**
Airport	Facilities	1	1.4253
	Runways	2	23.4197
		Subtotal	**24.8450**
		Total	**2,962.10**

Table 2: Utility System Lifeline Inventory

System	Component	# Locations / Segments	Replacement value (millions of dollars)
Potable Water	Distribution Lines	NA	209.5165
	Facilities	0	0.0000
	Pipelines	0	0.0000
		Subtotal	**209.5165**
Waste Water	Distribution Lines	NA	125.7099
	Facilities	2	266.2382
	Pipelines	0	0.0000
		Subtotal	**391.9481**
Natural Gas	Distribution Lines	NA	83.8066
	Facilities	2	130.5590
	Pipelines	19	1149.5109
		Subtotal	**1363.8765**
Oil Systems	Facilities	0	0.0000
	Pipelines	0	0.0000
		Subtotal	**0.0000**
Electrical Power	Facilities	2	266.8677
		Subtotal	**266.8677**
Communication	Facilities	8	0.7200
		Subtotal	**0.7200**
		Total	**2,232.90**

Earthquake Scenario

Hazus uses the following set of information to define the earthquake parameters used for the earthquake loss estimate provided in this report.



Scenario Name	Albany5.3M
Type of Earthquake	Probabilistic
Fault Name	NA
Historical Epicenter ID #	NA
Probabilistic Return Period	2,500.00
Longitude of Epicenter	NA
Latitude of Epicenter	NA
Earthquake Magnitude	5.30
Depth (km)	NA
Rupture Length (Km)	NA
Rupture Orientation (degrees)	NA
Attenuation Function	NA

Direct Earthquake Damage

Building Damage

Hazus estimates that about 616 buildings will be at least moderately damaged. This is over 4.00 % of the buildings in the region. There are an estimated 5 buildings that will be damaged beyond repair. The definition of the 'damage states' is provided in Volume 1: Chapter 5 of the Hazus technical manual. Table 3 below summarizes the expected damage by general occupancy for the buildings in the region. Table 4 below summarizes the expected damage by general building type.

Damage Categories by General Occupancy Type

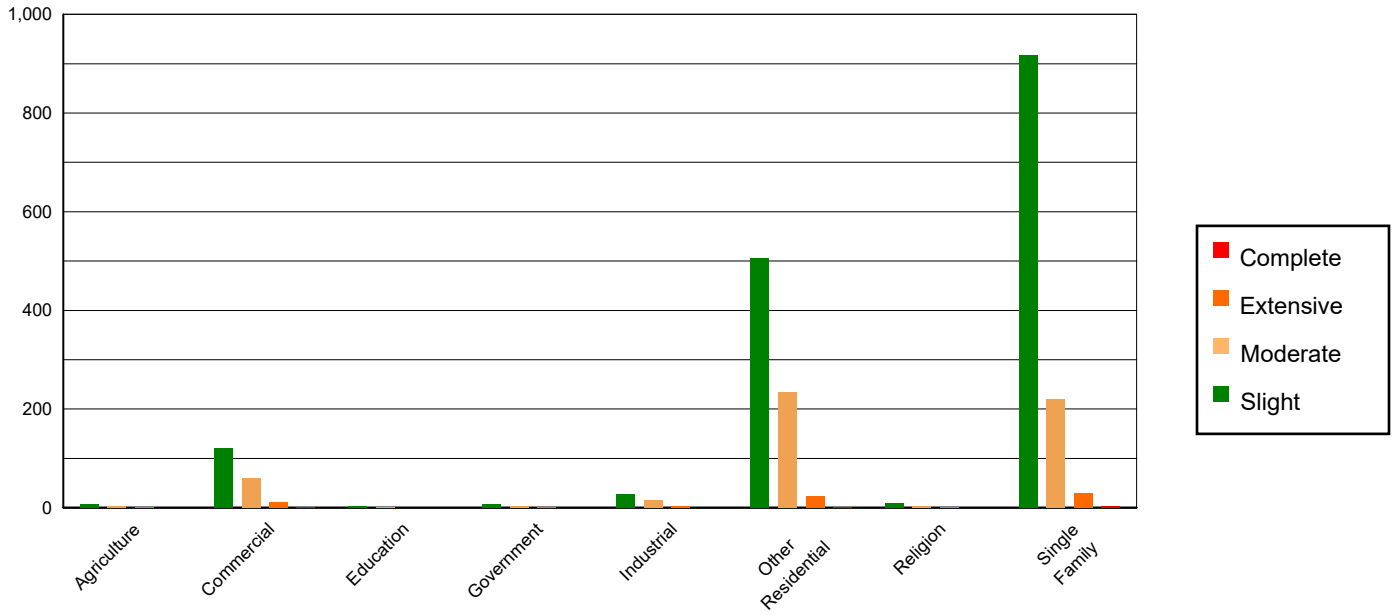


Table 3: Expected Building Damage by Occupancy

	None		Slight		Moderate		Extensive		Complete	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Agriculture	79.37	0.55	7.62	0.48	3.35	0.62	0.64	0.91	0.02	0.34
Commercial	969.33	6.68	119.69	7.50	59.13	10.94	11.88	16.89	0.97	17.45
Education	26.99	0.19	3.09	0.19	1.62	0.30	0.29	0.41	0.00	0.05
Government	50.60	0.35	6.95	0.44	3.78	0.70	0.63	0.90	0.04	0.65
Industrial	244.95	1.69	28.05	1.76	14.08	2.61	2.84	4.03	0.08	1.45
Other Residential	3396.48	23.39	505.61	31.68	233.89	43.28	23.08	32.81	0.94	16.89
Religion	61.59	0.42	8.30	0.52	4.24	0.78	0.81	1.15	0.05	0.97
Single Family	9691.28	66.74	916.78	57.44	220.29	40.77	30.18	42.90	3.47	62.20
Total	**14,521**		**1,596**		**540**		**70**		**6**	

Table 4: Expected Building Damage by Building Type (All Design Levels)

	None		Slight		Moderate		Extensive		Complete	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Wood	10734.49	73.93	968.78	60.70	155.02	28.69	8.35	11.88	0.00	0.00
Steel	242.87	1.67	25.50	1.60	15.28	2.83	2.55	3.63	0.08	1.37
Concrete	221.18	1.52	33.09	2.07	16.57	3.07	2.44	3.46	0.03	0.54
Precast	135.48	0.93	15.67	0.98	13.35	2.47	3.58	5.09	0.05	0.82
RM	884.16	6.09	63.36	3.97	42.93	7.95	6.86	9.76	0.01	0.12
URM	752.53	5.18	180.00	11.28	114.01	21.10	30.53	43.40	5.25	94.01
MH	1549.88	10.67	309.68	19.40	183.23	33.91	16.03	22.79	0.18	3.14
Total	**14,521**		**1,596**		**540**		**70**		**6**	

*Note:

RM Reinforced Masonry
URM Unreinforced Masonry
MH Manufactured Housing

Essential Facility Damage

Before the earthquake, the region had 99 hospital beds available for use. On the day of the earthquake, the model estimates that only 93 hospital beds (95.00%) are available for use by patients already in the hospital and those injured by the earthquake. After one week, 100.00% of the beds will be back in service. By 30 days, 100.00% will be operational.

Table 5: Expected Damage to Essential Facilities

Classification	Total	# Facilities		
		At Least Moderate Damage > 50%	Complete Damage > 50%	With Functionality > 50% on day 1
Hospitals	1	0	0	1
Schools	22	0	0	22
EOCs	1	0	0	1
PoliceStations	3	0	0	3
FireStations	14	0	0	14

Transportation Lifeline Damage

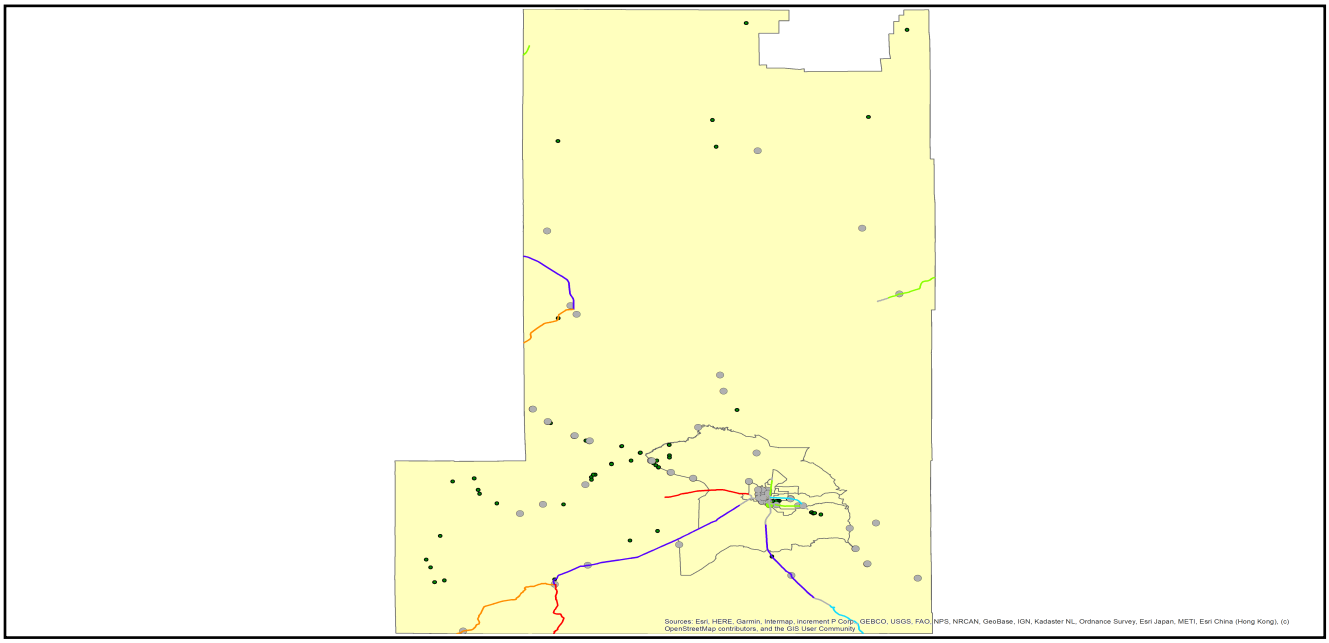


Table 6: Expected Damage to the Transportation Systems

System	Component	Number of Locations				
		Locations/ Segments	With at Least Mod. Damage	With Complete Damage	With Functionality > 50 %	
					After Day 1	After Day 7
Highway	Segments	48	0	0	48	48
	Bridges	123	0	0	123	123
	Tunnels	0	0	0	0	0
Railways	Segments	121	0	0	121	121
	Bridges	40	0	0	40	40
	Tunnels	0	0	0	0	0
	Facilities	0	0	0	0	0
Light Rail	Segments	0	0	0	0	0
	Bridges	0	0	0	0	0
	Tunnels	0	0	0	0	0
	Facilities	0	0	0	0	0
Bus	Facilities	0	0	0	0	0
Ferry	Facilities	0	0	0	0	0
Port	Facilities	0	0	0	0	0
Airport	Facilities	1	0	0	1	1
	Runways	2	0	0	2	2

Table 6 provides damage estimates for the transportation system.

Note: Roadway segments, railroad tracks and light rail tracks are assumed to be damaged by ground failure only. If ground failure maps are not provided, damage estimates to these components will not be computed.

Tables 7-9 provide information on the damage to the utility lifeline systems. Table 7 provides damage to the utility system facilities. Table 8 provides estimates on the number of leaks and breaks by the pipelines of the utility systems. For electric power and potable water, Hazus performs a simplified system performance analysis. Table 9 provides a summary of the system performance information.

Table 7 : Expected Utility System Facility Damage

System	# of Locations				
	Total #	With at Least Moderate Damage	With Complete Damage	with Functionality > 50 %	
				After Day 1	After Day 7
Potable Water	0	0	0	0	0
Waste Water	2	0	0	2	2
Natural Gas	2	0	0	2	2
Oil Systems	0	0	0	0	0
Electrical Power	2	0	0	2	2
Communication	8	0	0	8	8

Table 8 : Expected Utility System Pipeline Damage (Site Specific)

System	Total Pipelines Length (miles)	Number of Leaks	Number of Breaks
Potable Water	6,509	62	16
Waste Water	3,906	31	8
Natural Gas	293	1	0
Oil	0	0	0

Table 9: Expected Potable Water and Electric Power System Performance

	Total # of Households	Number of Households without Service				
		At Day 1	At Day 3	At Day 7	At Day 30	At Day 90
Potable Water	15,993	0	0	0	0	0
Electric Power		0	0	0	0	0

Induced Earthquake Damage

Fire Following Earthquake

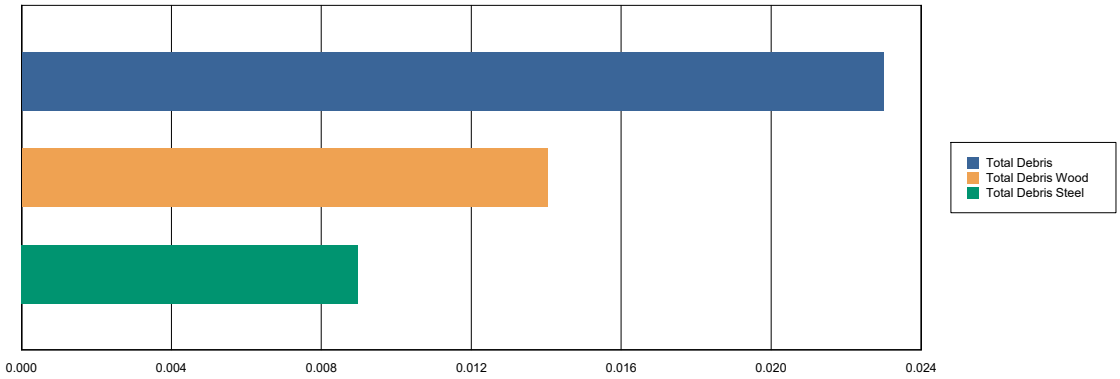
Fires often occur after an earthquake. Because of the number of fires and the lack of water to fight the fires, they can often burn out of control. Hazus uses a Monte Carlo simulation model to estimate the number of ignitions and the amount of burnt area. For this scenario, the model estimates that there will be 0 ignitions that will burn about 0.00 sq. mi 0.00 % of the region's total area.) The model also estimates that the fires will displace about 0 people and burn about 0 (millions of dollars) of building value.

Debris Generation

Hazus estimates the amount of debris that will be generated by the earthquake. The model breaks the debris into two general categories: a) Brick/Wood and b) Reinforced Concrete/Steel. This distinction is made because of the different types of material handling equipment required to handle the debris.

The model estimates that a total of 23,000 tons of debris will be generated. Of the total amount, Brick/Wood comprises 61.00% of the total, with the remainder being Reinforced Concrete/Steel. If the debris tonnage is converted to an estimated number of truckloads, it will require 920 truckloads (@25 tons/truck) to remove the debris generated by the earthquake.

Earthquake Debris (millions of tons)



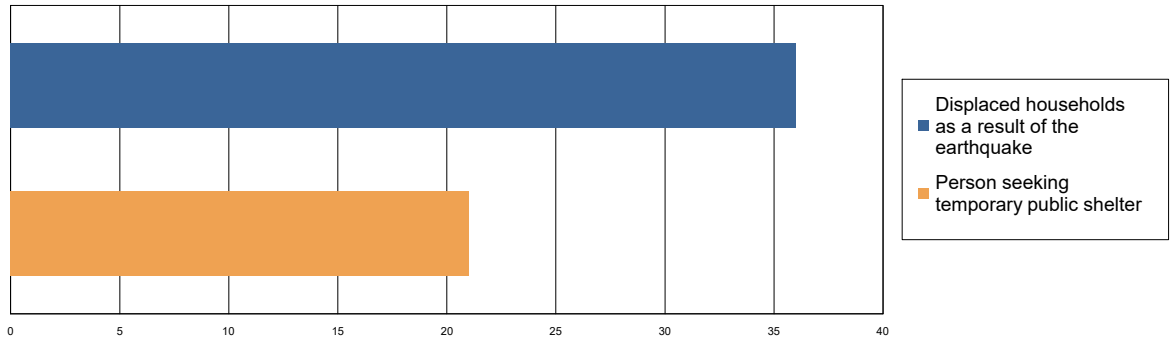
Brick/ Wood	Reinforced Concrete/Steel	Total Debris	Truck Load
0.01	0.01	0.02	920 (@25 tons/truck)

Social Impact

Shelter Requirement

Hazus estimates the number of households that are expected to be displaced from their homes due to the earthquake and the number of displaced people that will require accommodations in temporary public shelters. The model estimates 36 households to be displaced due to the earthquake. Of these, 21 people (out of a total population of 37,066) will seek temporary shelter in public shelters.

Displaced Households/ Persons Seeking Short Term Public Shelter



Displaced households as a result of the earthquake	Persons seeking temporary public shelter
36	21

Casualties

Hazus estimates the number of people that will be injured and killed by the earthquake. The casualties are broken down into four (4) severity levels that describe the extent of the injuries. The levels are described as follows;

- Severity Level 1: Injuries will require medical attention but hospitalization is not needed.
- Severity Level 2: Injuries will require hospitalization but are not considered life-threatening
- Severity Level 3: Injuries will require hospitalization and can become life threatening if not promptly treated.
- Severity Level 4: Victims are killed by the earthquake.

The casualty estimates are provided for three (3) times of day: 2:00 AM, 2:00 PM and 5:00 PM. These times represent the periods of the day that different sectors of the community are at their peak occupancy loads. The 2:00 AM estimate considers that the residential occupancy load is maximum, the 2:00 PM estimate considers that the educational, commercial and industrial sector loads are maximum and 5:00 PM represents peak commute time.

Table 10 provides a summary of the casualties estimated for this earthquake

Table 10: Casualty Estimates

		Level 1	Level 2	Level 3	Level 4
2 AM	Commercial	0.13	0.02	0.00	0.00
	Commuting	0.00	0.00	0.00	0.00
	Educational	0.00	0.00	0.00	0.00
	Hotels	0.00	0.00	0.00	0.00
	Industrial	0.06	0.01	0.00	0.00
	Other-Residential	4.61	0.63	0.05	0.11
	Single Family	3.84	0.52	0.05	0.10
	Total	**9**	**1**	**0**	**0**
2 PM	Commercial	8.43	1.27	0.12	0.23
	Commuting	0.00	0.00	0.00	0.00
	Educational	3.79	0.37	0.00	0.00
	Hotels	0.00	0.00	0.00	0.00
	Industrial	0.41	0.05	0.00	0.01
	Other-Residential	2.42	0.35	0.03	0.06
	Single Family	2.03	0.29	0.03	0.05
	Total	**17**	**2**	**0**	**0**
5 PM	Commercial	4.76	0.72	0.07	0.13
	Commuting	0.00	0.00	0.00	0.00
	Educational	1.56	0.15	0.00	0.00
	Hotels	0.00	0.00	0.00	0.00
	Industrial	0.26	0.03	0.00	0.00
	Other-Residential	1.77	0.25	0.02	0.04
	Single Family	1.50	0.21	0.02	0.04
	Total	**10**	**1**	**0**	**0**

Economic Loss

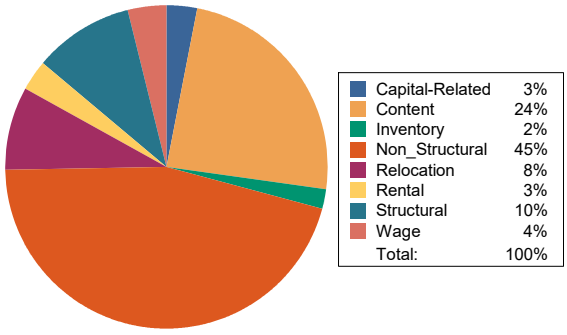
The total economic loss estimated for the earthquake is 218.87 (millions of dollars), which includes building and lifeline related losses based on the region's available inventory. The following three sections provide more detailed information about these losses.

Building-Related Losses

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

The total building-related losses were 139.78 (millions of dollars); 18 % of the estimated losses were related to the business interruption of the region. By far, the largest loss was sustained by the residential occupancies which made up over 46 % of the total loss. Table 11 below provides a summary of the losses associated with the building damage.

Earthquake Losses by Loss Type ($ millions)



Earthquake Losses by Occupancy Type ($ millions)

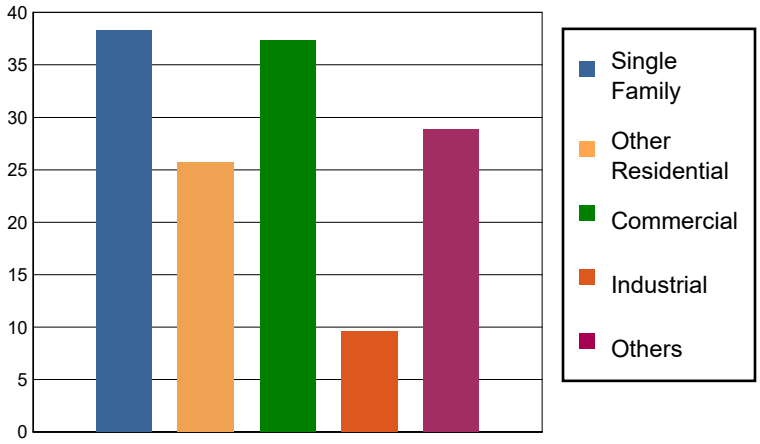


Table 11: Building-Related Economic Loss Estimates

(Millions of dollars)

Category	Area	Single Family	Other Residential	Commercial	Industrial	Others	Total
Income Losses							
	Wage	0.0000	0.5036	3.7520	0.1241	1.1583	5.5380
	Capital-Related	0.0000	0.2139	3.3811	0.0775	0.4157	4.0882
	Rental	0.6712	1.6064	1.6839	0.0630	0.5492	4.5737
	Relocation	2.3447	1.2722	2.5095	0.3316	5.0717	11.5297
	Subtotal	**3.0159**	**3.5961**	**11.3265**	**0.5962**	**7.1949**	**25.7296**
Capital Stock Losses							
	Structural	4.4154	2.7035	3.2761	0.8373	2.5030	13.7353
	Non_Structural	21.9254	14.9442	12.7784	4.3624	9.5310	63.5414
	Content	8.8983	4.4575	8.4138	3.2079	9.1508	34.1283
	Inventory	0.0000	0.0000	1.5687	0.6168	0.4635	2.6490
	Subtotal	**35.2391**	**22.1052**	**26.0370**	**9.0244**	**21.6483**	**114.0540**
	Total	**38.26**	**25.70**	**37.36**	**9.62**	**28.84**	**139.78**

Transportation and Utility Lifeline Losses

For the transportation and utility lifeline systems, Hazus computes the direct repair cost for each component only. There are no losses computed by Hazus for business interruption due to lifeline outages. Tables 12 & 13 provide a detailed breakdown in the expected lifeline losses.

Table 12: Transportation System Economic Losses
(Millions of dollars)

System	Component	Inventory Value	Economic Loss	Loss Ratio (%)
Highway	Segments	2360.7317	0.0000	0.00
	Bridges	230.3199	0.0075	0.00
	Tunnels	0.0000	0.0000	0.00
	Subtotal	**2591.0516**	**0.0075**	
Railways	Segments	169.9601	0.0000	0.00
	Bridges	176.2000	0.0003	0.00
	Tunnels	0.0000	0.0000	0.00
	Facilities	0.0000	0.0000	0.00
	Subtotal	**346.1601**	**0.0003**	
Light Rail	Segments	0.0000	0.0000	0.00
	Bridges	0.0000	0.0000	0.00
	Tunnels	0.0000	0.0000	0.00
	Facilities	0.0000	0.0000	0.00
	Subtotal	**0.0000**	**0.0000**	
Bus	Facilities	0.0000	0.0000	0.00
	Subtotal	**0.0000**	**0.0000**	
Ferry	Facilities	0.0000	0.0000	0.00
	Subtotal	**0.0000**	**0.0000**	
Port	Facilities	0.0000	0.0000	0.00
	Subtotal	**0.0000**	**0.0000**	
Airport	Facilities	1.4253	0.3573	25.07
	Runways	23.4197	0.0000	0.00
	Subtotal	**24.8450**	**0.3573**	
	Total	**2,962.06**	**0.37**	

Table 13: Utility System Economic Losses

(Millions of dollars)

System	Component	Inventory Value	Economic Loss	Loss Ratio (%)
Potable Water	Pipelines	0.0000	0.0000	0.00
	Facilities	0.0000	0.0000	0.00
	Distribution Lines	209.5165	0.2802	0.13
	Subtotal	**209.5165**	**0.2802**	
Waste Water	Pipelines	0.0000	0.0000	0.00
	Facilities	266.2382	12.8793	4.84
	Distribution Lines	125.7099	0.1408	0.11
	Subtotal	**391.9481**	**13.0201**	
Natural Gas	Pipelines	1149.5109	0.0000	0.00
	Facilities	130.5590	8.1443	6.24
	Distribution Lines	83.8066	0.0482	0.06
	Subtotal	**1363.8765**	**8.1925**	
Oil Systems	Pipelines	0.0000	0.0000	0.00
	Facilities	0.0000	0.0000	0.00
	Subtotal	**0.0000**	**0.0000**	
Electrical Power	Facilities	266.8677	57.1569	21.42
	Subtotal	**266.8677**	**57.1569**	
Communication	Facilities	0.7200	0.0729	10.13
	Subtotal	**0.7200**	**0.0729**	
	Total	**2,232.93**	**78.72**	

Appendix A: County Listing for the Region

Albany,WY

Appendix B: Regional Population and Building Value Data

State	County Name	Population	Building Value (millions of dollars)		
			Residential	Non-Residential	Total
Wyoming					
	Albany	37,066	5,566	3,216	8,782
Total Region		**37,066**	**5,566**	**3,216**	**8,782**

Carbon County Annex

Carbon County Annex

Table of Contents

Carbon County Annex 1
Carbon County Community Profile 3
Geography and Climate 3
Population Change 6
Under-resourced and Socially Vulnerable Communities 6
Land Use and Development 12
Natural and Historic Resources 14
Carbon County Mitigation Strategy 17
2020 Mitigation Strategies 17
2025 Mitigation Actions 28
Mitigation Capabilities 49
Compliance with Floodplain Requirements 70
Plan Monitoring and Maintenance 72
Continued Public Engagement 73
Changes in Government Priorities 75
Carbon County Planning Process 77
Plan Integration 77
Incorporation of Existing Plans & Information 80
Carbon County Hazard Identification and Risk Assessment 82
Local Jurisdiction Risk Rankings 82
Exposure Analysis 84
Avalanche 91
Drought 97
Earthquake 102
Flood/Dam, Dike, & Levee Incident 111
Geologic Hazards (Landslide/Land & Mine Subsidence/Expansive Soils) 129

Severe Thunderstorm (Hail/Lightning/Thunderstorm Wind)....147
Tornado/Wind/Windblown Deposits....156
Wildfire....168
Winter Storm....189
Carbon County Adoptions....197
Carbon County Public Survey Results....198
Carbon County Hazus Earthquake Loss Model....199

Professional planning services for this plan update provided by:

Carbon County Community Profile

Geography and Climate

Carbon County covers about 7,897 square miles in south-central Wyoming, sharing its southern border with Colorado. The county sits at a high elevation, with the Continental Divide running through its center in a north-south direction. Peaks reaching 11,000 feet are found in the southern and eastern areas, and the lowest point is around 6,200 feet in the northwest portion of the county. The county's topography ranges from open, high-elevation basins and desert land to pine-covered mountains. Pine stands in the mountains continue to experience beetle kill, increasing wildfire hazards and affecting hydrology and runoff patterns. Carbon County includes the Pedro, Park, Ferris, Shirley, Seminoe, Sierra Madre, and Medicine Bow Mountain Ranges.

Carbon County's climate is semi-arid, with snowy, cold winters and warm, dry summers. In the winter months, average temperatures typically range from around 10 degrees Fahrenheit to highs of 35 degrees Fahrenheit. In the summer months, temperatures hit lows of 50 degrees Fahrenheit and highs of 85 degrees Fahrenheit. Annual precipitation ranges from 12 to 15 inches, and the county often receives heavy snowfall in the winter. The area is characterized by high winds and significant temperature fluctuations between day and night.

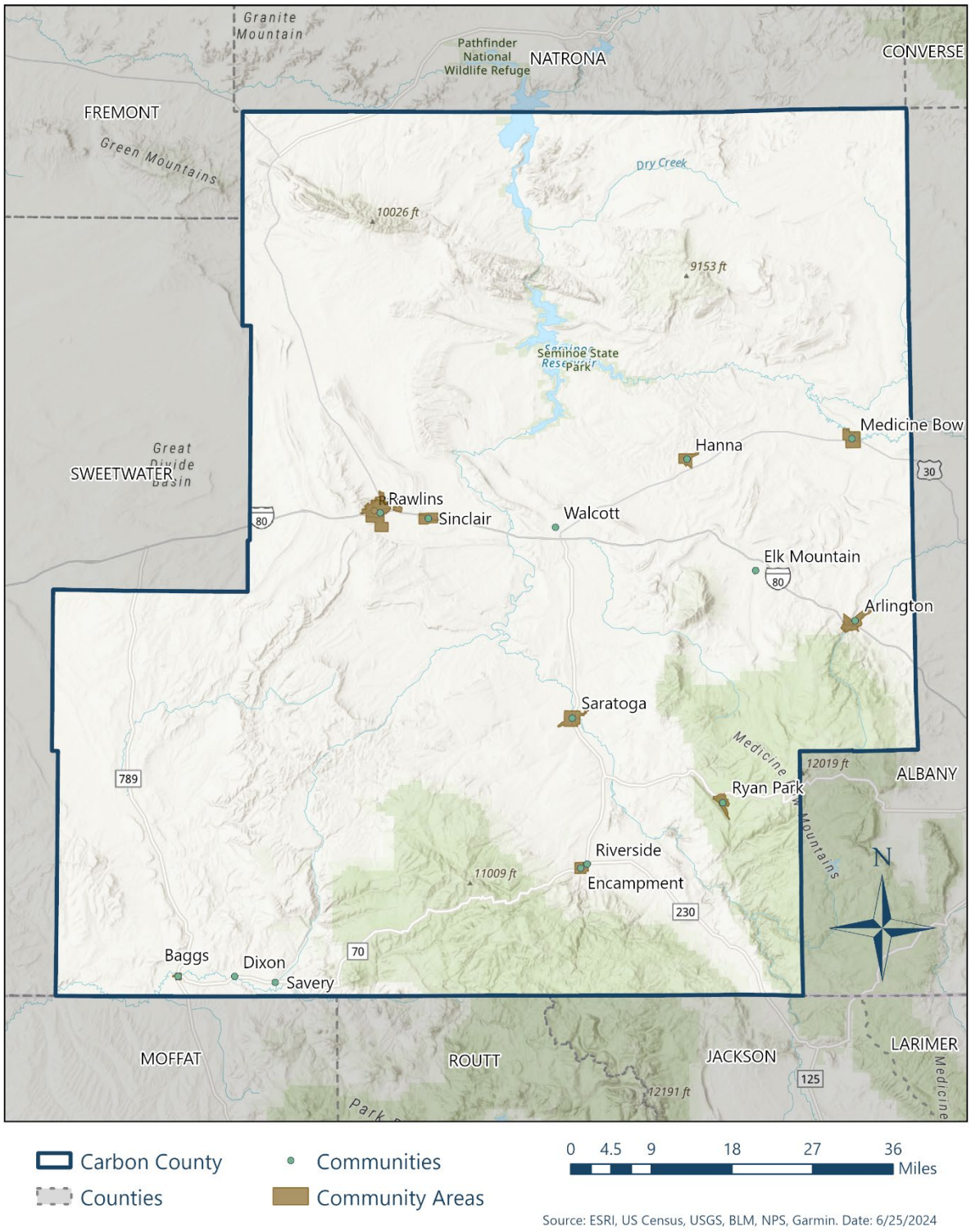
The county includes three hydrologic basins: the North Platte River Basin, the Little Snake Basin, and the Great Divide Basin. Major rivers in Carbon County include the North Platte River, which runs from north to southeast across the county, and the Little Snake River in the southwestern portion of the county near the Towns of Baggs, Dixon, and Savery. Dozens more stream systems run throughout the county. The county is primarily drained by the North Platte River, which flows northward across the county, filling the Seminoe Reservoir and continuing to the Pathfinder Reservoir.

Several major roadways exist in Carbon County. Interstate 80 runs east-west through the county, while State Highway 287 runs from north to south and meets Interstate 80 at Rawlins. US-30 meets Interstate 80 at Walcott and passes by Hanna and Medicine Bow before entering Albany County. Secondary Highway 789 runs south across the western part of the county through Baggs and into Colorado. The Union Pacific railroad parallels I-80 from Rock Springs through Rawlins and east to Walcott, then follows Highway 30/287 east through Hanna and Medicine Bow. **Figure 1** displays an overview of Carbon County and its jurisdictions. It is important to note that only the incorporated municipalities of the county are seeking FEMA approval for this plan, in addition to the county and special districts listed below.

- Carbon County
- City of Rawlins
- Town of Baggs
- Town of Dixon
- Town of Elk Mountain
- Town of Encampment
- Town of Hanna
- Town of Medicine Bow
- Town of Riverside

- Town of Saratoga
- Town of Sinclair
- Carbon County Fire Protection District (CCFPD)
- Carbon County School District #2 (CCSD #2)
- Saratoga-Encampment-Rawlins Conservation District (SERCD)
- Sierra Madre Water & Sewer Joint Powers Board (SMWSJPB)
- Medicine Bow Conservation District (MBCD)
- Little Snake River Conservation District (LSRCD)

Figure 1 Carbon County Overview



Population Change

It is important to understand population growth predictions in Carbon County as well as its jurisdiction for emergency evacuation planning, resource allocation, community preparedness, and infrastructure planning. The Wyoming Department of Administration and Information reports on population estimates for cities and counties across Wyoming, shown in **Table 1**. Based on this data, the State estimates that the Towns of Dixon and Saratoga have experienced positive population growth, the Town of Riverside has experienced little to no population change, and all other jurisdictions and the county have seen a slight decline in population over the past several years.

Table 1 Carbon County Population Estimates 2020-2023

Jurisdiction	2020 Census	2021 Estimate	2022 Estimate	2023 Estimate	Percent Change 2020-2023
Baggs	406	411	409	405	-0.2
Dixon	72	74	73	73	1.4
Elk Mountain	153	154	152	149	-2.6
Encampment	452	457	453	450	-0.4
Hanna	684	689	680	668	-2.3
Medicine Bow	242	246	245	238	-1.7
Rawlins	8,239	8,318	8,170	8,032	-2.5
Riverside	63	63	64	63	0
Saratoga	1,698	1,738	1,752	1,752	3.2
Sinclair	372	375	370	363	-2.4
Unincorporated	2,154	2,189	2,170	2,141	-0.6
Carbon County Total	**14,535**	**14,714**	**14,538**	**14,334**	**-1.4**

Source: The Wyoming Department of Administration and Information

Under-resourced and Socially Vulnerable Communities

Disadvantaged communities are disproportionately impacted by hazards. These communities often live and work in historically under-resourced areas, underinvested in, and are more prone to natural disasters. The degree to which a community exhibits certain social vulnerability conditions, including high poverty, low percentage of vehicle access, or crowded households, may also affect that community's ability to prepare for, respond to, and recover from disaster events.

Communities with access and functional needs (AFN) during disasters are often the most vulnerable populations. AFN are the factors that may limit a person's ability to communicate, maintain their health, act independently, access adequate transportation, and acquire necessary services and support before, during, and after a disaster. These needs encompass a variety of social and economic factors, which are critical to consider when developing inclusive community plans.

Throughout the planning process, it was important for the county to be cognizant of those communities and populations who may be disproportionately impacted by disaster events. Several national tools were used to understand the vulnerability in Carbon County.

The Center for Disease Control and Prevention (CDC) developed the Social Vulnerability Index (SVI) tool to help identify communities that may need special considerations and support in preparing for and recovering from disaster events. The SVI tool assesses social vulnerability by evaluating

demographic factors that can influence a community's ability to cope with disaster. These demographic factors are broken into four themes: Socio-Economic Status, Household Characteristics, Racial and Ethnic Status, and House Type and Transportation. Data from the U.S. Census Bureau American Community Survey 2018-2022 is used by the SVI tool. These statistics for Carbon County are presented in **Table 2**.

The SVI tool "flags" an indicator when the score of that indicator is in the highest quartile (top 25%). Flagged indicators mean that the county has a high percentage of people with that variable compared to other counties, and therefore the county is particularly vulnerable in that area. Special considerations should be made for these groups when planning mitigation or disaster response and recovery projects.

Table 2 Carbon County Social Vulnerability Index (SVI) Indicators

SVI Theme	Indicator Description	Estimated % of Total Population	Flag
Socio Economic Status	Percentage of persons below 150% poverty	25.3%	No
	Unemployment Rate	4.8%	No
	Percentage of housing cost-burdened occupied housing units with annual income less than $75,000 (30%+ of income spent on housing costs)	16.5%	No
	Percentage of persons with no high school diploma (age 25+)	9.9%	Yes
	Percentage uninsured in the total civilian noninstitutionalized population	14.2%	No
Household Characteristics	Percentage of persons aged 65 and older	18.3%	No
	Percentage of persons aged 17 and younger	22.8%	No
	Percentage of civilian noninstitutionalized population with a disability	12.6%	No
	Percentage of single-parent households with children under 18	6.9%	Yes
	Percentage of persons (age 5+) who speak English "less than well"	0.6%	No
Racial & Ethnic Minority Status	Percentage minority (Hispanic or Latino (of any race); Black and African American, Not Hispanic or Latino; American Indian and Alaska Native, Not Hispanic or Latino; Asian, Not Hispanic or Latino; Native Hawaiian and Other Pacific Islander, Not Hispanic or Latino; Two or More Races, Not Hispanic or Latino; Other Races, Not Hispanic or Latino)	23.8%	Yes
Housing Type & Transportation	Percentage of housing in structures with 10 or more units	3.8%	No
	Percentage of mobile homes	16.9%	No
	Percentage of occupied housing units with more people than rooms	1.4%	No
	Percentage of households with no vehicle available	3.6%	No

SVI Theme	Indicator Description	Estimated % of Total Population	Flag
	Percentage of persons in group quarters	4.2%	No

Source: Center for Disease Control, American Community Survey 2018-2022

The following pages present overviews of national indexes that assist with the identification of those under-resourced communities and socially vulnerable populations across Carbon County. **Figure 2** displays the CDC SVI ranking for Carbon County by census tracts. Most of the county is ranked as medium-high vulnerability (50th to 75th percentile), with low-medium vulnerability rankings in the southeast portion of the county. Additionally, Carbon County ranks as high (75th to 100th percentile) vulnerability overall compared to other counties in Wyoming.

For the purpose of this 2025 HMP update, the LPT decided to focus engagement efforts towards the following under-resourced communities across the county. Additional details pertaining to these efforts can be found in the Base Plan's Planning Process chapter.

- Older Adults
- Transient Populations
- Rural Communities/Remote Subdivisions

Figure 2 Carbon County Social Vulnerability Index (SVI)

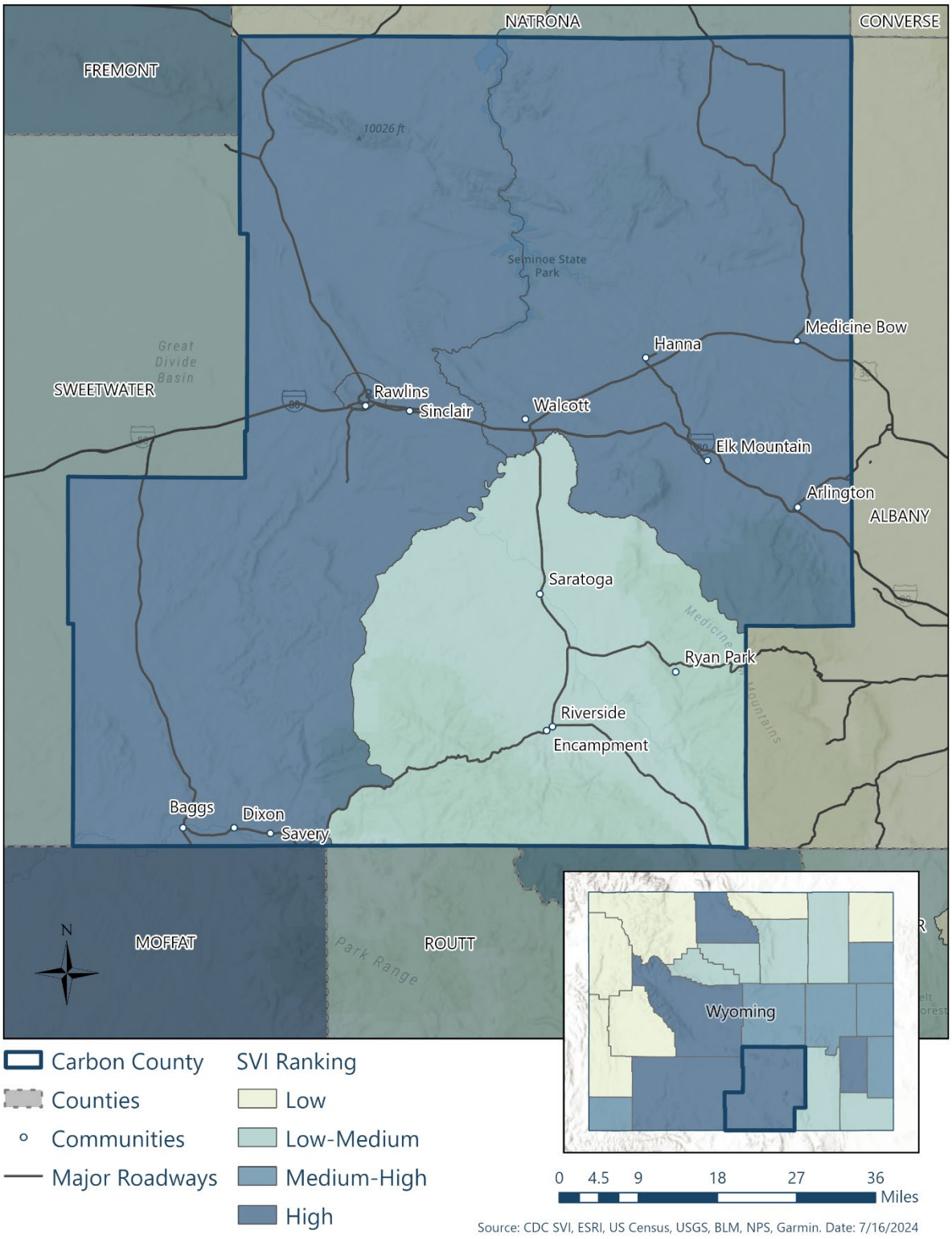


Figure 3 displays data from the Climate and Economic Justice Screening Tool (CEJST), which was developed by the U.S. government as part of the Justice40 initiative. The tool aims to identify communities that are underinvested in critical infrastructure/services and overburdened by pollution. According to CEJST, the northeastern portion of the county and the census tract in western Rawlins are disadvantaged.

Figure 3 Carbon County Climate and Economic Justice Screening Tool

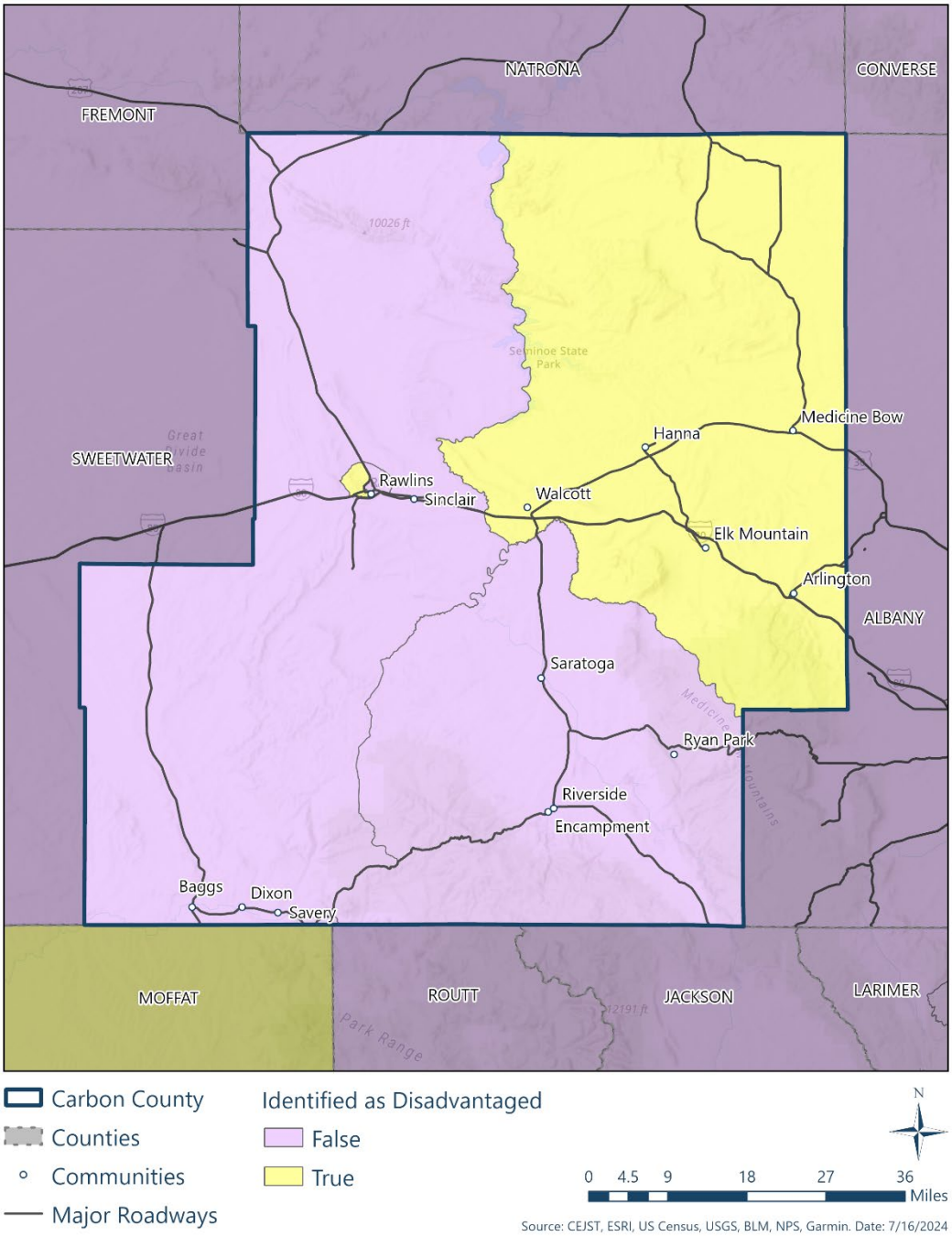
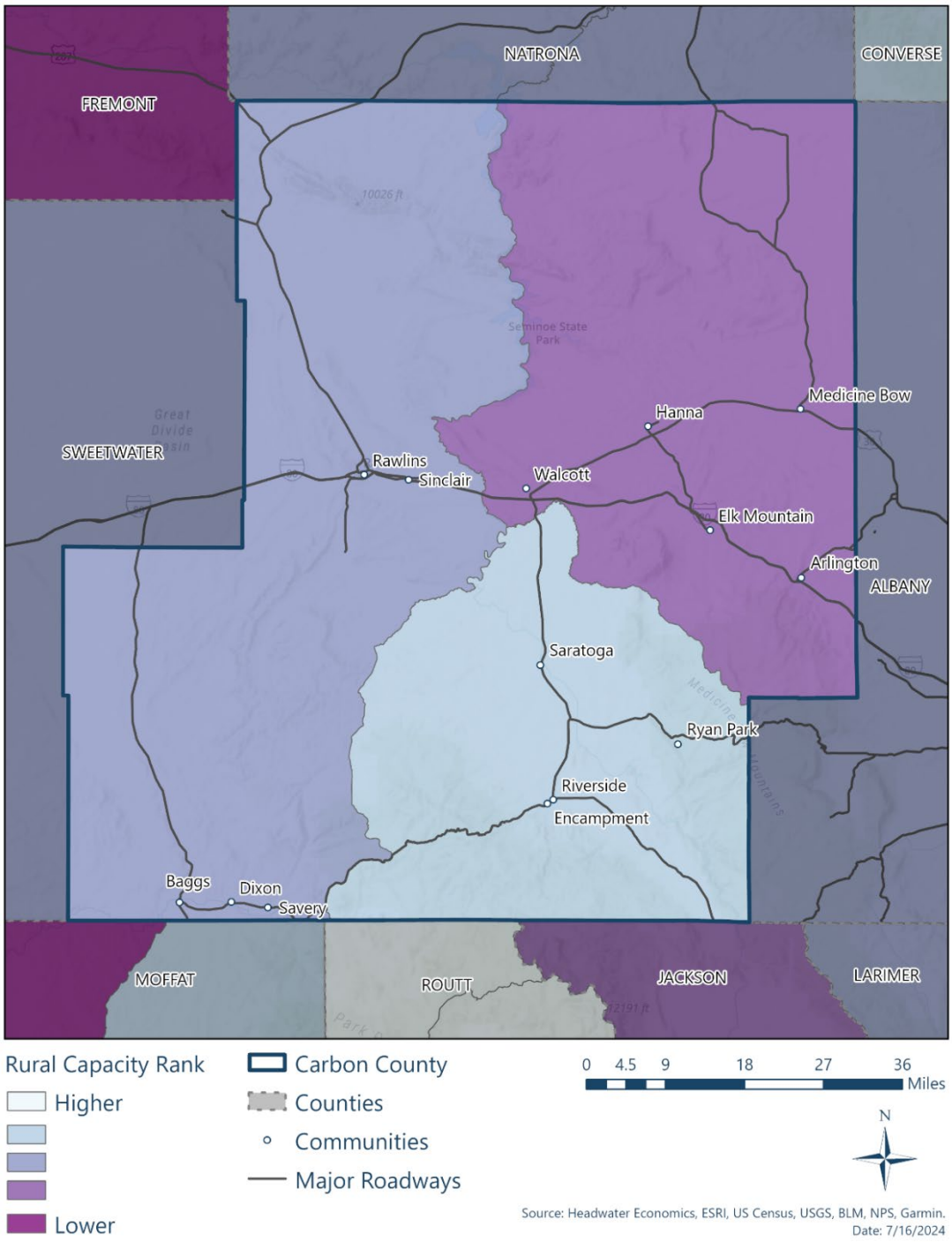


Figure 4 displays information from the Headwaters Economics Rural Capacity Index (RCI). This toolset evaluates various factors that influence a rural community's ability to access funding and resources. The data is displayed by sub-county areas, with the lowest capacity (and therefore greatest vulnerability) in northeastern Carbon County, and the greatest capacity in southeastern Carbon. Visit the RCI website to see the rural capacity rankings for individual communities in Carbon County.

Figure 4 Carbon County Rural Capacity Index



Land Use and Development

Identifying land ownership is essential when conducting hazard mitigation projects for several reasons. First, knowing who owns the land helps determine who is responsible for maintaining mitigation measures, as well as ensuring these owners grant access and permission to conduct mitigation projects. Additionally, each owner may have different access to various resources and capabilities for hazard mitigation. **Table 3** summarizes landownership in Carbon County. Most of the land in the county is public land managed by state or federal entities (60.9%). Agricultural land comprises 36.3% of all land in the county.

The Bureau of Land Management (BLM) is the largest landowner in Carbon County, managing over 2 million acres of surface and mineral rights. Other federal lands are managed by the U.S. Forest Service, Bureau of Reclamation, and Fish and Wildlife Service. Lands that are privately owned or state-owned are distributed in a checkerboard pattern due to federal land grants to railroads in the 1800s. **Figure 5** and **Figure 6** below display the land ownership by parcel in Carbon County and its jurisdictions.

Additionally, Carbon County has three Conservation Districts: Medicine Bow Conservation District (MB CD), Little Snake River Conservation District (LSR CD), and Saratoga-Encampment-Rawlins Conservation District (SER CD). These districts operate as legal subdivisions of the state of Wyoming (Wyo. Stat. 11-16-102(a)(v), 11-16-113(c)) and are the only local governments specifically charged by state statute with natural resource management.

Table 3 Carbon County Land Ownership

Land Ownership	Number of Land Parcels	Total Acres	Percent of Total Land
Agricultural	1,395	1,842,849	36.3%
Commercial Vacant Land	313	5,317	0.1%
Commercial	747	3,839	0.1%
Public (Federal/State)	934	3,093,623	60.9%
Industrial Vacant Land	53	8,854	0.2%
Industrial	9	484	0.0%
Residential Vacant Land	2,636	97,406	1.9%
Residential	6,412	24,323	0.5%

Source: Carbon County Assessor

Figure 5 Carbon County Landownership

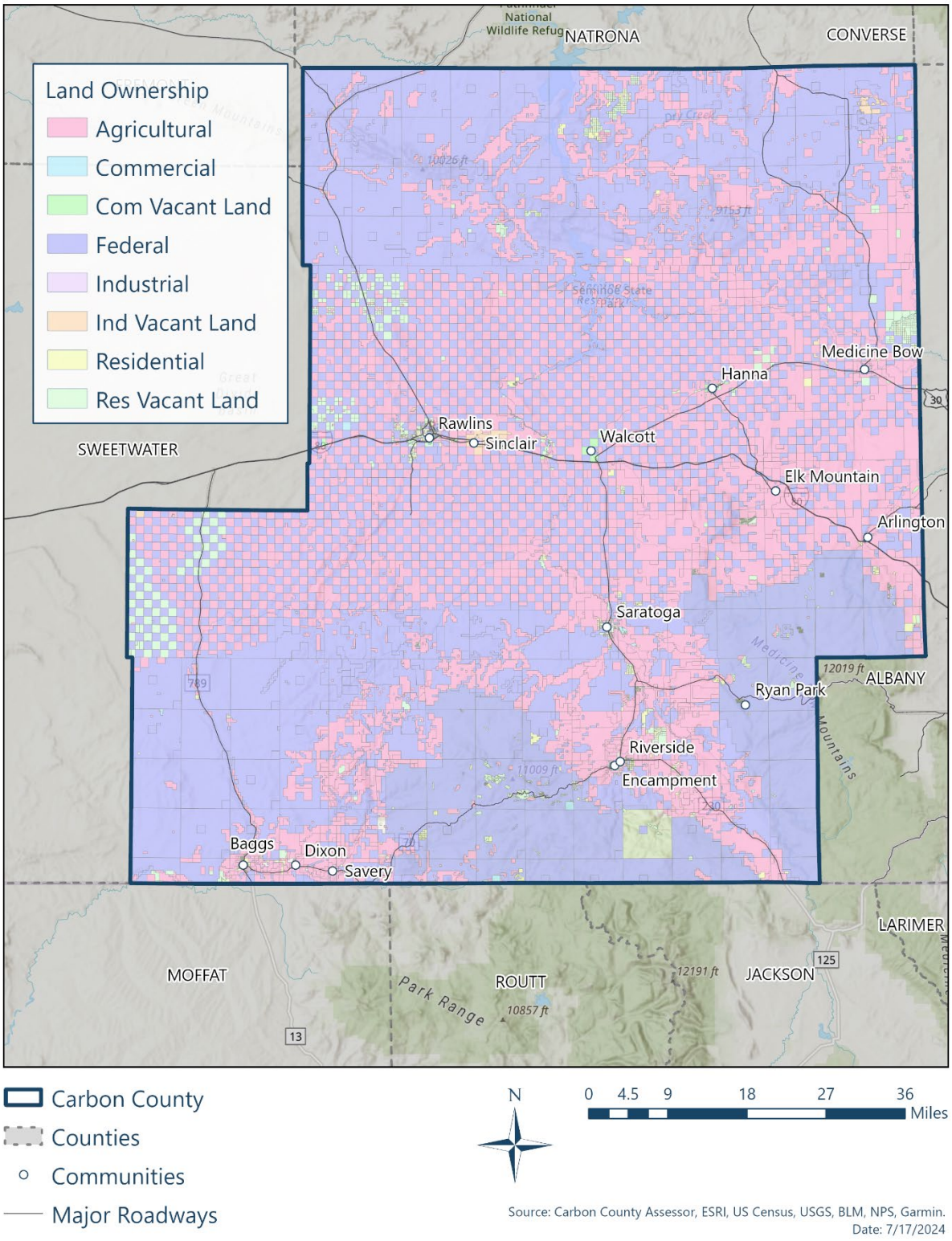
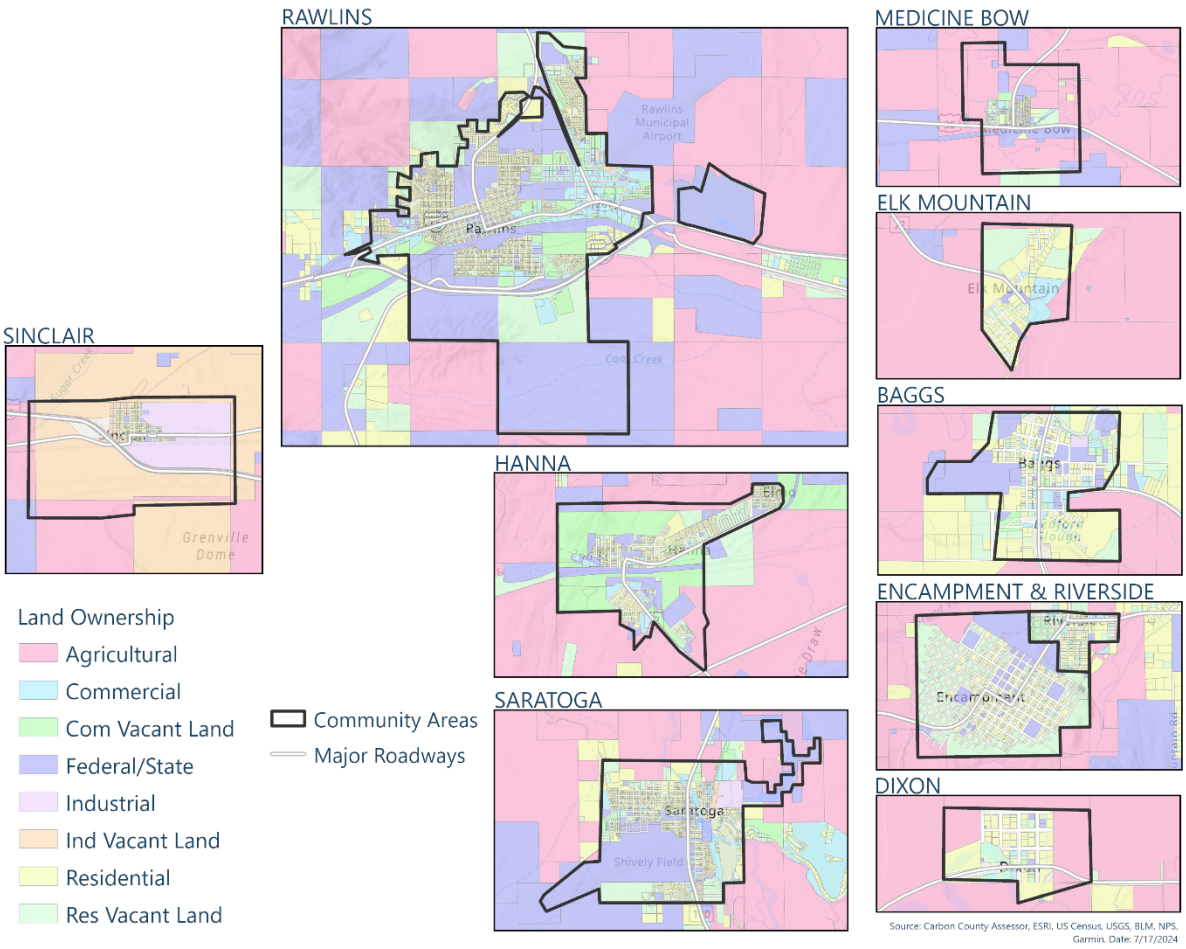


Figure 6 Carbon County Landownership Inset Maps



Natural and Historic Resources

Endangered and Threatened Species

Identifying natural and culturally significant resources in Carbon County is important for several reasons. Knowledge of endangered or threatened species allows planners to make informed decisions about where and how to implement hazard mitigation strategies to minimize negative impacts on biodiversity and comply with laws such as the Endangered Species Act (ESA). Additionally, including endangered species considerations in mitigation projects can open additional conservation and habitat protection funding opportunities.

The U.S. Fish and Wildlife Service reports listed species that are known to occur in Carbon County, Wyoming, listed in **Table 4**. While no critical habitats are currently established in Carbon County, it is possible that there will be in the future if populations of these species continue to decline. Proposed mitigation projects should still determine what effects they have on these listed species.

Table 4 Carbon County Endangered and Threatened Species

Species Category	Species Name	Status
Mammal	Canada Lynx	Threatened

Species Category	Species Name	Status
Birds	Mexican Spotted Owl	Threatened
Birds	Piping Plover	Threatened
Birds	Whopping Crane	Endangered
Birds	Yellow-Billed Cuckoo	Threatened
Fishes	Bonytail	Endangered
Fishes	Colorado Pikeminnow	Endangered
Fishes	Humpback Chub	Threatened
Fishes	Pallid Sturgeon	Endangered
Fishes	Razorback Sucker	Endangered
Insects	Monarch Butterfly	Candidate
Flowering Plants	Blowout Penstemon	Endangered
Flowering Plants	Ute Ladies'-tresses	Threatened
Flowering Plants	Western Prairie Fringed Orchid	Threatened

Source: U.S. Fish and Wildlife Service

National protected areas in Carbon County include the Fort Fred Steele State Historic Site, portions of the Medicine Bow National Forest, and the Pathfinder National Wildfire Refuge.

National Register of Historic Places

The National Park Service maintains the National Register of Historic Places, the official list of the Nation's historic places worthy of preservation. These historic places often hold significant cultural, architectural, or archaeological value and are important to identify to ensure efforts are made to protect and preserve them during disasters. These structures are also more vulnerable to hazard events, as they are often not built to modern building codes. **Table 5** lists historic places in Carbon County and its jurisdictions.

Table 5 Carbon County Historic Places

Resource Name	Resource Type	Jurisdiction
Baker, Jim, Cabin	Building	Unincorporated
Bridger's Pass	Site	Unincorporated
Carbon Cemetery	Site	Unincorporated
DFU Elk Mountain Bridge	Structure	Elk Mountain
Divide Sheep Camp	Building	Unincorporated
DMJ Pick Bridge	Structure	Unincorporated
DML-Butler Bridge	Structure	Unincorporated
Ferris George Mansion	Building	Rawlins
First State Bank of Baggs	Building	Baggs
Fort Halleck	Site	Unincorporated
Fossil Cabin	Building	Unincorporated
France Memorial United Presbyterian Church	Building	Rawlins
Grand Encampment Mining Region: Boston Wyoming Smelter Site	Site	Encampment
Hanna Community Hall	Building	Hanna
Headquarters Park Historic District	District	Unincorporated
Headquarters Park Historic District	District	Unincorporated

Resource Name	Resource Type	Jurisdiction
Hotel Wolf	Building	Saratoga
Hugus Hardware	Building	Saratoga
Jack Creek Guard Station	Building	Unincorporated
Medicine Bow Union Pacific Depot	Building	Medicine Bow
Saratoga Masonic Hall	Building	Saratoga
Stockgrowers Bank	Building	Dixon
Union Pacific Railroad Depot	Building	Rawlins
Union Pacific Railroad Depot	Building	Rawlins
The Virginian Hotel	Building	Medicine Bow
Willis House	Building	Encampment

Source: National Parks Service

Carbon County Mitigation Strategy

2020 Mitigation Strategies

As part of the plan update process, local participating governments reviewed and reported on the status of all mitigation actions (i.e. – projects) identified in the 2020 HMP. **Table 6** provides a summary of progress made towards making Carbon County more resilient to the impacts of hazards.

As important as acknowledging projects that were accomplished, actions in a community that are ongoing are often overlooked as examples of positive implementation of the mitigation strategy. On-going projects are those without a timeline and that may not have deliverables that bring closure to a project but rather continued milestones. Examples include education and outreach efforts, maintenance activities, continual work on updating plans and organizational coordination, and constant work to improve processes and infrastructure.

Some 2020 actions did not see any progress made, but a portion of these projects retain community support and are being carried forward in this 2025 HMP ("No Progress – Continue Action).

Outside of those actions identified in the previous HMP, local governments did report on other mitigation successes that were accomplished since 2020. A summary of these efforts included:

- Carbon County EM secured and deployed Early Warning Gauges that can be deployed in burn scars or other areas of concern for earlier detection of potential flooding from storm runoff in both Carbon and Albany Counties. Carbon County Office of Emergency Management was successful in obtaining a Hazard Mitigation Grant that allowed us to obtain six (6) Early Alert & Warning Stations that communicate directly with the National Weather Service, in real-time (every 1-3 minutes during a precipitation event). These were initially placed within the Mullen Fire Burn Scar to help make Alerts & Warnings for Flash Floods & Debris Flows more robust. These 6 Early Alert & Warning Stations are fully deployable across the entire state where Flash Floods & Debris Flows are a concern due to recent wildfires.
- The City of Rawlins has implemented a comprehensive emergency management plan for snow removal.
- The Towns of Encampment and Riverside have an emergency water connection allowing each to serve the other community in the event of an emergency. That was critical, as the risk of drought and fire identified the lack of potable water options for each of us in an emergency. With Encampment being a surface water source and Riverside having a well field it is unlikely we would each experience an incident affecting water systems at the same time. We are also developing new partnerships with other agencies along the way.

- The LSRCD has implemented 7.5 miles of river restoration through the town of Baggs, currently there is work going on up Savery Creek. The diversion structures throughout the valley have been updated to be more efficient. The diversion structure in town that caused flooding in the past has been removed. Hazardous fuels have been removed on several acres in the desert, up Savery Creek, forest edge and Battle Mountain. Several water development projects have been installed to help with drought such as wells, ponds and pipelines.
- CCSD #2 has utilized and prioritized the Standard Response Protocol throughout the district.

Table 6 Past 2020 Mitigation Action Status

ID	Lead Government	Hazard	Project	Priority	2024 Status	2024 Comments
2016.01	Baggs	Flood	Continue participation in NFIP. Coordinate with FEMA RiskMAP project.	H	On-Going	Continue to participate in NFIP.
2016.02	Baggs	Flood	Participate in county-NF coordination project.	M	On-Going	Continue to participate in NF.
2016.03	Baggs	Flood	Update 1990s Storm Water Management Plan	M	On-Going	Continue working with FEMA
2016.04	Baggs	HazMat	Conduct a tabletop exercise for Baggs first responders on their responsibility during pipeline rupture or leak, how to coordinate with pipeline company.	M	No Progress - Continue Action	
2016.05	Baggs	All	Obtain a permanent 3-phase stand-by generator for the water plant	M	No Progress - Continue Action	Continuing to seek funding for this project
2016.07	Baggs	All	Have Red Cross pre-certify 1-2 shelter locations	M	Complete	
2019.10	Carbon County	Drought	Region 3 and the entire state of Wyoming is subject to drought. Informing local residents via a flyer of the risk of drought and actions they can take to minimize drought's impact on the community will empower residents to take action. Many of drought's impacts can be minimized through residents'	M	In-Progress	Carbon County consistently remains in a drought condition.

ID	Lead Government	Hazard	Project	Priority	2024 Status	2024 Comments
			active conservation efforts, saving residents money as well as protecting valuable community water assets. This action will protect the viability of our communities, agricultural economic viability, and potable water infrastructure.			
2016.08	Carbon County	HazMat	Educate, train and equip fire fighters to respond safely to incidents involving production water.	H	Complete	Carbon County has and continues to train firefighters on the Hazards of production water. As we have turnover we train our new firefighters on the response to petroleum incidents including production water as this is in our Firefighter 1 curriculum.
2016.09	Carbon County	Flood	Continue participation in NFIP. Coordinate with FEMA RiskMAP project.	H	In-Progress	Carbon County is in the process of updating the floodplain ordinance in conjunction with the updated RiskMAPs.
2016.10	Carbon County	All	Complement Code Red with IPAWS county-wide and complete implementation. Public awareness effort to get everyone signed up for Code Red.	H	In-Progress	Code Red was replaced in 2020 with AlertSense and has full IPAWS capbilites. Multiple public awarness campaigns have been completed to help insure all Carbon County residents are aware of this service.

ID	Lead Government	Hazard	Project	Priority	2024 Status	2024 Comments
2016.12	Carbon County	Dam Failure	Ensure dam Emergency Action Plans are kept current by responsible entity and available to emergency management.	M	In-Progress	Currently and on-going working with Wyoming State Eng. Office
2016.13	Carbon County	Flood	Update County floodplain regulations	M	In-Progress	Carbon County is in the process of updating the floodplain ordinance in conjunction with the updated RiskMAPs.
2016.14	Carbon County	Flood, Wildland Fire	Coordinate with National Forest managers to understand potential hazards from natural or human-caused actions on the NF, and to reduce and mitigate those hazards.	M	Complete	Previous Planning & Development Directors worked in coordination on this project.
2016.18	Carbon County	Weather Hazards	Continue to offer periodic weather spotter training	M	In-Progress	Weather spotter training is offered by NWS/NOAA and shared by the Carbon County Office of Emergency Management.
2016.20	Carbon County	All	Continue development of a County Type 3 All-Hazard Response Team.	M	Complete	The Type 3 All-Hazard Response Team concept was disbanded for various reasons.
2016.21	Dixon	Flood	Coordinate with FEMA RiskMAP project.	H	In-Progress	The Town continues to work with FEMA.
2016.22	Dixon	HazMat/ Mass Casualty	Plan for a mass casualty incident at the airport. Coordinate with Baggs and Craig, CO.	L	No Progress - Continue Action	This has not been completed.
2016.23	Dixon	Flood	Continue participation in NFIP. *Participate in county-NF coordination project.	M	In-Progress	The Town continues to participate in NFIP.
2016.24	Elk Mountain	Flood	Coordinate with FEMA RiskMAP project and establish new base flood elevations.	H	On-Going	

ID	Lead Government	Hazard	Project	Priority	2024 Status	2024 Comments
2016.25	Elk Mountain	Flood	Continue participation in NFIP. *Participate in county-NF coordination project.	M	On-Going	
2016.29	Encampment	Flood	Implement drainage study to properly route surface water.	H	In-Progress	A study has been completed and we are working toward its implimentation as we are able.
2016.30	Encampment	Flood	Maintain eligibility of residents to purchase flood insurance.	H	In-Progress	
2016.31	Encampment	Wildland Fire	Continue Fire Wise program, hazard fuel reduction projects. Prepare to host a large fire organization.	H	In-Progress	
2016.32	Encampment	Flood	Continue to monitor potential damage from high ground water. Identify projects to address situations.	M	No Progress - No Longer a Mitigation Priority	
2016.34	Encampment	Wildland Fire	Increase capacity of settling pond to handle larger sediment load.	M	No Progress - Continue Action	
2016.35	Encampment	Wildland Fire	Clean up and mitigation of overgrown vegetation areas to prevent spread of fire to populated areas.	M	In-Progress	
2016.39	Hanna	Winter Storms	Certify and supply at least two shelters (back-up power)	M	On-Going	
2019.09	Medicine Bow	Severe Thunderstorm, Tornado, Wildland Fire, Wind, Winter Storm/	Medicine Bow is subject to power outages from multiple natural hazards which impact critical infrastructure. Medicine Bow proposes to add backup generators to ensure ongoing operation of critical infrastructure which includes the local water treatment plant, the sewer	H	No Progress - Continue Action	Currently in discussions with WOHS about potential funding opportunities.

