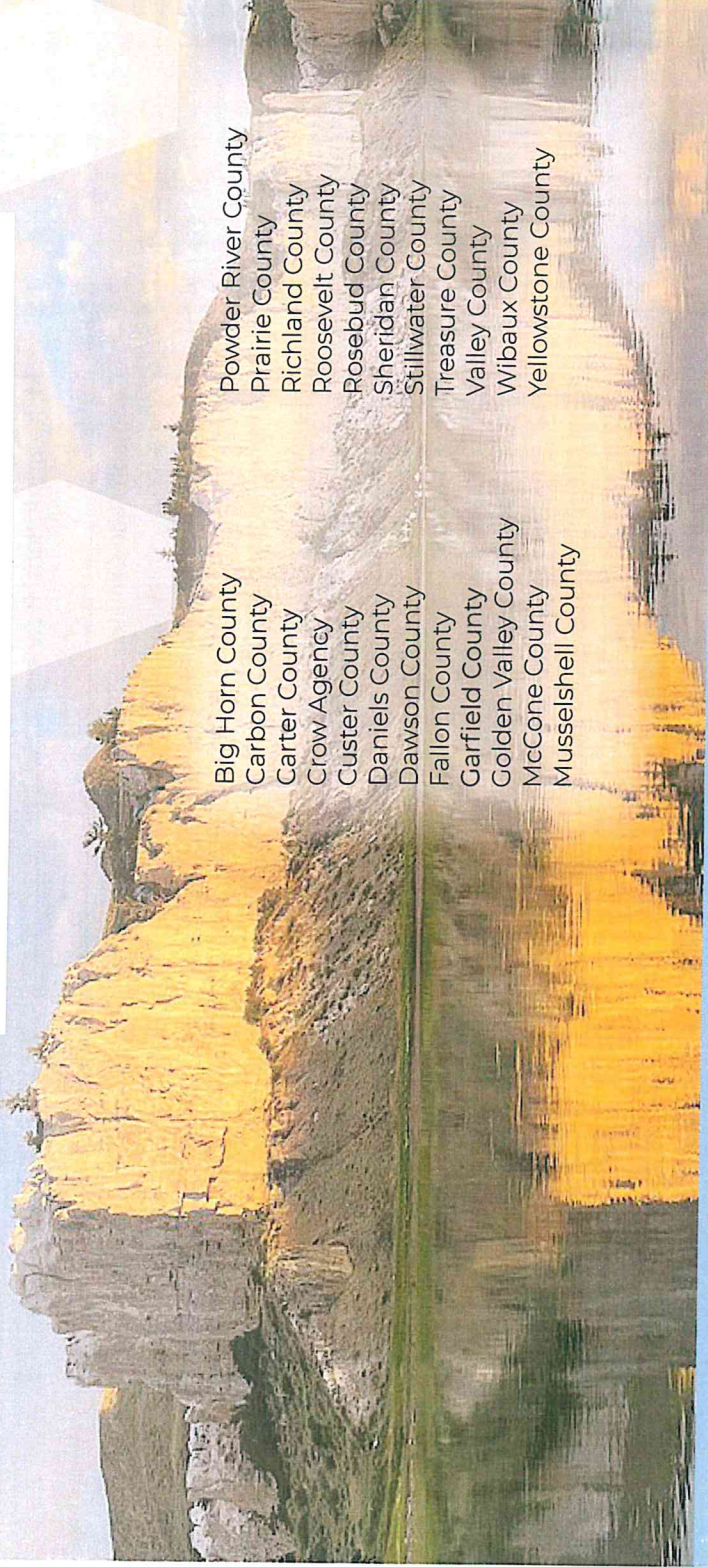


EASTERN MONTANA

Regional Hazard Mitigation Plan

2024-2029

CARBON COUNTY ANNEX



Big Horn County
Carbon County
Carter County
Crow Agency
Custer County
Daniels County
Dawson County
Fallon County
Garfield County
Golden Valley County
McCone County
Musselshell County

Powder River County
Prairie County
Richland County
Roosevelt County
Rosebud County
Sheridan County
Stillwater County
Treasure County
Valley County
Wibaux County
Yellowstone County



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- Appendix A Hazard Mitigation Planning Committees
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1 Introduction

1.1 Executive Summary

The Eastern Montana Region Hazard Mitigation Plan (HMP) is the product of a regional planning process coordinated by Montana Disaster & Emergency Services (MT DES) in 2022-2023 to develop regional hazard mitigation plans covering the entire State of Montana. The following jurisdictions have prepared this Plan and will adopt it once it has been approved:

- Big Horn County
 - City of Hardin
 - Town of Lodge Grass
- Carbon County
 - Town of Bearcreek
 - Town of Bridger
 - Town of Fromberg
 - Town of Joliet
 - City of Red Lodge
- Carter County
 - Town of Ekalaka
- Crow Tribe
- Custer County
 - City of Miles City
 - Town of Ismay
- Daniels County
- Dawson County
 - City of Glendive
 - Town of Richey
- Fallon County
 - City of Baker
 - Town of Plevna
- Garfield County
 - Town of Jordan
- Golden Valley County
 - Town of Ryegate
 - Town of Lavina
- McCone County
 - Town of Circle
- Musselshell County
 - Town of Melstone
 - Town of Roundup
- Powder River County
 - Town of Broadus
- Prairie County
 - Town of Terry
- Richland County
 - Town of Fairview
 - Town of Sidney
- Roosevelt County
 - City of Wolf Point
 - City of Poplar
 - Town of Bainville
 - Town of Culbertson
 - Town of Froid
- Rosebud County
 - City of Colstrip
 - City of Forsyth
- Sheridan County
 - City of Plentywood
 - Town of Medicine Lake
 - Town of Outlook
 - Town of Westby
- Stillwater County
 - Town of Columbus
- Treasure County
 - Town of Hysham
- Valley County
 - City of Glasgow
 - Town of Fort Peck
 - Town of Nashua
 - Town of Opheim
- Wibaux County
 - Town of Wibaux
- Yellowstone County
 - City of Billings
 - Town of Broadview
 - City of Laurel

The purpose of hazard mitigation is to reduce or eliminate long-term risk to people and property from disasters or hazard events. The impacts of hazards can often be lessened or even avoided if appropriate

actions are taken before events occur. Studies have found that hazard mitigation is extremely cost-effective, with every dollar spent on mitigation saving an average of \$6 in avoided future losses. By reducing exposure to known hazard risks, communities will save lives and property and minimize the social, economic, and environmental disruptions that commonly follow hazard events.

The 2023 Eastern Montana Region HMP (also referred to as “Plan”) will serve as a blueprint for coordinating and implementing hazard mitigation policies, programs, and projects across the Region. It identifies mitigation goals and related actions to assist the participating jurisdictions in reducing risk and preventing loss from future hazard events. The goals of the 2023 Eastern Montana Region HMP are:

Goal 1: Reduce impacts to people, property, the environment, and the economy from hazards by implementing whole-community risk reduction and resilience strategies.

Goal 2: Protect community lifelines and critical infrastructure to ensure the continuity of essential services during and after a disaster.

Goal 3: Support education and outreach to the public through improved communications and capacity building that enhances resilience among underserved communities.

Goal 4: Promote regional cooperation and leverage partnerships with the private sector, non-profit organizations, and other key stakeholder groups in mitigation solutions.

Goal 5: Sustain and enhance jurisdictional capabilities and resources to enact and implement mitigation activities.

Goal 6: Integrate hazard mitigation into other plans, processes, and regulations.

Goal 7: Ensure local mitigation programs address underrepresented groups and protect socially vulnerable populations.

Goal 8: Incorporate the potential impacts of climate change into all mitigation activities when possible.

These goals were tailored for the Eastern Region during group exercises at a series of mitigation strategy workshops. This Plan was also developed to maintain the participating jurisdictions’ eligibility for federal disaster assistance, specifically the Federal Emergency Management Agency’s (FEMA) Hazard Mitigation Assistance (HMA) grants including the Hazard Mitigation Grant Program (HMGP), Flood Mitigation Assistance (FMA) program, and Building Resilient Infrastructure and Communities (BRIC) grant program, as well as the Rehabilitation of High Hazard Potential Dam (HHPD) grant program.

It is important that local decision-makers stay involved in mitigation planning to provide new ideas and insight for future updates to the Regional HMP. As a long-term goal, the Regional HMP and the mitigation strategies identified within will be fully integrated into the daily decisions and routines of local government. This will continue to require dedication and hard work, and to this end, this Plan update continues efforts to further strengthen the resiliency of the Eastern Region.

1.2 Purpose

The participating jurisdictions of the Eastern Montana Region prepared this Regional HMP to guide hazard mitigation planning and to better protect the people and property of the planning area from the effects of hazard events. This Plan demonstrates the Region’s commitment to reducing risks from hazards and serves as a tool to help decision-makers direct mitigation activities and resources. This Plan also maintains the jurisdictions’ eligibility for federal mitigation grants under FEMA’s HMA grant programs. This Plan demonstrates the Region and participating jurisdictions’ commitment to reducing risks from hazards and serves as a tool to help decision-makers direct mitigation activities and resources.

1.3 Background and Scope

Each year in the United States, disasters take the lives of hundreds of people and injure thousands more. Nationwide, taxpayers pay billions of dollars annually to help communities, organizations, businesses, and individuals recover from disasters. These monies only partially reflect the true cost of disasters because additional expenses to insurance companies and nongovernmental organizations (NGOs) are not reimbursed by tax dollars. Many disasters are predictable, and much of the damage caused by these events can be alleviated or even eliminated.

Hazard mitigation is defined by FEMA as any sustained action taken to reduce or eliminate long-term risk to human life and property from a hazard event. The results of a three-year, congressionally mandated independent study to assess future savings from mitigation activities provides evidence that mitigation activities are highly cost-effective. On average, each dollar spent on mitigation saves society an average of \$6 in avoided future losses in addition to saving lives and preventing injuries (Natural Hazard Mitigation Saves, 2019 Report).

Hazard mitigation planning is the process through which hazards that threaten communities are identified, likely impacts of those hazards are determined, mitigation goals are set, and appropriate strategies to lessen impacts are developed, prioritized, and implemented. This Plan documents the planning region's hazard mitigation planning process, identifies relevant hazards and risks, and identifies the strategies that each participating jurisdiction will use to decrease vulnerability and increase resiliency and sustainability.

This Plan was prepared pursuant to the requirements of the Disaster Mitigation Act of 2000 (Public Law 106-390) and the implementing regulations set forth by the Interim Final Rule published in the Federal Register on February 26, 2002 (44 Code of Federal Regulations [CFR] §201.6) and finalized on October 31, 2007 (hereafter, these requirements and regulations will be referred to collectively as the Disaster Mitigation Act (DMA)). While the DMA emphasized the need for mitigation plans and more coordinated mitigation planning and implementation efforts, the regulations established the requirements that local hazard mitigation plans must meet for a local jurisdiction to be eligible for certain federal disaster assistance and hazard mitigation funding under the Robert T. Stafford Disaster Relief and Emergency Act (Public Law 93-288). Because the Eastern Region planning area is subject to many kinds of hazards, access to these programs is vital.

Information in this Plan will be used to help guide and coordinate mitigation activities and decisions for local land use policy in the future. Proactive mitigation planning will help reduce the cost of disaster response and recovery to communities and property owners by protecting critical community facilities, reducing liability exposure, and minimizing overall community impacts and disruption. The jurisdictions in the Eastern Region planning area have been affected by hazards in the past and are thus committed to reducing future disaster impacts and maintaining eligibility for federal funding.

1.4 Plan Organization

The Eastern Montana Region HMP is organized in alignment with the DMA planning requirements and the FEMA plan review tool as follows:

- Chapter 1: Introduction
- Chapter 2: Region Profile
- Chapter 3: Planning Process
- Chapter 3.4: Hazard Analysis and Risk Assessment
- Chapter 5: Mitigation Strategy
- Chapter 6: Plan Adoption, Implementation, and Maintenance

- County and Tribal Annexes and Addendums
- Appendices

Each annex provides a more detailed assessment of each jurisdiction's unique risks as well as their mitigation strategy to reduce long-term losses. Each annex contains the following:

- Mitigation Planning and County Planning Team
- Community Profile
- Hazard Identification and Risk Assessment
- Vulnerability to Specific Hazards
- Mitigation Capabilities Assessment
- Mitigation Strategy
- Plan Implementation and Maintenance

When this Plan was organized and initiated in 2022 several counties in the Region had recently approved HMPs. It was determined by MT DES and FEMA Region VIII to only require implementation updates associated with the mitigation strategy in an Addendum that complied with current FEMA policy guidance and aligned with and supplemented the counties existing HMP, rather than conducting new analysis in an Annex. Each addendum discusses the following topics, as each relates to plan implementation and maintenance:

- Mitigation Planning
- Summary Overview of the jurisdiction's recently approved HMP's progress
- Social Vulnerability
- Hazard Events within the Planning Area (natural hazard events that have occurred since the jurisdiction's HMP was recently approved)
- Changes in Risk Exposure in the Planning Area
- Mitigation Capabilities Assessment
- Review of the Mitigation Action Plan

1.5 Multi-Jurisdictional Planning

This Plan was prepared as a regional, multi-jurisdictional plan. The Eastern Montana Region is comprised of 23 counties and three tribal reservations, as established by MT DES. All tribes, counties, and incorporated municipalities in the Region were invited to participate in the planning process. The Fort Peck Tribes, as known as Fort Peck Assiniboine and Sioux Tribes; Northern Cheyenne Tribe; and Wheatland County elected not to participate in the Regional plan. Wheatland County and Northern Cheyenne Tribe elected not to participate due to limited staff and resources; the Fort Peck Tribes did not participate because they were already developing a full HMP update. All other tribes, counties, and incorporated municipalities fully participated in the planning process, and have committed to adopt and implement the Regional HMP. The participating jurisdictions seeking FEMA approval of this plan are listed in Section 1.1.

2 Region Profile

This section provides a brief overview of the geography of the planning area. A base map of the planning region is illustrated in Figure 2-1 below.

2.1 Geography and Climate

The Eastern Montana Region is comprised of the following 22 counties and one tribal reservation that participated in the Regional HMP planning process:

- Big Horn County
- Carbon County
- Carter County
- Crow Tribe
- Custer County
- Daniels County
- Dawson County
- Fallon County
- Garfield County
- Golden Valley County
- McCone County
- Musselshell County
- Powder River County
- Prairie County
- Richland County
- Roosevelt County
- Rosebud County
- Sheridan County
- Stillwater County
- Treasure County
- Valley County
- Wibaux County
- Yellowstone County

The Eastern Region is dominated by prairie landscape as part of the Great Plains. Some parts of eastern Montana, in areas most prone to drying chinooks, have near-desert conditions and scrub rather than grassland. Eastern Montana also has breaks and highlands that are widely forested, such as the Custer National Forest and areas around Fort Peck Lake. Eastern Montana has a semi-arid steppe climate with low precipitation that is to some extent countered by low evaporation rates. According to Western Regional Climate Center (WRCC), probably the driest part of Montana is along the Clark Fork of the Yellowstone River in Carbon County. In this area, eight miles south-southwest of Belfry, the average precipitation for a 16-year period is 6.59 inches. In the Eastern Region, summers are short but hot and winters are long, cold, and extremely variable. The major rivers that flow through the Eastern Region include the Missouri River, Yellowstone River, Milk River, Clark's Fork, Big Horn, Powder River, and Tongue River. The Missouri River, the longest river in the United States and Yellowstone County, the most populous county in Montana, are both included in the Eastern Region. The National Oceanic and Atmospheric Administration (NOAA) National Centers for Environmental Information also noted that tornadoes occur almost entirely in the Eastern Region. Blizzards are also most common in the northeastern part of the State, occurring about five times per year. The eastern part of the State can also experience bitterly cold temperatures, occasionally lower than -30°F.

Major roadways include Interstate 94, Interstate 90, Highway 2, Highway 12, Highway 212, Highway 59, and Highway 87. Figure 2-2 below shows the land ownership within Eastern Montana.

As mentioned previously, the Eastern Region receives lower annual precipitation compared to the western part of the State. Precipitation is typically higher in the southeastern portion of the region compared to the northwestern portion. The Eastern Region also experiences distinct seasons. Spring and fall tend to be relatively short transitional periods, with mild temperatures. The Eastern Region can also experience rapid weather changes, with significant temperature swings during these seasons. Winters in the Eastern Region are cold, with average temperatures ranging from the 20s°F to the low 30s°F. Temperatures can drop well

below freezing, and snowfall is common. Blizzards and strong winds can occur during the winter months, creating hazardous travel conditions. Summers are generally hot and dry, with average high temperatures ranging from the upper 80s°F to 90s°F. Heatwaves are not uncommon, and temperatures can occasionally exceed 100°F during the hottest months of July and August. Additional geography and climate data for each jurisdiction within the Eastern Region can be found in the Community Profile section of each jurisdictional annex and addendum.

Figure 2-1 Eastern Montana Region Base Map

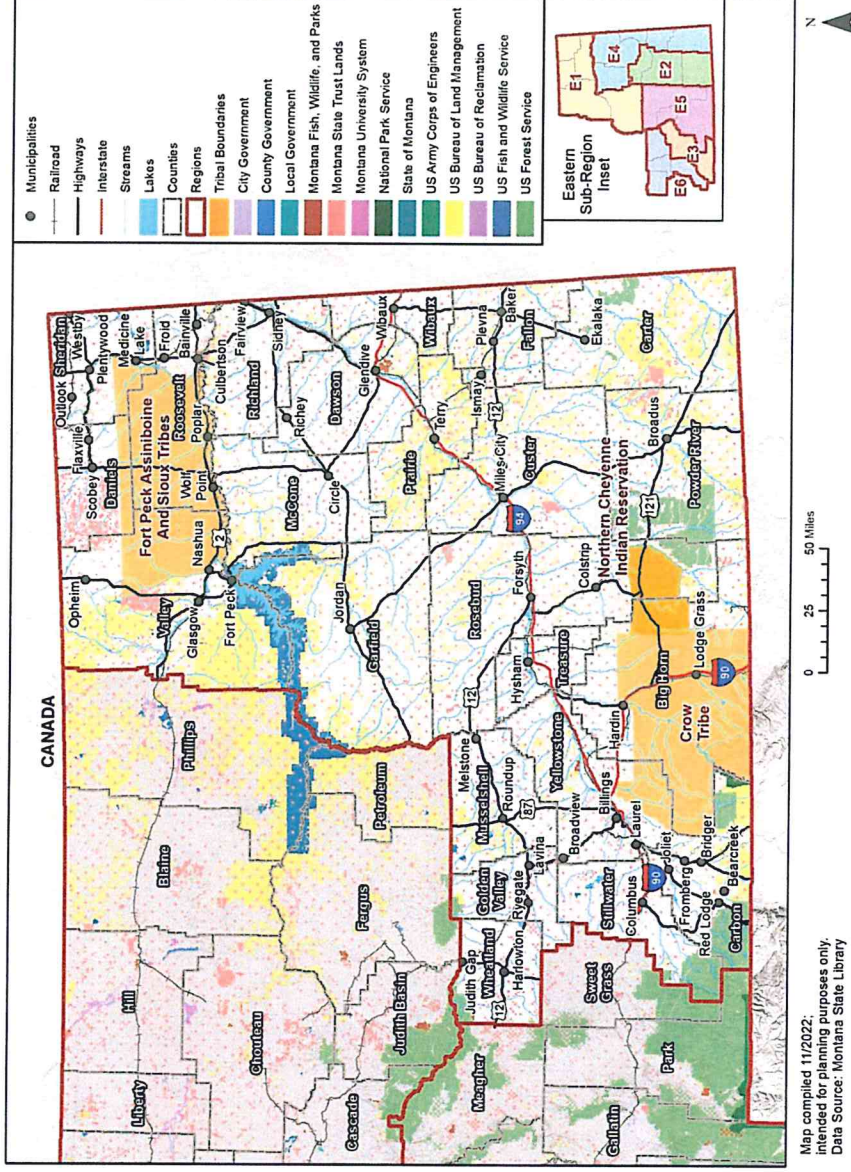
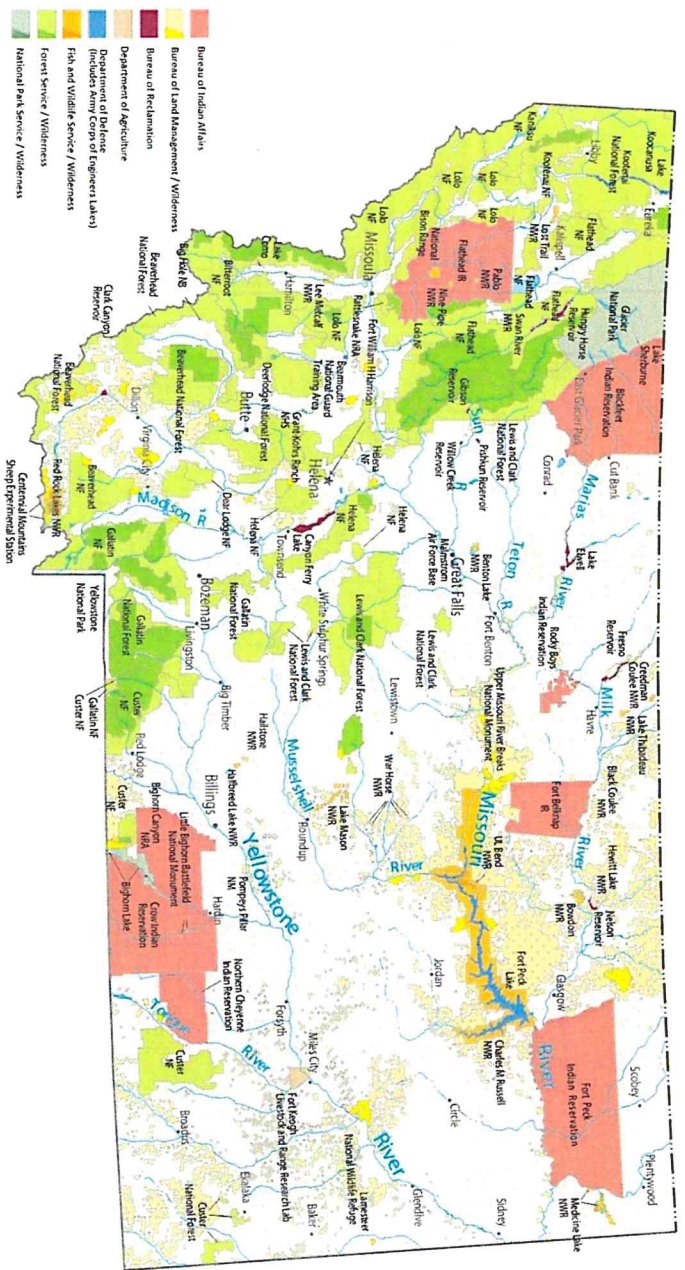


Figure 2-2 Federal Lands and Indian Reservations Montana



2.2 Population

Table 2-1 summarizes the estimated population and population change for the Eastern Region planning area as a whole and for the individual counties. Data is based on the Decennial Census and American Community Survey (ACS) Five-Year Estimates data from the US Census Bureau. Carter, Fallon, Musselshell, Richland, and Yellowstone Counties have experienced significant growth over the past decade. Daniels, Garfield, Golden Valley, Rosebud, Stillwater, Treasure, and Wibaux Counties have experienced a net population loss. The Eastern Region was home to 25.4% of Montana's total population of 1,104,271 in 2021. Overall, the Eastern Region is experiencing moderate growth, but the percent change varies by county within the Eastern Region.