ID	Lead Government	Hazard	Project	Priority	2024 Status	2024 Comments
		Blizzard, Terrorism	lagoon pumping station, the fire department and the community hall which also functions as a gathering place/shelter.			
2016.40	Medicine Bow	Flood	Continue participation in NFIP. *Participate in county-NF coordination project.	H	On-Going	on going
2016.44	Medicine Bow	Summer Storms, Wind, Wild Fire, Winter Storms	Work with county to train and develop a high angle rescue team to respond to wind farm incidents.	M	No Progress - Continue Action	no progress - coordinating w satate
2019.04	Rawlins	Drought	Improve the spring collection intakes presently within our sage creek collection area, as this area historically produces more water than we can collect. In addition we will be replacing the last section of wood stave pipeline that is past its service life.	M	In-Progress	The City has secured funding to perform the design of the spring collection boxes within the Sage Creek Basin. The City has selected a contractor and has the contractor under contract. The design phase will be complete in the Spring of 2025. The City will then need to secure funding to perform the construction phase.
2019.05	Rawlins	Drought	Water treatment expansion and upgrade plan to improve filtration and processing capacity	M	In-Progress	The City is focusing on two efforts where water treatment expansion and upgrade are concerned. The City of Rawlins had the Wyoming Water Development Commission perform a master water

ID	Lead Government	Hazard	Project	Priority	2024 Status	2024 Comments
						plan. Part of that plan is water treatment expansion and upgrade. The various stages of the master water plan are being planned out. Second the city has rehabilitated the water pretreatment plant. The water pretreatment plan is current operational. Plans are being drafted that will enhance the production.
2019.06	Rawlins	Drought	Reducing the amount of treated water used on green spaces and converting to using raw water. This would be done by extending the raw water line from the river that currently provides water to the Municipal golf course. Proposal is to extend to cemetery, sports complex and school district athletic fields.	H	No Progress - Continue Action	No progress has been made on using more raw water. The cemetery water line was a 6th penny tax project. Inflation has been the most significant factor in delaying this project.
2019.07	Rawlins	Drought	Create and install a xeriscape or low water usage alternative to the present city green belts to reduce usage within the city. In addition create and adopt a City wide landscaping standard appropriate for the high desert climate that encourages and requires low water usage landscaping on new developments.	M	In-Progress	The city has had communication wit the University of Wyoming about zero scaping. The city council has had a couple of work sessions on the matter but not action has been taken as of yet. When this action was created the City of Rawlins was under severe water restrictions. The past two

ID	Lead Government	Hazard	Project	Priority	2024 Status	2024 Comments
						years the city was well supplied with water.
2019.08	Rawlins	Drought	Continue to educate the public, our governmental partners and through the use of engineering measures continue to meter the flow and usage of all water provided. With such software programs as Sensus the City of Rawlins has been able to monitor usage of all our 3500 customers in real time, which has greatly improved the ability to discover water leaks, high usage situations and other conditions effecting the water supply system.	H	In-Progress	The city has been able to capture data that is the result of water usage. A current effort is to move the utilities clerk from the Finance Office to Public Works so that data can discussed on the front line of operations rather that in the Finance Office.
2016.45	Rawlins	Flood	Design, engineer, and construct storm water mitigation project.	H	No Progress - Continue Action	There has notbeen progress on this action item. The main reason being lack of funds to perform storm water mitigation projects. A couple of projects including Edinburgh Street and the Pedestrian Underpass have had significant items relating to Storm Water Mitigation.
2016.46	Rawlins	Flood	Continue participation in NFIP. Coordinate with FEMA RiskMAP project.	H	On-Going	The risk maps have been completed for the Type A Flood Zone. An ordinance concerning the flood zone has been adopted by the city council. Remaining efforts are to challenge the

ID	Lead Government	Hazard	Project	Priority	2024 Status	2024 Comments
						flood zone through a Letter of Map Revision with FEMA.
2016.47	Rawlins	Winter Storm, HazMat	Continue work with WYDOT to secure truck parking area for Interstate closures.	M	No Progress - Continue Action	No progress has been made at this time.
2016.48	Rawlins	HazMat	Continue coordination with railroad to establish a mobile or stationary foam cache.	M	No Progress - Continue Action	No progress has been made at this time.
2016.52	Riverside	All	Conduct feasibility study of sewer lift back-up generator to provide power to town during outage	H	No Progress - No Longer a Mitigation Priority	Determined that generator was insufficent to power the Town.
2016.53	Riverside	Wildland Fire	Purchase, install air quality monitoring equipment.	L	No Progress - Continue Action	
2019.02	Saratoga	Hazmat	Mitigation of hazardous material transportation through downtown Saratoga through: - The Town of Saratoga will work with WYDOT to lower the speed limit through town beginning at the south town limits to the north town limits, a distance of approximately three miles. - By reducing the speed limit to 30 mph through this area it will reduce the speed going through the busiest, congested areas of Saratoga. - As a control devise, the town would like to install stationary permanent speed signs at the south and north town limits.	M	On-Going	A study called STAMPS was done with similar recommendations, including Flashing Speed limit Signs. The Saratoga Town Council adopted by resolution and will continue with appropriate implementation.

ID	Lead Government	Hazard	Project	Priority	2024 Status	2024 Comments
2019.03	Saratoga	Flood	The Town of Saratoga will continue to work on River Restoration and Flood Mitigation with the local Natural Resource Conservation District to address areas of concern within the town limits. In 2014 the Town of Saratoga partnered with the local Soil Conservation District to contract with StanTec Consulting to develop a conceptual design and geomorphology river assessment of the Upper Platte River through Saratoga. The Town of Saratoga would like to again partner with the local Soil Conservation District and: - Design a self-sustaining, natural, stable river - Reduce the flood stage through SaratogReduce the sediment deposition through the reach - Maintain the integrity and function of the bridges - Protect river corridor utilities The design will restore approximately 7,800 ft of the North Platte River and 1,200 ft of the Cadwell Slough at an approximate cost of 4.8 million dollars.	M	On-Going	Town of Saratoga continues to work on this scope of work with the SER Conservation District.
2016.57	Saratoga	Flood	Implement river stabilization project through town.	H	On-Going	Town of Saratoga continues to work on this scope of work with the SER Conservation District.

ID	Lead Government	Hazard	Project	Priority	2024 Status	2024 Comments
2016.59	Saratoga	HazMat/Mass Casualty	Plan and train for aircraft incident at airport.	M	No Progress - Continue Action	Town will discuss necessary steps with Saratoga Fire and Airport Board.
2016.60	Saratoga	HazMat	Plan, train and equip for hazmat incident in Saratoga.	M	On-Going	Saratoga Fire and Saratoga PD continues to train regularly on all-hazards response including hazmat.
2019.11	Saratoga-Encampment-Rawlins Conservation District	Flood	North Platte River at Boozer Creek upstream of Saratoga. Mitigate current flooding threat to Saratoga Residents and businesses. Eliminate the potential of the North Platte River from breaching the dike at Boozer Creek.	H	In-Progress	2024 FEMA BRIC funding was secured for construction to mitigate potential flooding issues at Boozer Cr. State funding applications have been submitted to fund the remaining 25% of project costs. Implementation is scheduled for the fall of 2025.
2019.01	Sinclair	All	There is currently no shelter in the community. The community is looking to use the elementary school, but they need a generator.	M	In-Progress	Not adressed at this time still in discussion
2016.61	Sinclair	HazMat	Develop a welcome packet and an education program for town residents regarding refinery emergencies.	H	In-Progress	We are asking new citizens of the comunnity to sign up for Alert Sense notifactions when they come into town hall to put there name on the water bill. They are given a had out about the program

ID	Lead Government	Hazard	Project	Priority	2024 Status	2024 Comments
2016.62	Sinclair	HazMat	Work with DEQ and county to establish real-time permanent monitoring sites with information available on line.	M	Complete	Sinclair refinery has positioned monitering site in place.

2025 Mitigation Actions

Table 7 and **Table 8** includes the full details of all new mitigation actions included in this updated 2025 HMP. It should be noted that for potential funding source(s), reference to a "general fund" includes staff time.

Table 7 New 2025 Mitigation Actions

ID & Action Title	Local Government	Lead Entity	Partner Organization(s)	Primary Hazard Mitigated	Relevant Goal(s)	Action Details & Benefits
1. Avalanche (only risk to county and SERCD – no risk in other local municipalities or special districts)						
1: Avalanche Observation Program	Carbon County, SERCD	County Sheriff, SERCD District Manager	Office of Emergency Management	Avalanche	1, 5	Implement an avalanche reporting tool for Albany and Carbon Counties. Overall tool to be developed by CCEMA in coordination with Albany County EMA.
2. Drought (no risk to Elk Mountain, CCFPD, CCSD #2, MBCD, LSRCD)						
2A. Drought Mitigation Public Education	Carbon County, Baggs, Dixon, Elk Mountain, Encampment, Hanna, Riverside	County EM Coordinator, Baggs Clerk, Dixon Mayor, Elk Mountain Fire Chief, Encampment Mayor, Hanna Clerk, Riverside Mayor		Drought	2, 4, 5	Educate the public on drought mitigation through annual spring public outreach events, newspaper posts, water bills, social media, and websites. The county will acquire / lead the development of all engagement materials. Local governments will provide support at events and will utilize their own media sources to disseminate these materials.

ID & Action Title	Local Government	Lead Entity	Partner Organization(s)	Primary Hazard Mitigated	Relevant Goal(s)	Action Details & Benefits
2B. Baggs Drought Plan	Town of Baggs	Mayor		Drought	3, 5	Develop a drought plan to identify alternative drinking water sources for the town.
2C. Water Storage Tanks	City of Rawlins, Town of Saratoga	Rawlins Public Works Director, Saratoga Mayor		Drought	1, 5	The city and town's current water transmission lines and storage are failing due to age and lack of long-term maintenance. The City had a master water plan performed that recommends potential actions to rehabilitate or replace existing water infrastructure, including storage tanks.
2D. Develop a Precipitation Watch Program	Town of Medicine Bow	Public Works Director	Carbon County Emergency Management	Drought	2, 4, 5	Develop a town program to continually monitor precipitation, groundwater, and wells and set an ordinance for water conservation and restrictions.
2E. Development of a Water Conservation plan	Town of Sinclair	Mayor	City of Rawlins	Drought	1, 2, 3, 4, 5	Develop a water conservation plan to reduce water usage across the town.
2F. Livestock Watering Sources	SERCD	District Manager	SERCD, BLM, WGFD, BLM, USFS	Drought	2, 4, 5	Provide additional livestock watering sources across the district.
2G. Alternate Water Sources	SMWSJPB	Clerk	Carbon County Office of Emergency Management	Drought	3	Update the Emergency Water Interconnect Agreement between the Town of Encampment and the Sierra

ID & Action Title	Local Government	Lead Entity	Partner Organization(s)	Primary Hazard Mitigated	Relevant Goal(s)	Action Details & Benefits
						Madre Water & Sewer Joint Powers Board. Look for bulk water suppliers and add to the Sierra Madre Source Water Protection Plan.
3. Earthquake (no risk to MBCD)						
3A. Public Earthquake Awareness Campaign	Carbon County, Rawlins, Baggs, Dixon, Elk Mountain, Encampment, Hanna, Medicine Bow, Riverside, Saratoga, Sinclair, CCFPD, CCSD #2, SERCD, LSRCD	County EM Coordinator, Rawlins Community Development Director, Baggs Clerk, Dixon Mayor, Elk Mountain Fire Chief, Encampment Clerk, Hanna Clerk, Medicine Bow Public Works Director, Riverside Mayor, Saratoga Clerk, Sinclair Mayor, CCFPD Chief, CCSD #2 Superintendent, SERCD District Manager, LSRCD District Manager	Planning & Development	Earthquake	1, 2, 3, 4, 5	Update the Carbon County Emergency Management website and literature to educate residents on the potential risk of earthquakes and ways the public can individually mitigate the hazard. Identified local governments will provide support at events and will utilize their own media sources to disseminate these materials (via water bills, social media, websites, and flyers).

ID & Action Title	Local Government	Lead Entity	Partner Organization(s)	Primary Hazard Mitigated	Relevant Goal(s)	Action Details & Benefits
3B. Earthquake Awareness	SMWSJPB	Clerk	Carbon County Office of Emergency Management	Earthquake	1, 2, 3, 4, 5	Update the Sierra Madre Source Water Protection Plan to include water system earthquake response, including alternate water sources. Provide mitigation education to water system customers on the potential risk of earthquakes and the availability of the Emergency Water Interconnect.
4. Flood/Dam, Dike, & Levee Incident (no risk to Hanna, Sinclair, CCFPD, MBCD, LSRCD, or SMWSJPB)						
4A. Flooding Awareness	Carbon County, Hanna, Rawlins, Saratoga, Sinclair, CCSD #2, SERCD, SMWSJPB	County EM Coordinator, Hanna Clerk, Rawlins Community Development Director, Saratoga Clerk, Sinclair Mayor, CCSD #2 Superintendent, SERCD Manager, SMWSJPB Clerk	Planning & Development	Flood/Dam, Dike, & Levee Incident	1, 2, 3, 4, 5	Educate the public on flooding awareness and mitigation through annual spring public outreach events, newspaper posts, water bills, social media, and websites. The county will acquire/lead the development of all engagement materials. Identified local governments will provide support at events and utilize their own media sources to disseminate these materials. CCSD #2 will focus education towards district staff.
4B. Baggs Flood Plan	Town of Baggs	Mayor		Flood/Dam, Dike, & Levee Incident	1, 2, 3, 4, 5	Maintain the dikes and levees that could impact the town.
4C. Coordinate with FEMA on the Identified	Town of Dixon	Mayor		Flood/Dam, Dike, & Levee Incident	1	Provide data and community input in the updated flood mapping products. Assist with

ID & Action Title	Local Government	Lead Entity	Partner Organization(s)	Primary Hazard Mitigated	Relevant Goal(s)	Action Details & Benefits
Risk Map project.						the dissemination of the maps and data.
4D. Waterway flow maintenance	Town of Elk Mountain	Public Works Director	Office of Emergency Management	Flood/Dam, Dike, & Levee Incident	1, 2, 3, 4, 5	Check water flow paths for springtime blockage. Beaver dams and infestations are common. Remove beavers and any dams they create. Remove the downfall of local trees or the previous year's spring run-off.
4E. Drainage Improvements	Town of Encampment	Mayor		Flood/Dam, Dike, & Levee Incident	1, 2, 3, 4, 5	Continue implementation of the surface drainage plan.
4F. Develop a Flood Mitigation Program	Town of Medicine Bow	Public Works Director	Carbon County Emergency Management	Flood/Dam, Dike, & Levee Incident	1, 2, 3, 4, 5	Develop a multifaceted flood mitigation program that includes town maintenance of berms and dikes, preparation of shelters with necessary safety/medical gear, and increased public awareness to focus on mitigation, emergency power, the sandbag program, new construction zoning, and water and sewer check valves.
4G. Adopt a Flood Ordinance	Carbon County, Baggs, Riverside, Saratoga	County Planning & Development Director, Baggs Mayor, Riverside Mayor, Saratoga Clerk		Flood/Dam, Dike, & Levee Incident	1, 5	Adopt new FEMA flood map and flood plain ordinance.

ID & Action Title	Local Government	Lead Entity	Partner Organization(s)	Primary Hazard Mitigated	Relevant Goal(s)	Action Details & Benefits
4H. Central Office flood mitigation	CCSD #2	Superintendent	Town of Saratoga/ Carbon County Emergency Management	Flood/Dam, Dike, & Levee Incident	1, 4, 5	Coordinate with Carbon County Emergency Management to develop written procedures in the event of potential flooding.
4I. Flood Mitigation for Saratoga	SERCD	District Manager	Saratoga	Flood/Dam, Dike, & Levee Incident	1, 2, 3, 4	Mitigate the flood potential through Saratoga.
4J. Carbon County High Hazard Dam Risk Analysis & Public Communication Program	Carbon County	EM Coordinator		Flood/Dam, Dike, & Levee Incident	1, 2, 3, 4, 5	Under the direction of the Carbon County Office of Emergency Management and with support from the Carbon County Council of Governments, this initiative works with the 13 identified high-hazard dams to develop a priority hazard risk ranking. This ranking will inform a public education and awareness program designed to strengthen the Carbon County Mass Notification System, AlertSense. The program aims to enhance the delivery of real-time alerts for both imminent and potential threats to life and property, ensuring timely notifications for residents and property owners in downstream flood inundation areas.

ID & Action Title	Local Government	Lead Entity	Partner Organization(s)	Primary Hazard Mitigated	Relevant Goal(s)	Action Details & Benefits
5. Geologic Hazards (Landslide/Land & Mine Subsidence/Expansive Soils) (no risk to Baggs, Dixon, Encampment, Medicine Bow, Riverside, SMWSJPB, MBCD, LSRCD)						
5A. Geologic Hazard Public Awareness	Carbon County, Rawlins, Baggs, Encampment, Hanna, Medicine Bow, Riverside, Saratoga, Sinclair, CCSD #2	County EM Coordinator, Rawlins Community Development Director, Baggs Clerk, Encampment Clerk, Hanna Clerk, Medicine Bow Public Works Director, Riverside Mayor, Saratoga Clerk, Sinclair Mayor, CCSD #2 Superintendent	Planning & Development	Geologic Hazards (Landslide/Land & Mine Subsidence/Expansive Soils	1, 2, 3, 4, 5	Educate the public on geologic hazard risk through annual fall public engagement efforts, which include posting information on social media and websites. The county will acquire / lead the development of all engagement materials. Identified local governments will utilize their own media sources (websites & mailings) to disseminate these materials.
5B. Historic Landfill subsidence	Town of Elk Mountain	Public Works Director	SLIB	Geologic Hazards (Landslide/Land & Mine Subsidence/Expansive Soils	1, 2, 3, 4	Regularly monitor hillside subsidence into the river for unusually large cracks or movement.
5C. Continued filling of underground mine shafts	CCFPD, SERCD	District Chief, District Manager	State AML (DEQ)	Geologic Hazards (Landslide/Land & Mine Subsidence/Expansive Soils	1, 2, 3, 4	Continued coordination with the State AML on the long-term continued underground mine stabilization efforts.

ID & Action Title	Local Government	Lead Entity	Partner Organization(s)	Primary Hazard Mitigated	Relevant Goal(s)	Action Details & Benefits
5D. Safe Evacuation Sites in Hanna	CCSD #2	Superintendent	Carbon County Emergency Management & Hanna Emergency Services	Geologic Hazards (Landslide/Land & Mine Subsidence/Expansive Soils	1	Designate safe evacuation areas for evacuation protocol in the event of Hanna underground abandoned mine events.
6. Severe Thunderstorm (Hail/Lightning/Thunderstorm Wind)						
6A. NOAA WR120 Weather & All-Hazards Emergency Alert Radio Campaign	Carbon County, Rawlins, Baggs, Dixon, Elk Mountain, Encampment, Hanna, Medicine Bow, Riverside, Saratoga, Sinclair, CCFPD, SERCD, MBCD, LSRCD	County EM Coordinator, Rawlins Community Development Director, Baggs Clerk, Dixon Mayor, Elk Mountain Fire Chief, Encampment Clerk, Hanna Clerk, Medicine Bow Public Works Director, Riverside Mayor, Saratoga Clerk, Sinclair Mayor, CCFPD Chief, SERCD District Manager, MBCD District Manager, LSRCD District Manager	Carbon County Council of Government CCCOG, Sinclair Police Dept. & Maintenance Dept.	Severe Thunderstorm (Hail/Lightning/Thunderstorm Wind)	1, 5	Carbon County Emergency Management will work with NWS Cheyenne, and the Carbon County Council of Government CCCOG, looking at possible Grants and Donations to place a NOAA WR120 "Standardized" Weather & All Hazards Emergency Alert Radio within every one of our 10 municipalities (Town Halls, etc.) and multiple WR120 stations where needed.

ID & Action Title	Local Government	Lead Entity	Partner Organization(s)	Primary Hazard Mitigated	Relevant Goal(s)	Action Details & Benefits
6B. AlertSense Public Awareness	CCSD #2, SMWSJPB	Superintendent, Clerk	Carbon County Emergency Management	Severe Thunderstorm (Hail/Lightning/Thunderstorm Wind)	1	Promote district-wide awareness of the Carbon County AlertSense Notification system through the district website homepage, monthly school newsletters, and school building flyers.
7. Tornado/Wind/Windblown Deposits						
7A. Tornado Awareness Campaign	Carbon County Baggs, Dixon, Encampment, Hanna, Riverside, Sinclair, CCSD #2, SMWSJPB, MBCD, LSRCD	County EM Coordinator, Baggs Clerk, Dixon Mayor, Encampment Mayor, Hanna Clerk, Riverside Mayor, Sinclair Mayor, CCSD #2 Superintendent, SMWSJPB Clerk, MBCD District Manager, LSRCD District Manager	Sinclair Police Dept. & Maintenance Dept.	Tornado/Wind/Windblown Deposits	1, 2, 4, 5	Educate the public on tornado awareness and mitigation through annual summer outreach efforts utilizing the county website and social media. The county will acquire/lead the development of all engagement materials.
7B. Early Alert & Warning Voice Sirens	Carbon County, Rawlins, Elk Mountain, Saratoga Mayor, SERCD District Manager	County EM Coordinator, Rawlins Community Development Director, Elk Mountain	Sheriff's Office	Tornado / Wind / Windblown Deposits	1, 5	A Carbon County Standardized, Dispatch Activated, Early Alert & Warning Voice Siren across all 10 Municipalities and critical areas within unincorporated

ID & Action Title	Local Government	Lead Entity	Partner Organization(s)	Primary Hazard Mitigated	Relevant Goal(s)	Action Details & Benefits
		Sheriff, Saratoga Mayor, SERCD District Manager				Carbon County having multiple residents.
7C. Tornado Shelter	Town of Medicine Bow	Public Works Director	Carbon County Emergency Management	Tornado / Wind / Windblown Deposits	1, 2, 3, 4, 5	Identify a structure that can serve as a public shelter during a tornado event and retrofit it as necessary.
7D. Public tornado shelter	CCFPD	District Chief		Tornado / Wind / Windblown Deposits	1, 3	Construction of a new fire station in Rawlins (main station) to also serve as a public tornado shelter
8. Wildfire						
8A. Public Wildfire Education - Ready. Set. Go.	Carbon County, Rawlins, Baggs, Dixon, Hanna, Medicine Bow, Saratoga, Sinclair, CCFPD, CCSD #2, SMWSJPB, MBCD	County Emergency Management Coordinator, Rawlins Fire Department Chief, Baggs Mayor, Dixon Mayor, Hanna Clerk, Medicine Bow Public Works Director, Saratoga Clerk, Sinclair Mayor, CCFPD Chief, CCSD #2 Superintendent, SMWSJPB	Carbon County Sheriff's Department, Carbon County Fire Protection District, Sinclair Police Dept. & Maintenance Dept.	Wildfire	1, 2, 3, 4, 5	Public education around wildfire risk that residents in Carbon County potentially face and the associated mitigation strategies, preparedness activities and mass notification standard utilizing the Ready, Set, Go format.

ID & Action Title	Local Government	Lead Entity	Partner Organization(s)	Primary Hazard Mitigated	Relevant Goal(s)	Action Details & Benefits
		Clerk, MBCD District Manager				
8B. Baggs Fire Plan	Town of Baggs	Mayor		Wildfire	1, 5	Develop a town wildfire evacuation plan to prepare residents and town officials for the need to potentially evacuate. Special focus will be on transportation needs for older adults and others needing transportation assistance.
8C. Maintain fire hydrants to ensure they work properly	Town of Dixon	Mayor		Wildfire	1	Maintain fire hydrants by flushing them to ensure they work properly
8D. Wildfire Fuels Reduction	Elk Mountain, Encampment, Medicine Bow, CCFPD, SERCD, LSRCD	Elk Mountain Fire District Manager, Encampment Mayor, Medicine Bow Public Works Director, CCFPD Chief, SERCD District Manager, LSRCD District Manager	Office of Emergency Management, Town of Encampment Council, Game and Fish, NRCS, WWNRTF	Wildfire	1, 2, 3, 4, 5	Partner with landowners and provide education and assistance in removing fire fuel. Elk Mountain will focus efforts on a defensible town perimeter. Encampment will broaden vegetative management efforts to the entire watershed. Medicine Bow will focus on fuel breaks and individual lot defensible space. CCFPD and LSRCD will focus on general fuels reduction efforts. SERCD will focus on critical

ID & Action Title	Local Government	Lead Entity	Partner Organization(s)	Primary Hazard Mitigated	Relevant Goal(s)	Action Details & Benefits
						infrastructure/lifeline mitigation.
8E. Air quality monitoring (2016.53)	Town of Riverside	Mayor		Wildfire	1	Install air quality monitoring equipment.
8F. Contingency plans or locations for education services	CCSD #2	Superintendent		Wildfire	1	Develop contingency plans or locations for education services should wildfire or wildfire smoke evacuate a community for an extended period of time.
9. Winter Storm						
9A. Winter Storm Public Education	Carbon County, Rawlins, Baggs, Encampment, Hanna, Riverside, Saratoga, Sinclair, CCSD #2, CCFPD, SERCD, MBCD, LSRCD	County Emergency Management Coordinator, Public Works Director, Baggs Mayor, Encampment Mayor, Hanna Clerk, Riverside Mayor, Saratoga Clerk, Sinclair Mayor, CCSD #2 Superintendent, SERCD District Manager, CCFPD Chief, MBCD District Manager,	Road & Bridge, Town of Encampment Council, Town of Sinclair Police Dept. & Fire Dept.	Winter Storm	1, 5	Educate the public on severe winter weather awareness and mitigation through annual fall outreach efforts utilizing the county website and social media. The county will acquire/lead the development of all engagement materials.

ID & Action Title	Local Government	Lead Entity	Partner Organization(s)	Primary Hazard Mitigated	Relevant Goal(s)	Action Details & Benefits
		LSRCD District Manager				
9B. Stranded Traveler Plan	Town of Baggs	Mayor		Winter Storm	1, 5	Develop a plan to identify shelter locations and resources for stranded travelers.
9C. Road Closures Awareness and Snow Removal Plan	City of Rawlins	Public Works Director		Winter Storm	1, 5	Create city-wide communication on road conditions, snow removal efforts, and road closures
9D. Generators for power outage	Town of Dixon	Mayor	SHSP	Winter Storm	3	Generators for Sewer lagoon, lift station, and water tank in order to keep public utilities running during long power outages.
9E. Extended power outage - Public shelter	Elk Mountain, Medicine Bow	Elk Mountain Mayor, Medicine Bow Public Works Director	Office of Emergency Management	Winter Storm	1, 5	Identify a public shelter location for local residents during extended power outages. Structure retrofits and the addition of backup generators dependent on location.
9F. Improved interagency coordination with WYDOT on 80 closures	CCFPD	District Chief	WYDOT	Winter Storm	3	Work on building relationships and improved interagency coordination with WYDOT on I-80 closures.
9G. Easily accessible district homepage link for late	CCSD #2	Superintendent		Winter Storm	1	Create an easily accessible website homepage link for winter storm late start/school closing notifications

ID & Action Title	Local Government	Lead Entity	Partner Organization(s)	Primary Hazard Mitigated	Relevant Goal(s)	Action Details & Benefits
start/school closing notifications						
9H. Generators for Wells	SMWSJPB	Clerk	Carbon County Sheriff's Department, Carbon County Fire Protection District, Office of Emergency Management	Winter Storm	3	Continue efforts to connect a generator for backup power supply to the wells in case of an extended power outage.
10. Multiple Hazards						
10A. Mobile Water Treatment Trailer	Carbon County	EM Coordinator	WYOWARN	Multiple	1, 5	A fully self-contained Mobile Water Treatment Trailer that can be easily mobilized and utilized at all 10 municipalities can treat a high volume of non-potable water into safe drinking potable water.
10B. Standard Response Protocol K12 Update	CCSD #2	Superintendent		Multiple	1	Update district-wide Standard Response Protocol and post it in all classrooms district-wide.
10C. Notifications Awareness	CCSD #2	Superintendent		Multiple	1	Provide awareness of district homepage emergency alert notifications through monthly school newsletters
10D. All hazards mitigation	Town of Medicine Bow	Public Works Director	Carbon County Emergency Management	Multiple	1, 2, 3, 4, 5	Evaluate and prioritize future mitigation opportunities to include emergency generators, planning, and zoning regulations, backup for

ID & Action Title	Local Government	Lead Entity	Partner Organization(s)	Primary Hazard Mitigated	Relevant Goal(s)	Action Details & Benefits
						SCADA, and other important town systems/documents.
10E. Carbon County Real-Time Incident Website	Carbon County	EM Coordinator	Sheriff's Office, Road 7 Bridge, Carbo County Fire Protection District, All 10 municipalities, CCCOG.	Multiple	1, 2, 3, 4, 5	Create an external website for real-time Incident Reporting that is used collaboratively by all county departments and all 10 municipalities to supplement the Mass Notification System.
10F. Water Plant Generator (2016.05)	Town of Baggs	Mayor		Multiple	2, 3	Purchase and install a backup generator for the water plant.
10G. Water Development	LSRCD	District Manager	Wyoming Water Development, NRCS	Multiple	2, 4, 5	Coordinate with local ranchers to develop additional water resources.
10H. Tabletop Exercise (2016.04)	Town of Baggs	Mayor		Multiple	1, 3	Conduct a tabletop exercise for Baggs first responders on their responsibility during pipeline rupture or leak, how to coordinate with pipeline company.
10I. Mass Casualty Planning (2016.22)	Town of Dixon	Mayor	Baggs & Craig, CO	Multiple	1, 2, 3	Plan for a mass casualty incident at the airport.
10J. Pond Dredge (2016.34)	Town of Encampment	Mayor		Multiple	1, 3, 4	Increase capacity of settling pond to handle larger sediment load.
10K. Backup Generators (2019.09)	Town of Medicine Bow	Public Works Director		Multiple	1, 3	Add backup generators to ensure ongoing operation of critical infrastructure which includes the local water

ID & Action Title	Local Government	Lead Entity	Partner Organization(s)	Primary Hazard Mitigated	Relevant Goal(s)	Action Details & Benefits
						treatment plant, the sewer lagoon pumping station, the fire department and the community hall which also functions as a gathering place/shelter.
10L. High Angle Rescue (2016.44)	Town of Medicine Bow	Public Works Director	Carbon County Emergency Management	Multiple	1	Work with county to train and develop a high angle rescue team to respond to wind farm incidents.
10M. Expand Raw Water Usage (2019.06)	City of Rawlins	Public Works Director		Multiple	2, 3	Reducing the amount of treated water used on green spaces and converting to using raw water. This would be done by extending the raw water line from the river that currently provides water to the Municipal golf course. Proposal is to extend to cemetery, sports complex and school district athletic fields.
10N. Stormwater Planning (2016.45)	City of Rawlins	Public Works Director		Multiple	1, 2, 4	Design, engineer, and construct storm water mitigation project.
10N. WYDOT Coordination (2016.47)	City of Rawlins	Public Works Director		Multiple	1, 3	Continue work with WYDOT to secure truck parking area for Interstate closures.
10O. Railroad Coordination (2016.48)	City of Rawlins	Public Works Director		Multiple	1	Continue coordination with railroad to establish a mobile or stationary foam cache.

ID & Action Title	Local Government	Lead Entity	Partner Organization(s)	Primary Hazard Mitigated	Relevant Goal(s)	Action Details & Benefits
10P. Aircraft Incident (2016.48)	Town of Saratoga	Saratoga Mayor		Multiple	1, 3	Plan and train for aircraft incident at airport.

Table 8 New 2025 Mitigation Actions - Additional Details

ID & Action Title	Priority (High, Medium, Low)	Timeframe for Completion (Estimated Year)	Potential Funding Source(s)
1. Avalanche (only risk to county and SERCD – no risk in other local municipalities or special districts)			
1: Avalanche Observation Program	Medium	2026	General Funds, Donations, Volunteers, FEMA HMGP/BRIC
2. Drought (no risk to Elk Mountain, CCFPD, CCSD #2, MBCD, LSRCD)			
2A. Drought Mitigation Public Education	Medium	2026	General Funds
2B. Baggs Drought Plan	Medium	2026	General Funds, FEMA BRIC
2C. Water Storage Tanks	High	2028	Wyoming Water Development Commission, USDA, SLIB, and Drinking Water Loans.
2D. Develop a Precipitation Watch Program	Medium	2030	General Funds, FEMA HMGP/BRIC
2E. Development of a Water Conservation plan	Medium	2030	General Funds, FEMA HMGP/BRIC
2F. Livestock Watering Sources	Medium	2026	WWDO, WWNRT, WGFD, SERCD
2G. Alternate Water Sources	Low	2027	General Funds, FEMA BRIC
3. Earthquake (no risk to MBCD)			
3A. Public Earthquake Awareness Campaign	Medium	2027	General Funds
3B. Earthquake Awareness	Low	2027	General Funds
4. Flood/Dam, Dike, & Levee Incident (no risk to Hanna, CCFPD, MBCD, or LSRCD)			
4A. Flooding Awareness	Medium	2026	General Funds
4B. Baggs Flood Plan	High	2026	FEMA BRIC/HMGP
4C. Coordinate with FEMA on the Identified Risk Map project.	Medium	2026	General Funds, FEMA
4D. Waterway flow maintenance	Low	2030	Donations and volunteers

ID & Action Title	Priority (High, Medium, Low)	Timeframe for Completion (Estimated Year)	Potential Funding Source(s)
4E. Drainage Improvements	Low	2029	General Funds, FEMA HMGP/BRIC
4F. Develop a Flood Mitigation Program	Medium	2030	General Funds, FEMA HMGP/BRIC
4G. Adopt a Flood Ordinance	Medium	2026	General Funds
4H. Central Office flood mitigation	Low	2028	General Funds
4I. Flood Mitigation for Saratoga	High	2030	General Funds, FEMA HMGP/BRIC
4J. Carbon County High Hazard Dam Risk Analysis & Public Communication Program	Medium	2030	General Funds, FEMA HHPD
5. Geologic Hazards (Landslide/Land & Mine Subsidence/Expansive Soils) (no risk to Baggs, Dixon, Encampment, Medicine Bow, Riverside, SMWSJPB, MBCD, LSRCD)			
5A. Geologic Hazard Public Awareness	Medium	2027	General Funds
5B. Historic Landfill subsidence	Low	2030	General Funds, SLIB
5C. Continued filling of underground mine shafts	High	2028	AML
5D. Safe Evacuation Sites in Hanna	High	2027	General Funds
6. Severe Thunderstorm (Hail/Lightning/Thunderstorm Wind)			
6A. NOAA WR120 Weather & All-Hazards Emergency Alert Radio Campaign	Medium	2030	General Funds, Donations
6B. AlertSense Public Awareness	Medium	2026	General Funds
7. Tornado/Wind/Windblown Deposits			
7A. Tornado Awareness Campaign	Medium	2026	General Funds

ID & Action Title	Priority (High, Medium, Low)	Timeframe for Completion (Estimated Year)	Potential Funding Source(s)
7B. Early Alert & Warning Voice Sirens	Medium	2030	General Funds, Donations
7C. Tornado Shelter	Medium	2030	General Funds
7D. Public tornado shelter	High	2030	General Funds, FEMA HMGP/BRIC
8. Wildfire			
8A. Public Wildfire Education - Ready. Set. Go.	Medium	2026	General Funds
8B. Baggs Fire Plan	Low	2026	General Funds
8C. Maintain fire hydrants to ensure they work properly	Low	2026	General Funds
8D. Wildfire Fuels Reduction	Low	2027	General Funds, Donations, Volunteers
8E. Air quality monitoring	Medium	2027	General Funds
8F. Contingency plans or locations for education services	Medium	2028	General Funds
9. Winter Storm			
9A. Winter Storm Public Education	Medium	2026	General Funds
9B. Stranded Traveler Plan	High	2026	General Funds
9C. Road Closures Awareness and Snow Removal Plan	Medium	2026	General Funds
9D. Generators for power outage	Medium	2026	General Funds, FEMA HMGP, SHSP
9E. Extended power outage - Public shelter	High	2026	General Funds, Donations, Volunteers
9F. Improved interagency coordination with WYDOT on 80 closures	High	2027	General Funds

ID & Action Title	Priority (High, Medium, Low)	Timeframe for Completion (Estimated Year)	Potential Funding Source(s)
9G. Easily accessible district homepage link for late start/school closing notifications	High	2026	General Funds
9H. Generators for Wells	Medium	2026	General Funds, FEMA HMGP
10. Multiple Hazards			
10A. Mobile Water Treatment Trailer	Medium	2026	General Funds, Donations, Wyoming Water Development Commission, USDA, SLIB, and Drinking Water Loans.
10B. Standard Response Protocol K12 Update	Medium	2026	General Funds
10C. Notifications Awareness	High	2026	General Funds
10D. All hazards mitigation	Low	2030	General Funds, FEMA HMGP
10E. Carbon County Real-Time Incident Website	Medium	2026	General Funds, Donations
10F. Water Plant Generator	High	2026	General Funds, FEMA HMGP
10G. Water Development	Medium	2027	Wyoming Water Development Commission, USDA, SLIB, and Drinking Water Loans.
10H. Tabletop Exercise (2016.04)	Low	2029	General Funds
10I. Mass Casualty Planning (2016.22)	Low	2029	General Funds
10J. Pond Dredge (2016.34)	Low	2028	General Funds
10K. Backup Generators (2019.09)	High	2026	General Funds, FEMA HMGP
10L. High Angle Rescue (2016.44)	Low	2029	General Funds
10M. Expand Raw Water Usage (2019.06)	Medium	2027	General Funds, FEMA BRIC

ID & Action Title	Priority (High, Medium, Low)	Timeframe for Completion (Estimated Year)	Potential Funding Source(s)
10N. Stormwater Planning (2016.45)	Medium	2029	General Funds, FEMA BRIC/HMGP
10N. WYDOT Coordination (2016.47)	Low	2029	General Funds
10O. Railroad Coordination (2016.48)	Low	2029	General Funds
10P. Aircraft Incident (2016.48)	Low	2029	General Funds

Mitigation Capabilities

Planning & Regulatory Capabilities

Planning and regulatory capabilities are powerful tools for implementing hazard mitigation. The county and local governments currently utilize or have implemented a number of these capabilities shown in **Table 9** through **Table 11**. The county also supports local governments with some of these available capabilities.

Local governments are encouraged to utilize this assessment to identify those capabilities that they want to expand and improve upon, to enhance implementation efforts towards the county's mitigation strategy. The ability to do so is dictated by each local government's elected leadership, management, and available funding and staffing. It is also noted that grant funding opportunities are available to improve these capabilities. It should be noted that some of the new mitigation actions are also focused on enhancing these mitigation capabilities.

Table 9 Carbon County & Local Governments (1/2) - Planning & Regulatory Capabilities

Mitigation Capability	Carbon County	City of Rawlins	Town of Baggs	Town of Dixon	Town of Elk Mountain
Comprehensive, Master, or General Plan	Yes, Carbon County has an active/current Carbon County Comprehensive Land Use Plan (CCCLUP/Plan) that was adopted in 2012 and amended in 2016. Currently, we are in the process of updating the Plan. It is	Yes	Yes	Yes	Yes

Mitigation Capability	Carbon County	City of Rawlins	Town of Baggs	Town of Dixon	Town of Elk Mountain
	anticipated to have the Plan reviewed by both the Planning & Zoning Commission and the Board of County Commissioners in 2025.				
Capital Improvement Program or Plan (CIP)	No	Yes	Yes	No	No
Floodplain Management Plan	Yes. We have Floodplain Management Regulations of Carbon County that were adopted in 1989. Carbon County is interested in updating the floodplain ordinance in conjunction with the updated RiskMAPs.	Yes	Yes	Yes	Yes
Stormwater Program / Plan	No	Yes	Yes	No	Yes
Community Wildfire Protection Plan (CWPP)	No	Yes	Yes	No	Yes
Erosion / Sediment Control Program	No	Yes	Yes	No	No
Economic Development Plan	No		Yes	No	Yes
Other Plans:	No	No	No	No	No
Building Codes (Year)	No	2012	2009	2009	2021
Building Code Effectiveness Grading Schedule (BCEGS) Rating	No	No	No	No	No

Mitigation Capability	Carbon County	City of Rawlins	Town of Baggs	Town of Dixon	Town of Elk Mountain
Site Plan Review Requirements	Yes. Carbon County requires that all Carbon County building permits have a detailed site plan that lists setback distances from all property/boundary lines and existing structures on site.	Yes	Yes	Yes, it must be approved by the council.	Yes
Other Codes, Permitting, or Inspections:	No	Yes	Yes	No	Yes
Zoning Ordinance (Land Use)	Yes. Carbon County has had zoning since 1970. Currently, we have the Carbon County Zoning Resolution (CCZR) of 2015, amended 07/07/2020. The CCZR lists minimum setback distances and height requirements for several zone districts/classifications along with Principally Permitted Uses (Uses by Right) and Conditionally Permitted Uses.	Yes	Yes	Yes	Yes
Subdivision Ordinance	Yes. The county adopted the Carbon County Subdivision Regulations of 2023 in October of 2023.	Yes	Yes	Yes	Yes
National Flood Insurance Program (NFIP) Participant	Yes	Yes	Yes	Yes	Yes

Mitigation Capability	Carbon County	City of Rawlins	Town of Baggs	Town of Dixon	Town of Elk Mountain
Flood Insurance Study / Flood Insurance Rate Map / DFIRM	Yes, 12/20/24	Yes, 12/20/24	Yes, 12/20/24	Yes, 12/20/24	Yes, 12/20/24
Floodplain Ordinance	Yes	Yes	Yes	Yes	Yes
Elevation Certificates for Floodplain Development	Yes	Yes	Yes	No	Yes
Community Rating System (CRS) Participant	No	No	No	No	Yes
Open Space / Conservation Program	No	Yes	Yes	No	No
Growth Management Ordinance	No	Yes	Yes	No	No
Stormwater Ordinance	No	Yes	No	No	No
Other Hazard Ordinance (steep slope, wildfire, snow loads, etc.)	No	Yes	No	No	No
Other Land Use Planning and Ordinances:	Yes – the Carbon County Natural Resource Management Plan.	No	No	No	No

Table 10 Carbon County & Local Governments (2/2) - Planning & Regulatory Capabilities

Mitigation Capability	Town of Encampment	Town of Hanna	Town of Medicine Bow	Town of Riverside	Town of Saratoga	Town of Sinclair
Comprehensive, Master, or General Plan	Yes	Yes	Yes	Our master plan has aged a bit but is still applicable.	Yes, the Town of Saratoga has a Comprehensive Land Use Plan (CCCLUP/Plan) that was adopted in 2016. Currently, we are in the process of updating the Plan. It is anticipated to have the Plan reviewed by both the Planning & Zoning Commission and the Town Council in 2025.	Sinclair does not currently have a plan
Capital Improvement Program or Plan (CIP)	No	Yes	Yes	No	No	No
Floodplain Management Plan	No	Yes, work-ing on it	Yes	FEMA is nearing completion of our revised flood plain map and we will reexamine our ordinances when that is complete.	Currently the Town of Saratoga adopted the new FEMA Flood Maps.	No
Stormwater Program / Plan	No	No	Yes	No	No	No
Community Wildfire	No	No	No	No	No	no

Mitigation Capability	Town of Encampment	Town of Hanna	Town of Medicine Bow	Town of Riverside	Town of Saratoga	Town of Sinclair
Protection Plan (CWPP)						
Erosion / Sediment Control Program	No	No	No	No	No	No
Economic Development Plan	No	No	No	We work with the carbon county economic development office.	No	We work with Carbon County EDC.
Other Plans:	No	No	No	No	No	No
Building Codes (Year)	2021	No	2012	2021	The Town Plans to update and adopt new Building Codes in 2025.	2012
Building Code Effectiveness Grading Schedule (BCEGS) Rating	No	No	No	No	No	No
Site Plan Review Requirements	Yes	No	Yes	Yes	Yes, and this has to be approved by Planning & Zoning.	Yes
Other Codes, Permitting, or Inspections:	No	Per-mits for roofing, fencing and building new homes or bringing in	Yes	Yes	No	Yes

Mitigation Capability	Town of Encampment	Town of Hanna	Town of Medicine Bow	Town of Riverside	Town of Saratoga	Town of Sinclair
		structures, No inspections				
Zoning Ordinance (Land Use)	Yes	Yes	Yes	Yes	Yes, the Town of Saratoga has had zoning since 1974. Theses ordinances lists minimum setback distances and height requirements for several zone districts/classifications along with Principally Permitted Uses (Uses by Right) and Conditionally Permitted Uses.	Yes
Subdivision Ordinance	Yes	Yes	Yes	No	Yes. The Town of Saratoga adopted Subdivision Regulations in 1979.	Yes
National Flood Insurance Program (NFIP) Participant	No	Working on becoming a participant in 2025	Yes	Yes	Yes	No
Flood Insurance Study / Flood Insurance Rate Map / DFIRM	Participant In Study Yes, 12/20/24	Working on this in 2025	Yes, 12/20/24	Yes, 12/20/24	Yes, 12/20/24	Yes, 12/20/24
Floodplain Ordinance	No	Working on this in 2025	Yes	Yes	Yes	No
Elevation Certificates for	No	Working on this in 2025	No	No	Yes, this is currently being placed in Town Ordinances	No

Mitigation Capability	Town of Encampment	Town of Hanna	Town of Medicine Bow	Town of Riverside	Town of Saratoga	Town of Sinclair
Floodplain Development						
Community Rating System (CRS) Participant	No	No	No	No	No	No
Open Space / Conservation Program	No	No	No	No	No	No
Growth Management Ordinance	No	No	No	No	No	No
Stormwater Ordinance	No	No	No	No	No	No
Other Hazard Ordinance (steep slope, wildfire, snow loads, etc.)	No	No	No	No	No	No
Other Land Use Planning and Ordinances:	No	No	No	No	No	No

Table 11 Carbon County Special Districts - Planning & Regulatory Capabilities

Mitigation Capability	Carbon County Fire Protection District	Medicine Bow Conservation District	Carbon County School District #2	SER Conservation District	Sierra Madre Water and Sewer JPB	Little Snake River Conservation District
Comprehensive, Master, or General Plan	No	Yes	No	Yes, we have a land use plan (On-going Land Use Planning Information - SER Conservation District (sercd.org)) Given the opportunity we are willing to help municipalities develop such plans.	No	Yes – 5 year plan
Capital Improvement Program or Plan (CIP)	Yes, The district has adopted an amortization and apparatus replacement plan.	Yes	No	No	No	N/A
Floodplain Management Plan	No	Yes	No	We offer comments for zone changes pertaining to flood, erosion, and soil suitability.	No	Yes
Stormwater Program / Plan	No	Yes	No	No	No	N/A
Community Wildfire Protection Plan (CWPP)	No, The county has a CWPP from 2004.	Yes	No	No	No	N/A

Mitigation Capability	Carbon County Fire Protection District	Medicine Bow Conservation District	Carbon County School District #2	SER Conservation District	Sierra Madre Water and Sewer JPB	Little Snake River Conservation District
	The District needs to produce a new plan.					
Erosion / Sediment Control Program	No	Yes	No	We offer comments for zone changes pertaining to flood, erosion, and soil suitability.	No	N/A
Other Plans:	No	Natural Resource Management Plan	No	No	No	No
Site Plan Review Requirements	No	No	No	We offer comments for zone changes pertaining to flood, erosion, and soil suitability.	No	N/A
Other Codes, Permitting, or Inspections:	No	No	No	No	No	N/A
Other Land Use Planning and Ordinances:	No	No	No	No	No	N/A

Administrative & Technical Capabilities

Administrative and technical capabilities include staff, working groups, and technology which are vital for a community to be able to implement hazard mitigation. The county and local governments currently utilize or have implemented some of these capabilities shown in **Table 12** through **Table 14**.

Table 12 Carbon County & Local Governments (1/2) - Administrative & Technical Capabilities

Mitigation Capability	Carbon County	City of Rawlins	Town of Baggs	Town of Dixon	Town of Elk Mountain
Planning Commission	Yes, the Carbon County Planning and Zoning Commission.	Yes	Yes	No	Yes
Mitigation Planning Committee	No	Yes	Yes	No	No
Maintenance Programs (tree trimming, clearing drainage, etc.)	No	Yes	No	No	Yes
Emergency Manager	Yes, 1 Fulltime FTE.	Yes	Yes	No	Yes
Building Official	No	Yes	No	No	Yes
Floodplain Administrator	Yes	Yes	Yes	Yes	Yes
Community Planner	No	Yes	Yes	No	Yes
Transportation Planner	No	Yes	No	No	Yes
Civil Engineer	No	Yes	Yes	No	Yes
GIS Capability	Yes, Carbon County has GIS capability. Currently, we use Greenwood Mapping LLC for all GIS, Zoning, Subdivision, and Rural Addressing services and needs.	Yes	Yes	No	No
Resiliency Planner	No	Yes	No	No	No
Other Related Staff:	No	Yes	No	No	No
Warning Systems / Services (flood)	AlertSense Mass Notification System	Yes	Yes	Yes	No

Mitigation Capability	Carbon County	City of Rawlins	Town of Baggs	Town of Dixon	Town of Elk Mountain
Warning Systems / Services (other / multi-hazard)	AlertSense Mass Notification System	Yes	Yes	Yes	No
Grant Writing / Management	No	Yes	No	No	Yes
Other Technical:	No	No	No	No	No

Table 13 Carbon County & Local Governments (2/2) - Administrative & Technical Capabilities

Mitigation Capability	Town of Encampment	Town of Hanna	Town of Medicine Bow	Town of Riverside	Town of Saratoga	Town of Sinclair
Planning Commission	Yes	We at one time had a planning and zoning board, not currently	Yes	No	Yes – the Town of Saratoga Planning & Zoning, 7-person Board.	No
Mitigation Planning Committee	No (Council Would Act)	No	No	No	No	No
Maintenance Programs (tree trimming, clearing drainage, etc.)	Yes	Yes	Yes	No	Yes, Town of Saratoga Public works, along with Carbon Power and Light.	Yes
Emergency Manager	No	No	Yes	Yes. We coordinate with the carbon county office of emergency management	Yes, part-time.	Chief of Police is the EM
Building Official	Yes	No	Yes	No	Yes, part-time	Yes

Mitigation Capability	Town of Encampment	Town of Hanna	Town of Medicine Bow	Town of Riverside	Town of Saratoga	Town of Sinclair
Floodplain Administrator	No	No	Yes	Yes	Yes	No
Community Planner	No	No	No	No	No	No
Transportation Planner	No	No	No	No	No	No
Civil Engineer	Contract For Projects	Yes	No	Contract when necessary	No	Yes
GIS Capability	Yes	Yes	Yes	We have a GIS map from some time ago.	No	No
Resiliency Planner	No	No	No	No	No	No
Other Related Staff:	No	No	Yes	No	No	No
Warning Systems / Services (flood)	No	No	No	Carbon County Emergency Management Office	Town has an alert siren and is part of the Carbon County AlertSense Mass Notification System.	Alert Sense
Warning Systems / Services (other / multi-hazard)	Water & Sewer Systems	911/Marshal's Office/Alert Sense/Town Website/Town Facebook/Town Marque sign	No	Carbon County Emergency Management Office	Town has a alert siren.	Alert Sense
Grant Writing / Management	Yes	Yes	Yes	No	Yes, part-time.	No
Other Technical:	No	IT	No	No	No	No

Table 14 Special Districts - Administrative and Technical Capabilities

Mitigation Capability	Carbon County Fire Protection District	Medicine Bow Conservation District	Carbon County School District #2	SER Conservation District	Sierra Madre Water and Sewer JPB	Little Snake River Conservation District
Maintenance Programs (tree trimming, clearing drainage, etc.)	No	Yes	No	Fuels reduction is under way in the Bennett Peak area. Focusing on BLM lands we are currently masticating juniper to reduce fuel loading. We have also done shrub mowing as part of fuels reduction.	No	Yes, fuels reduction program
GIS Capability	No	Yes	No	Yes	No	Yes
Other Related Staff:	No	Yes	No	4 staff members	No	Yes
Grant Writing / Management	No	Yes	No	Yes	No	Yes
Other Technical:	No	No	No	River Restoration, soil erosion mitigation, fuel reduction, living snow fences	No	Yes

Financial Capabilities

The ability of a community to implement a comprehensive mitigation strategy is largely dependent on available funding. The county and local governments currently utilize or have implemented some of these capabilities shown in **Table 15** through **Table 17**.

Table 15 Carbon County & Local Governments (1/2) - Financial Capabilities

Mitigation Capability	Carbon County	City of Rawlins	Town of Baggs	Town of Dixon	Town of Elk Mountain
Levy for Specific Purposes with Voter Approval	No	No	Yes	Yes	No
Utilities Fees	No	Yes	Yes	Yes	Yes
System Development / Impact Development Fee	No	Yes	No	No	No
General Obligation Bonds to Incur Debt	No	Yes	No	Yes	No
Special Tax Bonds to Incur Debt	No	Yes	Yes	Yes	No
Withheld Spending in Hazard-Prone Areas	No	Yes	No	No	No
Open Space / Conservation Fund	No	Yes	Yes	No	No
Stormwater Utility Fees	No	Yes	No	No	No
Capital Improvement Project Funding	No	Yes	Yes	Yes	No
Community Development Block Grants (CDBG)	No	Yes	No	No	No
Other Funding:	Yes, Sixth Penny Sales Tax.	No	No	No	No

Table 16 Carbon County & Local Governments (2/2) - Financial Capabilities

Mitigation Capability	Town of Encampment	Town of Hanna	Town of Medicine Bow	Town of Riverside	Town of Saratoga	Town of Sinclair
Levy for Specific Purposes with Voter Approval	Yes	Yes	Yes	Yes	Yes	Yes
Utilities Fees	Yes	Yes	Yes	Yes	Yes	Yes

Mitigation Capability	Town of Encampment	Town of Hanna	Town of Medicine Bow	Town of Riverside	Town of Saratoga	Town of Sinclair
System Development / Impact Development Fee	No	No	No	No	No	No
General Obligation Bonds to Incur Debt	No	No	No	No	No	No
Special Tax Bonds to Incur Debt	No	Yes	No	No	No	In the past we have teamed up With Carbon County and other Municipalities
Withheld Spending in Hazard-Prone Areas	No	No	No	No	No	No
Open Space / Conservation Fund	No	No	No	No	No	No
Stormwater Utility Fees	No	No	No	No	No	Yes
Capital Improvement Project Funding	Yes	Yes	Yes	No	Yes, a certain percentage of Impact Assistance is set aside for Capital Improvements.	Yes
Community Development Block Grants (CDBG)	No	No	Yes	No	Yes	No
Other Funding:	No	No	No	No	Yes, Sixth Penny Sales Tax and Impact Assistance Funding.	No

Table 17 Carbon County Special Districts - Financial Capabilities

Mitigation Capability	Carbon County Fire Protection District	Medicine Bow Conservation District	Carbon County School District #2	SER Conservation District	Sierra Madre Water and Sewer JPB	Little Snake River Conservation District
Levy for Specific Purposes with Voter Approval	Yes	Yes	No	Yes	Yes	Yes
Utility Fees	No	No	No	No	Yes	N/A
System Development / Impact Development Fee	No	Yes, Subdivision Review Fee	No	No		N/A
General Obligation Bonds to Incur Debt	No	Yes	No	No	No	No
Withheld Spending in Hazard-Prone Areas	No	No	No	No	No	N/A
Stormwater Utility Fees	No	No	No	No	No	N/A
Capital Improvement Project Funding	Yes, The District has an apparatus replacement plan and has reserve funding in place.	Yes	No	We do have a capital reserve account.	No	N/A
Other Funding:	No	Yes, as needed	No	No	Yes. The Sierra Madre Water & Sewer Joint Powers Board is THIRA compliant and received SHSP Funding for a	Grants

Mitigation Capability	Carbon County Fire Protection District	Medicine Bow Conservation District	Carbon County School District #2	SER Conservation District	Sierra Madre Water and Sewer JPB	Little Snake River Conservation District
					generator to run the wells in case of an extended power outage.	

Education & Outreach Capabilities

Education and outreach are important capabilities that allow a community to continue the conversation with the public regarding hazard risks and opportunities to mitigate. The county and local governments capabilities of this type are shown in **Table 18** through **Table 20**.

Table 18 Carbon County & Local Governments (1/2) - Education & Outreach Capabilities

Mitigation Capability	Carbon County	City of Rawlins	Town of Baggs	Town of Dixon	Town of Elk Mountain
Public Hazard Education / Outreach Program	Yes. Carbon County utilizes the County's website, social media platforms, as well as using town halls, local county newspapers, and local radio station.	Yes	No	No	Yes
Local Citizen Groups that Communicate Hazard Risks	Yes, Basic Faith-Based VOAD.	Yes	No	No	No
Firewise	No. Currently, the Planning & Development Department has "Are you Firewise?" informational booklets that are available to public (free of charge) upon request.	Yes	Yes	No	No
StormReady	Yes	Yes	No	No	No
Other Programs or Organizations:	Yes, Carbon County Office of Emergency Management Volunteer Program.	No	No	No	No

Table 19 Carbon County & Local Governments (2/2) - Education & Outreach Capabilities

Mitigation Capability	Town of Encampment	Town of Hanna	Town of Medicine Bow	Town of Riverside	Town of Saratoga	Town of Sinclair
Public Hazard Education / Outreach Program	No	No	No	No	Yes, the Fire and Police Departments annually works with the local schools to provide education.	No
Local Citizen Groups that Communicate Hazard Risks	No	No	No	No	No	No
Firewise	No	No	No	Yes	No	No
StormReady	No	No	No	No	No	No
Other Programs or Organizations:	No	Hanna Fire educates schools	No	No	Yes – The Town of Saratoga works closely with the County Office of Emergency Management.	No

Table 20 Carbon County Special Districts - Education & Outreach Capabilities

Mitigation Capability	Carbon County Fire Protection District	Medicine Bow Conservation District	Carbon County School District #2	SER Conservation District	Sierra Madre Water and Sewer JPB	Little Snake River Conservation District
Public Hazard Education / Outreach Program	No	Yes	No	We have an extensive education program in Encampment and Saratoga elementary schools	No	Yes

Mitigation Capability	Carbon County Fire Protection District	Medicine Bow Conservation District	Carbon County School District #2	SER Conservation District	Sierra Madre Water and Sewer JPB	Little Snake River Conservation District
				focusing on natural resources. We can incorporate hazard education if desired.		
Local Citizen Groups that Communicate Hazard Risks	No	Yes	No	No	No	Yes
Firewise	No	No	No	No	No	N/A
Other Programs or Organizations:	No	No	No	No	No	N/A

Capabilities to Expand

Jurisdictions seeking FEMA approval were asked to identify local capabilities that will work towards expanding over the next five years. These results are reported in **Table 21**.

Table 21 Carbon County Primary Capabilities to Expand

Local Government	Capability
Carbon County	Development of a countywide CWPP
City of Rawlins	Warning Systems / Services, Comprehensive Master Plan, Maintenance Planning, Planning Commission, Community Planner, Development of a countywide CWPP
Town of Baggs	Public Hazard Education, Development of a countywide CWPP
Town of Dixon	Development of a countywide CWPP
Town of Elk Mountain	Development of a countywide CWPP
Town of Encampment	Development of a countywide CWPP

Local Government	Capability
Town of Hanna	Development of a countywide CWPP
Town of Medicine Bow	Increasing GIS Capabilities, Development of a countywide CWPP
Town of Riverside	Development of a countywide CWPP
Town of Saratoga	Development of a countywide CWPP
Town of Sinclair	Development of a countywide CWPP
SER (Saratoga-Encampment-Rawlins) Conservation District	Development of a countywide CWPP
Medicine Bow Conservation District	Development of a countywide CWPP
Little Snake River Conservation District	Development of a countywide CWPP
Carbon County School District 2	Development of a countywide CWPP
Carbon County Fire Protection District	Development of a countywide CWPP
Sierra Madre Water & Sewer Joint Powers Board	Development of a countywide CWPP

Compliance with Floodplain Requirements

Carbon County, Rawlins, Baggs, Dixon, Elk Mountain, Medicine Bow, Riverside, and Saratoga have been mapped and participated in the NFIP, and they have adopted NFIP minimum floodplain management criteria.

Table 22 includes the details for the NFIP participants in the county, as well as the current policy coverage and claims paid. There is one identified repetitive loss property (residential) in the Town of Saratoga, and no severe repetitive loss properties. Carbon County and its jurisdictions do not participate in the NFIP Community Rating System (CRS). The Towns of Encampment, Hanna, and Sinclair have mapped floodplains but have chosen to opt out of the NFIP for the best interests of their local governments.

Table 22 Carbon County NFIP Summary

Local Government	Date of Entry	Initial FIRM ID	Current FIRM	Policies in Force	Coverage	Claims Paid	Value Claims Paid
Carbon County	5/10/1984	1/16/1987	12/20/2024	7	$2,590,000	6	$10,929
City of Rawlins	3/7/1975	12/20/2024	12/20/2024	3	$613,000	0	$0
Town of Baggs	12/19/1975	8/16/1986	12/20/2024	8	$1,991,000	17	$70,932
Town of Dixon	5/25/1984	9/30/1987	12/20/2024	0	$0	0	$0
Town of Elk Mountain	6/2/1977	11/4/1987	12/20/2024	2	$570,000	4	$6,154
Town of Encampment	NOT PARTICIPATING	12/20/2024	12/20/2024	0	$0	0	$0
Town of Hanna	NOT PARTICIPATING	12/20/2024	12/20/2024	0	$0	0	$0
Town of Medicine Bow	8/22/2012	12/1/2012	12/20/2024	0	$0	0	$0
Town of Riverside	2/12/1982	7/2/1987	12/20/2024	1	$169,000	0	$0
Town of Saratoga	8/1/1975	10/1/1986	12/20/2024	22	$5,053,000	8	$29,747
Town of Sinclair	NOT PARTICIPATING	12/20/2024	12/20/2024	0	$0	0	$0

Maintaining compliance under the NFIP is an important component of flood risk reduction. All participating communities will continue to comply with all NFIP requirements which is monitored by FEMA regional staff, including enforcing all locally adopted floodplain

management regulations concerning existing structure improvements and new construction. The county and participating communities are currently in good standing with the provisions of the NFIP.

Adopting floodplain management rules is only effective if the rules are followed and enforced. Implementation and enforcement of local floodplain regulations (i.e. – "compliance") is achieved through the following:

- Continuing to participate in FIRM updates and adopt floodplain maps when created / updated
- Implementing, maintaining, and updating floodplain ordinances
- Continued designation of a local floodplain manager whose responsibilities include reviewing floodplain development permits to ensure compliance with local floodplain management ordinances and rules
- Suggest improvements to the enforcement of, and compliance with, regulations and programs
- Promote and educate the public on the benefits of flood insurance

After a flood event, or any event that may cause loss of a structure such as a fire or tornado, it is the role of the floodplain administrator to review and assess damaged structures located within the Special Flood Hazard Area (SFHA). "Substantial damage" occurs when the cost of restoring a structure exceeds 50 percent of its market value before damage occurred. "Substantial improvement" occurs when the cost of improving a structure exceeds 50 percent of its market value before the start of construction. Property owners are advised that structures experiencing substantial damage, or undergoing substantial improvements, must go through the floodplain application and permit process. Additionally, these structures must be upgraded during the repair or reconstruction process to meet the minimum building standards stipulated in the regulations.

If it is determined substantial damage / improvement has occurred, those structures must be brought up to current floodplain management standards. This ensures compliance with floodplain management measures and contributes to the overall safety and resilience of the affected structures. These provisions are common to each community's floodplain management ordinances.

NFIP compliance is implemented through the following designations:

- Carbon County: The County Planning Director has been appointed the Floodplain Administrator to administer and implement the provisions of the community floodplain ordinance and other appropriate sections of 44 CFR pertaining to floodplain management.
- City of Rawlins: The City Administrator, or their designated representative, has been appointed the Floodplain Administrator to administer and implement the provisions of the community floodplain ordinance and other appropriate sections of 44 CFR pertaining to floodplain management.
- Town of Baggs: The Town Zoning Officer has been appointed the Floodplain Administrator to administer and implement the provisions of the community floodplain ordinance and other appropriate sections of 44 CFR pertaining to floodplain management.

- Town of Dixon: the Town Mayor will assist the administrator, at his request, in his delineation of the limits of the areas having a special flood, mudslide (i., E. mudflow), or flood-related erosion hazards. Additionally, the town will provide information as the administrator may request concerning the present use and occupancy of the floodplain and mudslide or flood-related erosion areas
- Town of Elk Mountain: The Town Clerk has been appointed the Floodplain Administrator to administer and implement the provisions of the community floodplain ordinance and other appropriate sections of 44 CFR pertaining to floodplain management.
- Town of Medicine Bow: The Town Mayor has been appointed the Floodplain Administrator to administer and implement the provisions of the community floodplain ordinance and other appropriate sections of 44 CFR pertaining to floodplain management.
- Town of Riverside: The Town Mayor has been appointed the Floodplain Administrator to administer and implement the provisions of the community floodplain ordinance and other appropriate sections of 44 CFR pertaining to floodplain management.
- Town of Saratoga: The Town Zoning Officer has been appointed the Floodplain Administrator to administer and implement the provisions of the community floodplain ordinance and other appropriate sections of 44 CFR pertaining to floodplain management.

Also, to be considered are the flood mitigation actions contained in this HMP that support the ongoing efforts by participating communities to minimize the risk and vulnerability to the flood hazard.

Plan Monitoring and Maintenance

Carbon County and the LPT agreed upon these HMP maintenance procedures. It was determined that the Emergency Management Coordinator will serve as the primary point of contact for these tasks. This position will coordinate all local efforts to monitor, evaluate, and update the HMP. Each participating local government will be responsible for implementing their specific mitigation actions and reporting on the status of these actions to the emergency manager.

Throughout the year, the emergency manager will monitor hazard events that may require the LPT to revisit sections of the HMP. Reasons for this may include but are not limited to: disaster events (affecting the county or other communities across the nation); changes in hazard risk or vulnerability due to population change, development, and/or climate change; changes in available funding resources; updated hazard studies or information; changes in governmental organizational structure; or public input / concerns.

Events that do not necessitate a HMP update at that time will be tracked by the emergency manager for integration into the five-year update.

Carbon County Emergency Management will coordinate the annual maintenance of the Hazard Mitigation Plan (HMP), including preparing a yearly progress report and monitoring ongoing actions. This report will be compiled and presented during public meetings held by the Carbon County Council of Governments (CCCOG) and the Carbon County Local Emergency Planning Committee (LEPC). To ensure community input, an annual HMP review questionnaire will be distributed to gather feedback on evolving concerns, which will inform future

HMP updates. Additionally, participating local governments will be asked to provide yearly updates on their action statuses for inclusion in the report.

An evaluation of the HMP's effectiveness will be directly measured from these annual progress reports.

Continued Public Engagement

Continuing public engagement over the HMP's next five-year lifespan is paramount to retaining community momentum as it relates to implementing the mitigation strategy. It is also important to use this opportunity to identify additional ways that the county's underserved communities and populations can be best represented by the HMP (detailed in the Error! Reference source not found. section). **Table 23** identifies these planned public engagement efforts for each local government.

Table 23 Carbon County Planned Continued Public Engagement Efforts

Local Government	Public Engagement
Carbon County	Carbon County Emergency Management, working with all stakeholders (CCSO, CCFPD, R&B, IT, BOCC, CCCOG, etc.) will create a single dedicated website that all residents in Carbon County to access that gives real-time Current Incident Information, that supplements Mass Notification (AlertSense) and Dispatch. Planning & Development will work with Emergency Management to post informational content, either in-person or online. The updated HMP will be available on the Carbon County OEM Website. Annual public engagement campaigns, tied to the newly identified mitigation actions.
City of Rawlins	The City of Rawlins is planning on holding a city council work session in 2025 to relay information and progress towards the measurement of hazard mitigation efforts. Work sessions are broadcast to the public. The City is also looking to incorporate a section on the city website as to mitigation plans and efforts. With the greater understanding of the Hazards facing the City of Rawlins discussions will be held with various stakeholders about mitigation efforts. These stakeholders include economic development constituents, community development constituents, and various citizen groups.

Local Government	Public Engagement
Town of Baggs	Annual public engagement campaigns, tied to the newly identified mitigation actions.
Town of Dixon	Annual public engagement campaigns, tied to the newly identified mitigation actions.
Town of Elk Mountain	Public meetings and social media. Town of Elk Mountain, working with all stakeholders (CCSO, CCFPD, CCEM, CCCOG, etc.) will continue to update our website relating to our progress made towards implementation of the HMP that all residents in Elk Mountain access.
Town of Encampment	Continuing to monitor our hazards as identified and make the public aware of the plans we have adopted and what they can do in partnership with others to help mitigate risk. We will hold public meetings with the town and other agencies when risks are identified or become elevated.
Town of Hanna	The Town of Hanna will post this on our Town Website and the link from the Carbon County Emergency Management Website link to keep all citizens aware, of changes, plans and updates.
Town of Medicine Bow	Annual public engagement campaigns, tied to the newly identified mitigation actions. Tools to be utilized include Town Hall meetings, resident surveys, and website posts.
Town of Riverside	The new HMP will be available for review at our Town Hall. Interested citizens are always welcome at our monthly meetings to discuss topics of concern. We have one council person per every 12 people in town.
Town of Saratoga	The updated HMP will be available on the Town of Saratoga Website.
Town of Sinclair	By having annual public workshops and input meetings focused on the HMP and implementation updates.
SER (Saratoga-Encampment-Rawlins) Conservation District	SER CD will continue open lines of communication with Carbon County, specifically Emergency Management. This will include supporting & amplifying county public engagement efforts.

Local Government	Public Engagement
Medicine Bow Conservation District	Supporting & amplifying county public engagement efforts.
Little Snake River Conservation District	Annual public engagement campaigns, tied to the newly identified mitigation actions.
Carbon County School District 2	CCSD#2 will continue to look at the HMP annually at the beginning of the year administrative meetings, and update and train as needed to protect students and staff. Supporting & amplifying county public engagement efforts.
Carbon County Fire Protection District	Supporting & amplifying county public engagement efforts.
Sierra Madre Water & Sewer Joint Powers Board	Sierra Madre Water & Sewer Joint Powers Board will have county hazard mitigation education and awareness information available for customers in the office and will notify customers of such on water billings. Supporting & amplifying county public engagement efforts.

Changes in Government Priorities

Communities are continually evolving over the HMP's five-year lifespan. For some, this can lead to changes in local government priorities, as it relates to hazard mitigation. Factors potentially influencing these priorities can include but are not limited to: recent disaster events; changing local resources, needs, or capabilities; new state or federal policies and funding resources; new hazard impacts identified by the updated risk assessment; or changes in growth and development. At the same time, other communities may have experienced no major changes that would influence the updated HMP. **Table 24** presents how this HMP was revised due to these potential changes in each local government.

Table 24 Carbon County Changes in Government Priorities

Local Government	Change in Priorities
Carbon County	Emergency Management, with the updated HMP, has a greater understanding of the Hazards Carbon County faces, coupled with the segregated survey results, dictates a change in what capabilities will be Exercised and what agencies need to be involved. Emergency Management will create a new process with current working groups (CCCOG, LEPC, C4:EOC, etc.) to annually review/discuss the HMP, as part of plan maintenance.

Local Government	Change in Priorities
City of Rawlins	The largest current impact of the hazard mitigation plan on the City of Rawlins has been the education the City has received. By more fully understanding the hazards that face the City of Rawlins the more effective the City can be with its planning and operational strategy. This knowledge has and will be used to incorporate improved strategies to reduce the associated risks to the community. The three major areas of focus is securing budget during the upcoming budget season, reviewing strategic plans to ensure the initiatives on the hazard mitigation plan, changing operating strategies to enhance the mitigation of risk outlined in the hazard mitigation plan.
Town of Baggs	There have been no major changes to community priorities relating to hazards and related mitigation since the previous plan.
Town of Dixon	We reviewed the old HMP and updated as needed. We received some funding for a back up generator so we wanted to include that on the plan. We wanted to continue a few things the were on the old plan.
Town of Elk Mountain	There have been no major changes to community priorities relating to hazards and related mitigation since the previous plan.
Town of Encampment	The town have changed focus from flood as the greatest risk to now wildfire.
Town of Hanna	There have been no major changes to community priorities relating to hazards and related mitigation since the previous plan.
Town of Medicine Bow	There have been no major changes to community priorities relating to hazards and related mitigation since the previous plan.
Town of Riverside	There have been no major changes to community priorities relating to hazards and related mitigation since the previous plan.
Town of Saratoga	The Town of Saratoga with the updated HMP, has a greater understanding of the Hazards Saratoga as well as the County faces, coupled with the survey results, dictates a change in what capabilities will be exercised and what agencies need to be involved.
Town of Sinclair	There have been no major changes to community priorities relating to hazards and related mitigation since the previous plan.
SER (Saratoga-Encampment-Rawlins) Conservation District	There have been no major changes to community priorities relating to hazards and related mitigation since the previous plan.

Local Government	Change in Priorities
Medicine Bow Conservation District	The district did not participate in the previous HMP, so no changes to report.
Little Snake River Conservation District	The district did not participate in the previous HMP, so no changes to report.
Carbon County School District 2	The district did not participate in the previous HMP, so no changes to report.
Carbon County Fire Protection District	The district did not participate in the previous HMP, so no changes to report.
Sierra Madre Water & Sewer Joint Powers Board	The district did not participate in the previous HMP, so no changes to report.

Carbon County Planning Process

Plan Integration

Integration of the HMP into other planning mechanisms is vital for the overall implementation of the mitigation strategy. This also benefits a community by ensuring that there are no strategic conflicts across planning documents. **Table 25** documents opportunities for integration of the 2020 HMP into other planning efforts.

Table 25 Carbon County Integration of the 2020 HMP

Local Government	2020 Plan Integration
Carbon County	The 2020 HMP was utilized each year for the THIRA/SPR working group.
City of Rawlins	The 2020 HMP was utilized each year for the THIRA/SPR working group. Employee turnover has interrupted implementation. Efforts will begin to implement including planning and budgeting.
Town of Baggs	The town has not had other planning efforts at this point.
Town of Dixon	The 2020 HMP was adopted by the Dixon Town Council. We did not have any other planning efforts and did not incur any disaster events.
Town of Elk Mountain	The town has not had other planning efforts at this point.
Town of Encampment	We have not had other planning efforts at this point.
Town of Hanna	The town has not had other planning efforts at this point.

Local Government	2020 Plan Integration
Town of Medicine Bow	Hazard ordinances were established based on the HMP
Town of Riverside	The town has not had other planning efforts at this point.
Town of Saratoga	The 2020 HMP was utilized each year for the THIRA/SPR working group.
Town of Sinclair	The town has not had other planning efforts at this point.
SER (Saratoga-Encampment-Rawlins) Conservation District	The Board adopted the 2020 HMP plan at a regularly schedule public meeting. We were also successful in securing a BRIC grant to reduce potential flooding near Saratoga. The HMP was referenced throughout the application.
Medicine Bow Conservation District	The district has not had other planning efforts at this point.
Little Snake River Conservation District	The district has not had other planning efforts at this point.
Carbon County School District 1	The district has not had other planning efforts at this point.
Carbon County School District 2	The district has not had other planning efforts at this point.
Carbon County Fire Protection District	The district has not had other planning efforts at this point.
Sierra Madre Water & Sewer Joint Powers Board	The district has not had other planning efforts at this point.

Table 26 details each local government's planned integration efforts for the 2025 HMP.

Table 26 Carbon County Integration of the 2025 HMP

Local Government	2025 Plan Integration
Carbon County	Emergency Management will integrate the HMP into LEPC, THIRA, SPR, C4-Carbon County Emergency Operations Center Training & Awareness Program, Training & Exercises Program. The Carbon County Planning & Development Department will reference the updated Hazard Mitigation Plan during any and all appropriate meetings.
City of Rawlins	The City of Rawlins will incorporate the hazard mitigation plan into the City's strategic planning. The strategic planning is then used to create the operating plans of each department. January 2025 begins the budget preparation for Fiscal Year 2026 and as the budgets are prepared for each department the

	hazard mitigation plan will be a focus to ensure that funds are allocated for the hazard mitigation plan.
Town of Baggs	The HMP's mitigation strategy will be reviewed during annual capital improvement planning.
Town of Dixon	We will integrate the HMP into our annual budget discussions and will provide updates during our council meetings.
Town of Elk Mountain	Town of Elk Mountain will integrate the HMP into the THIRA/SPR. Zoning Department will reference the updated HMP during any and all appropriate meetings.
Town of Encampment	When doing any type of planning process or ordinance the HMP will be taken into consideration. It will also be utilized to show our vulnerabilities when grant writing.
Town of Hanna	No current future planning efforts have been identified. The HMP's mitigation strategy and risk assessment will be utilized if any planning efforts are identified.
Town of Medicine Bow	We will integrate the HMP into our annual budget discussions and will provide updates during our council meetings. It will also be referred to when updating local ordnances and developing emergency response training and guidelines.
Town of Riverside	Our town will utilize the new HMP, our own master plan, local ordinances, and common sense in all decisions about building and public safety in the future just as we have in the past.
Town of Saratoga	The Hazard Mitigation Plan will serve as one of the primary guiding documents for informing updates and revisions to the town's Long-Term (Master Plan) Strategic Plan. The town will also integrate the HMP into THIRA and Training & Exercises Programs.
Town of Sinclair	We are in the process of establishing a master plan for Sinclair that the HMP risk assessment and mitigation strategy will inform.
SER (Saratoga-Encampment-Rawlins) Conservation District	SERCD will use the plan to prioritize mitigation flooding projects currently underway. SERCD will continue using the plan to prioritize flood mitigation

	projects as well as drought resilience projects. It will also be integrated into pursuits to secure funding for mitigation projects.
Medicine Bow Conservation District	The Medicine Bow Conservation District will reference the HMP during the Long Range Planning/ Resource Management Plan process and the Annual Plan process and any future resource planning efforts that initiate during the next 5 years.
Little Snake River Conservation District	The HMP's mitigation strategy will be incorporated into the 5 year and yearly plans, budget if needed.
Carbon County School District 2	The HMP will serve as one of the primary guiding documents for informing updates and revisions to the district's Long-Term Strategic Plan. CCSD#2 will integrate the HMP into procedures, training, and awareness with crisis management teams throughout all communities in the district to protect against injury and life threatening situations.
Carbon County Fire Protection District	The HMP's mitigation strategy will be incorporated into the annual CIP process.
Sierra Madre Water & Sewer Joint Powers Board	Sierra Madre Water & Sewer Joint Powers Board will integrate the HMP into its Source Water Protection Plan.

Incorporation of Existing Plans & Information

In addition to the data provided by stakeholders mentioned previously, all HMP-relevant existing plans, studies, reports, and technical information were reviewed during the update process. **Table 27** provides an overview of how each of these resources were incorporated into the HMP.

Table 27 Carbon County Existing Resource Incorporation

Local Government	Plan	Incorporated
All	Wyoming State HMP	Hazard Profile Sections
All	National Oceanic and Atmospheric Administration (NOAA) National Centers for Environmental Information	Hazard Profile Sections
All	NOAA National Weather Service (NWS) Storm Prediction Center	Hazard Profile Sections

Local Government	Plan	Incorporated
Carbon County	Carbon County Natural Resource Management Plan	Mitigation Capabilities
Rock River	Rock River Inclement Weather Plan	Hazard Profile Sections
SERCD	SERCD	USACE Flooding Report (2016) – informed mitigation strategy, WOHS Flooding Technical Assistance Report (2017)

Carbon County Hazard Identification and Risk Assessment

Local Jurisdiction Risk Rankings

A qualitative risk ranking was performed by each participating local government for the hazards profiled in this plan. This risk ranking assessed the probability of each hazard's occurrence and its likely impact on the people, property/environment, and economy of the planning area. The responses were collected utilizing a four-category qualitative scale. For the probability of a hazard, this included "unlikely (1)," "possible (2)", "probable (3)", and "likely (4)". For the impacts of the hazard to the three community sectors, the scale included "minor (1)", "limited (2), "critical (3)", and "catastrophic (4)". The responses were then calculated into a quantitative range by combining the impact scores and multiplying by the probability score, which correlates with the "high," "moderate," and "low" risk rankings. **Table 28** and **Table 29**presents each local government's hazard risk ranking.

For some local governments, select hazards that affect the county may not currently present an immediate or impactful risk. Those hazards are denoted as not applicable (N/A).

Table 28 Carbon County Local Jurisdiction Hazard Risk Rankings

Hazard	Carbon County	City of Rawlins	Town of Baggs	Town of Dixon	Town of Elk Mountain	Town of Encampment	Town of Hanna	Town of Medicine Bow	Town of Riverside	Town of Saratoga	Town of Sinclair
Avalanche	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Drought	High	High	Moderate	High	Low	Moderate	Moderate	High	Moderate	Moderate	Moderate
Earthquake	Moderate	Low	Low	Low	Low	Low	High	Low	Low	Moderate	Moderate
Flood/Dam, Dike, & Levee Incident	Moderate	Low	High	Moderate	Moderate	Low	Low	Low	Moderate	Moderate	N/A
Geologic Hazards (Landslide/Land & Mine Subsidence/Expansive Soil)	Low	Low	Low	N/A	Low	Low	Low	Low	Low	Low	Low
Severe Thunderstorm (Lightning/Hail)	Moderate	Moderate	High	Moderate	Moderate	Moderate	Moderate	High	Low	Low	High
Tornado/Wind/Windblown Deposits	High	Moderate	Moderate	Low	Low	Low	Low	High	Low	High	Moderate
Wildfire	High	Moderate	Moderate	Moderate	High	High	Moderate	Moderate	High	High	High
Winter Storm	High	High	High	High	High	High	High	High	High	High	High

Table 29 Carbon County Special Districts Hazard Risk Rankings

Hazard	CCFPD	CCSD #2	SERCD	SMWSJPB	MBCD	LSRCD
Avalanche	N/A	N/A	Moderate	N/A	N/A	N/A
Drought	N/A	N/A	High	Moderate	N/A	N/A
Earthquake	Low	Moderate	Low	Moderate	N/A	Low
Flood/Dam, Dike, & Levee Incident	N/A	Low	High	N/A	N/A	N/A
Geologic Hazards (Landslide/Land & Mine Subsidence/Expansive Soil)	Moderate	Moderate	Moderate	N/A	N/A	N/A
Severe Thunderstorm (Lightning/Hail)	Moderate	Moderate	Low	Moderate	Moderate	Low
Tornado/Wind/Windblown Deposits	Low	High	Low	High	Moderate	Low
Wildfire	Moderate	Low	High	High	Low	Low
Winter Storm	Moderate	High	High	High	Low	Moderate

Exposure Analysis

The exposure analysis identifies what assets, such as critical infrastructure and buildings, are in areas that hazard events in each jurisdiction in Carbon County could impact. The following Lifelines and Structure Inventory sections provide information on the total number of critical infrastructure and buildings in Carbon County and its jurisdictions to be used as a baseline for the exposure analysis.

It is important to note that all maps in the Carbon County Annex display both incorporated jurisdictions and census-designated places (CDPs). CDPs are displayed due to the concentration of valuable assets such as people and property in these areas. Notably, not all unincorporated communities in Carbon County are CDPs, and there are nearly a dozen unincorporated communities in the county not displayed in detail on the maps. For hazard exposure analysis, the CDPs are combined with other unincorporated communities to assess total FEMA Lifelines, total structures, and structure values at risk. The distinction between incorporated jurisdictions, unincorporated jurisdictions, and census-designated places is as follows:

Incorporated jurisdictions are legally recognized municipalities with their own government structure, elected officials, and ability to pass ordinances and provide municipal services. In Carbon County, this includes the:

- City of Rawlins
- Town of Baggs
- Town of Dixon
- Town of Elk Mountain
- Town of Encampment
- Town of Hanna
- Town of Medicine Bow
- Town of Riverside
- Town of Saratoga
- Town of Sinclair

Unincorporated jurisdictions are areas that do not fall under the jurisdiction of a municipal government. Instead, they are managed directly by the county or a higher level of government. In Carbon County, this includes:

- Fort Steele
- Lamont
- Leo
- McFadden
- Muddy Gap
- Savery
- Walcott
- Woodedge

Census-designated places (CDPs) are geographic areas identified for census and statistical purposes due to their concentration of people but are not legally incorporated and do not have their own government or elected officials. These areas rely on the county or other local government entities for services and government. In Carbon County, this includes the:

- Arlington
- Ryan Park

See the Exposure and Vulnerability subsection under each hazard for more information on what assets are exposed to specific hazards in incorporated jurisdictions and Carbon County CDPs.

Lifelines

FEMA's *Hazus Inventory National Database* was utilized for all Lifeline analyses. Lifelines are critical infrastructure and services essential for ensuring communities' health, safety, and security during and

after a disaster. A baseline of this data is presented in **Table 30**. Additionally, **Table 31** displays system Lifelines (recorded in miles). Impacts or disruptions along these continuous networks could affect large areas or multiple jurisdictions. These Lifelines are mapped in **Figure 7** and **Figure 8**.

Table 30 Carbon County Lifeline Inventory – Total Count

Local Government	Communication	Energy	Hazmat	Medical	Safety	Shelter	Transportation	Water	Total Count
Baggs	-	-	-	-	2	1	-	-	**3**
Dixon	-	-	-	-	-	-	-	-	**0**
Elk Mountain	-	-	-	-	1	1	2	-	**4**
Encampment	-	-	-	-	1	1	-	1	**3**
Hanna	-	-	-	-	1	2	4	-	**7**
Medicine Bow	-	-	-	-	1	1	1	-	**3**
Rawlins	2	-	-	1	5	4	6	-	**18**
Riverside	-	-	-	-	-	-	1	-	**1**
Saratoga	-	-	-	-	2	2	3	-	**7**
Sinclair	-	-	1	-	2	-	5	-	**9**
Unincorporated	1	8	-	-	2	-	231	8	**250**
Total Count	**3**	**8**	**1**	**1**	**17**	**12**	**253**	**9**	**304**

Source: FEMA's Hazus Inventory National Database

Table 31 Carbon County Lifeline Inventory – Total Miles

Local Government	Airport*	Highway	Natural Gas Pipeline	Railway	Total Miles
Baggs	-	0.8	-	-	**0.8**
Dixon	-	0.8	-	-	**0.8**
Elk Mountain	-	-	0.5	-	**0.5**
Encampment	-	1.6	-	-	**1.6**
Hanna	-	-	-	2.5	**2.5**
Medicine Bow	0.2	2.8	-	2.5	**5.5**
Rawlins	-	10.7	3.3	6.5	**20.5**
Riverside	-	0.8	-	-	**0.8**
Saratoga	1.7	1.8	-	1.2	**4.6**
Sinclair	-	2.3	8.8	4.2	**15.2**
Unincorporated	4.3	493.4	448.4	123.5	**1,069.6**
Total Miles	**6.2**	**515.0**	**461.0**	**140.4**	**1,122.6**

Source: FEMA's Hazus Inventory National Database

*Some municipally owned and managed airports are located in unincorporated areas of the county

Figure 7 Carbon County FEMA Lifelines

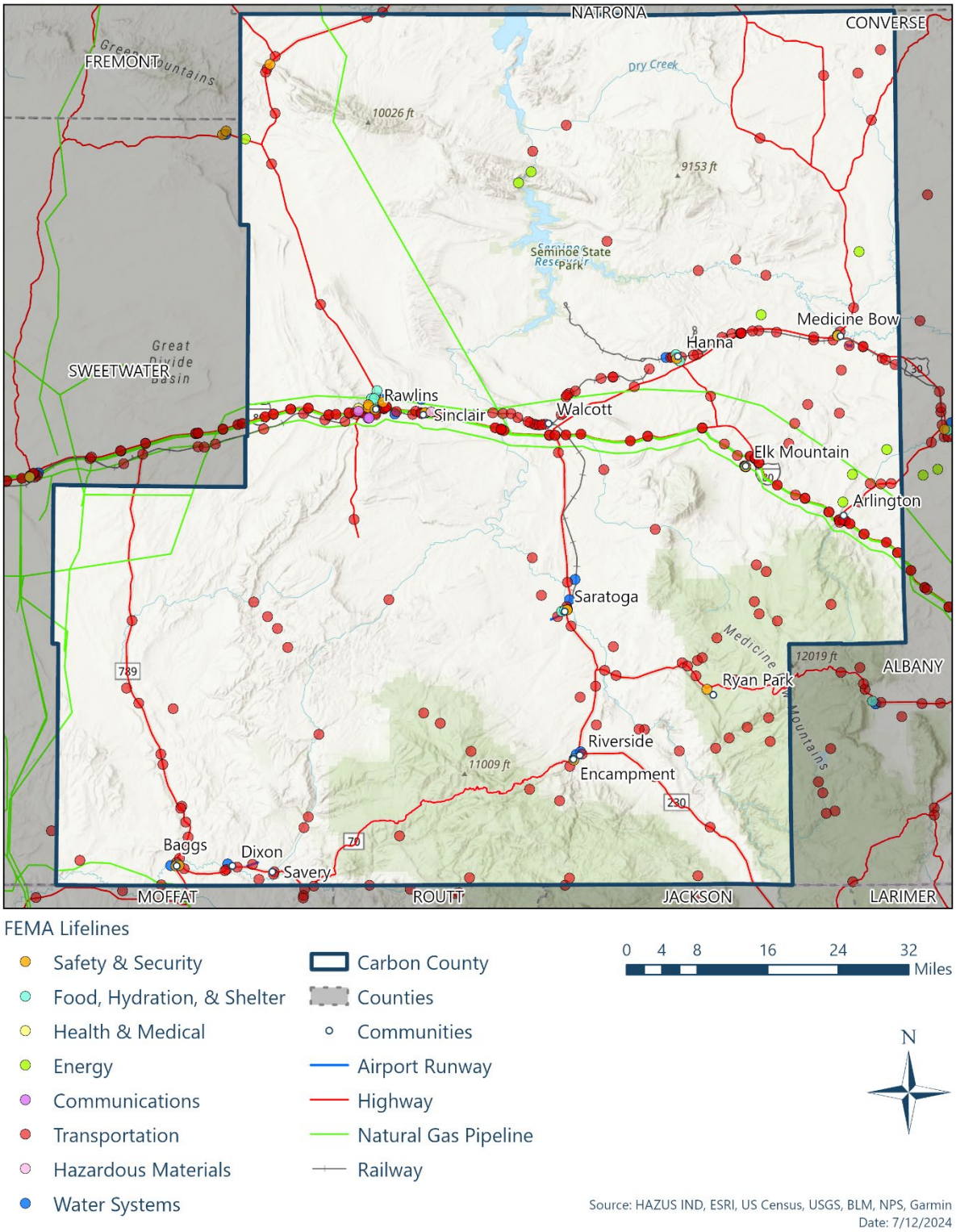
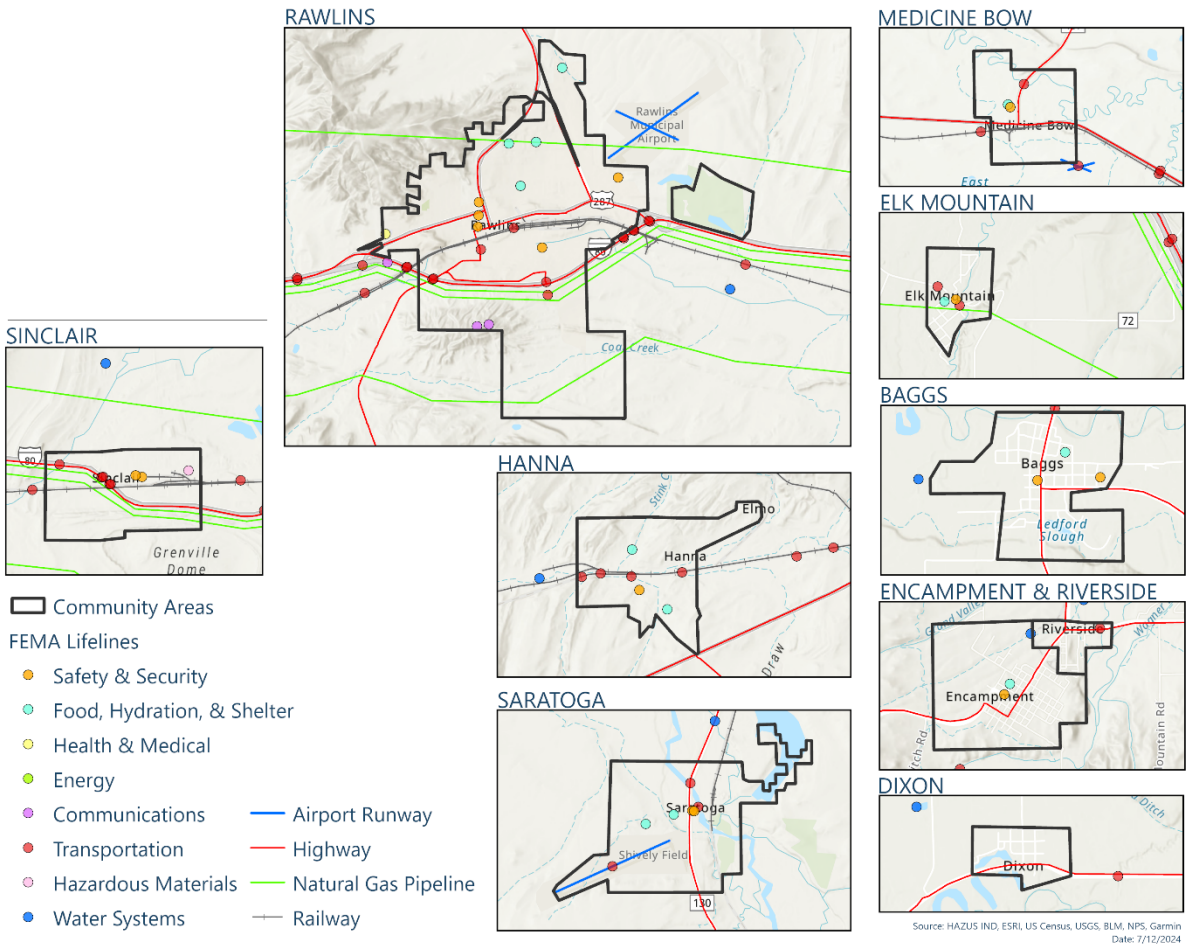


Figure 8 Carbon County FEMA Lifelines Inset Maps



Structure Inventory

The US Army Corps of Engineers *National Structure Inventory* was utilized for all structure assessments. A baseline of this data is presented in **Table 32** and mapped in **Figure 9** and **Figure 10.** It is important to note that the Sinclair Refinery is recorded as one commercial and three public (government-owned) points by the database, and the estimated value of these structures are likely much lower than the actual value.

Table 32 Carbon County Total Structure Inventory

Local Government	Structure Type	Structure Count	Total Structure Value	Total Structure Content Value
Baggs	**Total**	**250**	**$81,120,222**	**$68,052,423**
	Commercial	41	$26,599,744	$22,748,261
	Industrial	16	$13,963,102	$20,398,011
	Public	6	$9,130,390	$9,192,659
	Residential	187	$31,426,985	$15,713,493
Dixon	**Total**	**52**	**$9,247,836**	**$5,392,849**
	Commercial	3	$2,687,124	$2,112,493
	Residential	49	$6,560,712	$3,280,356

Local Government	Structure Type	Structure Count	Total Structure Value	Total Structure Content Value
Elk Mountain	**Total**	**120**	**$26,013,849**	**$19,083,559**
	Commercial	10	$4,570,270	$3,925,086
	Industrial	2	$3,222,297	$4,833,445
	Public	3	$2,011,622	$2,220,198
	Residential	105	$16,209,660	$8,104,830
Encampment	**Total**	**359**	**$78,115,233**	**$50,313,089**
	Commercial	31	$16,044,620	$15,579,358
	Industrial	7	$2,213,357	$2,681,224
	Public	5	$4,247,757	$4,247,757
	Residential	316	$55,609,499	$27,804,749
Hanna	**Total**	**522**	**$95,091,689**	**$62,583,205**
	Commercial	39	$22,188,346	$22,336,736
	Industrial	2	$648,784	$952,975
	Public	6	$6,332,430	$6,332,430
	Residential	475	$65,922,129	$32,961,064
Medicine Bow	**Total**	**243**	**$72,142,455**	**$55,729,318**
	Commercial	31	$27,534,943	$23,288,950
	Industrial	3	$4,467,043	$6,700,565
	Public	6	$10,598,538	$10,968,837
	Residential	203	$29,541,931	$14,770,966
Rawlins	**Total**	**3,768**	**$1,172,573,448**	**$854,154,966**
	Commercial	454	$403,884,453	$370,671,680
	Industrial	58	$43,687,126	$58,649,851
	Public	67	$116,710,919	$120,687,959
	Residential	3189	$608,290,949	$304,145,475
Riverside	**Total**	**67**	**$16,799,366**	**$13,139,936**
	Commercial	10	$5,191,236	$5,407,220
	Industrial	1	$429,313	$429,313
	Public	2	$3,427,989	$3,427,989
	Residential	54	$7,750,829	$3,875,414
Saratoga	**Total**	**1,126**	**$345,703,351**	**$271,850,779**
	Commercial	181	$142,807,362	$142,976,953
	Industrial	20	$14,557,907	$20,195,515
	Public	20	$25,935,791	$27,477,166
	Residential	905	$162,402,290	$81,201,145
Sinclair	**Total**	**221**	**$56,315,359**	**$39,146,858**
	Commercial	13	$12,800,030	$12,670,019
	Industrial	1	$594,148	$594,148
	Public	8	$8,844,202	$8,844,202
	Residential	199	$34,076,978	$17,038,489
Unincorporated	**Total**	**3,406**	**$989,712,042**	**$702,670,120**
	Commercial	494	$364,425,272	$331,261,252
	Industrial	46	$51,579,908	$75,494,182
	Public	22	$18,122,510	$18,122,510

Local Government	Structure Type	Structure Count	Total Structure Value	Total Structure Content Value
	Residential	2,844	$555,584,352	$277,792,176
Grand Total		**10,134**	**$2,942,834,852**	**$2,142,117,104**

Source: US Army Corps of Engineers National Structure Inventory (NSI)

Figure 9 Carbon County National Structure Inventory

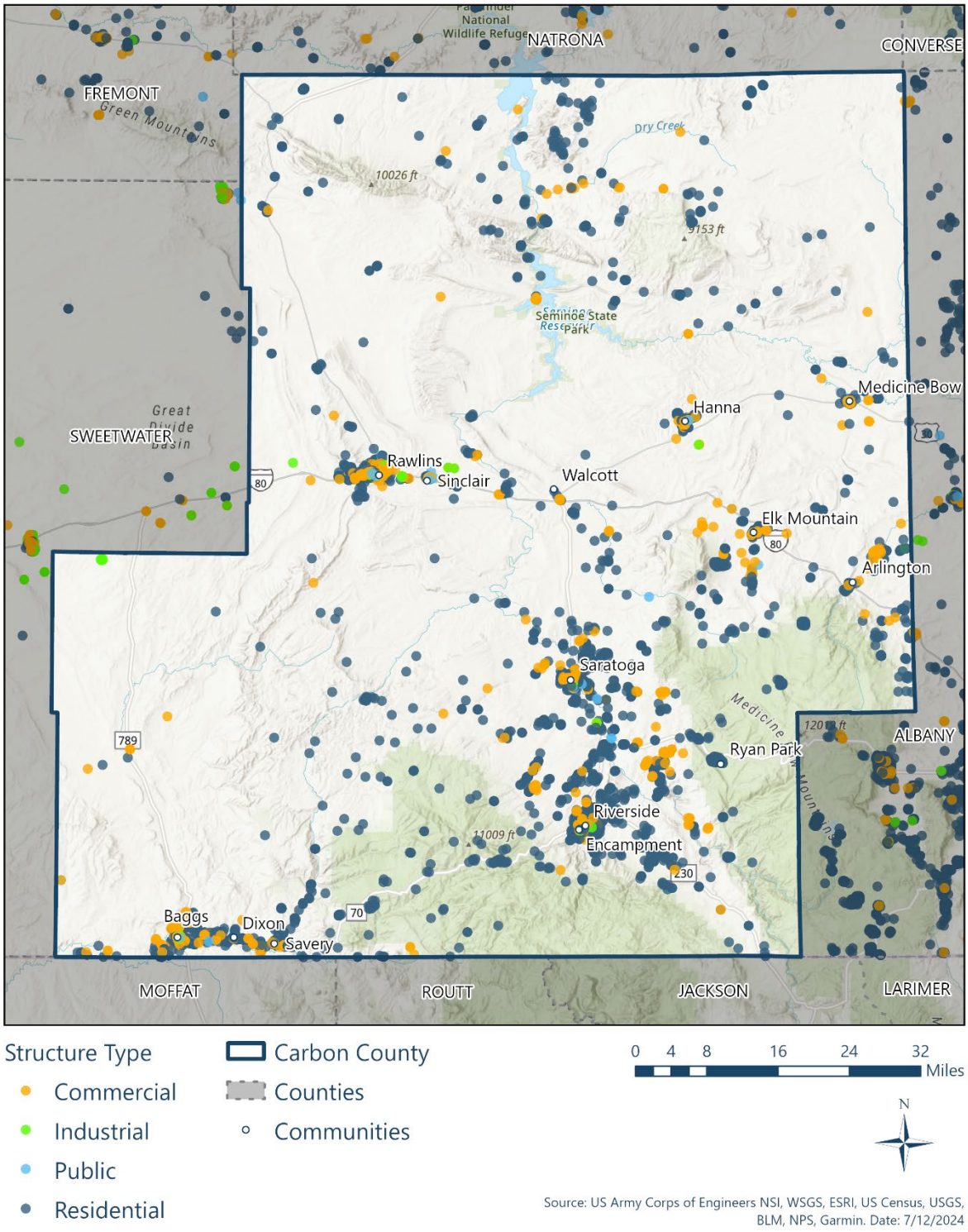
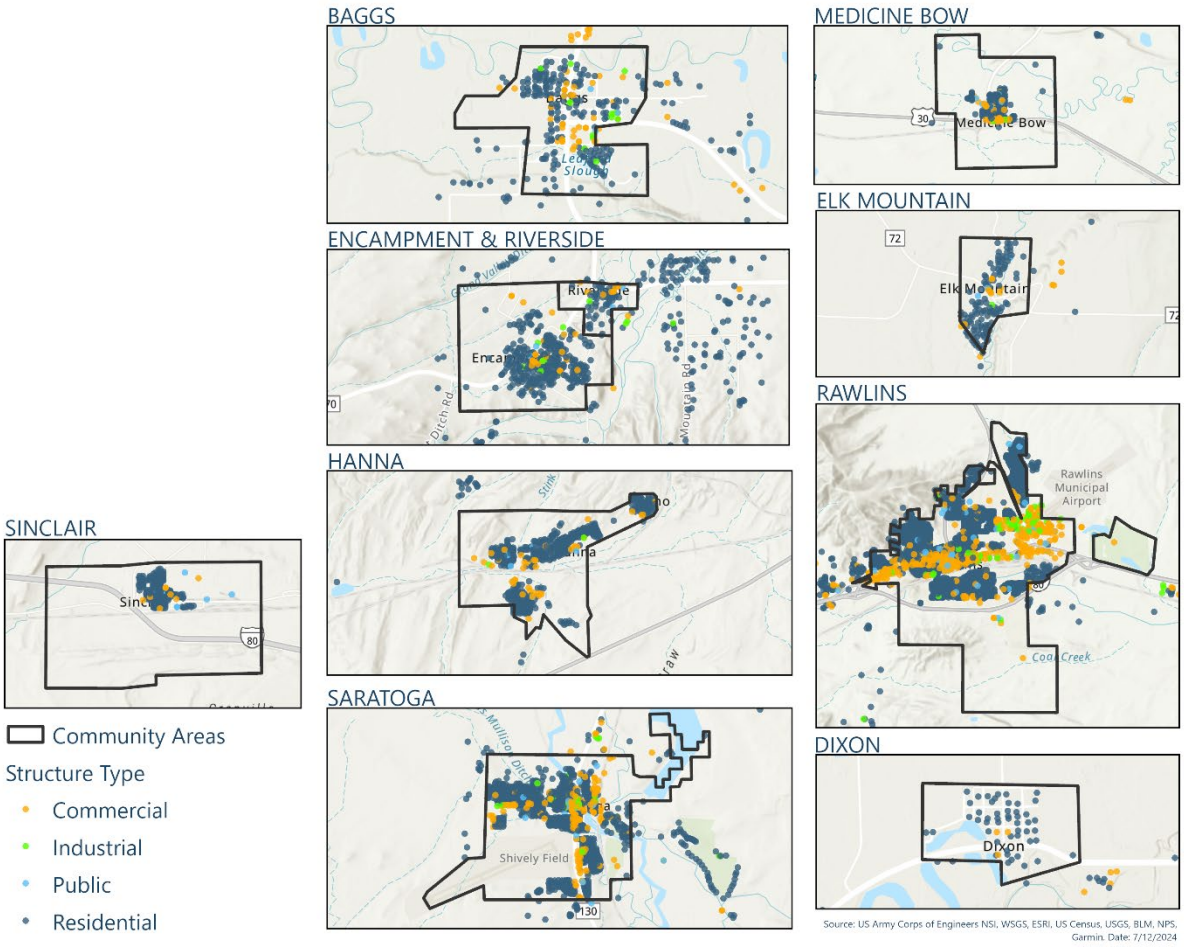


Figure 10 Carbon County National Structure Inventory Inset Maps



Avalanche

Previous Occurrences

The Bridger-Teton Avalanche Center records avalanche fatalities in Wyoming. Carbon County has had 7 reported fatalities due to avalanche events since the mid-1800s. These events are detailed in **Table 33** below.

Table 33 Carbon County Avalanche Fatalities

County	Date	Location	Activity
Carbon	1/22/1903	Cow Creek Drainage, Sierra Madre Range	Mining – Assistant Engineer
Carbon	1/22/1903	Cow Creek Drainage, Sierra Madre Range	Mining – Lineman
Carbon	2/9/1985	Rock Creek Knoll, Snowy Range	Backcountry skier
Carbon	1/11/1998	Battle Lake, Sierra Madre Range	Snowmobiler
Carbon	12/26/2002	West side of the Snowy Range	Snowmobiler
Carbon	1/2/2008	French Creek, Snowy Range	Snowmobiler
Carbon	03/12/2022	South Fork Miner Creek	Snowmobiler

County	Date	Location	Activity
Carbon*	02/09/2024*	Medicine Bow National Forest, Sierra Madre Range*	Snowmobiler*

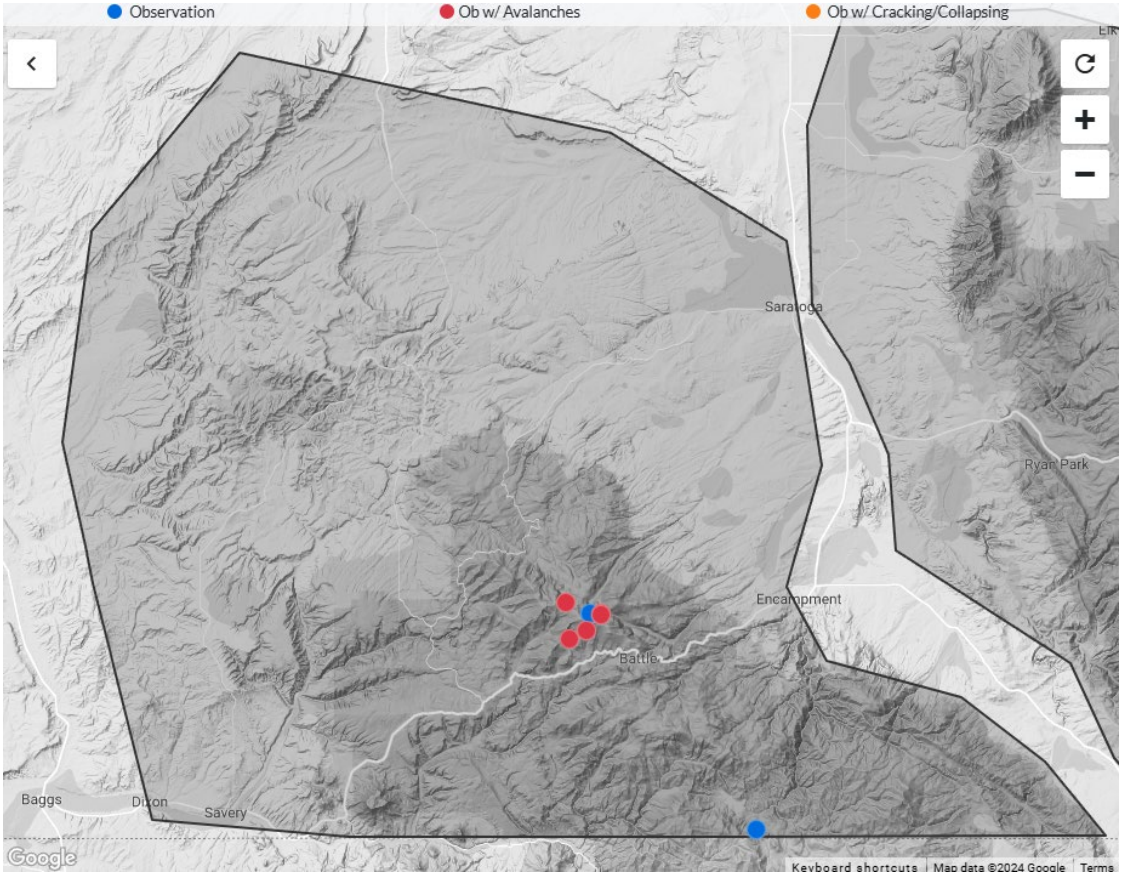
Source: Bridger-Teton Avalanche Center

*In addition to the events recorded by the Bridger-Teton Avalanche Center, the LPT noted a fatality in February 2024 when a Saratoga resident was snowmobiling in an area of the Medicine Bow National Forest and was caught in a backcountry avalanche.

Location

In Carbon County, the Medicine Bow/Centennial and Sierra Madre Mountain Ranges experience avalanches every winter due to their steep terrain, high elevations, and winter snow. Generally, avalanches occur in remote areas and, therefore, have little impact on people or property in jurisdictions within the county. In the 2023-2024 winter season, Carbon County experienced four observed avalanches in the Sierra Madre Mountains (indicated by red dots on the map) and two observations of potential instability (indicated by the blue dot). These events occurred near State Highway 70 west of the Town of Encampment, as shown in **Figure 11.**

Figure 11 Avalanche Observations in WY Region 3 Sep 1, 2023 - Jul 9, 2024



Source: Eastern Wyoming Avalanche Information Exchange

Exposure and Vulnerability

Lifelines

The most significant impacts of avalanches affect the Transportation Lifeline, which can have cascading consequences to safety and security. Roadblocks can hinder rescue and emergency assistance efforts, necessitate traffic detours, and spur costly debris clearance. Fortunately, most avalanche areas are on public lands, limiting risk to major thoroughfares such as Interstate 80, U.S. 30, and U.S. 287. However, State Highway 70 crosses through the Sierra Madre range in Carbon County and is vulnerable to avalanche events in the winter months. There are also major costs associated with rescuing motorists if involved in an avalanche. Energy and Communication Lifelines can also be impacted if an avalanche damages utility lines, resulting in electricity disruptions or complete power outages. Communication fields, such as cable and telephone lines, could be damaged by avalanches, causing a delay in response time and rescue from first responders.

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

People

The Wyoming State HMP 2021-2026 reports that avalanche deaths primarily occur in the backcountry, where access is limited, and people recreate in pursuit of beautiful terrain. Skiers, snowboarders, and snowmobilers are most commonly victims of avalanche hazards. Recreation is popular in communities such as Riverside and Encampment near the mountain range. Of the four avalanche observations reported during the 2023-2024 winter season in Carbon County, all were by snowmobilers recreating in the Sierra Madres. Carbon County continues public awareness efforts for backcountry travelers (especially tourists) for these hazards. Highway maintenance crews, motorists, and others not engaging in recreation risk being caught in an avalanche.

Populations identified as vulnerable or under-resourced are more likely to experience losses from hazard events and face barriers in recovery. See **Table 2** for more information on demographic factors that contribute to vulnerability in Carbon County.

Structures

While it is impossible to analyze county asset risk to avalanches due to a lack of comprehensive avalanche path mapping in GIS format for the state of Wyoming, the Wyoming State HMP 2021-2026 noted that there were no recorded losses to state facilities from avalanches. Due to the destructive potential of avalanche events, structures that are in the path of this hazard could sustain significant damage. Air blasts from powder avalanches have the capacity to knock out windows and doors on buildings and vehicles. Personal property losses are also possible if homes constructed in the mountainous terrain of Carbon County are in the path of an avalanche. Roadways are the most exposed asset to avalanche hazards.

Natural, Historic, and Cultural Resources

The greatest avalanche risk in Carbon County is on public lands, including the western portion of Medicine Bow National Forest. Localized impact related to tree and vegetation damage may be found in the path of an avalanche. Cascading impacts from vegetation displacement include landslides or rock falls as slope stability is reduced. If an avalanche does cross paths with a waterway, damming and sudden release of water could occur. Possible short-term blockage of roadways that prevent recreationists and tourists from entering the Medicine Bow National Forest could result in economic loss, but these losses are likely limited.

Natural and historic resources were identified in Carbon County to ensure these assets are considered and protected. See **Table 4** for a list of endangered and threatened species and **Table 5** for a list of historic places in Carbon County.

Local Vulnerability

In addition to the general impacts that avalanches can have on Lifelines, people, structures, and cultural resources in Carbon County, representatives of each participating jurisdiction identified unique local vulnerabilities that avalanches present to their community, summarized in **Table 34**.

Table 34 Local Government Vulnerability to Avalanche

Local Government	Local Vulnerability
Carbon County	People involved in winter recreational activities in the Sierra Madre and Snowy Range areas are susceptible. Snowmobiling has a large economic impact during winter months. Private property landowners building in avalanche prone areas are susceptible.
City of Rawlins	Local community & government assets are not at risk from avalanches.
Town of Baggs	Local community & government assets are not at risk from avalanches.
Town of Dixon	Local community & government assets are not at risk from avalanches.
Town of Elk Mountain	Local community & government assets are not at risk from avalanches.
Town of Encampment	Local community & government assets are not at risk from avalanches.
Town of Hanna	Local community & government assets are not at risk from avalanches.
Town of Medicine Bow	Local community & government assets are not at risk from avalanches.
Town of Riverside	Local community & government assets are not at risk from avalanches.
Town of Saratoga	Local community & government assets are not at risk from avalanches.
Town of Sinclair	Local community & government assets are not at risk from avalanches.
SER (Saratoga-Encampment-Rawlins) Conservation District	Precipitation gauges within the Forest. Radio towers and internet relay stations might not be accessible.
Medicine Bow Conservation District	Local government assets are not at risk from avalanches.
Little Snake River Conservation District	Local government assets are not at risk from avalanches.
Carbon County School District 2	Local government assets are not at risk from avalanches.
Carbon County Fire Protection District	Local government assets are not at risk from avalanches.
Sierra Madre Water & Sewer Joint Powers Board	Local government assets are not at risk from avalanches.

Future Trends in Development

It is crucial to consider the hazards posed by avalanches when making any future development and construction decisions, to ensure new construction does not increase the county's risk. **Table 35** summarizes development trends in potential avalanche risk areas in each jurisdiction.

Table 35 Local Government Development Trends - Avalanche

Local Government	Development Trends
Carbon County	Any development in Avalanche Prone areas will increase vulnerability.
City of Rawlins	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
Town of Baggs	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
Town of Dixon	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
Town of Elk Mountain	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
Town of Encampment	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
Town of Hanna	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
Town of Medicine Bow	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
Town of Riverside	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
Town of Saratoga	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
Town of Sinclair	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
SER (Saratoga-Encampment-Rawlins) Conservation District	No construction has recently occurred, or is expected, which would impact hazard vulnerability.

Local Government	Development Trends
Medicine Bow Conservation District	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Little Snake River Conservation District	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Carbon County School District 2	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Carbon County Fire Protection District	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Sierra Madre Water & Sewer Joint Powers Board	No construction has recently occurred, or is expected, which would impact hazard vulnerability.

Probability of Future Occurrences

The Bridger-Teton Avalanche Center's oldest record in Wyoming dates to 1877 and continues until 2024. In the 147 years of data collection, 8 fatalities due to avalanches were reported in Carbon County. This equates to a 5% chance that a fatality will occur somewhere in the county each year due to an avalanche event.

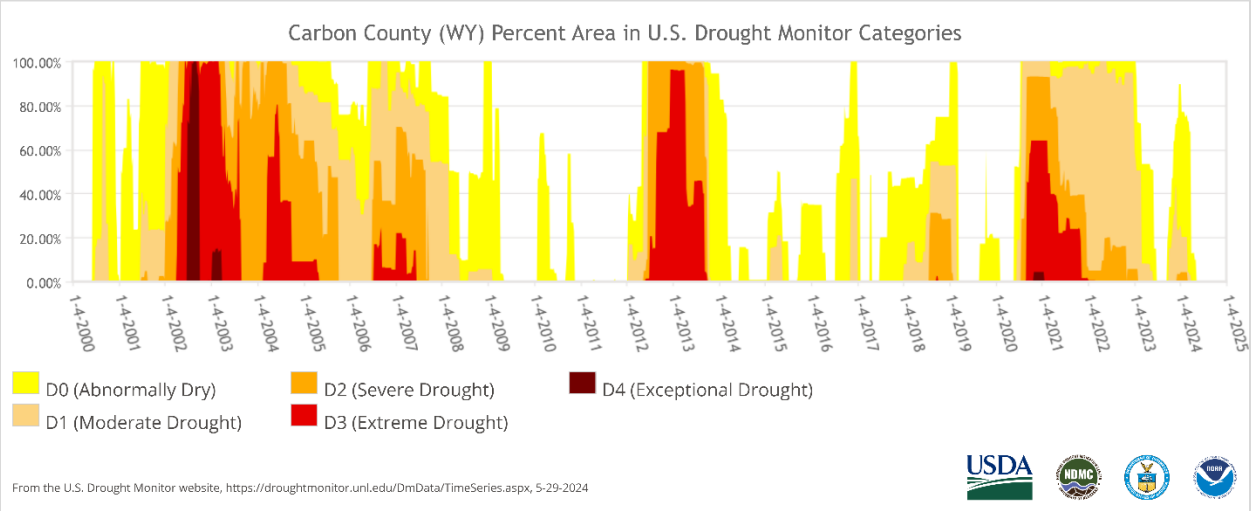
Drought

Previous Occurrences

The U.S. Drought Monitor reports on drought conditions in Carbon County from 2000 to May 2024, as shown in **Figure 12**. Extreme drought conditions (D3) were reported in Carbon County in the years 2002-2003, 2004-2005, 2006-2007, 2012-2013, 2018, and 2020-2022. Exceptional drought conditions (D4) were reported from June 2022 to October 2022, January 2003 to March 2003, and October 2020 to January 2021.

The county has experienced 25 USDA disaster declarations for drought from 2012-2024, as shown in the Base HMP document. Additionally, due to drought, the USDA designated Carbon County as a primary natural disaster area for the 2024 crop year.

Figure 12 U.S. Drought Monitor Carbon County



Source: U.S. Drought Monitor

Location

A drought is a regional event that is not confined to geographic or political boundaries; it can affect several areas at once. It can also range in severity across those areas. All of Carbon County and its jurisdictions are at risk of drought. Agricultural communities in Carbon County are likely to feel a disproportionate impact of drought.

Exposure and Vulnerability

Lifelines

Drought can impact people and their livelihoods in various ways, most critically, the detrimental impacts on the Food, Hydration, and Shelter Lifeline. Carbon County relies on livestock as a sector of its economy, as well as some crop cultivation. Agricultural crops can be irrigated; however, in times of drought, precipitation is limited, and water shortages may exist. Drought can, therefore, impact local food supply availability and price.

Drought can negatively impact the Water System's Lifeline, leading to higher water temperatures, eutrophication, and heavy metals entering the water supply. Additional treatment may be required to meet drinking water standards. Droughts can also impact water utility operations through loss of water pressure and supply. In severe cases, there may be an inability to access alternative and supplementary water sources because of increased customer demand and competition from other users.

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

People

Drought can reduce water quality, and in some extreme cases, municipalities may need to enforce water restrictions to conserve the available water supply and protect supply facilities. These restrictions are not likely to interfere with normal water drinking availability but could reduce water

quality. Specific groups of people most likely to be financially impacted by drought are those working in agriculture, landscape, or water recreation jobs.

Additionally, extreme heat that may accompany a drought can be dangerous for community members, especially for the elderly, children, those with chronic health conditions, and those who do not have a way to cool their homes. Those with breathing difficulties may be impacted if soil is dry and strong winds occur in the area, as air quality can worsen due to dust particles.

Populations identified as vulnerable or under-resourced are more likely to experience losses from hazard events and face barriers in recovery. See **Table 2** for more information on demographic factors that contribute to vulnerability in Carbon County.

Structures

It should be noted that most drought impacts are not structural but societal and economic in nature. However, some critical infrastructure related to water systems, such as dams, transmountain ditches, and irrigation ditches can be damaged when drought conditions cause expansive soils to contract. Additionally, a decrease in water pressure can stress water systems. Damage caused by high sediment loads is possible when pulling water from the bottom of reservoirs.

Natural, Historic, and Cultural Resources

Drought may impact water supply, prompt water conservation measures, compromise wildfire protection/increase fire risk, hinder tourism, and damage agricultural crops or livestock. Substantial water is needed to fight more frequent wildfires in dry conditions, and a lack of availability could limit this capability.

Drought can also impact local tourism and recreation. Hiking trails and hunting areas can be closed due to potential fire danger. In extreme cases, drought can result in the loss of biodiversity of plants or wildlife. Loss of vegetation in both rural and urban areas is possible, and degradation or complete loss of wetland habitats is possible. These damages can also have cascading economic impacts.

Natural and historic resources were identified in Carbon County to ensure these assets are considered and protected. See **Table 4** for a list of endangered and threatened species and **Table 5** for a list of historic places in Carbon County.

Local Vulnerability

In addition to the general impacts that drought can have on Lifelines, people, structures, and cultural resources in Carbon County, representatives of each participating jurisdiction identified unique local vulnerabilities that drought present to their community, summarized in **Table 36**.

Table 36 Local Government Vulnerability to Drought

Local Government	Local Vulnerability
Carbon County	Ranchers & Farmers are susceptible in certain areas of the County. Ranchers and Farmers attempting to get their products to markets are negatively impacted by severe droughts.

Local Government	Local Vulnerability
City of Rawlins	The most significant vulnerability of drought conditions is on the city's water supply. During periods of drought the city has experienced water restrictions which effects greenways and public consumption. Critical infrastructure includes water lines and greenery throughout the city. Irrigation systems are at risk. Public Greenways and trees are at risk of dehydration. Water recreation such as swimming pools and other recreation dependent on water.
Town of Baggs	Town water plant is vulnerable to drought conditions.
Town of Dixon	People may be put on water restrictions during a drought. This can mean either limited outside watering or not outside watering.
Town of Elk Mountain	Local ranchers would be affected if wells went dry due to drought conditions.
Town of Encampment	The town relies on a surface water source with limited rights, which supports the Sewer Lagoon. Irrigation storage in the pond is at risk, potentially leading to underwatered vegetation and trees, thereby increasing fire danger. This situation also affects irrigation for annual recreational events, park maintenance, and activities at museum grounds, all of which require adequate irrigation.
Town of Hanna	If rattlesnake dries up we won't have water to supply to homes or businesses. No water no businesses or schools can operate. No water running through pipes will cause issues with the system.
Town of Medicine Bow	Local ranchers and restrictions on water in the local park.
Town of Riverside	Drought brings larger fires so there may be some impact because of drought. General county appearance is worse during drought and could impact tourism.
Town of Saratoga	Drought brings an added high risk of fire – this situation also impacts irrigation and recreational events, park maintenance and activities, all of which have a direct effect on tourism.
Town of Sinclair	Water Use restrictions could impact people and property. Concerns with not being able to maintain parks and open spaces.
SER (Saratoga-Encampment-Rawlins) Conservation District	Recreational camping is reduced when fire bans are in place which could impact tourism.
Medicine Bow Conservation District	Local government assets are not at risk from drought.
Little Snake River Conservation District	Local government assets are not at risk from drought.
Carbon County School District 2	Local government assets are not at risk from drought.

Local Government	Local Vulnerability
Carbon County Fire Protection District	Local government assets are not at risk from drought.
Sierra Madre Water & Sewer Joint Powers Board	Sierra Madre Water & Sewer Joint Powers Board customers would all be susceptible to drought affecting our aquifer. Wells would be vulnerable in a drought.

Future Trends in Development

It is crucial to consider the hazards posed by drought when making any future development and construction decisions, to ensure new construction does not increase the county's risk. **Table 37** summarizes development trends in each jurisdiction.

Table 37 Local Government Development Trends - Drought

Local Government	Development Trends
Carbon County	If population increases the effects of drought are spread over a larger population and the water supply demands increase, creating cascading impacts.
City of Rawlins	Future development has the potential to impact the water supply.
Town of Baggs	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
Town of Dixon	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
Town of Elk Mountain	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
Town of Encampment	Population increase means that there is more use of water in the community and more use of irrigation. During drought years we may be unable to sustain current levels of service. Dying vegetation could increase fire risk. In an extreme case we may need to ration water if we are outside of our water right.
Town of Hanna	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
Town of Medicine Bow	Continued drought would limit ability to grow in town and surrounding area.
Town of Riverside	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
Town of Saratoga	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
Town of Sinclair	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.

Local Government	Development Trends
SER (Saratoga-Encampment-Rawlins) Conservation District	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Medicine Bow Conservation District	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Little Snake River Conservation District	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Carbon County School District 2	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Carbon County Fire Protection District	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Sierra Madre Water & Sewer Joint Powers Board	No construction has recently occurred, or is expected, which would impact hazard vulnerability.

Probability of Future Occurrences

The U.S. Drought Monitor reports 559 nonconsecutive weeks of severe to exceptional drought conditions from January 2000 to May 2024. Based on the 559 weeks of severe to exceptional drought conditions over the 1,274 weeks of recorded data, there is a 44% chance that Carbon County will be experiencing severe or more critical drought conditions at any given time.

Earthquake

Previous Occurrences

The USGS earthquake catalog compiles data from various sources to provide a comprehensive database of historic earthquake events. In Carbon County, the USGS reported 30 2.5 magnitude or greater earthquakes since the first record in 1977, summarized in **Table 38**. The greatest magnitude earthquake reported by the USGS was 4.3 magnitude and occurred on April 6th, 1999. Due to this earthquake, residents in the community of Rawlins reported pictures falling off the walls of their homes. Owners of a ranch house in Baggs and a motel in Wamsutter reported cracks in the cinder-block walls of their basements that needed repair. The most recent event occurred on June 3rd, 2023, and was a magnitude 3.3 earthquake.

Table 38 Carbon County Summary of Earthquake Events

Date	Magnitude	Location
3/3/1977	3.5	30 km W of Encampment
11/2/1989	3	19 km W of Encampment
4/13/1991	3.2	30 km NW of Hanna
4/19/1991	2.9	32 km NW of Hanna
12/18/1991	3.1	24 km NE of Sinclair
8/23/1993	3	29 km NW of Hanna

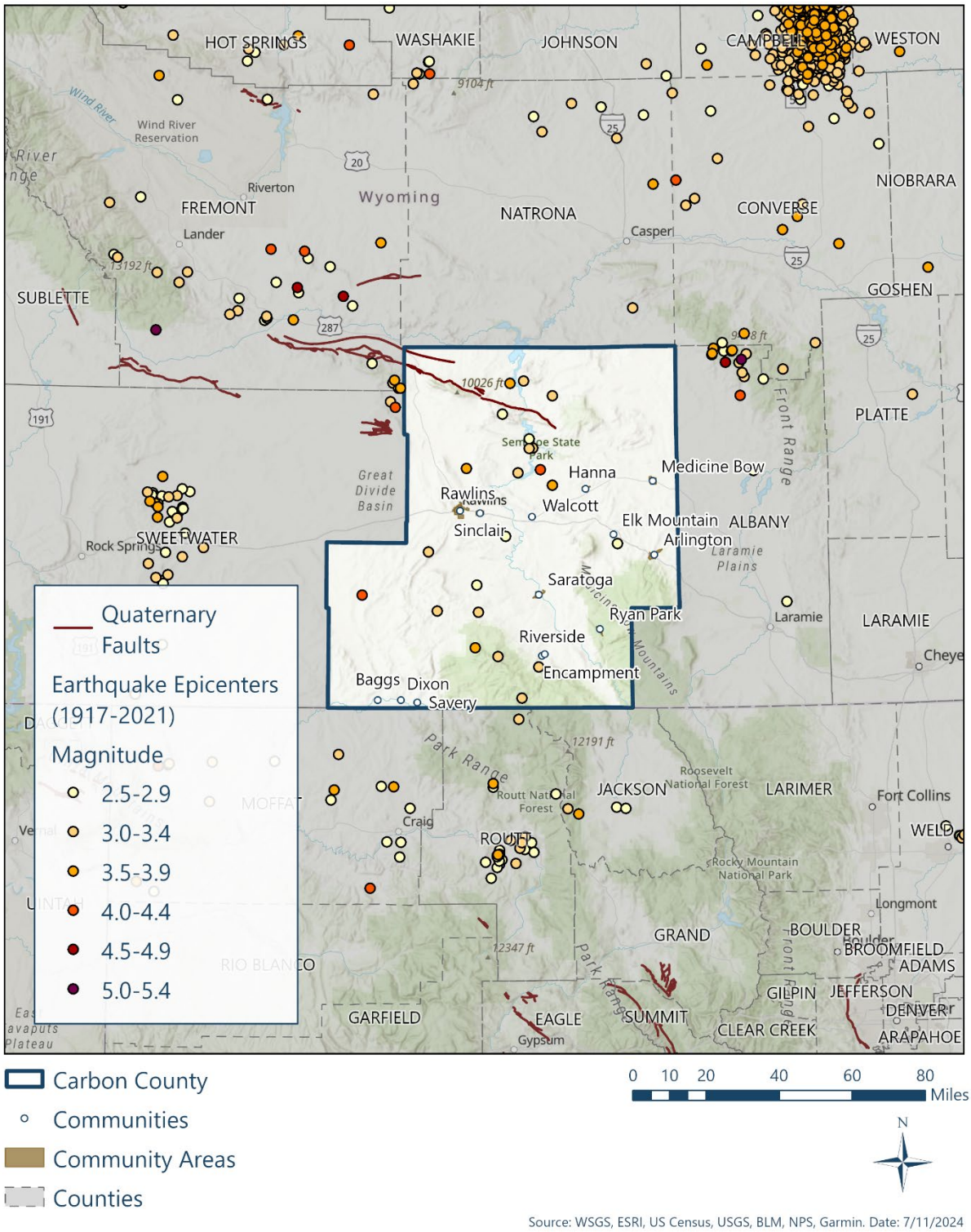
Date	Magnitude	Location
8/6/1998	3.6	18 km NNE of Rawlins
4/6/1999	4.3	31 km SE of Wamsutter
2/1/2000	3	34 km S of Alcova
8/13/2004	3.5	35 km SW of Alcova
10/27/2004	2.9	27 km W of Saratoga
1/9/2005	3	42 km NNE of Dixon
10/19/2006	2.8	4 km SSE of Elk Mountain
7/3/2009	3.2	22 km SW of Rawlins
10/8/2009	3.4	31 km SSW of Alcova
3/29/2014	2.5	44 km NNE of Sinclair
11/15/2014	3.3	20 km SSW of Encampment
5/4/2015	3.3	5 km SSW of Encampment
2/5/2020	3	28 km WSW of Saratoga
4/11/2020	2.7	14 km SE of Sinclair
1/16/2022	2.9	28 km ENE of Dixon
1/19/2022	3.3	8 km ESE of Saratoga
3/19/2022	3.8	5 km NW of Ryan Park
3/29/2022	3.3	10 km NNW of Ryan Park
7/11/2022	2.7	3 km WSW of Saratoga
8/26/2022	3.3	27 km E of Bairoil
9/26/2022	2.8	20 km WNW of Encampment
4/29/2023	2.5	3 km NE of Saratoga
6/2/2023	3.6	9 km SSE of Saratoga
6/3/2023	3.3	8 km SSE of Saratoga

Source: USGS

Location

An earthquake event could impact the entire county. Earthquake faults and earthquake risk areas help define locations. The South Granite Mountain Fault System comprises five fault sections and spans from the Seminoe Mountains in northwestern Carbon County to southeastern Fremont County along the Green Mountains Range. An earthquake along this fault system could be felt across the county and even impact parts of Carbon County. The Chicken Springs faults are clustered in Sweetwater County, just west of Carbon County. Additionally, there are active faults surrounding Carbon County, the most significant being the Teton and Hebgen Lake Faults in the Yellowstone Region. A major earthquake from either of these faults could be felt in Region 3. **Figure 13** displays historic earthquake epicenters and quaternary faults in Carbon County.

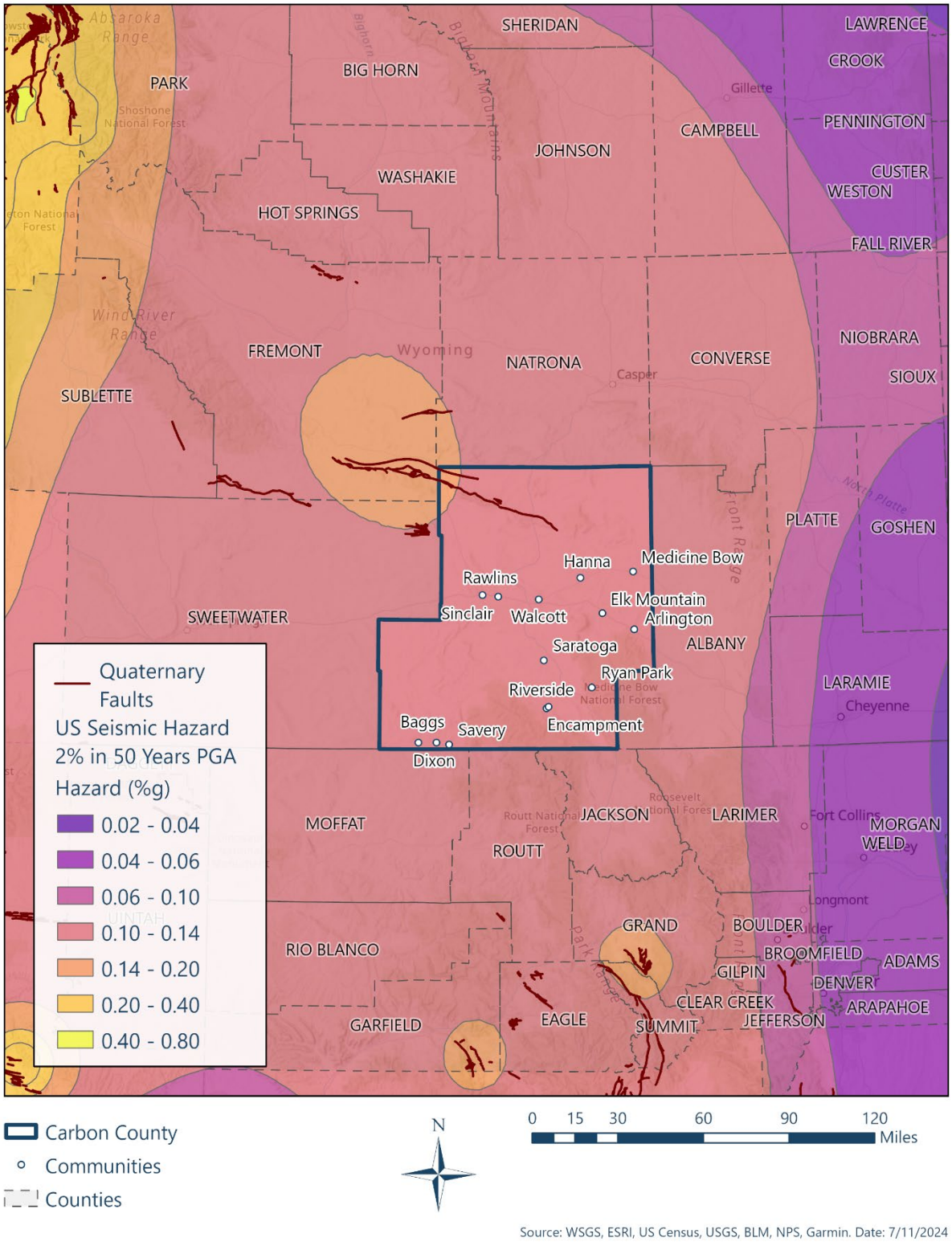
Figure 13 Carbon County Earthquake Epicenters and Faults



Peak ground acceleration (PGA) is a measure of the maximum force experienced at the surface of the ground during an earthquake. A higher PGA roughly equates to more intense shaking. **Figure 14** illustrates the PGA for Carbon County. Most of the county is in a moderate PGA zone relative to the

region, with a slightly higher PGA in the northwest corner near the South Granite Mountain Fault System.

Figure 14 Carbon County Earthquake Peak Ground Acceleration (PGA)



Exposure and Vulnerability

Lifelines

All Lifelines can be impacted significantly by an earthquake. Even with minimal damage, Food, Hydration, & Shelter can be greatly affected due to the need for sheltering displaced individuals, the likelihood of water pipelines leaking and breaking, and the possible contamination of the drinking water supply, therefore also impacting the Water Systems Lifeline.

Infrastructure damage to Communications, Energy, and Transportation can range from minimal impacts on functionality to systems completely unable to provide information and power to the community. Small upheavals in pavements can slow transportation or completely halt due to downed bridges or impassable roadways.

Health and Medical operations can be disrupted due to building damage or inability to transport patients. Fatality management may be needed on a large scale. Safety and Security may be unable to meet community needs if buildings or equipment is damaged. Hazardous Materials can be released from facilities or impacted in transit.

Based on 2,500-year probabilistic modeling of a 5.0 magnitude event, which is greater than the largest earthquake recorded in Carbon County (4.3M), but is the lowest input of the model. FEMA's Hazus loss estimation tool estimates the following impacts in Carbon County (the full **Carbon County Hazus Earthquake Loss Model** provides additional details):

- Safety and Security: 1 Hospital, 12 Schools, 1 Emergency Operations Center, 7 Police Stations, 15 Fire Stations
- Transportation Lifeline: $4.9 billion in replacement value
- Water Systems Lifeline (Potable and Waste): $1.7 billion in replacement value
- Energy (Natural Gas, Oil, and Electric): $4.8 billion in replacement value
- Communication: $270,000 in replacement value

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

People

All populations in Carbon County are at risk of an earthquake. Under-resourced communities are more likely to experience difficulties in recovering from a severe earthquake, such as issues finding housing and delays in returning to work. Isolated populations and those with preexisting health conditions are at risk of poor health outcomes if hospitals are at capacity or not functional because of a severe earthquake. Community members residing in multi-unit structures are vulnerable to earthquakes, especially if their building is unstable or not built according to current building codes.

Based on the FEMA Hazus 2,500-year probabilistic modeling of a 5.0 magnitude event, 11 households will be displaced because of an earthquake, with 5 people seeking temporary public shelter. In the most severe scenario, the model reported 7 injuries that would require medical attention but not hospitalization and no deaths. Additionally, income losses are estimated to be over $14.8 million.

See **Table 2** for more information on demographic factors that contribute to vulnerability in Carbon County.

Structures

Many factors affect the property damage an earthquake can inflict. The age and type of a building, as well as the materials used in construction, all contribute to the likelihood of withstanding an earthquake with minimal damage. Historic buildings are especially at risk for these reasons.

An earthquake's damage can be broad, from minor cosmetic cracking to rendering a building uninhabitable. The variables of an event, as well as the characteristics and the specifics of each building, make estimating damages difficult. Buildings constructed to meet updated codes or retrofitted to bring them up to code are at an advantage if an event were to happen. These codes are rated to a certain level of seismic activity; however, serious damage is still possible if an event of higher magnitude happens. Structures not built to modern seismic building codes are most vulnerable to earthquake damage. Previous reports in Carbon County of structural damage from an earthquake have included cinder block walls in basements cracking and separating.

Earthquakes can also rupture water pipelines, leading to sinkholes and damaging roads. If seismic waves damage or destroy bridges, tunnels, sewer lines, and railways, transportation disruptions can occur. This could also increase first responder response time. Communication towers are vulnerable to earthquake events and can limit first responder communication.