Table 2-1 Eastern Region Population Change

County	2010 Census	2016 Estimate	2017 Estimate	2018 Estimate	2019 Estimate	2020 Census	2021 Estimate	% Change 2010 to 2021
Big Horn County	12,865	13,214	13,290	13,376	13,387	13,124	13,198	2.6%
Carbon County	10,078	10,340	10,466	10,546	10,597	10,473	10,488	3.9%
Carter County	1,160	1,295	1,320	1,318	1,331	1,415	1,349	14.0%
Custer County	11,699	11,980	11,895	11,845	11,729	11,867	11,968	2.3%
Daniels County	1,751	1,787	1,788	1,753	1,730	1,661	1,739	-0.7%
Dawson County	8,966	9,431	9,324	9,191	9,017	8,940	9,003	0.4%
Fallon County	2,890	2,913	2,925	2,838	2,921	3,049	3,074	5.9%
Garfield County	1,206	1,061	1,086	1,141	1,036	1,173	972	-24.1%
Golden Valley County	884	730	747	724	728	823	820	-7.8%
McCone County	1,734	1,678	1,728	1,630	1,790	1,729	1,805	3.9%
Musselshell County	4,538	4,778	4,766	4,807	4,766	4,730	4,813	5.7%
Powder River County	1,743	1,648	1,610	1,619	1,607	1,694	1,759 ¹	0.9%
Prairie County	1,179	1,414	1,325	1,342	1,252	1,088	1,227	3.9%
Richland County	9,746	11,392	11,405	11,360	11,199	11,491	11,375	14.3%
Roosevelt County	10,425	11,230	11,218	11,228	11,175	10,794	10,884	4.2%
Rosebud County	9,233	9,348	9,292	9,250	9,152	8,329	8,464	-9.1%

County	2010 Census	2016 Estimate	2017 Estimate	2018 Estimate	2019 Estimate	2020 Census	2021 Estimate	% Change 2010 to 2021
Sheridan County	3,384	3,645	3,568	3,574	3,483	3,539	3,522	3.9%
Stillwater County	9,117	9,342	9,342	9,410	9,466	8,963	8,916	-2.2%
Treasure County	718	846	790	777	668	762	693	-3.6%
Valley County	7,369	7,576	7,561	7,532	7,471	7,578	7,553	2.4%
Wheatland County	2,168	2,109	2,108	2,149	2,142	2,069	2,082	-4.1%
Wibaux County	1,017	1,143	1,121	1,175	1,122	937	1,018	0.1%
Yellowstone County	147,972	155,344	156,332	157,816	159,008	164,731	163,593 ²	9.5%
Total	261,842	274,244	275,007	276,401	276,777	280,959	280,315	6.9%

NOTES:

- 1 - During review of this plan, Powder River County noted their 2022 population was 1,725 people according to the ACS.
 - 2 - During review of this plan, Yellowstone County noted their 2021 population estimate was not accurate due to an algorithm error by the US Census Bureau, and there has not been a growth decline. The 2022 population estimate for Yellowstone County is 169,852 according to the ACS.
- Source: US Census Bureau ACS 5-year Estimates, <https://data.census.gov/>

2.3 Development Trends

The population of the Eastern Region has been consistently growing since 2010, and the Montana Department of Commerce projects that this growth will continue through the year 2040. Please note that the population change projections for Tribal Nations are not available. Table 2-2 below lists the projected 2040 populations of each county within the Eastern Region. Counties such as Yellowstone, Big Horn, Custer, and Richland have seen some of the greatest concentrations of population growth and urban development in the Eastern Region and the State, although not all these counties' populations are projected to increase by 2040. Based on the estimates from the Montana Department of Commerce, through the year 2040, Treasure, Powder River, Garfield, and Stillwater counties are projected to see the highest rates of population increase. Additional details on specific growth and development trends are provided in each county's respective annex and addendum.

Table 2-2 Eastern Montana 2020 Census and 2040 Projections

County	2020 Census	2040 Projections	% Change
Big Horn County	13,124	11,178	-14.8%
Carbon County	10,473	13,425	28.2%
Carter County	1,415	1,464	3.5%
Custer County	11,867	10,923	-8.0%
Daniels County	1,661	1,534	-7.6%
Dawson County	8,940	8,067	-9.8%
Fallon County	3,049	2,910	-4.6%
Garfield County	1,173	1,481	26.3%
Golden Valley County	823	1,005	22.1%

County	2020 Census	2040 Projections	% Change
McCone County	1,729	1,562	-9.7%
Musselshell County	4,730	3,970	-16.1%
Powder River County	1,694	2,381	40.6%
Prairie County	1,088	1,145	5.2%
Richland County	11,491	10,712	-6.8%
Roosevelt County	10,794	8,790	-18.6%
Rosebud County	8,329	6,323	-24.1%
Sheridan County	3,539	3,097	-12.5%
Stillwater County	8,963	12,873	43.6%
Treasure County	762	1,007	32.2%
Valley County	7,578	8,346	10.1%
Wheatland County	937	2,334	12.8%
Wibaux County	2,069	1,090	16.3%
Yellowstone County	164,731	178,358	8.3%
Total	280,959	293,975	4.6%

Sources: US Census Bureau ACS 5-year Estimates, <https://data.census.gov/>; Montana Regional Economic Models Incorporated (REMI) https://dataportal.mt.gov/DOC/Views/CEIC_REMI_POPULATION_PROJECTION_COUNTY_AGE_RACE_SEE/Trend?%3Aorigin=card_share_link&%3Aembed=y

2.4 Economy

Figure 2-3 displays a breakdown of the total employment by industry statewide. According to the 2020 US Census, Montana's economy is largely based on the educational services, health care, and social assistance industry with 120,662 people. This is followed by retail trade with 63,971 total people. Third is arts, entertainment, and recreation, and accommodation and food services with 59,115 people, followed by professional, scientific, and management, and administrative and waste management services with 45,656 people. These four sectors comprise 56% of employment in the Eastern Region.

Annex A Carbon County

A.1 Mitigation Planning and County Planning Team

This County Annex builds on previous versions of the Carbon County Hazard Mitigation Plan (HMP) last updated in 2020. As part of the regional planning process, the County established a County Planning Team (CPT) to develop the Regional HMP and identify potential mitigation projects. The following incorporated communities participated in the Disaster Mitigation Act (DMA) planning process with the County:

- Town of Bearcreek
- Town of Bridger
- Town of Fromberg
- Town of Joliet
- City of Red Lodge

More details on the planning process followed and how the counties, municipalities and stakeholders participated can be referenced in Chapter 3 of the base plan. A full list of local government departments and stakeholders that were invited to participate and that participated can be found in Appendix A.

A.2 Community Profile

A.2.1 Geography and Climate

Carbon County is located in south central Montana and includes approximately 2,047 square miles. Natural landscapes define the County's character with the Absaroka-Beartooth Mountain Range to the south and west, the Pryor Mountains and the Big Horn River to the east. Figure A-1 displays a map of Carbon County. Carbon County is bounded by Park County to the west, Stillwater County to the north and northwest, Yellowstone County to the northeast, Big Horn County to the east, and Park and Big Horn counties in the neighboring state of Wyoming to the south. There are five incorporated municipalities in Carbon County – Bearcreek, Bridger, Fromberg, Joliet, and the City of Red Lodge. The City of Red Lodge is the County seat and the largest municipality in the County.

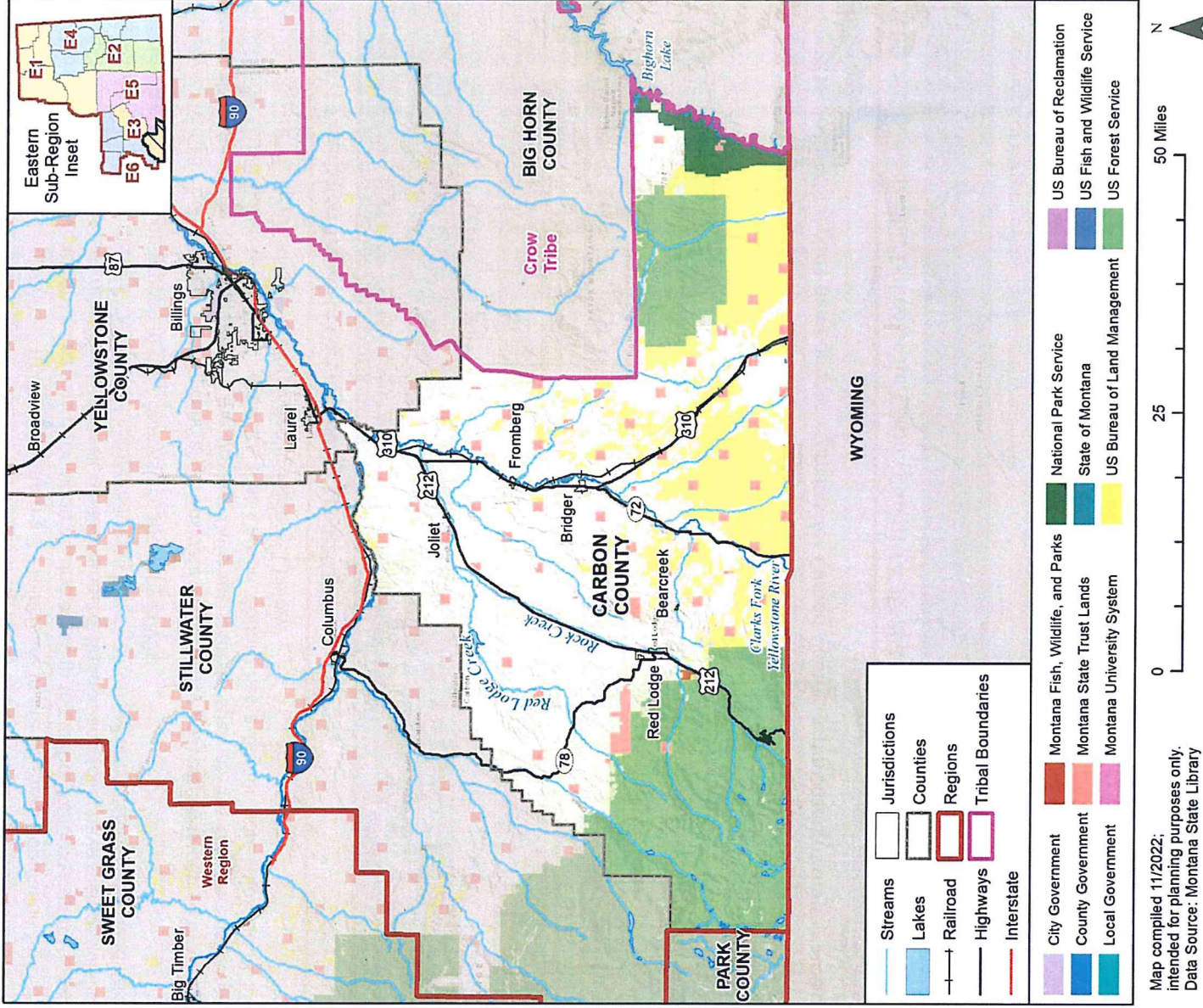
The County has tremendous diversity in elevation, topography, vegetation, and precipitation. Granite Peak, Montana's highest peak at 12,799 feet above sea level, is situated on the western county boundary. By contrast, the lowest point in the County, in the northeast corner, has an elevation of only 3,300 feet. Approximately 53% of the land in the County (696,500 acres) is in private ownership. Land that is privately owned is generally located in the northern portion of the County along the Clarks Fork and Rock Creek Valley bottoms and is lower in elevation, drier climate and considered to have more productive soils compared the publicly owned lands (Carbon County 2015). Approximately 47% of land in the County is public and managed by the Bureau of Land Management (BLM), State of Montana, National Park Service, U.S. Fish and Wildlife, and municipal owners.

Consistent with the variation in elevation and topography across the County, precipitation ranges from over 70 to less than 6 inches annually. The heaviest precipitation occurs in the southwestern area of the County at higher elevations and much of the precipitation falls in the form of snow. The driest area of the County is situated just north of the Wyoming border, south of Belfry, in the south-central portion of the County (Beartooth RC&D Project, 1970). According to a USDA Soil Survey, "The Belfry section of the Clarks Fork Valley, in the rain shadow of the very high mountains, is probably the driest section of Montana" (USDA Soil Survey, Carbon County Area, Montana, 1975).

In the winter, the precipitation falls as snow which accumulates in the foothills and mountains but generally melts off in the lower elevations in the central and northern portions of the county. Snowpack melting contributes to sustained runoff along all major streams. "Occasionally, heavy rains in late May or June coincides with periods of peak runoff, and about 1 year in 10 this combination causes some stream overflow" (Soil Survey, Carbon County Area, Montana, 1975). Exceptionally heavy snowpack in the winters of 2010-2011 and 2021-2022 caused high runoff and widespread flooding across the county.

The range in temperatures is also fairly large. Four weather stations located at Belfry, Bridger, Joliet, and Red Lodge monitor temperatures in the County. Monthly extreme averages have ranged from 20.0 degrees Fahrenheit in Belfry in January of 1974 to 70.5 degrees Fahrenheit in Bridger in July of 1933. The frost-free season at Red Lodge is about 104 days, but along the Yellowstone River on the northern edge of the County it can extend to 130 days. Carbon County is also situated so that it experiences Chinook winds which can drive winter temperatures upwards dramatically in a short period of time. Chinook winds can reach 75 miles per hour. Carbon County has experienced extreme weather in all four seasons, from blizzards to rainstorms to hail to tornadoes. Refer to the severe weather profiles in Chapter 3: Hazard Identification and Risk Assessment, for additional information on weather related hazards in the County.

Figure A-1 Carbon County Base Map and Land Stewardship



A.2.2 Population Trends

According to the 2020 U.S. Decennial Census, Carbon County is the twentieth most populous county in Montana with a total population of 10,473, indicating a 3.9% increase in the County's population from the 2010 to 2020 Census. Trends show that the population has increased in the unincorporated County, as well as the municipalities of Red Lodge and Bearcreek, while Fromberg, Bridger, and Joliet have seen population decreases over the last decade. Overall, the combined population gains have outpaced declines, leading to consistent net population growth in the County since the early 2000s.

However, the CPT notes that the 2020 Decennial Census data collection may have been impacted by COVID, potentially influencing the accuracy of the figures. Different sources, such as the U.S. Census Bureau Population Estimates Program (PEP), estimate that Carbon County has a higher population at 11,179. Population trends by jurisdiction are provided in Table A-1 below.

Table A-1 Population Trends in Carbon County 1980-2020

Incorporated Community	1980	1990	1980-1990 Change	2000	1990-2000 Change	2010	2000-2010 Change	2020	2010-2020 Change
City of Red Lodge	1,893	1,958	+3.4%	2,177	+11.2%	2,125	-2.4%	2,257	+6.2%
Town of Bearcreek	61	37	-39.3%	83	+124.3%	79	-4.8%	91	+15.2%
Town of Bridger	724	692	-4.4%	745	+7.7%	708	-5.0%	662	-6.5%
Town of Fromberg	470	370	-21.3%	486	+31.4%	438	-9.9%	392	-10.5%
Town of Joliet	578	522	-9.7%	575	+10.2%	595	+3.5%	577	-3.0%
Carbon County	8,081	8,080	-0.01%	9,552	+18.2%	10,078	+5.5%	10,473	+3.9%

Source: Decennial Census, <https://data.census.gov/>

A.2.3 Demographics

The 2016-2020 ACS reports demographic estimates for Carbon County, summarized in the table below Table A-2.

Table A-2 Demographic Estimates for Carbon County (2016-2020 ACS)

Characteristic	Carbon County	State of Montana
Percentage of persons below 150% poverty estimate	16.7%	24.1%
Unemployment Rate estimate	4.5%	4.0%
Percentage of housing cost-burdened occupied housing units with annual income less than \$75,000 (30%+ of income spent on housing costs) estimate	21.3%	21.4%
Percentage of persons with no high school diploma (age 25+) estimate	4.6%	7.5%
Percentage uninsured in the total civilian noninstitutionalized population estimate	5.7%	9.6%
Percentage of persons aged 65 and older estimate	25.6%	22.1%
Percentage of persons aged 17 and younger estimate	17.8%	21.3%
Percentage of civilian noninstitutionalized population with a disability estimate	16.4%	15.6%

Characteristic	Carbon County	State of Montana
Percentage of single-parent households with children under 18 estimate	3.9%	3.9%
Percentage of persons (age 5+) who speak English "less than well" estimate	0.7%	0.3%
Minority (other than white non-Hispanic) estimate	6.5%	14.6%
Percentage of housing in structures with 10 or more units estimate	1.1%	3.3%
Percentage of mobile homes estimate	10.5%	13.1%
Percentage of occupied housing units with more people than rooms estimate	1.1%	2.1%
Percentage of households with no vehicle available estimate	2.5%	4.9%
Percentage of persons in group quarters estimate	1.1%	2.8%
Percentage Female estimate	49.2%	49.7%
Median Age estimate	51.1	40.1
Median Gross Rent estimate	\$787	\$836
Median House Value estimate	\$271,500	\$244,900
Percent Unoccupied Housing Units estimate	31.2%	15.3%

Source: ACS 2016-2020, <https://data.census.gov/>

A.2.4 Social Vulnerability

Social vulnerability is broadly defined as the susceptibility of social groups to the adverse impacts of natural hazards, including disproportionate death, injury, loss, or disruption of livelihood. Social vulnerability considers the social, economic, demographic, and housing characteristics of a community that influence its ability to prepare for, respond to, cope with, recover from, and adapt to environmental hazards. Additional details on social vulnerability and the National Risk Index can be found in Section 4.1.1.5 of the Base Plan.

The SoVI-based social vulnerability score in Carbon County is higher (more vulnerable) than 35% of Montana counties and eight of the other 22 counties in the Eastern Region, earning a relatively moderate social vulnerability rating in the NRI. Factors that contribute to social vulnerability in Carbon County include a somewhat older population than the state average, a high proportion of people living with disabilities or a high housing cost burden (Table A-2). Refer to Section 4.1.1.5 of the Base Plan for more information on social vulnerability.

With regard to hazards, socially vulnerable populations may be disproportionately impacted by hazards that include flooding, wildfires, and dam failure. Severe weather hazards may result in power outages that could have a greater impact on these populations, including those dependent on electricity for medical reasons.

The NRI rated the social vulnerability in Carbon County as "Relatively Moderate", with a score of 37.3. This is higher than 64.3% of counties within Montana. Refer to Hazard Identification and Risk Assessment (HIRA) for more information on social vulnerability. Demographic factors that can influence the social vulnerability rating are displayed in Table A-2. The ACS reports that a significant portion of the population in Carbon County (around 16%) is below the 150% poverty level. Additionally, 21.3% of the population in Carbon County experiences housing cost-burden, which is in line with the State of Montana average. A quarter of the County population is over the age of 65, which indicates a large portion of the population may be especially vulnerable to various hazards and have special needs in response and recovery efforts.

A.2.5 Development Trends

The County has seen fluctuations in population throughout its history. An initial surge of population in the 19th century and early 20th century was caused by prospectors and miners descending on the area. Based on past population trends, it is probable that growth rates will fluctuate during the next 20 years. However, periods of slow growth or negative growth (i.e. population losses) could be sustained if the state and national economies stagnate, resulting in fewer newcomers and second homebuyers.

The CPT also noted that future development and redevelopment needs to take safety into consideration as well as historic preservation considerations. Carbon County's first Historic Preservation Plan was prepared back in 1987 to conform with 36 Code of Federal Regulations (CFR) 6177 guidelines set for State Preservation Plans. This document continues to be relevant in Carbon County's development strategies and other planning mechanisms especially as related to hazard assessments and considerations.

Specific development trends are summarized in more detail below:

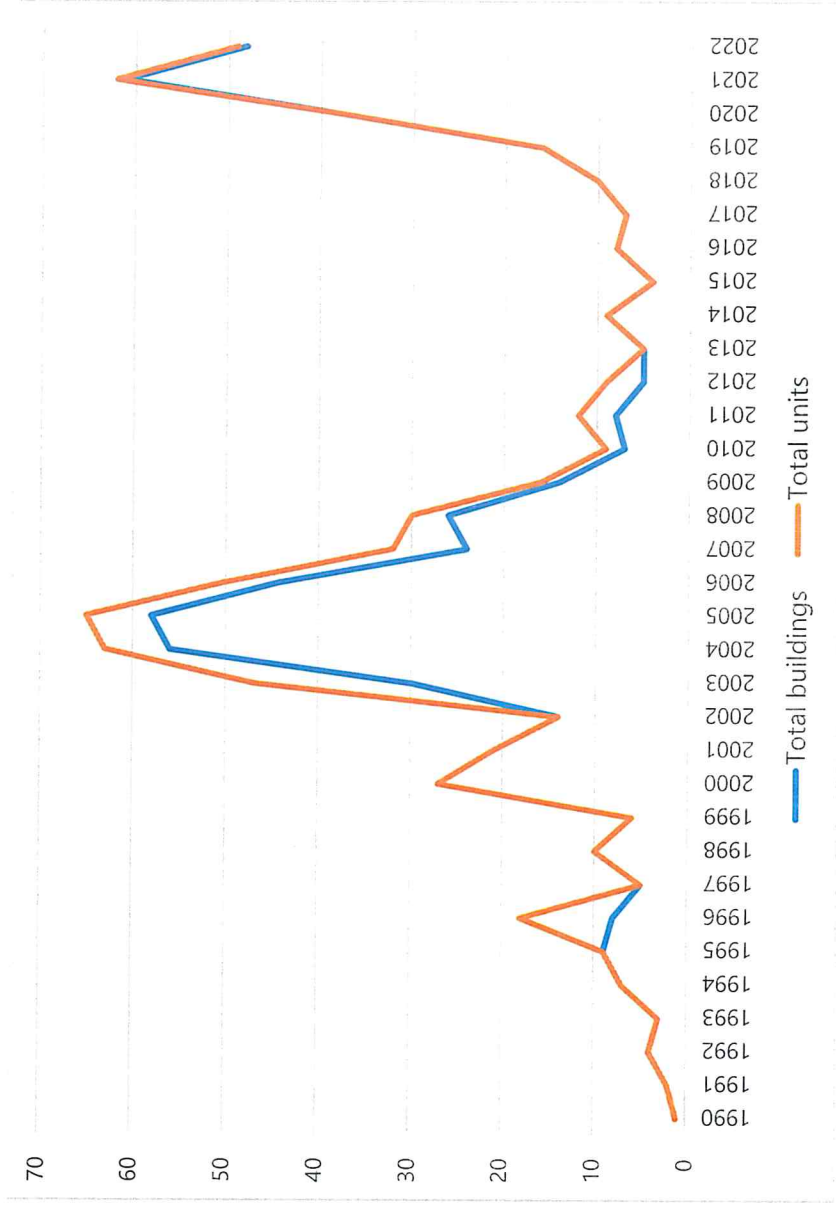
- **Carbon County:** The CPT has observed an increase in rural residential development over the past five years, with notable expansion along the U.S. Highway 310 corridor. Additionally, the potential development of a county jail in the near future has been identified, though details are still unclear. This trend of increased development, particularly in high-risk areas like corridors and potential institutional sites, may increase vulnerability to natural hazards if safety and resilience measures are not prioritized. Development along transportation corridors like U.S. Highway 310 could amplify risks such as wildfires, flooding, and severe weather due to more impervious surfaces, increased exposure, and potential strain on existing infrastructure.
- **Town of Bearcreek:** The CPT observed a substantial increase in residential development throughout the County, which has the potential to impact all municipalities. The predominant trend in the region involves rural development projects, typically comprising subdivisions of fewer than ten lots. These developments typically feature well and septic systems to accommodate the rural nature of the landscape, which can increase vulnerability to natural hazards. Rural developments may be more susceptible to hazards such as wildfires due to proximity to vegetated areas, drought because of reliance on wells for water supply, and flooding if septic systems fail during heavy rains.
- **Town of Fromberg:** CPT noted that there has been significant increase in residential development across the county that can affect all municipalities. A landowner is interested in creating a large development near Belfry, but this is still in the pre-planning phase. The potential increase in development can heighten vulnerability to natural hazards. The large-scale development near Belfry could lead to greater exposure to hazards such as wildfires, flooding, and severe weather if not considered in the planning stages. Increased development can also strain existing infrastructure, including water supplies and drainage systems.
- **Town of Bridger:** The CPT noted there was a proposed RV park in Bridger that is currently under consideration; however, the submitted application is pending further improvements to meet regulatory requirements. This development could increase vulnerability to natural hazards if not developed with hazard mitigation in mind. RV parks are often located in areas that may be susceptible to hazards such as flooding, wildfires, or severe weather, and the transient nature of RV residents can make evacuation during emergencies more challenging. Additionally, inadequate infrastructure, such as water supplies and drainage systems, could exacerbate risks if the park is located in a hazard-prone area.
- **Town of Joliet:** Speculations surrounding potential developments near Joliet persist, although they have yet to materialize. Development in the Town of Joliet is expected to grow in particularly dry/irrigated pasture areas with some potentially extending into floodplains. This could increase

vulnerability to natural hazards if developments occur in flood-prone areas. Building in floodplains exposes structures and residents to flood risks, especially during extreme weather events.