The FEMA Hazus model estimates that a 5.0 magnitude event will generate 12,000 tons of debris. About 432 buildings, around 4% of the structures in the modeling area, will be at least moderately damaged. Four of these buildings will be damaged beyond repair. Most of these exposed structures are single-family residential homes.

Natural, Historic, and Cultural Resources

Earthquakes can change the landscape of an environment, as ground openings, liquefaction, and landslides are possible. Wildlife may leave the area for an extended period, especially if an ecosystem is impacted. The secondary impacts of a dam failure or fire being ignited could have devastating effects in addition to the damage from the earthquake. As mentioned above, historic buildings are especially at risk of earthquakes as they are not built to modern codes.

Natural and historic resources were identified in Carbon County to ensure these assets are considered and protected. See **Table 4** for a list of endangered and threatened species and **Table 5** for a list of historic places in Carbon County.

Local Vulnerability

In addition to the general impacts that earthquakes can have on Lifelines, people, structures, and cultural resources in Carbon County, representatives of each participating jurisdiction identified unique local vulnerabilities that earthquakes present to their community, summarized in **Table 39**.

Table 39 Local Government Vulnerability to Earthquake

Local Government	Local Vulnerability
Carbon County	During a severe earthquake, homes and building not currently built to "earthquake standards" can result in catastrophic failure, loss of life, and mass displacement of residents. Critical Infrastructure including Hospitals, Nursing Homes, Dispatch Centers, Fire Departments, Police Stations and EMS Stations could all be severely damaged and regular Life-Safety Response catastrophically impacted. Interstate 80 (I-80), state highways, and county road systems could be critically impacted and impassable. Community celebrations and activities would all cease after a severe earthquake.
City of Rawlins	The city's water transmission line runs approximately 30 miles from the Sage Creek basin to town. An earthquake would have major impacts on the transmission line. An earthquake within the city limits could possibly interrupt city services of water and sewer.
Town of Baggs	Water plant, community center, EMS, and fire department. Communication towers.
Town of Dixon	Structures and systems could be damaged in an earthquake. It is unlikely in our area.
Town of Elk Mountain	Although an earthquake is unlikely we do have older buildings in our town that could be affected and possibly injure or cause death to some citizens. If the earthquake was strong enough it could affect many of our town buildings, water treatment plant, and citizens homes. We have a museum and town owned buildings that could be affected by an earthquake and would need rebuilt.
Town of Encampment	Water Plant, water towers, Sewer Lagoon and Infrastructure are at risk to earthquake. Old fire tower near museum, Opera House with Bell Tower, museum area are also vulnerable. Damage to cultural attractions could inhibit tourism, to infrastructure could impact public safety.
Town of Hanna	Critical infrastructure, including water and waterlines, gas lines, electrical and phone lines could be damaged, as well as our Fire Station, EMS Station, Marshal's Office. Regular Life-safety and saving response could be impacted.
Town of Medicine Bow	Low-income and fixed income residents would not be able to rebuild. Displaced elderly population. Those dependent on electricity to survive are at risk. The town's historic hotel is only 3 story building in town, damage could affect local tourism. Damage to the community center would prevent local gatherings.
Town of Riverside	Dependent on severity but the town assets would survive a lesser earthquake with no substantial damage.

Local Government	Local Vulnerability
	We don't have any structures that would suffer from a minor quake. Might crack some plaster but they're not going to collapse.
Town of Saratoga	During a severe earthquake, all structures not currently built to "earthquake standards" are at risk.
Town of Sinclair	No Shelter to house people misplaced. Most of the structures are 100 years old and would not withstand a moderate earthquake. Most historic structures would be affected. The Sinclair oil refinery in the Town of Sinclair is vulnerable to structural damage, fires and explosions, hazardous material spills, and disruptions in energy production during an earthquake.
SER (Saratoga-Encampment-Rawlins) Conservation District	We own an office and shop within Saratoga town limits that could be completely damaged.
Medicine Bow Conservation District	Local government assets are not at risk from earthquake.
Little Snake River Conservation District	District office could be completely damaged.
Carbon County School District 2	Staff and students could be greatly affected. The school district is not prepared for earthquakes. All school district structures could be greatly affected. The school district is not prepared for earthquakes. Historic records could be destroyed. The school district network, phone systems, and transportation could be affected. Attendance could be affected and therefore the district's ability to meet state attendance requirements. Sporting events could be canceled.
Carbon County Fire Protection District	All district structures and infrastructure are vulnerable to earthquake damage. Above and below ground utilities and pipelines are at risk from earthquake which could impact district response.
Sierra Madre Water & Sewer Joint Powers Board	Homes and businesses in the district could be greatly affected; water customers are not prepared for earthquakes. Water tank and wells could collapse, water infrastructure could be disrupted. Communication with wells and water meters could be lost.

Future Trends in Development

It is crucial to consider the hazards posed by earthquakes when making any future development and construction decisions, to ensure new construction does not increase the county's risk. **Table 40** summarizes development trends in each jurisdiction.

Table 40 Local Government Development Trends – Earthquake

Local Government	Development Trends
Carbon County	Any new development not having adequate Earthquake standards are susceptible to damage and complete failure.
City of Rawlins	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
Town of Baggs	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
Town of Dixon	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
Town of Elk Mountain	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
Town of Encampment	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
Town of Hanna	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
Town of Medicine Bow	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
Town of Riverside	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
Town of Saratoga	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
Town of Sinclair	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
SER (Saratoga-Encampment-Rawlins) Conservation District	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Medicine Bow Conservation District	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Little Snake River Conservation District	No construction has recently occurred, or is expected, which would impact hazard vulnerability.

Local Government	Development Trends
Carbon County School District 2	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Carbon County Fire Protection District	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Sierra Madre Water & Sewer Joint Powers Board	No construction has recently occurred, or is expected, which would impact hazard vulnerability.

Probability of Future Occurrences

The oldest earthquake recorded by the USGS in Carbon County dates to 1977. In the 47 years of data collection, 30 magnitude 2.5 or greater earthquakes were documented in the county. This equates to a 64% chance of an earthquake occurring somewhere in the county each year.

Flood/Dam, Dike, & Levee Incident

Previous Occurrences

The NCEI database reports on flash floods, floods, and heavy rain events from 1996 to 2024. In total, 9 events over 8 unique days resulted in 4 deaths and 2 injuries. There were no reported heavy rain events in Carbon County. It is important to note that these dollars are not adjusted to 2024 values, and reported losses are likely lower than actual losses due to data limitations, insurance coverage gaps, and because the NCEI database focuses on major events. The Local Planning Team (LPT) also reported $5,002,250 in property damage from 1937 to 2024. **Table 41** below summarizes these events in Carbon County.

Table 41 Carbon County Summary of Flood Events

Hazard	Total # of Events	# Days with Events	Deaths	Injuries	Damages
NCEI Flash Flood	6	5	4	2	$0
NCEI Flood	3	3	0	0	$0
NCEI Heavy Rain	0	0	0	0	$0
LPT	14	13	0	0	$5,002,250
Total	**23**	**21**	**4**	**2**	**$5,002,250**

Source: Storm Events Database | National Centers for Environmental Information (noaa.gov), University of Wyoming

Of these 9 recorded events in the NCEI database, 1 resulted in a loss of human life. This notable event is detailed below:

- **July 19th, 2011, in Ryan Park:** A flash flood caused by heavy rain resulted in a 25-foot wide, 9-foot-deep trench after washing out part of a road. A mother and her three adopted daughters trying to escape the flash flooding at a nearby camping was swept downstream after driving their van into the washout. The county Emergency Manager who responded to the flooding drove his vehicle into the same washout and was taken to the hospital. The flash flood also took out a section of Wyoming Highway 130, shown in **Figure 15**.

Figure 15 Torrential Rains and Flash Flooding Exposed a Culvert on Wyoming Highway 130

Source: The Gazette

Additionally, 14 notable flood events were reported by the University of Wyoming and LPT members. From these events dating back to 1937, $5,002,250 was reported in property damage. It is important to note that actual losses are likely greater than those reported. Details on these events are noted below:

- **April 5, 1937, in Carbon County**: Local heavy rains and high temperatures caused snowmelt and considerable damage due to floods. Bridges were washed out and farm buildings carried away.
- **September 1, 1938, in Southeast Wyoming:** Some damage was reported after heavy rains damaged highways and bridges.
- **April 4, 1950, in the City of Rawlins:** Light damage occurred when storm sewers were unable to carry off water from heavy rain, which caused flooding in some basements.
- **May 1, 1952, 12 miles above the Town of Baggs:** Savery Creek flooded the business section of town.
- **May 12, 1984, in the Town of Baggs:** Rainstorms combined with snowmelt resulted in a greater than 100-year flood and caused damage to rural properties in Baggs.
- **May 14, 1984, in the Town of Baggs:** High runoff and melting snow burst a small damn. A 4-foot wall of water caused $5 million in damage to the water treatment plant, land crops, irrigation systems, livestock, and 26 homes and trailers.
- **May 16, 1984, Town of Dixon:** A greater than 100-year flood from snowmelt caused an upstream reservoir failure.

- **August 11, 1990, in the Town of Saratoga:** Heavy thunderstorm rain caused flash flooding. Two campgrounds had to be evacuated due to high water on creeks and streams. Reported damage totaled $2,250.
- **May 24, 1996, in the City of Rawlins:** Heavy rainfall caused street flooding. Some roads were closed, and accidents occurred.
- **May 19, 2008, in the Town of Baggs:** High temperatures created rapid snow melt which caused Little Snake River to overflow its banks.
- **June 6, 2010, in the Town of Elk Mountain:** Medicine Bow River overflowed after a nearby snowmelt overwhelmed the river. Sandbags were placed to prevent flood damage.
- **June 7, 2010, in the Town of Saratoga:** Excessive snowmelt caused the North Platte River to flood the public golf course and Veteran's Island.
- **July 29, 2014, in Shirely Basin:** A flash flood produced 2-4 inches of water accumulating in low-lying areas of Shirley Basin.
- **July 29, 2014, in Oil Springs:** Heavy rainfall resulting in flash floods washed out a few direct roads.

In addition to Carbon County's flood events, there have been 6 recorded dam incidents since the mid-1900s. In total, $5,275,000 in property damage was reported. Several of these dam incidents were caused by heavy rain and flooding and are therefore also noted in the flood section above. Details of these events are summarized in **Table 42** below. The LPT also noted issues with a dam and dikes near the Town of Medicine Bow in 2023.

Table 42 Carbon County Summary of Dam and Levee Incidents

Date	Location	Reported Damages	Description
5/12/1984 to 5/17/1984	North Platte River, tributaries near Saratoga, tributaries near Little Snake River		Water breached a dam due to rainstorms combined with snowmelt runoff on Little Snake River. Damage to rural property in Baggs greater than 100-year flood.
5/14/1984	Baggs, Savery, Dixon, Little Snake River	$5,000,000	High runoff and melting snow burst a small damn. A 4-foot wall of water caused $5 million in damage to the water treatment plant, land crops, irrigation systems, livestock, and 26 homes and trailers.
5/16/1984	Dixon		A greater than 100-year flood from snowmelt caused an upstream reservoir failure.
6/10/1986	35NW Laramie	$275,000	Pierce Dam failed, spilling water into Rock Creek near the Albany/Carbon County line. A bridge over Rock Creek along Highway 13 was undercut and there was flooding of buildings and ranch lands near Rock River
1/1/1996	Southeast of Encampment		Ver Plancke Dam had a structural failure, and a 3-foot wall of water went over Wyoming

Date	Location	Reported Damages	Description
			Highway 230. Some ranch buildings and fences were damaged.
5/26/2023	Rawlins		Abundant snowmelt runoff filled the Teton Reservoir to historic levels and threatened the dam's stability. A controlled release prevented a dam failure and ensured the reservoir maintains the capacity to accommodate future inflows.

Source: Association of State and Dam Safety Officials

Location

FEMA flood maps and input from the LPT and the public were used to identify flood areas in Carbon County**.** **Figure 16** and **Figure 17** shows the 1% annual chance flood and 0.2% annual chance flood floodplains in the county and jurisdictions. It should be noted that updated floodplains are in development with FEMA.

Significant floodplains exist in Medicine Bow, Elk Mountain, Saratoga, and Baggs, with the 1% annual chance floodplain also going through Hanna, Sinclair, Riverside, Rawlins, and a small portion of Encampment and Dixon. It should be noted that flooding outside of the FEMA-designated flood areas is possible. Flash flooding can occur anywhere in the planning area, and a severe flood due to abnormally heavy rains or because of a dam incident could exceed the 500-year flood zone boundaries. Ryan Park is the only community without identified flood areas by the preliminary flood hazard data but is located along Barrett Creek and could still be vulnerable to flood events. Detailed studies are also available for Medicine Bow, Saratoga, and Baggs.

Figure 16 Carbon County Flood Zones

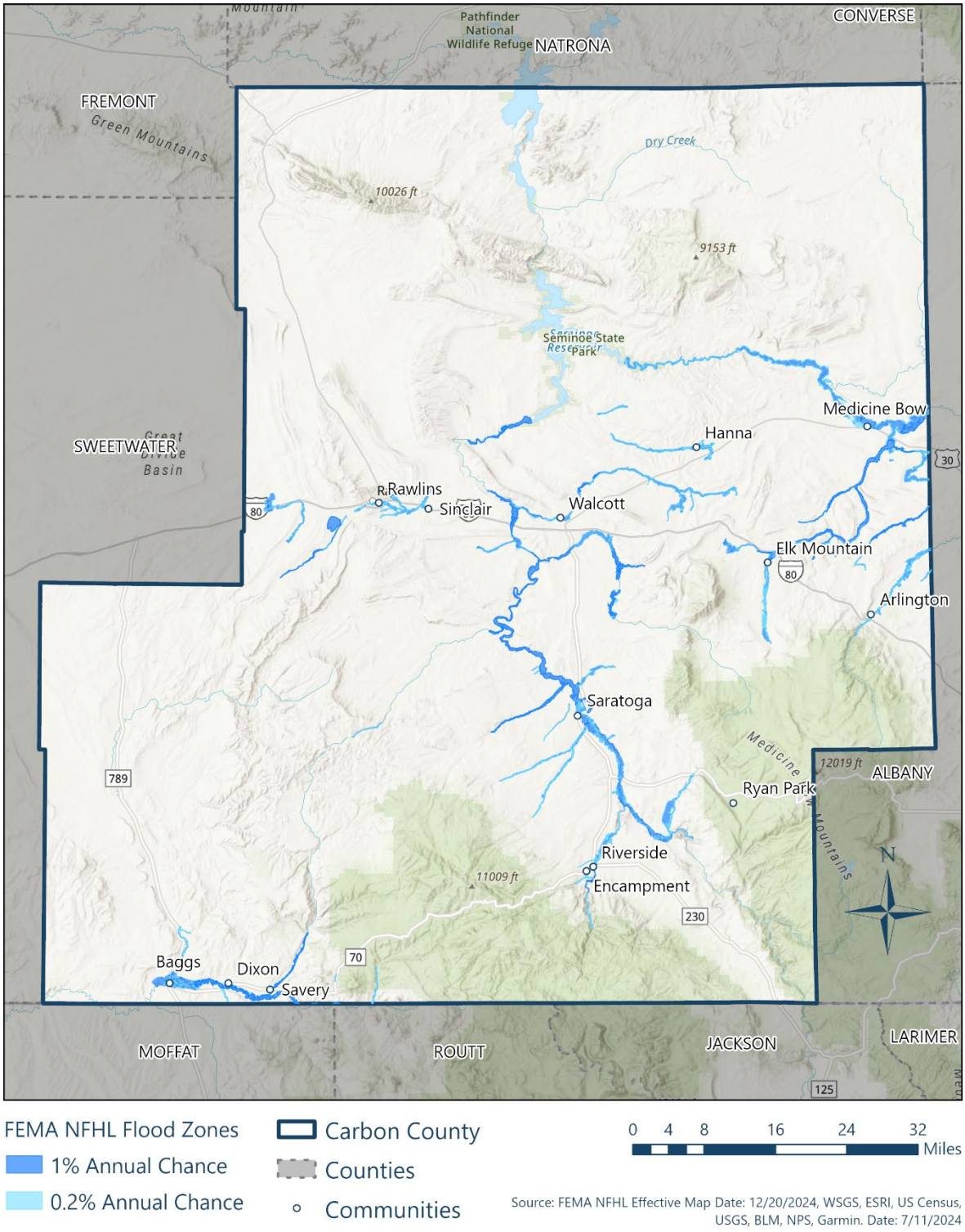
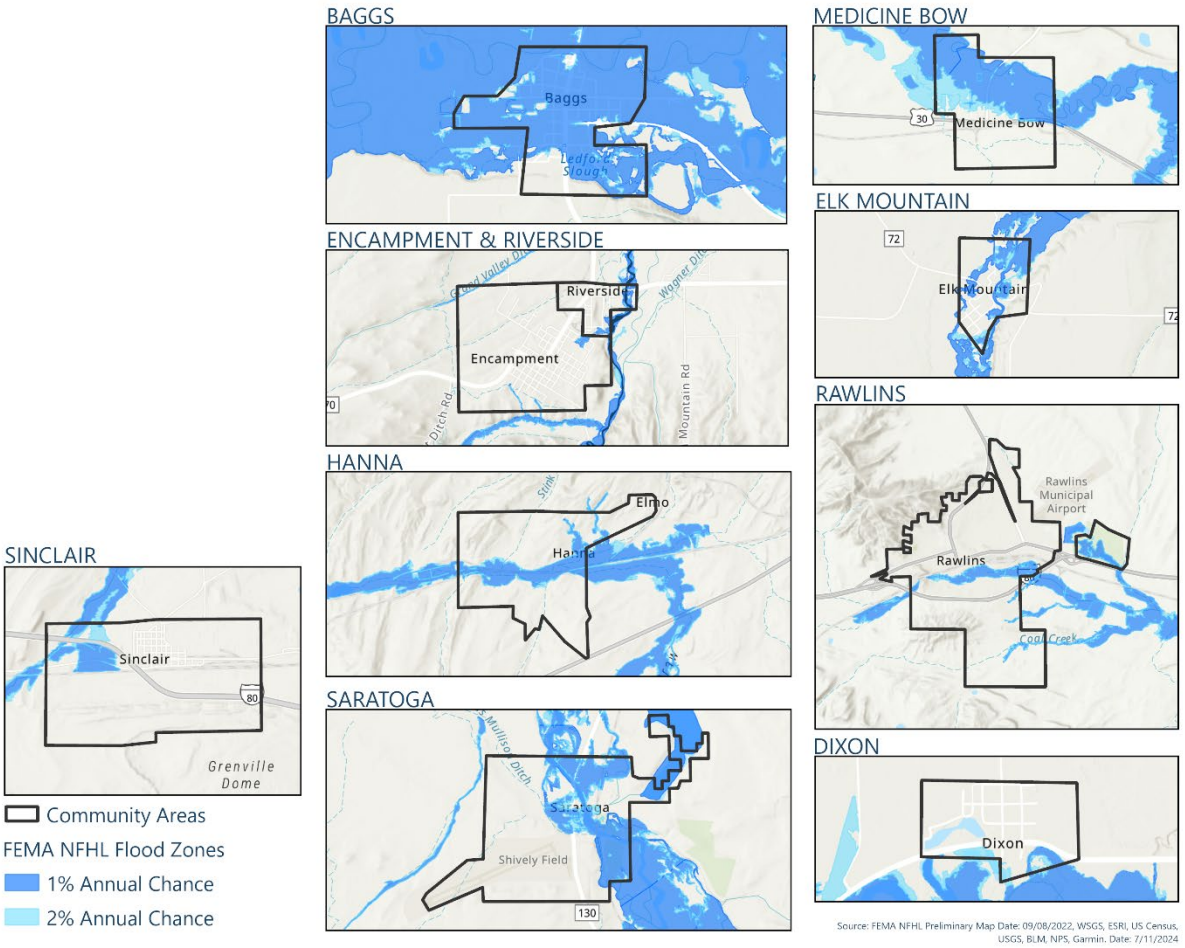


Figure 17 Carbon County Flood Zones Inset Maps



In addition to the FEMA-designated flood areas, several flood-risk areas were noted by the LPT and the public. These include:

- Flash flooding concerns, particularly in mountainous areas.
- The North Platte River which flows north through Saratoga; its tributaries (Encampment River) flow through Encampment and Riverside.
- The North Platte River near Saratoga has experienced several recent flooding events, most notably upstream of Saratoga at Boozer Creek and through the town itself.
- Areas along Boozer Creek, specifically regarding highway washouts.

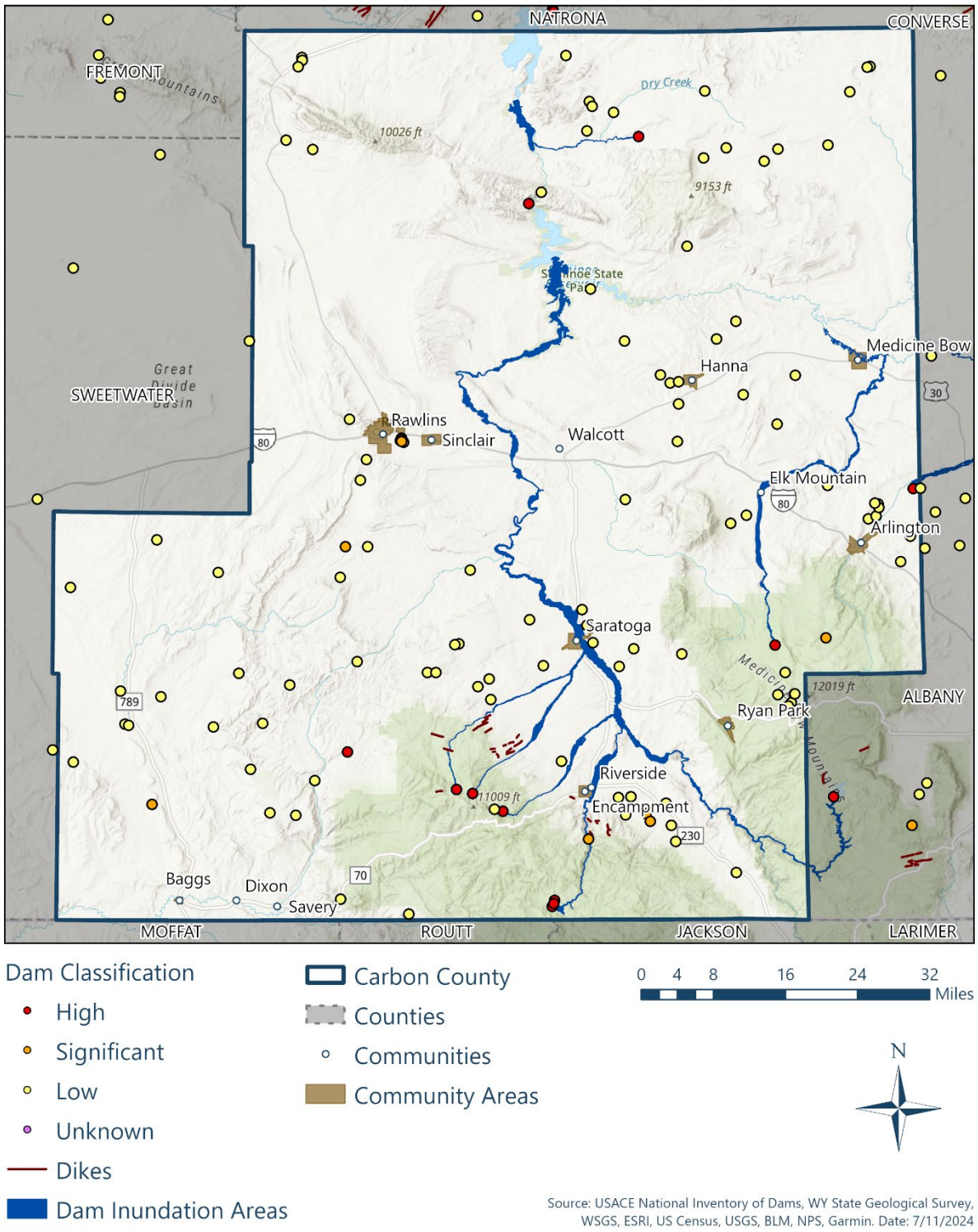
Additionally, there are 124 dams in Carbon County, according to the National Inventory of Dams (NID). Of these, 95 are privately owned, 15 are locally owned, 10 are federally owned, and 4 are state-owned. There are 11 high-hazard dams, 13 significant hazard dams, and 100 low-hazard dams. These high-hazard dams, or dams that would likely cause loss of life in the event of a dam failure are:

- **Cow Creek Lake:** Privately owned dam 21 miles southwest of Saratoga.
- **Enlargement Turpin Park:** Privately owned dam 18 miles south of Elk Mountain.
- **High Savery:** State-owned dam 21 miles northeast of Savery.
- **Hog Park Main Dam:** Locally owned dam 14 miles south of Encampment.

- **Hog Park Saddle Dam No. 1:** Locally owned dam 14 miles south of Encampment.
- **Hog Park Saddle Dam No. 2:** Locally owned dam 14 miles south of Encampment.
- **North Spring Creek:** Privately owned dam 57 miles southwest of Saratoga.
- **Pierce:** State-owned dam 8 miles from Como Bluffs Fish Hatchery.
- **Seminoe:** Federally owned dam 43 miles from Casper in Natrona County.
- **South Spring Creek Lake:** Privately owned dam 24 miles south of Saratoga.
- **Spring Creek (Enlargement):** Privately owned dam 7 miles east of Leo.

Figure 18 shows the locations of Carbon County dams and their hazard ratings. Additionally, the NID reports the locations of dikes, most of which are in the northern portion of the county. It is important to note that there is no digital inundation data available for the High Savery Dam in Carbon County. However, there is a risk to the communities of Dixon and Baggs if the dam fails. Non-digital mapping of this inundation is available. The county will coordinate with the Wyoming Office of Homeland Security and the State Engineer's Office to develop digital inundation mapping.

Figure 18 Carbon County Dam and Dike Locations



Exposure and Vulnerability

Lifelines

All Lifelines can be significantly impacted by a flood, dam, dike, or levee incident. These hazards impact Lifelines through the closure of businesses and government facilities, disrupted communications, interruption in the delivery of utilities such as water and sewer, excess burden on emergency response resources, and generally hindering the normal functions of a community.

The Hazardous Material Lifeline can also be affected, as flood waters can lead to the release of materials from facilities downstream and private properties, especially unsecured propane tanks. If Communication infrastructure is damaged, the disruption or failure of communications can be dangerous for the community, as they may not receive alerts, and dispatch can be interrupted. This would also greatly hinder response efforts.

The Water System Lifeline can be affected by flooding. Floodwater can back up drainage systems, and debris can block culverts, causing localized flooding. Floodwater can also get into drinking water supplies, contaminating them. Sewer systems can also back up, causing wastewater to spill into homes, neighborhoods, rivers, and streams.

Flooding events can disrupt transportation. Blocked or damaged roads or railroads can isolate residents and prevent access throughout the county. This is especially critical for those needing emergency service providers or for getting crews in to make repairs. Bridges washed out or blocked by floods or debris can also cause isolation. **Table 43** summarizes the Lifeline infrastructure in Carbon County located in flood zones, with Transportation Lifelines being the most exposed infrastructure in the county.

In addition to the Lifelines identified in the table below, 17.50 miles of natural gas pipeline, 3.71 miles of highway, and 11.24 miles of railway are in flood zones across Carbon County. No airport runways are in flood hazard areas. A flood event that impacts any part of these Lifeline systems could have cascading effects on other locations in the county and region.

Table 43 Carbon County Lifelines Exposed to Flood

Jurisdiction	Communication	Energy	HazMat	Medical	Safety	Shelter	Transportation	Water	Total Count
Baggs	-	-	-	-	2	1	-	-	**3**
Dixon	-	-	-	-	-	-	-	-	**0**
Elk Mountain	-	-	-	-	-	-	1	-	**1**
Encampment	-	-	-	-	-	-	-	-	**0**
Hanna	-	-	-	-	-	-	3	-	**3**
Medicine Bow	-	-	-	-	-	-	-	-	**0**
Rawlins	-	-	-	-	1	-	-	-	**1**
Riverside	-	-	-	-	-	-	-	-	**0**

Jurisdiction	Communication	Energy	HazMat	Medical	Safety	Shelter	Transportation	Water	Total Count
Saratoga	-	-	-	-	1	1	-	-	**2**
Sinclair	-	-	-	-	-	-	-	-	**0**
Unincorporated	-	-	-	-	-	-	28	-	**28**
Total Count	**0**	**0**	**0**	**0**	**3**	**1**	**32**	**1**	**38**

Source: FEMA's Hazus Inventory National Database

Dam, levee, and dike incidents impact Lifelines similarly to flood incidents. A reservoir that serves as the primary source of drinking water can be disrupted or halted entirely, affecting the day-to-day lives of those who rely on the source, not only those who are in proximity downstream of the dam. An incident may displace community members for a short period or, if residents' homes are destroyed, for an extended duration. Utilities, including power lines, cable, and phone lines, may be knocked down or rendered unusable by the waters. **Table 44** summarizes Lifelines located in the dam inundation zones in Carbon County. It is important to note that there is no digital inundation data available for the High Savery Dam in Carbon County, and therefore, FEMA Lifeline analysis could not be conducted on these risk areas. However, there is a risk to the communities of Dixon and Baggs if the dam fails.

In addition to the Lifelines identified in the table below, 16.71 miles of natural gas pipeline, 11.51 miles of highway, and 9.35 miles of railway are in dam inundation zones across Carbon County. No airport runways are in dam inundation hazard areas. A dam incident that impacts any part of these Lifeline systems could have cascading effects on other locations in the county and region. .

Table 44 Carbon County Lifelines Exposed to Dam Inundation

Jurisdiction	Communication	Energy	Hazmat	Medical	Safety	Shelter	Transportation	Water	Total Count
Baggs	-	-	-	-	-	-	-	-	**0**
Dixon	-	-	-	-	-	-	-	-	**0**
Elk Mountain	-	-	-	-	1	-	2	-	**3**
Encampment	-	-	-	-	-	-	-	-	**0**
Hanna	-	-	-	-	-	-	-	-	**0**
Medicine Bow	-	-	-	-	-	-	-	-	**0**
Rawlins	-	-	-	-	-	-	-	-	**0**
Riverside	-	-	-	-	-	-	1	-	**1**
Saratoga	-	-	-	-	2	1	1	-	**4**
Sinclair	-	-	-	-	-	-	-	-	**0**

Jurisdiction	Communication	Energy	Hazmat	Medical	Safety	Shelter	Transportation	Water	Total Count
Unincorporated	-	-	-	-	-	-	18	2	**20**
Total Count	**0**	**0**	**0**	**0**	**3**	**1**	**22**	**2**	**28**

Source: FEMA's Hazus Inventory National Database

In summary, all Lifelines can be significantly impacted by a flood, dam, dike, or levee incident; however, the Transportation Lifeline has the greatest exposed structures to flood and dam incident hazards in Carbon County.

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

People

People living in floodplains, known flooding areas, or near areas where flash floods can occur are at an increased risk from the hazard. Floods can cause serious injury and death if people cannot get to safe locations. Some of the population may be displaced from their homes, with varying durations which can strain community resources. Those in the community with access and functional needs (AFN), including the elderly, children, those with mobility or communication issues, those with low incomes, institutionalized, and people who may be unfamiliar with the area, may have issues evacuating and accessing proper medical care.

The dangers of flash flooding pose an even greater risk, as those in these populations may not be able to extricate themselves from an immediately threatening situation. Emergency responders must prioritize these populations, as this is crucial to the best possible outcomes. In the event of a dam or levee incident, those in the community located downstream in dam inundation areas (or within levee-protected areas) may be incapable of evacuating the area within the necessary time frame.

Non-English-speaking populations are also included as having a higher vulnerability, as communications and emergency messaging may not be available in languages other than English. In general, anyone who does not have adequate access to warnings from an emergency warning system may be disproportionately impacted by the hazard.

See **Table 2** for more information on demographic factors that contribute to vulnerability in Carbon County.

Based on the structure exposure analysis in the following section, it is estimated that ~2,405 people (2.37 per household for Carbon County) live in dam inundation areas. This equates to roughly 540 persons in the unincorporated county and the following for impacted municipalities: Baggs (488), Elk Mountain (52), Encampment (2), Hanna (68), Medicine Bow (191), Rawlins (623), and Saratoga (438). This does not take into account other people who might be in those areas at the time of an event.

Structures

All current and future buildings and populations should be considered at risk of flooding, although buildings in the 100- or 500-year floodplain are at a higher risk. The impacts of flooding can be severe, including business interruption, mold issues, and damaged contents and equipment. Just a few inches of water in a building could cause thousands of dollars in damage to the flooring and foundation of the structure. In cases where water rises above a few inches, electrical systems and appliances may need to be replaced.

Many properties in the county are vulnerable to flooding, including those that may not be within a mapped floodplain. While some properties may be flood-proofed, the majority are likely to be significantly damaged if in a flooded area. Properties near waterways may have stability issues as the flood waters erode the banks and carry debris, while properties in low-lying areas are more vulnerable as these are where water collects. **Table 45** summarizes the number of structures and their value in the 100- and 500-year floodplains in Carbon County as reported by FEMA's Hazus Inventory National Database. In total, 1,015 structures worth over $261.9 million in structure value and estimated over $185.0 million in content value are in these floodplains in Carbon County. It is important to note that there is no digital inundation data available for the High Savery Dam in Carbon County, and therefore, structure analysis could not be conducted on these risk areas. However, there is a risk to the communities of Dixon and Baggs if the dam fails.

Table 45 Carbon County Structures Exposed to Flood

Municipality	Structure Type	Total Structure Count	Total Structure Value	Estimated Content Value
Baggs	**Total**	**206**	**$71,559,411.52**	**$60,979,704.00**
	Commercial	39	$24,648,112.97	$20,796,629.32
	Industrial	14	$12,479,489.48	$18,339,706.21
	Public	6	$9,130,389.88	$9,192,658.87
	Residential	147	$25,301,419.19	$12,650,709.60
Dixon	**Total**	**0**	**$0.00**	**$0.00**
Elk Mountain	**Total**	**22**	**$6,148,065.31**	**$3,074,032.65**
	Commercial	2	$1,290,366.87	$645,183.43
	Residential	20	$4,857,698.44	$2,428,849.22
Encampment	**Total**	**1**	**$491,622.42**	**$245,811.21**
	Residential	1	$491,622.42	$245,811.21
Hanna	**Total**	**29**	**$11,072,436.25**	**$10,161,898.69**
	Commercial	6	$3,348,412.43	$3,348,412.43
	Industrial	1	$608,382.03	$912,573.04
	Public	2	$4,686,184.63	$4,686,184.63
	Residential	20	$2,429,457.17	$1,214,728.59

Municipality	Structure Type	Total Structure Count	Total Structure Value	Estimated Content Value
Medicine Bow	**Total**	**81**	**$14,622,455.16**	**$9,588,175.76**
	Commercial	3	$1,788,961.69	$1,788,961.69
	Public	3	$2,024,336.27	$2,394,635.47
	Residential	75	$10,809,157.21	$5,404,578.60
Riverside	**Total**	**0**	**$0**	**$0**
Rawlins	**Total**	**263**	**$37,842,331.68**	**$19,111,706.47**
	Commercial	4	$381,081.24	$381,081.24
	Residential	259	$37,461,250.44	$18,730,625.23
Saratoga	**Total**	**185**	**$49,631,432.79**	**$36,502,780.04**
	Commercial	26	$18,311,782.81	$17,913,036.85
	Public	4	$3,904,587.61	$4,882,212.00
	Residential	155	$27,415,062.37	$13,707,531.19
Sinclair	**Total**	**0**	**$0.00**	**$0.00**
Unincorporated	**Total**	**228**	**$70,542,356.37**	**$45,426,573.13**
	Commercial	43	$30,701,488.75	$25,506,139.32
	Public	1	$0.00	$0.00
	Residential	184	$39,840,867.62	$19,920,433.81
	Grand Total	**1,015**	**$261,910,111.50**	**$185,090,681.90**

Source: US Army Corps of Engineers National Structure Inventory (NSI)

All hazard potential classes of dams pose a risk to properties downstream. Vulnerable properties are those closest to, or within, the dam inundation or levee-protected areas. Based on an evaluation of the best available structure footprint data for the county, there are numerous properties within levee inundation areas. **Table 46** summarizes the structure counts as well as the valuation of these structures located in dam inundation areas. In total, 979 structures are worth over $335.5 million in value and $264.1 million in estimated content value.

Table 46 Carbon County Structures Exposed to Dam Inundation

Municipality	Structure Type	Total Structure Count	Total Structure Value	Estimated Content Value
Baggs	**Total**	**0**	**$0.00**	**$0.00**
Dixon	**Total**	**0**	**$0.00**	**$0.00**
Elk Mountain	**Total**	**110**	**$24,103,469.29**	**$17,711,218.01**
	Commercial	10	$4,570,269.60	$3,925,086.16
	Industrial	2	$3,222,296.84	$4,833,445.27
	Public	2	$1,594,470.30	$1,594,470.30

Municipality	Structure Type	Total Structure Count	Total Structure Value	Estimated Content Value
	Residential	96	$14,716,432.56	$7,358,216.28
Encampment	**Total**	**0**	**$0.00**	**$0.00**
Hanna	**Total**	**0**	**$0.00**	**$0.00**
Medicine Bow	**Total**	**0**	**$0.00**	**$0.00**
Riverside	**Total**	**41**	**$11,153,382.97**	**$8,856,304.81**
	Commercial	8	$2,699,269.27	$2,915,253.42
	Public	2	$3,427,989.06	$3,427,989.06
	Residential	31	$5,026,124.64	$2,513,062.32
Saratoga	**Total**	**543**	**$208,299,357.50**	**$179,125,948.00**
	Commercial	121	$101,908,999.90	$104,423,138.40
	Industrial	13	$11,003,784.93	$15,683,696.10
	Public	13	$20,696,405.43	$21,674,029.83
	Residential	396	$74,690,167.23	$37,345,083.64
Sinclair	**Total**	**0**	**$0.00**	**$0.00**
Unincorporated	**Total**	**285**	**$91,954,044.11**	**$58,447,281.75**
	Commercial	28	$20,572,867.16	$17,771,304.32
	Industrial	5	$4,360,713.84	$6,541,070.75
	Public	4	$1,249,350.27	$1,249,350.27
	Residential	248	$65,771,112.85	$32,885,556.41
Grand Total		**979**	**$335,510,253.80**	**$264,140,752.50**

Source: US Army Corps of Engineers National Structure Inventory (NSI)

Natural, Historic, and Cultural Resources

Flooding is a natural event, and floodplains provide many natural and beneficial functions. However, with the natural flood process being altered due to human development in floodplain areas, flooding can impact the environment in negative ways. Wildlife habitats can be impacted due to altered food availability and interrupted breeding patterns. The effects on water quality due to silt and debris can impact wildlife downstream of the flooding. Erosion of riverbanks can permanently alter a waterway and vegetation on the banks may not recover from the damage. Aquatic life can wash onto roads or over dikes into flooded fields. Pollution from roads, such as oil and hazardous materials, can wash into rivers and streams. These can settle onto normally dry soil during floods, polluting them for agricultural uses.

Dam incidents pose a great risk to the environment in the affected area. Flooding can change the local ecosystem, including permanent displacement of animals and extensive damage to vegetation. Damage to vegetation can contribute to erosion of riverbanks. Erosion can alter the waterway and push silt and debris downstream. The environment closest to the incident will likely be the most impacted; however, the repercussions of flooding can be felt much farther downstream.

Reservoirs held behind dams and rivers held behind levees affect many ecological aspects of a river. River topography and dynamics depend on a wide range of flows. Rivers below dams often experience long periods of very stable flow conditions or saw-tooth flow patterns caused by releases followed by no releases. Water releases from dams usually contain very little suspended sediment, which can lead to scouring of riverbeds and banks.

Natural and historic resources were identified in Carbon County to ensure these assets are considered and protected. See **Table 4** for a list of endangered and threatened species and **Table 5** for a list of historic places in Carbon County.

Local Vulnerability

In addition to the general impacts that flood/ dam, dike, and levee incidents can have on Lifelines, people, structures, and cultural resources in Carbon County, representatives of each participating jurisdiction identified unique local vulnerabilities that these hazards present to their community, summarized in **Table 47**.

Table 47 Local Government Vulnerability to Flood/Dam, Dike, & Levee Incidents

Local Government	Local Vulnerability
Carbon County	The LPT noted that Sugar Creek flooding cuts off access to water tanks and Lagoons, making them impossible to maintain and repair if needed. This can increase the community's vulnerability if they cannot access their potable water systems for maintenance during a flood event. Additionally, the LPT added that the Kortes Dam and the Seminoe Dam, constructed on the North Platte River, are highly concerned about the county. Both dams are located above fault, and therefore, an earthquake could result in a dam incident or failure. The Seminoe State Park could also be severely impacted if the Seminoe Dam fails. Residents in unincorporated Carbon County are more at risk than residents in city or town boundaries. Those residents living immediately below a high-hazard dam that would suffer a no-notice catastrophic failure would be severely impacted, including potential loss of life and property. Critical Infrastructure immediately below a high-hazard dam could all be severely damaged with a no-notice catastrophic failure. All activities in the immediate area of a high-hazard dam that suffered a no-notice catastrophic failure would all cease, including fishing, boating, ranching, farming, etc.
City of Rawlins	A flood that results from a dam and levee incident would affect the south side of Rawlins. The FEMA flood zone area on the south side of Rawlins contains mostly homes. Two structures contained in the flood zone is Fire Station 2 and the County's C4 building. Systems at risk resulting from a flood would be city infrastructure providing water and sewer service. One of the larger parks the city maintains is within the flood zone.

Local Government	Local Vulnerability
Town of Baggs	Evacuation of the elderly may be needed during a flooding event. Water/wastewater plants, EMS, fire department, communication towers, and town museums are vulnerable to the impacts of flooding.
Town of Dixon	People may need to evacuate their homes. Socially vulnerable populations may need assistance. Recreational activities may be negatively impacted. Critical infrastructures could be damaged including the water plant and power source.
Town of Elk Mountain	We have many of our citizens that live near the river and slough that run through the town that could lose their homes if there was severe flooding. Many houses and the hotel which brings business to the community could be affected by river flooding. We have a museum and a park that are located near the river that could be affected and destroyed if the flooding was severe enough.
Town of Encampment	Water Plant Settling Pond, Irrigation Holding Pond, towers, Sewer Lagoon and Infrastructure, towers, electrical grid. Several areas in town have irrigation ditches. We are above the level of the Encampment River for flood, but should a catastrophic event take place on the North Fork, overflow of these ditches could cause property damage. Fishing that takes place at the irrigation pond, museum buildings that are in vicinity of ditches, ditches also used for irrigation of trees in various areas.
Town of Hanna	Concerns with evacuating limited-mobility residents and those without transportation. There are only two main roads into/out of Hanna.
Town of Medicine Bow	Concerns with evacuating limited-mobility residents and those without transportation. Two of the three roads through town run over a bridge and could be washed out in a flood. Low resources come from within town, isolation and lack of resources is a concern.
Town of Riverside	A dam or levy accident would definitely affect us differently. The Cheyenne Board of Public Utilities keeps a very close eye on the Hog Park facility. They have a study that addresses inundation, speed and depth if there was a catastrophic failure of the dam. I have seen it and the impact on Riverside would be substantial. A severe breach of Hog Park would probably take out the State Hwy 230 bridge. There is a cabling for Union Telephone attached to that bridge. Water supply lines are buried deep below the riverbed and we have duplication of delivery so we should be ok there. Fishing, hiking and recreational activities along the river would be affected
Town of Saratoga	The entire Town of Saratoga sit along the North Platte River, and Spring runoff, causing high levels of water, including minimum to high flooding impacts are possible. Most residents are aware of the flooding potential. Public Works, the Sewer Lagoon, Fire Department, Police Department,

Local Government	Local Vulnerability
	Town Hall are all susceptible to flooding during high-water runoff years. The Town of Saratoga has been researching levees and restoring the North Platte River to its original channel, creating a deeper bank for the river to flow in. Severe flooding could impact Town Hall, the Local Schools, Fire Department, Police Department and all of Downtown Saratoga, potentially causing many programs and services to stop for a time being.
Town of Sinclair	Local community & government assets are not at risk from flood/dam, dike, & levee incidents.
SER (Saratoga-Encampment-Rawlins) Conservation District	Floods could cut off employees from work.
Medicine Bow Conservation District	Local government assets are not at risk from flood/dam, dike, & levee incidents.
Little Snake River Conservation District	Local government assets are not at risk from flood/dam, dike, & levee incidents.
Carbon County School District 2	Flooding from the North Platte could affect central office and the schools within Saratoga causing minor interruptions with student learning and personnel moving around the district. The district is not prepared for a flood. Moderate to high level flooding could cause school buildings to be damaged and daily routines and administration of the school district could be impacted. The school district network, phone systems, and transportation could be affected. The school district is not prepared for flooding. The education of students and sports activities could be disrupted.
Carbon County Fire Protection District	Local government assets are not at risk from flood/dam, dike, & levee incidents.
Sierra Madre Water & Sewer Joint Powers Board	Local government assets are not at risk from flood/dam, dike, & levee incidents.

Future Trends in Development

It is crucial to consider the hazards posed by flood/dam, dike, and levee incidents when making any future development and construction decisions, to ensure new construction does not increase the county's risk. **Table 48** summarizes development trends in each jurisdiction.

Table 48 Local Government Development Trends – Flood/Dam, Dike, & Levee Incidents

Local Government	Development Trends
Carbon County	Any development in the Floodplains and in and around Dams, will greatly increase vulnerability.

Local Government	Development Trends
City of Rawlins	The city has made efforts to prevent flooding in the Hog Back Reservoir to Sugar Creek area in South Rawlins. – The City manager will consider submitting a LOMR which could indicate reduced vulnerability.
Town of Baggs	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
Town of Dixon	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
Town of Elk Mountain	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
Town of Encampment	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
Town of Hanna	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
Town of Medicine Bow	Flooding would deter future growth
Town of Riverside	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
Town of Saratoga	Any development in the Floodplains along the North Platte River, will greatly increase vulnerability.
Town of Sinclair	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
SER (Saratoga-Encampment-Rawlins) Conservation District	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Medicine Bow Conservation District	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Little Snake River Conservation District	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Carbon County School District 2	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Carbon County Fire Protection District	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Sierra Madre Water & Sewer Joint Powers Board	No construction has recently occurred, or is expected, which would impact hazard vulnerability.

Probability of Future Occurrences

Between the NCEI database, the University of Wyoming, and the LPT, there were 23 recorded flood events between 1937 and 2024. This equates to a 26% chance of a flood event occurring in Carbon County each year. Of these reported flood events, 15 have injured people and/or property damage; therefore, there is a 17% chance that a notable flood event will occur in the county each year.

There have also been 6 dam or levee incidents in the 69 years between 1984 and 2024, equating to an 8% chance of a dam incident occurring in the county each year.

Geologic Hazards (Landslide/Land & Mine Subsidence/Expansive Soils)

Previous Occurrences

Landslides

There is no well-documented database of historic landslide events in Region 3, but susceptibility indicates that landslides are likely to occur in multiple mountain ranges across Carbon County, including the Green Mountains, Medicine Bow Mountains, and Sierra Madre Mountains. The LPT noted that the Dugway Recreation Site near Sinclair, Wyoming, experiences landslides and rock falls during rain events.

A member of the LPT also noted a 2011 landslide that occurred on Wyoming Highway 70 between Baggs and Encampment. A 1,000-foot length of highway was destroyed, closing the road to traffic and resulting in a temporary one-lane detour to be constructed. Geologic investigations found slides are likely to continue in the future, and therefore, the WYDOT ruled out reconstruction of the road.

Land & Mine Subsidence

In Carbon County, there have been ten reported mine subsidence events since 1955. Coal mine sites are particularly susceptible to land subsidence because many of these mines were underground. Carbon County has a deep history of coal mining, particularly in Hanna Basin, which includes the Town of Hanna. The Union Pacific Mining Company found prospects for coal mining in the Hanna Basin were good, with seams between 15 and 30 feet thick. From 1890 to 1954, the Union Pacific opened six mines, and Hanna became a town centered around the miners and their families. Elmo, an incorporated community located a mile east of Hanna, provided a settlement outside the coal company's controlling reach.[1]

The State Mine Inspector's Reports from 1888-1948 indicated several problems with the mines in Hanna Basin that were likely to affect future stability. Support pillars were removed in portions of the mines in Hanna No. 2, and several fires and explosions jeopardized the stability of mines Hanna No. 1, 3, and 3 ½. In 1903, 169 men were killed in a mine explosion, and five years later, in 1908, 59 more men were killed in a series of fires and explosions. A large cave-in around 60 feet in length was found near the east entrance after the fire was extinguished.

James C. Case with the Wyoming State Geological Survey (WSGS) created a report titled "Overview of Coal Mine Subsidence in Wyoming" and documents several mine subsidence events in Carbon County:

- **1955:** A 300-400-foot-wide, 10-20-foot-deep pit opened after the Hanna 4A mine was closed in 1954. A tipple (a structure used at a mine to load coal) was destroyed above the mine. It is assumed the collapse was due to excessive precipitation.

[1] A Brief History of Hanna, Wyoming | WyoHistory.org

- **1983:** A tipple was deformed and titled due to mine subsidence. A 30-foot void at a depth of 200 feet was found after drilling the area.
- **July 1984:** A subsidence pit opened near the High School.
- **Post-1947:** There is continuous subsidence in the area that overlies the Hanna 3 ½ mine, and later aerial photos show evidence of ponding.
- **1980s:** A pit opened under a driveway in Elmo, most likely associated with the Peacock Mine.
- **Unknown:** An area of continuous subsidence is suspected in the vicinity of the High School.
- **Unknown:** A major zone of subsidence pits is present over the Hanna No. 3 Mine.
- **Unknown:** A major zone of subsidence pits is present over Hanna No. 2 Mine. Many of these are suspected to have occurred shortly after the cessation of mining.
- **Unknown:** A large pit/mine entrance was present in this area, and a stream flowed into the opening in 1981.

Other incidents of mine subsidence have occurred since Case's report, including:

- **2010:** A 6- to 8-foot wide, 10- to 12-foot-deep hole appeared in the front yard of a resident's home in the Town of Elmo. The residents later discovered their home sits atop the Elmo Peacock Mine.

The State of Wyoming HMP 2021-2026 reports that coal mine subsidence problems in the Town of Hanna have caused damage to residential and commercial structures, as well as roads, on an ongoing basis. The State HMP also notes that mine subsidence in Carbon County has created barriers when planning for new infrastructure: "In 2019, large subterranean voids in Carbon County, from the old Hanna No. 1 Mine and the Nebraska Mine, were found directly in the proposed path of the Gateway West Transmission Line Project. This project was set to connect 1,000 miles of new transmission lines between Glenrock, WY and Melba, Idaho." [2]The Abandoned Mine Land division has reclaimed areas east of Hanna and has conducted mitigation projects periodically since the late 1980s to remove hazards and improve water quality.

Expansive Soils

Due to the slow nature and primarily localized effects of expansive soils, they are often not reported as events. Therefore, there has been little work done to document past events in Wyoming. Effects on supply lines, railways, bridges, and utility infrastructure are repaired or relocated without further investigation. Individual property owners become aware of damage to their homes and typically will handle repairs without informing towns or counties of the issue. Despite a lack of records on previous expansive soil incidents, susceptibility data is available for expansive soils.

Location

Landslides

Landslides are possible in Carbon County. According to the USGS Landslide Susceptibility Index, the Sierra Madre Mountain Range in the western portion of the county, the Medicine Bow Mountain Range in the eastern portion, and the Green Mountains in the northern portion are areas with the highest susceptibility to landslides. **Figure 19** and **Figure 20** show these areas. While most

[2] State of Wyoming Hazard Mitigation Plan 2021-2026

jurisdictions in Carbon County are constructed in relatively flat areas and, therefore, have low susceptibility to landslides, portions of Ryan Park and Rawlins are in high-susceptibility areas. Additionally, the LPT noted the Dugway Recreational Area, Forest Service Road 292 to Cedar Pass, and Forest Service Road 26 to Kennaday Peak Lookout frequently experience landslides and rockfalls in the county.

Figure 19 Carbon County Landslide Susceptibility

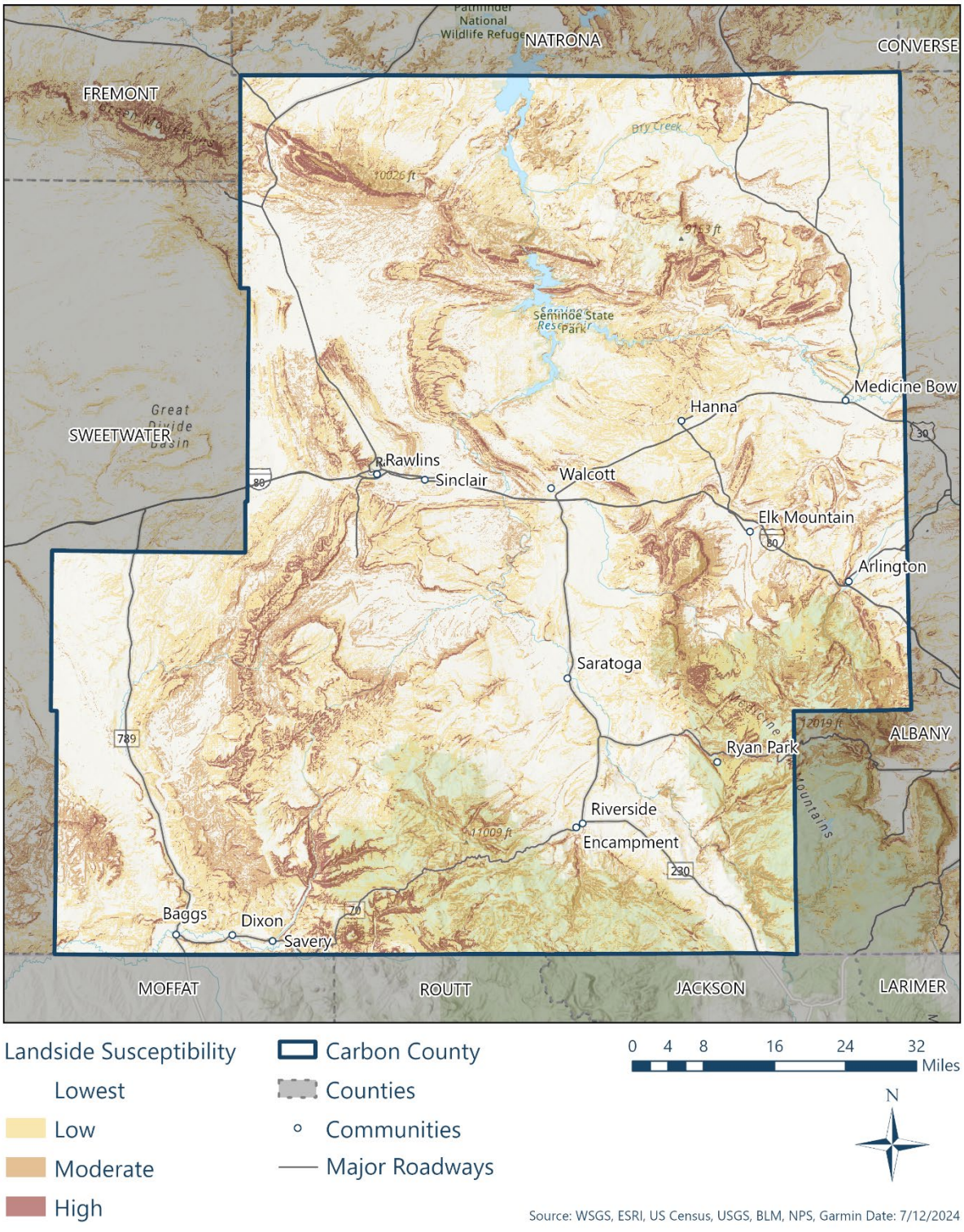
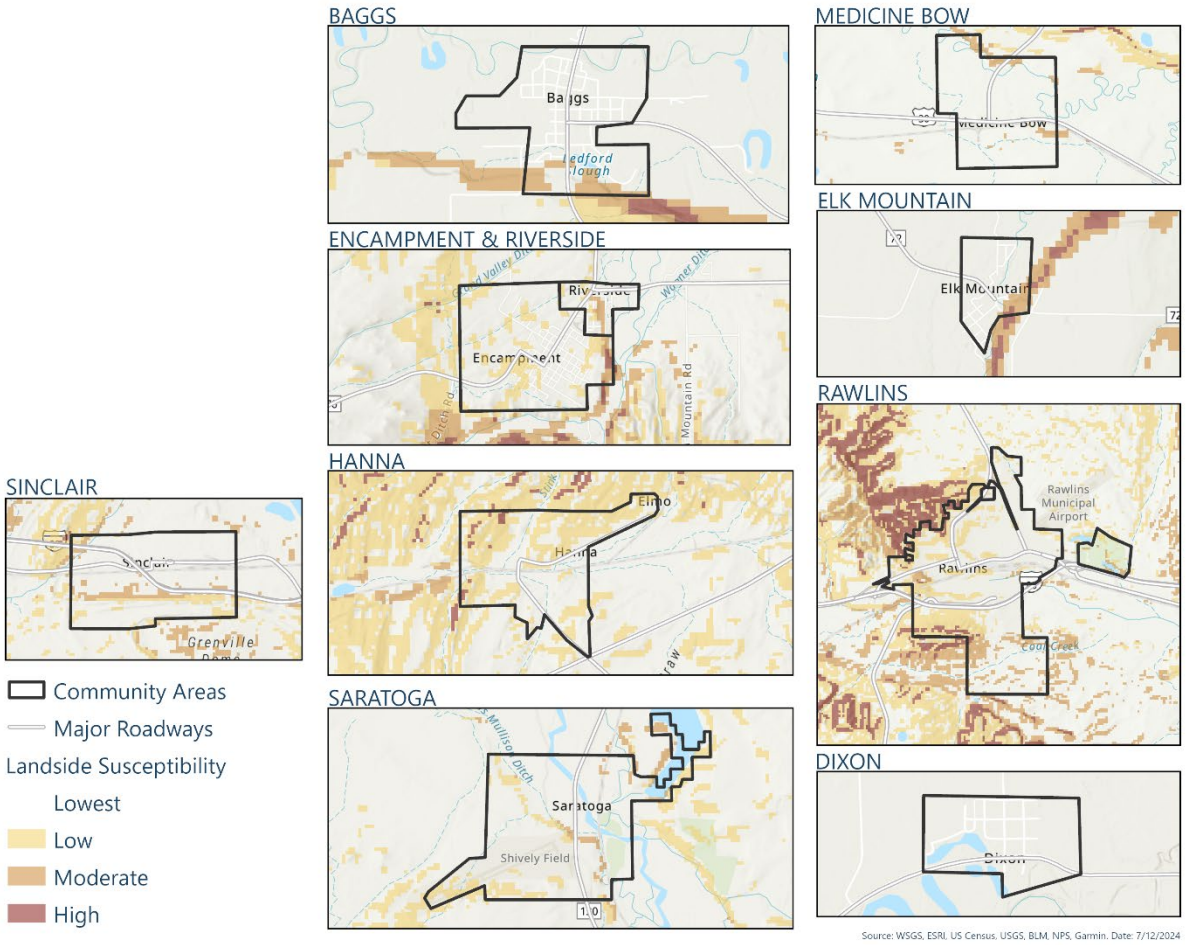


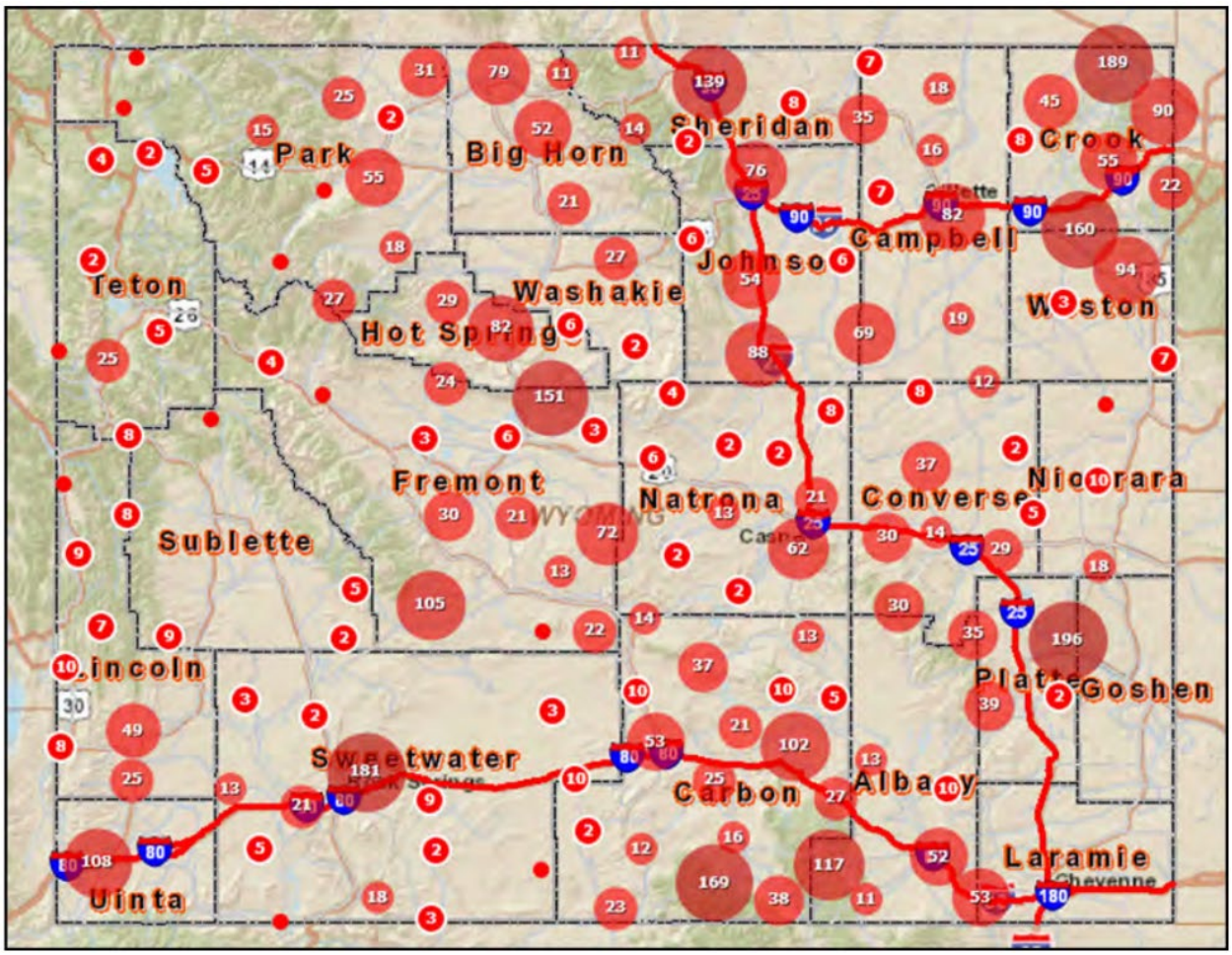
Figure 20 Carbon County Landslide Susceptibility Inset Maps



Land & Mine Subsidence

There are numerous abandoned underground coal mines in Carbon County. Although some may have been reclaimed, no development should be allowed at the sites until it can be shown that reclamation has occurred and that it has succeeded. While there is no publicly available data with detailed locations of mine sites in Region 3, the State of Wyoming HMP 2021-2026 provides a figure with general locations across the state. **Figure 21** displays a dot representing the number of abandoned mines in that area. It should be noted that exact locations are not released due to public safety and liability concerns. Abandoned mines are very hazardous and the public should avoid such areas.

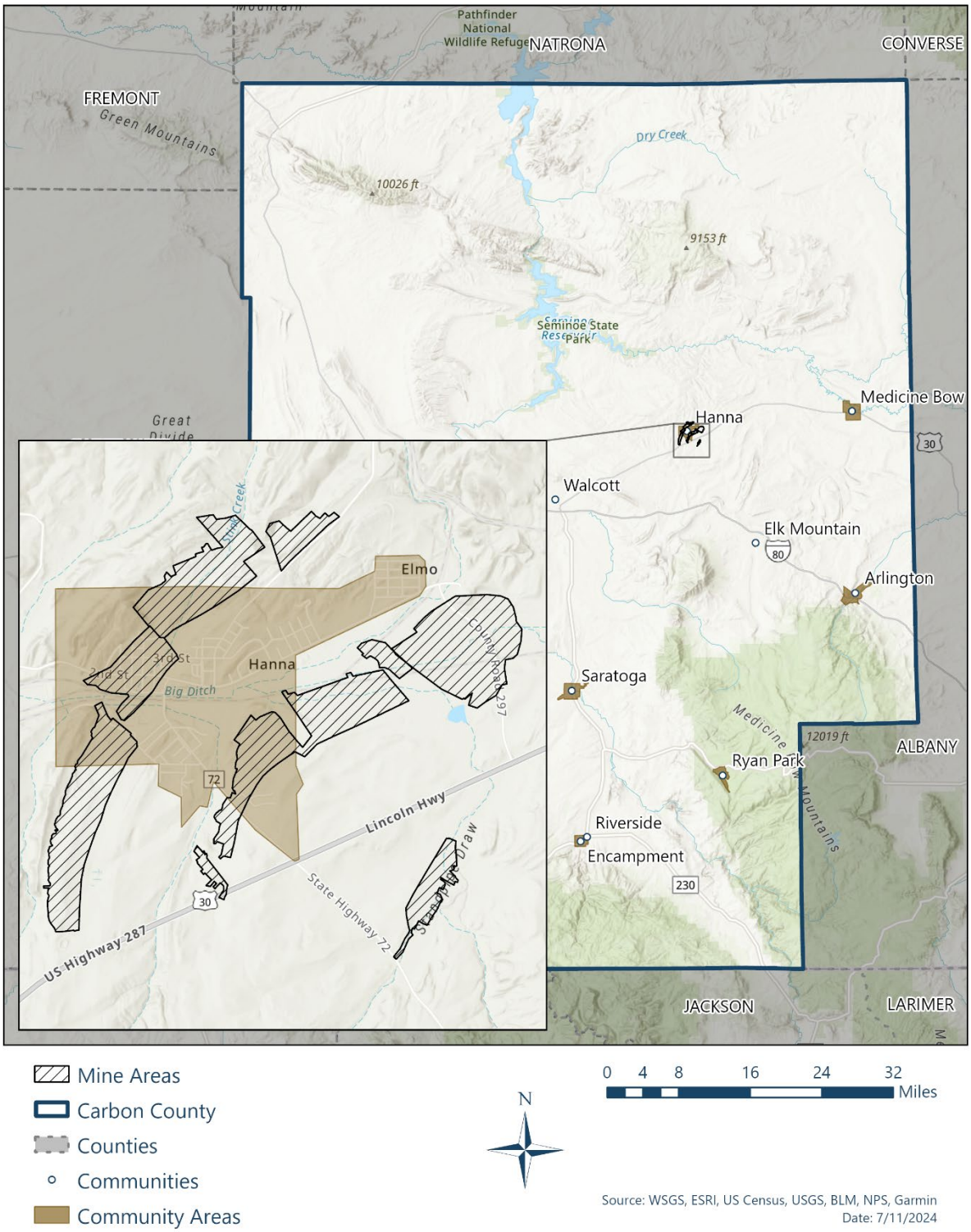
Figure 21 Known Abandoned Mine Sites of All Types in Wyoming



Source: State of Wyoming Hazard Mitigation Plan 2021-2026

In addition, the State of Wyoming provided a dataset on mine locations in the Hanna Basin. The Hanna Basin became infamous for its mining in the late 1800s, and remnants from these mines still exist in the towns today, posing a risk for future mine/land subsidence. **Figure 22** below shows the general location of abandoned mines in the Town of Hanna.

Figure 22 Carbon County Abandoned Mines

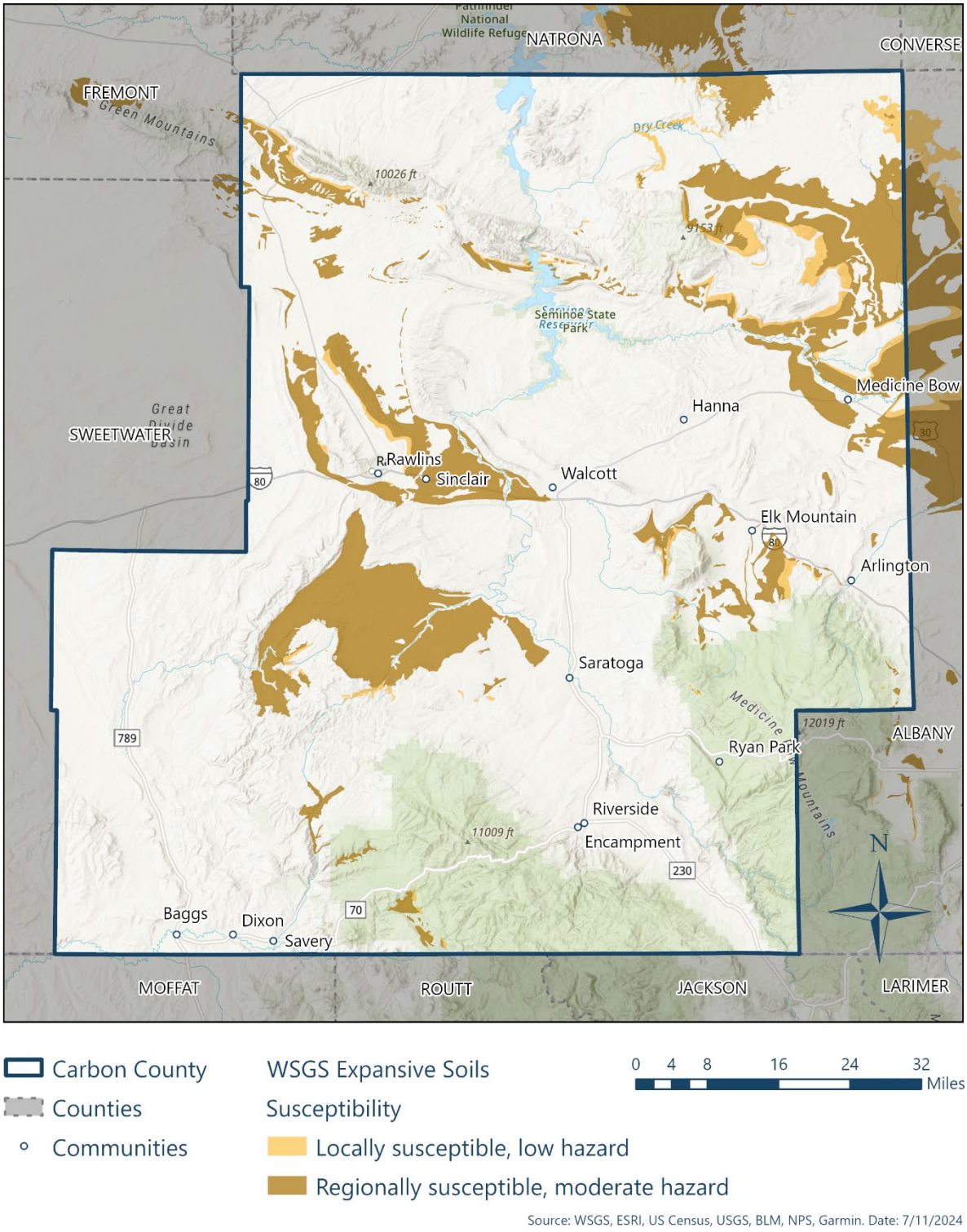


Expansive Soils

Numerous areas in Carbon County fall within identified expansive soil areas and could be impacted by this hazard. Most of this soil is concentrated in the northeast portion of the county near the Town

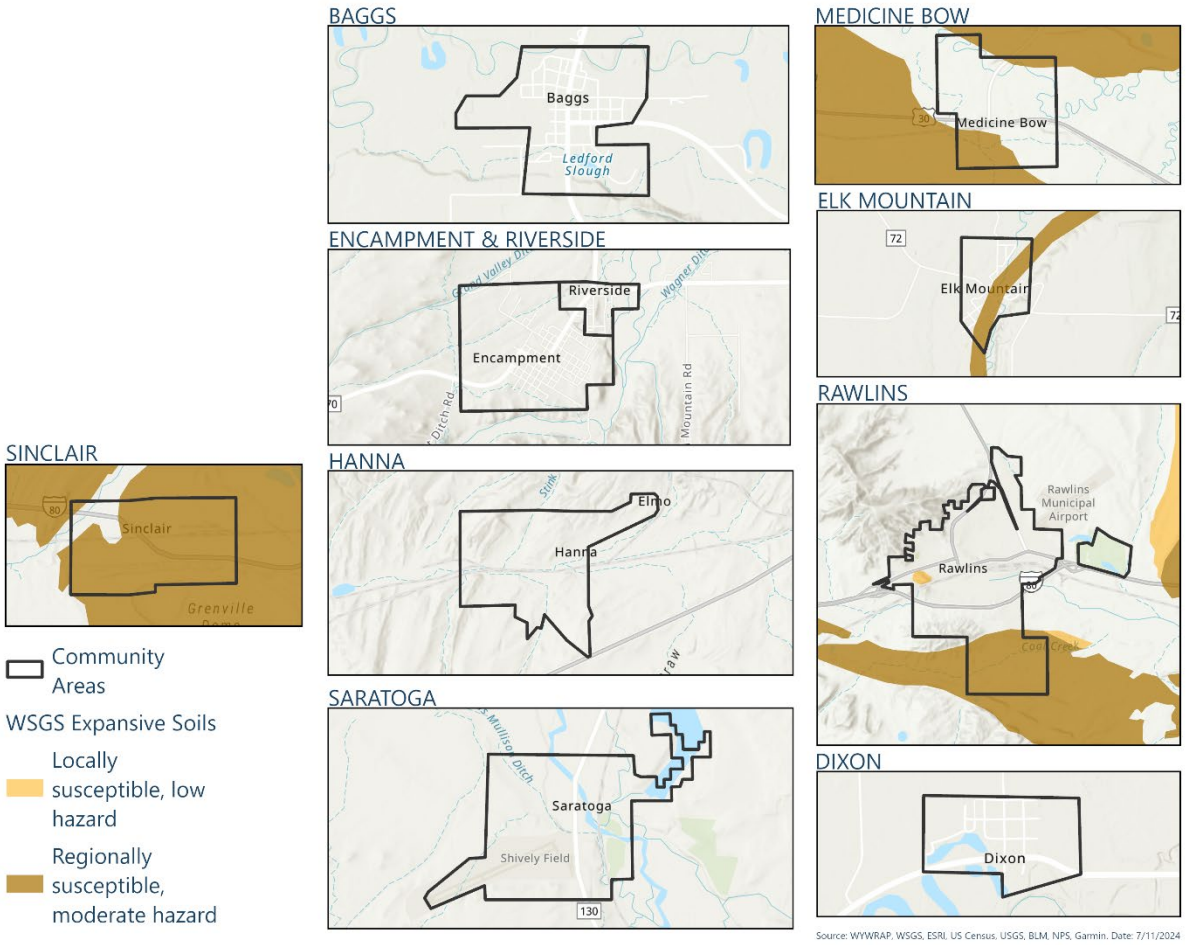
of Medicine Bow. Additional areas have been identified in the western portion of the county near the City of Rawlins and the Town of Sinclair. **Figure 23** and **Figure 24** display these areas in Carbon County.

Figure 23 Carbon County Expansive Soils



Source: WSGS, ESRI, US Census, USGS, BLM, NPS, Garmin. Date: 7/11/2024

Figure 24 Carbon County Expansive Soils Inset Maps



Exposure and Vulnerability

Lifelines

Geologic hazards, including expansive soils, mine/land subsidence, and landslides, have the potential to impact all FEMA Lifelines, most significantly the Transportation and Energy Lifelines. Expansive soil can disrupt underground pipelines for gas, oil, and water which can lead to leaks or ruptures. Additionally, expansive soil causes roadways, railways, and bridges to heave, crack, or sink. This can interrupt transportation services, including the movement of emergency supplies during and after a disaster. Food, Hydration, and Shelter Lifeline can also be impacted if mine/land subsidence results in damage to homes and food storage facilities. Generally, any critical infrastructure, including hazardous material storage facilities, that are constructed above expansive soils or areas with the potential for land subsidence could experience damage over time by these hazards. **Table 49** presents the Lifelines that are located within expansive soil hazard areas in Carbon County.

In addition to the Lifelines identified in the table below, 78.78 miles of natural gas pipeline, 88.85 miles of highway, and 22.06 miles of railway are in expansive soil areas across Carbon County. No airport runways are in expansive soil hazard areas. An incident that impacts any part of these Lifeline systems could have cascading effects on other locations in the county and region.

Table 49 Carbon County Lifelines Exposed to Expansive Soils

Jurisdiction	Communication	Energy	Hazmat	Medical	Safety	Shelter	Transportation	Water	Total Count
Baggs	-	-	-	-	-	-	-	-	**0**
Dixon	-	-	-	-	-	-	-	-	**0**
Elk Mountain	-	-	-	-	1	-	1	-	**2**
Encampment	-	-	-	-	-	-	-	-	**0**
Hanna	-	-	-	-	-	-	-	-	**0**
Medicine Bow	-	-	-	-	-	-	-	-	**0**
Rawlins	-	-	-	-	-	-	-	-	**0**
Riverside	-	-	-	-	-	-	-	-	**0**
Saratoga	-	-	-	-	-	-	-	-	**0**
Sinclair	-	-	1	-	2	-	4	-	**7**
Unincorporated	-	1	-	-	-	-	24	1	**26**
Total Count	**0**	**1**	**1**	**0**	**3**	**0**	**29**	**1**	**35**

Source: FEMA's Hazus Inventory National Database

The most significant impacts of landslides affect the Transportation Lifeline, which can have cascading consequences to Safety and Security. Roadblocks can hinder rescue and emergency assistance efforts, necessitate traffic detours, and spur costly debris clearance. Energy and Communication Lifelines can also be impacted if an avalanche damages utility lines. Broken power lines could result in disruptions of electricity or complete power outages. Communication fields, such as cable and telephone lines, could be damaged by avalanches, causing a delay in response time and rescue. **Table 50** summarizes the Lifelines that are located within landslide susceptible areas in Carbon County. It is important to note that all landslide susceptibility classes (low-extreme) were used for the Lifeline analysis.

In addition to the Lifelines identified in the table below, 163.57 miles of natural gas pipeline, 124.30 miles of highway, 25.05 miles of railway, and 0.39 miles of airport runway are in landslide areas across Carbon County. An incident that impacts any part of these Lifeline systems could have cascading effects on other locations in the county and region.

Table 50 Carbon County Lifelines Exposed to Landslide

Jurisdiction	Communication	Energy	HazMat	Medical	Safety	Shelter	Transportation	Water	Total Count
Baggs	-	-	-	-	-	-	-	-	**0**
Dixon	-	-	-	-	-	-	-	-	**0**

Jurisdiction	Communication	Energy	HazMat	Medical	Safety	Shelter	Transportation	Water	Total Count
Elk Mountain	-	-	-	-	-	-	-	-	**0**
Encampment	-	-	-	-	-	-	-	-	**0**
Hanna	-	-	-	-	-	-	-	-	**0**
Medicine Bow	-	-	-	-	-	-	-	-	**0**
Rawlins	1	-	-	-	-	-	1	-	**2**
Riverside	-	-	-	-	-	-	-	-	**0**
Saratoga	-	-	-	-	-	-	-	-	**0**
Sinclair	-	-	-	-	-	-	-	-	**0**
Unincorporated	-	3	-	-	-	-	31	-	**34**
Total Count	**1**	**3**	**0**	**0**	**0**	**0**	**32**	**0**	**36**

Source: FEMA's Hazus Inventory National Database

While data on location of mine/land subsidence is limited in Carbon County to the Hanna Basin, **Table 51** reports that two Shelter Lifeline structures and one Transportation Lifeline structure are located in areas of abandoned mines that are susceptible to mine subsidence in the future.

Table 51 Carbon County Lifelines Exposed to Mine/Land Subsidence

Jurisdiction	Communication	Energy	HazMat	Medical	Safety	Shelter	Transportation	Water	Total Count
Baggs	-	-	-	-	-	-	-	-	**0**
Dixon	-	-	-	-	-	-	-	-	**0**
Elk Mountain	-	-	-	-	-	-	-	-	**0**
Encampment	-	-	-	-	-	-	-	-	**0**
Hanna	-	-	-	-	-	2	-	-	**2**
Medicine Bow	-	-	-	-	-	-	-	-	**0**
Rawlins	-	-	-	-	-	-	-	-	**0**
Riverside	-	-	-	-	-	-	-	-	**0**
Saratoga	-	-	-	-	-	-	-	-	**0**
Sinclair	-	-	-	-	-	-	-	-	**0**
Unincorporated	-	-	-	-	-	-	1	-	**1**
Total Count	**1**	**0**	**0**	**0**	**0**	**2**	**1**	**0**	**3**

Source: FEMA's Hazus Inventory National Database

Based on Lifeline analysis, the Transportation Lifeline has the greatest number of critical structures in areas prone to geologic hazards in Carbon County, however, all Lifelines are vulnerable to geologic hazards.

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

People

People living or working in landslide-prone areas, such as on slopes or hillsides, are the most likely population to experience negative impacts from landslides. Residents living in these areas, or areas constructed above abandoned mines, that do not have the financial resources to relocate are disproportionately likely to experience losses and be unable to rebuild after an event.

There is no immediate threat to the public from expansive soil. Since there is no sudden shifting of the ground, people can notice changes in structures caused by the soil expansion over time. Observed changes in the structure can be addressed and repaired, or people can be relocated if necessary. While small, there is a chance that damage to a structure would pose a threat to people if it went unnoticed for a long period and the structure failed.

Populations identified as vulnerable or under-resourced are more likely to experience losses from hazard events and face barriers in recovery. See **Table 2** for more information on demographic factors that contribute to vulnerability in Carbon County.

Structures

Expansive soil can damage building foundations, pavement, supply lines, and utility infrastructure. **Table 52** outlines the properties within each jurisdiction that are exposed to expansive soil hazards. Due to the slow nature of soil swelling and shrinking, damage may not be apparent for years, and estimating the overall costs in the affected area can be difficult. In total, 427 structures are in areas with expansive soils in Carbon County, with an estimated $117.0 million in structure value and $82.6 million in estimated content value at risk.

It is important to note that the Sinclair Refinery is recorded as one commercial and three public (government-owned) points by the database, and the estimated value of these structures are likely much lower than the actual value.

Table 52 Carbon County Structures Exposed to Expansive Soils

Municipality	Structure Type	Total Structure Count	Total Structure Value	Estimated Content Value
Baggs	**Total**	**0**	**$0.00**	**$0.00**
Dixon	**Total**	**0**	**$0.00**	**$0.00**
Elk Mountain	**Total**	**50**	**$11,716,931.19**	**$9,762,001.60**
	Commercial	5	$2,652,845.19	$2,007,661.76
	Industrial	2	$3,222,296.84	$4,833,445.27
	Residential	43	$5,841,789.16	$2,920,894.58
Encampment	**Total**	**0**	**$0.00**	**$0.00**
Hanna	**Total**	**0**	**$0.00**	**$0.00**
Medicine Bow	**Total**	**1**	**$167,970.41**	**$83,985.20**

Municipality	Structure Type	Total Structure Count	Total Structure Value	Estimated Content Value
	Residential	1	$167,970.41	$83,985.20
Riverside	**Total**	**0**	**$0.00**	**$0.00**
Rawlins	**Total**	**20**	**$5,251,807.87**	**$2,855,756.40**
	Commercial	3	$2,880,544.10	$1,670,124.51
	Residential	17	$2,371,263.77	$1,185,631.89
Saratoga	**Total**	**0**	**$0.00**	**$0.00**
Sinclair	**Total**	**221**	**$56,315,359.12**	**$39,146,858.35**
	Commercial	13	$12,800,030.30	$12,670,018.67
	Industrial	1	$594,148.07	$594,148.07
	Public	8	$8,844,202.47	$8,844,202.47
	Residential	199	$34,076,978.29	$17,038,489.15
Unincorporated	**Total**	**135**	**$43,609,115.05**	**$30,831,766.61**
	Commercial	16	$12,267,149.41	$11,339,899.66
	Industrial	4	$599,233.47	$599,233.47
	Public	1	$7,042,534.77	$7,042,534.77
	Residential	114	$23,700,197.40	$11,850,098.70
Grand Total		**427**	**$117,061,183.60**	**$82,680,368.17**

Source: US Army Corps of Engineers National Structure Inventory (NSI)

Landslides can cause extensive damage to structures, burying homes and damaging critical infrastructure. **Table 53** outlines the properties within each jurisdiction that are exposed to landslide susceptibility. In total, 2,015 structures are in areas with landslide susceptibility in Carbon County, with an estimated $559.1 million in structure value and $380.0 million in estimated content value at risk. It is important to note that these structures are in areas ranging from low to extreme landslide susceptibility.

Table 53 Carbon County Structures Exposed to Landslide

Municipality	Structure Type	Total Structure Count	Total Structure Value	Estimated Content Value
Baggs	**Total**	**8**	**$1,523,018.76**	**$761,509.38**
	Residential	8	$1,523,018.76	$761,509.38
Dixon	**Total**	**0**	**$0.00**	**$0.00**
Elk Mountain	**Total**	**2**	**$325,331.67**	**$162,665.84**
	Residential	2	$325,331.67	$162,665.84
Encampment	**Total**	**68**	**$13,814,886.99**	**$8,257,419.60**
	Commercial	2	$1,568,842.83	$1,568,842.83

Municipality	Structure Type	Total Structure Count	Total Structure Value	Estimated Content Value
	Industrial	1	$1,131,109.38	$1,131,109.38
	Residential	65	$11,114,934.78	$5,557,467.39
Hanna	**Total**	**240**	**$40,361,481.52**	**$25,380,857.76**
	Commercial	14	$9,882,239.75	$9,882,239.75
	Industrial	1	$40,402.42	$40,402.42
	Public	1	$477,591.78	$477,591.78
	Residential	224	$29,961,247.56	$14,980,623.81
Medicine Bow	**Total**	**0**	**$0.00**	**$0.00**
Rawlins	**Total**	**716**	**$245,293,001.90**	**$172,094,067.00**
	Commercial	72	$89,787,155.17	$81,108,897.29
	Industrial	6	$5,276,803.27	$6,431,033.88
	Public	13	$16,508,292.00	$17,693,760.17
	Residential	625	$133,720,751.40	$66,860,375.71
Riverside	**Total**	**15**	**$4,547,587.78**	**$3,734,433.44**
	Commercial	2	$2,491,966.53	$2,491,966.53
	Industrial	1	$429,312.57	$429,312.57
	Residential	12	$1,626,308.69	$813,154.34
Saratoga	**Total**	**93**	**$21,148,024.61**	**$13,698,447.23**
	Commercial	6	$3,958,142.68	$3,763,568.46
	Public	4	$1,552,374.82	$2,116,125.21
	Residential	83	$15,637,507.11	$7,818,753.55
Sinclair	**Total**	**0**	**$0.00**	**$0.00**
Unincorporated	**Total**	**873**	**$232,181,924.03**	**$156,006,133.83**
	Commercial	113	$77,557,509.16	$68,891,997.50
	Industrial	10	$8,811,428.09	$12,951,500.34
	Public	6	$2,512,285.21	$2,512,285.21
	Residential	744	$143,300,701.57	$71,650,350.78
Grand Total		**2,015**	**$559,195,257.30**	**$380,095,534.10**

Source: US Army Corps of Engineers National Structure Inventory (NSI)

Mine/land subsidence can cause foundation cracks and settling to structures. In Carbon County, the only available data for abandoned mine locations was in the Towns of Hanna and Elmo. **Table 54** outlines the properties within each jurisdiction exposed to mine/land susceptibility. In total, 100 structures are in areas with mine/land susceptibility in Carbon County, with an estimated $18.9 million in structure value and $13.1 million in estimated content value at risk. It is important to note

that the Wyoming Department of Environmental Quality Abandoned Mine Division has been conducting grouting operations in the Town of Hanna as part of AML Project 17.6B Mine Subsidence Mitigation Project to reduce future risk of mine subsidence. Therefore, the estimated values in the table below could be greater than the actual values at risk. See the Future Trends in Development section for more information.

Table 54 Carbon County Structures Exposed to Mine/Land Subsidence

Municipality	Structure Type	Total Structure Count	Total Structure Value	Estimated Content Value
Baggs	**Total**	**0**	**$0.00**	**$0.00**
Dixon	**Total**	**0**	**$0.00**	**$0.00**
Elk Mountain	**Total**	**0**	**$0.00**	**$0.00**
Encampment	**Total**	**0**	**$0.00**	**$0.00**
Hanna	**Total**	**100**	**$18,967,902.04**	**$13,104,566.55**
	Commercial	5	$2,969,525.58	$2,969,525.58
	Industrial	1	$608,382.03	$912,573.04
	Public	2	$3,054,941.41	$3,054,941.41
	Residential	92	$12,335,053.02	$6,167,526.51
Medicine Bow	**Total**	**0**	**$0.00**	**$0.00**
Rawlins	**Total**	**0**	**$0.00**	**$0.00**
Riverside	**Total**	**0**	**$0.00**	**$0.00**
Saratoga	**Total**	**0**	**$0.00**	**$0.00**
Sinclair	**Total**	**0**	**$0.00**	**$0.00**
Unincorporated	**Total**	**0**	**$0.00**	**$0.00**
Grand Total		**100**	**$18,967,902.04**	**$13,104,566.55**

Source: US Army Corps of Engineers National Structure Inventory (NSI)

Natural, Historic, and Cultural Resources

Landslides can drastically impact the topography of the earth's surface, destroy strips of forested areas, alter the quality of rivers and streams, and ultimately impact the habitats of wildfires in the region. Mine/land subsidence can alter waterways and drainage, leading to erosion and sedimentation in waterways. Additionally, mine/land subsidence under a historic building could lead to structural instability and potential collapse.

Soil expansion does not have a large immediate impact on the environment as the effects occur over extended periods. Overall, expansive soils have the potential to alter the landscape of an area, but not drastically, and should not affect wildlife and plant life in an ecosystem. Mine/Land subsidence is also not likely to have large-scale impacts on plants or wildlife but can result in increased flood risks and permanent reduction in an aquifer.

Natural and historic resources were identified in Carbon County to ensure these assets are considered and protected. See **Table 4** for a list of endangered and threatened species and **Table 5** for a list of historic places in Carbon County.

Local Vulnerability

In addition to the general impacts that geologic hazards can have on Lifelines, people, structures, and cultural resources in Carbon County, representatives of each participating jurisdiction identified unique local vulnerabilities that these hazards present to their community, summarized in **Table 55**.

Table 55 Local Government Vulnerability to Geologic Hazards

Local Government	Local Vulnerability
Carbon County	Those residents in unincorporated Carbon County, in certain prone areas, could be impacted by regular travel routes. Houses and business, as well as roads and bridges, in unincorporated Carbon County could suffer limited impacts and disruptions.
City of Rawlins	The City of Rawlins noted a concern with the state prison being constructed above claystone bedrock, which often experiences issues with expansive soils. Sometimes gates at the prison can be difficult to close, which raises a safety concern for the community.
Town of Baggs	Concerns with evacuating limited-mobility residents and those without transportation. There are only three main roads in/out of town.
Town of Dixon	Local community & government assets are not at risk from geologic hazards.
Town of Elk Mountain	Those citizens living near the river that runs through the town could be affected by a landslide that could redirect the flow of the river. Depending on the landslides affects some of our systems could be at risk if the river were redirected or rose from the landslide. Our museum and park are near the river. The museum could be damaged by flood waters caused by rising waters or the flow of the river being affected by the landslide. Our park is across the river from a potential landslide area and could be at risk.
Town of Encampment	Concerns with evacuating limited-mobility residents and those without transportation. There are only two main roads in/out of town.
Town of Hanna	The LPT noted that County Road 297, which runs through Hanna, currently has a hole due to mine subsidence. This is a major evacuation route for the town and could increase barriers for residents to evacuate during a disaster event. The Town of Hanna has also experienced issues with a bridge that goes over railroad tracks due to mine subsidence.

Local Government	Local Vulnerability
Town of Medicine Bow	Concerns with evacuating limited-mobility residents and those without transportation. There are only three main roads in/out of town.
Town of Riverside	Concerns with evacuating limited-mobility residents and those without transportation. There are only three main roads in/out of town.
Town of Saratoga	Those citizens living near the river that runs through the town could be affected by a landslide that could redirect the flow of the river. Depending on the landslides affects some of our systems could be at risk if the river were redirected or rose from the landslide. The Saratoga HOBO Hot Springs, parks, restaurants and businesses, could be damaged by flood waters caused by rising waters or the flow of the river being affected by the landslide.
Town of Sinclair	The Town of Sinclair noted that expansive soil causes issues throughout the entire town. Holes appear in parks and there are cracks in foundations that open and close by the season.
SER (Saratoga-Encampment-Rawlins) Conservation District	Traveling throughout the District might be impacted depending on location. Possible loss of our shop. Radio towers and internet relay stations might not be accessible. Travel and recreation might be impacted.
Medicine Bow Conservation District	Local government assets are not at risk from geologic hazards.
Little Snake River Conservation District	Local government assets are not at risk from geologic hazards.
Carbon County School District 2	Residents of Hanna could be impacted by School structures in Hanna could be damaged resulting in the closure of school for a period of time. Underground mine subsidence. Schools in Hanna could lose network access and phone access.
Carbon County Fire Protection District	We do have risk from mine subsidence primarily in the Hanna area. Mitigation has been in process for several years, however more issues have been detected. The secondary route in and out of Hanna has closed numerous times due to safety concerns. The Hanna Fire Station has notable damage to the building and the concrete paving around the building.
Sierra Madre Water & Sewer Joint Powers Board	Local government assets are not at risk from geologic hazards.

Future Trends in Development

It is crucial to consider the hazards posed by geologic hazards when making any future development and construction decisions, to ensure new construction does not increase the county's risk. **Table 56** summarizes development trends in each jurisdiction.

Table 56 Local Government Development Trends – Geologic Hazards

Local Government	Development Trends
Carbon County	Any development in these hazard areas will increase vulnerability.
City of Rawlins	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
Town of Baggs	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
Town of Dixon	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
Town of Elk Mountain	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
Town of Encampment	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
Town of Hanna	The Wyoming Department of Environmental Quality and Abandoned Mine Land Division have been conducting grouting operations near Hanna as part of AML Project 17.6B Mine Subsidence Mitigation Project. Brierley Associates Corporation (Brierley) provided mine subsidence consultation and construction management services for the project. In total, over two construction seasons, 43,482 linear feet of drilling were conducted, and 38,786 cubic yards of grout were injected to mitigate the future risk of mine subsidence under homes and roads in Hanna.
Town of Medicine Bow	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
Town of Riverside	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
Town of Saratoga	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
Town of Sinclair	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
SER (Saratoga-Encampment-Rawlins) Conservation District	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Medicine Bow Conservation District	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Little Snake River Conservation District	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Carbon County School District 2	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Carbon County Fire Protection District	No construction has recently occurred, or is expected, which would impact hazard vulnerability.

Local Government	Development Trends
Sierra Madre Water & Sewer Joint Powers Board	No construction has recently occurred, or is expected, which would impact hazard vulnerability.

Probability of Future Occurrences

While there is not a comprehensive list of reported landslides in Carbon County (0% annual chance), landslides are expected to continually occur in areas with steep slopes, mostly outside of jual areas.

Additionally, there have been 10 reported mine subsidence events in Carbon County since 1955, some of which are ongoing. This corresponds to a 14% annual chance of occurrence, or a "likely" probability. However, ongoing remediation efforts by the Wyoming Department of Environmental Quality (DEQ) lower this chance of occurrence.

The composition of expansive soils does not change and is always capable of swelling and shrinking. Due to this, soil can impact buildings and infrastructure in the region over many years. This likelihood can increase if new development is built in expansive soil areas without addressing the risks posed by the hazard. There is a 100% chance that expansive soil will impact some of the county each year.

Severe Thunderstorm (Hail/Lightning/Thunderstorm Wind)

Previous Occurrences

Since 1955, the NCEI database has recorded 132 thunderstorm wind events and 33 hail events in Carbon County. The dataset also reported 3 lightning events in the county since 1996. In total, these severe thunderstorm events resulted in 2 deaths, 5 injuries, and $150,500 in damage across the county. It is important to note that these dollars are not adjusted to 2024 values, and reported losses are likely lower than actual losses due to data limitations, insurance coverage gaps, and because the NCEI database focuses on major events. A summary of these events is outlined in **Table 57.**

Table 57 Carbon County Summary of Severe Thunderstorm Events

Hazard	Total # of Events	# Days with Events	Deaths	Injuries	Damages
Hail	33	23	0	0	$0
Lightning	3	3	2	2	$0
Thunderstorm Wind	132	87	0	3	$150,500
Total	**168**	**107**	**2**	**5**	**$150,500**

Source: Storm Events Database | National Centers for Environmental Information (noaa.gov)

The NCEI database records 33 hail events in Carbon County. Hail recorded at 1 inch in diameter, classified as quarter-size hail by the National Weather Service, was the most reported hail diameter in Carbon County. The largest hail recorded in the county reached 1.75 inches in diameter, which is approximately the size of a golf ball, and was reported on 4 occasions. These events occurred in August 2002 in Hanna, in June 2016 in Muddy Gap, and in May 2018 in Rawlins and Fort Steele. None of these events had reported monetary property losses, injuries, or fatalities, however, the NCEI

database narrative noted that dents to vehicles were reported. **Table 58** provides a breakdown of historic hail events in Carbon County by the diameter of hail recorded.

Table 58 Carbon County Hail Event Severity

Description	Hail Diameter (in inches)	Total # of Events	% of Total Events
Nickle	0.75	6	18.2%
Quarter	0.88	3	9.1%
	1	9	27.3%
Half Dollar	1.25	6	18.2%
	1.5	3	9.1%
Golf Ball	1.75	4	12.1%
No data		2	6.1%

Source: Storm Events Database | National Centers for Environmental Information (noaa.gov)

Of these 168 recorded thunderstorm events, 6 resulted in losses to life or damage to property. Additionally, one event was noted by the LPT not included in the NCEI Database. These notable events are detailed below:

- **August 2, 1995, in the Town of Hanna:** Thunderstorm winds broke windows and damaged a shed, totaling $500 in reported damages.
- **June 14, 1998, in the City of Rawlins:** Lighting struck a motorcyclist driving on Interstate 80. He lost control and crashed into the median. He was taken to the hospital and received burns on his eyes, chest, and shoulder and had a ruptured ear drum, but his injuries were not fatal.
- **August 10, 1998, in the Town of Arlington:** Two hikers were caught in a storm while traveling in the Snowy Range. The pair was struck by lightning while trying to get to lower levels. One injury and one fatality were reported.
- **April 14, 2000, in the City of Rawlins:** Thunderstorm winds with gusts of 70 mph blew the windows out of 35 vehicles, resulting in $100,000 worth of property damage.
- **April 20, 2001, in the City of Rawlins:** A mobile home was rolled 3 times due to strong thunderstorm winds, injuring 3 people and causing $50,000 in property damage.
- **September 17, 2002, in the Town of Encampment:** Lightning struck Pickaroon Campground in Medicine Bow National Forest, resulting in one fatality.

The LPT also noted a severe hail event in Rawlins and Sinclair on **May 11, 2018**, that brought tennis ball-sized hall to the area. A planning team member noted that almost all residents need to replace or repair roofs from the damage. In addition, the LPT noted that a lightning event in 2019 resulted in the Pedro Fire. See the **Wildfire** Section for more information on this event.

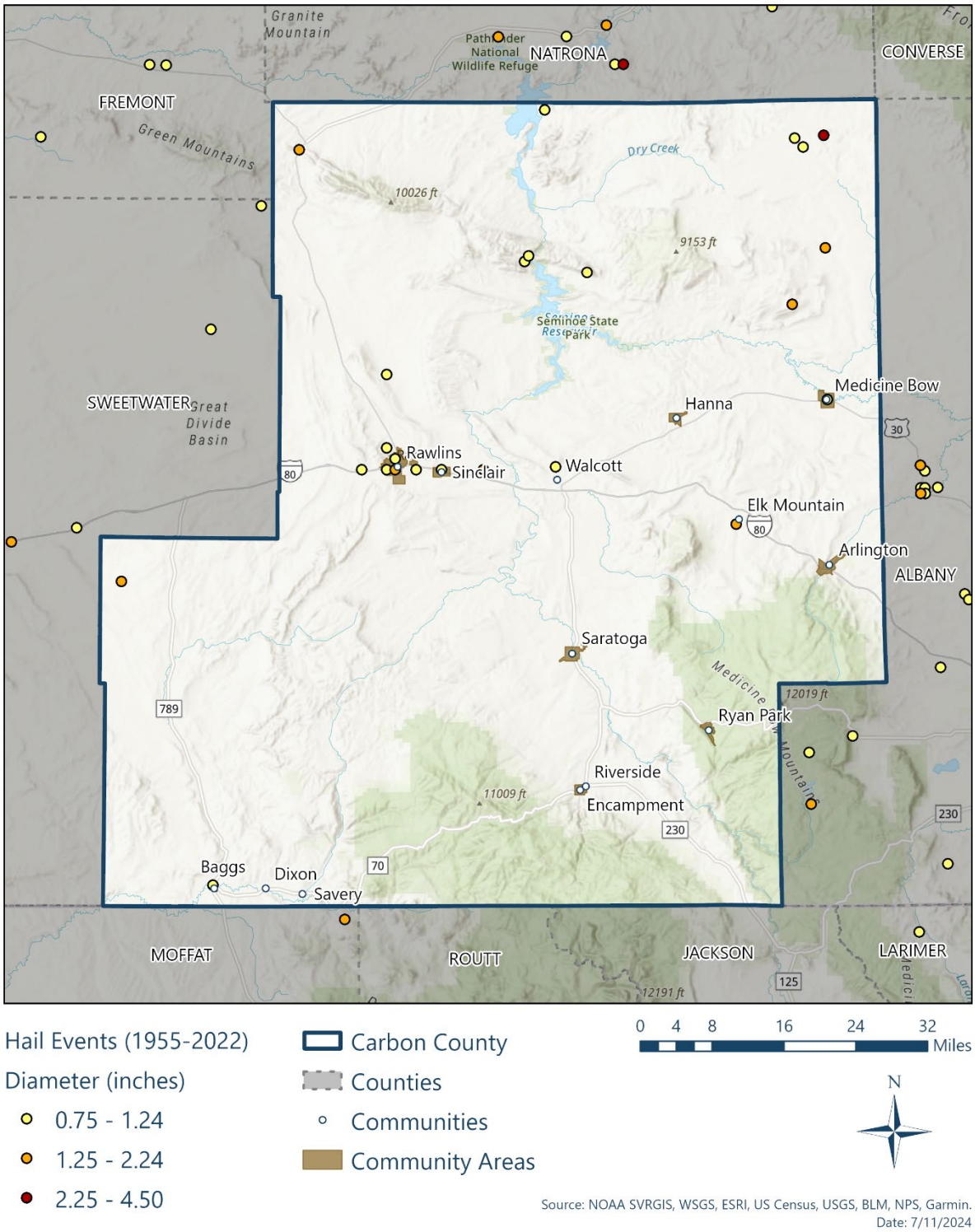
Location

Thunderstorms, lightning, and hail have the potential to occur everywhere throughout Carbon County. However, historical data indicates that some locations in the county experience a greater frequency of these hazard events.

Hail

The southeastern corner of Wyoming, where Colorado, Wyoming, and Nebraska meet, is known as Hail Alley. This area receives more hailstorms than other areas of the country. While Region 3 is not directly in Hail Alley, Carbon County is near this area. **Figure 25** displays historic hail events in Carbon County. The City of Rawlins experienced more reported hail events than any other jurisdiction in the county.

Figure 25 Carbon County Historic Hail Events



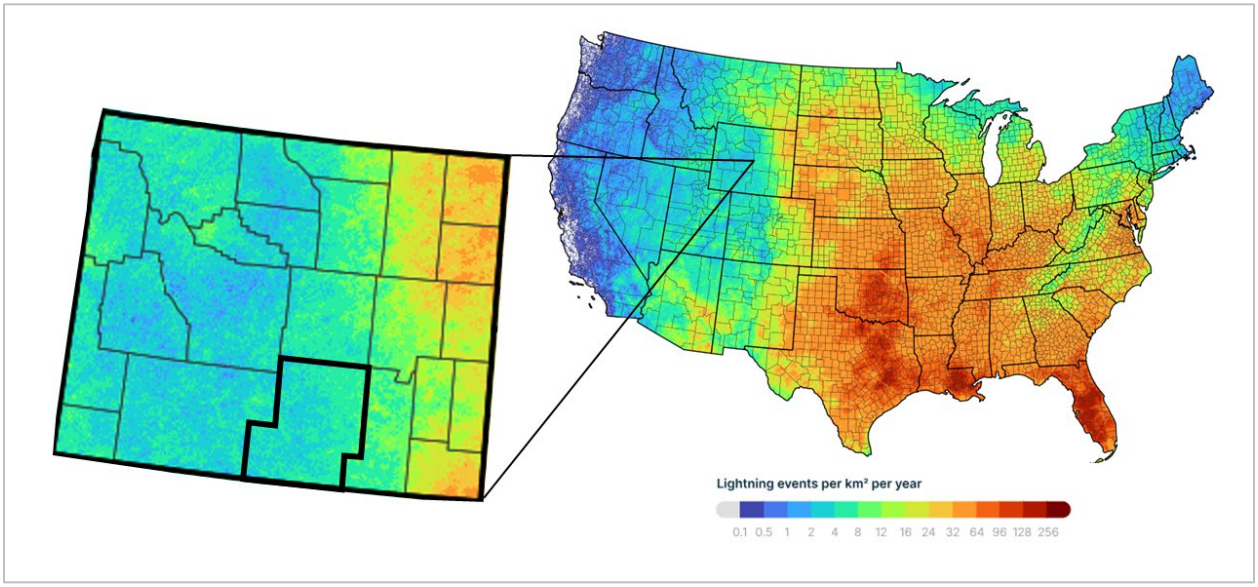
Source: NOAA SVRGIS, WSGS, ESRI, US Census, USGS, BLM, NPS, Garmin.
Date: 7/11/2024

Lightning

Vaisala monitors and reports lightning statics across the globe each year. In the Annual Lightning Report 2023, Vaisala noted that Carbon County experiences a typical lightning density of 4-8

lightning events per square kilometer annually, which is slightly less than average compared to the rest of the United States. Eastern portions of the county are likely to experience a slightly higher lightning density than the western portions. **Figure 26** displays the average lightning density across the United States.

Figure 26 Carbon County Lightning Density 2016-2022



Source: Vaisala Weather Annual Lightning Report 2023

Exposure and Vulnerability

Lifelines

All Lifelines can be impacted by severe thunderstorm events. Communication and Energy Lifelines are the most frequently impacted by lightning. Lightning strikes can cause power outages by directly hitting lines, substations, or transformers. This can lead to widespread blackouts that have cascading impacts on Health and Medical Lifelines, as hospitals and clinics rely on uninterrupted power to support their operations and medical equipment. Lightning can also damage telecommunications, including cell towers, TVs, and radios that are used for emergency broadcast systems. A lightning strike can damage electric systems in a water treatment plant or pumping station, leading to interruptions in water supply and wastewater treatment. A chemical plant or storage site is at risk of fire or explosion if lightning strikes, which can release dangerous hazardous materials.

Hail and thunderstorm winds can also damage power lines and cell towers. Any large-scale outage resulting from a thunderstorm can damage cold storage facilities and potentially spoil food and other perishable goods, impacting the Food, Hydration, and Shelter Lifeline. Road transportation can be disrupted if a power outage affects airport control towers, navigation systems, and traffic signals. Hail can also create slick driving conditions and delay airplane departure, which could delay the movement of first responders and emergency response resources.

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

People

It can be assumed that the entire planning area is exposed to hail, thunderstorms, and lightning events. Areas of greater exposure are where higher population densities exist. Certain areas are more exposed due to geographic location and local weather patterns.

Populations with access and functional needs (AFN), including the elderly, those with low income, linguistically isolated populations, people with mobility issues, and residents living in areas isolated from major roads, may see more impacts from severe weather events. Power outages can be life-threatening to those dependent on electricity for medical support. The isolation of these populations is a significant concern. Those working outdoors or recreating in the area are more vulnerable to severe weather events.

Individuals caught in the path of severe weather who are unable to seek appropriate shelter are especially at risk. This may include individuals who are out in the open, in cars or those who do not have access to basements, cellars, or safe rooms. Non-English-speaking populations may experience a lack of warning communications.

See **Table 2** for more information on demographic factors that contribute to vulnerability in Carbon County.

Structures

All buildings are exposed to hail, thunderstorms, and lightning hazards, but structures in poor condition or in particularly vulnerable locations (located on hilltops or exposed open areas) may risk the most damage. The frequency and degree of damage will depend on specific locations and the condition of the building. Building codes can help to mitigate damage from thunderstorm events, including using hail-protective roof materials and strengthening the common building component failure points.

Depending on size, hail can damage roofs, break windows, and tear up siding, all of which can lead to significant water damage. Hail also damages HVAC systems installed on buildings' exteriors and solar panels installed on roofs. Additionally, hail can cause damage to concrete, resulting in dents, cracks, and surface spalling that can occur on sidewalks and roads. Over time the damage caused by hail can wear down concrete, compromising its strength.

Older buildings are often not retrofitted to newer building codes due to cost and capacity, typically in rural areas where communities were built decades ago. Lightning strikes can also damage county infrastructure such as power lines and cellphone towers.

Natural, Historic, and Cultural Resources

Natural habitats risk major damage and destruction from hail. Large hail has the potential to damage vegetation, tree canopy, and harm animals. Crop yields can be significantly reduced in the event of a hailstorm, and farmers will also experience damage to their physical equipment. Large hail has the possibility to cause significant bruising, injury, and even death to livestock and wild animals, disrupting agricultural yields and natural ecosystems.

Hail can also cause major damage to and the destruction of historical buildings. Large hail can break slate and tile roofing, shatter windows, and dent copper flashings, causing irreparable damage to

historical buildings. Additionally, this damage can allow water to enter the building and its foundations, causing water damage. However, under freezing temperatures, hail will expand once frozen, causing further fissures to the structure of a building.

Lightning strikes can be destructive to the natural resources of a community. Strikes can hit trees with the potential to cause wildfires. Lightning strikes can also damage historical buildings that may not be able to be repaired.

Natural and historic resources were identified in Carbon County to ensure these assets are considered and protected. See **Table 4** for a list of endangered and threatened species and **Table 5** for a list of historic places in Carbon County.

Local Vulnerability

In addition to the general impacts that severe thunderstorms can have on Lifelines, people, structures, and cultural resources in Carbon County, representatives of each participating jurisdiction identified unique local vulnerabilities that these hazards present to their community, summarized in **Table 59**.

Table 59 Local Government Vulnerability to Severe Thunderstorm

Local Government	Local Vulnerability
Carbon County	People in Carbon County understand and know how to prepare for and respond to these types of weather events. Roads and Bridges could be impacted for a short time after a severe thunderstorm.
City of Rawlins	Risk is evenly spread throughout the community. There are several structures that are higher enough that they may be a likely target for lightening. The city does have some drainage systems that may at risk if rain or hail is substantial. The city has monitored areas that may accumulate water as a result of substantial rain.
Town of Baggs	People with health issues, water plants, power outages, communications, damage to historical and cultural sites.
Town of Dixon	People may be without power. Possible damage to utility structures including water plant and sewer lagoon. Possible communication system damage.
Town of Elk Mountain	Our citizens are at risk from severe thunderstorms, lightning, and hail. We have many mature trees, houses and cars that do not have the advantage of a garage that could affect the livelihood of our citizens. Many of our structures in town are older and could sustain damage if the thunderstorm or hail was bad enough to cause damage. Our water and wastewater systems could be destroyed by lightning during a severe thunderstorm, which could damage the components of the system. Our museum could be destroyed by severe thunderstorm and hail.

Local Government	Local Vulnerability
Town of Encampment	Water Plant, Sewer Headworks, lift stations, power grid, towers. Old fire tower at museum grounds, cell tower in center of town, bell tower at Opera House. We have many outdoor events that large crowds gather at.
Town of Hanna	Dirt roads could become impassable for a time after a major event with heavy rain.
Town of Medicine Bow	Lightning has knocked out equipment several times. Especially water treatment computers. Low-income and fixed income residents would not be able to make repairs from hail damage. Water treatment and storage buildings. Extended loss of power would compromise water treatment. Historic museum and hotel damage from hail. Seasonal park damage preventing youth from using it for rec.
Town of Riverside	Very high probability of electrical power loss.
Town of Saratoga	Serve lighting storm could impact the town by causing problems with the electrical grid. A severe lighting storm has the chance of striking radio repeaters for the police and Fire departments along with the ambulance service. A severe lighting storm has the chance of striking radio repeaters for the police and Fire departments. The repeaters are positioned at the top of the water tower which makes them more vulnerable to severe lighting. The towns water system and sewer systems both have back-up generators. The towns records system has a battery backup. Severe lighting and hailstorms could impact community activities that are scheduled through the spring and summer months.
Town of Sinclair	Monetary losses from hail or storm damage Damage to Structures and above ground powerlines Damage to above ground communication lines. Damage to Parks and Historic Structures
SER (Saratoga-Encampment-Rawlins) Conservation District	Shop and Office can sustain damages. Loss of communication equipment.
Medicine Bow Conservation District	Office, shop and equipment damage. Loss of network and phones. Loss of power.
Little Snake River Conservation District	Shop and Office can sustain damages. Loss of communication equipment.
Carbon County School District 2	A lightning strike could take out power resulting in early closure of schools. Large hail could damage buildings and transportation vehicles. School buildings could lose network access and phone access.
Carbon County Fire Protection District	Vehicles can be damaged and may not be operable without repair. Power and communication could be affected. Lightning could affect

Local Government	Local Vulnerability
	communication and power distribution. Long term power shortages are possible.
Sierra Madre Water & Sewer Joint Powers Board	Water customers are prepared for most severe thunderstorms. A lightning strike could take out power resulting in an inability to run the wells.

Future Trends in Development

It is crucial to consider the hazards posed by severe thunderstorms when making any future development and construction decisions, to ensure new construction does not increase the county's risk. **Table 60** summarizes development trends in each jurisdiction.

Table 60 Local Government Development Trends – Severe Thunderstorms

Local Government	Development Trends
Carbon County	No expected future changes to this vulnerability with an increase or decrease in population.
City of Rawlins	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
Town of Baggs	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
Town of Dixon	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
Town of Elk Mountain	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
Town of Encampment	More structures create an increased possibility of further impact from storms. Some moving to the area and does not realize the possibility of severe storm is here.
Town of Hanna	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
Town of Medicine Bow	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
Town of Riverside	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
Town of Saratoga	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
Town of Sinclair	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
SER (Saratoga-Encampment-Rawlins) Conservation District	No construction has recently occurred, or is expected, which would impact hazard vulnerability.

Local Government	Development Trends
Medicine Bow Conservation District	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Little Snake River Conservation District	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Carbon County School District 2	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Carbon County Fire Protection District	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Sierra Madre Water & Sewer Joint Powers Board	No construction has recently occurred, or is expected, which would impact hazard vulnerability.

Probability of Future Occurrences

The NCEI database has recorded 168 severe thunderstorm events on 107 unique days in the 69 years between 1955 and 2024, meaning there is a 100% chance of a severe thunderstorm event occurring somewhere in Carbon County each year.

Since 1955, 7 notable severe thunderstorm events have resulted in loss of life or property, which equates to a 10% annual chance of a notable event occurring in the county.

Tornado/Wind/Windblown Deposits

Previous Occurrences

Since 1950, the NCEI database has recorded 18 tornado events in Carbon County. The dataset also reported 2,218 high wind events since 1996, however, no strong wind events were recorded in the county. In total, these tornado and wind hazards resulted in 1 injury and $300,150 in damage across the county. It is important to note that these dollars are not adjusted to 2024 values, and reported losses are likely lower than actual losses due to data limitations, insurance coverage gaps, and because the NCEI database focuses on major events. An additional 20 injuries and 1 death were reported as *indirect* impacts from tornado and wind events. A summary of these events is outlined in **Table 61.**

Table 61 Carbon County Summary of Tornado/Wind Events

Hazard	Total # of Events	# Days with Events	Deaths	Injuries	Damages
Funnel Cloud	2	2	0	0	$0
High Wind	2,198	671	0	1	$0
Strong Wind	0	0	0	0	$0
Tornado	18	15	0	0	$300,150
Total	**2,218**	**687**	**0**	**1**	**$300,150**

Source: Storm Events Database | National Centers for Environmental Information (noaa.gov)

Of these 18 tornado events, 10 were rated as F0 (40-72 mph winds with minor to no damage associated) on the Fujita Scale. The most severe tornado was rated as an F2 (113-157 mph winds with considerable damage associated) on the Fujita Scale. This tornado occurred on July 2nd, 1976, and

caused $250,000 in associated property damage. **Table 62** below is a breakdown of tornado events in Carbon County by their associated Fujita/Enhanced Fujita Scale rating.

Table 62 Carbon County Tornado Event Severity

Severity (Fujita/Enhanced Fujita Scale)	Total # of Events	% of Total Events
EF0	1	5.6%
F0	10	55.6%
EF1	1	5.6%
F1	3	16.7%
F2	1	11.1%
EFU	2	94.4%

Source: Storm Events Database | National Centers for Environmental Information (noaa.gov)

Table 63 summarizes wind events in Carbon County based on their wind speeds in knots and miles per hour (mph). The NCEI database reported 2,198 high wind events in Carbon County. Of these events, over half (51.3%) had recorded wind speeds of 40-51 mph. Only 8 recorded wind events in Carbon County reached speeds of over 87 mph. The most severe wind speed was recorded at 94 mph (82 knots) on two separate occasions. The first occurred on January 12, 2021, and the second occurred on April 4, 2022, both in the North Snowy Range Foothills zone. However, no property damage, injuries, or fatalities were reported due to these two severe wind events.

Table 63 Carbon County High Wind Event Severity

Wind Speeds (knots)	Wind Speeds (mph)	Total # of Events	% of Total Events
35-45	40-51	1127	51.3%
46-55	52-63	535	24.3%
56-65	64-74	415	18.9%
66-75	75-86	113	5.1%
76-85	87-97	8	0.4%
86+	98+	0	0.0%

Source: Storm Events Database | National Centers for Environmental Information (noaa.gov)

Of these 2,218 recorded tornado and wind events, 9 resulted in direct losses to life or property. It is important to note that detailed accounts of tornado events before 1996 are limited. The notable events are detailed below:

- **July 20, 1958, in Carbon County:** An F1 tornado caused $30 in reported property damage.
- **June 15, 1966, in Carbon County:** An F1 tornado caused $25,000 worth of property damage.
- **July 15, 1967, in Carbon County:** A tornado touched down in Carbon County and resulted in $25,000 in property damage.
- **July 2, 1976, in Carbon County:** An F2 tornado caused $250,000 in property damage.
- **June 14, 1982, in Carbon County:** The NCEI reported four F0 tornado events on this day in 1982 in Carbon County, resulting in a total of $120 in reported property damages.

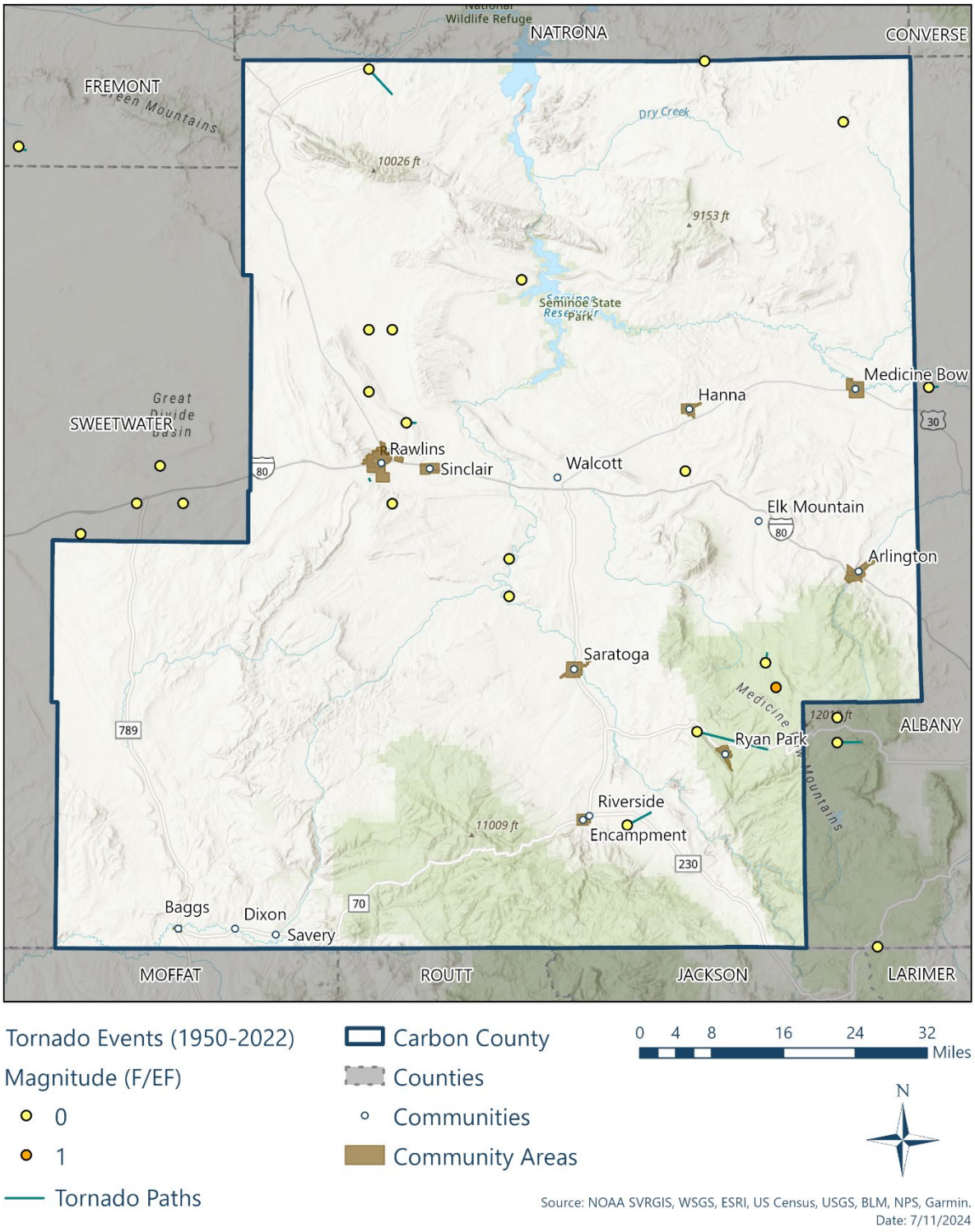
- **December 19, 2016, in Carbon County:** High winds with gusts up to 85 mph caused power outages and property damage and blew over semi-trailers on Interstate 80 (I-80). The interstate was closed by the WYDOT for several hours due to accidents and a state trooper was struck and injured while seated in a patrol car by another accident related to high wind.

Location

Tornado

Tornados are possible anywhere in Carbon County. Once a touchdown occurs, it may only affect a small area or could travel for miles, leaving substantial destruction in its wake. **Figure 27** displays historic tornado events and their associated paths in Carbon County.

Figure 27 Carbon County Historic Tornado Events

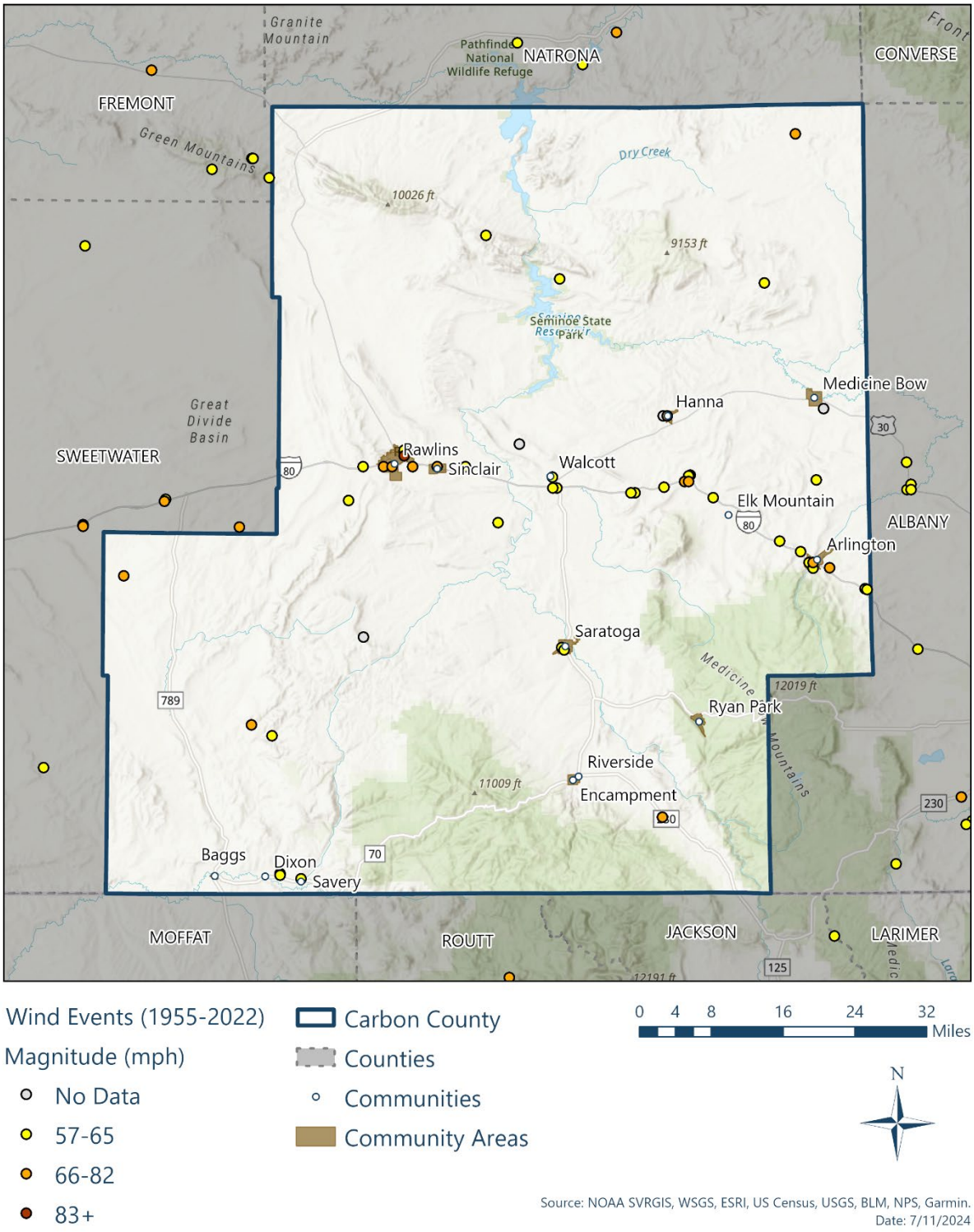


High Wind

Located in Wyoming's "wind zone," Carbon County is in a gap in the Rocky Mountains that acts as a funnel, concentrating westerly winds as low pressure and storm fronts pass through. Short-lived but

strong wind gusts associated with thunderstorms and dry microbursts tend to cause damage in the county. **Figure 28** displays the location of historic wind events in Carbon County.

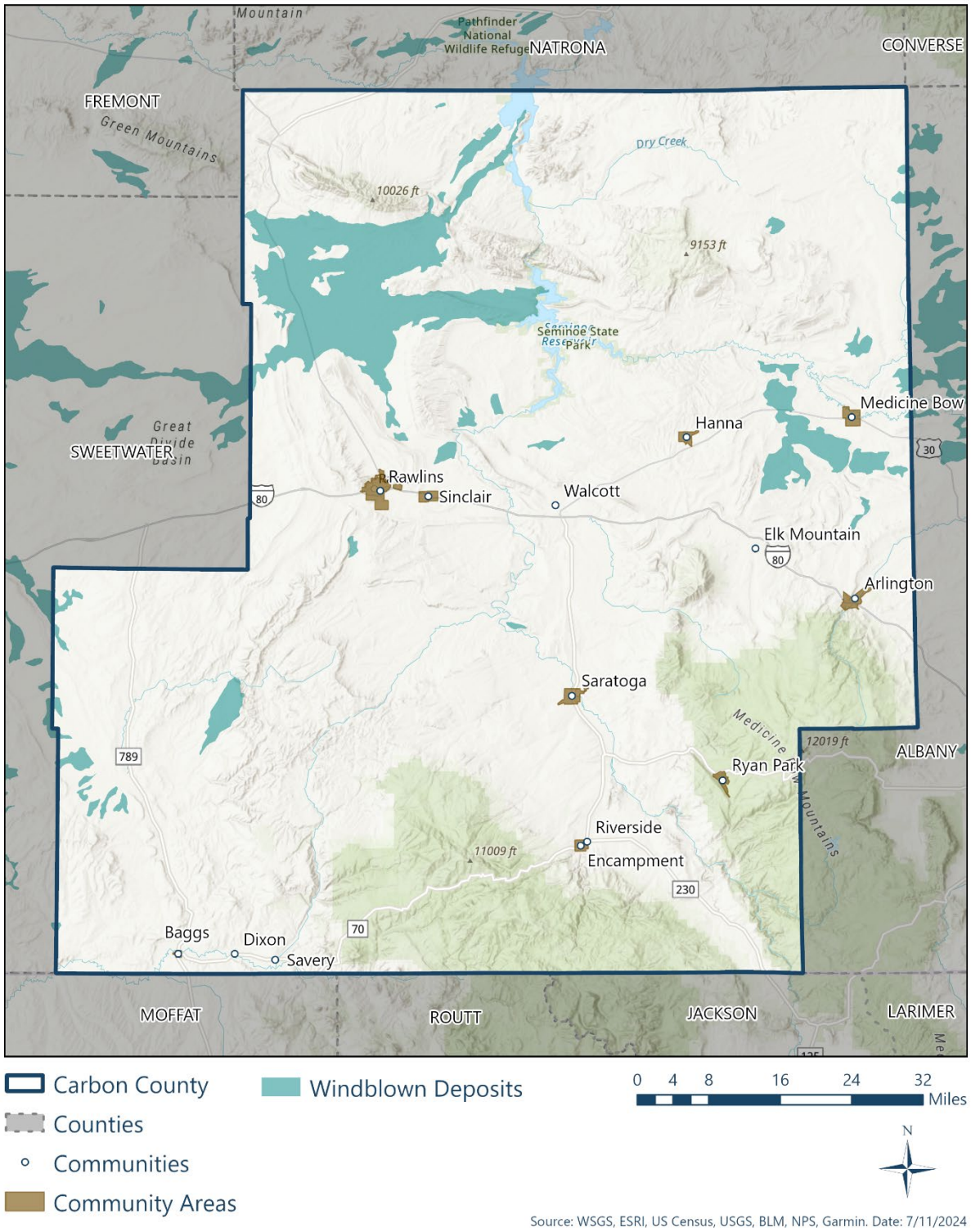
Figure 28 Carbon County Historic Wind Events



Windblown Deposits

In Carbon County, the Seminoe Dune Field extends from the Seminoe Reservoir to the west for approximately 30 miles and is approximately 15 miles wide at its widest point. It is in the northwestern portion of the county, below the Green Mountains. **Figure 29** shows the windblown deposits in Carbon County.

Figure 29 Carbon County Windblown Deposits



Exposure and Vulnerability

Lifelines

All Lifelines are exposed to tornados and wind. The most common problems associated with this hazard are utility losses, which fall under the Energy and Communications Lifeline. Downed power lines can cause blackouts, leaving large areas isolated. Phone, water, and sewer systems may not function. Communication infrastructure may be affected by an event, creating issues with dispatching first responders, keeping the public informed, and requesting aid and supplies.

The Transportation Lifeline can be impacted if debris caused by tornados and strong winds blocks roads, incapacitates transportation corridors, isolates populations, and disrupts ingress and egress. Any facility that is in the path of a tornado is likely to sustain damage, which could result in the release of hazardous materials if a chemical plant or storage site is damaged. Medical or sheltering facilities that sustain damage could have cascading impacts on the community.

Windblown deposits can impact Lifelines through sand, dust, and sediment accumulation. This hazard has a slow onset and can typically be mitigated before serious damage occurs. These deposits can contaminate water supplies and clog filters in water treatment facilities and pipes in irrigation systems. Additionally, the accumulation of sand and dust on roads and rail tracks can reduce visibility and create dangerous driving conditions. These issues can be compounded by high wind hazards that accelerate windblown deposit accumulation.

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

People

Deaths and injuries will continue to be a potential impact of tornados in Carbon County. While less likely, injury or death could also occur in an extreme wind event if objects such as branches or road signs become dangerous projectiles. Individuals caught in the path of a tornado who are unable to seek appropriate shelter are especially at risk. This may include individuals who are out in the open, in cars or those who do not have access to basements, cellars, or safe rooms.

Populations with access and functional needs (AFN), including the elderly, those with low income, linguistically isolated populations, people with mobility issues, and residents living in areas isolated from major roads, may see more impacts from severe wind or tornado events. Non-English-speaking populations may experience a lack of warning communications, putting them at higher risk of being unprepared or unsheltered during an event. Power outages can be life-threatening to those dependent on electricity for medical support. The isolation of these populations is a significant concern.

The availability of sheltered locations such as basements, buildings constructed using tornado-resistant materials and methods, and public storm shelters all help minimize tornado impacts. The population needs to be aware of how to seek shelter during a tornado and avoid behaviors or decisions that place them in greater danger. Additionally, the National Weather Service issues tornado watches (conditions are favorable for a tornado) and warnings (a tornado has been sighted or indicated by weather radar nearby) to reduce the risk of tornado impacts on the public.

Windblown deposits pose less of a threat to human safety than tornados and high wind events but can affect people in several ways. Individuals with respiratory problems may experience issues when inhaling fine particles such as dust and sand. Over long-term exposure, this can aggravate asthma and lead to other lung diseases. Additionally, dust and sand can irritate the eyes and contaminate water sources, reducing water quality.

See **Table 2** for more information on demographic factors that contribute to vulnerability in Carbon County.

Structures

All buildings are considered exposed to tornados, wind, and windblown deposits. Vulnerable structures such as those in poor condition or mobiles or in often affected locations (such as hilltops or exposed open areas) may risk the most damage. The frequency and degree of damage will depend on specific locations and the behavior of the winds.

Wind pressure can create a direct and frontal assault on a structure, pushing walls, doors, and windows inward. Conversely, passing currents can create lift and suction forces that act to pull building components and surfaces outward. The effects of winds are magnified in the upper levels of multi-story structures. As positive and negative forces impact the building's protective envelope (doors, windows, and walls), the result can be roof or building component failures and considerable structural damage. presents the number and valuation of structures located in areas of windblown deposits.

Windblown deposits may cause nuisance problems that are easily fixed. Examples include dunes caused by windblown deposits encroaching onto subdivision properties, temporarily closed roads, and impinging on homes.

Natural, Historic, and Cultural Resources

Habitats may be exposed to tornado risk and an event could destroy critical components of these areas. If tornados impact facilities that store hazardous materials, the surrounding areas may be especially vulnerable to contamination from a hazardous materials release, which can permanently alter natural landscapes and jeopardize local species extinction in extreme cases.

Additionally, severe winds can have tremendous impacts on a community's natural, historic, and cultural resources. Strong winds can damage buildings, especially older historic buildings, and public community spaces, such as parks and public art. The environment is highly exposed to high winds. Natural habitats risk major damage and destruction. Severe winds can strip and uproot vegetation, affecting natural ecosystems and agricultural crop yields.

Windblown deposits can bury vegetation and reduce both air and water quality. Dust and sand can settle into rivers and lakes, potentially impacting aquatic habitats. Additionally, wind erosion can strip away topsoil and lead to habitat degradation.

Natural and historic resources were identified in Carbon County to ensure these assets are considered and protected. See **Table 4** for a list of endangered and threatened species and **Table 5** for a list of historic places in Carbon County.

Local Vulnerability

In addition to the general impacts that severe thunderstorms can have on Lifelines, people, structures, and cultural resources in Carbon County, representatives of each participating jurisdiction identified unique local vulnerabilities that these hazards present to their community, summarized in **Table 64.**

Table 64 Local Government Vulnerability to Tornado/High Wind/Windblown Deposits

Local Government	Local Vulnerability
Carbon County	Strong winds are common across Carbon County but the occurrence of a strong tornado touching down in a populated area is something Carbon County Infrastructure, Buildings and Residents are not fully prepared for. The LPT noted that road closures commonly occur in the county due to blowing dust and sand from the wind. Windblown deposits in Seminoe Park have formed the Seminoe Sand Dunes, and roads in these areas, including County Road 357, can get completely covered with sand and prevent people from leaving the park.
City of Rawlins	Vehicle blow overs are common. The city does monitor windblown deposits in critical areas. The most significant risk of wind is if it is combined with other emergencies such as fire, snow or potential windblown pollution such as smoke. The most significant risk with systems in case of a tornado would be response time of emergency vehicles to people in need. The natural resources affected would be tree damage.
Town of Baggs	Warning people. Water plant, electric outages, comms, damage to museums.
Town of Dixon	All town structures and infrastructure are susceptible to damage from a tornado.
Town of Elk Mountain	Although a tornado is unlikely we do have high winds that can cause damage and injury to any of our citizens. Many of our structures have survived high winds, but we do have mature trees that can cause damage in high winds to houses and buildings around town. Although we try to keep them trimmed as best as possible. High winds could damage our power lines, but the power company is quick to fix any problems. We do have generators that keep our water treatment plant running, but there could always be a longer power outage in the future. Museum

Local Government	Local Vulnerability
	is surrounded by mature trees that could possibly fall in a very high wind. Although we do keep the trees trimmed around the buildings.
Town of Encampment	Wind has been known to damage roofs, down trees, and create moderate property damage. Sediment, branches in holding ponds, power grid arching and causing fire. Museum area impact, downed trees in park areas and on travelways.
Town of Hanna	All town structures would be vulnerable to a tornado and could be completely destroyed.
Town of Medicine Bow	Poor quality of housing. Difficulties to evacuate elderly. Club meeting place could be compromised. Damage to donated structures at park and bleaches.
Town of Riverside	Most structures are built to withstand the high wind. Loss of electricity and perhaps telephone/internet
Town of Saratoga	Strong winds are common across Carbon County but the occurrence of a strong tornado touching down in a populated area, such as Saratoga, is something the local Infrastructure, Buildings and Residents are not fully prepared for.
Town of Sinclair	Damage to Property and parks, damages to above ground infrastructure and systems is a concern.
SER (Saratoga-Encampment-Rawlins) Conservation District	Loss of access specifically to Seminoe State Park.
Medicine Bow Conservation District	Office, shop and equipment damage. Loss of network and phones. Loss of power. Physical injury to staff, cooperators.
Little Snake River Conservation District	Loss of access to critical areas.
Carbon County School District 2	A tornado could cause interruptions with student learning and physical danger to students and staff. The district is not prepared for a tornado. A tornado could cause damage to school buildings and daily routines and administration of the school district could be impacted. The school district network, phone systems, and transportation could be affected. The school district is not prepared for a tornado.

Local Government	Local Vulnerability
Carbon County Fire Protection District	All district structures and infrastructure are susceptible to damage from tornado.
Sierra Madre Water & Sewer Joint Powers Board	A tornado could result in loss of water to customers as the district is not prepared for a tornado. The water tank could get damaged therefore affecting water transmission and infrastructure. A tornado could result in loss of water to our customers as the district is not prepared for a tornado.

Future Trends in Development

It is crucial to consider the hazards posed by tornadoes, high wind, and wind deposits when making any future development and construction decisions, to ensure new construction does not increase the county's risk. **Table 65**. summarizes development trends in each jurisdiction.

Table 65 Local Government Development Trends – Tornado/High Wind/Windblown Deposits

Local Government	Development Trends
Carbon County	With an increase in population, Tornado Public Awareness would need to increase to help mitigate the potential vulnerabilities.
City of Rawlins	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
Town of Baggs	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
Town of Dixon	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
Town of Elk Mountain	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
Town of Encampment	Having population increase would increase risks for damage in wind events.
Town of Hanna	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
Town of Medicine Bow	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.

Local Government	Development Trends
Town of Riverside	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
Town of Saratoga	With an increase in population, Tornado Public Awareness would need to increase to help mitigate the potential vulnerabilities.
Town of Sinclair	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
SER (Saratoga-Encampment-Rawlins) Conservation District	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Medicine Bow Conservation District	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Little Snake River Conservation District	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Carbon County School District 2	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Carbon County Fire Protection District	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Sierra Madre Water & Sewer Joint Powers Board	No construction has recently occurred, or is expected, which would impact hazard vulnerability.

Probability of Future Occurrences

The NCEI database has recorded 18 tornado events in the 74 years between 1950 and 2024, meaning there is a 24% chance of a tornado event occurring somewhere in Carbon County each year. Of these reported tornado events, only 8 have resulted in injury to people and/or damage to property, therefore, there is an 11% annual chance that a notable tornado event will occur in the county.

There have also been 2,218 high wind events in the 28 years from 1996 to 2024, equating to a 100% chance of a wind event occurring in the county each year. Of these recorded events, only 1 has resulted in injury, which equates to a 4% annual chance that a notable wind event will occur in the county.