- **City of Red Lodge:** Residential growth is expected both in the floodplain and within the Wildland-Urban Interface (WUI), including the East Rosebud Lake area south of Red Lodge. The floodplain has significantly changed following the 2022 flood along Rock Creek, but residential development in the floodplain remains likely. This increases vulnerability to multiple natural hazards. Growth in the floodplain heightens exposure to flooding, particularly as the area has already experienced significant changes due to the 2022 flood. Development in the WUI increases the risk of wildfire impacts, as these areas are prone to fires that can spread rapidly to homes and infrastructure.

The U.S. Census Bureau Building Permit Survey provides information and local statistics on new privately-owned residential construction. Figure A-2 below displays the new privately owned housing unit authorizations by year in Carbon County. As shown, this data indicates that the County experienced a significant housing boom in the mid-2000s, and then a sharp increase again in the number of new housing units beginning around 2018. An increase in the number of housing unit authorizations in the County could indicate an increase in the total number of buildings exposed to hazard events. However, it is not entirely known how this development will impact vulnerability to specific hazards, such as wildfire and flooding.

Figure A-2 New Privately Owned Housing Unit Authorizations



Source: US Census Bureau, <https://www.census.gov/construction/bps/data/visualizations/index.html>

A.2.6 Economy

Table A-3 below provides a brief overview of economic characters in Carbon County. The following information is provided by the U.S. Census Bureau ACS 5-year estimates from 2016-2020.

Table A-3 Carbon County Economic Profile

Economic Characteristics	Carbon County
Families Below Poverty Level	6.2%
Individuals Below Poverty Level	10.8%
Median Home Value	\$271,500
Median Household Income	\$61,209
Per Capita Income	\$34,751
Population > 16 Years Old in Labor Force	61.8%
Population Employed	59.0%

Source: U.S. Census Bureau ACS 5-year estimates, 2021

Table A-4 below shows the breakdown of employment in Carbon County by the industry sector. According to the ACS, the leading employment sectors in the County are "Educational services, and health care and social assistance," which composes of over 21% of the total employment in the County with 1,136 people. This is followed by "Agriculture, forestry, fishing and hunting, and mining" with 14.6% of employment. A close third is the "Retail Trade" industry with almost 12.2% of the population in Carbon County employed.

Table A-4 Carbon County Occupation by Industry Profile

Industry	Population Employed	Percent of Labor Force
Agriculture, forestry, fishing and hunting, and mining	775	14.6%
Construction	553	10.4%
Manufacturing	386	7.3%
Wholesale trade	108	2.0%
Retail trade	649	12.2%
Transportation and warehousing, and utilities	300	5.6%
Information	63	1.2%
Finance and insurance, and real estate and rental and leasing	236	4.4%
Professional, scientific, management, administrative, and waste mgmt. services	288	5.4%
Educational services, and health care and social assistance	1,136	21.4%
Arts, entertainment, and recreation, and accommodation and food services	439	8.3%
Other services, except public administration	202	3.8%
Public administration	175	3.3%

Source: U.S. Census Bureau ACS 5-year estimates, 2016-2020

A.3 Hazard Identification and Risk Assessment

A.3.1 Identified Hazards

The CPT reviewed significant hazards for inclusion in the Regional HMP. Some changes were made from the 2020 Carbon County HMP to be consistent with the 2023 Montana Eastern Region HMP. The previous Carbon County HMP profiled the following hazards:

- Avalanche
- Dam Failure
- Drought
- Earthquakes
- Earth Movement
- Flood
- Summer Storms
- Winter Storms
- Volcanic Activity
- Wildfire
- Hazardous Materials Incident
- Public Health Emergency

Table A-5 provides a summary of the hazards as aligned with the development of this Regional HMP. One difference is that avalanche is profiled for Carbon County, but not for the Region, as there is some risk specific to the County. Earth movement has been changed to landslide, wildland fires has been changed to wildfire, and volcanic activity is now covered as volcanic ash. Public health emergency has also now been more narrowly defined as communicable disease. Additionally, cyber-attack, human conflict, and transportation accidents have all been added as new hazard profiles, and tornadoes and windstorms have been broken out from summer storms to be profiled as individual hazards. Table A-5 provides a summary of the overall hazard significance for the hazards evaluated in this plan, showing variability by jurisdiction. More details on hazards can be found in Chapter 4 of the base plan.

Table A-5 Carbon County Overall Hazard Significance by Hazard and Jurisdiction*

Hazard	Carbon County	City of Red Lodge	Town of Bearcreek	Town of Bridger	Town of Fromberg	Town of Joliet
Avalanche	Medium	Medium	Low	Low	Low	Low
Communicable Disease	Medium	Medium	Low	Low	Low	Low
Cyber-Attack	Medium	Medium	Medium	Medium	Medium	Medium
Dam Failure	Medium	High	Low	Low	Low	High
Drought	High	High	High	High	High	High
Earthquake	Medium	Medium	Medium	Medium	Medium	Medium
Flooding	High	High	Medium	Low	High	Low
Hazardous Materials Incident	Low	Low	Low	Low	Low	Low
Landslide	Medium	Low	Low	Low	Low	Low
Severe Summer Weather	Medium	Medium	Medium	Medium	Medium	Medium
Severe Winter Weather	Medium	Medium	Medium	Medium	Medium	Medium
Human Conflict	Medium	Medium	Medium	Medium	Medium	Medium

Hazard	Carbon County	City of Red Lodge	Town of Bearcreek	Town of Bridger	Town of Fromberg	Town of Joliet
Tornadoes & Windstorms	Medium	Medium	Medium	Medium	Medium	Medium
Transportation Accidents	Low	Low	Low	Low	Low	Low
Volcanic Ash	Low	Low	Low	Low	Low	Low
Wildfire	High	High	Low	Low	High	High
*Significance based on a combination of Geographic Extent, Potential Magnitude/Severity and Probability as defined below.						
Geographic Extent	Probability of Future Occurrences					
<u>Negligible:</u> Less than 10 percent of planning area or isolated single-point occurrences	<u>Unlikely:</u> Less than 1 percent probability of occurrence in the next year or has a recurrence interval of greater than every 100 years.					
<u>Limited:</u> 10 to 25 percent of the planning area or limited single-point occurrences	<u>Occasional:</u> Between a 1 and 10 percent probability of occurrence in the next year or has a recurrence interval of 11 to 100 years.					
<u>Significant:</u> 25 to 75 percent of planning area or frequent single-point occurrences	<u>Likely:</u> Between 10 and 90 percent probability of occurrence in the next year, or has a recurrence interval of 1 to 10 years					
<u>Extensive:</u> 75 to 100 percent of planning area or consistent single-point occurrences	<u>Highly Likely:</u> Between 90 and 100 percent probability of occurrence in the next year or has a recurrence interval of less than 1 year.					
Potential Magnitude/Severity	Overall Significance					
<u>Negligible:</u> Less than 10 percent of property is severely damaged, facilities and services are unavailable for less than 24 hours, injuries and illnesses are treatable with first aid or within the response capability of the jurisdiction.	Low: Two or more of the criteria fall in the lower classifications or the event has a minimal impact on the planning area. This rating is also sometimes used for hazards with a minimal or unknown record of occurrences/impacts or for hazards with minimal mitigation potential.					
<u>Limited:</u> 10 to 25 percent of property is severely damaged, facilities and services are unavailable between 1 and 7 days, injuries and illnesses require sophisticated medical support that does not strain the response capability of the jurisdiction, or results in very few permanent disabilities.	Medium: The criteria fall mostly in the middle ranges of classifications and the event's impacts on the planning area are noticeable but not devastating. This rating is also sometimes utilized for hazards with a high impact rating but an extremely low occurrence rating.					
<u>Critical:</u> 25 to 50 percent of property is severely damaged, facilities and services are unavailable or severely hindered for 1 to 2 weeks, injuries and illnesses overwhelm medical support for a brief period of time or result in many permanent disabilities and a few deaths overwhelmed for an extended period of time or many deaths occur.	High: The criteria consistently fall along the high ranges of the classification and the event exerts significant and frequent impacts on the planning area. This rating is also sometimes utilized for hazards with a high psychological impact or for hazards that the jurisdiction identifies as particularly relevant.					
<u>Catastrophic:</u> More than 50 percent of property is severely damaged, facilities and services are unavailable or hindered for more than 2 weeks, the medical response system is overwhelmed for an extended period of time, or many deaths occur.						

A.3.2 Building Inventory and Assets

People, property, critical facilities/infrastructure, and other important assets in Carbon County are exposed to the hazards identified in this plan. Table A-6 summarizes the property inventory for the County and each participating jurisdiction, based on improvement value (i.e., structures) and includes the building count and value grouped by jurisdiction. This is an assessment of the overall property exposed within the County and by jurisdiction.

Assets inventoried to determine vulnerability include people, structures, critical facilities, and natural, historic, or cultural resources. For the regional planning process, locally available Geographic Information

Systems (GIS) databases were utilized. Parcel and assessor data was obtained through Montana's Montana Spatial Data Infrastructure (MSDI) Cadastral website for the April 2022 publication. This Statewide database provided the basis for building exposure and property types. The focus of the analysis was on "improved" or developed parcels. These parcels were identified based on an improvement value greater than zero. Property Types were used to identify occupancy types as shown in the following table, which includes summations of total improved value for the various property types.

Table A-6 Carbon County Building Inventory and Value by Jurisdiction

Jurisdiction	Improved Parcels	Improved Value	Content Value	Total Value
Bearcreek	69	\$7,179,050	\$3,680,165	\$10,859,215
Bridger	367	\$44,435,242	\$26,077,378	\$70,512,620
Fromberg	216	\$20,888,847	\$12,521,684	\$33,410,531
Joliet	275	\$40,841,903	\$24,955,921	\$65,797,824
Red Lodge	1,460	\$334,459,670	\$185,754,371	\$520,214,041
Carbon County	3,905	\$966,727,357	\$600,837,138	\$1,567,564,495
Total	6,292	\$1,414,532,069	\$853,826,656	\$2,268,358,725

Source: MSDI Cadastral database, <https://msl.mt.gov/geoinfo/msdi/cadastral/>

Total building exposure with contents within Carbon County based on an analysis of improved parcels is over \$2.2 billion, with over \$1.4 billion in improved value properties and an estimated \$852 million worth of contents. Of the more than \$2.2 billion of total building exposure in Carbon County, the unincorporated county accounts for more than \$1.5 billion of this total number. Residential properties represent the greatest portion of structures in the County, accounting for over \$1.7 billion of the \$2.3 billion total improved property value. This is shown in Table A-7 below.

Table A-7 Carbon County Total Exposure by Jurisdiction and Property Type

Jurisdiction	Property Type	Improved Parcels	Improved Value	Content Value	Total Value
Bearcreek	Exempt	2	\$148,290	\$148,290	\$296,580
	Residential	65	\$6,997,770	\$3,498,885	\$10,496,655
	Vacant	2	\$32,990	\$32,990	\$65,980
	Total	69	\$7,179,050	\$3,680,165	\$10,859,215
Bridger	Agricultural	1	\$92,970	\$92,970	\$185,940
	Exempt	23	\$7,626,544	\$7,626,544	\$15,253,088
	Residential	343	\$36,715,728	\$18,357,864	\$55,073,592
	Total	367	\$44,435,242	\$26,077,378	\$70,512,620
Fromberg	Agricultural	2	\$53,770	\$53,770	\$107,540
	Exempt	11	\$4,100,750	\$4,100,750	\$8,201,500
	Residential	203	\$16,734,327	\$8,367,164	\$25,101,491
	Total	216	\$20,888,847	\$12,521,684	\$33,410,531
Joliet	Exempt	19	\$9,069,938	\$9,069,938	\$18,139,876
	Residential	256	\$31,771,965	\$15,885,983	\$47,657,948
	Total	275	\$40,841,903	\$24,955,921	\$65,797,824
Red Lodge	Commercial	13	\$6,777,420	\$6,777,420	\$13,554,840
	Exempt	47	\$30,271,652	\$30,271,652	\$60,543,304
	Residential	1,400	\$297,410,598	\$148,705,299	\$446,115,897
	Total	1,460	\$334,459,670	\$185,754,371	\$520,214,041

Jurisdiction	Property Type	Improved Parcels	Improved Value	Content Value	Total Value
Unincorporated Carbon County	Agricultural	911	\$195,928,553	\$195,928,553	\$391,857,106
	Commercial	4	\$2,137,750	\$2,137,750	\$4,275,500
	Exempt	48	\$14,661,156	\$14,661,156	\$29,322,312
	Industrial	5	\$10,436,270	\$15,654,405	\$26,090,675
	Residential	2,907	\$742,216,708	\$371,108,354	\$1,113,325,062
	Vacant	30	\$1,346,920	\$1,346,920	\$2,693,840
	Total	3,905	\$966,727,357	\$600,837,138	\$1,567,564,495
	Grand Total	6,292	\$1,414,532,069	\$853,826,656	\$2,268,358,725

Source: MSDI Cadastral database, <https://msl.mt.gov/geoinfo/msdi/cadastral/>

Critical Facilities, Infrastructure, and Other Important Community Assets

A critical facility is defined as one that is essential in providing utility or direction either during the response to an emergency or during the recovery operation. Most of these data are based on GIS databases associated with the 2022 Homeland Infrastructure Foundation-Level Data (HIFLD). Other critical facility databases were also used, such as the National Bridge Inventory (NBI), with supplementation from the Hazard Mitigation Planning Committee (HMPC) and Carbon County CPT. Where applicable, this information was used in an overlay analysis for hazards such as dam failure, flood, and wildfire.

The Federal Emergency Management Agency (FEMA) organizes critical facilities into seven lifeline categories as shown in Figure A-3Figure A-3. These lifeline categories standardize the classification of critical facilities and infrastructure that provide indispensable service, operation, or function to a community. A lifeline is defined as providing indispensable service that enables the continuous operation of critical business and government functions, and is critical to human health and safety, or economic security. These categorizations are particularly useful as they:

- Enable effort consolidations between government and other organizations (e.g., infrastructure owners and operators).
- Enable integration of preparedness efforts among plans; easier identification of unmet critical facility needs.
- Refine sources and products to enhance awareness, capability gaps, and progress towards stabilization.
- Enhance communication amongst critical entities, while enabling complex interdependencies between government assets.
- Highlight lifeline related priority areas regarding general operations as well as response efforts.

Figure A-3 FEMA Lifeline Categories



Source: FEMA

Table A-8 below summarizes the number of critical facilities by jurisdiction. Figure A-4 through Figure A-9 below display the location of critical facilities by FEMA Lifeline in Carbon County, as well as the City of Red Lodge, and Towns of Bearcreek, Bridger, Fromberg, and Joliet.

Table A-8 Carbon County Critical Facilities by Jurisdiction

Jurisdiction	Communications	Energy	Food, Water, Shelter	Hazardous Materials	Health and Medical	Safety and Security	Transportation	Total
Bridger	-	-	-	-	1	5	1	7
Fromberg	-	-	-	-	-	5	-	5
Joliet	-	-	3	-	1	5	1	10
Red Lodge	2	2	6	-	1	8	4	23
Carbon County	36	35	9	3	-	12	80	175

Jurisdiction	Total
Communications	38
Energy	37
Food, Water, Shelter	18
Hazardous Materials	3
Health and Medical	3
Safety and Security	35
Transportation	86
Total	220

Source: HIFLD 2022, Montana Disaster and Emergency Services (DES), National Bridge Inventory

Figure A-4 Carbon County Critical Facilities

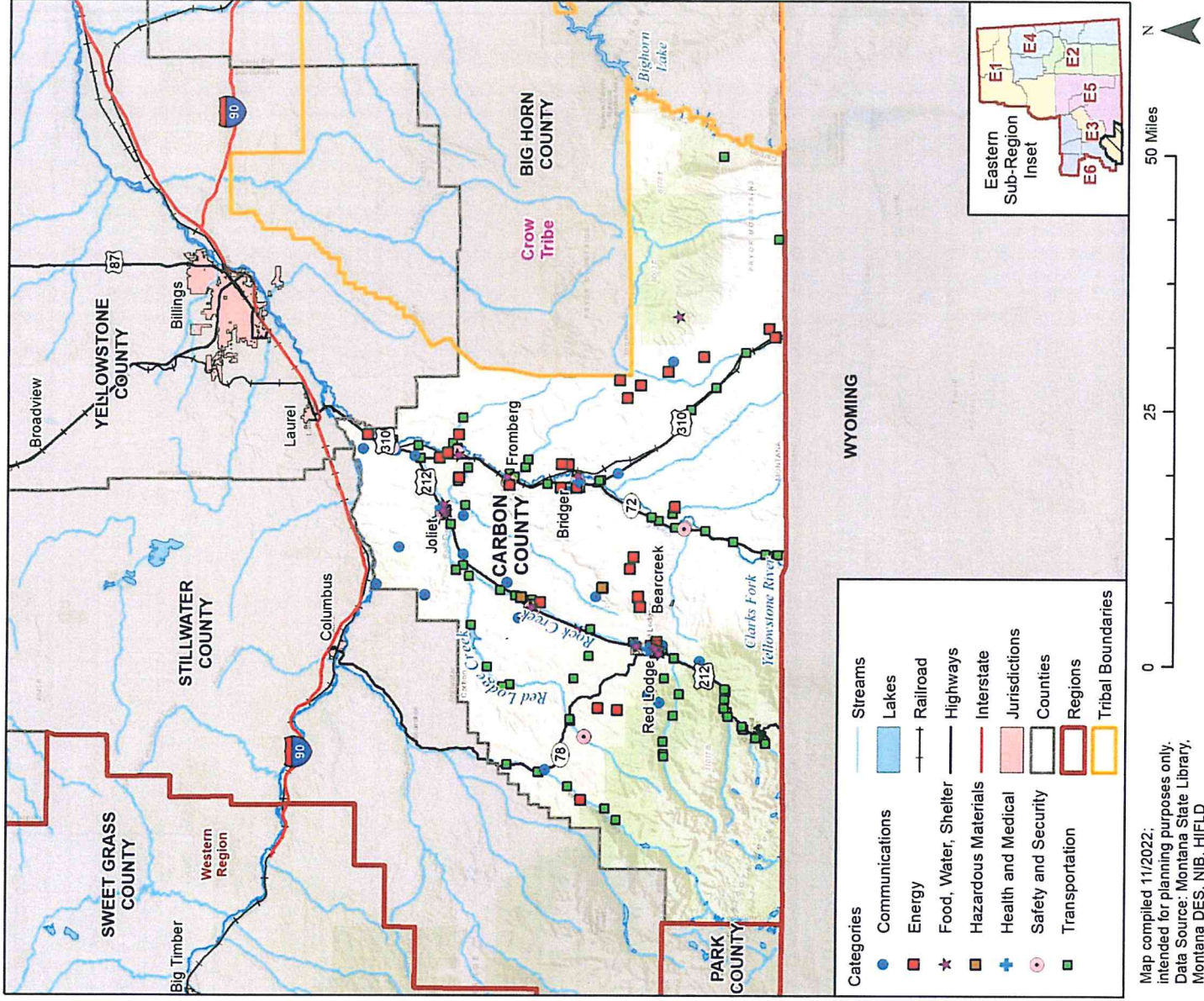


Figure A-5 Town of Bearcreek Critical Facilities

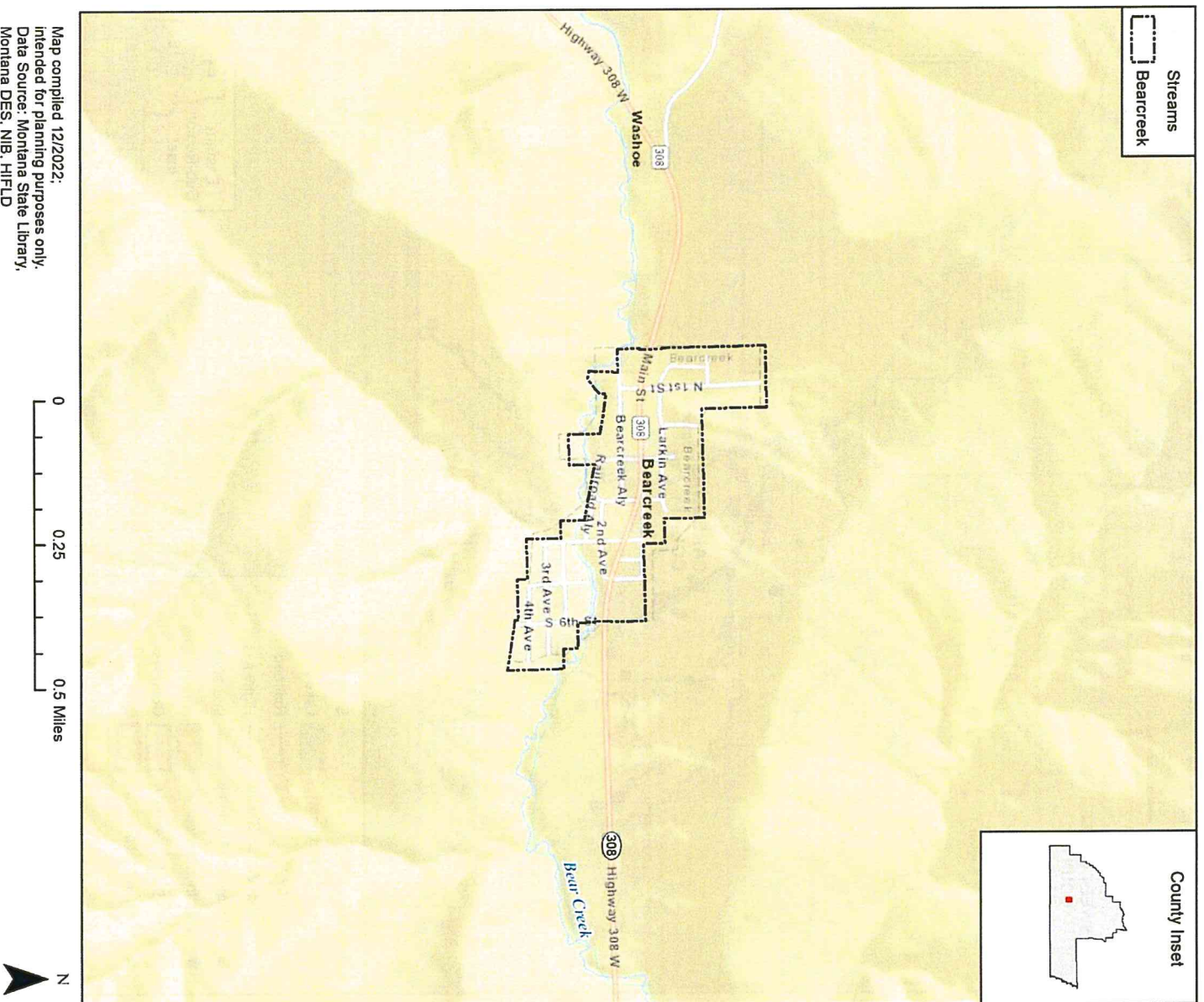


Figure A-6 Town of Bridger Critical Facilities

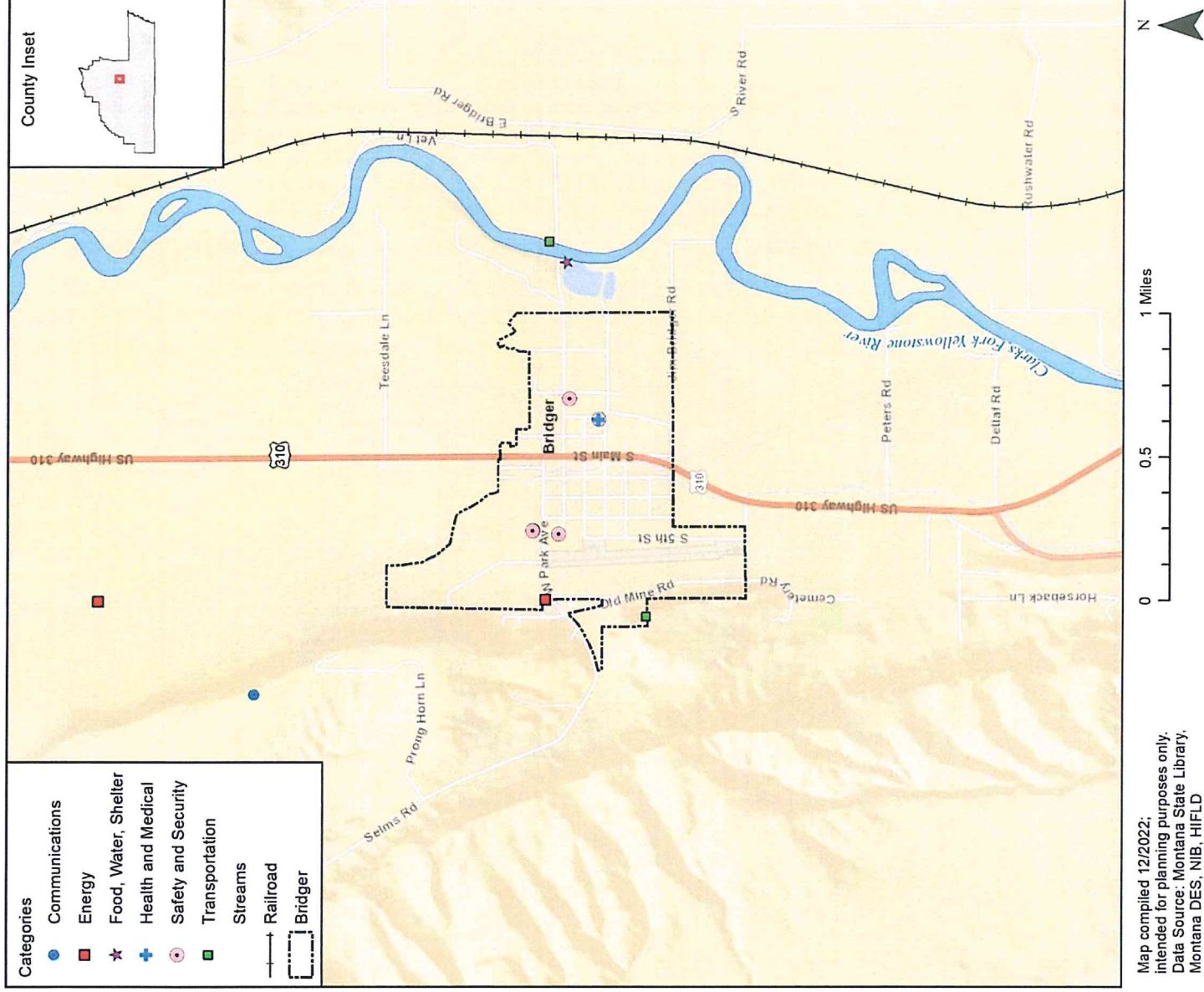


Figure A-7 Town of Fromberg Critical Facilities

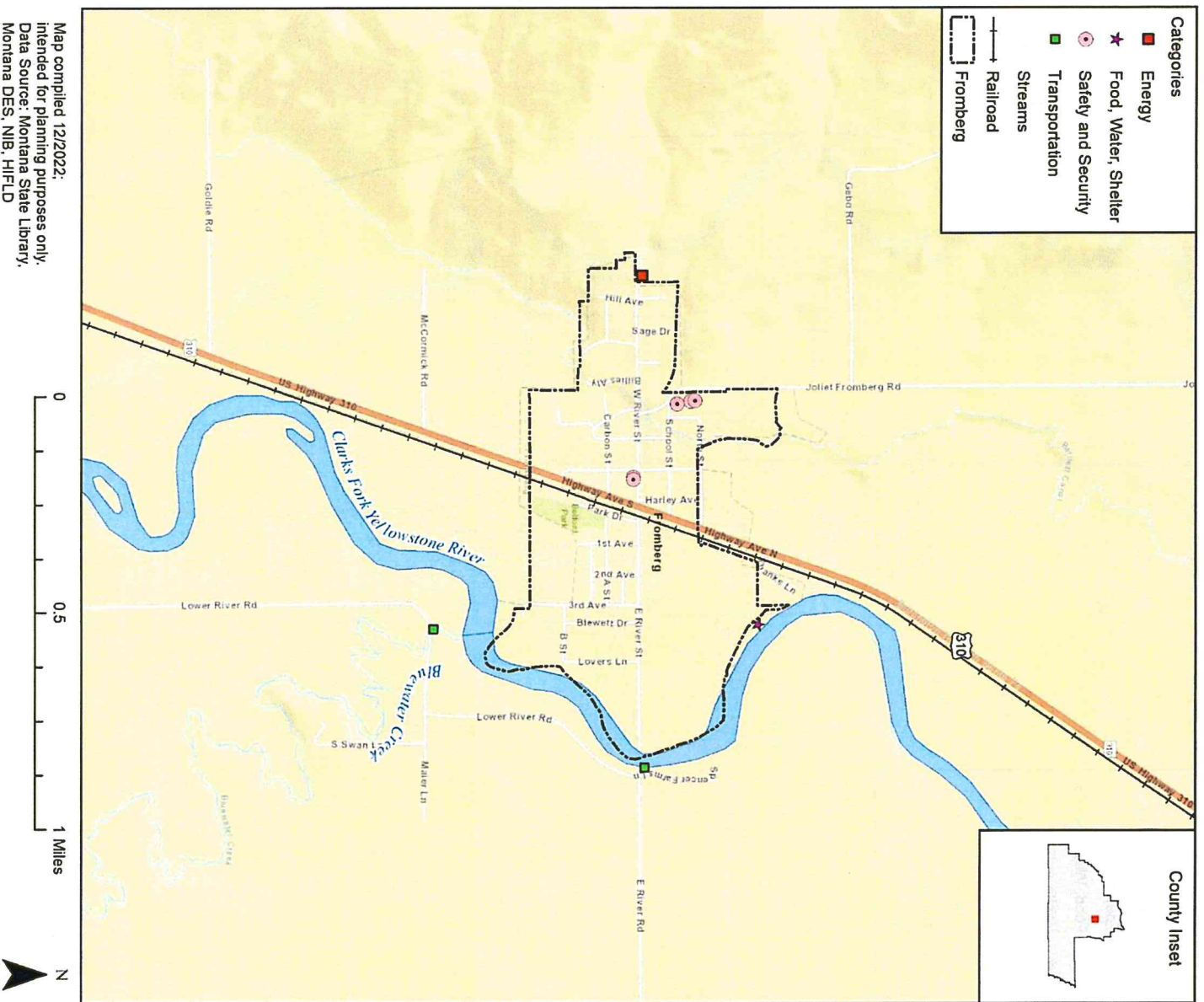


Figure A-8 Town of Joliet Critical Facilities

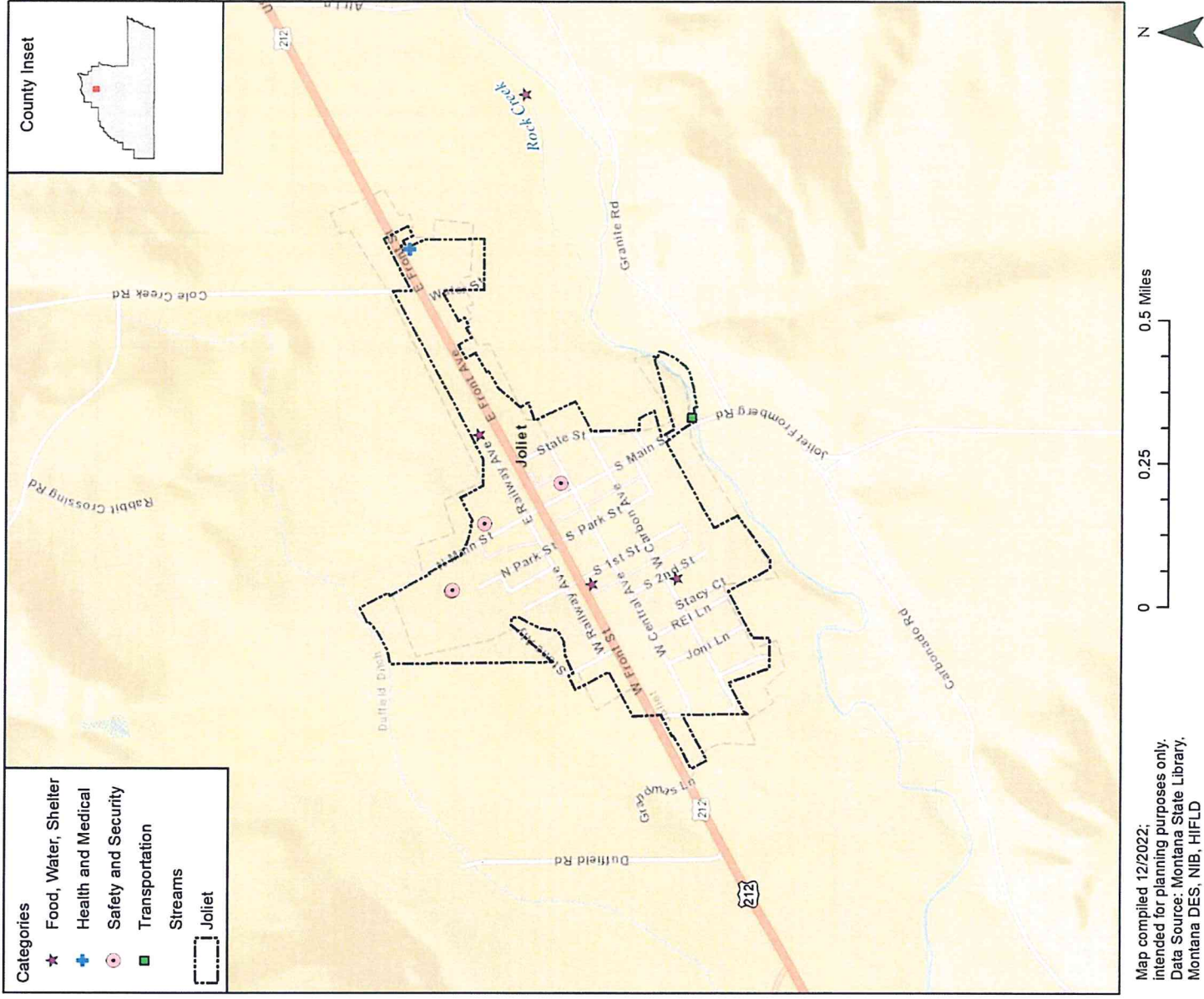
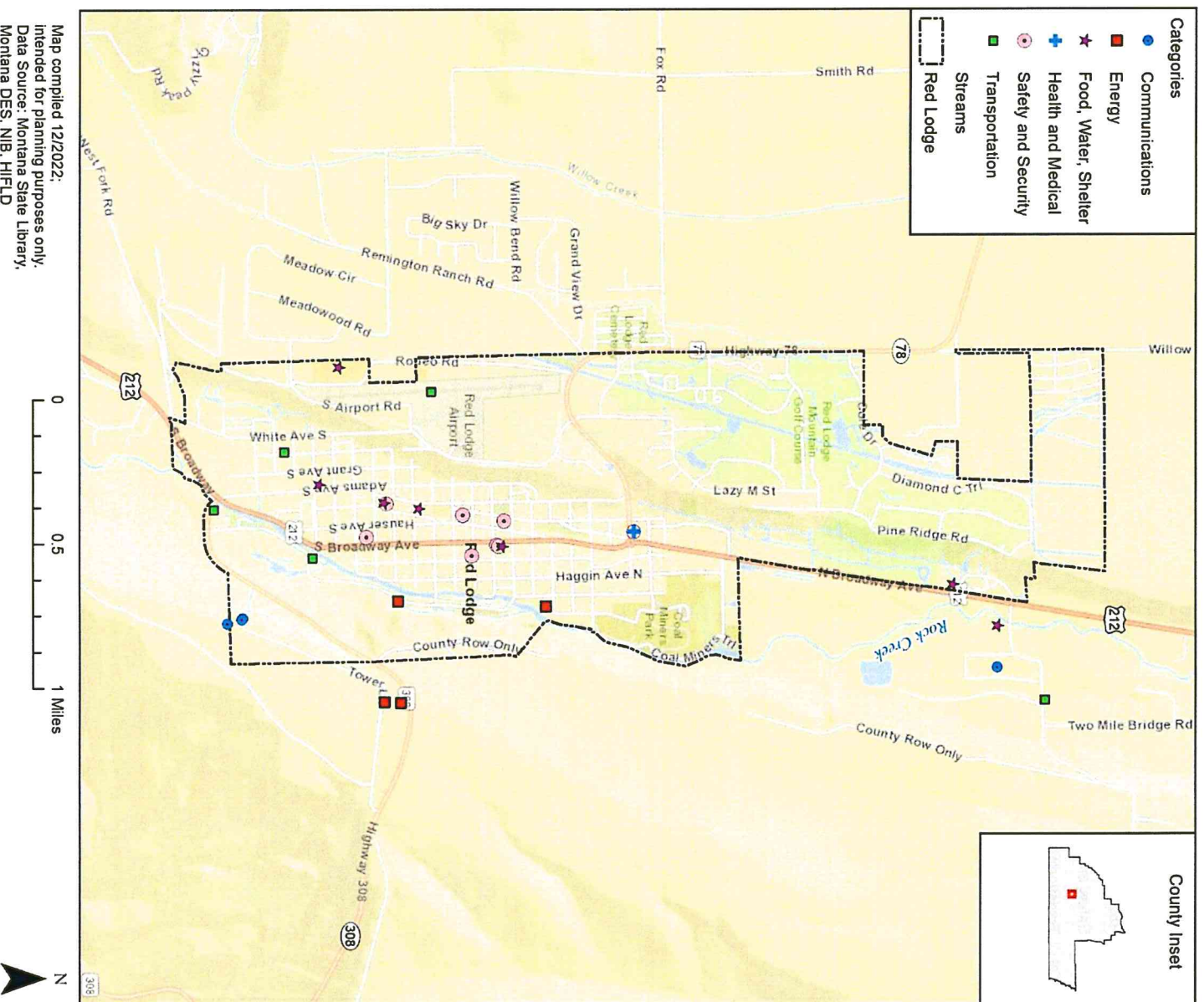


Figure A-9 City of Red Lodge Critical Facilities



Natural, Historic, and Cultural Assets

Assessing the vulnerability of Carbon County to hazards also involves inventorying the natural, historical, and cultural assets of the area. This step is important for the following reasons:

- The community may decide that these types of resources warrant more protection due to their unique and irreplaceable nature and contribution to the overall economy.
- If these resources are impacted by a hazard, knowing so ahead of time allows for more prudent care in the immediate aftermath, when the potential for additional impacts are higher.
- The rules for reconstruction, restoration, rehabilitation, and/or replacement are often different for these types of designated resources.
- Natural resources can have beneficial functions that reduce the impacts of natural hazards, such as wetlands and riparian habitat, which help absorb and attenuate floodwaters.

Historic and Cultural Assets

By definition, a historic property not only includes buildings or other types of structures, such as bridges and dams, roads, byways, historic landscapes, and many other features. The National Register of Historic Places (NRHP), managed by the National Park Service and U.S. Department of Interior, is the nation's official list of cultural resources worthy of preservation. Table A-9 below lists the properties that are identified as having cultural and historic significance in Carbon County as recorded by the NRHP.

Table A-9 Historic Properties and Districts on National Registers

Property Name	City/Town	Location	Date Listed
Bearcreek Bank	Bearcreek	Main and Second Sts.	3/31/04
Bear Creek Coal Mining District	Bear Creek	Area W of town of Bear Creek	
Bearcreek Cemetery	Bearcreek	1 mi. W. of Bearcreek	1/18/11
Smith Mine Historic District	Bearcreek	MT 308	9/30/09
Kose Hall	Belfry	216 Broadway Ave.	4/9/13
Montana, Wyoming and Southern Railroad Depot	Belfry	403 Broadway Ave.	10/3/12
Bridger Coal Company House	Bridger	307 W. Broadway	9/15/87
Bridger Opera House	Bridger	E. Broadway	9/15/87
Corey House	Bridger	106 N. E St.	7/21/87
Demijohn Flat Archeological District	Bridger	Address Restricted	11/20/74
Forsman House	Bridger	406 E. Carbon Ave.	7/21/87
Gebo, Henry, House	Bridger	E of Bridger	7/21/87
Glidden House	Bridger	112 N. E St.	7/21/87
Glidden Mercantile	Bridger	102 N. Main	9/15/87
Heatherington Boarding House	Bridger	209 E. Broadway	9/15/87
Hough, Raymond, House	Bridger	312 S. Second	9/15/87
Marcus, Dr. Carl, House	Bridger	210 S. Second	9/15/87
Methodist Episcopal Church and Parsonage	Bridger	220 W. Broadway	9/15/87
Nutting Rental	Bridger	Carbon Ave.	9/15/87
Sage Creek Ranger Station	Bridger	Custer Gallatin NF, Sage Creek Guard Station Rd. 2223, Pryor Mts.	8/17/20
Teesdale Homestead	Bridger	Located E of US Hwy. 310	
Wool Warehouse	Bridger	E. Bridger	7/21/87

Property Name	City/Town	Location	Date Listed
Lockhart, Caroline, Ranch	Dead Hill	Davis Creek, 70 mi. S of Hardin	11/3/89
Ewing-Snell Ranch	Dryhead	S of Dryhead	5/12/77
Baldwin Building	Fromberg	Jct. of W. River St. and Harley Ave.	1/28/93
Benson, Dr. Theodore J., House	Fromberg	10 N. Montana	1/28/93
Blewett, John, House	Fromberg	2411 E. River St.	1/28/93
Bluestwater Creek Bridge	Fromberg	Milepost 8 on Bluestwater Cr. Rd.	4/28/11
Brooder, Frank, House	Fromberg	303 North St.	1/28/93
Fromberg Bridge	Fromberg	Local Rd. over the Clark's Fork of the Yellowstone River, just E of Fromberg	
Fromberg Concrete Arch Bridge	Fromberg	River St. over the Clark's Fork of the Yellowstone R.	1/28/93
Fromberg High School	Fromberg	Kids Ct.	1/28/93
Fromberg Methodist--Episcopal Church	Fromberg	Jct. of N. Montana Ave. and School St.	1/28/93
Fromberg Opera House	Fromberg	Jct. of Harley Ave. and C St.	1/28/93
Gebo Barn	Fromberg	2.5 mi. S. of Fromberg on River Rd.	6/1/05
Gebo Cemetery	Fromberg	Co Rd. linking Gebo and Fromberg	4/8/93
Gibson, John, House	Fromberg	219 W. River St.	1/28/93
Greenblatt, Samuel, House	Fromberg	215 W. River St.	1/28/93
IOOF Hall and Fromberg Co-operative Mercantile Building	Fromberg	123 W. River St.	1/28/93
McCall, Tracy, House	Fromberg	110 N. Montana Ave.	1/28/93
Northern Pacific Railroad Depot--Fromberg	Fromberg	Jct. of US 310 and River St.	1/28/93
Rahrer, Francis, House	Fromberg	309 School St.	1/28/93
Suydam, Hester E., Boarding House	Fromberg	209 W. River St.	1/28/93
Pretty Creek Archeological Site	Hardin	Address Restricted	1/17/75
Cedarvale	Hillsboro	Present town of Hillsboro and its environs in Bighorn Canyon National Recreation Area	8/19/75
Baker and Lovering Store	Joliet	Main St.	5/2/86
Fire Hall	Joliet	Main St.	5/2/86
House on Railroad Avenue	Joliet	Railroad Ave.	5/2/86
Joliet Bridge	Joliet	Carries Main St. over Rock Creek	5/2/86
Joliet High School	Joliet	Main St.	5/2/86
Joliet Residential Historic District	Joliet	Roughly bounded by Northern Pacific RR and US 12, State St., Carbon Ave., and Second St.	5/2/86
Rock Creek State Bank	Joliet	Main St.	5/2/86
Smith, T. W., House	Joliet	Front St.	5/2/86
Southern Hotel	Joliet	Main St.	5/2/86
Calvary Episcopal Church	Red Lodge	9 N. Villard Ave.	10/23/86
Camp Senia Historic District	Red Lodge	Custer National Forest	4/14/88

Property Name	City/Town	Location	Date Listed
Camp Senia Historic District (Boundary Increase and Additional Data)	Red Lodge	Custer National Forest	8/10/15
Hi Bug Historic District	Red Lodge	Roughly bounded by W. Third St., N. Villard Ave., W. Eighth St., and N. Word Ave.	7/23/86
Hi Bug Historic District (Boundary Decrease)	Red Lodge	301 N. Hauser	
Kent Dairy Round Barn	Red Lodge	US 212, 2 mi. N of Red Lodge	4/7/95
Red Lodge Brewing Company--Red Lodge Canning Company	Red Lodge	904 N. Bonner St.	9/5/07
Red Lodge Commercial Historic District	Red Lodge		
Red Lodge Commercial Historic District	Red Lodge	Roughly Broadway from 8th to 13th Sts.	4/14/83
Red Lodge Commercial Historic District (Boundary Increase)	Red Lodge	Roughly Broadway from 8th to 13th Sts.	5/31/84
Red Lodge Commercial Historic District (Boundary Increase)	Red Lodge	S. Broadway between Eighth and Fifteenth Sts.	8/28/86
Red Lodge Communal Mausoleum	Red Lodge	Montana HWY 78	3/21/11
Red Lodge--Cooke City Approach Road Historic District	Red Lodge	US 212	5/8/14
Rock Creek Ranger Station Historic District	Red Lodge	6811 US 212	10/17/16
Warila Boarding House and Sauna	Red Lodge	20 N. Haggin	10/24/85
Yodeler Motel	Red Lodge	601 S. Broadway Ave.	3/26/14
Kero Farmstead Historic District	Roberts	223 W. Bench Rd.	8/16/07
Bad Pass Trail	Warren	E of Warren along Big Horn River in Bighorn Canyon National Recreation Area	10/29/75
Petroglyph Canyon	Warren	Address Restricted	11/20/75

Source: NRHP, <https://irma.nps.gov/DataStore/Reference/Profile/2210280>

Natural Resources

Natural resources are important to include in benefit-cost analyses for future projects and may be used to leverage additional funding for projects that also contribute to community goals for protecting sensitive natural resources. Awareness of natural assets can lead to opportunities for meeting multiple objectives. For instance, protecting wetlands preserves sensitive habitats as well as attenuates and stores floodwaters.