Wildfire

Previous Occurrences

The National Interagency Fire Center compiles wildfire data from various sources and presents the data in two formats: one as a geospatial dataset of historical wildfire perimeters (noted as blue events in **Table 66** below) and the other as a list of point locations with fire discovery and containment dates (noted as white events in the table). Together, this data provides a comprehensive list of wildfires in Carbon County from 1937 to 2021. The most recent data update occurred in 2022

to include wildfires from the 2021 season. The datasets report 585 wildfire events in Carbon County during the 84-year timeframe, with the most significant wildfire events (with daily burned acres equaling 100 or greater) summarized in **Table 66** below.

Table 66 Carbon County Wildfire Events (1937-2021)

Incident Name	Acres Burned	Fire Discovery	Fire Containment	Days Before Containment
Mullen	176,878	9/17/2020	12/3/2020	77
Beaver Creek	38,380	2016	-	-
Ryan	28,585	2018	-	-
Pedro Mountain	23,408	8/24/2019	9/11/2019	18
Rr 316 (Hanna Fire)	14,201	9/5/2020	9/9/2020	4
Bear	5,000	6/8/2021	-	-
Seminoe	3,516	2012	-	-
Ferris	2,639	2012	-	-
Snake	2,565	9/10/2016	-	-
Broadway	2,121	8/15/2016	-	-
Bradley	1,786	8/7/2020	8/16/2020	9
Battle Creek	1,422	1999	-	-
Bobcat Pass	1,339	9/8/2017	9/11/2017	3
Rock Creek	1,063	1955	-	-
Razor Fire	850	4/18/2015	-	-
Photo Lincoln	719	1937	-	-
Pipeline 1	668	5/3/2015	-	-
Blackhall	610	2000	-	-
Lincoln Creek	584.3	1955	-	-
Pass Creek	575	1969	-	-
Willow	566	2012	-	-
Bear Mountain South	505	2002	-	-
South Pennock	477	2011	-	-
Sunnyside	450	7/22/2014	7/24/2014	2
Barrett	447	1977	-	-
West Fork Road	398	3/28/2015	4/6/2015	9
Pass Creek	354	1969	-	-
N&S 130	315	5/20/2020	5/21/2020	1
Hell Canyon	257	2000	-	-
Bridger Canyon 2	250	7/9/2017	7/11/2017	2
McCarty	229	2010	-	-
North Porter	218	1995	-	-
Sixmile	200	2003	-	-
Unknown	200	8/19/2017	2/8/2018	173

Incident Name	Acres Burned	Fire Discovery	Fire Containment	Days Before Containment
Cardwell	186	2012	-	-
Iron Draw	175	2010	-	-
Kenny Creek	174	7/13/2020	-	-
Pass Creek	167	1969	-	-
250	162	8/3/2018	8/4/2018	1
Bradley Peak	150	8/7/2020	10/5/2020	59
Encampment River	140	8/20/2017	8/22/2017	2
Overlook	132	1988	-	-
Barry's Landing	130	7/11/2015	7/13/2015	2
Antone	125	7/28/2018	7/29/2018	1
East Cooney	125	6/29/2016	-	-
Water Canyon	107	8/2/2020	8/13/2020	11
White Tank	106	8/11/2020	8/12/2020	1
West Battle	101	1997	-	-
55	100	7/9/2017	12/5/2017	149

Source: National Interagency Fire Center

In addition to the fires reported by the NIFC, the planning team noted several details on wildfires that have occurred since the previous HMP in Carbon County:

- The **City of Rawlins Landfill Fire** occurred in November 2023, when a fire broke out at the landfill's construction and demolition area. Due to the large amount of potential fuel in the area, the landfill was closed for the remainder of the day.
- The **Rodeo Street Fire** burned 4.5 acres of outbuildings and trailers on July 6th, 2024, in the City of Rawlins. Fireworks were determined to be the cause of the fire, which first started as a woodland fire and then spread to a salvage yard. Local firefighting crews responded and contained the fire by the end of the day, using 40 firefighters and 17 firefighting apparatus. An image of this fire is shown in **Figure 30**.

Figure 30 Rodeo Street Fire - July 6, 2024

Source: Rawlins Times

Additionally, Carbon County has received two Fire Management Assistance (FMAG) Declarations for wildfires, as described in the Base HMP. Details on wildfires that warranted an FMAG declaration in Carbon County are detailed below:

2020 RR 316 Fire/Hanna Fire (FM-5347)

The RR 316 started on September 5th, 2020, and burned over 1,000 acres of private land and threatened 200 homes and structures around Hanna, Wyoming. The entire town of Hanna was evacuated, which proved to be challenging for the town, and Highway 72 was closed. The wildfire destroyed a fire engine and burned over the town's water treatment plant.

2020 Mullen Fire (FM-5375)

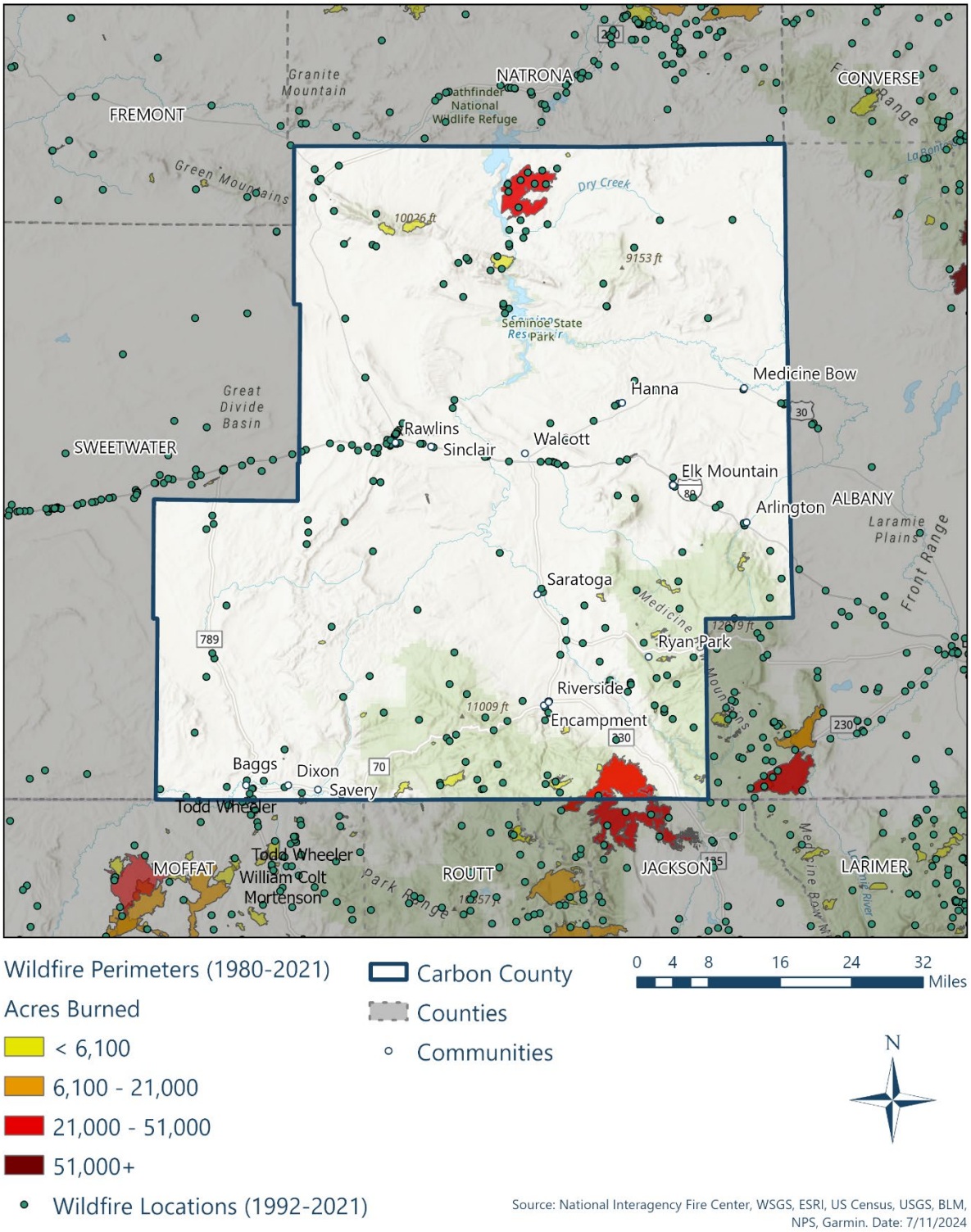
The Mullen Fire started on September 17th, 2020, in the Savage Run Wilderness in Carbon County and later spread to Albany County west of Laramie. By September 30th, the fire had spread into Jackson County, Colorado. In total, the fire burned 176,878 acres of land before it was contained on

January 4th, 2021, and 423 personnel responded to the event. While the fire is believed to be human-caused, details remain limited.

Location

The entirety of Carbon County is susceptible to wildfire, though certain areas are more at risk than others. Wyoming Region 3 has a semi-arid climate and is very rural in character, leading to a greater chance for wildland fires. Both Albany and Carbon counties have heavy fuel continuity across forested areas, coupled with a history of wind-driven fires. The National Forest lands experience frequent fires. **Figure 31** displays historic wildfire locations in Carbon County. It is important to note that only some wildfires have fire perimeter data and those without fire perimeter data are displayed as point locations on the map. The most severe wildfire events have occurred in the southeast portion of the county in the Medicine Bow National Forest and Blackhall Mountains, with additional pockets of wildfires in the Ferris Mountains, Seminoe Mountains, and Pedro Mountains in the northern portion of the County.

Figure 31 Carbon County Historic Wildfires



Wildfire intensity represents the amount of heat released by a fire or the total energy emitted by a fire. Wildfire intensity is calculated considering the types of fuel and their heat yield during combustion, density, and arrangement of fuel, and the linear rate of fire spread. **Figure 32** and **Figure**

33 display wildfire intensity in Carbon County. A majority of the county is in a moderate wildfire intensity area, with the highest wildfire intensity area located in the Medicine Bow Mountains and Blackhall Mountains in the southeastern portion of the county.

Figure 32 Carbon County Wildfire Intensity

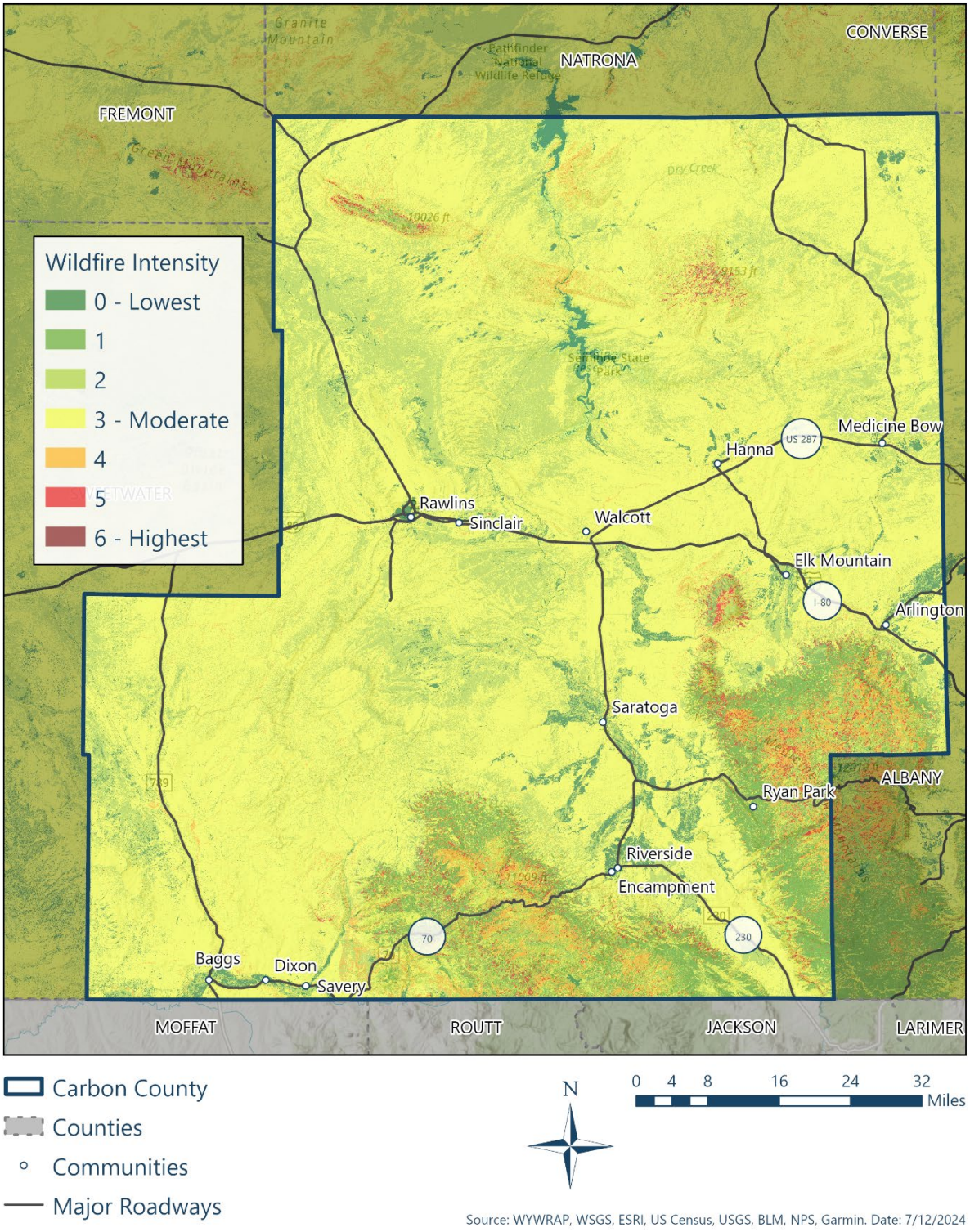
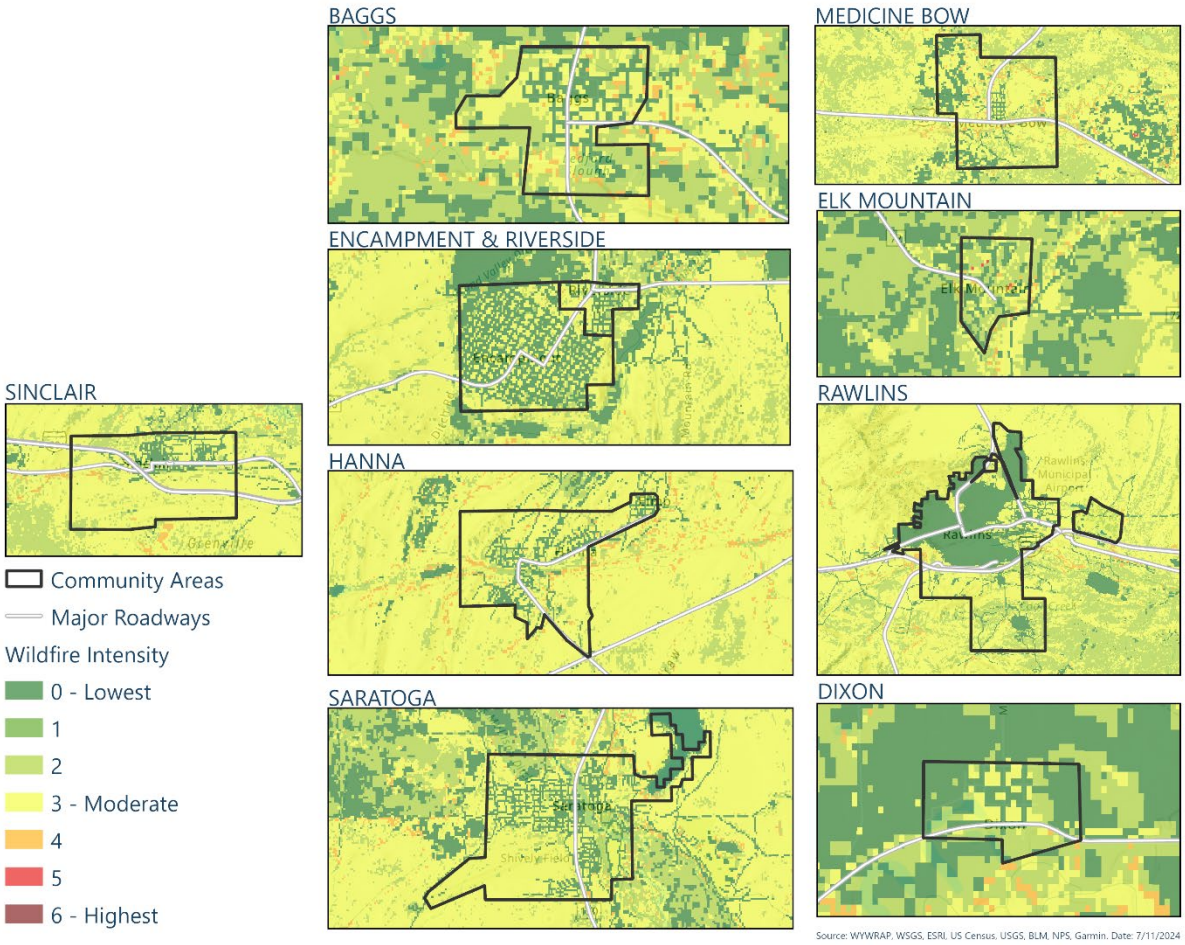


Figure 33 Carbon County Wildfire Intensity Inset Maps



Wildfire risk refers to the likelihood and intensity of a wildfire in combination with the vulnerability of that community. **Figure 34** and **Figure 35** show wildfire risk potential across Carbon County. Most of the county is in low- to moderate-risk areas, with pockets of highest risk around jurisdictions in the county and in the Ferris Mountains, Seminoe Mountains, and Pedro Mountains.

Figure 34 Carbon County Wildfire Risk

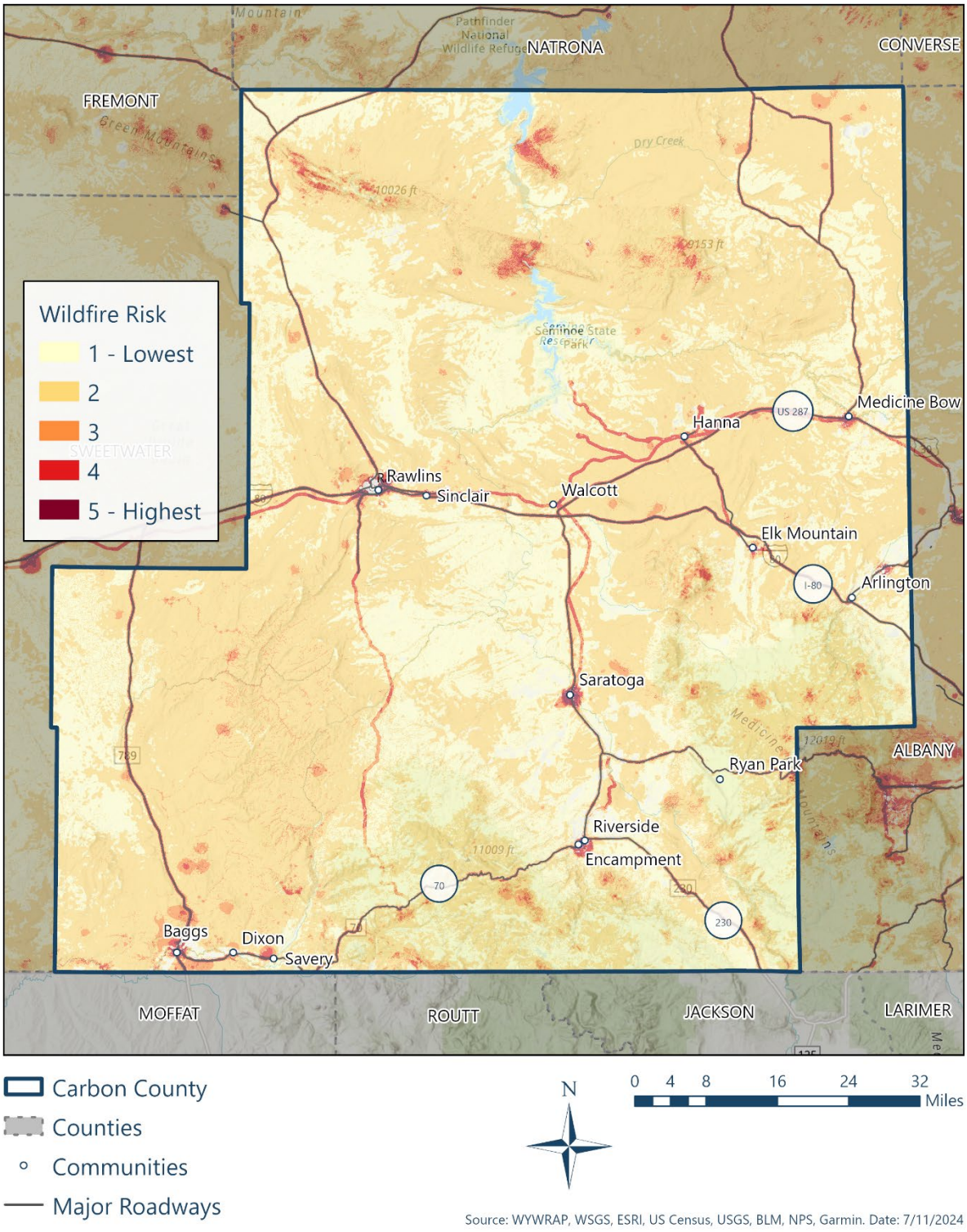
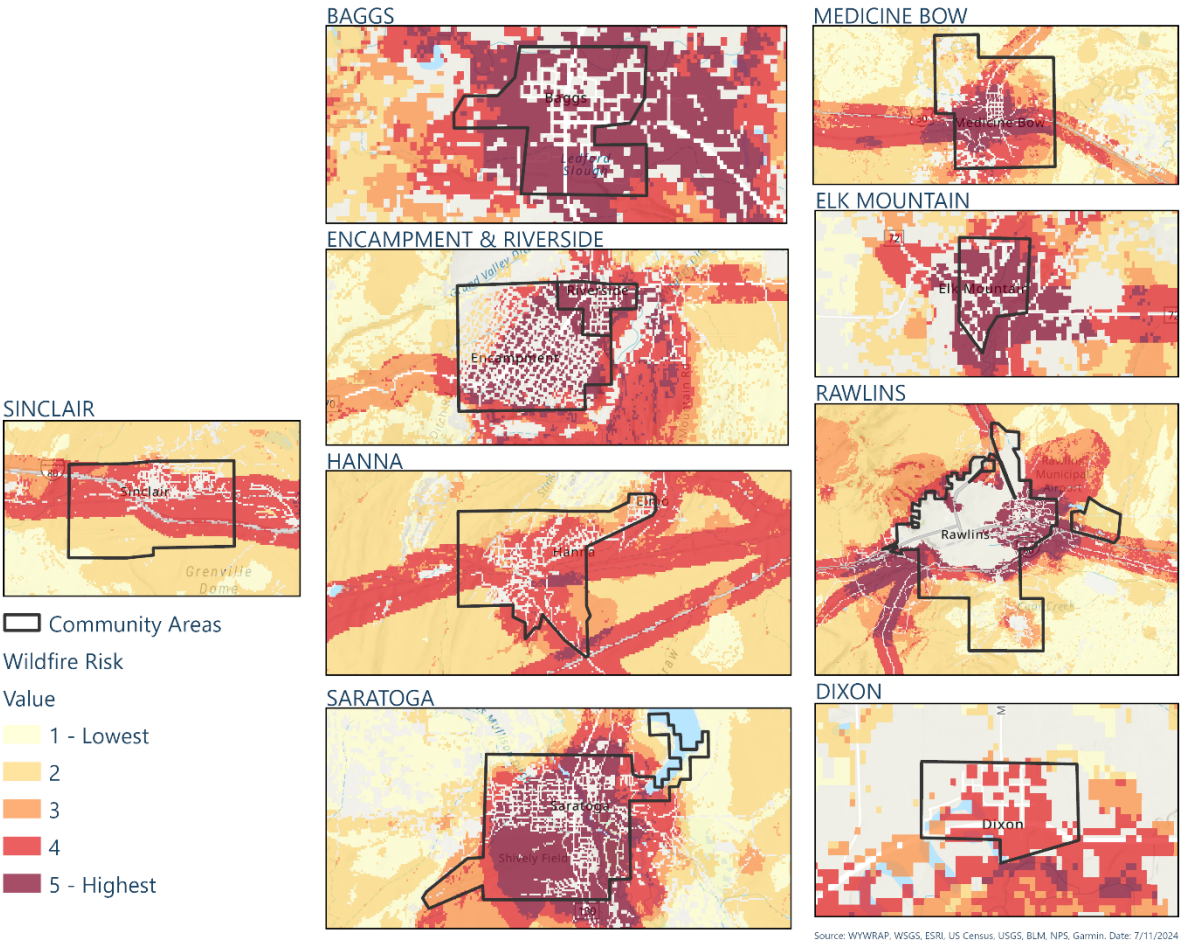


Figure 35 Carbon County Wildfire Risk Inset Maps



Additionally, there are several Wildland Urban Interface (WUI) areas in Carbon County where development is at higher risk of wildfire. **Figure 36** and **Figure 37** display the WUI areas for Carbon County. Many jurisdictions, including Baggs, Dixon, Elk Mountain, Encampment, Hanna, Medicine Bow, Rawlins, Saratoga, and Sinclair, have portions of the community in the highest negative impact WUI areas.

Figure 36 Carbon County Wildland Urban Interface (WUI)

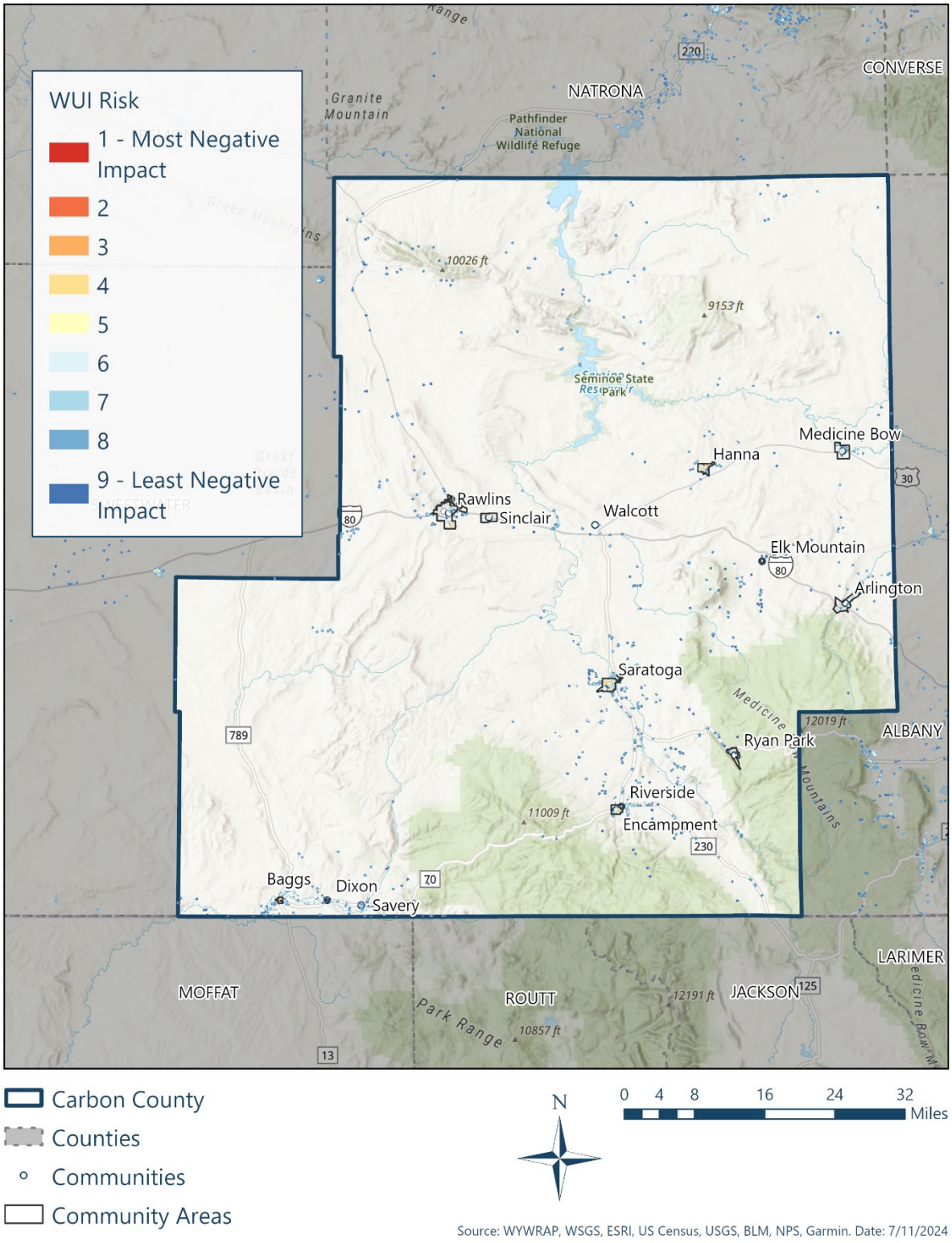
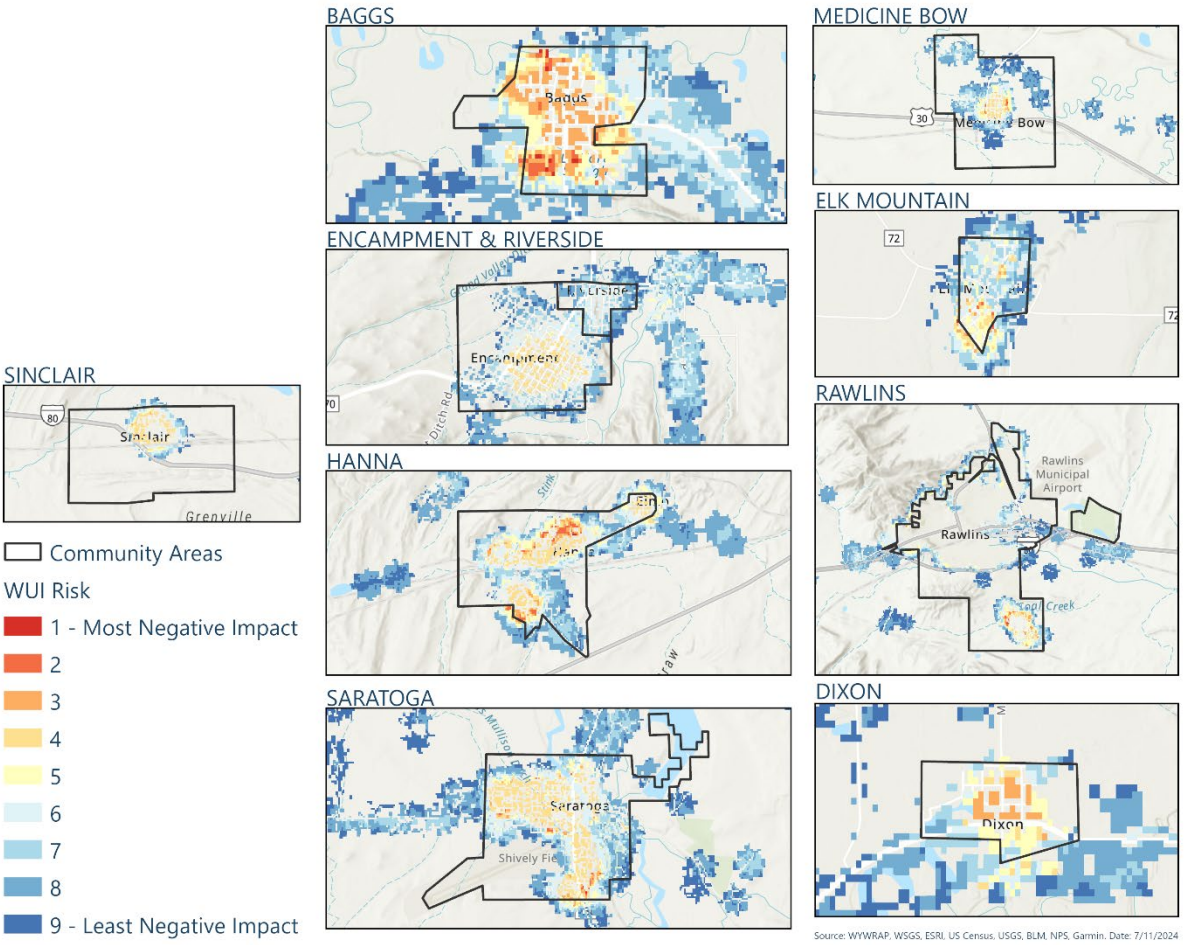


Figure 37 Carbon County Wildland Urban Interface (WUI) Inset Maps



Exposure and Vulnerability

Lifelines

All community Lifelines across Carbon County are vulnerable to the impacts of wildfire events. Each wildfire can tax countywide resources, impacting public safety and government services. Fires can create conditions that block or prevent ingress/egress and can isolate residents and emergency service providers.

Energy infrastructure can be impacted as power line poles made of wood are susceptible to burning. Pipelines carrying fuel can be damaged, potentially leading to a catastrophic explosion and interruption of resource delivery. Any Lifeline infrastructure with wood frame construction is especially vulnerable during wildfire events. Most roads and railroads would be without damage except in the worst scenarios, however, roads can be closed to the public for extended periods during a wildfire event. Health & Medical services, as well as Food, Water, & Shelter, may be impacted if there is a need to evacuate the public and citizens or first responders need medical care. Ash and contaminants produced during active burning can pollute waterways and water supplies can be impaired with increased erosion after a wildfire. **Table 67** displays Lifelines in areas identified as moderate to extreme risk of wildfire (classes three to five).

In addition to the Lifelines identified in the table below, 157.65 miles of natural gas pipeline, 98.76 miles of highway, 131.87 miles of railway, and 3.83 miles of airport runway are in wildfire risk areas across Carbon County. An incident that impacts any part of these Lifeline systems could have cascading effects on other locations in the county and region.

Table 67 Carbon County Lifelines Exposed to Moderate-Extreme Wildfire Risk

Jurisdiction	Communication	Energy	HazMat	Medical	Safety	Shelter	Transportation	Water	Total Count
Baggs	-	-	-	-	1	-	-	-	**1**
Dixon	-	-	-	-	-	-	-	-	**0**
Elk Mountain	-	-	-	-	-	-	-	-	**0**
Encampment	-	-	-	-	-	-	-	-	**0**
Hanna	-	-	-	-	1	1	3	-	**5**
Medicine Bow	-	-	-	-	-	-	-	-	**0**
Rawlins	-	-	-	-	1	-	1	-	**2**
Riverside	-	-	-	-	-	-	-	-	**0**
Saratoga	-	-	-	-	-	-	1	-	**1**
Sinclair	-	-	1	-	-	-	1	-	**2**
Unincorporated	1	-	-	-	2	-	90	3	**96**
Total Count	**1**	**0**	**1**	**0**	**5**	**1**	**96**	**3**	**107**

Source: FEMA's Hazus Inventory National Database

Additionally, **Table 68** summarizes Lifelines in areas of the wildland urban interface (WUI), where human development meets wildland vegetation. In addition to the Lifelines identified in the table below, 15.18 miles of natural gas pipeline, 13.23 miles of highway, 11.13 miles of railway, and 0.04 miles of airport runway are in WUI areas across Carbon County. An incident that impacts any part of these Lifeline systems could have cascading effects on other locations in the county and region.

Table 68 Carbon County Lifelines in the WUI

Jurisdiction	Communication	Energy	HazMat	Medical	Safety	Shelter	Transportation	Water	Total Count
Baggs	-	-	-	-	2	-	-	-	**2**
Dixon	-	-	-	-	-	-	-	-	**0**
Elk Mountain	-	-	-	-	1	1	1	-	**3**
Encampment	-	-	-	-	-	-	-	-	**0**
Hanna	-	-	-	-	-	1	-	-	**1**
Medicine Bow	-	-	-	-	1	-	-	-	**1**

Jurisdiction	Communication	Energy	HazMat	Medical	Safety	Shelter	Transportation	Water	Total Count
Rawlins	-	-	-	-	-	-	-	-	**0**
Riverside	-	-	-	-	-	-	-	-	**0**
Saratoga	-	-	-	-	-	-	-	-	**0**
Sinclair	-	-	-	-	1	-	-	-	**1**
Unincorporated	-	-	-	-	1	-	19	-	**20**
Total Count	**0**	**0**	**0**	**0**	**6**	**2**	**20**	**0**	**28**

Source: FEMA's Hazus Inventory National Database

In Carbon County, the greatest number of Lifeline structures exposed to wildfire are Transportation; however, critical infrastructure in most other Lifeline categories exists within wildfire-risk areas.

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

People

Smoke and air pollution from wildfires can be a severe health hazard, especially for sensitive populations, including children, the elderly, and those with respiratory and cardiovascular diseases. Smoke generated by wildfire consists of visible and invisible emissions that contain particulate matter (soot, tar, water vapor, and minerals), gases (carbon monoxide, carbon dioxide, nitrogen oxides), and toxins (formaldehyde, benzene). Emissions from wildfires depend on the type of fuel, the moisture content of the fuel, the efficiency (or temperature) of combustion, and the weather. Public health impacts associated with wildfire include difficulty in breathing, odor, and reduction in visibility.

Wildfires may also threaten the health and safety of those fighting them. First responders are exposed to the dangers of the initial incident and the after-effects of smoke inhalation and heat stroke.

Populations identified as vulnerable or under-resourced are more likely to experience losses from hazard events and face barriers in recovery. These populations may also experience difficulties evacuating during a wildfire event. See **Table 2** for more information on demographic factors that contribute to vulnerability in Carbon County.

Structures

All current and future buildings in Carbon County should be considered at risk of wildfire. However, some communities are at higher risk due to their location in the WUI or proximity to areas with high wildfire potential.

Table 69 summarizes the building exposure to wildfire risk by jurisdiction. The data classifies wildfire risk ranging from one to five, with five equating to the most statewide risk. For this analysis, only classes three to five were used (moderate to extreme wildfire risk). Within each jurisdiction,

residential properties comprise most buildings exposed to moderate-extreme wildfire risk. The total value of properties exposed to wildfire risk is over $686.5 million, with $535.3 million in estimated building content value. While this analysis attempts to quantify those structures at most risk across the county, it should be noted that all property is potentially vulnerable to wildfire.

Table 69 Carbon County Structures Exposed to Moderate-Extreme Wildfire Risk

Municipality	Structure Type	Total Structure Count	Total Structure Value	Estimated Content Value
Baggs	**Total**	**119**	**$37,889,629.84**	**$35,916,426.44**
	Commercial	20	$13,383,871.39	$13,065,545.01
	Industrial	9	$10,373,847.47	$15,522,441.98
	Public	2	$524,967.91	$524,967.91
	Residential	88	$13,606,943.07	$6,803,471.54
Dixon	**Total**	**28**	**$6,353,930.75**	**$3,945,895.91**
	Commercial	3	$2,687,124.33	$2,112,492.70
	Residential	25	$3,666,806.42	$1,833,403.21
Elk Mountain	**Total**	**73**	**$17,374,278.65**	**$13,415,829.14**
	Commercial	5	$2,263,350.18	$1,618,166.75
	Industrial	1	$3,095,507.82	$4,643,261.74
	Public	2	$1,876,229.01	$2,084,804.83
	Residential	65	$10,139,191.64	$5,069,595.82
Encampment	**Total**	**163**	**$37,635,213.14**	**$24,761,857.23**
	Commercial	16	$6,449,677.68	$6,292,968.88
	Industrial	3	$1,488,683.86	$1,594,214.70
	Public	3	$4,052,495.68	$4,052,495.68
	Residential	141	$25,644,355.93	$12,822,177.97
Hanna	**Total**	**273**	**$44,578,404.22**	**$27,545,562.79**
	Commercial	19	$8,090,249.05	$8,090,249.05
	Industrial	1	$608,382.03	$912,573.04
	Public	3	$1,205,708.21	$1,205,708.21
	Residential	250	$34,674,064.94	$17,337,032.49
Medicine Bow	**Total**	**139**	**$33,081,442.98**	**$22,793,538.43**
	Commercial	14	$12,657,920.19	$10,567,116.87
	Industrial	2	$1,371,535.47	$2,057,303.21
	Public	2	$1,286,249.38	$1,286,249.38
	Residential	121	$17,765,737.94	$8,882,868.98
Rawlins	**Total**	**136**	**$99,342,966.98**	**$85,300,469.01**

Municipality	Structure Type	Total Structure Count	Total Structure Value	Estimated Content Value
	Commercial	57	$68,345,105.82	$57,004,742.73
	Industrial	19	$11,787,845.75	$15,787,942.42
	Public	4	$5,805,552.32	$5,805,552.32
	Residential	56	$13,404,463.09	$6,702,231.54
Riverside	**Total**	**31**	**$9,261,687.46**	**$7,536,992.64**
	Commercial	2	$2,298,756.66	$2,298,756.66
	Industrial	1	$429,312.57	$429,312.57
	Public	1	$3,084,228.59	$3,084,228.59
	Residential	27	$3,449,389.65	$1,724,694.83
Saratoga	**Total**	**528**	**$145,142,166.00**	**$117,507,602.40**
	Commercial	71	$61,203,992.25	$66,526,458.20
	Industrial	7	$6,517,278.88	$9,380,522.63
	Public	5	$3,161,833.55	$4,471,090.83
	Residential	445	$74,259,061.35	$37,129,530.70
Sinclair*	**Total***	**34***	**$7,801,603.98***	**$5,353,949.92***
	Commercial	2	$622,633.41	$622,633.41
	Public	3	$2,283,662.44	$2,283,662.44
	Residential	29	$4,895,308.14	$2,447,654.07
Unincorporated	**Total**	**792**	**$248,135,210.82**	**$191,225,750.04**
	Commercial	139	$112,774,467.99	$108,767,379.24
	Industrial	13	$13,085,162.33	$19,323,982.83
	Public	6	$3,993,195.41	$3,993,195.41
	Residential	634	$118,282,385.09	$59,141,192.56
Grand Total		**2,316**	**$686,596,534.80**	**$535,303,873.90**

Source: US Army Corps of Engineers National Structure Inventory (NSI)

*Actual structure value and total content value at risk are likely much greater than the estimates presented in this table as the full value of the Sinclair Refinery is not in the NSI baseline data

Structures in the WUI are at greater risk from wildfires. This area is where human development meets undeveloped wildland vegetation. Proximity to fuels, access challenges, and increased human activity in these areas contribute to its increased risk. **Table 70** summarizes the building exposure in the WUI by jurisdiction. The total value of properties exposed in the WUI is over $653.9 million, with over $492.9 million in estimated building content value.

Table 70 Carbon County Structures in the WUI

Municipality	Structure Type	Total Structure Count	Total Structure Value	Estimated Content Value
Baggs	**Total**	**126**	**$41,127,547.34**	**$34,541,354.01**
	Commercial	20	$17,536,115.99	$14,636,429.26
	Industrial	6	$7,720,969.04	$11,543,124.34
	Public	4	$728,600.52	$790,869.51
	Residential	96	$15,141,861.79	$7,570,930.90
Dixon	**Total**	**28**	**$3,800,248.67**	**$1,900,124.34**
	Residential	28	$3,800,248.67	$1,900,124.34
Elk Mountain	**Total**	**78**	**$17,074,549.42**	**$13,334,895.41**
	Commercial	9	$3,606,711.28	$2,961,527.85
	Industrial	2	$3,222,296.84	$4,833,445.27
	Public	1	$417,151.64	$625,727.46
	Residential	66	$9,828,389.66	$4,914,194.83
Encampment	**Total**	**143**	**$35,839,783.14**	**$22,824,132.40**
	Commercial	10	$4,969,101.96	$4,969,101.96
	Industrial	4	$1,403,246.22	$1,466,058.25
	Public	2	$3,310,509.41	$3,310,509.41
	Residential	127	$26,156,925.55	$13,078,462.78
Hanna	**Total**	**295**	**$49,039,023.55**	**$30,922,555.70**
	Commercial	22	$10,343,213.13	$10,343,213.13
	Industrial	2	$648,784.45	$952,975.46
	Public	3	$1,205,708.21	$1,205,708.21
	Residential	268	$36,841,317.77	$18,420,658.91
Medicine Bow	**Total**	**145**	**$39,771,179.03**	**$29,028,129.08**
	Commercial	18	$15,504,179.86	$12,048,961.91
	Industrial	2	$4,177,281.39	$6,265,922.09
	Public	3	$1,336,772.38	$1,336,772.38
	Residential	122	$18,752,945.40	$9,376,472.71
Rawlins	**Total**	**73**	**$54,667,042.09**	**$46,741,468.26**
	Commercial	28	$38,787,502.58	$32,275,488.68
	Industrial	10	$6,707,088.36	$9,879,754.00
	Residential	35	$9,172,451.16	$4,586,225.58
Riverside	**Total**	**30**	**$10,107,996.02**	**$8,241,885.43**

Municipality	Structure Type	Total Structure Count	Total Structure Value	Estimated Content Value
	Commercial	3	$2,862,233.67	$2,862,233.67
	Industrial	1	$429,312.57	$429,312.57
	Public	1	$3,084,228.59	$3,084,228.59
	Residential	25	$3,732,221.19	$1,866,110.60
Saratoga	**Total**	**496**	**$147,482,133.30**	**$116,927,025.40**
	Commercial	71	$71,168,270.38	$75,380,871.97
	Industrial	7	$2,965,797.21	$4,158,941.26
	Public	5	$1,426,358.67	$1,426,358.67
	Residential	413	$71,921,707.05	$35,960,853.54
Sinclair*	**Total***	**33***	**$7,531,724.32***	**$5,219,010.08***
	Commercial	2	$622,633.41	$622,633.41
	Public	3	$2,283,662.44	$2,283,662.44
	Residential	28	$4,625,428.47	$2,312,714.24
Unincorporated	**Total**	**850**	**$247,503,601.15**	**$183,226,796.95**
	Commercial	150	$103,942,182.90	$101,280,910.65
	Industrial	12	$9,679,087.12	$13,829,266.93
	Public	6	$2,350,907.67	$2,350,907.67
	Residential	682	$131,531,423.46	$65,765,711.70
Grand Total		**2,297**	**$653,944,828.00**	**$492,907,377.10**

Source: US Army Corps of Engineers National Structure Inventory (NSI)

*Actual structure value and total content value at risk are likely much greater than the estimates presented in this table as the full value of the Sinclair Refinery is not in the NSI baseline data

Natural, Historic, and Cultural Resources

Wildfire is a natural and critical ecosystem process in most terrestrial ecosystems, dictating in part the types, structure, and spatial extent of native vegetation. However, wildfires can cause severe environmental impacts. After a wildfire, the protective covering provided by foliage and dead organic matter is removed, leaving the soil fully exposed to wind and water erosion. Accelerated soil erosion can occur, causing landslides and threatening aquatic habitats. Additionally, topsoil exposed to extreme heat can become water-repellant, and soil nutrients may be lost. Ecosystems can take decades or even centuries to recover from a fire. Some fires burn so hot they can sterilize the soil.

Non-native woody plant species frequently invade burned areas. When weeds become established, they can dominate the plant cover over broad landscapes, and become difficult and costly to control. This can result in invasive plant species dominating the local species. Additionally, disease and insect infestations can occur in areas affected by wildfires. Unless diseased or insect-infested trees are swiftly removed, infestations and disease can spread to healthy forests and private lands. Timely active management actions are needed to remove diseased or infested trees.

Catastrophic fires can have devastating consequences for endangered species. If a wildfire results in habitat fragmentation, these species can be isolated into patches and have difficulty finding resources and mates. Additionally, a damaged habitat for these already vulnerable species can result in immediate population declines or localized extinction.

Natural and historic resources were identified in Carbon County to ensure these assets are considered and protected. See **Table 4** for a list of endangered and threatened species and **Table 5** for a list of historic places in Carbon County.

Local Vulnerability

In addition to the general impacts that winter storms can have on Lifelines, people, structures, and cultural resources in Carbon County, representatives of each participating jurisdiction identified unique local vulnerabilities that these hazards present to their community, summarized in **Table 71.**

Table 71 Local Government Vulnerability to Wildfire

Local Government	Local Vulnerability
Carbon County	Wildfires occurring in the high desert surrounding municipalities have a strong likelihood of spreading to structures within these municipalities causing potential evacuations and destruction of homes and businesses. potential damage to critical infrastructures, including water systems and wastewater facilities. Wildfires occurring in Carbon County dispatch the personnel from the volunteer Fire Departments located in our municipalities, for initial fire attack and suppression, potentially causing an interruption in local activities. The LPT also noted that Ryan Park is at high risk of wildfire. Other areas of the county in areas of concern for wildfire include the Mountain subdivision in unincorporated Carbon County and the Cassidy River Ranch PUD.
City of Rawlins	The areas at most risk are the homes on the parameter of the urban areas. Interstate 80 has been closed in the summertime as the result of wildfire. One area the city is at significant risk of damage resulting from wildfire is the area surrounding the source water in Sage Creek basin. Ash resulting from the fires is likely to pollute the water supply. Water infrastructure south of Rawlins. Regional wildfires have created enough smoke that it places citizens with respiratory issues at risk.
Town of Baggs	Evacuation of the elderly, water plant, fire department, EMS, comms, damage to museums.
Town of Dixon	Risk of losing homes, critical infrastructure, comms systems, historical sites, and recreational activities.
Town of Elk Mountain	Wildfire is always a possibility since we live close to trees and the National Forest. These could destroy homes and lives in the town.

Local Government	Local Vulnerability
	All of our structures are vulnerable to wildfire with our location to the National Forest and many mature trees. Our water and wastewater systems are vulnerable to wildfire due to the location of the National Forest. We have historical sites and a museum that are vulnerable to wildfire due to the location of the National Forest.
Town of Encampment	Wildland Fire poses a significant threat if in our watershed as out municipal water source is surface water. A fire in our watershed would be catastrophic Structures including homes, various public buildings, Water plant, sewer lagoons and buildings, Town Shop, Fire Hall. Water plant vulnerable due to ash settlement in holding pond, cell tower damage could knock out communications, Sewer lagoon and infrastructure also at risk for ash settlement, bio hazardous failure. We have constructed and implemented an Emergency Water Connection between the Towns of Encampment and Riverside should either system become damaged in order to have short term supply under terms negotiated by elected officials. This may not have been noted in earlier documents ~~ In addition to residences we have a museum with a large number of out buildings full of artifacts. We are a community with many outdoor events, and award-winning museum and Opera House that are draws to the community.
Town of Hanna	Wildfires occurring in the high dessert have a strong likelihood of spreading to structures within Town causing potential evacuations to some or all of the town and potential loss of structures.
Town of Medicine Bow	Loss of property. Loss of emergency response. Sewer Lagoon lift station. Water infrastructure along transmission line. Town bordered by open native vegetation. Museum is at risk near grasses.
Town of Riverside	Everything above ground level can be potentially impacted.
Town of Saratoga	Wildfires occurring in the high desert surrounding Saratoga have a strong likelihood of spreading to structures within the town causing potential evacuations. Wildfires occurring in and near Saratoga dispatch the personnel from the volunteer Fire Departments located in our town, for initial fire attack and suppression, potentially causing an interruption in local activities.
Town of Sinclair	Homes and buildings destroyed and no shelter for displaced residents Would effect all aspects. The Sinclair oil refinery in the Town of Sinclair is vulnerable to explosions, hazardous material spills, and disruptions in energy production in the event of a wildfire.

Local Government	Local Vulnerability
SER (Saratoga-Encampment-Rawlins) Conservation District	Air quality. Loss of marketable timber for the saw mill. Municipal water supplies. Communication equipment.
Medicine Bow Conservation District	Office, shop and equipment damage/loss. Air quality impacting using of facilities. Loss of network and phones. Loss of Power.
Little Snake River Conservation District	Air quality concerns. Municipal water supplies. Communication equipment.
Carbon County School District 2	A wildfire could cause smoke evacuations in district school buildings. Education of students and sports activities could be disrupted.
Carbon County Fire Protection District	Critical infrastructure could be impacted affecting power and communications. Response could be impacted.
Sierra Madre Water & Sewer Joint Powers Board	A wildfire could cause smoke evacuations and potentially add burden to the district's water supply if the Town of Encampment's surface water became contaminated and the district's aquifer was needed to supply the Town of Encampment with water through the interconnect. The district's water system infrastructure could face much higher demand than normal.

Future Trends in Development

It is crucial to consider the hazards posed by winter storms when making any future development and construction decisions, to ensure new construction does not increase the county's risk. **Table 72** summarizes development trends in each jurisdiction.

Table 72 Local Government Development Trends - Wildfire

Local Government	Development Trends
Carbon County	With an increase in population, Wildfire Awareness, including creating defensible space, would need to increase to help mitigate the potential vulnerabilities.
City of Rawlins	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
Town of Baggs	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
Town of Dixon	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
Town of Elk Mountain	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
Town of Encampment	Increased population means more individuals using private land and public lands in the area. Not all that move in are aware of the

Local Government	Development Trends
	catastrophic risk of wildland fire. Some do not value the preservation of local traditions and historical land use.
Town of Hanna	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
Town of Medicine Bow	Increase in aging community increases vulnerability and people who have access needs. Future development would increase WUI and human activity near grasslands. Evacuations could be more difficult.
Town of Riverside	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
Town of Saratoga	With an increase in population, Wildfire Awareness, including creating defensible space, would need to increase to help mitigate the potential vulnerabilities.
Town of Sinclair	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
SER (Saratoga-Encampment-Rawlins) Conservation District	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Medicine Bow Conservation District	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Little Snake River Conservation District	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Carbon County School District 2	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Carbon County Fire Protection District	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Sierra Madre Water & Sewer Joint Powers Board	No construction has recently occurred, or is expected, which would impact hazard vulnerability.

Probability of Future Occurrences

The National Interagency Fire Center reports 585 wildfire events in Carbon County from 1937 to 2021. Based on these 84 years of data, Carbon County is 100% likely to experience a wildfire event of any severity each year.

From 2002 to 2024, Carbon County has received two Fire Management Assistance (FMAG) Declarations for wildfires, indicating a 9% likelihood of experiencing a severe wildfire in any given year.

Winter Storm

Previous Occurrences

Since 1996, the NCEI database has recorded 1,741 winter storm-related events in Carbon County. In total, these events resulted in 2 *direct* deaths and 1 injury. Additionally, 4 *indirect* deaths and 44

injuries were reported due to winter storms in Carbon County. It is important to note that these dollars are not adjusted to 2024 values, and reported losses are likely lower than actual losses due to data limitations, insurance coverage gaps, and because the NCEI database focuses on major events. A summary of these events is outlined in **Table 73.**

Table 73 Carbon County Summary of Winter Storm Events

Hazard	Total # of Events	# Days with Events	Deaths	Injuries	Damages
Blizzard	44	25	0	1	$0
Cold/Wind Chill	5	2	0	0	$0
Extreme Cold/Wind Chill	76	31	0	0	$0
Heavy Snow	375	119	2	0	$0
Winter Storm	794	132	0	0	$0
Winter Weather	447	115	0	0	$0
Total	**1,741**	**374**	**2**	**1**	**$0**

Source: Storm Events Database | National Centers for Environmental Information (noaa.gov)

Of these 1,741 recorded winter storm events, 3 resulted in direct losses and 4 caused indirect losses. These events are detailed below:

- **March 13, 2019, in Central Carbon County:** A fatal crash occurred during a blizzard when two semi-trailers crashed into a previous accident still on the road. One of the drivers from the first collision was outside his vehicle when the second accident occurred and succumbed to his injuries on the scene.
- **October 19, 2019, in Sierra Madre Range:** A hunter went missing during a snowstorm with a reported 16.5 inches of snow. After a week of search and rescue efforts, the County Sheriff's Office presumed the man's death due to winter elements and freezing temperatures.
- **November 20, 2019, in North Snowy Range Foothills:** A single-vehicle roll-over incident occurred due to icy road conditions. The driver was not wearing their seatbelt and succumbed to their injuries on the scene.
- **November 24, 2019, in Southwest Carbon County:** A man crashed his vehicle on the highway during heavy snowfall. The vehicle caught fire, and the driver became lost after walking away from the scene. Responders were unable to locate him due to inclement winter weather. He was found deceased the next day.
- **October 22, 2020, in Shirley Basin:** Snowfall and freezing rain resulted in dangerous road conditions. Two vehicles collided, 4 were injured, and 1 death occurred.
- **January 28, 2023, in North Snowy Range Foothills:** A total of 44 vehicles were involved in a pile-up after over 25 inches of snowfall accumulated on Interstate 80. In total, 40 injuries were reported and 1 death.

- **February 22, 2023, in Central Carbon County:** Heavy snow and wind gusts led several motorists stranded on the highway. Search and rescue efforts were conducted, and one direct and one indirect injury were reported.

Location

Winter storms are a yearly feature of the Wyoming climate and may occur anywhere in the state. Generally, severe winter storm events are considered regional, implying that the storms impact multiple counties simultaneously, often for extended periods. It is possible for the geographic extent of the hazard to vary significantly within a single county. A regional storm may directly impact only a small portion of the planning area while still extending over a large portion of the surrounding area. However, even in these instances, the impacts and effects of a regional hazard are still felt elsewhere within the planning area. All of Carbon County is subject to the winter storm hazard.

Exposure and Vulnerability

Lifelines

All community Lifelines are vulnerable to the impacts of severe winter weather. Severe winds, downed trees, and ice accumulation can seriously impact Energy and Communications infrastructure, including power lines and above-ground communication lines. Transportation Lifeline failures, due to loss and interruption of roadway capacity, are a secondary hazard often most associated with severe winter weather. The closure of Interstate 80 during winter storms can significantly impact the economy, both locally and nationally. These road closures can limit residents' ability to seek health and medical care and increase response time for first responders. Distribution in transportation can delay food deliveries, leading to shortages in stores and food banks. Snow and ice on roads can delay or disrupt the safe transportation of hazardous materials and increase the risk of a spill or accident. Electrical outages are also prevalent during winter snowstorms and blizzards, limiting or eliminating household heating and cooking capability. Extreme cold temperatures can freeze water pipes, sometimes causing them to rupture or break.

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

People

The populations most likely to suffer the negative effects of severe winter weather events are motorists who may be stranded, those participating in outdoor recreation activities, and those with access and functional needs (AFN). The elderly are more susceptible to cold-related illnesses like hypothermia and frostbite. They are also more likely to have chronic health conditions that severe winter storm events or power outages can exacerbate.

Low-income residents and those living below the poverty line are susceptible to the impacts of severe winter weather. For these community members, heating in extremely cold temperatures can be financially inaccessible. Using fuel-burning heaters indoors poses the potential for poisoning and asphyxiation. Additionally, residents may be unable to remain at home during extreme winter weather and can place themselves in danger when traveling in dangerous road conditions.

Rural areas tend to be more susceptible to power outages in winter storms, and power outages in rural areas tend to be longer than those in more populated areas. Rural locations are more likely to have livestock and farming economic factors, which winter weather can significantly impact. Blizzards and winter storms have resulted in livestock deaths and livestock rescue efforts.

Preparation for winter storms is needed to ensure successful weathering of the situation. Some winter storm preparations to be considered by residents include creating and maintaining adequate water and food within a 72-hour kit both in vehicles and at home, backup power generation capabilities, and backup household heating options. Winter storms are best weathered by sheltering in place during the storm, and attempting to go out only after the storm has ended.

See **Table 2** for more information on demographic factors that contribute to vulnerability in Carbon County.

Structures

All buildings in the county are exposed to severe winter weather, but structures in poor condition or in particularly vulnerable locations (located on hilltops or exposed open areas) may risk the most damage. Those located under or near overhead lines or large trees may be vulnerable to falling ice or damaged in the event of a tree or limb collapse. Buildings with flat roofs or poor drainage will likely experience greater snow accumulation, which can threaten the structure's integrity. The frequency and degree of damage will depend on specific locations.

Natural, Historic, and Cultural Resources

Natural habitats risk major damage and destruction from severe winter weather. Heavy snowfall and high winds can collapse trees. Freezing temperatures can kill crops, vegetation, and animals. Mass die-offs of wildlife are possible as snow covers vegetation and freezes as temperatures drop. These events alter the ecosystem and hunting quotas in the following season. Livestock are also vulnerable to severe winter weather without proper shelter.

Natural and historic resources were identified in Carbon County to ensure these assets are considered and protected. See **Table 4** for a list of endangered and threatened species and **Table 5** for a list of historic places in Carbon County.

Local Vulnerability

In addition to the general impacts that winter storms can have on Lifelines, people, structures, and cultural resources in Carbon County, representatives of each participating jurisdiction identified unique local vulnerabilities that these hazards present to their community, summarized in **Table 74**.

Table 74 Local Government Vulnerability to Winter Storm

Local Government	Local Vulnerability
Carbon County	Carbon County has and will continue to experience severe winter storms that can damage trees, close roads, impact the Communication Lifeline and the Energy (Power Grid) Lifeline and can last days to weeks. Residents can be stranded in their homes for long duration, and without adequate heat or power can require

Local Government	Local Vulnerability
	rescue from our Emergency Responders. Dispatch Centers have back-up generators, but when severe winter storms are prolonged, these Critical Infrastructure can be negatively impacted and potentially fail. During prolonged and severe winter storms, roads and travel can be cutoff, closing activities including those that are winter related.
City of Rawlins	The city has identified many parts of the city that is vulnerable to drifting of snow. These are required plowing several times a day to ensure passage. Accessibility to South Rawlins is a significant concern. There are two main access points to the south side. If there are blocked as a result of snow emergency services would have a hard time providing services. The city may have accessibility issues to facilities or infrastructure. Prior snowstorms have limited emergency services to certain neighborhoods. City services would limited as the result of limited access to networks and capabilities as the result of a severe winter storm. The main risk in natural and cultural resources are the result of limited accessibility. Interrupted services is also a risk.
Town of Baggs	Lodging for stranded motorists, finding people who are stranded outside of town, water plant, EMS, getting to people and transporting to Craig, CO or Rawlins, WY to get food and fuel.
Town of Dixon	Risk to vulnerable populations. Risk of power outage. Risk of loss of communications.
Town of Elk Mountain	We are vulnerable to winter storms that could affect electricity and the roads can close keeping people from getting food and supplies. Many of our older buildings are vulnerable to winter storms. The buildings can suffer frozen and burst pipes and roofs could collapse from heavy snows. Our water and wastewater systems can always suffer from frozen pipes if the winter storm temperatures reach hazardous levels.
Town of Encampment	Prolonged storms and long-term power outage or subzero temperatures could affect operations of water and sewer facilities as well as isolate the town with road closures. Ability to have power for our senior center and safe travel for supply and emergency services, delivery of meals is critical. Winter storms are great for our winter carnival event, but can also be a risk for tourists traveling to communities and snow machine groups that are based out of Encampment. Inability for people to access the area, or food to be transported in should a long-term closure occurs could be of concern, outlying areas subject to extreme restrictions, seasonal closure and avalanche.

Local Government	Local Vulnerability
Town of Hanna	Town of Hanna has and will continue to experience severe winter storms that can damage trees, close roads, impact the Communication lifeline, and the energy grid and last for days to weeks. Residents could be stranded in their homes with no heat or power, and could require rescue in some instances. Outside resources could be necessary if our local Emergency Services can-not be rendered.
Town of Medicine Bow	No back up generators, lack of power could be detrimental to low and fixed incomes, as well as the elderly. Isolation. Extended power outages can cause damage Inability to visit food pantries. Town function and meetings canceled.
Town of Riverside	High probability of failure of the electrical system and perhaps telephone/internet. Temporary canceling of planned events due to road conditions.
Town of Saratoga	Saratoga has and will continue to experience severe winter storms that can damage trees, close roads, impact the Communication Lifeline and the Energy (Power Grid) Lifeline and can last days to weeks. Residents can be stranded in their homes for long duration, and without adequate heat, power, or food can require Rescue from our Emergency Responders.
Town of Sinclair	Due to our location resources such as food and fuel deliveries could be delayed. A power outage during a winter storm would be an issue for people without a backup heat source. Inability for residence to travel to access critical services. Power outage would affect people without secondary heat source. No local shelter capability. Damage to above ground infrastructure. Damage due to frozen waterlines inside structures. Inability to repair them due to access caused by large amounts of drifted snow and the possibility of no heat source in those structures. Damage due to frozen water lines in structure. No access due to storm related damage
SER (Saratoga-Encampment-Rawlins) Conservation District	Supply lines (I-80) close often during winter storms. Loss of access to communication equipment. Loss of electrical power.
Medicine Bow Conservation District	Loss of access to food, supplies, hospital and other emergency providers. Safety risk to employees. Loss of Power and communication.
Little Snake River Conservation District	Supply lines (I-80) close often during winter storms. Loss of access to communication equipment. Loss of electrical power.
Carbon County School District 2	The school district is prepared for winter storms but extended storms or cold could cause interruptions in the ability of the district

Local Government	Local Vulnerability
	to educate students. Snow load could affect buildings and extended freezing temperatures could affect the power grid and water lines. Snow depth could interrupt transportation for students and staff.
Carbon County Fire Protection District	Communications infrastructure may experience failures. Power outages may affect networks and capabilities by limiting information from reaching affected populations.
Sierra Madre Water & Sewer Joint Powers Board	Water system customers are prepared for most winter storms but extended storms or cold could cause loss of water service. Snow load could affect water district buildings and limit operator ability to get to critical infrastructure. Extended freezing temperatures could affect the power grid, water tank and supply lines. Extended freezing temperatures could affect the power grid.

Future Trends in Development

It is crucial to consider the hazards posed by winter storms when making any future development and construction decisions, to ensure new construction does not increase the county's risk. **Table 75** summarizes development trends in each jurisdiction.

Table 75 Local Government Development Trends - Winter Storm

Local Government	Development Trends
Carbon County	Any increase in population will increase the county's overall vulnerability.
City of Rawlins	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
Town of Baggs	Not being able to house/accommodate stranded motorists
Town of Dixon	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
Town of Elk Mountain	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
Town of Encampment	Some that are moving to the area have no idea how isolated the area can become in the winter time. Emergencies, medical care, transportation in and out of community, long term power outage, individual isolation, inability to deliver meals to isolated.
Town of Hanna	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
Town of Medicine Bow	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
Town of Riverside	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.

Local Government	Development Trends
Town of Saratoga	Any increase in population will increase the town's overall vulnerability.
Town of Sinclair	No development or population change has recently occurred, or is expected, which would impact hazard vulnerability.
SER (Saratoga-Encampment-Rawlins) Conservation District	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Medicine Bow Conservation District	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Little Snake River Conservation District	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Carbon County School District 2	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Carbon County Fire Protection District	No construction has recently occurred, or is expected, which would impact hazard vulnerability.
Sierra Madre Water & Sewer Joint Powers Board	No construction has recently occurred, or is expected, which would impact hazard vulnerability.

Probability of Future Occurrences

The NCEI database has recorded 1,741 winter storm events on 374 unique days in the 28 years between 1996 and 2024, meaning there is a 100% chance of a winter storm event occurring somewhere in Carbon County each year. Of these events, 7 have resulted in direct or indirect losses of people and property, equating to a 25% annual chance that a notable winter storm event will occur in the county.

Carbon County Adoptions

(Name of Jurisdiction) Carbon County, Wyoming

(Governing Body) Carbon County Board of County Commissioners

(Address) P.O. Box 6, Rawlins, WY 82301

RESOLUTION NO. 2025-11

A Resolution of the Board of County Commissioners of Carbon County, Wyoming, adopting the Wyoming Region 3 Hazard Mitigation Plan – 2025 Update as this jurisdiction's Multi-Hazard Mitigation Plan,

WHEREAS, Carbon County, Wyoming, with the assistance from the Wyoming Office of Homeland Security, has gathered information and prepared the Wyoming Region 3 Hazard Mitigation Plan – 2025 Update; and,

WHEREAS, the Wyoming Region 3 Hazard Mitigation Plan – 2025 Update has been prepared in accordance with FEMA requirements at 44 C.F.R. 201.6; and,

WHEREAS, Carbon County, Wyoming is a local unit of government that has afforded the citizens an opportunity to comment and provide input in the Plan and the actions in the Plan; and

WHEREAS, the Carbon County Board of County Commissioners has reviewed the Plan and affirms that the Plan will be updated no less than every five years;

NOW THEREFORE, BE IT RESOLVED by the Carbon County Board of County Commissioners that Carbon County, Wyoming adopts the Wyoming Region 3 Hazard Mitigation Plan – 2025 Update as this jurisdiction's Multi-Hazard Mitigation Plan, and resolves to execute the actions in the Plan.

ADOPTED this 6th day of May, 2025 at the meeting of the Carbon County Board of County Commissioners.

BOARD OF COUNTY COMMISSIONERS OF CARBON COUNTY, WYOMING

By: _____
R. Travis Moore, Chairman

Attest:

_____
Lisa Smith, Carbon County Clerk

STATE OF WYOMING COUNTY CLERK CARBON COUNTY

Carbon County
Town of Baggs
130 S Penland St, Box 300, Baggs, WY 82321

RESOLUTION NO. 2025-02

A Resolution of the Town of Baggs adopting the Wyoming Region 3 Hazard Mitigation Plan – 2025 Update as this jurisdiction's Multi-Hazard Mitigation Plan,

WHEREAS, Town of Baggs, with the assistance from the Wyoming Office of Homeland Security, has gathered information and prepared the Wyoming Region 3 Hazard Mitigation Plan – 2025 Update; and,

WHEREAS, the Wyoming Region 3 Hazard Mitigation Plan – 2025 Update has been prepared in accordance with FEMA requirements at 44 C.F.R. 201.6; and,

WHEREAS, Carbon County is a local unit of government that has afforded the citizens an opportunity to comment and provide input in the Plan and the actions in the Plan; and

WHEREAS, Town of Baggs has reviewed the Plan and affirms that the Plan will be updated no less than every five years;

NOW THEREFORE, BE IT RESOLVED by Town of Baggs that Carbon County adopts the Wyoming Region 3 Hazard Mitigation Plan – 2025 Update as this jurisdiction's Multi-Hazard Mitigation Plan, and resolves to execute the actions in the Plan.

ADOPTED this 13th day of May, 2025 at the meeting of Town of Baggs.