Approximately 25% of the County's area is managed by the U.S. Forest Service and another 17% is Bureau of Land Management lands. The County contains portions of the Bighorn Canyon National Recreation Area, as well as portions of both the Custer and Gallatin National Forests. Wetlands are another important natural asset to the County that provide support to an incredible amount of biodiversity and provide natural flood protection through the storing of floodwaters and maintaining surface water flows during dry period. Wetlands are also vulnerable to many of the identified hazards in this plan as well as impacts from human activities such as mining, construction of reservoirs, water diversions, agriculture, grazing, and general community development. Valuable mineral deposits brought early settlers to this area (per the County's

name, which came from the abundant amounts of coal in the area), and these continue to be an important natural resource for the community.

Endangered Species

A table of endangered and threatened species in the State of Montana, as identified by the U.S. Fish and Wildlife Service, Montana Ecological Services Field Office, can be found in the Assets Summary Section in Chapter 4 of the base plan.

A.4 Vulnerability to Specific Hazards

Vulnerability to hazards that can affect the Eastern Region is described in Section 4.2 *Hazard Profiles* of the Eastern Region base plan. The analysis of vulnerability in the base plan includes the type, location, and extent of hazards. In addition, the base plan provides an analysis of the vulnerability of six classes of assets: (1) People, (2) Property, (3) Critical Facilities and Lifelines, (4) the Economy, (5) Historic and Cultural Resources, and (6) Natural Resources. Subsections within Section 4.2 of the Eastern Region base plan provide descriptions and analysis of the exposure of each asset class to each hazard, the susceptibility of each asset class to damage from exposure to each hazard, and the overall vulnerability of each class of asset to each hazard.

This section details vulnerability to specific hazards, where quantifiable, only where it differs from that of the Region as a whole. The results of detailed GIS analyses used to estimate potential for future losses are presented here, in addition to maps of hazard areas and details by jurisdiction and building type. For a discussion of the methodology used to develop the loss estimates, refer to Chapter 4 of the base plan. In many cases Chapter 4 contains information that differentiates the risk by county thus the information is not duplicated here. For most of the weather-related hazards the exposure does not vary significantly from the rest of the Region and thus the reader should refer to Chapter 4. Only unique issues or vulnerabilities are discussed, where applicable.

Hazards considered in this HMP update annex are as follows.

- Avalanche
- Communicable Disease
- Cyber-Attack
- Dam Failure
- Drought
- Earthquake
- Flooding
- Hazardous Materials Incident
- Landslide
- Severe Summer Weather
- Severe Winter Weather
- Human Conflict
- Tornadoes & Windstorms
- Transportation Accidents
- Volcanic Ash
- Wildfire

A.4.1 Avalanche

Avalanche is ranked a medium significance hazard for Carbon County and Red Lodge. This hazard is ranked low significance in Bearcreek, Bridger, Fromberg, and Joliet.

The FEMA NRI annualized frequency of avalanche events in the County is .03, with two avalanches recorded in the SHELDS database between January 1960 and December 2019. The NRI Risk Index Rating for avalanches in the County, which accounts for expected annual loss, social vulnerability, and community resilience, is considered “relatively low” with a score of 13.8. Due to the remote nature of avalanche events, risk is highest in the unincorporated County and generally lower in incorporated jurisdictions. However, the Red Lodge Mountain Resort in Red Lodge is dependent upon the presence of snow on sloped surfaces, which increases exposure to avalanches that are mitigated by the resort.

A.4.2 Communicable Disease

All populations are vulnerable to communicable disease. Elder populations, young children, and individuals with pre-existing medical conditions are more likely to face long lasting impacts from communicable disease. While areas of high population density, such as the City of Red Lodge, are likely to experience a greater number of cases due to a larger population, these larger cities also have greater access to medical resources. Communicable disease is ranked as a hazard of medium concern in Carbon County and there were no noted jurisdictional differences.

Refer to Chapter 4 for a discussion of the communicable disease risk relative to Carbon County and the Eastern Region.

A.4.3 Cyber-Attack

All servers, networks, and users are vulnerable to cyber-attacks in Eastern Montana. Carbon County is ranked as medium, along with most other counties in the Region. There have been no recorded cyber-attack events occurring in the County or its jurisdictions, however, minor cyber-attacks such as phishing emails often go unreported. While all networks and servers are vulnerable to cyber, towns such as the Town of Bearcreek and Bridger have greater populations and therefore more people exposed to a cyber-attack event.

Refer to Chapter 4 for a discussion of the cyber-attack risk relative to Carbon County and the Eastern Region.

A.4.4 Dam Failure

Dam failure is ranked a medium significance hazard for Carbon County. Red Lodge and Joliet ranked the hazard as high significance. Bearcreek, Bridger, and Fromberg ranked it a low significance hazard. 2,560 people live within dam inundation zones made available for this HMP update, 24% of the county population. This includes virtually the entire Town of Joliet and 42% of the City of Red Lodge.

The SoVI-based rating of social vulnerability in Carbon County is relatively moderate (Section A.2.4 Social Vulnerability), largely due to a large older population and a high proportion of people living with disabilities or a high housing cost burden (Table A-2). Dam failure can be devastating both financially and emotionally. Socio-economic vulnerability amplifies the financial and mental stress of dam failure hazards and often makes it difficult for people to recover. Dam failure may result in injuries or fatalities in situations with limited warning or when evacuation orders are not adhered to. Access and functional needs populations may have challenges with evacuations.

There are four high hazard dams located in Carbon County (Figure A-10). Table A-10 below identifies the dams and the nearest downstream cities which could potentially be impacted in a dam failure or incident. There are no high hazard dams immediately upstream of Carbon County. Refer to Chapter 4 for a discussion of the dam failure risk relative to Carbon County and the Eastern Region.

Table A-10 Dams in Carbon County

Hazard Class	Dam Name	Owner	River	Nearest Downstream City	Distance to Nearest Downstream City (Miles)	Emergency Action Plans (EAP)
High	Cooney	State Water Projects	Red Lodge Creek	Joliet	12	Yes
High	Depression Detention Dam	Department of Interior: BLM	S. Fork Bridger Creek	Bridger	9	Yes
High	Glacier Lake North Dam	State Water Projects	Rock Creek	Red Lodge	20	Yes
High	Glacier Lake South Dam	State Water Projects	Rock Creek	Red Lodge	20	Yes

Source: National Inventory of Dams (NID)

With four high hazard dams in the planning area, dam failure flooding could result in significant property losses and loss to human life. The Glacier Lake North and South Dams in Carbon County inundation zones affect Rock Creek and through the City of Red Lodge and the Town of Joliet. Dam failure could cause severe inundation to these communities.

Table A-11 summarizes the estimated number of improved parcels, building values, and people within inundation zones in Carbon County downstream of the Glacier Lake Dams and the Cooney Dam. The inundation area for the Depression Detention Dam was not made available for this HMP update and is not included in the risk analysis below.

Carbon County has \$401 million in total property value located within the inundation zones made available for this HMP update. Residential property types represent the greatest total number of improved parcels and most property value, with approximately \$331.7 million in total property value at risk.

Table A-11 Carbon County Parcels at Risk to Dam Inundation by Property Type

Jurisdiction	Property Type	Improved Parcels	Improved Value	Content Value	Total Value	Population
Joliet	Exempt	18	\$4,181,588	\$4,181,588	\$8,363,176	
	Residential	250	\$30,728,534	\$15,364,267	\$46,092,801	585
	Vacant	1	\$904,460	\$904,460	\$1,808,920	
	Total	268	\$34,910,122	\$19,545,855	\$54,455,977	585
Red Lodge	Commercial	1	\$165,410	\$165,410	\$330,820	
	Exempt	10	\$3,908,942	\$3,908,942	\$7,817,884	
	Residential	407	\$77,709,608	\$38,854,804	\$116,564,412	952
	Total	418	\$81,783,960	\$42,929,156	\$124,713,116	952
Unincorporated Carbon County	Agricultural	93	\$24,333,090	\$24,333,090	\$48,666,180	
	Commercial	2	\$1,774,360	\$1,774,360	\$3,548,720	
	Exempt	4	\$181,460	\$181,460	\$362,920	
	Residential	437	\$112,684,532	\$56,342,266	\$169,026,798	1,023
	Vacant	4	\$111,390	\$111,390	\$222,780	
	Total	540	\$139,084,832	\$82,742,566	\$221,827,398	1,023
	Grand Total	1,226	\$255,778,914	\$145,217,577	\$400,996,491	2,560

Source: County Assessor data, NID, Montana Department of Natural Resources and Conservation (DNRC), WSP GIS Analysis

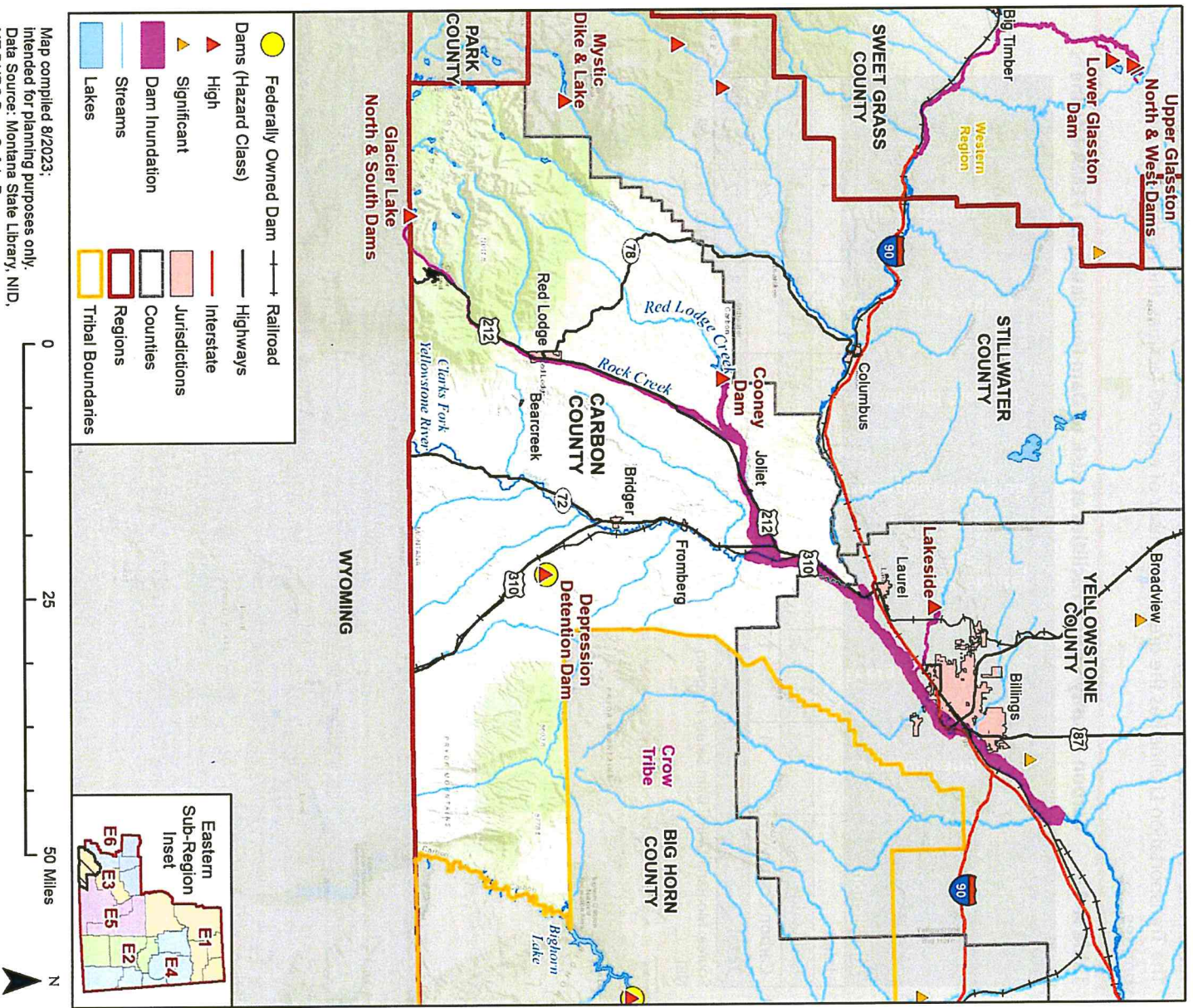
Table A-12 summarizes the critical facilities located in Carbon County which are at risk to dam inundation. The Transportation Lifeline has the greatest number of exposed facilities, the majority of which are likely bridges.

Table A-12 Carbon County Critical Facilities at Risk to Dam Inundation by FEMA Lifeline

Jurisdiction	Communications	Energy	Food, Water, Shelter	Hazardous Materials	Health and Medical	Safety and Security	Transportation	Total
Joliet	-	-	3	-	1	2	1	7
Red Lodge	-	2	-	-	-	1	2	5
Carbon County	1	1	2	-	-	-	24	28
Total	1	3	5	0	1	3	27	40

Source: Montana DNRC Dam Safety Program, Montana State Library, Bureau of Indian Affairs (BIA), NID, HIFLD 2022, Montana DES, NBI

Figure A-10 Carbon County Dam Inundation



A.4.5 Drought

Drought is ranked a high significance hazard for Carbon County, Red Lodge, Bearcreek, Bridger, Fromberg, and Joliet.

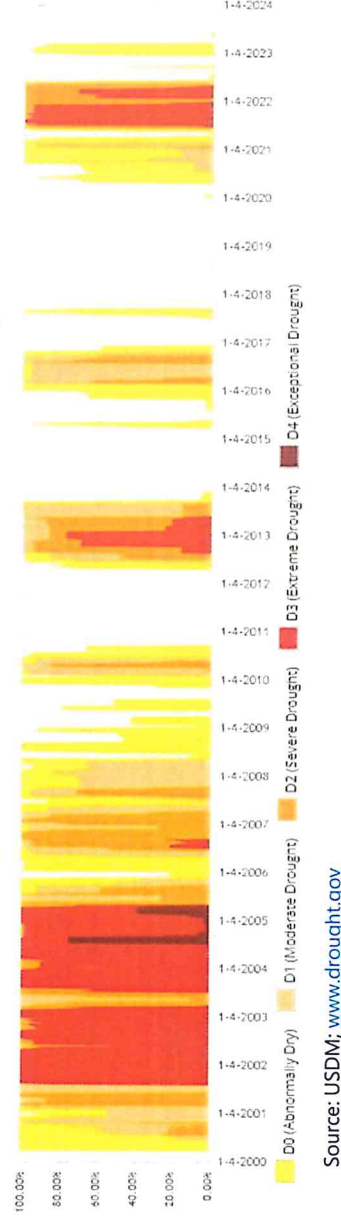
Carbon County experienced 11 USDA drought declarations from 2012-2021, including in 2012, 2017, 2020, and 2021. The Drought Impact Reporter recorded 12 drought impact reports in Carbon County between 2000-2023, including fire and land use restrictions, as well as low crop yields. The CPT highlighted a County-wide drought event in 2021 that significantly affected agriculture, a recurring challenge for the region.

All assets in Carbon County are exposed to drought, with key industries such as ranching and tourism particularly susceptible to damage from drought. Ranching, one of the County's primary economic drivers, is heavily reliant on stable water supplies, while the Red Lodge Mountain Resort, a major employer, depends on consistent snowfall for its operations. Recent droughts have caused millions of dollars in damages annually, and projected climate changes are expected to exacerbate drought frequency and severity. This increased exposure could amplify economic losses without effective mitigation measures. While social vulnerability in Carbon County is relatively moderate, sustained drought conditions could have significant socio-economic consequences as the impacts on agriculture, tourism, and local economies are likely to intensify.

The U.S. Drought Monitor (USDM) is a national data set released weekly, showing the severity of drought in locations across the nation. Figure A-11 displays a time series showing the severity of drought in Carbon County between 2000 and 2023. The figure indicates that the County experienced exceptional drought (D4) in 2004-2005.

Refer to Chapter 4 for a discussion of the drought risk relative to Carbon County and the Eastern Region.

Figure A-11 Carbon County Percent Area in U.S. Drought Monitor Categories



Source: USDM; www.drought.gov

A.4.6 Earthquake

Earthquake is ranked a medium significance hazard for Carbon County, Red Lodge, Bearcreek, Bridger, Fromberg, and Joliet (Table A-5). Carbon County is situated in the southwestern part of the Eastern Region, where large earthquakes have a greater potential to occur.

According to a Hazus probabilistic loss analysis for a scenario with 2% in 50 years recurrence, Carbon County will experience an estimated \$28,071,000 in total economic losses. This is 21.1% of total losses in the Eastern Region and higher than all Eastern Region counties other than Yellowstone County (Base Plan, Table 4-24).

The various towns are likely to experience greatest losses due to the concentration of buildings, population and infrastructure. Older and historic buildings built before modern construction standards are more susceptible to damage from earthquake shaking, notably in downtown areas such as Red Lodge.

Refer to Chapter 4 for a discussion of the earthquake risk relative to Carbon County and the Eastern Region.

A.4.7 Flooding

Flooding is ranked a high significance hazard for Carbon County, Red Lodge, and Fromberg (Table A-5). Bearcreek ranked the hazard as having medium significance, while Bridger and Joliet ranked flooding as a low significance hazard. 709 people live within the 1% annual chance floodplain, 7% of the county population. This includes 5% of Bearcreek, 6% of Fromberg, 2% of Joliet, and 2% of Red Lodge.

The SoVI-based rating of social vulnerability in Carbon County is relatively moderate (Section A.2.4 *Social Vulnerability*), largely due to a large older population and a high proportion of people living with disabilities or a high housing cost burden (Table A-2). Flooding can be devastating both financially and emotionally. Socio-economic vulnerability amplifies the financial and mental stress of flood hazards and often makes it difficult for people to recover. Flooding may result in injuries or fatalities in situations with limited warning or when evacuation orders are not adhered to. Access and functional needs populations may have challenges with evacuations.

Table A-13 below summarizes the building counts and improved value of parcels in the County, broken out by jurisdiction, that fall within the 1% chance floodplains. Additionally, the table also summarizes loss estimate values, which are calculated based upon the improved value and estimated contents value and assumes a two-foot-deep flood which usually results in 25% of the total value, based on FEMA depth-damage curves. Carbon County has FEMA National Flood Hazard Layer (NFHL) flood-source data available and this was the data used for this analysis.

Recent flooding events in Carbon County have occurred, including in June of 2021 along Rock Creek where the CPT noted an Irrigation Ditch was washed out near Clear and Rock Creeks. The Location of this was near Bearcreek Hill (southeast of the City of Red Lodge). Crop and Infrastructure damage was sustained and businesses were also impacted. During June 10-17th of 2022, a combination of spring snow melt and 2 to 5 inches of rain caused flooding in the East Rosebud, Rock Creek, and Clarks Fork drainages. There was major damage to bridges, roads, water and sewage systems as well. Businesses and the economy were impacted due to this flooding. According to the CPT, both FEMA Individual and Public Assistance was provided to help with recovery efforts.

Table A-13 indicates the estimated flood losses in each applicable jurisdiction in Carbon County. The majority of the properties are residential with a total value of \$71.7 million in improved values and \$26.9 million in estimated losses to residential properties.

Table A-13 Carbon County Parcels at Risk to 1% Flood Hazard by Jurisdiction

Jurisdiction	Property Type	Improved Parcels	Improved Value	Content Value	Total Value	Estimated Loss	Population
Bearcreek	Residential	2	\$462,597	\$231,299	\$693,896	\$173,474	5
	Exempt	1	\$7,020	\$7,020	\$14,040	\$3,510	
Fromberg	Residential	10	\$1,322,372	\$661,186	\$1,983,558	\$495,890	23
	Exempt	1	\$7,080	\$7,080	\$14,160	\$3,540	
Joliet	Residential	5	\$684,351	\$342,176	\$1,026,527	\$256,632	12
	Residential	22	\$5,911,467	\$2,955,734	\$8,867,201	\$2,216,800	51
Carbon County	Agricultural	77	\$22,838,940	\$22,838,940	\$45,677,880	\$11,419,470	
	Exempt	4	\$243,340	\$243,340	\$486,680	\$121,670	
	Residential	264	\$63,379,793	\$31,689,897	\$95,069,690	\$23,767,422	618
	Vacant	4	\$36,690	\$36,690	\$73,380	\$18,345	
Total		390	\$94,893,650	\$59,013,360	\$153,907,010	\$38,476,753	709

Sources: DNRC, Hazus, FEMA NFHL

Carbon County has a total of 55 critical facilities located in the 1% annual chance floodplain. 50 are transportation lifelines (bridges), 48 are in unincorporated Carbon County and one is located in Joliet and Red Lodge. Four are located in the Food, Water and Shelter sector and one in the Hazardous Materials sector. This is shown in Table below.

Table A-14 Carbon County Critical Facilities at Risk to 1% Annual Chance Flood Hazards by FEMA Lifeline

Jurisdiction	Communications	Energy	Food, Water, Shelter	Hazardous Materials	Health and Medical	Safety and Security	Transportation	Total
Joliet	-	-	-	-	-	-	1	1
Red Lodge	-	-	-	-	-	-	1	1
Carbon County	-	-	4	1	-	-	48	53
Total	0	0	4	1	0	0	50	55

Sources: DNRC, Hazus, FEMA NFHL, BIA, NID, HIFLD 2022, Montana DES, NBI

All participating jurisdictions in Carbon County other than Bridger contain structures located in the floodplain, as seen in Figure A-12 through Figure A-17 below.

Figure A-12 Carbon County Flood Hazard and Structures

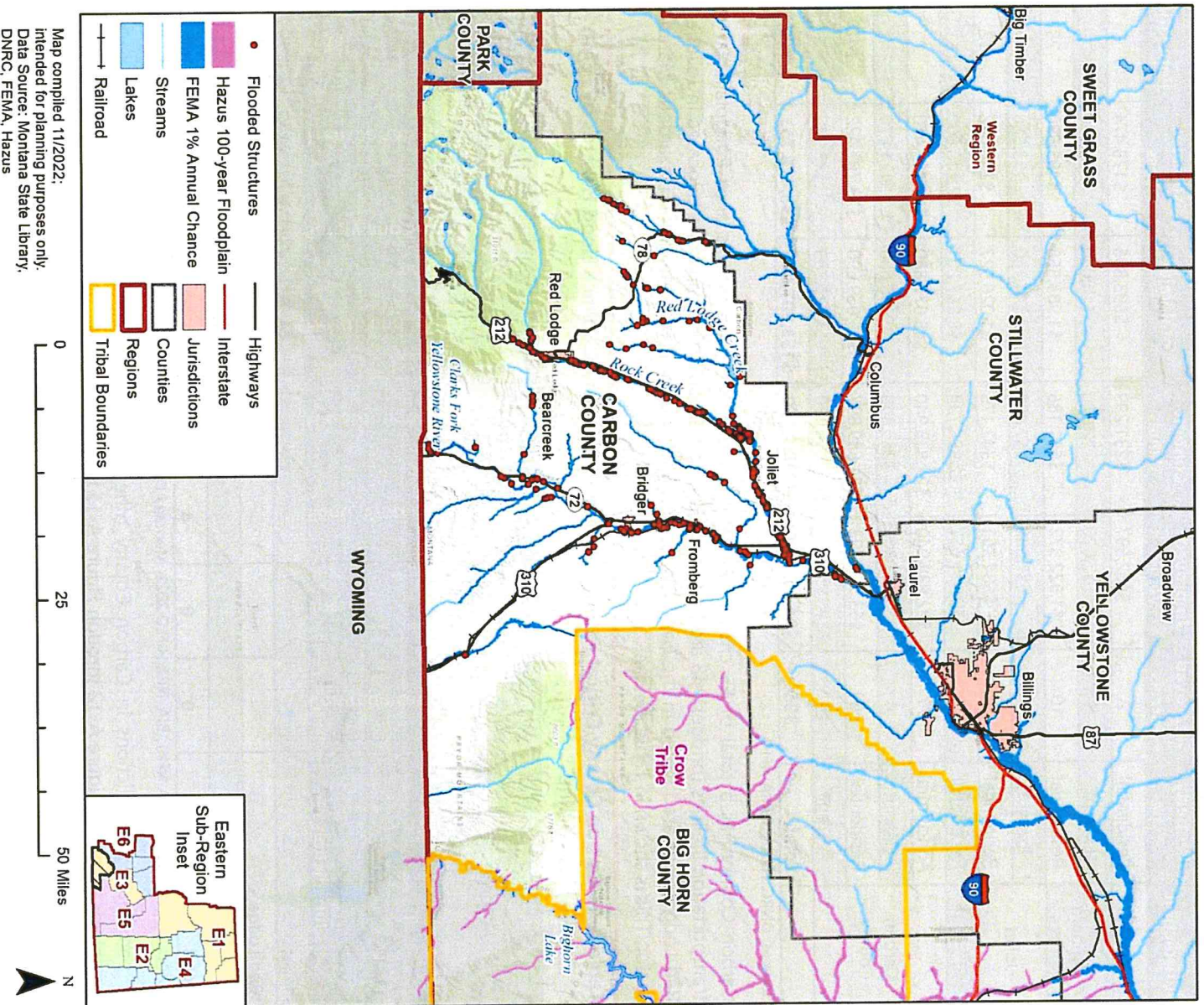


Figure A-13 City of Red Lodge Flood Hazard and Structures

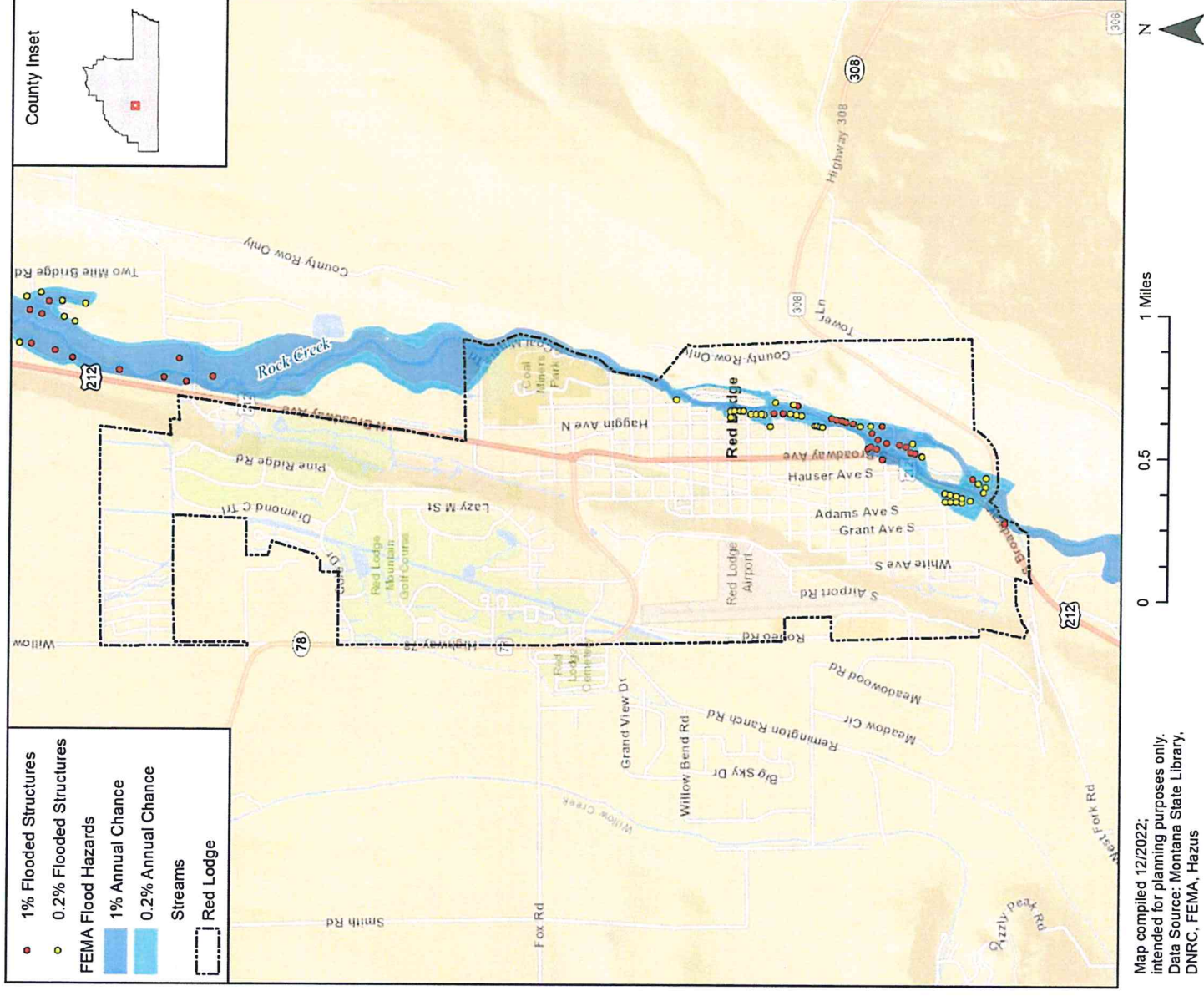


Figure A-14 Town of Bear Creek Flood Hazard and Structures

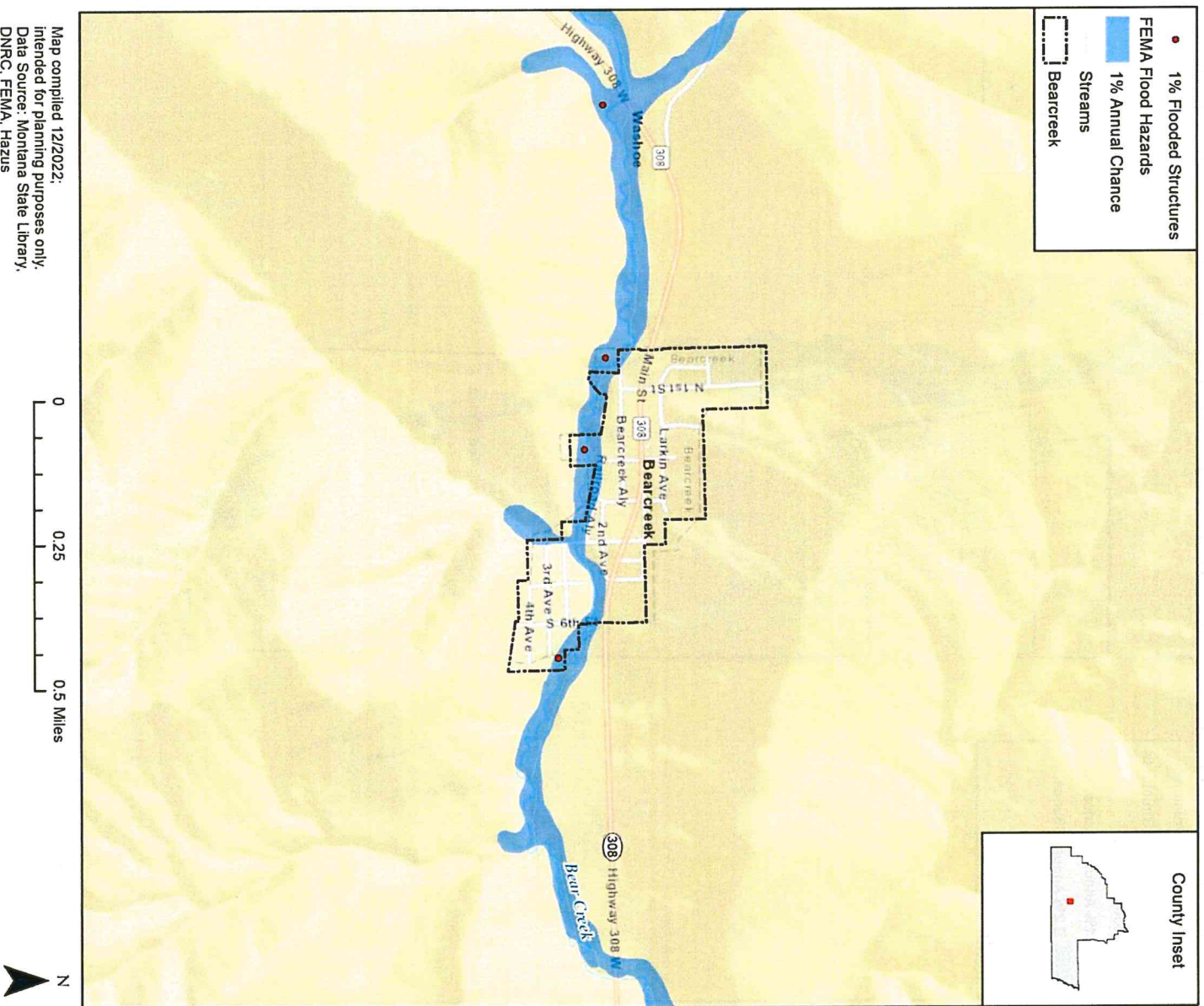


Figure A-15 Town of Bridger Flood Hazard and Structures

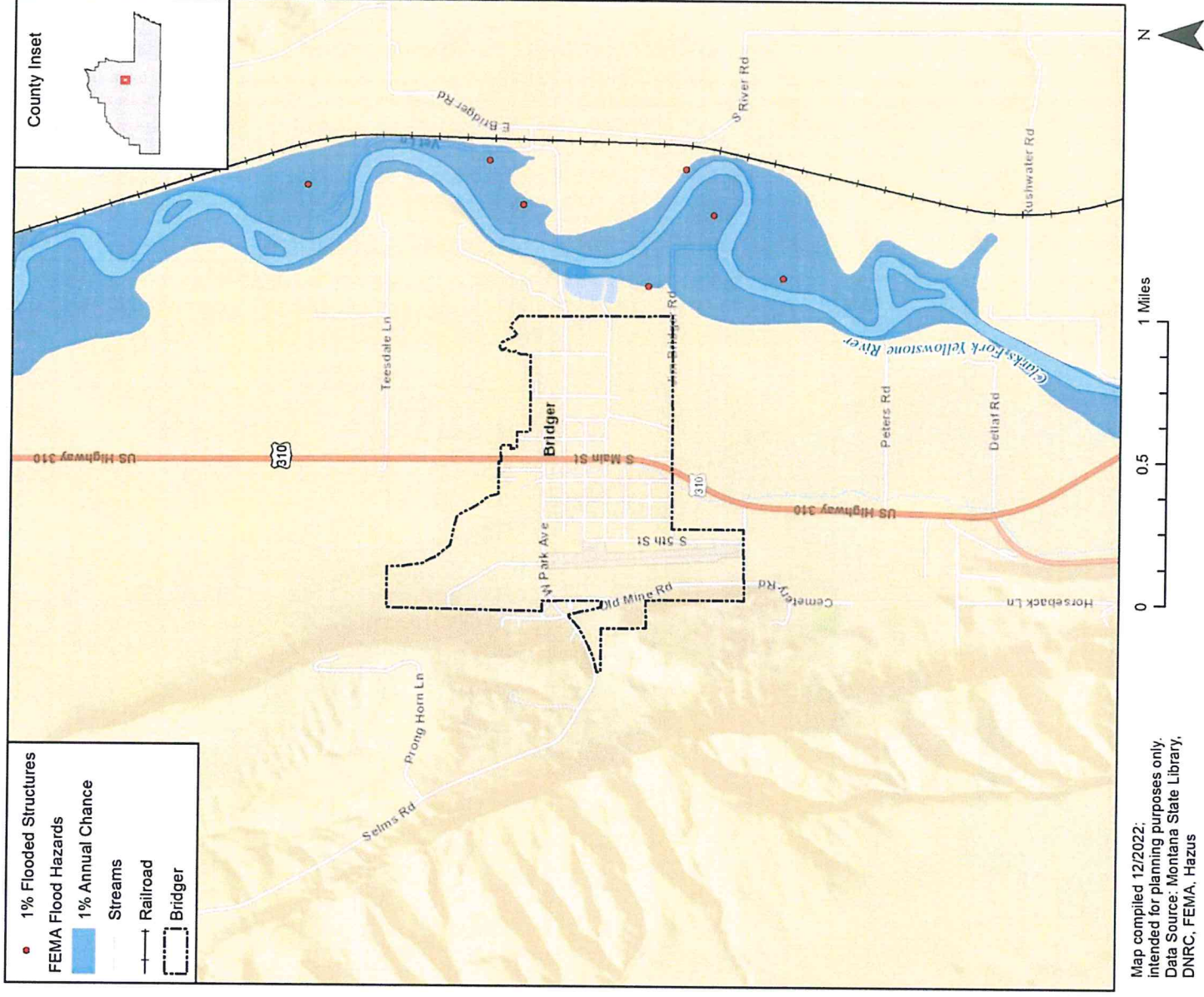


Figure A-16 Town of Fromberg Flood Hazard and Structures

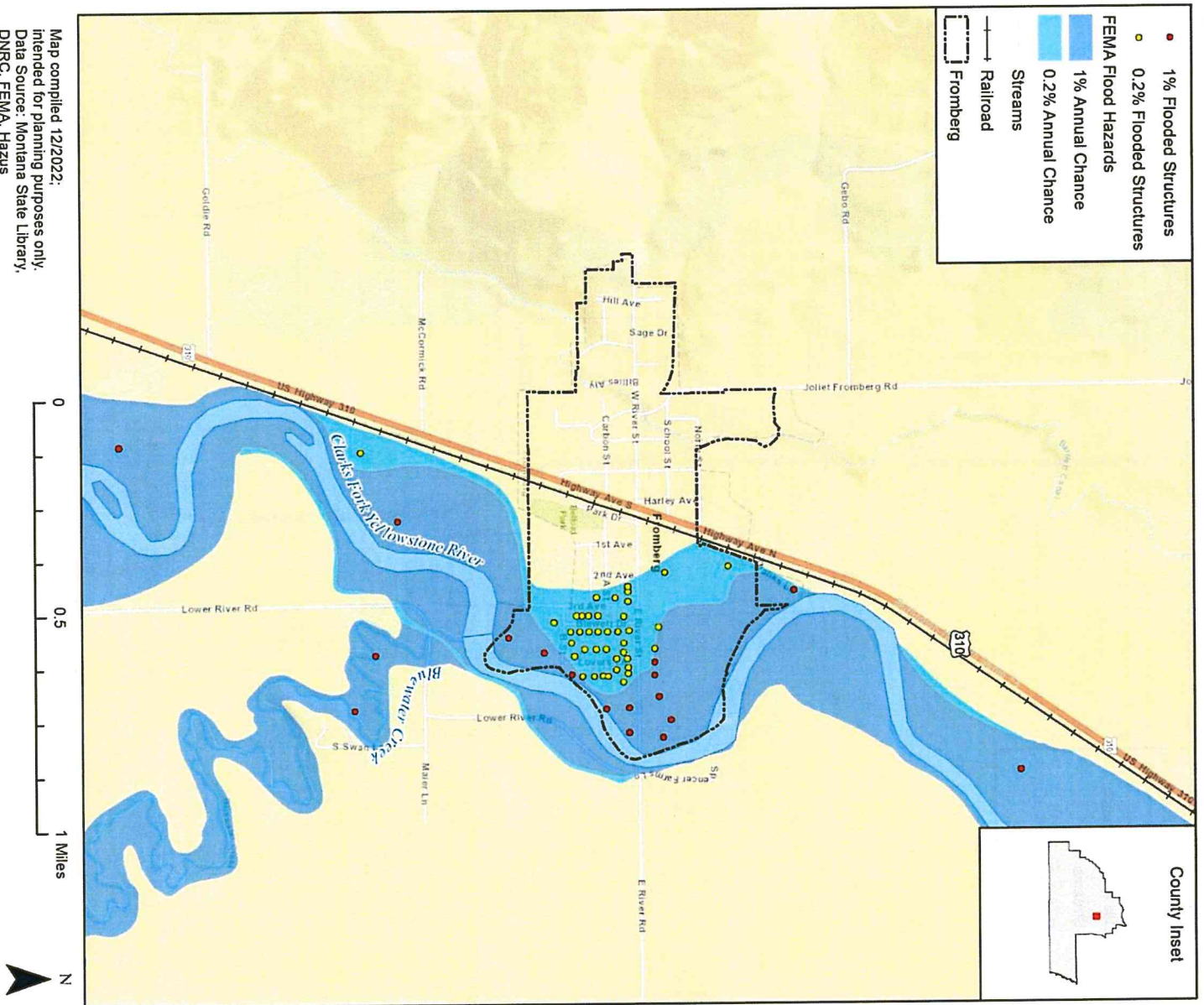


Figure A-17 Town of Joliet Flood Hazard and Structures

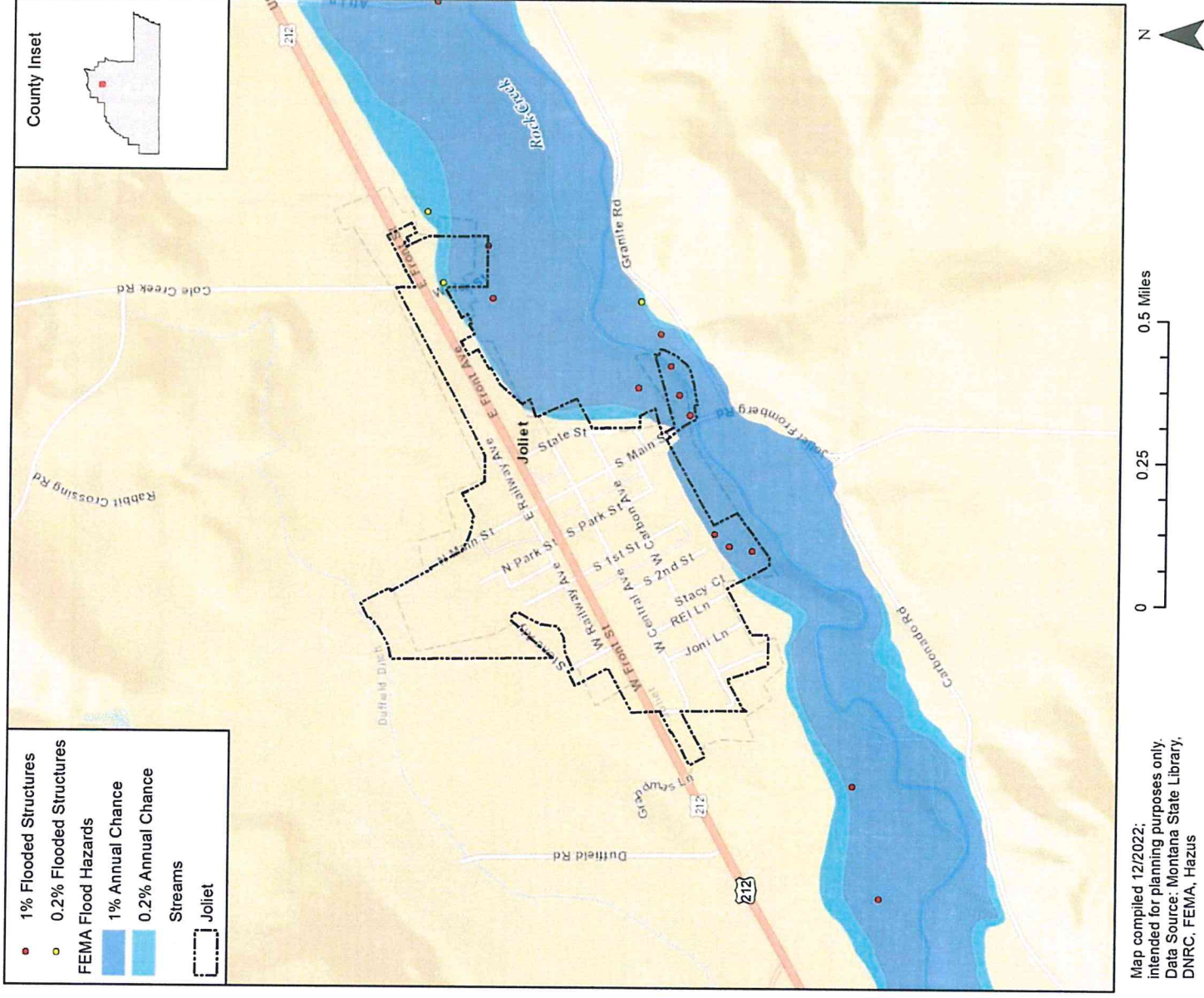
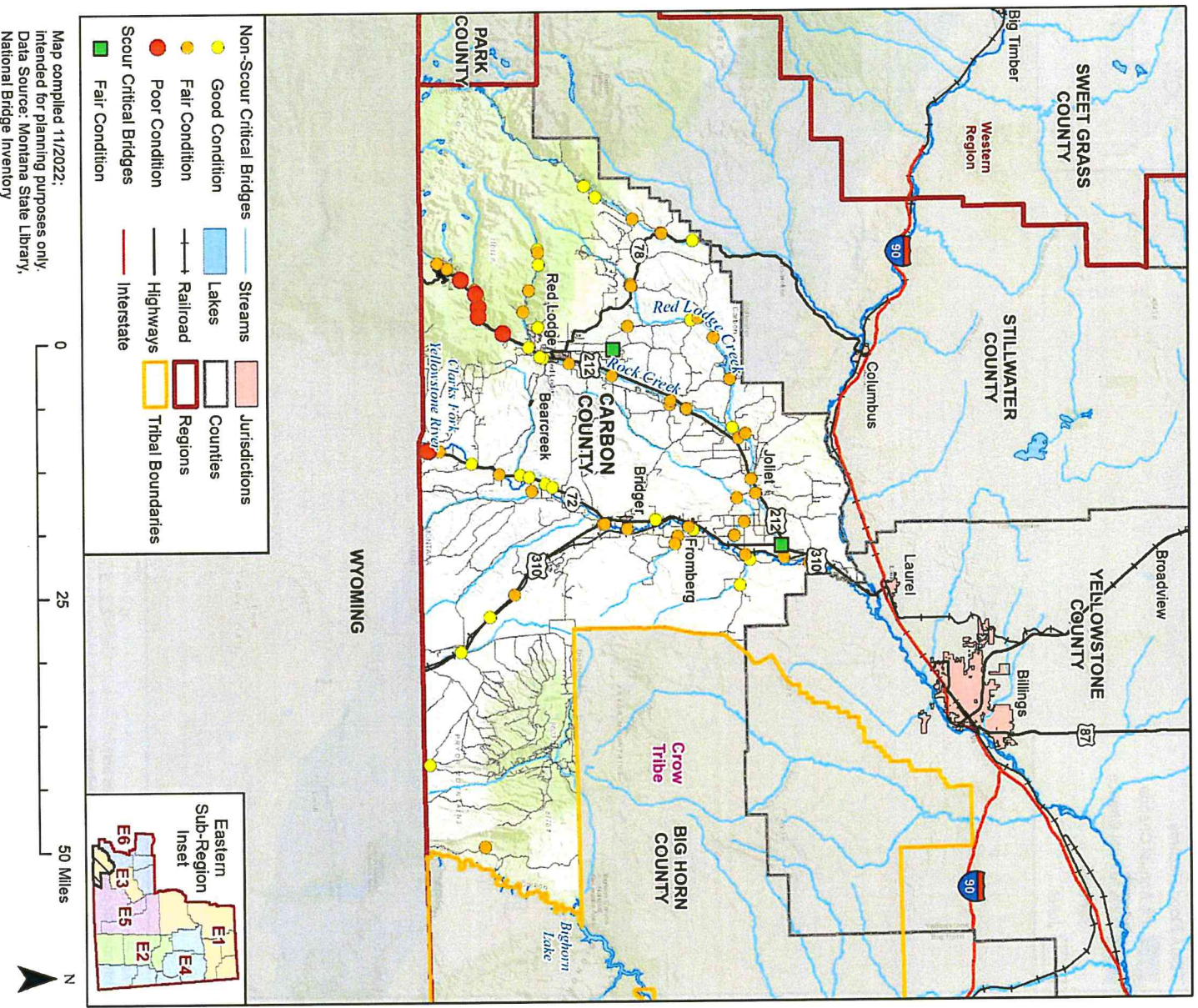


Figure A-18 below displays the location of bridges in Carbon County and their condition. Refer to Chapter 4 for a discussion of the flood risk relative to Carbon County and the Eastern Region.

Figure A-18 Carbon County Bridges



A.4.8 Hazardous Materials Incident

Hazardous Materials Incidents are ranked as a low overall significance hazard for Carbon County. Carbon County has one Risk Management Program (RMP) facility, located in Bridger. Additionally, according to the National Response Center (NRC) there were 37 reported hazardous material incidents in Carbon County since 1990. Carbon County also has gas transmission pipelines present which travel through the communities of Silesia, Rockvale, Fromberg, Bridger, Roberts, Red Lodge, and Warren; as well as hazardous liquid pipelines which go through Silesia, Rockvale, Edgar, Fromberg, and Warren.

US Highways 212 and 310 are heavily traveled shipping and transportation routes for the state and country as a whole. Both transportation routes are likely locations for future occurrences of hazmat incidents in transit.

Refer to Chapter 4 for a discussion of the hazardous materials incident risk relative to Carbon County and the Eastern Region.

A.4.9 Landslide

Landslide is ranked a medium significance hazard in Carbon County, and a low significance hazard in Red Lodge, Bearcreek, Bridger, Fromberg, and Joliet (Table A-5).

The CPT notes that a landslide occurred within Carbon County in 2019, between Washoe and Bearcreek, Montana adjacent to Highway 308. This landslide caused state highway damages. Carbon County has a Relatively High expected annual loss rating in the NRI; this risk is mostly concentrated along the southwestern portion of the County and a small portion of the far eastern portion. For more information, refer to the base plan, Section 4.2.9 *Landslide*, for a discussion of the landslide risk relative to Carbon County and the Eastern Region.

A.4.10 Severe Summer Weather

Severe summer weather is ranked a medium significance hazard in Carbon County, Red Lodge, Bearcreek, Bridger, Fromberg, and Joliet.

Carbon County experienced the fourth least number of total severe summer weather events in the Eastern Region, including 109 hail events, 12 heavy rain and 1 lightning events. There was no recorded property or crop loss due to severe summer weather in Carbon County. Exposure to severe summer weather is relatively uniform throughout the county. Variability in vulnerability throughout the county depends on the distribution of assets (Section A.3.2) and the susceptibility of each type of asset (base plan, Section 4). The greatest property losses due to severe summer weather are likely to occur in the various towns in the County, where people and infrastructure are concentrated.

Refer to Chapter 4 for a discussion of the severe summer weather risk relative to Carbon County and the Eastern Region.

A.4.11 Severe Winter Weather

Severe winter weather is ranked a medium significance hazard in Carbon County, Red Lodge, Bearcreek, Bridger, Fromberg, and Joliet.

The Eastern Carbon Forecast Zone experienced the 28th greatest number of recorded severe winter weather events in the Eastern Region. The NRI rated Carbon County as “relatively moderate” risk index rating for winter weather. Severe winter events did not result in any property or crop losses. Exposure to severe summer weather is relatively uniform throughout the county. Variability in vulnerability throughout the county depends on the distribution of assets (Section A.3.2) and the susceptibility of each type of asset

(base plan, Section 4). The vulnerability of power infrastructure, for example, is notable for being valuable, susceptible to damage from severe summer weather, and widely dispersed throughout the county.

Refer to Chapter 4 for a discussion of the severe winter weather risk relative to Carbon County and the Eastern Region.

A.4.12 Human Conflict

Human conflict is ranked as an overall low significance for Carbon County. The CPT did not note any specific Human Conflict concerns. While all cities and towns are vulnerable to human conflicts, human conflict events tend to occur in more populated areas.

Refer to Chapter 4 for a discussion of the general human conflict risk relative to Carbon County and the Eastern Region.

A.4.13 Tornadoes & Windstorms

Tornadoes and windstorms are ranked medium significance hazards in Carbon County, Red Lodge, Bearcreek, Bridger, Fromberg, and Joliet.

The Eastern Carbon Forecast Zone experienced the 15th lowest number of high wind and strong wind events in the Eastern Region, with 56 total events. Additionally, Carbon County experienced the third lowest number of thunderstorm wind events and tornado events. All people and property are exposed to tornado and windstorms in Carbon County.

Refer to Chapter 4 for a discussion of the tornadoes and windstorms risk relative to Carbon County and the Eastern Region.

A.4.14 Transportation Accidents

Carbon County ranked transportation accidents as an overall low significance hazard. Carbon County has reported the fifth greatest number of roadway crashes in the Eastern Region, with 966 crashes between 2016 and 2020. This is an average of more than 200 crashes every year. While transportation accidents can occur along any type of transportation route in the county and region, a greater frequency of accidents occur along heavily traveled roadways, such as US Highways 212 and 310 which run through the county and are the primary road connections for the county to the rest of the state. US Highway 212 is also the major road connection between the City of Billings and Yellowstone National Park, making it very likely to see increased traffic due to tourism and therefore an increased likelihood for future accidents. Refer to Chapter 4 for a discussion of the transportation accident risk relative to Carbon County and the Eastern Region.

A.4.15 Volcanic Ash

All counties in the Eastern Region and all jurisdictions within Carbon County ranked volcanic ash as an overall low significance hazard.

Exposure to ash fallout throughout Carbon County is largely uniform for any one event and the magnitude of exposure is dependent on the scale of volcanic activity impacting the region. Variability in vulnerability throughout the county depends on the distribution of assets (see Section A.3.2) and the vulnerability of those assets to damage from the volcanic ash exposure experienced (see base plan Section 4.2.15, subsection *Vulnerability Assessment*). Overall, vulnerability and expected loss is highest in the towns and cities in the county, where assets are most concentrated.

Refer to Chapter 4 for a discussion of the volcanic ash risk relative to Carbon County and the Eastern Region.

A.4.16 Wildfire

Wildfire is ranked a high significance hazard in Carbon County, Red Lodge, Fromberg, and Joliet (Table A-5). Bearcreek and Bridger ranked wildfire a low significance hazard. Virtually the entire county population lives in areas designated as having very high or extreme wildfire risk. 7,397 people live in extreme wildfire hazard zones, 71% of the county population. This includes all of Red Lodge, all of Bearcreek, all of Fromberg, over 98% of Joliet, and 86% of Bridger. In some cases, especially for Red Lodge, the estimated number of people living within fire danger zones is considerably higher than the town population in the 2020 census. This indicates widespread wildfire danger that exposes many dwellings that are inhabited seasonally or possibly as vacation rentals.