Town of Baggs

By: _____
Matt Howell, Mayor

Attest:

_____
Alex Weber, Clerk/Treasurer

Town of Dixon, Wyoming

Dixon Town Council

PO Box 38 Dixon, WY 82323

RESOLUTION NO. 2025-01

A Resolution of the *Dixon Town Council,* adopting the Wyoming Region 3 Hazard Mitigation Plan – 2025 Update as this jurisdiction's Multi-Hazard Mitigation Plan,

WHEREAS, *The Dixon Town Council* with the assistance from the Wyoming Office of Homeland Security, has gathered information and prepared the Wyoming Region 3 Hazard Mitigation Plan – 2025 Update; and,

WHEREAS, the Wyoming Region 3 Hazard Mitigation Plan – 2025 Update has been prepared in accordance with FEMA requirements at 44 C.F.R. 201.6; and,

WHEREAS, *Town of Dixon, Wyoming* is a local unit of government that has afforded the citizens an opportunity to comment and provide input in the Plan and the actions in the Plan; and

WHEREAS, *The Dixon Town Council* has reviewed the Plan and affirms that the Plan will be updated no less than every five years;

NOW THEREFORE, BE IT RESOLVED by *the Dixon Town Council* that *Town of Dixon* adopts the Wyoming Region 3 Hazard Mitigation Plan – 2025 Update as this jurisdiction's Multi-Hazard Mitigation Plan, and resolves to execute the actions in the Plan.

ADOPTED this 13th day of May 2025 at the meeting of *The Dixon Town Council.*

DIXON TOWN COUNCIL
TOWN OF DIXON, WYOMING

By: Melodie Seilaff

Melodie Seilaff, Town of Dixon Mayor

Attest:

Brandee Forster, Town of Dixon Clerk

Elk Mountain Town Council
PO Box 17 202 Veteran's Street, Elk Mountain, WY 82324

RESOLUTION NO. 2025.05.12

A Resolution of the Elk Mountain Town Council, adopting the Wyoming Region 3 Hazard Mitigation Plan – 2025 Update as this jurisdiction's Multi-Hazard Mitigation Plan,

WHEREAS, the Elk Mountain Town Council, with the assistance from the Wyoming Office of Homeland Security, has gathered information and prepared the Wyoming Region 3 Hazard Mitigation Plan – 2025 Update; and,

WHEREAS, the Wyoming Region 3 Hazard Mitigation Plan – 2025 Update has been prepared in accordance with FEMA requirements at 44 C.F.R. 201.6; and,

WHEREAS, the Elk Mountain Town Council, is a local unit of government that has afforded the citizens an opportunity to comment and provide input in the Plan and the actions in the Plan; and,

WHEREAS, the Elk Mountain Town Council, has reviewed the Plan and affirms that the Plan will be updated no less than every five years;

NOW THEREFORE, BE IT RESOLVED by the Elk Mountain Town Council that the Town of Elk Mountain adopts the Wyoming Region 3 Hazard Mitigation Plan – 2025 Update as this jurisdiction's Multi-Hazard Mitigation Plan, and resolves to execute the actions in the Plan.

ADOPTED this 12th day of May 2025 at the meeting of the Elk Mountain Town Council.

The Elk Mountain Town Council

By: _____
Mayor Morgan Irene

Attest: _____
Town Clerk Heidi Hess

(Name of Jurisdiction) Town of Encampment

(Governing Body) Town of Encampment

(Address) 614 McCaffrey Avenue / PO Box 5, Encampment. WY 82325

RESOLUTION NO. 2025-04

A Resolution of the Town of Encampment, adopting the Wyoming Region 3 Hazard Mitigation Plan – 2025 Update as this jurisdiction's Multi-Hazard Mitigation Plan.

WHEREAS, the Town of Encampment with the assistance from the Wyoming Office of Homeland Security, has gathered information and prepared the Wyoming Region 3 Hazard Mitigation Plan – 2025 Update; and,

WHEREAS, the Wyoming Region 3 Hazard Mitigation Plan – 2025 Update has been prepared in accordance with FEMA requirements at 44 C.F.R. 201.6; and,

WHEREAS, the Town of Encampment is a local unit of government that has afforded the citizens an opportunity to comment and provide input in the Plan and the actions in the Plan; and

WHEREAS, the Town of Encampment has reviewed the Plan and affirms that the Plan will be updated no less than every five years;

NOW THEREFORE, BE IT RESOLVED by the governing body of the Town of Encampment that the Town of Encampment adopts the Wyoming Region 3 Hazard Mitigation Plan – 2025 Update as this jurisdiction's Multi-Hazard Mitigation Plan, and resolves to execute the actions in the Plan.

ADOPTED this 8th day of May, 2025 at the meeting of the Town of Encampment.

The Town of Encampment

By: _____
Shannon Fagan, Mayor

Attest:

_____
Doreen Harvey, Clerk/Treasurer

(Name of Jurisdiction) Carbon County, Wyoming

(Governing Body) Town of Hanna

(Address) 301 S. Adams P.O. Box 99 Hanna, WY. 82327

RESOLUTION NO. 2025-616

A Resolution of the *Town of Hanna, Carbon County, Wyoming*, adopting the Wyoming Region 3 Hazard Mitigation Plan – 2025 Update as this jurisdiction's Multi-Hazard Mitigation Plan,

WHEREAS, ***Town of Hanna, Carbon County, Wyoming***, with the assistance from the Wyoming Office of Homeland Security, has gathered information and prepared the Wyoming Region 3 Hazard Mitigation Plan – 2025 Update; and,

WHEREAS, the Wyoming Region 3 Hazard Mitigation Plan – 2025 Update has been prepared in accordance with FEMA requirements at 44 C.F.R. 201.6; and,

WHEREAS, *Carbon County, Wyoming* is a local unit of government that has afforded the citizens an opportunity to comment and provide input in the Plan and the actions in the Plan; and

WHEREAS, ***Town of Hanna, Carbon County, Wyoming*** has reviewed the Plan and affirms that the Plan will be updated no less than every five years;

NOW THEREFORE, BE IT RESOLVED by ***Town of Hanna, Carbon County, Wyoming*** that *Carbon County, Wyoming* adopts the Wyoming Region 3 Hazard Mitigation Plan – 2025 Update as this jurisdiction's Multi-Hazard Mitigation Plan, and resolves to execute the actions in the Plan.

ADOPTED this 13th day of May, 2025 at the meeting of ***Town of Hanna, Carbon County, Wyoming.***

Town of Hanna, Carbon County, Wyoming

By: _____

Charlie George, Mayor of Hanna

Attest:

_____

Vivian Gonzales, Town Clerk

RESOLUTION NO. 2025-4

Town of Medicine Bow, Carbon County, Wyoming

A Resolution of the Town Council, adopting the Wyoming Region 3 Hazard Mitigation Plan – 2025 Update as this jurisdiction's Multi-Hazard Mitigation Plan,

WHEREAS, the Town Council of Medicine Bow, with the assistance from the Wyoming Office of Homeland Security, has gathered information and prepared the Wyoming Region 3 Hazard Mitigation Plan – 2025 Update; and,

WHEREAS, the Wyoming Region 3 Hazard Mitigation Plan – 2025 Update has been prepared in accordance with FEMA requirements at 44 C.F.R. 201.6; and,

WHEREAS, the Town of Medicine Bow is a local unit of government that has afforded the citizens an opportunity to comment and provide input in the Plan and the actions in the Plan; and

WHEREAS, the Town Council of Medicine Bow has reviewed the Plan and affirms that the Plan will be updated no less than every five years;

NOW THEREFORE, BE IT RESOLVED by the Town Council of Medicine Bow that the Town of Medicine Bow adopts the Wyoming Region 3 Hazard Mitigation Plan – 2025 Update as this jurisdiction's Multi-Hazard Mitigation Plan, and resolves to execute the actions in the Plan.

ADOPTED this 12th day of May, 2025 at the meeting of the Town Council of Medicine Bow, Carbon County, Wyoming.

By: _____
Justin George, Mayor

Attest:

_____
Karen R Heath, Clerk/Treasurer

(Name of Jurisdiction) City of Rawlins, Wyoming

(Governing Body) City Council for the City of Rawlins

(Address) PO Box 953, Rawlins, WY 82301

RESOLUTION NO 2025 – 5B

A Resolution of the Governing Body of the City of Rawlins, Adopting the Wyoming Region 3 Hazard Mitigation Plan – 2025 Update as this Jurisdiction's Multi-Hazard Mitigation Plan.

WHEREAS, the Governing Body of the City of Rawlins, with the assistance from the Wyoming Office of Homeland Security, has gathered information and prepared the Wyoming Region 3 Hazard Mitigation Plan – 2025 Update; and,

WHEREAS, the Wyoming Region 3 Hazard Mitigation Plan – 2025 Update has been prepared in accordance with FEMA requirements at 44 C.F.R. 201.6; and,

WHEREAS, the City of Rawlins, Wyoming is a local unit of government that has afforded the citizens an opportunity to comment and provide input in the Plan and the actions in the Plan; and

WHEREAS, the Governing Body of the City of Rawlins has reviewed the Plan and affirms that the Plan will be updated no less than every five years;

NOW THEREFORE, BE IT RESOLVED by the Governing Body of the City of Rawlins that the City of Rawlins, Wyoming adopts the Wyoming Region 3 Hazard Mitigation Plan – 2025 Update as this jurisdiction's Multi-Hazard Mitigation Plan, and resolves to execute the actions in the Plan.

ADOPTED this 20th day of May, 2025 at the meeting of City of Rawlins - City Council.

Governing Body of the City of Rawlins

By: Jacquelin R Wells
Jacquelin R Wells, Mayor

Attest:

Lynn M Shearer
Lynn M Shearer, City Clerk

(Name of Jurisdiction) Town of Riverside, Carbon County, WY

(Governing Body) Riverside Town Council

(Address) PO Box 657, Riverside, WY 82325

RESOLUTION NO. 2025-1

A Resolution of the *Riverside Town Council*, adopting the Wyoming Region 3 Hazard Mitigation Plan – 2025 Update as this jurisdiction's Multi-Hazard Mitigation Plan,

WHEREAS, *Riverside Town Council,* with the assistance from the Wyoming Office of Homeland Security, has gathered information and prepared the Wyoming Region 3 Hazard Mitigation Plan – 2025 Update; and,

WHEREAS, the Wyoming Region 3 Hazard Mitigation Plan – 2025 Update has been prepared in accordance with FEMA requirements at 44 C.F.R. 201.6; and,

WHEREAS, *the Town of Riverside* is a local unit of government that has afforded the citizens an opportunity to comment and provide input in the Plan and the actions in the Plan; and

WHEREAS, *the Riverside Town Council* has reviewed the Plan and affirms that the Plan will be updated no less than every five years;

NOW THEREFORE, BE IT RESOLVED by *the Riverside Town Council* that *the Town of Riverside* adopts the Wyoming Region 3 Hazard Mitigation Plan – 2025 Update as this jurisdiction's Multi-Hazard Mitigation Plan, and resolves to execute the actions in the Plan.

ADOPTED this 8th day of May, 2025 at the meeting of the Riverside Town Council.

Town of Riverside, WY

By: _____

Leroy Stephenson, Mayor

Attest:

_____

Jana Cook, Town Clerk

(Name of Jurisdiction) Town of Saratoga

(Governing Body) Saratoga Town Council

(Address) P.O. Box 486, Saratoga, WY 82331

RESOLUTION NO. 2025-2

A Resolution of the *Town of Saratoga,* adopting the Wyoming Region 3 Hazard Mitigation Plan – 2025 Update as this jurisdiction's Multi-Hazard Mitigation Plan,

WHEREAS, *Town of Saratoga,* with the assistance from the Wyoming Office of Homeland Security, has gathered information and prepared the Wyoming Region 3 Hazard Mitigation Plan – 2025 Update; and,

WHEREAS, the Wyoming Region 3 Hazard Mitigation Plan – 2025 Update has been prepared in accordance with FEMA requirements at 44 C.F.R. 201.6; and,

WHEREAS, *Town of Saratoga* is a local unit of government that has afforded the citizens an opportunity to comment and provide input in the Plan and the actions in the Plan; and

WHEREAS, the *Town of Saratoga* has reviewed the Plan and affirms that the Plan will be updated no less than every five years;

NOW THEREFORE, BE IT RESOLVED by the *Town of Saratoga* that *the Town of Saratoga* the Wyoming Region 3 Hazard Mitigation Plan – 2025 Update as this jurisdiction's Multi-Hazard Mitigation Plan, and resolves to execute the actions in the Plan.

ADOPTED this 6th day of May, 2025 at the meeting of *the Town of Saratoga town Council.*

Town of Saratoga

By: Chuck Davis

Chuck Davis, Mayor of Saratoga

Attest:

Jennifer Anderson

Jennifer Anderson, Saratoga Town Clerk

(Name of Jurisdiction) Town of Sinclair, Wyoming

(Governing Body) Town of Sinclair

(Address) PO Box 247, Sinclair, WY 82334

RESOLUTION NO. 2025-04

A Resolution of the *Town of Sinclair,* adopting the Wyoming Region 3 Hazard Mitigation Plan – 2025 Update as this jurisdiction's Multi-Hazard Mitigation Plan,

WHEREAS, *Town of Sinclair,* with the assistance from the Wyoming Office of Homeland Security, has gathered information and prepared the Wyoming Region 3 Hazard Mitigation Plan – 2025 Update; and,

WHEREAS, the Wyoming Region 3 Hazard Mitigation Plan – 2025 Update has been prepared in accordance with FEMA requirements at 44 C.F.R. 201.6; and,

WHEREAS, *The Town of Sinclair* is a local unit of government that has afforded the citizens an opportunity to comment and provide input in the Plan and the actions in the Plan; and

WHEREAS, *The Town of Sinclair* has reviewed the Plan and affirms that the Plan will be updated no less than every five years;

NOW THEREFORE, BE IT RESOLVED by the Mayor that *The Town of Sinclair, Wyoming* adopts the Wyoming Region 3 Hazard Mitigation Plan – 2025 Update as this jurisdiction's Multi-Hazard Mitigation Plan, and resolves to execute the actions in the Plan.

ADOPTED this 15th day of May, 2025 at the council meeting of *Town of Sinclair.*

Town of Sinclair

By: _____

Cullen Meeks, Mayor

Attest:

_____

Becky Slater, Clerk/Treasurer

Carbon County Fire Protection District
District Board of Directors
812 E. Murray ST. Suite C
Rawlins, WY. 82301

RESOLUTION NO. 2025-4

A Resolution of the *Carbon County Fire Protection District Board of Directors*, adopting the Wyoming Region 3 Hazard Mitigation Plan – 2025 Update as this jurisdiction's Multi-Hazard Mitigation Plan,

WHEREAS, *Carbon County Fire Protection District,* with the assistance from the Wyoming Office of Homeland Security, has gathered information and prepared the Wyoming Region 3 Hazard Mitigation Plan – 2025 Update; and,

WHEREAS, the Wyoming Region 3 Hazard Mitigation Plan – 2025 Update has been prepared in accordance with FEMA requirements at 44 C.F.R. 201.6; and,

WHEREAS, *Carbon County* is a local unit of government that has afforded the citizens an opportunity to comment and provide input in the Plan and the actions in the Plan; and

WHEREAS, *Carbon County Fire Protection District Board of Directors* has reviewed the Plan and affirms that the Plan will be updated no less than every five years;

NOW THEREFORE, BE IT RESOLVED by *Carbon County Fire Protection District* that *Carbon County* adopts the Wyoming Region 3 Hazard Mitigation Plan – 2025 Update as this jurisdiction's Multi-Hazard Mitigation Plan, and resolves to execute the actions in the Plan.

ADOPTED this 22nd day of May, 2025 at the meeting of *Carbon County Fire Protection District Board.*

Carbon County Fire Protection District

By: John R. Rutherford
John Rutherford District Chief

Attest:
Kaitlin Reed Administrative Assistant

(Name of Jurisdiction) Carbon County, Wyoming

(Governing Body) Carbon County School District #2

(Address) P.O. Box 1530, Saratoga, WY 82331

RESOLUTION NO. 2025-___

A Resolution of the *Board of Carbon County School District #2 of Carbon County, Wyoming* , adopting the Wyoming Region 3 Hazard Mitigation Plan – 2025 Update as this jurisdiction's Multi-Hazard Mitigation Plan,

WHEREAS, *Carbon County School District #2,* with the assistance from the Wyoming Office of Homeland Security, has gathered information and prepared the Wyoming Region 3 Hazard Mitigation Plan – 2025 Update; and,

WHEREAS, the Wyoming Region 3 Hazard Mitigation Plan – 2025 Update has been prepared in accordance with FEMA requirements at 44 C.F.R. 201.6; and,

WHEREAS, *Carbon County, Wyoming* is a local unit of government that has afforded the citizens an opportunity to comment and provide input in the Plan and the actions in the Plan; and

WHEREAS, *Carbon County School District #2* has reviewed the Plan and affirms that the Plan will be updated no less than every five years;

NOW THEREFORE, BE IT RESOLVED by *Carbon County School District #2* that *Carbon County, Wyoming* adopts the Wyoming Region 3 Hazard Mitigation Plan – 2025 Update as this jurisdiction's Multi-Hazard Mitigation Plan, and resolves to execute the actions in the Plan.

ADOPTED this 19th day of May, 2025 at the meeting of *Carbon County School District #2*.

CARBON COUNTY SCHOOL DISTRICT #2

By: _____

Kassey Westring, Chairman

Attest:

_____

Nick Wamsley, Clerk

(Name of Jurisdiction) Carbon County, Wyoming

(Governing Body) Little Snake River Conservation District

(Address) PO BOX 355 Baggs, WY 82321

RESOLUTION NO. 2025-

A Resolution of the Little Snake River Conservation District adopting the Wyoming Region 3 Hazard Mitigation Plan – 2025 Update as this jurisdiction's Multi-Hazard Mitigation Plan,

WHEREAS, the Little Snake River Conservation District, with the assistance from the Wyoming Office of Homeland Security, has gathered information and prepared the Wyoming Region 3 Hazard Mitigation Plan – 2025 Update; and,

WHEREAS, the Wyoming Region 3 Hazard Mitigation Plan – 2025 Update has been prepared in accordance with FEMA requirements at 44 C.F.R. 201.6; and,

WHEREAS, the Little Snake River Conservation District is a local unit of government that has afforded the citizens an opportunity to comment and provide input in the Plan and the actions in the Plan; and

WHEREAS, the Little Snake River Conservation District has reviewed the Plan and affirms that the Plan will be updated no less than every five years;

NOW THEREFORE, BE IT RESOLVED by the Little Snake River Conservation District that Carbon County adopts the Wyoming Region 3 Hazard Mitigation Plan – 2025 Update as this jurisdiction's Multi-Hazard Mitigation Plan, and resolves to execute the actions in the Plan.

ADOPTED this 14 day of May, 2025 at the meeting of the Little Snake River Conservation District.

Little Snake River Conservation District

By: John R Cobb
John R Cobb, Chairman

Attest:

Kelly Kudera
Kelly Kudera, Clerk

(Name of Jurisdiction) Medicine Bow Conservation District

(Governing Body) Medicine Bow Conservation District Board of Supervisors

(Address) PO Box 6, Medicine Bow, WY 82329

RESOLUTION

A Resolution of the *Medicine Bow Conservation District* adopting the Wyoming Region 3 Hazard Mitigation Plan – 2025 Update as this jurisdiction's Multi-Hazard Mitigation Plan,

WHEREAS, ***Medicine Bow Conservation District*** with the assistance from the Wyoming Office of Homeland Security, has gathered information and prepared the Wyoming Region 3 Hazard Mitigation Plan – 2025 Update; and,

WHEREAS, the Wyoming Region 3 Hazard Mitigation Plan – 2025 Update has been prepared in accordance with FEMA requirements at 44 C.F.R. 201.6; and,

WHEREAS, ***Medicine Bow Conservation District*** is a local unit of government that has afforded the citizens an opportunity to comment and provide input in the Plan and the actions in the Plan; and

WHEREAS, ***Medicine Bow Conservation District Board of Supervisors*** has reviewed the Plan and affirms that the Plan will be updated no less than every five years;

NOW THEREFORE, BE IT RESOLVED by ***Medicine Bow Conservation District Board of Supervisors*** that ***Medicine Bow Conservation District*** adopts the Wyoming Region 3 Hazard Mitigation Plan – 2025 Update as this jurisdiction's Multi-Hazard Mitigation Plan, and resolves to execute the actions in the Plan.

ADOPTED this 14th day of May, 2025 at the meeting of *Medicine Bow Conservation District Board of Supervisors.*

Medicine Bow Conservation District
Board of Supervisors

By: _____
Owen Williams, Chairman

Attest:

_____
Kristin Tilley, Medicine Bow Conservation District

SARATOGA-ENCAMPMENT-RAWLINS
CONSERVATION DISTRICT

Resolution #2025-01 Adopting the "Wyoming Region 3 Hazard Mitigation Plan – 2025 Update"

Whereas, the Saratoga-Encampment-Rawlins Conservation District (SER CD) recognizes the threat that natural hazards pose to people and property within our community;

Whereas, undertaking hazard mitigation actions will reduce the potential for harm to people and property from future hazard occurrences;

Whereas, the SER CD participated in the 2019 Wyoming Region 3 Mitigation Plan;

Whereas, the U.S. Congress passed the Disaster Mitigation Act of 2000 ("Disaster Mitigation Act") emphasizing the need for pre-disaster mitigation of potential hazards;

Whereas, the Disaster Mitigation Act made available hazard mitigation grants to state and local governments;

Whereas, an adopted multi-hazard mitigation plan is required for future funding for mitigation projects under multiple FEMA pre- and post-disaster mitigation grant programs; and

Whereas, the SER CD fully participated in the FEMA-prescribed mitigation planning process to prepare this multi-hazard mitigation plan;

Whereas, the Wyoming Office of Homeland Security and the Federal Emergency Management Agency Region VIII officials have reviewed the "Wyoming Region 3 Hazard Mitigation Plan – 2025 Update", and approved it contingent upon this official adoption of the participating governing body;

Whereas, the SER CD desires to comply with the requirements of the Disaster Mitigation Act and to augment its emergency planning efforts by formally adopting the "Wyoming Region 3 Hazard Mitigation Plan – 2025 Update".

Whereas, adoption by the governing body for the SER CD, demonstrates the jurisdiction's commitment to fulfilling mitigation goals and objectives outlined in this multi-hazard mitigation plan.

Whereas, adoption of this legitimizes the plan and authorizes responsible agencies to carry out their responsibilities under the plan.

Therefore, be it resolved:

1) The Saratoga-Encampment-Rawlins Conservation District rescinds Resolution 2023-01 2019 Wyoming Region 3 Mitigation Plan;

2) The Saratoga-Encampment-Rawlins Conservation District adopts the "Wyoming Region 3 Hazard Mitigation Plan – 2025 Update".

Dated this 21 Day of May, 2025.

Chris Williams, Board Chair

Randy Arnold, Treasurer

Arla Strasser, Vice Chair

Shannon Fagan, Secretary

Scott Kerbs, Member

(Name of Jurisdiction) Carbon County, Wyoming

(Governing Body) Sierra Madre Water & Sewer Joint Powers Board

(Address) P.O. Box 263, Encampment, WY 82325

RESOLUTION NO. 2025-01

A Resolution of the Sierra Madre Water & Sewer Joint Powers Board, adopting the Wyoming Region 3 Hazard Mitigation Plan – 2025 Update as this jurisdiction's Multi-Hazard Mitigation Plan,

WHEREAS, Sierra Madre Water & Sewer Joint Powers Board, with the assistance from the Wyoming Office of Homeland Security, has gathered information and prepared the Wyoming Region 3 Hazard Mitigation Plan – 2025 Update; and,

WHEREAS, the Wyoming Region 3 Hazard Mitigation Plan – 2025 Update has been prepared in accordance with FEMA requirements at 44 C.F.R. 201.6; and,

WHEREAS, Carbon County, Wyoming is a local unit of government that has afforded the citizens an opportunity to comment and provide input in the Plan and the actions in the Plan; and

WHEREAS, Sierra Madre Water & Sewer Joint Powers Board has reviewed the Plan and affirms that the Plan will be updated no less than every five years;

NOW THEREFORE, BE IT RESOLVED by Sierra Madre Water & Sewer Joint Powers Board that Carbon County, Wyoming adopts the Wyoming Region 3 Hazard Mitigation Plan – 2025 Update as this jurisdiction's Multi-Hazard Mitigation Plan, and resolves to execute the actions in the Plan.

ADOPTED this 14th day of May, 2025 at the meeting of the Sierra Madre Water & Sewer Joint Powers Board.

SIERRA MADRE WATER & SEWER JOINT POWERS BOARD OF CARBON COUNTY, WYOMING

By: _____
Dan Jago, Chairman

Attest:

_____
Stacey Erickson, Clerk

Carbon County Public Survey Results

Public Hazard Risk Perception Survey (Carbon County)

This survey is being conducted as part of the ongoing WY Region 3 hazard mitigation planning process. This plan covers Albany & Carbon Counties, including local municipalities, special districts, and other community organizations. Your response is appreciated and will remain anonymous.

This survey should take only five minutes and the results will help to inform and educate the hazard mitigation planning committee.

If you have any questions about this project, please contact Michael Garner (mgarner@synergy-dr.com), the project manager from Synergy Disaster Recovery, whom was hired by the Wyoming Office of Homeland Security to lead this plan's development.

HMP COMPONENTS

What is Hazard Mitigation?

Hazard mitigation is a: "Sustained action taken to reduce or eliminate long-term risk to people and property from hazards and their effects."

A hazard mitigation plan (HMP) is required for communities to become eligible for certain mitigation grant funding programs. This community plan documents the overall mitigation strategy and specific mitigation actions and projects that your communities would like to implement to increase resiliency to future disaster events.

For context, below is a list of those hazards addressed in the hazard mitigation plan:

-Avalanche

-Drought

-Earthquake

-Expansive Soils

-Flood / Dam & Levee Incident

-Geologic Hazards (Landslide / Land & Mine Subsidence)

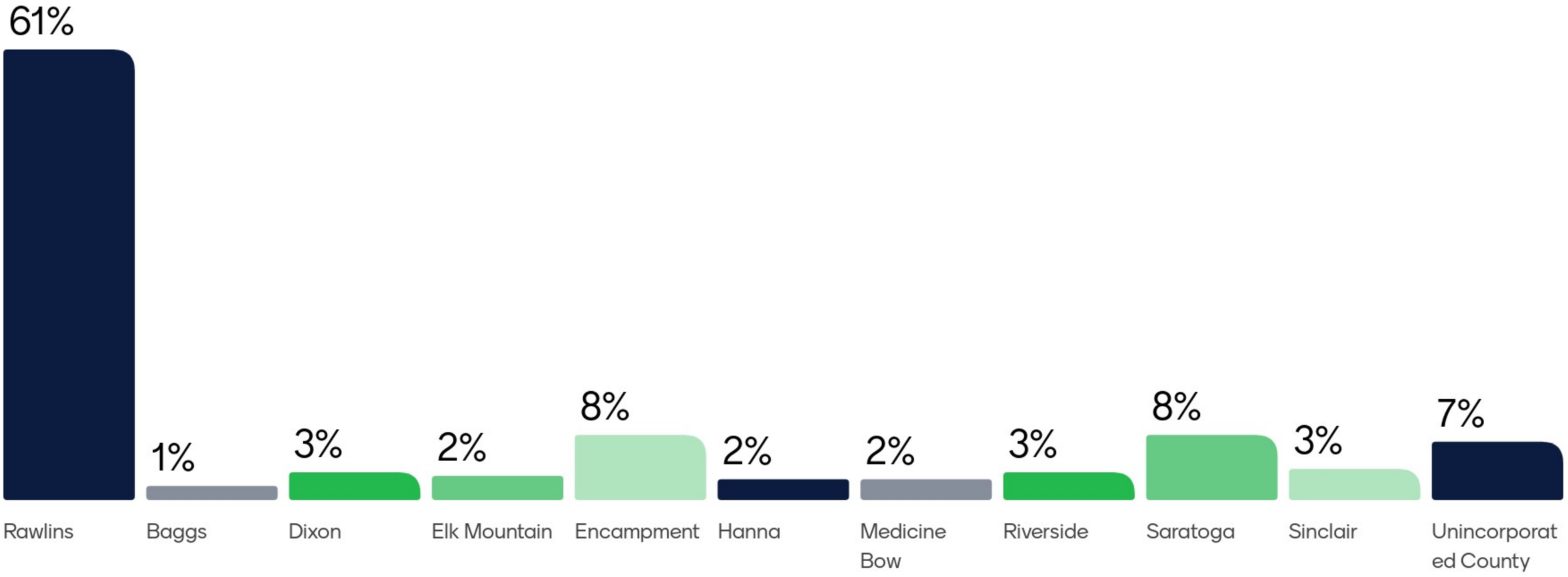
-Severe Thunderstorm (Lighting / Hail)

-Tornado / Wind / Windblown Deposits

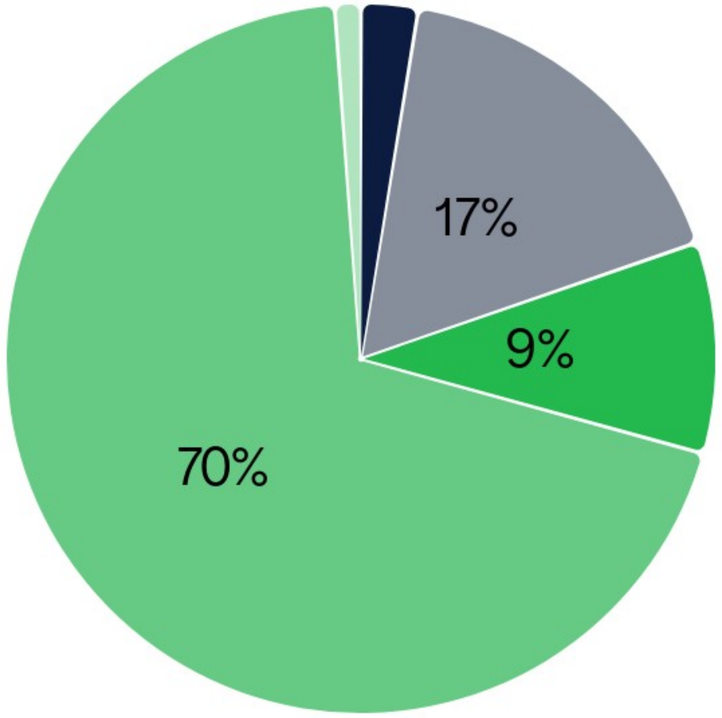
-Wildfire

-Winter Storm

In what jurisdiction do you reside?

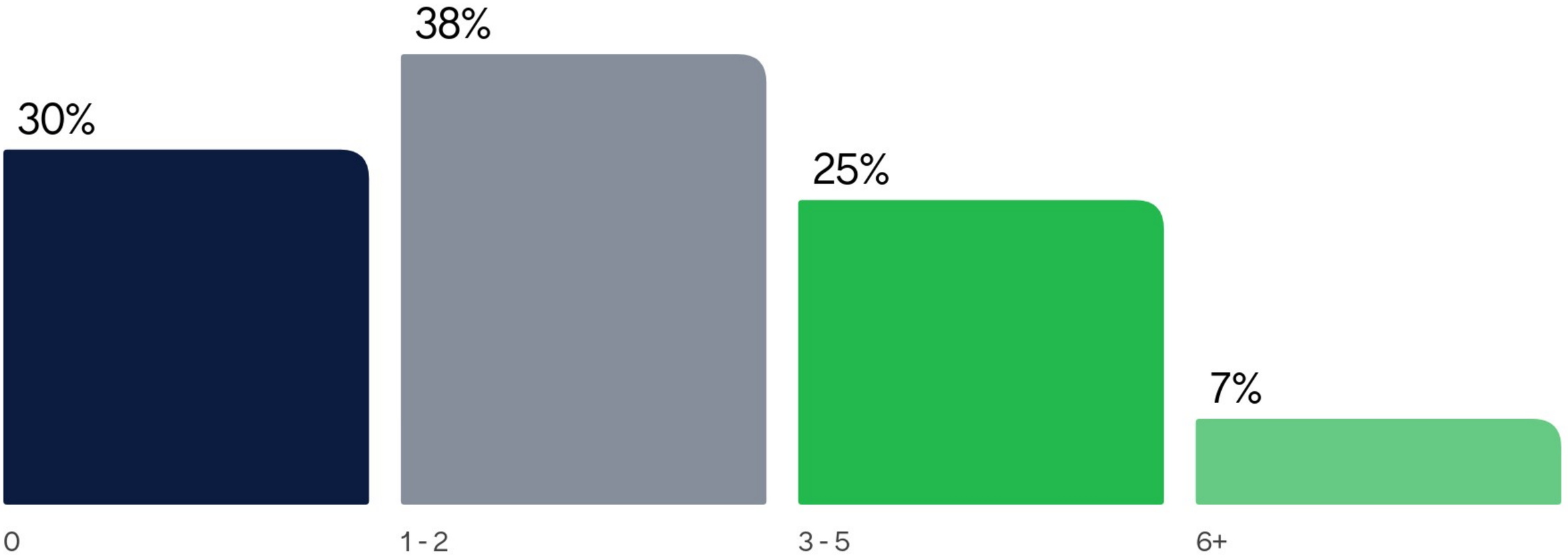


How long have you lived here?

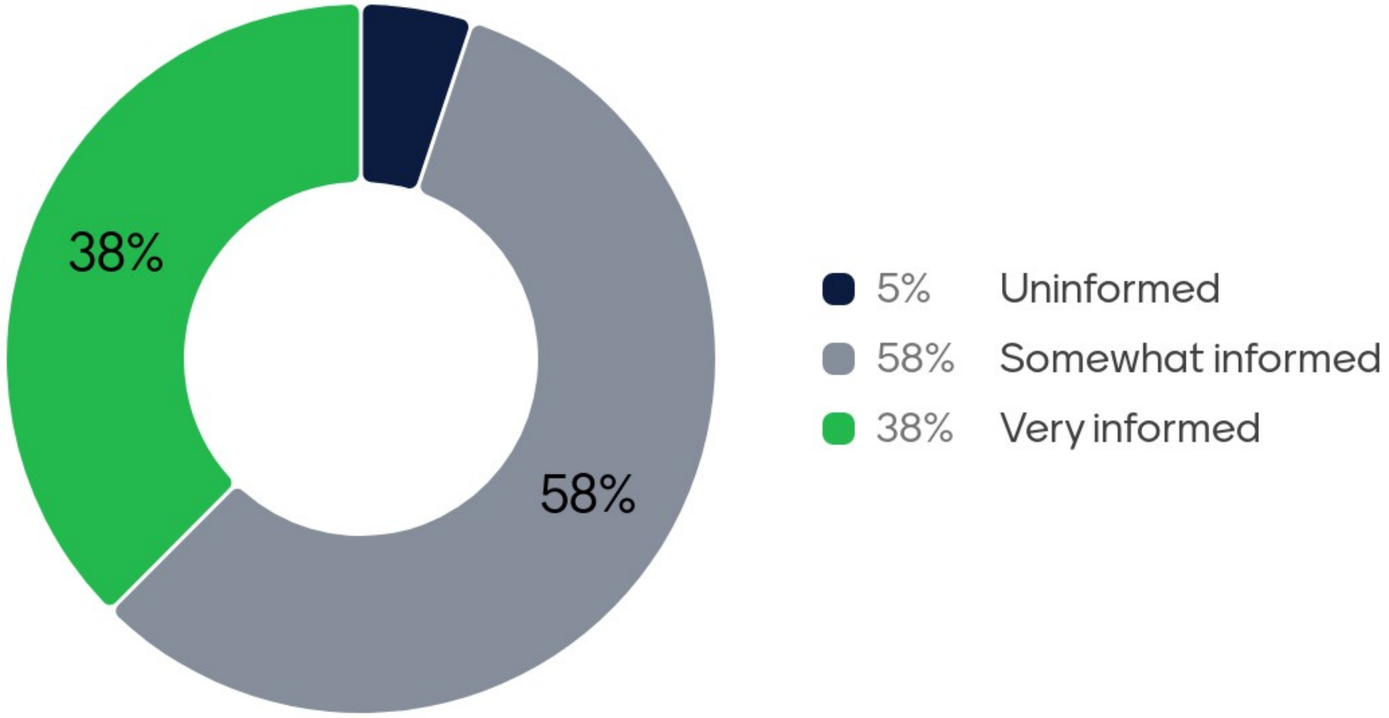


2%	Less than 1 year
17%	1 - 5 years
9%	5 - 10 years
70%	10 years or more
1%	Not Applicable

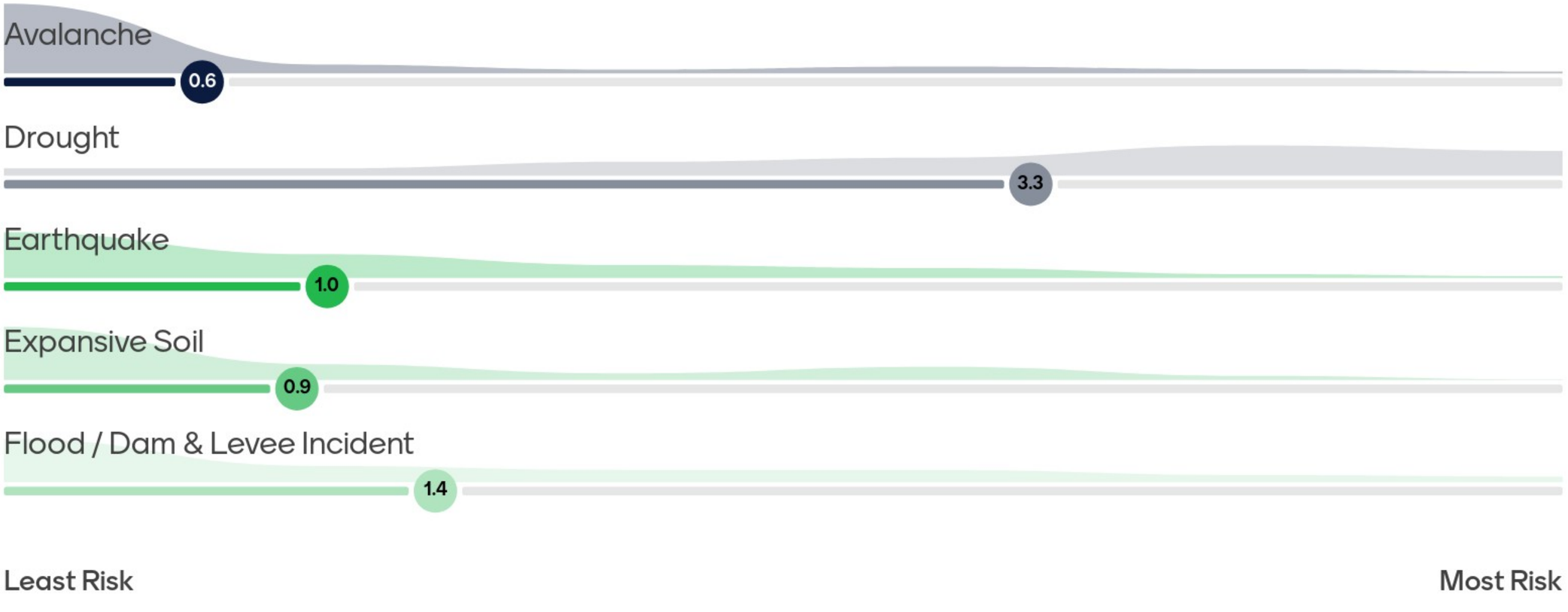
How many times has a hazard event significantly impacted your daily life (in last 5 years)?



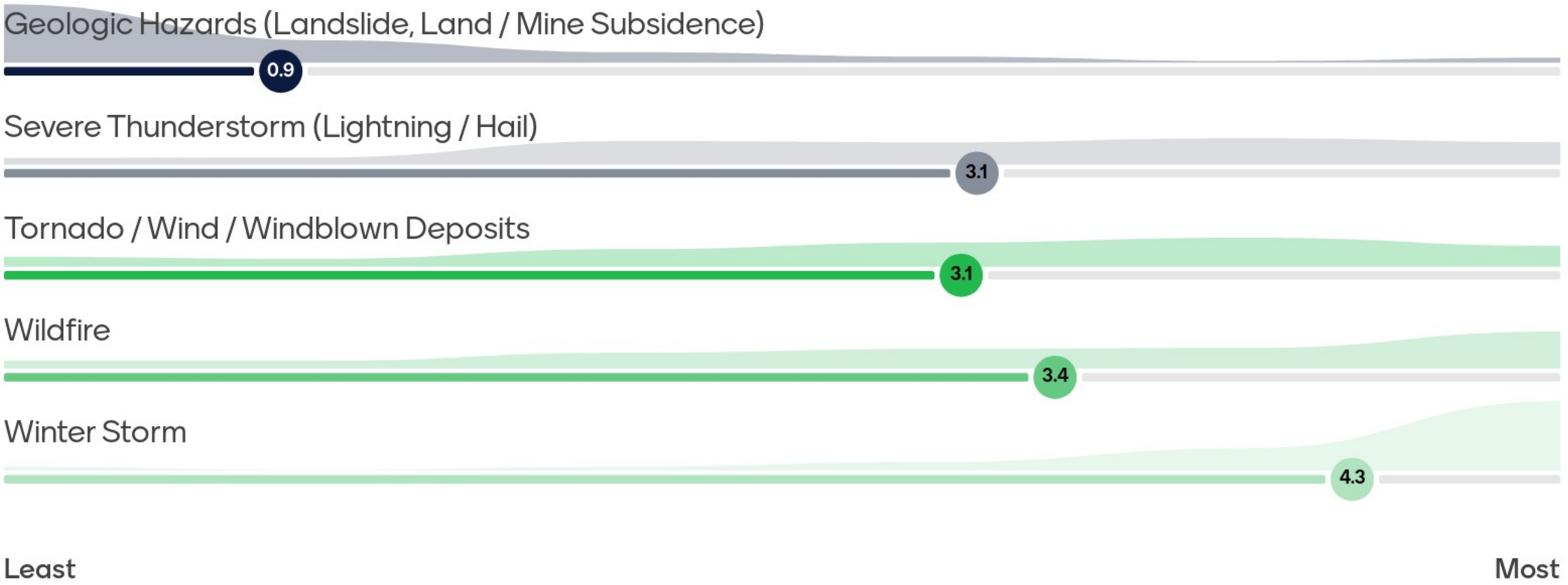
How well do you understand the risks posed by hazards that can impact your community?



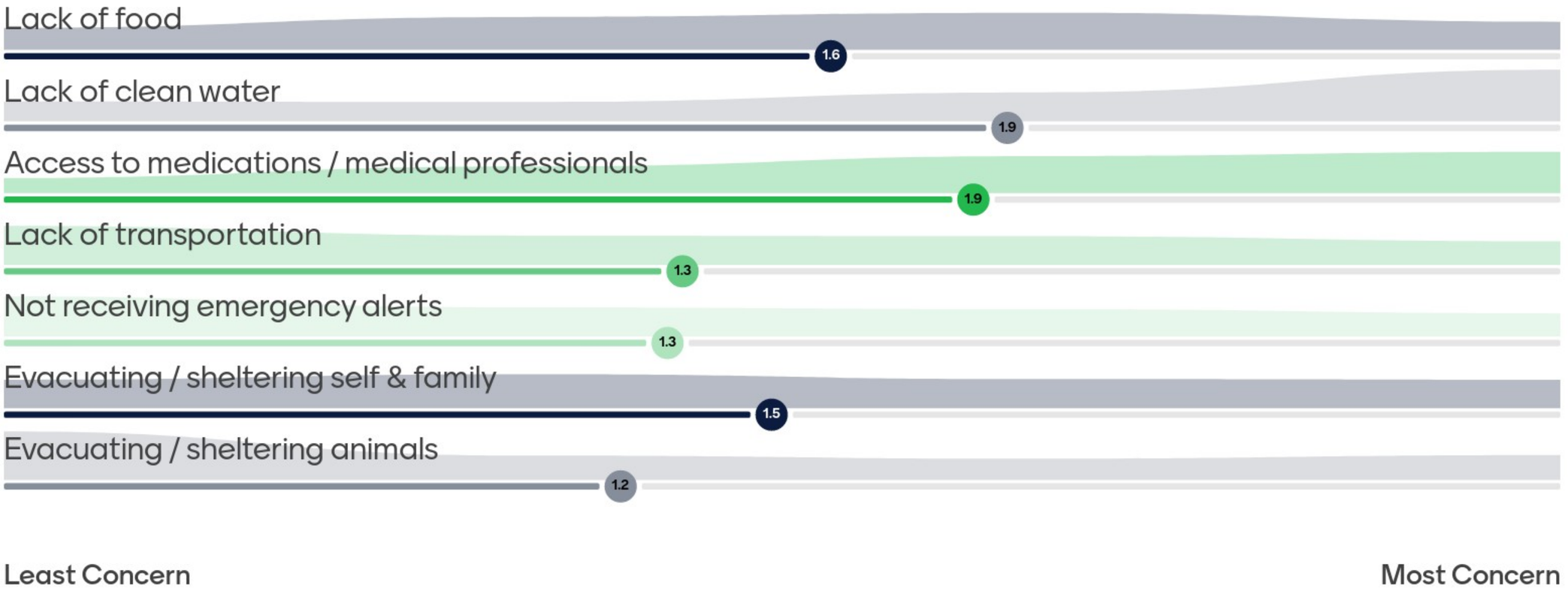
Please rank the following hazards based on the potential risk you feel they pose to you and your community:



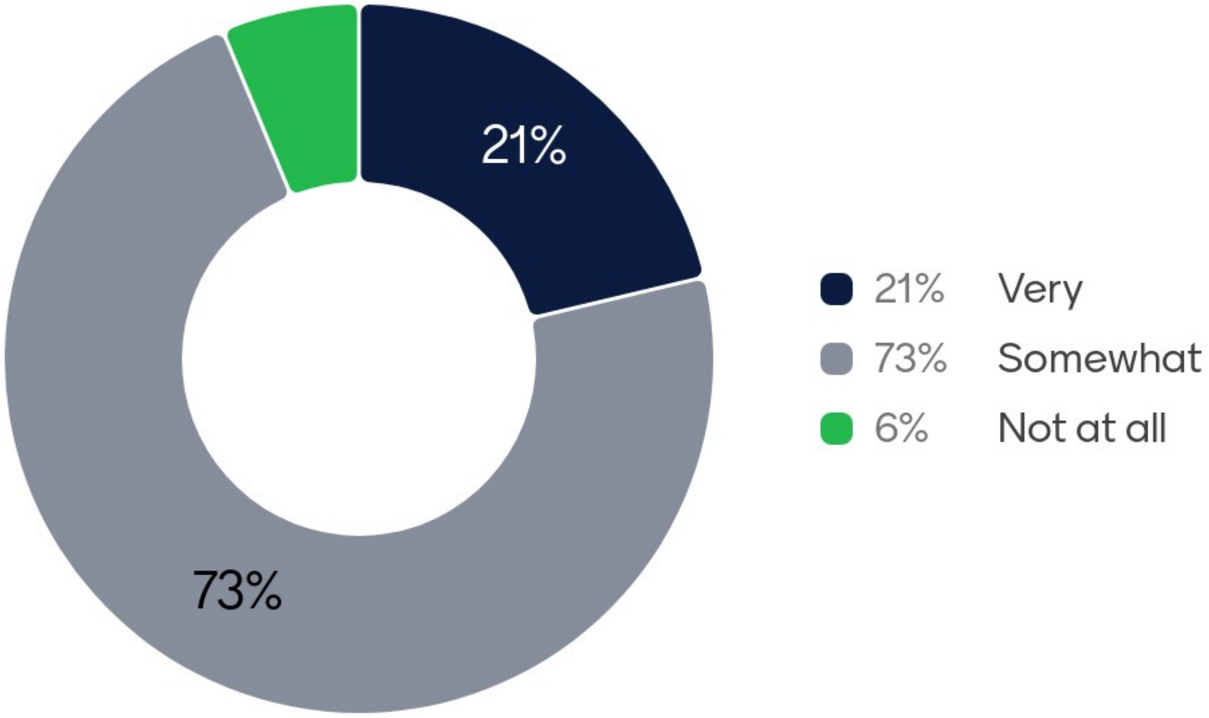
Please rank the following hazards based on the potential risk you feel they pose to you and your community (continued 2):



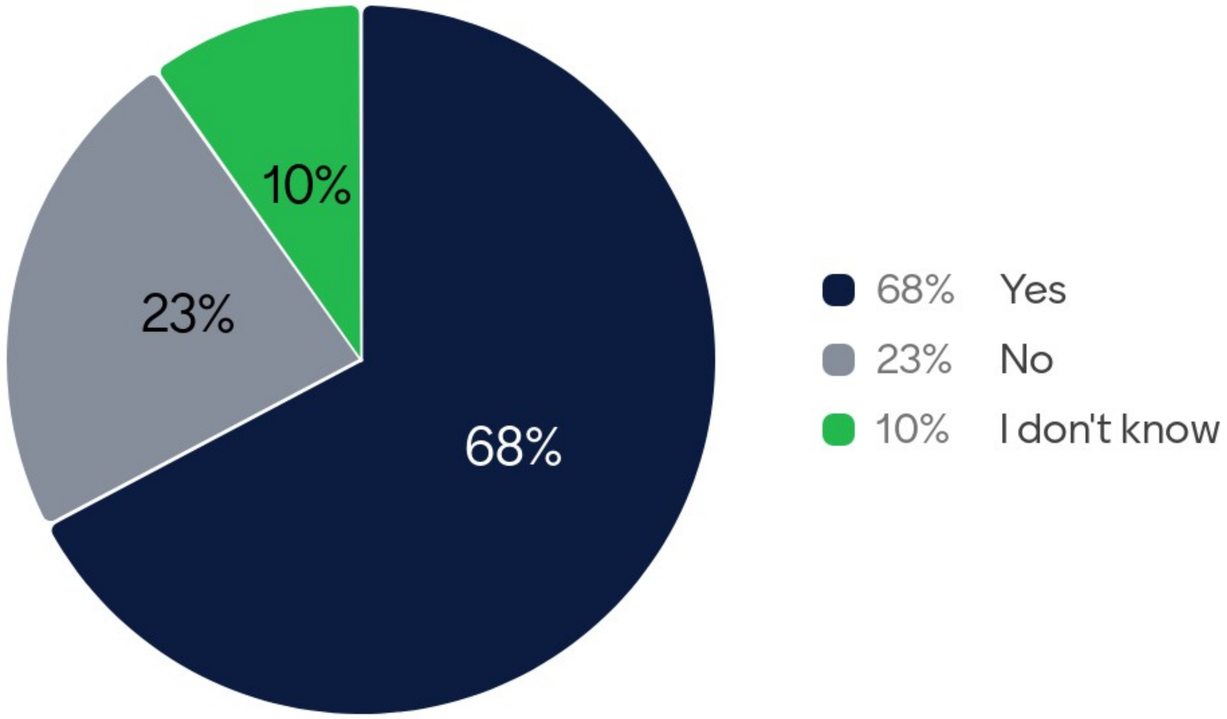
How concerned are you about the following scenarios during and following a disaster?



How prepared do you feel you and your household are for a hazard event?



Have you personally taken actions to make your home or business more resilient to hazards?



Carbon County Hazus Earthquake Loss Model

Hazus: Earthquake Global Risk Report

Region Name: CarbonWYEQ2500M5

Earthquake Scenario: CarbonWY2500yr5M

Print Date: August 06, 2024

Disclaimer:
Totals only reflect data for those census tracts/blocks included in the user's study region.

The estimates of social and economic impacts contained in this report were produced using Hazus loss estimation methodology software which is based on current scientific and engineering knowledge. There are uncertainties inherent in any loss estimation technique. Therefore, there may be significant differences between the modeled results contained in this report and the actual social and economic losses following a specific earthquake. These results can be improved by using enhanced inventory, geotechnical, and observed ground motion data.

Table of Contents

Section	Page #
General Description of the Region	3
Building and Lifeline Inventory	4
Building Inventory	
Critical Facility Inventory	
Transportation and Utility Lifeline Inventory	
Earthquake Scenario Parameters	7
Direct Earthquake Damage	8
Buildings Damage	
Essential Facilities Damage	
Transportation and Utility Lifeline Damage	
Induced Earthquake Damage	14
Fire Following Earthquake	
Debris Generation	
Social Impact	15
Shelter Requirements	
Casualties	
Economic Loss	17
Building Related Losses	
Transportation and Utility Lifeline Losses	

Appendix A: County Listing for the Region

Appendix B: Regional Population and Building Value Data

General Description of the Region

Hazus-MH is a regional earthquake loss estimation model that was developed by the Federal Emergency Management Agency (FEMA) and the National Institute of Building Sciences. The primary purpose of Hazus is to provide a methodology and software application to develop multi-hazard losses at a regional scale. These loss estimates would be used primarily by local, state and regional officials to plan and stimulate efforts to reduce risks from multi-hazards and to prepare for emergency response and recovery.

The earthquake loss estimates provided in this report was based on a region that includes 1 county(ies) from the following state(s):

Wyoming

Note:
Appendix A contains a complete listing of the counties contained in the region.

The geographical size of the region is 7,960.89 square miles and contains 5 census tracts. There are over 5 thousand households in the region which has a total population of 14,537 peopleF. The distribution of population by Total Region and County is provided in Appendix B.

There are an estimated 10 thousand buildings in the region with a total building replacement value (excluding contents) of 3,804 (millions of dollars). Approximately 86.00 % of the buildings (and 59.00% of the building value) are associated with residential housing.

The replacement value of the transportation and utility lifeline systems is estimated to be 4,900 and 6,526 (millions of dollars) , respectively.

Building and Lifeline Inventory

Building Inventory

Hazus estimates that there are 10 thousand buildings in the region which have an aggregate total replacement value of 3,804 (millions of dollars) . Appendix B provides a general distribution of the building value by Total Region and County.

In terms of building construction types found in the region, wood frame construction makes up 71% of the building inventory. The remaining percentage is distributed between the other general building types.

Critical Facility Inventory

Hazus breaks critical facilities into two (2) groups: essential facilities and high potential loss facilities (HPL). Essential facilities include hospitals, medical clinics, schools, fire stations, police stations and emergency operations facilities. High potential loss facilities include dams, levees, military installations, nuclear power plants and hazardous material sites.

For essential facilities, there are 1 hospitals in the region with a total bed capacity of 25 beds. There are 12 schools, 15 fire stations, 7 police stations and 1 emergency operation facilities. With respect to high potential loss facilities (HPL), there are no dams identified within the inventory. The inventory also includes no hazardous material sites, no military installations and no nuclear power plants.

Transportation and Utility Lifeline Inventory

Within Hazus, the lifeline inventory is divided between transportation and utility lifeline systems. There are seven (7) transportation systems that include highways, railways, light rail, bus, ports, ferry and airports. There are six (6) utility systems that include potable water, wastewater, natural gas, crude & refined oil, electric power and communications. The lifeline inventory data are provided in Tables 1 and 2.

The total value of the lifeline inventory is over 11,426.00 (millions of dollars). This inventory includes over 516.98 miles of highways, 207 bridges, 16,866.49 miles of pipes.

Table 1: Transportation System Lifeline Inventory

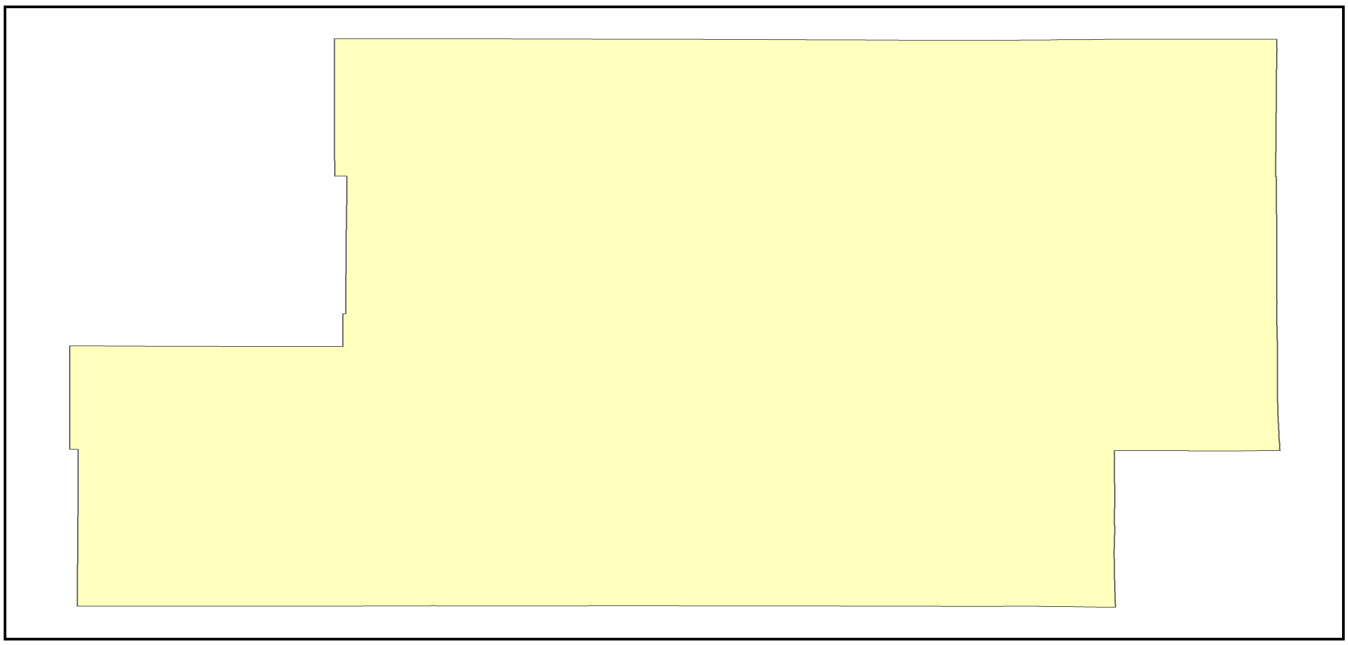
System	Component	# Locations/ # Segments	Replacement value (millions of dollars)
Highway	Bridges	207	340.7626
	Segments	80	4114.3896
	Tunnels	0	0.0000
		Subtotal	**4455.1522**
Railways	Bridges	45	198.2250
	Facilities	0	0.0000
	Segments	66	185.5242
	Tunnels	0	0.0000
		Subtotal	**383.7492**
Light Rail	Bridges	0	0.0000
	Facilities	0	0.0000
	Segments	0	0.0000
	Tunnels	0	0.0000
		Subtotal	**0.0000**
Bus	Facilities	1	1.7428
		Subtotal	**1.7428**
Ferry	Facilities	0	0.0000
		Subtotal	**0.0000**
Port	Facilities	0	0.0000
		Subtotal	**0.0000**
Airport	Facilities	5	26.5000
	Runways	6	33.6092
		Subtotal	**60.1092**
		Total	**4,900.80**

Table 2: Utility System Lifeline Inventory

System	Component	# Locations / Segments	Replacement value (millions of dollars)
Potable Water	Distribution Lines	NA	330.0647
	Facilities	0	0.0000
	Pipelines	0	0.0000
		Subtotal	**330.0647**
Waste Water	Distribution Lines	NA	198.0388
	Facilities	9	1198.0719
	Pipelines	0	0.0000
		Subtotal	**1396.1107**
Natural Gas	Distribution Lines	NA	132.0259
	Facilities	9	1329.4746
	Pipelines	43	1801.0024
		Subtotal	**3262.5029**
Oil Systems	Facilities	1	0.0900
	Pipelines	0	0.0000
		Subtotal	**0.0900**
Electrical Power	Facilities	11	1537.5728
		Subtotal	**1537.5728**
Communication	Facilities	3	0.2700
		Subtotal	**0.2700**
		Total	**6,526.60**

Earthquake Scenario

Hazus uses the following set of information to define the earthquake parameters used for the earthquake loss estimate provided in this report.



Scenario Name	CarbonWY2500yr5M
Type of Earthquake	Probabilistic
Fault Name	NA
Historical Epicenter ID #	NA
Probabilistic Return Period	2,500.00
Longitude of Epicenter	NA
Latitude of Epicenter	NA
Earthquake Magnitude	5.00
Depth (km)	NA
Rupture Length (Km)	NA
Rupture Orientation (degrees)	NA
Attenuation Function	NA

Direct Earthquake Damage

Building Damage

Hazus estimates that about 432 buildings will be at least moderately damaged. This is over 4.00 % of the buildings in the region. There are an estimated 4 buildings that will be damaged beyond repair. The definition of the 'damage states' is provided in Volume 1: Chapter 5 of the Hazus technical manual. Table 3 below summarizes the expected damage by general occupancy for the buildings in the region. Table 4 below summarizes the expected damage by general building type.

Damage Categories by General Occupancy Type

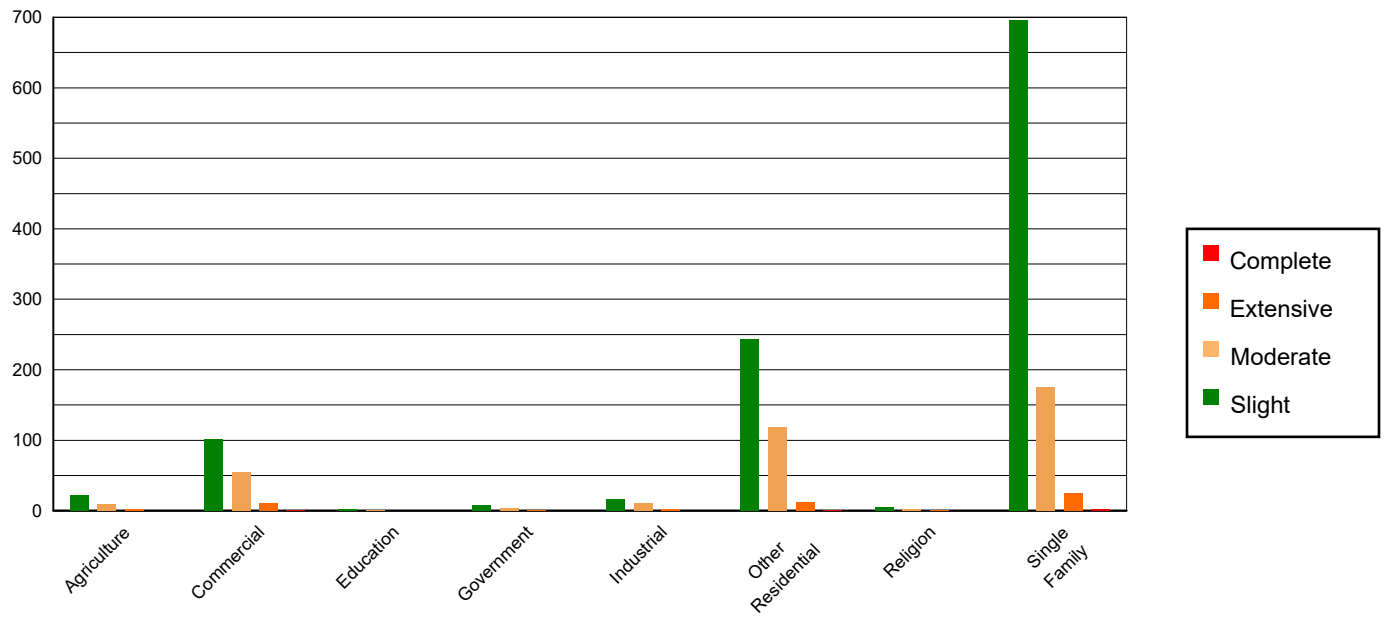


Table 3: Expected Building Damage by Occupancy

	None		Slight		Moderate		Extensive		Complete	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Agriculture	197.95	2.30	22.05	2.01	9.20	2.45	1.76	3.35	0.04	0.92
Commercial	763.78	8.88	101.67	9.29	54.68	14.57	11.22	21.29	0.64	15.89
Education	16.79	0.20	2.03	0.19	1.00	0.27	0.17	0.33	0.00	0.11
Government	63.98	0.74	7.13	0.65	3.38	0.90	0.50	0.94	0.02	0.45
Industrial	126.28	1.47	16.80	1.53	10.60	2.82	2.28	4.33	0.04	1.09
Other Residential	1468.79	17.07	243.35	22.24	118.62	31.61	11.83	22.43	0.41	10.21
Religion	41.43	0.48	5.03	0.46	2.19	0.58	0.34	0.65	0.00	0.10
Single Family	5926.51	68.87	696.36	63.63	175.64	46.80	24.62	46.69	2.88	71.22
Total	**8,606**		**1,094**		**375**		**53**		**4**	

Table 4: Expected Building Damage by Building Type (All Design Levels)

	None		Slight		Moderate		Extensive		Complete	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Wood	6321.64	73.46	703.52	64.28	123.40	32.88	7.43	14.09	0.00	0.00
Steel	265.51	3.09	27.45	2.51	16.07	4.28	2.33	4.41	0.08	2.05
Concrete	216.94	2.52	32.67	2.98	16.14	4.30	2.20	4.18	0.03	0.73
Precast	140.56	1.63	19.79	1.81	18.08	4.82	5.35	10.14	0.09	2.25
RM	531.71	6.18	46.89	4.28	34.84	9.28	6.51	12.34	0.02	0.39
URM	420.53	4.89	110.96	10.14	73.09	19.47	20.50	38.89	3.72	91.90
MH	708.62	8.23	153.14	13.99	93.68	24.96	8.41	15.95	0.11	2.67
Total	**8,606**		**1,094**		**375**		**53**		**4**	

*Note:

RM Reinforced Masonry
URM Unreinforced Masonry
MH Manufactured Housing

Essential Facility Damage

Before the earthquake, the region had 25 hospital beds available for use. On the day of the earthquake, the model estimates that only 22 hospital beds (90.00%) are available for use by patients already in the hospital and those injured by the earthquake. After one week, 99.00% of the beds will be back in service. By 30 days, 100.00% will be operational.

Table 5: Expected Damage to Essential Facilities

Classification	Total	# Facilities		
		At Least Moderate Damage > 50%	Complete Damage > 50%	With Functionality > 50% on day 1
Hospitals	1	0	0	1
Schools	12	0	0	12
EOCs	1	0	0	1
PoliceStations	7	0	0	7
FireStations	15	0	0	15

Transportation Lifeline Damage

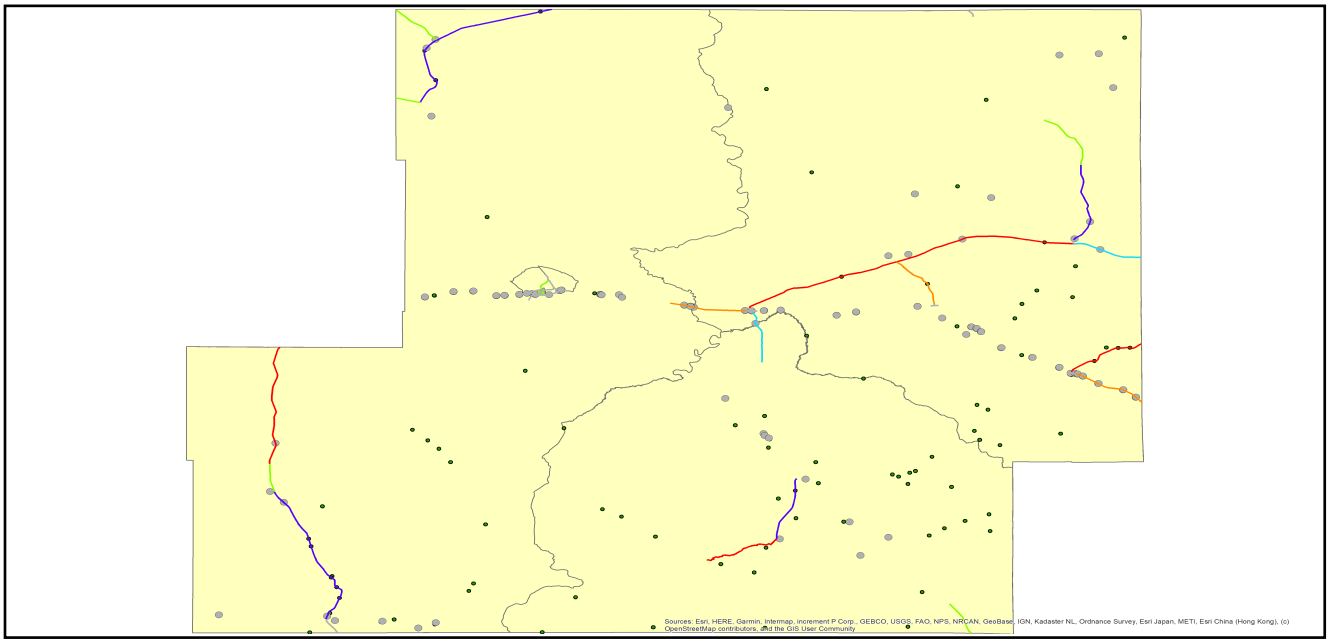


Table 6: Expected Damage to the Transportation Systems

System	Component		Number of Locations			
		Locations/ Segments	With at Least Mod. Damage	With Complete Damage	With Functionality > 50 %	
					After Day 1	After Day 7
Highway	Segments	80	0	0	80	80
	Bridges	207	0	0	207	207
	Tunnels	0	0	0	0	0
Railways	Segments	66	0	0	66	66
	Bridges	45	0	0	45	45
	Tunnels	0	0	0	0	0
	Facilities	0	0	0	0	0
Light Rail	Segments	0	0	0	0	0
	Bridges	0	0	0	0	0
	Tunnels	0	0	0	0	0
	Facilities	0	0	0	0	0
Bus	Facilities	1	0	0	1	1
Ferry	Facilities	0	0	0	0	0
Port	Facilities	0	0	0	0	0
Airport	Facilities	5	0	0	5	5
	Runways	6	0	0	6	6

Table 6 provides damage estimates for the transportation system.

Note: Roadway segments, railroad tracks and light rail tracks are assumed to be damaged by ground failure only. If ground failure maps are not provided, damage estimates to these components will not be computed.

Tables 7-9 provide information on the damage to the utility lifeline systems. Table 7 provides damage to the utility system facilities. Table 8 provides estimates on the number of leaks and breaks by the pipelines of the utility systems. For electric power and potable water, Hazus performs a simplified system performance analysis. Table 9 provides a summary of the system performance information.