The SoVI-based rating of social vulnerability in Carbon County is relatively moderate (Section A.2.4 *Social Vulnerability*), largely due to a large older population and a high proportion of people living with disabilities or a high housing cost burden (Table A-2). Wildfire can be devastating both financially and emotionally. Socio-economic vulnerability amplifies the financial and mental stress of wildfire hazards and often makes it difficult for people to recover. Wildfire may result in injuries or fatalities in situations with limited warning or when evacuation orders are not adhered to. Access and functional needs populations may have challenges with evacuations.

Carbon County has the second greatest number of individuals in the Eastern Region in wildfire risk areas, with virtually the entire population living in fire risk areas. Figure A-19 Figure A-19 below displays the wildfire risk in Carbon County. This map shows that nearly all of the County is high or very high wildfire risk, with notable clusters of extreme risk surrounding Red Lodge, Bridger, and Fromberg.

Carbon County has been included in three federal fire management assistance declarations for wildfire, twice in 2020 and once in 2021. The 2021 Robertson Draw Fire, started near Red Lodge, prompted federal declaration FM-5392-MT and, along with other concurrent fires in the State, Statewide emergency declaration Executive Order 12-2021. The fire, which burned about 30,000 acres or 46 square miles, destroyed over two dozen homes and other structures. While there were no reported major injuries or deaths, the National Interagency Emergency Response estimated that the Robertson Draw Fire alone cost over \$10.5 million in damages. The fire was determined to have been human caused.

Table A-15 below summarizes the estimated exposed value of improvements in each wildfire risk category. Based on this analysis, roughly 6,292 improved parcels are exposed to low/medium or higher wildfire risk, totaling over \$2.3 billion in improved building and content values. This represents nearly all of the total building inventory and building and content value in the County. Wildfires typically result in a total building loss including contents. See Chapter 4 in the base plan for details on the methodology of this analysis.

Table A-15 Carbon County Parcels at Risk to Wildfire by Jurisdiction and Risk Rating

At Risk Rating	Jurisdiction	Improved Parcels	Improved Value	Content Value	Total Value	Population
At Risk to Extreme Wildfire Hazards	Bearcreek	69	\$7,179,050	\$3,680,165	\$10,859,215	152
	Bridger	261	\$31,111,198	\$18,645,081	\$49,756,279	571
	Fromberg	207	\$20,056,585	\$12,105,553	\$32,162,138	454
	Joliet	259	\$38,805,571	\$23,816,240	\$62,621,811	566
	Red Lodge	1,395	\$317,555,470	\$176,258,641	\$493,814,111	3,138
	County	1,105	\$278,459,606	\$144,112,448	\$422,572,054	2,516
	Total	3,296	\$693,167,480	\$378,618,127	\$1,071,785,607	7,397
At Risk to Very High	Bridger	94	\$11,284,755	\$6,366,168	\$17,650,923	206
	Fromberg	3	\$563,306	\$281,653	\$844,959	7

At Risk Rating	Jurisdiction	Improved Parcels	Improved Value	Content Value	Total Value	Population
Wildfire Hazards	Joliet	11	\$1,274,537	\$691,884	\$1,966,421	23
	Red Lodge	20	\$6,122,617	\$3,271,099	\$9,393,716	42
	County	1,962	\$528,512,936	\$328,288,208	\$856,801,144	3,531
	Total	2,090	\$547,758,151	\$338,899,010	\$886,657,161	3,810
At Risk to High Wildfire Hazards	County	248	\$52,826,918	\$43,797,984	\$96,624,902	241
	Total	248	\$52,826,918	\$43,797,984	\$96,624,902	241
At Risk to Medium/Low Wildfire Hazards	Bridger	12	\$2,039,289	\$1,066,130	\$3,105,419	26
	Fromberg	6	\$268,956	\$134,478	\$403,434	14
	Joliet	5	\$761,795	\$447,798	\$1,209,593	9
	Red Lodge	45	\$10,781,583	\$6,224,632	\$17,006,215	96
	County	590	\$106,927,897	\$84,638,499	\$191,566,396	515
	Total	658	\$120,779,520	\$92,511,535	\$213,291,055	660

Source: MSDI 2022, MWRA

Table A-16 summarizes the potential impact of wildfire on critical facilities and lifelines in Carbon County and its associated jurisdictions. The table highlights the type and number of facilities in each jurisdiction in the County in Wildfire risk areas. See Chapter 4 for the methodology of the critical facilities at risk analysis.

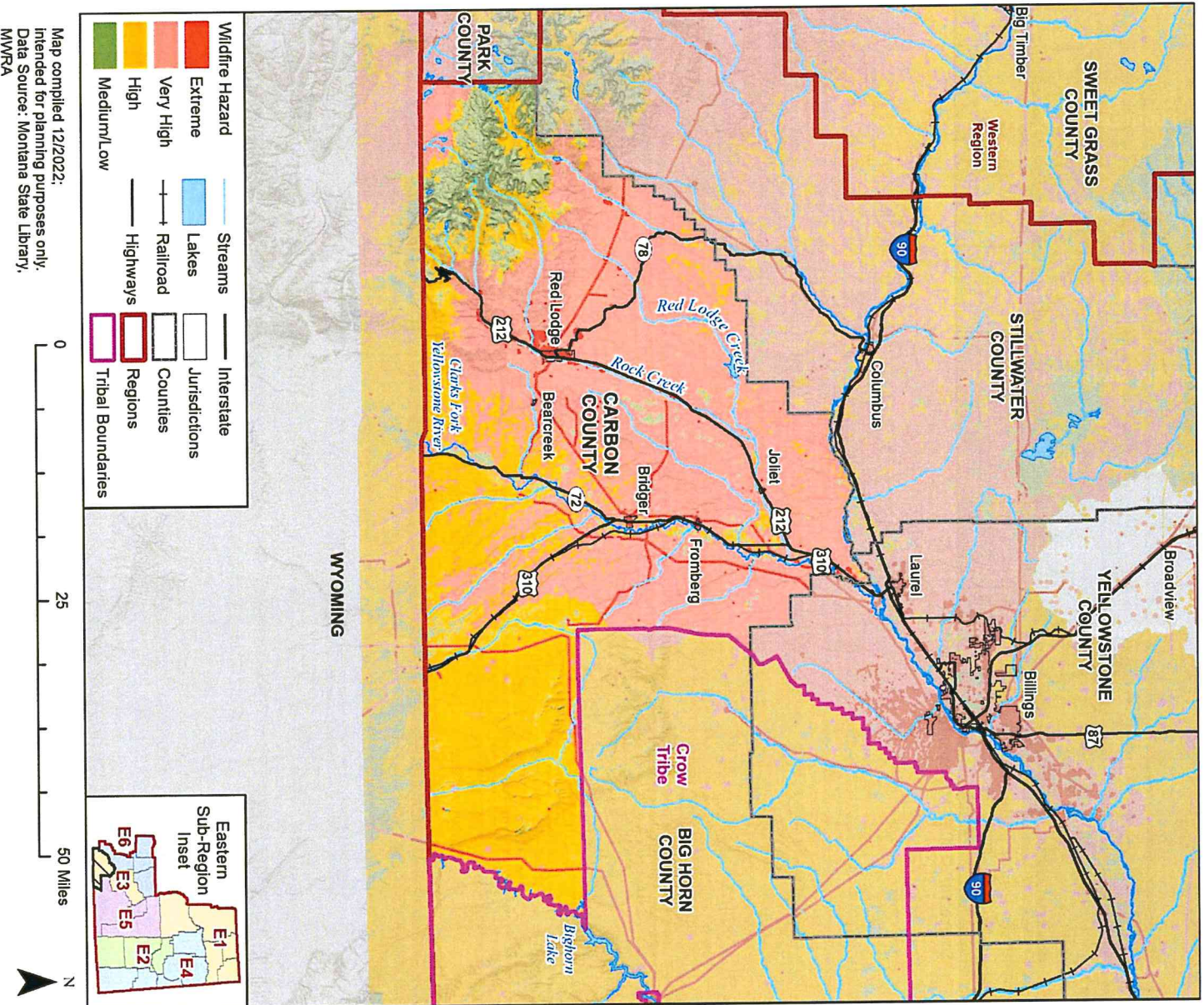
Table A-16 Critical Facilities at Risk to Wildfire Hazards by Jurisdiction, Facility Type, and Risk Rating

At Risk Rating	Jurisdiction	Communications	Energy	Food, Water, Shelter	Hazardous Materials	Health & Medical	Safety & Security	Transportation	Total
At Risk to Extreme Wildfire Hazards	Bridger	-	-	-	-	1	5	1	7
	Fromberg	-	-	-	-	-	2	-	2
	Joliet	-	-	3	-	-	4	1	8
	Red Lodge	2	2	4	-	1	6	4	19
	Carbon County	22	24	3	-	-	6	7	62
	Total	24	26	10	0	2	23	13	98
At Risk to Very High Wildfire Hazards	Joliet	-	-	-	-	1	-	-	1
	Carbon County	5	5	3	2	-	2	46	63
	Total	5	5	3	2	1	2	46	64
At Risk to High Wildfire Hazards	Carbon County	5	2	1	-	-	-	6	14
	Total	5	2	1	0	0	0	6	14
At Risk to Medium/Low	Fromberg	-	-	-	-	-	3	-	3
	Joliet	-	-	-	-	-	1	-	1
	Red Lodge	-	-	2	-	-	2	-	4

At Risk Rating	Wildfire Hazards	Jurisdiction		Communications	Energy	Food, Water, Shelter	Hazardous Materials	Health & Medical	Safety & Security	Transportation	Total
		Carbon County									
					4	4	4	2	1	-	4
			4	4	4	4	1	0	10	21	44

Source: HIFLD 2022, Montana DES, NBI, MWRA

Figure A-19 Carbon County Wildfire Hazard



A.5 Mitigation Capabilities Assessment

As part of the regional plan development, the Region and participating jurisdictions developed a mitigation capability assessment. Capabilities are those plans, policies and procedures that are currently in place that contribute to reducing hazard losses. Capabilities also include staffing and financial considerations, including the ability to leverage funding for mitigation projects. Combining the risk assessment with the mitigation capability assessment results in “net vulnerability” to disasters and more accurately focuses the goals, objectives, and proposed actions of this plan. The CPT used a two-step approach to conduct this assessment. First, an inventory of common mitigation activities was made using a matrix. The purpose of this effort was to identify policies and programs that were either in place or could be undertaken, if appropriate. Second, the CPT conducted an inventory and review of existing policies, regulations, plans, projects, and programs to determine if they contribute to reducing hazard related losses.

A.5.1 Regulatory Mitigation Capabilities

Table A-17 lists planning and land management tools typically used by local jurisdictions to implement hazard mitigation activities and indicates those that are in place in the Eastern Region and each participating jurisdiction.

Table A-17 Carbon County and Jurisdictions Regulatory Mitigation Capabilities

Plans and Regulations	Carbon County	Town of Bearcreek	Town of Bridger	Town of Fromberg	Town of Joliet	City of Red Lodge
Local Building Codes	No	No	No	No	No	No
Building Codes Year	--	--	--	--	--	2012, IBC
BCEGS Rating	--	--	--	--	--	No
Capital Improvements Program (CIP) or Plan	Yes (2020-2024)	Yes (2008)	No	No	Yes	Yes (2015-2019, Annual Assessment)
Community Rating System (CRS)	Yes	No	No	No	No	No
Community Wildfire Protection Plan (CWPP)	Yes - 2013	No	No	No	No	No
Comprehensive, Master, or General Plan	Yes - 2020 County Growth Policy	No	No	No	No	Yes - 2020 Growth Policy
Economic Development Plan	No	No	No	No	No	No
Elevation Certificates	No	No	No	No	No	No
Emergency Operations Plan	Yes (2010)	No	No	No	No	No
Erosion/Sediment Control Program	No	No	No	No	No	No
Floodplain Management Plan	Yes	Yes	Yes	Yes	Yes	Yes
Flood Insurance Study	Yes	Yes	Yes	Yes	Yes	Yes
Growth Management Ordinance	No	No	No	No	No	No
Hazard-Specific Ordinance or Plan (Floodplain, Steep Slope, Wildfire)	Yes	Yes	Yes	Yes	Yes	Yes
National Flood Insurance Program (NFIP)	Yes	Yes	No	Yes	Yes	Yes
Site Plan Review Requirements	No	Yes - 2008	Yes	No	No	Yes
Stormwater Program, Plan, or Ordinance	No	Yes - 2008	No	No	No	Yes
Zoning Code or Ordinance	Yes - 2021	Yes - 2008	Yes	Yes	Yes	Yes - 2016
Other?	Yes - Historic Preservation Plan	No	No	No	No	Comprehensive Parks Plan, Active Transportation Plan

Discussion on Existing Regulatory Mitigation Capabilities

Carbon County consists of five incorporated jurisdictions: one city, and four towns. Each jurisdiction has a relatively small population and limited policy and staffing resources. The County has a part-time planner and the City of Red Lodge has one full-time planner; the other jurisdictions lack dedicated planning staff. The County Planner assists these communities as requested and as time permits. The County Planning Board includes representatives from four incorporated communities and the Conservation District, while the City of Red Lodge maintains its own Planning Board.