Table 7 : Expected Utility System Facility Damage

System	# of Locations				
	Total #	With at Least Moderate Damage	With Complete Damage	with Functionality > 50 %	
				After Day 1	After Day 7
Potable Water	0	0	0	0	0
Waste Water	9	0	0	9	9
Natural Gas	9	0	0	9	9
Oil Systems	1	0	0	1	1
Electrical Power	11	4	0	11	11
Communication	3	0	0	3	3

Table 8 : Expected Utility System Pipeline Damage (Site Specific)

System	Total Pipelines Length (miles)	Number of Leaks	Number of Breaks
Potable Water	10,255	132	33
Waste Water	6,153	67	17
Natural Gas	459	2	1
Oil	0	0	0

Table 9: Expected Potable Water and Electric Power System Performance

	Total # of Households	Number of Households without Service				
		At Day 1	At Day 3	At Day 7	At Day 30	At Day 90
Potable Water	5,921	0	0	0	0	0
Electric Power		0	0	0	0	0

Induced Earthquake Damage

Fire Following Earthquake

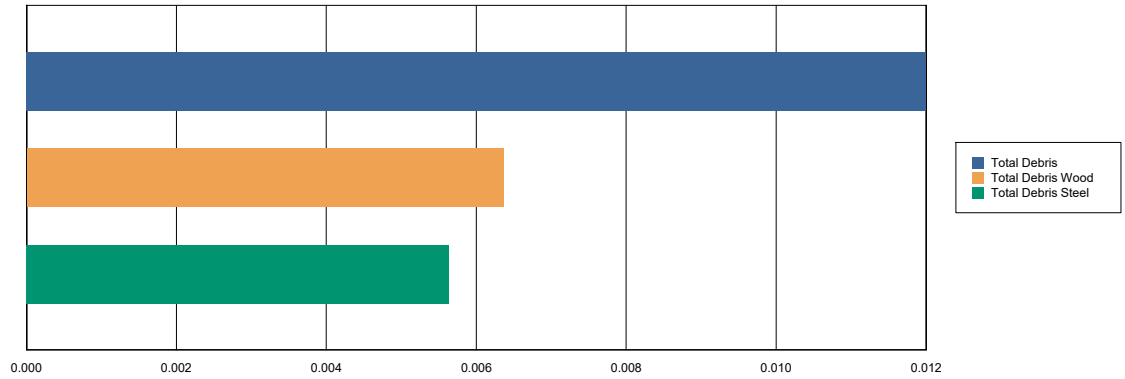
Fires often occur after an earthquake. Because of the number of fires and the lack of water to fight the fires, they can often burn out of control. Hazus uses a Monte Carlo simulation model to estimate the number of ignitions and the amount of burnt area. For this scenario, the model estimates that there will be 0 ignitions that will burn about 0.00 sq. mi 0.00 % of the region's total area.) The model also estimates that the fires will displace about 0 people and burn about 0 (millions of dollars) of building value.

Debris Generation

Hazus estimates the amount of debris that will be generated by the earthquake. The model breaks the debris into two general categories: a) Brick/Wood and b) Reinforced Concrete/Steel. This distinction is made because of the different types of material handling equipment required to handle the debris.

The model estimates that a total of 12,000 tons of debris will be generated. Of the total amount, Brick/Wood comprises 53.00% of the total, with the remainder being Reinforced Concrete/Steel. If the debris tonnage is converted to an estimated number of truckloads, it will require 480 truckloads (@25 tons/truck) to remove the debris generated by the earthquake.

Earthquake Debris (millions of tons)



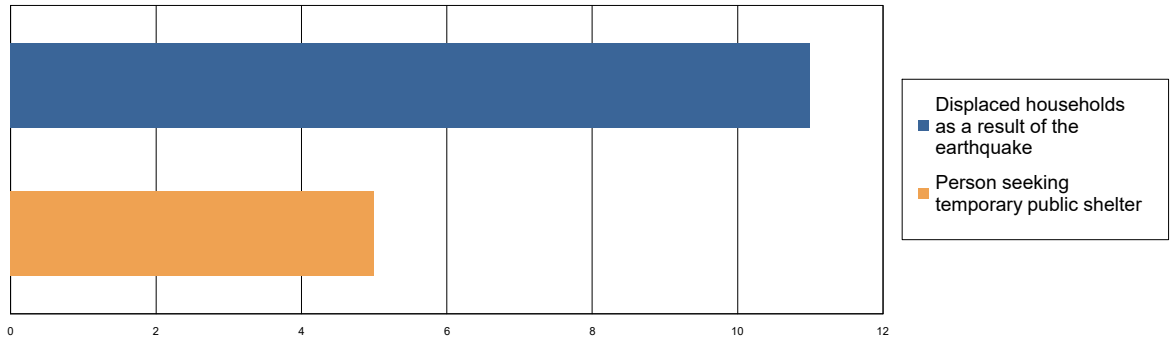
Brick/ Wood	Reinforced Concrete/Steel	Total Debris	Truck Load
0.01	0.01	0.01	480 (@25 tons/truck)

Social Impact

Shelter Requirement

Hazus estimates the number of households that are expected to be displaced from their homes due to the earthquake and the number of displaced people that will require accommodations in temporary public shelters. The model estimates 11 households to be displaced due to the earthquake. Of these, 5 people (out of a total population of 14,537) will seek temporary shelter in public shelters.

Displaced Households/ Persons Seeking Short Term Public Shelter



Displaced households as a result of the earthquake	Persons seeking temporary public shelter
11	5

Casualties

Hazus estimates the number of people that will be injured and killed by the earthquake. The casualties are broken down into four (4) severity levels that describe the extent of the injuries. The levels are described as follows;

- Severity Level 1: Injuries will require medical attention but hospitalization is not needed.
- Severity Level 2: Injuries will require hospitalization but are not considered life-threatening
- Severity Level 3: Injuries will require hospitalization and can become life threatening if not promptly treated.
- Severity Level 4: Victims are killed by the earthquake.

The casualty estimates are provided for three (3) times of day: 2:00 AM, 2:00 PM and 5:00 PM. These times represent the periods of the day that different sectors of the community are at their peak occupancy loads. The 2:00 AM estimate considers that the residential occupancy load is maximum, the 2:00 PM estimate considers that the educational, commercial and industrial sector loads are maximum and 5:00 PM represents peak commute time.

Table 10 provides a summary of the casualties estimated for this earthquake

Table 10: Casualty Estimates

		Level 1	Level 2	Level 3	Level 4
2 AM	Commercial	0.07	0.01	0.00	0.00
	Commuting	0.00	0.00	0.00	0.00
	Educational	0.00	0.00	0.00	0.00
	Hotels	0.00	0.00	0.00	0.00
	Industrial	0.03	0.00	0.00	0.00
	Other-Residential	1.77	0.20	0.01	0.02
	Single Family	2.71	0.38	0.04	0.07
	Total	**5**	**1**	**0**	**0**
2 PM	Commercial	4.56	0.61	0.05	0.09
	Commuting	0.00	0.00	0.00	0.00
	Educational	0.41	0.04	0.00	0.00
	Hotels	0.00	0.00	0.00	0.00
	Industrial	0.24	0.03	0.00	0.00
	Other-Residential	0.85	0.10	0.01	0.01
	Single Family	1.36	0.20	0.02	0.04
	Total	**7**	**1**	**0**	**0**
5 PM	Commercial	2.62	0.35	0.03	0.05
	Commuting	0.00	0.00	0.00	0.00
	Educational	0.00	0.00	0.00	0.00
	Hotels	0.00	0.00	0.00	0.00
	Industrial	0.15	0.02	0.00	0.00
	Other-Residential	0.66	0.08	0.00	0.01
	Single Family	1.06	0.16	0.02	0.03
	Total	**4**	**1**	**0**	**0**

Economic Loss

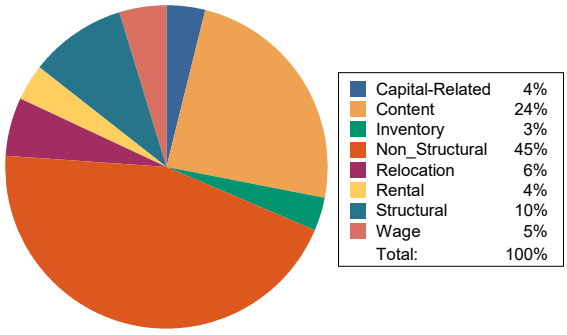
The total economic loss estimated for the earthquake is 581.74 (millions of dollars), which includes building and lifeline related losses based on the region's available inventory. The following three sections provide more detailed information about these losses.

Building-Related Losses

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

The total building-related losses were 81.96 (millions of dollars); 18 % of the estimated losses were related to the business interruption of the region. By far, the largest loss was sustained by the residential occupancies which made up over 43 % of the total loss. Table 11 below provides a summary of the losses associated with the building damage.

Earthquake Losses by Loss Type ($ millions)



Earthquake Losses by Occupancy Type ($ millions)

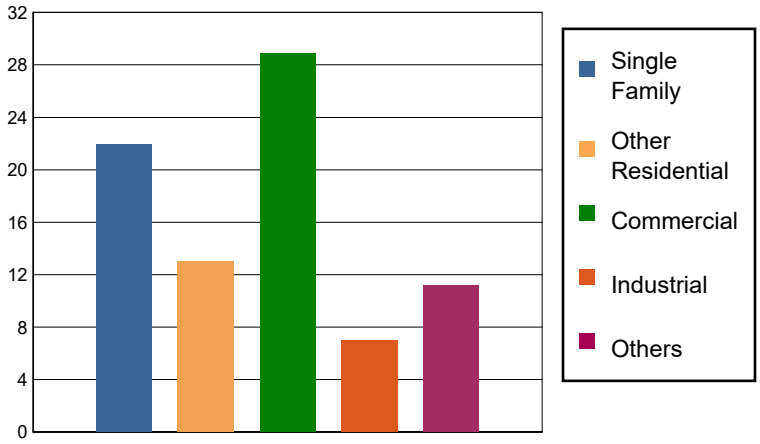


Table 11: Building-Related Economic Loss Estimates

(Millions of dollars)

Category	Area	Single Family	Other Residential	Commercial	Industrial	Others	Total
Income Losses							
	Wage	0.0000	0.6491	2.8791	0.0487	0.2733	3.8502
	Capital-Related	0.0000	0.2755	2.8885	0.0488	0.0448	3.2576
	Rental	0.4043	1.0954	1.3035	0.0379	0.0976	2.9387
	Relocation	1.4335	0.5599	1.8621	0.2586	0.7149	4.8290
	Subtotal	**1.8378**	**2.5799**	**8.9332**	**0.3940**	**1.1306**	**14.8755**
Capital Stock Losses							
	Structural	2.5071	1.1387	2.3617	0.6304	1.3431	7.9810
	Non_Structural	12.3327	7.0986	9.9692	3.1275	4.1693	36.6973
	Content	5.2288	2.2340	6.6071	2.3961	3.2015	19.6675
	Inventory	0.0000	0.0000	1.0235	0.3916	1.3206	2.7357
	Subtotal	**20.0686**	**10.4713**	**19.9615**	**6.5456**	**10.0345**	**67.0815**
	Total	**21.91**	**13.05**	**28.89**	**6.94**	**11.17**	**81.96**

Transportation and Utility Lifeline Losses

For the transportation and utility lifeline systems, Hazus computes the direct repair cost for each component only. There are no losses computed by Hazus for business interruption due to lifeline outages. Tables 12 & 13 provide a detailed breakdown in the expected lifeline losses.

Table 12: Transportation System Economic Losses

(Millions of dollars)

System	Component	Inventory Value	Economic Loss	Loss Ratio (%)
Highway	Segments	4114.3896	0.0000	0.00
	Bridges	340.7626	0.0666	0.02
	Tunnels	0.0000	0.0000	0.00
	Subtotal	**4455.1522**	**0.0666**	
Railways	Segments	185.5242	0.0000	0.00
	Bridges	198.2250	0.0010	0.00
	Tunnels	0.0000	0.0000	0.00
	Facilities	0.0000	0.0000	0.00
	Subtotal	**383.7492**	**0.0010**	
Light Rail	Segments	0.0000	0.0000	0.00
	Bridges	0.0000	0.0000	0.00
	Tunnels	0.0000	0.0000	0.00
	Facilities	0.0000	0.0000	0.00
	Subtotal	**0.0000**	**0.0000**	
Bus	Facilities	1.7428	0.2414	13.85
	Subtotal	**1.7428**	**0.2414**	
Ferry	Facilities	0.0000	0.0000	0.00
	Subtotal	**0.0000**	**0.0000**	
Port	Facilities	0.0000	0.0000	0.00
	Subtotal	**0.0000**	**0.0000**	
Airport	Facilities	26.5000	3.4328	12.95
	Runways	33.6092	0.0000	0.00
	Subtotal	**60.1092**	**3.4328**	
	Total	**4,900.75**	**3.74**	

Table 13: Utility System Economic Losses

(Millions of dollars)

System	Component	Inventory Value	Economic Loss	Loss Ratio (%)
Potable Water	Pipelines	0.0000	0.0000	0.00
	Facilities	0.0000	0.0000	0.00
	Distribution Lines	330.0647	0.5958	0.18
	Subtotal	**330.0647**	**0.5958**	
Waste Water	Pipelines	0.0000	0.0000	0.00
	Facilities	1198.0719	71.8384	6.00
	Distribution Lines	198.0388	0.2993	0.15
	Subtotal	**1396.1107**	**72.1377**	
Natural Gas	Pipelines	1801.0024	0.0000	0.00
	Facilities	1329.4746	91.6908	6.90
	Distribution Lines	132.0259	0.1025	0.08
	Subtotal	**3262.5029**	**91.7933**	
Oil Systems	Pipelines	0.0000	0.0000	0.00
	Facilities	0.0900	0.0059	6.56
	Subtotal	**0.0900**	**0.0059**	
Electrical Power	Facilities	1537.5728	331.4663	21.56
	Subtotal	**1537.5728**	**331.4663**	
Communication	Facilities	0.2700	0.0435	16.11
	Subtotal	**0.2700**	**0.0435**	
	Total	**6,526.61**	**496.04**	

Appendix A: County Listing for the Region

Carbon,WY

Appendix B: Regional Population and Building Value Data

State	County Name	Population	Building Value (millions of dollars)		
			Residential	Non-Residential	Total
Wyoming					
	Carbon	14,537	2,234	1,570	3,804
Total Region		**14,537**	**2,234**	**1,570**	**3,804**

Appendix A: FEMA Approval

U.S. Department of Homeland Security
Region 8
Denver Federal Center, Building 710
P.O. Box 25267
Denver, CO 80225-0267

FEMA

R8-MT

September 8, 2025

Justin Markiewicz
State Hazard Mitigation Officer
Wyoming Office of Homeland Security
5500 Bishop Boulevard - East Door
Cheyenne, Wyoming 82002

Dear Mr. Markiewicz:

We are pleased to announce the approval of the Wyoming Region 3 Hazard Mitigation Plan as meeting the requirements of the Stafford Act and Title 44 of the Code of Federal Regulations § 201.6 for a local hazard mitigation plan. The plan approval extends to the Counties of Albany and Carbon, the Cities of Laramie and Rawlins, the Towns of Rock River, Baggs, Dixon, Elk Mountain, Encampment, Hanna, Medicine Bow, Riverside, Saratoga, and Sinclair, and the Districts of Albany County Fire District #1, Laramie Rivers Conservation District, Albany School District #1, Wold Improvement and Service District, Pioneer Canal – Lake Hattie Irrigation District, Saratoga-Encampment-Rawlins Conservation District, Medicine Bow Conservation District, Little Snake River Conservation District, Carbon County School District #2, Carbon County Fire Protection District, and Sierra Madre Water and Sewer Joint Powers Board.

Mitigation plans may include additional content to meet Element H: Additional State Requirements or content the local government included beyond applicable FEMA mitigation planning requirements. FEMA approval does not include the review or approval of content that exceeds these applicable FEMA mitigation planning requirements.

The jurisdictions are hereby eligible for FEMA mitigation grant programs. All requests for funding will be evaluated individually according to the specific eligibility and other requirements of the particular programs under which the application is submitted.

The approval period for this plan is September 8, 2025, through September 7, 2030. A local jurisdiction must revise its plan and resubmit it for approval within five years to continue to be eligible for mitigation project grant funding. We have provided recommendations for the next plan update on the enclosed Plan Review Tool.

We wish to thank the jurisdictions for participating in the process and commend your continued commitment to mitigation planning.

Sincerely,

Nicole M. Aimone
Mitigation Division Director

Enclosure

Local Mitigation Plan Review Tool

Cover Page

The Local Mitigation Plan Review Tool (PRT) demonstrates how the local mitigation plan meets the regulation in 44 CFR § 201.6 and offers states and FEMA Mitigation Planners an opportunity to provide feedback to the local governments, including special districts.

1. The Multi-Jurisdictional Summary Sheet is a worksheet that is used to document how each jurisdiction met the requirements of the plan elements (Planning Process; Risk Assessment; Mitigation Strategy; Plan Maintenance; Plan Update; and Plan Adoption).
2. The Plan Review Checklist summarizes FEMA's evaluation of whether the plan has addressed all requirements.

For greater clarification of the elements in the Plan Review Checklist, please see Section 4 of this guide. Definitions of the terms and phrases used in the PRT can be found in Appendix E of this guide.

Plan Information	
Jurisdiction(s)	Albany and Carbon Counties and Local Governments
Title of Plan	Wyoming Region 3 Hazard Mitigation Plan
New Plan or Update	Update
Single- or Multi-Jurisdiction	Multi-jurisdiction
Date of Plan	2025
Local Point of Contact	
Title	Kate Allred, County Coordinator
Agency	Albany County EM
Address	2374 W. Jefferson Street, Laramie, WY 82070
Phone Number	(307) 399-3576
Email	kallred@albanycountywy.gov

Additional Point of Contact	
Title	Lenny Layman, County Coordinator
Agency	Carbon County EM
Address	1012 Hugus Rd, Rawlins, WY 82301
Phone Number	307-321-1514
Email	lennylayman@carboncountywy.gov

Review Information	
State Review	
State Reviewer(s) and Title	Click or tap here to enter text.
State Review Date	Click or tap to enter a date.
FEMA Review	
FEMA Reviewer(s) and Title	Ariana Borrello, Community Planner, IR Rob Pressly, Community Planner, QC
Date Received in FEMA Region	3/10/2025; 4/28/2025
Plan Not Approved	4/22/2025
Plan Approvable Pending Adoption	4/28/2025
Plan Approved	9/8/2025

Multi-Jurisdictional Summary Sheet

In the boxes for each element, mark if the element is met (Y) or not met (N).

#	Jurisdiction Name	A. Planning Process	B. Risk Assessment	C. Mitigation Strategy	D. Plan Maintenance	E. Plan Update	F. Plan Adoption	G. HHPD Requirements	H. State Requirements
1	**Albany County**	Y	Y	Y	Y	Y	Y	Y	N/A
2	Laramie	Y	Y	Y	Y	Y	Y	N/A	N/A
3	Town of Rock River	Y	Y	Y	Y	Y	Y	N/A	N/A
4	Albany County Fire District #1	Y	Y	Y	Y	N/A	Y	N/A	N/A
5	Laramie Rivers Conservation District	Y	Y	Y	Y	N/A	Y	N/A	N/A
6	Albany School District #1	Y	Y	Y	Y	N/A	Y	N/A	N/A
7	Albany County Hospital District (Ivinson)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8	Wold Improvement and Service District	Y	Y	Y	Y	N/A	Y	N/A	N/A
9	Pioneer Canal – Lake Hattie Irrigation District	Y	Y	Y	Y	N/A	Y	N/A	N/A
10	**Carbon County**	Y	Y	Y	Y	Y	Y	Y	N/A
11	City of Rawlins	Y	Y	Y	Y	Y	Y	N/A	N/A
12	Town of Baggs	Y	Y	Y	Y	Y	Y	N/A	N/A
13	Town of Dixon	Y	Y	Y	Y	Y	Y	N/A	N/A
14	Town of Elk Mountain	Y	Y	Y	Y	Y	Y	N/A	N/A
15	Town of Encampment	Y	Y	Y	Y	Y	Y	N/A	N/A
16	Town of Hanna	Y	Y	Y	Y	Y	Y	N/A	N/A
17	Town of Medicine Bow	Y	Y	Y	Y	Y	Y	N/A	N/A
18	Town of Riverside	Y	Y	Y	Y	Y	Y	N/A	N/A
19	Town of Saratoga	Y	Y	Y	Y	Y	Y	N/A	N/A

#	Jurisdiction Name	A. Planning Process	B. Risk Assessment	C. Mitigation Strategy	D. Plan Maintenance	E. Plan Update	F. Plan Adoption	G. HHPD Requirements	H. State Requirements
20	Town of Sinclair	Y	Y	Y	Y	Y	Y	N/A	N/A
21	SER (Saratoga-Encampment-Rawlins) Conservation District	Y	Y	Y	Y	Y	Y	N/A	N/A
22	Medicine Bow Conservation District	Y	Y	Y	Y	N/A	Y	N/A	N/A
23	Little Snake River Conservation District	Y	Y	Y	Y	N/A	Y	N/A	N/A
24	Carbon County School District #2	Y	Y	Y	Y	N/A	Y	N/A	N/A
25	Carbon County Fire Protection District	Y	Y	Y	Y	N/A	Y	N/A	N/A
26	Sierra Madre Water & Sewer Joint Powers Board	Y	Y	Y	Y	N/A	Y	N/A	N/A

Plan Review Checklist

The Plan Review Checklist is completed by FEMA. States and local governments are encouraged, but not required, to use the PRT as a checklist to ensure all requirements have been met prior to submitting the plan for review and approval. The purpose of the checklist is to identify the location of relevant or applicable content in the plan by element/sub-element and to determine if each requirement has been "met" or "not met." FEMA completes the "required revisions" summary at the bottom of each element to clearly explain the revisions that are required for plan approval. Required revisions must be explained for each plan sub-element that is "not met." Sub-elements in each summary should be referenced using the appropriate numbers (A1, B3, etc.), where applicable. Requirements for each element and sub-element are described in detail in Section 4: Local Plan Requirements of this guide.

Plan updates must include information from the current planning process.

If some elements of the plan do not require an update, due to minimal or no changes between updates, the plan must document the reasons for that.

Multi-jurisdictional elements must cover information unique to all participating jurisdictions.

Element A: Planning Process

Element A Requirements	Location in Plan (section and/or page number)	Met / Not Met
A1. Does the plan document the planning process, including how it was prepared and who was involved in the process for each jurisdiction? (Requirement 44 CFR § 201.6(c)(1))		
A1-a. Does the plan document how the plan was prepared, including the schedule or time frame and activities that made up the plan's development, as well as who was involved?	Planning Process > Update Process and Methodology & Planning Activities & Public and Stakeholder Participation Appendix B	Met
A1-b. Does the plan list the jurisdiction(s) participating in the plan that seek approval, and describe how they participated in the planning process?	Planning Process > Update Process and Methodology & Planning Activities	Met

Element A Requirements	Location in Plan (section and/or page number)	Met / Not Met
A2. Does the plan document an opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development as well as businesses, academia, and other private and non-profit interests to be involved in the planning process? (Requirement 44 CFR § 201.6(b)(2))		
A2-a. Does the plan identify all stakeholders involved or given an opportunity to be involved in the planning process, and how each stakeholder was presented with this opportunity?	Planning Process > Update Process and Methodology & Public and Stakeholder Participation Appendix B	Met
A3. Does the plan document how the public was involved in the planning process during the drafting stage and prior to plan approval? (Requirement 44 CFR § 201.6(b)(1))		
A3-a. Does the plan document how the public was given the opportunity to be involved in the planning process and how their feedback was included in the plan?	Planning Process > Public and Stakeholder Participation Appendix C County Annex: > County Public Survey Results	Met
A4. Does the plan describe the review and incorporation of existing plans, studies, reports, and technical information? (Requirement 44 CFR § 201.6(b)(3))		
A4-a. Does the plan document what existing plans, studies, reports and technical information were reviewed for the development of the plan, as well as how they were incorporated into the document?	Planning Process > Update Process and Methodology > Stakeholders County Annex: > Planning Process > Incorporation of Existing Plans & Information	Met

Element A Required Revisions
Required Revision: Click or tap here to enter text.

Element B: Risk Assessment

Element B Requirements	Location in Plan (section and/or page number)	Met / Not Met
B1. Does the plan include a description of the type, location, and extent of all natural hazards that can affect the jurisdiction? Does the plan also include information on previous occurrences of hazard events and on the probability of future hazard events? (Requirement 44 CFR § 201.6(c)(2)(i))		
B1-a. Does the plan describe all natural hazards that can affect the jurisdiction(s) in the planning area, and does it provide the rationale if omitting any natural hazards that are commonly recognized to affect the jurisdiction(s) in the planning area?	Hazard Identification and Risk Assessment > Identified Hazards of Concern & Hazard Risk Summary	Met
B1-b. Does the plan include information on the location of each identified hazard?	County Annex: x Hazard > Location	Met
B1-c. Does the plan describe the extent for each identified hazard?	County Annex: x Hazard > Severity	Met
B1-d. Does the plan include the history of previous hazard events for each identified hazard?	Hazard Identification and Risk Assessment > Disaster Declaration History County Annex: x Hazard > Previous Occurrences	Met
B1-e. Does the plan include the probability of future events for each identified hazard, including the type, location and range of anticipated intensities?	Hazard Identification and Risk Assessment > x Hazard > Climate Change Impacts County Annex: x Hazard > Probability of Future Occurrences	Met

Element B Requirements	Location in Plan (section and/or page number)	Met / Not Met
B1-f. For participating jurisdictions in a multi-jurisdictional plan, does the plan describe any hazards that are unique to and/or vary from those affecting the overall planning area?	Hazard Identification and Risk Assessment > Hazard Risk Summary County Annex: Hazard Identification and Risk Assessment > Intro Section & Table	Met
B2. Does the plan include a summary of the jurisdiction's vulnerability and the impacts on the community from the identified hazards? Does this summary also address NFIP-insured structures that have been repetitively damaged by floods? (Requirement 44 CFR § 201.6(c)(2)(ii))		
B2-a. Does the plan provide an overall summary of each jurisdiction's vulnerability to the identified hazards?	County Annex: Hazard Identification and Risk Assessment > x Hazard > Exposure and Vulnerability	Met
B2-b. For each participating jurisdiction, does the plan describe the potential impacts of each of the identified hazards on each participating jurisdiction?	County Annex: Hazard Identification and Risk Assessment > x Hazard > Exposure and Vulnerability &, Future Trends in Development Hazard Identification and Risk Assessment > x Hazard > Climate Change Impacts	Met
B2-c. Does the plan address NFIP-insured structures within each jurisdiction that have been repetitively damaged by floods?	County Annex: Mitigation Strategy > Compliance with Floodplain Requirements	Met
Element B Required Revisions		
Required Revision:		

Element C: Mitigation Strategy

Element C Requirements	Location in Plan (section and/or page number)	Met / Not Met
C1. Does the plan document each participant's existing authorities, policies, programs and resources and its ability to expand on and improve these existing policies and programs? (Requirement 44 CFR § 201.6(c)(3))		
C1-a. Does the plan describe how the existing capabilities of each participant are available to support the mitigation strategy? Does this include a discussion of the existing building codes and land use and development ordinances or regulations?	County Annex: Mitigation Strategy > Mitigation Capabilities	Met
C1-b. Does the plan describe each participant's ability to expand and improve the identified capabilities to achieve mitigation?	County Annex: Mitigation Strategy > Mitigation Capabilities > Intro Section & Primary Capabilities to Expand Table	Met
C2. Does the plan address each jurisdiction's participation in the NFIP and continued compliance with NFIP requirements, as appropriate? (Requirement 44 CFR § 201.6(c)(3)(ii))		
C2-a. Does the plan contain a narrative description or a table/list of their participation activities?	County Annex: Mitigation Strategy > Compliance with Floodplain Requirements	Met
C3. Does the plan include goals to reduce/avoid long-term vulnerabilities to the identified hazards? (Requirement 44 CFR § 201.6(c)(3)(i))		
C3-a. Does the plan include goals to reduce the risk from the hazards identified in the plan?	Mitigation Strategy > Mitigation Goals	Met

Element C Requirements	Location in Plan (section and/or page number)	Met / Not Met
C4. Does the plan identify and analyze a comprehensive range of specific mitigation actions and projects for each jurisdiction being considered to reduce the effects of hazards, with emphasis on new and existing buildings and infrastructure? (Requirement 44 CFR § 201.6(c)(3)(ii))		
C4-a. Does the plan include an analysis of a comprehensive range of actions/projects that each jurisdiction considered to reduce the impacts of hazards identified in the risk assessment?	Mitigation Strategy > Identification and Analysis of Mitigation Actions County Annex: Mitigation Strategy > 2025 Mitigation Actions Appendix C	Met
C4-b. Does the plan include one or more action(s) per jurisdiction for each of the hazards as identified within the plan's risk assessment?	County Annex: Mitigation Strategy > 2025 Actions	Met
C5. Does the plan contain an action plan that describes how the actions identified will be prioritized (including a cost-benefit review), implemented, and administered by each jurisdiction? (Requirement 44 CFR § 201.6(c)(3)(iv)); (Requirement §201.6(c)(3)(iii))		
C5-a. Does the plan describe the criteria used for prioritizing actions?	Mitigation Strategy > Identification and Analysis of Mitigation Actions	Met
C5-b. Does the plan provide the position, office, department or agency responsible for implementing/administrating the identified mitigation actions, as well as potential funding sources and expected time frame?	County Annex: Mitigation Strategy > 2025 Actions	Met

Element C Required Revisions
Required Revision:

Element D: Plan Maintenance

Element D Requirements	Location in Plan (section and/or page number)	Met / Not Met
D1. Is there discussion of how each community will continue public participation in the plan maintenance process? (Requirement 44 CFR § 201.6(c)(4)(iii))		
D1-a. Does the plan describe how communities will continue to seek future public participation after the plan has been approved?	County Annex: Mitigation Strategy > Continued Public Engagement	Met
D2. Is there a description of the method and schedule for keeping the plan current (monitoring, evaluating and updating the mitigation plan within a five-year cycle)? (Requirement 44 CFR § 201.6(c)(4)(i))		
D2-a. Does the plan describe the process that will be followed to track the progress/status of the mitigation actions identified within the Mitigation Strategy, along with when this process will occur and who will be responsible for the process?	County Annex: Mitigation Strategy > Plan Monitoring and Maintenance	Met
D2-b. Does the plan describe the process that will be followed to evaluate the plan for effectiveness? This process must identify the criteria that will be used to evaluate the information in the plan, along with when this process will occur and who will be responsible.	County Annex: Mitigation Strategy > Plan Monitoring and Maintenance	Met
D2-c. Does the plan describe the process that will be followed to update the plan, along with when this process will occur and who will be responsible for the process?	County Annex: Mitigation Strategy > Plan Monitoring and Maintenance	Met
D3. Does the plan describe a process by which each community will integrate the requirements of the mitigation plan into other planning mechanisms, such as comprehensive or capital improvement plans, when appropriate? (Requirement 44 CFR § 201.6(c)(4)(ii))		
D3-a. Does the plan describe the process the community will follow to integrate the ideas, information and strategy of the mitigation plan into other planning mechanisms?	County Annex: Planning Process > Planning Integration	Met
D3-b. Does the plan identify the planning mechanisms for each plan participant into which the ideas, information and strategy from the mitigation plan may be integrated?	County Annex: Planning Process > Planning Integration	Met

Element D Requirements	Location in Plan (section and/or page number)	Met / Not Met
D3-c. For multi-jurisdictional plans, does the plan describe each participant's individual process for integrating information from the mitigation strategy into their identified planning mechanisms?	County Annex: Planning Process > Planning Integration	Met
Element D Required Revisions		
Required Revision: Click or tap here to enter text.		

Element E: Plan Update

Element E Requirements	Location in Plan (section and/or page number)	Met / Not Met
E1. Was the plan revised to reflect changes in development? (Requirement 44 CFR § 201.6(d)(3))		
E1-a. Does the plan describe the changes in development that have occurred in hazard-prone areas that have increased or decreased each community's vulnerability since the previous plan was approved?	County Annex: Hazard Identification and Risk Assessment > x Hazard > Trends in Development	Met
E2. Was the plan revised to reflect changes in priorities and progress in local mitigation efforts? (Requirement 44 CFR § 201.6(d)(3))		
E2-a. Does the plan describe how it was revised due to changes in community priorities?	County Annex: Mitigation Strategy > Changes in Community Priorities	Met
E2-b. Does the plan include a status update for all mitigation actions identified in the previous mitigation plan?	County Annex: Mitigation Strategy > 2020 Mitigation Actions	Met
E2-c. Does the plan describe how jurisdictions integrated the mitigation plan, when appropriate, into other planning mechanisms?	County Annex: Planning Process > Planning Integration	Met

Element E Required Revisions
Required Revision: Click or tap here to enter text.

Element F: Plan Adoption

Element F Requirements	Location in Plan (section and/or page number)	Met / Not Met
F1. For single-jurisdictional plans, has the governing body of the jurisdiction formally adopted the plan to be eligible for certain FEMA assistance? (Requirement 44 CFR § 201.6(c)(5))		
F1-a. Does the participant include documentation of adoption?		
F2. For multi-jurisdictional plans, has the governing body of each jurisdiction officially adopted the plan to be eligible for certain FEMA assistance? (Requirement 44 CFR § 201.6(c)(5))		
F2-a. Did each participant adopt the plan and provide documentation of that adoption?	County Annex: Adoptions	Met
Element F Required Revisions		
Required Revision: Click or tap here to enter text.		

Element G: High Hazard Potential Dams (Optional)

HHPD Requirements	Location in Plan (section and/or page number)	Met / Not Met
HHPD1. Did the plan describe the incorporation of existing plans, studies, reports and technical information for HHPDs?		
HHPD1-a. Does the plan describe how the local government worked with local dam owners and/or the state dam safety agency?	Planning Process > Update Process and Methodology > Stakeholders Appendix B	Met

HHPD Requirements	Location in Plan (section and/or page number)	Met / Not Met
HHPD1-b. Does the plan incorporate information shared by the state and/or local dam owners?	Planning Process > Update Process and Methodology > Stakeholders County Annex: Hazard Identification and Risk Assessment > Dam / Levee Incident > Intro Section & Location	Met
HHPD2. Did the plan address HHPDs in the risk assessment?		
HHPD2-a. Does the plan describe the risks and vulnerabilities to and from HHPDs?	County Annex: HIRA > Dam / Levee Incident > Exposure and Vulnerability & Intro Dams Table HIRA > Dam / Levee Incident > General Background	Met
HHPD2-b. Does the plan document the limitations and describe how to address deficiencies?	HIRA > Dam / Levee Incident > General Background & Exposure and Vulnerability County Annex: Hazard Identification and Risk Assessment > Dam / Levee Incident > Location	Met
HHPD3. Did the plan include mitigation goals to reduce long-term vulnerabilities from HHPDs?		
HHPD3-a. Does the plan address how to reduce vulnerabilities to and from HHPDs as part of its own goals or with other long-term strategies?	Mitigation Strategy > Mitigation Goals	Met
HHPD3-b. Does the plan link proposed actions to reducing long-term vulnerabilities that are consistent with its goals?	County Annex: Mitigation Strategy > 2025 Actions	Met

HHPD Requirements	Location in Plan (section and/or page number)	Met / Not Met
HHPD4-a. Did the plan include actions that address HHPDs and prioritize mitigation actions to reduce vulnerabilities from HHPDs?		
HHPD4-a. Does the plan describe specific actions to address HHPDs?	County Annex: Mitigation Strategy > 2025 Actions	Met
HHPD4-b. Does the plan describe the criteria used to prioritize actions related to HHPDs?	Mitigation Strategy > Identification and Analysis of Mitigation Actions	Met
HHPD4-c. Does the plan identify the position, office, department or agency responsible for implementing and administering the action to mitigate hazards to or from HHPDs?	County Annex: Mitigation Strategy > 2025 Actions	Met
HHPD Required Revisions		
Required Revision**:** Click or tap here to enter text.		

Element H: Additional State Requirements (Optional)

Element H Requirements	Location in Plan (section and/or page number)	Met / Not Met
This space is for the State to include additional requirements.		

Plan Assessment

These comments can be used to help guide your annual/regularly scheduled updates and the next plan update.

Element A. Planning Process

State:
Strengths
- [insert comments]

Opportunities for Improvement
- [insert comments]

FEMA:
Strengths
- Appendix B includes a comprehensive list of stakeholders that were invited to participate in the planning process. It's clear that the planning team ensured that all aspects of the community were considered and invited to provide input on the plan through intentional outreach via multiple platforms and organizations/representatives.
- The planning team made a strong effort to reach out to multiple areas of the community and public to provide feedback on the planning process, as shown in the 470 responses to the community online survey. The inclusion of physical flyers in combination with online methods allowed for a more comprehensive outreach strategy for public feedback.

Opportunities for Improvement
- While not required, consider including supporting documentation such as meeting minutes, sign-in-sheets, etc. in a Plan Appendix as a record of how decision were made and who was involved. Appendix B includes a comprehensive list of stakeholders that were invited to participate in the planning process and marks participants that were directly involved in the planning process but does not identify how each stakeholder participated in the planning process. For example, consider identifying if someone attended a meeting or provided data for a hazard risk profile.

Element B. Risk Assessment

State:
Strengths
- [insert comments]

Opportunities for Improvement
- [insert comments]

FEMA:
Strengths
- The hazard risk profiles include great maps, figures, and tables that accurately and clearly define risk, both future potential risk and past events. This level of detailed risk assessment will be useful for implementing mitigation projects and helps to inform a strong mitigation strategy. In particular, the inclusion of FEMA's Hazus Inventory National Database information, flood maps, and wildfire maps outline risk in visually interesting and understandable ways. The inclusion of

pictures throughout the hazard profiles also lends weight to the risk assessment and story of the hazard being profiled.

Opportunities for Improvement

- Ensure that hazard significance information stays consistent throughout the plan. For example, *Table 7 New 2025 Mitigation Actions* does not match *Table 24 Albany County Local Government Hazard Risk Ranking* since the Laramie Conservation District is noted as having no risk to Winter Storm in *Table 24 Albany County Local Government Hazard Risk Ranking* but this is not noted under section *9. Winter Storm in Table 7 New 2025 Mitigation Actions*.

Element C. Mitigation Strategy

State:
Strengths

- [insert comments]

Opportunities for Improvement

- [insert comments]

FEMA:
Strengths

- We appreciate seeing the integration of mitigation projects from other plans. For example, Laramie implementing stormwater system improvements identified in the Capitol Plan and the City of Rawlins' Master Water Plan recommendation to rehab or replace water infrastructure and storage tanks for drought resilience. This intentional integration strengthens not only the HMP but other community planning mechanisms and makes the mitigation action more likely to be implemented by broadening and confirming support as well as identifying additional funding opportunities.
- The notes included for many of the mitigation actions include details and benefits, making it clear how the action would reduce risk and vulnerability to the hazard.

Opportunities for Improvement

- While each jurisdiction includes at least one consideration of a capability to expand, it would be good to see a deeper analysis and discussion about each jurisdiction's capacity and ability to expand and improve capabilities. Included in the community profiles are the Headwaters Economics Rural Capacity findings. Consider diving into the data and comparing it to the findings in the capabilities assessment to really outline how capabilities can be improved.
- In the next plan update, include a wider range of mitigation actions that address high risk hazards. Many of the high-risk hazards are only addressed by an education and outreach action. While education and outreach actions are important and count towards meeting requirement C4-b, the plan would be made stronger by the inclusion of additional mitigation actions, showing a more comprehensive range of mitigation actions were considered. These may include actions that address local plans and regulations, structure and infrastructure projects, and natural systems protection, emphasizing reduced risk to existing buildings, structures and infrastructure, as well as limiting risk to new development and redevelopment.

Element D. Plan Maintenance

State:
Strengths

- [insert comments]

Opportunities for Improvement
- [insert comments]

FEMA:
Strengths
- The plan maintenance section lists disaster events, changes in hazard risk or vulnerability due to population change, development, changes in available funding resources, updated hazard studies or information, changes in governmental organizational structure, or public input/concerts as reasons for revising the plan. This shows that the participating jurisdictions see the plan as a living document that will reflect changes in the region.

Opportunities for Improvement
-

Element E. Plan Update

State:
Strengths
- [insert comments]

Opportunities for Improvement
- [insert comments]

FEMA:
Strengths
- It is great to see that the previous plan was clearly integrated into important local planning mechanisms as outlined in *Table 21 Albany County integration of the 2020 HMP* and *Table 25 Carbon County Integration of the 2020 HMP*. These tables include good detail on how the 2020 HMP was not only integrated into additional planning mechanisms, but also how it informed grants and supported the implementation of mitigation projects. The summary of accomplished mitigation successes since the 2020 HMP clearly shows that both Albany County and Carbon County are committed to mitigation.

Opportunities for Improvement
- [insert comments]

Element G. HHPD Requirements (Optional)

State:
Strengths
- [insert comments]

Opportunities for Improvement
- [insert comments]

FEMA:
Strengths

- Each county clearly identifies limitations and describes their approaches for addressing deficiencies by including them as mitigation actions in their mitigation strategy.

Opportunities for Improvement

- Each jurisdiction seeking eligibility for HHPD should develop more than one mitigation strategy that addresses dam failure. To fully meet Element HHDP4-a, each jurisdiction will need to describe a range of actions that address HHPD risk. Examples of the type of HHPD actions that meet this requirement, as identified in the Local Mitigation Planning Policy, include rehabilitating/removing dams, adopting and enforcing land use ordinances in inundation zones, elevating structures in inundation zones, and adding flood protection, such as berms, floodwalls or floodproofing, in inundation zones.

Element H. Additional State Requirements (Optional)

Strengths

- [insert comments]

Opportunities for Improvement

- [insert comments]

B. Resources for Implementing Your Approved Plan

FEMA Funding Sources

Hazard Mitigation Grant Program (HMGP)

The HMGP is a post-disaster mitigation program. It is made available to states by FEMA after each Federal disaster declaration. The HMGP can provide up to 75 percent funding for hazard mitigation measures. The HMGP can be used to fund cost-effective projects that will protect public or private property in an area covered by a federal disaster declaration or that will reduce the likely damage from future disasters. Examples of projects include acquisition and demolition of structures in hazard prone areas, flood-proofing or elevation to reduce future damage, minor structural improvements and development of state or local standards. Applicants who are eligible for the HMGP are state and local governments, certain nonprofit organizations or institutions that perform essential government services, and Indian tribes and authorized tribal organizations. Individuals or homeowners cannot apply directly for the HMGP; a local government must apply on their behalf. Applications are submitted to your state and placed in rank order for available funding and submitted to FEMA for final approval. Eligible projects not selected for funding are placed in an inactive status and may be considered as additional HMGP funding becomes available.
https://www.fema.gov/grants/mitigation/learn/hazard-mitigation

Public Assistance (PA)

FEMA's Public Assistance Program provides supplemental grants to state, tribal, territorial, and local governments, and certain types of private non-profits so communities can quickly respond to and recover from major disasters or emergencies.

After a disaster event, communities need help to cover their costs for debris removal, life-saving emergency protective measures, and restoring public infrastructure. FEMA also encourages protecting these damaged facilities from future events by providing assistance for hazard mitigation measures during the recovery process.
https://www.fema.gov/assistance/public

Flood Mitigation Assistance (FMA) Grant Program

The Flood Mitigation Assistance grant program is a competitive program that provides funding to state, territory and local governments and federally recognized Tribal Nations. Since the National Flood Insurance Reform Act of 1994 was signed into law, funds are used for projects that reduce or eliminate the risk of repetitive flood damage to buildings insured by the National Flood Insurance Program.
https://www.fema.gov/flood-mitigation-assistance-grant-program

Hazard Mitigation Grant Program (HMGP) Post Fire Grant Program

FEMA's Hazard Mitigation Grant Program (HMGP) has Post Fire assistance available to help communities implement hazard mitigation measures after wildfire disasters. States, federally-recognized tribes and territories affected by fires resulting in a Fire Management Assistance Grant (FMAG) declaration on or after October 5, 2018, are eligible to apply. https://www.fema.gov/grants/mitigation/post-fire

Rehabilitation of High Hazard Potential Dams (HHPD) Grant Program

This program provides technical, planning, design, and construction assistance in the form of grants for rehabilitation of eligible high hazard potential dams, as applicable for eligible jurisdictions. For more information, please visit: https://www.fema.gov/emergency-managers/risk-management/dam-safety/rehabilitation-high-hazard-potential-dams

Publicly Available Tools

FEMA Community Engagement Prioritization Tool (CEPT)

https://www.fema.gov/floodplain-management/manage-risk/community-engagement-prioritization-tool

FEMA Resilience Analysis and Planning Tool (RAPT)

https://www.fema.gov/emergency-managers/practitioners/resilience-analysis-and-planning-tool

FEMA Flood Assessment Structure Tool (FAST)

https://www.fema.gov/sites/default/files/documents/fema_flood-assessment-structure-tool.pdf

FEMA HAZUS

https://www.fema.gov/flood-maps/products-tools/hazus

Other Assistance and Resources

FEMA: Community Assistance Visit

If a jurisdiction is participating in the National Flood Insurance Program, it may be appropriate to set up a Community Assistance Visit with FEMA to provide technical assistance to communities in the review and/or updating of their floodplain ordinances to meet the new model ordinance. Consider contacting your State NFIP Coordinator for more information.

FEMA: Building Science

The Building Science branch develops and produces multi-hazard mitigation publications, guidance materials, tools, technical bulletins, and recovery advisories that incorporate the most up-to-date building codes, floodproofing requirements, seismic design standards, and wind design requirements for new construction and the repair of existing buildings. To learn more, visit: https://www.fema.gov/building-science

Appendix B: Local Planning Committee Roster

This LPC Roster includes all participants invited to the planning process. Participants marked with (*) were directly involved in the planning process.

County	Name	Title	Organization	Sector
All	Ashley Paulsrud*	Grants / Finance Section Chief	WOHS	State Entities: WY Office of Homeland Security (WOHS)
All	Baley Lenhart	Safety of Dams Engineer	WY State Engineer's Office	State Entities: WY State Engineer's Office
All	Joe Ruess	Safety of Dams Engineer	WY State Engineer's Office	State Entities: WY State Engineer's Office
All	Travis Pardue	Partnership Coordinator	Wyoming State Forestry	State Entities: Other
All	Steven Ammons*	FEMA Integration Team Lead	FEMA	Other: Other
All	David DeMorat	Emergency Manager	Routt County, CO	Neighboring Counties
All	Emily Covey	Homeland Security Coordinator	Sweetwater County, WY	Neighboring Counties
All	Jeanine West	Homeland Security Coordinator	Laramie County, WY	Neighboring Counties
All	Lori Hodges	Emergency Manager	Larimer County, CO	Neighboring Counties
All	Milan Vinich	Homeland Security Coordinator	Fremont County, WY	Neighboring Counties
All	Andrea Ladd*	Emergency Management Assistant Coordinator	Fremont County, WY	Neighboring Counties
All	Russ Dalgarn	Homeland Security Coordinator	Converse County, WY	Neighboring Counties
All	Samantha Martin	Emergency Manager	Jackson County, CO	Neighboring Counties
All	Stacia Hill	Homeland Security Coordinator	Natrona County, WY	Neighboring Counties
All	Todd Wheeler	Emergency Manager	Moffatt County, CO	Neighboring Counties
All	Tony Krotz	Homeland Security Coordinator	Platte County, WY	Neighboring Counties
All	Amy Carr*	Planning Consultant	Synergy	Other: Other
All	Jeff Brislawn	Planning Consultant	WSP	Other: Other
All	Mike Garner*	Planning Consultant	Synergy	Other: Other
All	Natalie Schoen*	Planning Consultant	Synergy	Other: Other
Albany	Aaron Appelhans*	Sheriff	Albany County	Community Sectors: Emergency Management
Albany	Adam Wales	Director, Information Technology	Albany County	Community Sectors: Other

County	Name	Title	Organization	Sector
Albany	Amanda Rodriguez	Payroll/Payables Manager, Clerks Office	Albany County	Community Sectors: Other
Albany	Angie Fessler*	Activities Coordinator	Eppson Center (Senior Center)	Community Sectors: Underserved Communities & Socially Vulnerable Populations
Albany	Bailey Quick*	Grants Manager	Albany County	Community Sectors: Economic Development
Albany	Ben Farber*	Coordinator	Albany County Fire District #1	Community Sectors: Emergency Management
Albany	Bill Turner	Wildland Coordinator	Albany County Fire District #1	Community Sectors: Emergency Management
Albany	Brady Carrol	Grants Specialist	Albany County	Community Sectors: Economic Development
Albany	Brooks Webb*	Director, Public Works	City of Laramie	Community Sectors: Infrastructure (Lifelines)
Albany	Brett Myers*	Emergency Manager	Rocky Mountain Power	Community Sectors: Infrastructure (Lifelines)
Albany	Chad Bade	Director of Emergency Management, Health and Safety	University of Wyoming	Community Sectors: Health & Social Services
Albany	Chad Dinges*	Fire Warden	Albany County	Community Sectors: Emergency Management
Albany	CJ Leslie	Mayor	Town of Rock River	Community Sectors: Elected Leadership
Albany	Cody Humphrey*	President	Pioneer Canal - Lake Hattie Irrigation District Board	Community Sectors: Natural & Cultural Resources
Albany	Dan Johnson	Chief, Laramie Fire Dept.	City of Laramie	Community Sectors: Emergency Management
Albany	Dan Kricken	Secretary, Big Laramie Volunteer Fire Department	Albany County Fire District #1	Community Sectors: Emergency Management
Albany	David Gertsch*	County Planner	Albany County	Community Sectors: Land Use & Development

County	Name	Title	Organization	Sector
Albany	Derek Teini*	Community & Economic Development – Planning Department	City of Laramie	Community Sectors: Land Use & Development
Albany	Doug Bower*	Chief, Big Laramie Volunteer Fire Department	Albany County Fire District #1	Community Sectors: Emergency Management
Albany	Eric Anderson*	Maintenance Area Supervisor	WYDOT	State Entities: Infrastructure (Lifelines)
Albany	Erica Curry*	HDM Coordinator	Eppson Center (Senior Center)	Community Sectors: Underserved Communities & Socially Vulnerable Populations
Albany	Gary Sanchez*	Water/Wastewater Representative	City of Laramie	Community Sectors: Infrastructure (Lifelines)
Albany	Harold Colby*	Specialist, Emergency Management	Albany County	Community Sectors: Emergency Management
Albany	Jake Schneider*	County Engineer	Albany County	Community Sectors: Land Use & Development
Albany	Janine Jordan	City Manager	City of Laramie	Community Sectors: Management
Albany	Jason Alcorn*	Water/Wastewater Representative	City of Laramie	Community Sectors: Infrastructure (Lifelines)
Albany	Jay Talbot*	Vice President	Pioneer Canal - Lake Hattie Irrigation District Board	Community Sectors: Natural & Cultural Resources
Albany	Jayne Pearce	Councilor, City Council	City of Laramie	Community Sectors: Elected Leadership
Albany	Jeremy Sellars*	Foreman	Albany County Road and Bridge	Community Sectors: Infrastructure (Lifelines)
Albany	Jesse Duplechin	Territory Manager	Union Pacific Rail Road	Community Sectors: Infrastructure (Lifelines)
Albany	Joe Mathews	RERT #3/HAZMAT, Laramie Fire Dept.	City of Laramie	Community Sectors: Emergency Management
Albany	Jon Essley*	Chief/Liaison, Tie Sidin Volunteer Fire Dept. / EMA	Albany County Fire District #1	Community Sectors: Emergency Management

County	Name	Title	Organization	Sector
Albany	Josh Watanabe	Executive Director	Laramie Interfaith	Community Sectors: Health & Social Services
Albany	Julie Kokes*	Vice President/Secretary	Wold Improvement District	Community Sectors: Infrastructure (Lifelines)
Albany	Karen Bowman*	GIS, Assessors Office/EMA	Albany County	Community Sectors: Land Use & Development
Albany	Kate Allred*	Emergency Management Coordinator	Albany County	Community Sectors: Emergency Management
Albany	Kayla White*	Clerk, Clerks Office	Albany County	Community Sectors: Other
Albany	Kelsey Nordsiden*	Deputy Emergency Management Coordinator	Albany County	Community Sectors: Emergency Management
Albany	Ken Cook	Security Emergency Supervisor	Ivinson Memorial Hospital	Community Sectors: Health & Social Services
Albany	Kevin Lam*	Shift Commander/Operations, Laramie Fire Dept.	City of Laramie	Community Sectors: Emergency Management
Albany	Landon Hoffer*	Commissioner	Pioneer Canal - Lake Hattie Irrigation District Board	Community Sectors: Natural & Cultural Resources
Albany	LT. Brock Weitzel	Troop J Supervisor	WHP	State Entities: Emergency Management
Albany	Martin Curry*	District Manager	Laramie Rivers Conservation District	Community Sectors: Natural & Cultural Resources
Albany	Mike Fossum*	Assistant Chief, Big Laramie Volunteer Fire Department	Albany County Fire District #1	Community Sectors: Emergency Management
Albany	Mike Sullivan*	Emergency Coordinator	ARES/RACES	Community Sectors: Other
Albany	Paula Eskam*	Emergency Preparedness Manager	Ivinson Memorial Hospital (Albany County Hospital District)	Community Sectors: Health & Social Services
Albany	Rick Stricklin	Chief, Rock River Volunteer Fire Dept/Water Dept	Town of Rock River	Community Sectors: Emergency Management
Albany	Rob Fisher*	Superintendent, Road & Bridge	Albany County	Community Sectors: Infrastructure (Lifelines)

County	Name	Title	Organization	Sector
Albany	Robert Clark*	Assistant Fire Warden	Albany County Fire	Community Sectors: Emergency Management
Albany	Robert Terry*	Assistant Chief, Police Dept.	City of Laramie	Community Sectors: Emergency Management
Albany	Scott Kugel*	Comms Specialist, Emergency Management	Albany County	Community Sectors: Emergency Management
Albany	Shawn Klein	Deputy Director, Public Works	City of Laramie	Community Sectors: Infrastructure (Lifelines)
Albany	Silvia Aguirre-Peppers	Disaster Program Manager	American Red Cross of Wyoming	Community Sectors: Health & Social Services
Albany	Skip Voss*	Council Member/FF/Employee, Town Council/RRVFD/Carbon Power	Town of Rock River	Community Sectors: Elected Leadership
Albany	Tammy Pahlow*	Secretary / Treasurer	Pioneer Canal - Lake Hattie Irrigation District Board	Community Sectors: Natural & Cultural Resources
Albany	Tim Carpenter*	Commissioner	Pioneer Canal - Lake Hattie Irrigation District Board	Community Sectors: Natural & Cultural Resources
Albany	Tim Mortan	District Maintenance Engineer	WYDOT	State Entities: Infrastructure (Lifelines)
Albany	Tom Westring	Director of Operations	Carbon Power & Light	Community Sectors: Infrastructure (Lifelines)
Albany	Zebulun Coulter*	Civil Engineer	City of Laramie	Community Sectors: Land Use & Development
Albany	Terri Jones	Commissioners	Albany County	Community Sectors: Elected Leadership
Albany	Thad Hoff	Commissioners	Albany County	Community Sectors: Elected Leadership
Albany	Randy Wilkison*	School District Operations SD #1	Albany County	Community Sectors: Education
Albany	Nancy Bartholomew	Clerk	City of Laramie	Community Sectors: Other
Albany	Eric Jaap	City Engineer	City of Laramie	Community Sectors: Land Use & Development

County	Name	Title	Organization	Sector
Albany	Jonathan Rhoades	Information Technology	City of Laramie	Community Sectors: Other
Carbon	Alex Foster*	Clerk	Town of Baggs	Community Sectors: Management
Carbon	Amanda Brown*	Director Carbon County Public Health	Carbon County	Community Sectors: Health & Social Services
Carbon	Beth Harris*	Planning/Administration Coordinator	Cheyenne/Laramie County EMA	Neighboring Counties
Carbon	Bobbe Fitzhugh	St. Christopher's Highway of Carbon County	Carbon County	Community Sectors: Underserved Communities & Socially Vulnerable Populations
Carbon	Brandee Forster*	Clerk / Treasurer	Town of Dixon	Community Sectors: Management
Carbon	Brian Lashley*	Public Works Director	Town of Medicine Bow	Community Sectors: Infrastructure (Lifelines)
Carbon	Chuck Davis	Mayor	Town of Saratoga	Community Sectors: Elected Leadership
Carbon	Cullen Meeks*	Mayor	Town of Sinclair	Community Sectors: Elected Leadership
Carbon	Darrin Jennings	Superintendent	Carbon County School District 2	Community Sectors: Education
Carbon	Dawn Arnell*	Assistant Natural Resource Coordinator	Little Snake River Conservation District	Community Sectors: Natural & Cultural Resources
Carbon	Doreen Harvey*	Town Clerk	Town of Encampment	Community Sectors: Management
Carbon	Emily Kaluzny*	Carbon County Public Health, Public Health Response Coordinator	Carbon County	Community Sectors: Health & Social Services
Carbon	Jay Weatherspoon*	ER North Platte Valley Medical Center	Carbon County	Community Sectors: Health & Social Services
Carbon	Jeff Mincy	CEO North Platte Valley Medical Center	Carbon County	Community Sectors: Health & Social Services
Carbon	Jeff Sanders*	Police Chief	Town of Sinclair	Community Sectors: Management
Carbon	Jennifer Anderson*	Town Clerk	Town of Saratoga	Community Sectors: Management
Carbon	Jeremy Mcmahon	National Forest Service	State of Wyoming	State Entities: Other

County	Name	Title	Organization	Sector
Carbon	Joe Parsons*	District Manager	Saratoga Encampment Rawlins Conservation District	Community Sectors: Natural & Cultural Resources
Carbon	John Rutherford*	Carbon County Fire Warden / Interim Fire Chief	Carbon County Fire Protection District	Community Sectors: Emergency Management
Carbon	Kandis Fritz	Director, Carbon County Road and Bridge	Carbon County	Community Sectors: Land Use & Development
Carbon	Kelly Morrell	Carbon County Senior Services, Inc.	Carbon County	Community Sectors: Underserved Communities & Socially Vulnerable Populations
Carbon	Kristin Tilley*	District Manager	Medicine Bow Conservation District	Community Sectors: Natural & Cultural Resources
Carbon	Kristy Rowan*	Director of Planning, Development, and Zoning	Carbon County	Community Sectors: Land Use & Development
Carbon	Lenny Layman*	Homeland Security Coordinator	Carbon County	Community Sectors: Emergency Management
Carbon	Leroy Stephenson*	Mayor	Town of Riverside	Community Sectors: Elected Leadership
Carbon	Lonnie Porter*	Seminoe State Park Ranger/ Bureau of Rec	State of Wyoming	State Entities: Other
Carbon	Matt Howell	Mayor	Town of Baggs	Community Sectors: Elected Leadership
Carbon	Matt Webster	Carbon County I.T. Director	Carbon County	Community Sectors: Management
Carbon	Melodie Seilaff*	Mayor	Town of Dixon	Community Sectors: Elected Leadership
Carbon	Michelle Christopher*	Co-Chair Wyoming Water and Waste Water Agency Response Network	Carbon County	Community Sectors: Natural & Cultural Resources
Carbon	Michelle Duncan	Board Member Little Snake River EMS	Little Snake River Conservation District	Community Sectors: Emergency Management
Carbon	Mike Hamel	Superintendent Carbon County School District 1	Carbon County SD1	Community Sectors: Education
Carbon	Morgan Irene*	Mayor	Town of Elk Elk Mountain	Community Sectors: Elected Leadership

County	Name	Title	Organization	Sector
Carbon	Pam Thayer*	City of Rawlins EDA	City of Rawlins	Community Sectors: Economic Development
Carbon	Pat Lynch	Representative	Sierra Madres Water And Sewer Joint Powers Board	Community Sectors: Infrastructure (Lifelines)
Carbon	Paul Hardy	Memorial Hospital of Carbon County ER	Carbon County	Community Sectors: Health & Social Services
Carbon	R. Michelena*	US Bureau of Rec	State of Wyoming	State Entities: Other
Carbon	Sam Sikes*	Council Member	Town of Hanna	Community Sectors: Elected Leadership
Carbon	Shannon Fagan*	Mayor	Town of Encampment	Community Sectors: Elected Leadership
Carbon	Stacy Erickson*	BOCES Director / Clerk	Carbon County School District 2 / Sierra Madres Water And Sewer Joint Powers Board	Community Sectors: Infrastructure (Lifelines)
Carbon	Stayton Mosbey*	Director South Central Wyoming EMS	Carbon County	Community Sectors: Emergency Management
Carbon	Stephanie Hinkle	Memorial Hospital of Carbon County, PIO	Carbon County	Community Sectors: Health & Social Services
Carbon	Sue Jones*	Carbon County Commissioner Chair	Carbon County	Community Sectors: Elected Leadership
Carbon	Terry Campbell	Representative	Sierra Madres Water And Sewer Joint Powers Board	Community Sectors: Infrastructure (Lifelines)
Carbon	Timothy Novotny*	Representative	BLM	Other: Federal Land Owners
Carbon	Tom Sarvey*	City Manager	City of Rawlins	Community Sectors: Management
Carbon	Travis Moore*	Carbon County Commissioner	Carbon County	Community Sectors: Elected Leadership
Carbon	Yvonne Johnson*	Director, Carbon County Economic Development	Carbon County	Community Sectors: Economic Development

Appendix C: Mitigation Action Ideas Guide

Wyoming Region 3 Mitigation Strategy Action Ideas

Community Survey Responses (Albany – 143 responses to the mitigation action ideas):

- **Multiple Hazards:**
  - Education on how to prepare go-bags
  - Public classes on hazard events and how to prepare for them
  - Maintain a public supply of food in the City of Laramie in the event of a disaster, as residential areas are located far away from locations with food
  - Improve redundancies in alert systems. “Code Red” alerts and social media posts are great but won’t work if residents lose power or internet
  - Increase in community sirens so rural areas can be notified of tornadoes and other severe weather events
  - Increase the presence of disaster response organizations for residents to join
  - Visits by the emergency coordinator and sheriff so the public knows who to contact/correct information channels in the event of an emergency
  - Provide resources to purchase emergency supplies or have freeze-dried food and water storage on a community scale
  - Prevention of/information on how to respond to drinking water contamination
  - Regular tabletop exercises
  - Alternate evacuation routes along congestion points
  - Communication from county and city officials on how they are implementing mitigation projects so they can better participate and support these projects/implement them in their local community and homes
  - Public hazard preparedness events at local community events such as “back to school” bashes to inform children
  - Evacuation maps to give to residents
- **Flood / Dam & Levee Incident:**
  - Build green spaces along Spring Creek in Laramie
  - Removal of beaver dams along rivers
  - Create local flood maps (not just rely on FEMAs)
  - Develop an inventory of improperly maintained well heads and septic systems
  - Create a program for septic system owners to upgrade to treatment units where ground water is impacted
  - Have a stockpile of sandbags in each community so they can be distributed quickly in the event of a flood
  - Maintain/clean storm drains so they do not back up (City of Laramie)
  - Create levees by the river
  - Expand storm drains/sewers so they can better handle large amounts of snow and water
  - Better storm drainage on the north hill coming off Harney Street.
- **Geologic Hazards (Landslide / Land & Mine Subsidence / Expansive Soils)**
  - Information on erosion control
  - Erosion prevention projects (plant vegetation or create retaining walls)
- **Tornado / Wind/ Windblown Deposits:**

  - Create a safety plan for tornadoes and share with the public, involving information on local safe shelters
  - More public shelters in rural areas/near homes that are not built to withstand winds
- **Wildfire:**
  - Perform vegetative fuel reduction projects along Highway 287 (South)
  - Put restrictions/educate the public on chains dragging and the possibility of starting a wildfire
  - Home ignition zone assessments and education on how to upkeep property to prevent wildfires
  - Prescribed burns near grassy prairies along railroads
  - Education/distribution of air filters and masks for wildfire smoke
  - Evacuation plans/safe areas during a wildfire event
  - Inter-departmental communication across volunteer firefighting agencies
  - Become a Firewise Community
  - Program for Tie Siding residents to get help or grants for clearing the hundreds of acres of dead pine trees to help slow down a wildfire.
  - WYDOT/County Road/Bridge using all roads for effective fire breaks with good mowing.
- **Winter Weather:**
  - Increase in snow removal and road maintenance along major roadways (I-80 and 237) and **hospital routes** during severe winter storm events (more staff and snowplow equipment)
  - A central location that is pet friendly for residents to go to in the winter if their heat goes out
  - Snow fences/living snow fences for highway safety

Community Survey Responses (Carbon - 204 responses to the mitigation action ideas):

- **Multiple Hazards:**
  - Local community education, seminars, and trainings on how to prepare for and respond to hazards
  - Conduct disaster drills
  - Additional staff and equipment for first responders in rural areas
  - Keeping a well-stocked deep freezer/community food supply so that residents can still access food when roads are closed
  - More medical facilities (additional clinics and EMS staff)
  - Alert systems such as sirens (Facebook was noted as a not a great resource)
  - Generators for essential facilities to maintain power during outages
  - Community water line
  - Communication (nonsocial media/news outlet): Non-electric plans (such as a pamphlet) distributed to everyone in the county or set at public locations for all hazards mentioned in the HMP
  - Harden/bury powerlines to reduce power outages
  - Put a small article in the newspaper or on Facebook monthly, with a short description of a hazard and little things that can be done to help be prepared for it
  - Fliers posted in popular community places with a contact number to receive more information on AlertSense, Code Red, and emergency responders.

  - Put hazard information in water bills
  - Water infrastructure maintenance
  - Create a basic checklist on a neighborhood scale of what each household should have readily accessible, i.e., explicit info on the number of people & pets, and where gas & water shut-offs are.
  - Cross training with organizations such as the National Guard and volunteer groups
  - Create shelters for large groups during an event
  - Have mock disasters to train the community on what to do
  - Create a localized center information point for disasters
- **Flood / Dam & Levee Incident:**
  - Remove debris from the North Platte River channel between the bridge street bridge and Highway 130 bridge in Saratoga to mitigate flooding.
  - Reduce overloading west side canal 2 or 3 (has caused breakage in the past)
  - Fix the water system in Rawlins
- **Geologic Hazards (Landslide / Land & Mine Subsidence / Expansive Soils)**
  - Evaluation of homes for expansive soil issues
  - Retaining walls/barriers to prevent landslides on hillsides
  - Soil rehabilitation initiatives
- **Tornado / Wind / Windblown Deposits:**
  - Shelter in each area of town to avoid tornadoes since many of us live in mobile homes.
- **Wildfire:**
  - Creating regulations and training so the lumber mill
  - Maintain (flush) the fire hydrants to maintain a good water system
  - Fuel reduction projects in forest lands (specifically Elk Mountain)
  - Additional storage for water (specifically in Rawlins)
  - Remove dry grasses and vegetation on areas along the interstate and on the outskirts of towns
  - Increased firefighting equipment and staff
  - Create a stage aeras at the Rawlins Outdoor Shooting Range (more than 100 acres of flat land and no electrical lines)
- **Winter Weather:**
  - Maintain roadways and invest more resources into clearing highways so trucks can restock local supplies
  - Create a communication network with churches, schools, and volunteer groups so the elderly and those with additional needs (homebound individuals) know who can assist with delivering meds and food and help with snow removal during winter storms
  - Creation/communication of emergency snow routes
  - A place to go if power is out in sub-zero weather.
  - We get a lot of stranded people from our winter storms and closed roads. They have no place to eat here or stay long term. There is no guidance for the town on how to handle this.

Wyoming Region 3 Mitigation Strategy Action Ideas

Hazard Mitigation Planning Committee Workshops:

Both Counties:

- Identify a person in each incorporated community to capture hazard event data to share with the County for the next HMP Update and bolster the existing county disaster tracking process to include local communities
- Create a Lifeline GIS dataset for more accurate exposure analysis in upcoming HMP
- Board of Tourism in both counties reporting on avalanches

Carbon County:

- Medicine bow lift station 'levee': Sugar Creek flooding cuts off access to water tanks and Lagoons to be able to maintain and repair if needed
- High Savery Dam inundation areas mapping
- Bolstering communication systems
- Standardize outdoor siren system voice in every municipality tied into the dispatch center as an alternative means to send emergency notifications
- Off-site Livestock water wells (Conservation District)
- Retrofit structures (Conservation District)
- Identify hazard areas (Fire Protection District)
- Update CWPP (Fire Protection District)
- Hire additional staff (Fire Protection District)
- Connecting subgrids together to backfeed energy (Carbon Power and Light – Stakeholder)

Albany County:

- Assisting communities and neighborhoods with becoming Firewise
- Public education specific to senior center
- Continued update of stormwater systems in the city

Workbook Ideas (Albany County):

Fire Protection District:

- WUI egress road improvements
- Community tornado/fallout shelters
- Sandbag-filling machines
- Flood zone improvement projects
- Warming shelters

Hospital District:

- Backup generators to prevent IT issues during power outages and so patients can still receive surgeries
- Replace snow removal equipment.

Laramie Rivers Conservation District:

- Tornado/storm shelter at office location

School District:

- Geological studies for schools in areas with land subsidence issues

- Firewise Community planning and backup power for rural schools
- Geologic hazards are the focus of SD and addressing the lack of backup power at rural schools and providing shelters for student population for transportation stops

WOLD Improvements and Service District:

- Address beetle-kill trees and remove previously made debris piles through prescribed burns

Workbook Ideas (Carbon County):

County:

- Additional public education around all Hazards that residents in Carbon County potentially face and the associated mitigation strategies.
- Additional public education around Floods & Dams, Tornados, Wildfires, and Severe Winter Storms that residents in Carbon County potentially face and the associated mitigation strategies and Preparedness Activities.
- A Carbon County Standardized, Dispatch Activated, Early Alert & Warning Voice Siren across all 10 Municipalities and critical areas within unincorporated Carbon County having multiple residents.
- Encouraging and maintaining open communication lines between Emergency Management and the Planning & Development Department regarding projects within unincorporated Carbon County that maintains a large working group that would benefit from Carbon County's Mass Notification System.

Baggs:

- Pre-stock emergency hubs with emergency medical supplies and nonperishable food for when town population doubles as people get stuck due to wind and winter weather.

Elk Mountain:

- Become StormReady

Encampment:

- Looking into the possibility of a property maintenance ordinance and possible fire regulation ordinance. We will also continue working with partners on vegetation management and fire mitigation in the watershed
- Education of residents about risk of wildland fire
- Possibility of a second settling pond at water plant to mitigate fire in our watershed
- For drought and wildfire there needs to be public education on property owner exposures, we may address them through ordinance and education

Riverside:

- Projects to mitigate Hog Park Dam failure.

Saratoga:

- The Town of Saratoga is researching levees and river channel restoration along the North Platte River.

General Ideas to Consider:

- Disclose natural hazard risks during real estate transactions
- Buyout flood prone properties and maintain as open space
- Provide accessible resources for individuals with communication disabilities)

Wyoming Region 3 Mitigation Strategy Action Ideas

- Prevent / restrict development in hazard-prone areas
- Protect and strengthen critical facilities (e.g. transportation, hospitals, fire stations, schools)
- Protect historical and cultural landmarks
- Strengthen building codes and laws to improve standards for development in high hazard areas
- Construct, maintain, or retrofit infrastructure to reduce hazard impact (e.g. elevating roadways, improving drainage systems, dams, detention basins, storm sewers, etc.)
- Create a stream gage and weather monitoring program for more accurate data and warnings
- Install indoor / outdoor warning systems throughout county
- Assist vulnerable property owners with securing funding to protect their property
- Protect and improve reliability of utilities
- Preserve or restore natural systems to reduce hazard impacts (e.g. floodplain protection, habitat preservation, slope stabilization and forest management)
- Update County CWPPs in both counties