Each community has paid public works staff and a police chief, and each community has a volunteer Fire Chief, except for Red Lodge, which employs a part-time paid Fire Chief. Emergency coordination and response for all jurisdictions are overseen by the County Disaster and Emergency Services Coordinator, as outlined in the County's Emergency Operations Plan (EOP), which highlights the county's reliance on volunteer resources. Additionally, the County has a Local Emergency Planning Committee (LEPC). Both the County and the City of Red Lodge recently updated their Growth Policies in 2020, supporting mitigation activities across the region.

Neither the jurisdictions nor the County implement local building codes. However, the State of Montana has adopted and enforces the following range of building codes:

- **2021 Editions:** International Building, Residential, Existing Building, Mechanical, Fuel Gas, Energy Conservation, Swimming Pool & Spa, and Wildland Urban Interface Codes.
- **2017 & 2018 Editions:** ICC A117.1 Accessibility, NFPA 99 for Health Care Facilities, ASME Safety Codes for Elevators, Escalators, Platform Lifts, and Stairway Chairlifts.
- **2020 Edition:** National Electrical Code with a technical advisory issued in August 2022.
- **2017 & 2018 Editions:** ASME Boiler and Pressure Vessel Code, CSD-1 Controls, and Safety Devices for Boilers.

While local jurisdictions have the option to enforce their own building, electrical, plumbing, and mechanical codes, provided they are certified by the State's Building Codes Program, those areas that opt not to enforce their own codes are subject to the Building Codes Program and the codes listed above. This approach ensures that all regions within the State adhere to minimum standards for the construction, design, and maintenance of buildings and structures to ensure buildings are resilient to natural hazard events.

Carbon County's first Historic Preservation Plan was prepared back in 1987 to conform with 36 Code of Federal Regulations (CFR) 6177 guidelines set for State Preservation Plans. This document continues to be relevant in Carbon County's development strategies and other planning mechanisms especially as related to hazard assessments and considerations.

Discussion on NFIP Participation and Compliance

Carbon County, the Town of Bearcreek, the Town of Fromberg, the Town of Joliet, and the City of Red Lodge all participate in the National Flood Insurance Program (NFIP). Each jurisdiction has formally adopted the National Flood Insurance Program's minimum floodplain management criteria through local ordinances to ensure compliance with federal floodplain regulations. This includes requirements for flood-resistant construction, elevation standards, and development restrictions within Special Flood Hazard Areas (SFHAs). Local floodplain management regulations are actively implemented and enforced by the jurisdiction to regulate and permit development within SFHAs. This includes reviewing construction and land use permits to confirm compliance with elevation, structural, and zoning requirements aimed at reducing flood risk to properties and residents.

The Floodplain Administrator for Carbon County, the Town of Bearcreek, Town of Fromberg, and Town of Joliet is the Sweet Grass County Attorney, as the County contracts with Sweet Grass County to provide

floodplain administration. The Floodplain Administrator for the City of Red Lodge is carried out by the Community Development Department.

Following flood or other damage events, the jurisdiction enforces substantial improvement/substantial damage provisions by evaluating damaged properties to determine if they meet thresholds requiring them to comply with updated floodplain management standards. If substantial damage is determined, properties must undergo upgrades to meet current floodplain standards before they can be repaired or rebuilt. This process helps to reduce future risk by ensuring that post-event repairs and reconstructions contribute to long-term flood resilience.

Carbon County has three properties classified under the NFIP as repetitive loss (RL) properties. These properties are single-family residences located in Red Lodge, Joliet, and Bridger. There are no severe repetitive loss (SRL) properties in Carbon County.

The date that each jurisdiction joined the NFIP and the dates of the adoption of their latest effective flood insurance rate map (FIRM) is displayed in Table A-18 below.

Table A-18 NFIP Joining Date & Adoption of the Latest Effective Flood Insurance Rate Map (FIRM)

	Carbon County	Town of Bearcreek	Town of Fromberg	Town of Joliet	City of Red Lodge
Joining Date	11/04/81	06/27/12	11/04/81	05/19/81	05/19/81
Adoption of Latest FIRM	07/05/17	12/04/12	12/04/12	12/04/12	12/04/12

The Town of Bridger contains no floodplains within its jurisdictional boundaries and is therefore not required to participate.

A.5.2 Administrative and Technical Mitigation Capabilities

Table A-19 identifies the County and participating jurisdictions personnel responsible for activities related to mitigation and loss prevention in Carbon County.

Table A-19 Carbon County Jurisdictions Administrative/Technical Mitigation Capabilities

Administrative and Technical	Carbon County	Town of Bearcreek	Town of Bridger	Town of Fromberg	Town of Joliet	City of Red Lodge
Emergency Manager	County DES	Through County	Through County	Through County	Through County	Through County
Floodplain Administrator/ Position/ Department	Yes -Sweet Grass County Attorney	Yes	No	Yes	Yes	Yes
Community Planning:	-	-	-	-	-	-
- Planner/Engineer (Land Development)	Forrest Mandeville Consulting	Yes	Yes	Yes	Yes	Yes
- Planner/Engineer/ Scientist (Natural Hazards)	No	No	No	No	No	No
- Engineer/Professional (Construction)	No	No	No	No	No	No
- Resiliency Planner	No	No	No	No	No	No
- Transportation Planner	No	No	No	No	No	Yes - Public Works
Full-Time Building Official	No	No	No	No	No	No
GIS Specialist and Capability	Yes	Through County	Through County	Through County	Through County	Through County
Grant Manager, Writer, or Specialist	No	No	No	No	No	No
Housing Authority	No	No	No	No	No	No
Warning Systems: (list the hazards each system is used for)	-	-	-	-	-	-
- Sirens	Yes	Yes	Yes	Yes	Yes, Tornado, Flood	Yes
- Reverse 911	Yes	Yes	Yes	Yes	Yes	Yes
- IPAWS/Wireless Emergency Alerts (WEA)	CodeRed	CodeRed	CodeRed	CodeRed	CodeRed	CodeRed
Other?	Airport Board, Conservation District, Historic Preservation Commission	-	Zoning Administrator	-	-	-

Carbon County has some staff available to carry out and oversee emergency operations and floodplain management regulations. The County Disaster & Emergency Services Department is the lead agency in the County coordinating comprehensive emergency management in Carbon County. Many other positions related to planning and floodplain management are contracted with nearby counties or private companies for additional support in land management and floodplain regulation enforcement, which support mitigation efforts. The County also has a grant writer on staff that can help the County seek funding for relevant mitigation projects and activities.

A.5.3 Financial Capabilities

Table A-20 identifies the County and participating jurisdictions financial tools or resources that the jurisdictions have access or are eligible to use and could potentially be used to help fund mitigation activities.

Table A-20 Carbon County Jurisdictions Financial Capabilities

Financial Capabilities	Carbon County	Town of Bearcreek	Town of Bridger	Town of Fromberg	Town of Joliet	City of Red Lodge
Ability to fund projects through Capital Improvements funding	Yes	Yes	Yes	Yes	N/A	Yes
Ability to incur debt through general obligation bonds	Yes	Yes	Yes	Yes	N/A	Yes
Ability to incur debt through private activities	No	No	No	No	N/A	No
Ability to incur debt through special tax bonds	Yes – Resort Tax	Yes	Yes	Yes	N/A	Yes – Resort Tax
Authority to levy taxes for a specific purpose with voter approval	Yes	Yes	Yes	Yes	Yes	Yes
Authority to withhold spending in hazard prone areas	No	No	No	No	Yes	No
Community Development Block Grants	Yes	Yes	Yes	Yes	Yes	Yes
FEMA Hazard Mitigation Assistance grants	Yes	Yes	Yes	Yes	Yes	Yes
FEMA Public Assistance funds	Yes	Yes	Yes	Yes	Yes	Yes
Stormwater Service Fees	No	No	No	No	N/A	No
System Development Fee	No	No	No	No	N/A	No
Utility fees (water, sewer, gas, electric, etc.)	No	No	No	No	Yes	Yes
Other?	Through County	Through County	Through County	Through County	Through County	Through County

FEMA and Other Grant Funding Leveraged for Hazard Mitigation

Funding for the proposed mitigation projects may come from a variety of sources. Below is a list of funding possibilities. This list is not tied directly to each proposed project; however, these programs could work for specific projects or multiple projects.

- FEMA Hazard Mitigation Assistance Grants including:
 - Building Resilient Infrastructure and Communities (BRIC)
 - Flood Mitigation Assistance Program (FMA).
 - Hazard Mitigation Grant Program (HMGP).
- US Army Corp of Engineers funding
- US Department of Agriculture (USDA) Environmental Quality Incentive Program.
- USDA Conservation Reserve and Conservation Reserve Enhancement Program.
- USDA Small Watersheds (National Resource Conservation Service [NRCS]).

There are many more potential funding opportunities available to the municipalities and county. Funding research will be done during the scoping process for each project. New funding mechanisms may be present that were not before. Carbon County and its jurisdictions have participated in several of these hazard mitigation assistance projects, summarized in the Table A-21 below.

Table A-21 Carbon County Hazard Mitigation Assistance Projects

Program	Date Approved	Project Type	Status	Location
HMGF	6/22/2021	904.1: Advanced Assistance	Approved	Bridger
HMGF	1/31/2023	800.1: Miscellaneous	Approved	Red Lodge
PDM	8/24/2011	91.1: Local Multi-hazard Mitigation Plan	Closed	Big Horn & Carbon Counties
PDM	6/15/2018	91.5: Local Multijurisdictional Multi-hazard Mitigation Plan - UPDATE	Obligated	Carbon County MT

Source: FEMA Opendata

A.5.4 Education and Outreach Capabilities

Table A-22 identifies the education and outreach programs in place at the County and participating jurisdictions are or could be used to help promote mitigation activities.

Table A-22 Carbon County Education and Outreach Capabilities

Education & Outreach Programs	Carbon County	Town of Bearcreek	Town of Bridger	Town of Fromberg	Town of Joliet	City of Red Lodge
Ongoing public education programs (fire safety, responsible water use, household preparedness, etc)	Yes	Yes	Yes	Yes	Yes	Yes
Local citizen groups that communicate hazard risks	Yes	Yes	Yes	Yes	Yes	Yes
Firewise or other fire mitigation program	No	No	No	No	No	No
National Weather Service StormReady	No	No	No	No	No	No

Carbon County's CPT notes a range of resources used for education and outreach – primarily warning tools used to communicate emergencies to the community.

A.5.5 Non-Governmental Organizations (NGOs) and Mitigation Partnerships

Table A-23 shows the local chapters partnered with the County and participating jurisdictions.

Table A-23 Carbon County Non-Governmental Organizations (NGOs)

Non-Governmental Organizations (NGOs)	Carbon County	Town of Bearcreek	Town of Bridger	Town of Fromberg	Town of Joliet	City of Red Lodge
American Red Cross	No – Out of Billings Region	No	No	No	No	No
Chamber of Commerce	Yes	No	No	No	No	Yes
Community Organizations (Lions, Kiwanis, etc.)	Yes – Red Lodge Area Community Foundation	No	Yes – Masons	Yes – American Legion	Yes	Yes – Red Lodge Area Community Foundation
Environmental Groups	Yes	No	No	No	N/A	Yes
Homeowner Associations	Yes	No	Yes	No	N/A	Yes
Neighborhood Associations	No	No	No	No	N/A	Yes
Salvation Army	No – Out of Billings Region	No	No	No	N/A	No
Veterans Groups	No	Yes	No	No	Yes	No

A.5.6 Opportunities for Enhancement

Carbon County has relatively limited regulatory capability, with some adequate plans and regulations for implementing mitigation activities. The County also has a wide range of organizational partnerships to support implementation. The County should consider new ways to engage both community organizations and the public on topics of hazard mitigation and awareness and seek ways to engage these groups in related planning activities. Establishing an ongoing local mitigation committee could help keep organizations and residents in engaged in these issues.

It would also be beneficial for the incorporated jurisdictions to provide more information on their websites about potential hazards, emergency preparedness, and response information. A webpage with consolidated information like evacuation routes, emergency alerts, and links to County, State, and Federal resources would be helpful for residents to learn more and access the information they if an incident occurs. Improved cross jurisdictional communication can also help identify areas for collaboration and support staffing and other capacity gaps. Other specific opportunities for improvement include:

Carbon County

- Consider adopting county-wide building codes.
- Update the county Community Wildfire Protection Plan (CWPP).
- Identify locations for public storm shelters.
- Become StormReady or Firewise certified communities.
- Consider joining FEMA Community Rating System (CRS) to lower the cost of flood insurance.

Town of Bearcreek

- Establish additional cross-coordination abilities with other jurisdictions and the county to bolster mitigation capabilities.
- Consider ways to establish ongoing public outreach on hazard awareness and preparedness.

Town of Bridger

- Consider hiring or establishing a grant writer or specialist.
- Consider developing a Capital Improvements Plan to tie to this mitigation plan for potential new funding sources.

Town of Fromberg

- Consider ways to establish ongoing public outreach on hazard awareness and preparedness.

Town of Joliet

- Consider adopting building codes.
- Consider ways to establish ongoing public outreach on hazard awareness and preparedness.

City of Red Lodge

- Consider ways to connect existing city plans to the mitigation plan, such as the Comprehensive Parks Plan or Active Transportation Plan.

A.6 Mitigation Strategy

This section describes the mitigation strategy and mitigation action plan for Carbon County. See Chapter 5 of the base plan for more details on the process used to develop the mitigation strategy.

A.6.1 Goals

During the creation of the 2023 Regional Plan, the counties in the Montana Eastern Region decided to collaborate and develop a set of new, uniform goals, which were adopted by all counties in the Region and move away from hazard-specific goals. The adopted goals are as follows:

- **Goal 1:** Reduce impacts to people, property, the environment, and the economy from hazards by implementing whole-community risk reduction and resilience strategies.
- **Goal 2:** Protect community lifelines and critical infrastructure to ensure the continuity of essential services during and after a disaster.
- **Goal 3:** Support education and outreach to the public through improved communications and capacity building that enhances resilience among underserved communities.
- **Goal 4:** Promote regional cooperation and leverage partnerships with the private sector, non-profit organizations, and other key stakeholder groups in mitigation solutions.
- **Goal 5:** Sustain and enhance jurisdictional capabilities and resources to enact and implement mitigation activities.
- **Goal 6:** Integrate hazard mitigation into other plans, processes, and regulations.
- **Goal 7:** Ensure local mitigation programs address underrepresented groups and protect socially vulnerable populations.
- **Goal 8:** Incorporate the potential impacts of climate change into all mitigation activities.

The Carbon CPT also integrated the following county-specific goals and objectives from the 2020 Carbon County HMP to supplement the region-wide goals:

- **Carbon County Goal 1:** Protect lives and reduce injury
 - Reduce potential for structure damage and loss of life from natural hazards and hazmat.
 - Be prepared for conducting evacuations
 - Be prepared for winter storms
 - Enhance emergency planning for all-natural disasters
- **Carbon County Goal 2:** Minimize or reduce damage to property, especially critical facilities and infrastructure
 - Protect critical infrastructure
 - Address oil and gas pipeline hazards.
 - Reduce potential for flood damage
 - Reduce vegetative hazard
 - Reduce vegetation hazard from wind.
 - Improve structural fire protection
 - Be prepared for power outages
- **Carbon County Goal 3:** Strengthen communication among agencies and between and the public regarding mitigation
 - Raise awareness to make citizens safer from all-natural hazards.
 - Maintain emergency communications
 - Improve communications for all hazards

A.6.2 Progress on Previous Actions

During the 2023 planning process, the Carbon CPT reviewed all the mitigation actions from the 2020 plan. As shown in Table A-24, of the 72 actions in the previous plan, one has been completed, and two have been deleted.

Table A-24 Completed and Deleted Actions

ID	Action Name & Description	Hazard(s) Mitigated	Jurisdiction	Status
RL-7	Partner with other entities to create a source Water Protection Plan and Drought Preparedness Plan to ensure that development in the water supply source area does not impact municipal water quality and quantity.	Drought	City of Red Lodge	Completed.
BR-1	Put a seasonal safety message on the water bills twice/year—suggestions to cover winter weather, drought and wildland fire.	Winter Weather, Wildland Fire, Drought	Town of Bridger	Deleted. No longer a priority.
J-1	Relocate water pressure tank to the other side of creek.	Flood	Town of Joliet	Deleted. No longer a priority

A.6.3 NFIP Continued Compliance

Recognizing the importance of the NFIP in mitigating flood losses, an emphasis will be placed on continued compliance with the NFIP by Carbon County and other NFIP participating communities including the towns of Bearcreek, Fromberg, Joliet, and the City of Red Lodge. As NFIP participants, these communities have and will continue to make every effort to remain in good standing with NFIP. This includes continuing to comply with the NFIP's standards for updating and adopting floodplain maps and maintaining and updating the floodplain zoning ordinance.

The Town of Bridger has chosen not to participate in the NFIP due to limited flood risk; the updated NFIP maps show no SFHA within town limits thus there is no requirement to participate.

See Section 5.4.2 in the base plan for more discussion on NFIP compliance.

A.6.4 Mitigation Action Plan

As a part of the 2023 regional planning process, the CPT developed an updated list of hazard mitigation actions or projects specific to Carbon County and its jurisdictions. The process used to identify, develop, and prioritize these actions is described in Chapter 5 of the base plan. Carbon County has 68 continuing or in progress mitigation actions carried over from the previous plan and has added an additional 12 new actions.

Table A-25 lists the 2023 Mitigation Action Plan for Carbon County and its participating jurisdictions. The CPT identified and prioritized the following mitigation actions based on the risk assessment and goals, and objectives. It is grouped by hazard(s) mitigated. Background information as well as information on how the action will be implemented and administered, such as ideas for implementation, responsible office, partners, potential funding, estimated cost, and timeline also are described. Per the DMA requirement, actions have been identified that address reducing losses to existing development as well as future development.

The **Cost Estimate** column describes the estimated project costs using the following categories:

- Little to no cost
- Low: Less than \$10,000

- Moderate: \$10,000-\$100,000
- High: \$100,000-\$1,000,000
- Very High: More than \$1,000,000

The **Timeline** column describes the estimated time of completion for each project using the following categories:

- Short Term: 1-2 years
- Medium Term: 3-5 years
- Long Term: 5+ years
- Ongoing: action is implemented every year

The **Status/Implementation Notes** column describes the progress made on the actions so far using the following categories:

- Not Started: project is carried over from the previous Carbon County Plan; little to no work has been completed.
- In Progress: project is carried over from the previous Carbon County Plan; work has begun on the project and is proceeding.
- Annual: project is carried over from the previous Carbon County Plan and is implemented every year on an ongoing basis.
- New in 2023: The action is new to this plan update; little to no work has been completed.

Table A-25 below lists the mitigation actions for each participating jurisdiction in Carbon County. All jurisdictions have developed mitigation actions for each identified hazard in the HMP.

Table A-25 Mitigation Actions by Hazard and Jurisdiction Summary

#	Action/Project Name & Description	Hazards Mitigated	Jurisdiction	Lead Agency	Partner Agencies	Cost Estimate	Potential Funding Sources	Schedule/ Timeline	Priority	Implementation Notes
1	Enhance the DES page of the county's website to serve as a comprehensive hub for emergency management information about natural and human caused hazards, featuring: - Detailed explanations of local hazards, their potential impacts, and steps residents can take to mitigate risks. - Interactive tools, guides, and links to training opportunities to increase resilience. - Real-time updates and warnings for hazards such as severe weather, drought conditions, avalanche risks, and public health emergencies.	Avalanche, Communicable Disease, Cyber-Attack, Dam Failure, Drought, Earthquake, Flooding, Hazardous Materials Incident, Landslide, Severe Summer Weather, Severe Winter Weather, Human Conflict, Tornado/Wind, Transportation Accidents, Volcanic Ash, Wildfire	Towns of Bearcreek, Bridger, Fromberg, Joliet, and Red Lodge	County DES	Elected Officials, PIO, State DES, Bearcreek Town Council, Bridger Police Department, Fromberg Town Council, Joliet Town Council, Red Lodge Sustainability Board	Low	Staff Time & Dept Budget	Short-Term	Medium	In progress. Continue to build out.
2	Implement/revise County codes and regulations to mitigate risk of all hazards.	Avalanche, Dam Failure, Drought, Earthquake, Hazardous Materials Incident, Landslide, Flooding, Severe Summer Weather, severe Winter Weather, Wildfire	Carbon County	County Planning	County DES, Commissioners, LEPC, State DES	Low	Staff Time & Dept Budget	Short-Term	Medium	In progress.
3	Work with the Carbon County News to feature a first responder volunteer each month.	Communicable Disease, Dam Failure, Earthquake, Flooding, Hazardous Materials Incident, Landslide, Severe Summer Weather, Severe Winter Weather, Human Conflict, Tornado/Wind, Transportation Accidents, Volcanic Ash, Wildfire	Carbon County	Fire Warden	County DES, Fire Warden, CCO, Local Volunteer Agencies	Low	Staff Time & Dept Budget	Ongoing	Low	In progress. Hometown Heroes Program

#	Action/Project Name & Description	Hazards Mitigated	Jurisdiction	Lead Agency	Partner Agencies	Cost Estimate	Potential Funding Sources	Schedule/ Timeline	Priority	Implementation Notes
4	Pursue grants for personal protective equipment (PPE) and communications equipment upgrades.	Communicable Disease, Hazardous Materials Incident, Human Conflict, Transportation Accidents	Carbon County	County Fire Warden	Rural Fire District EMS District, Road Depts, Elected Officials	Moderate	Staff Time & Dept. Budget, HMEP Grant Program	Short-Term	High	In Progress. 2021 Homeland Security Grant comm's microwave grant in progress
5	Purchase mobile generator that can be moved to shelter or critical infrastructure locations.	Cyber-Attack, Dam Failure, Earthquake, Flooding, Severe Summer Weather, Severe Winter Weather, Human Conflict, Tornado/Wind, Volcanic Ash, Wildfire	Carbon County, Town of Joliet	County DES	Public Health, Elected Officials, Roads and Public Works, Town Commissioner, Joliet Road Department	Moderate	State Homeland Security Grant, BRIC	Short-Term	Medium	In progress.
6	Obtain back-up power to operate water and wastewater facilities during power outages.	Cyber-Attack, Dam Failure, Earthquake, Flooding, Severe Summer Weather, Severe Winter Weather, Human Conflict, Tornado/Wind, Volcanic Ash, Wildfire	Town of Fromberg	Fromberg Town Council	Montana Rural Water Systems, County DES, Town of Fromberg Clerk	Moderate	HMEP Grants	Short-Term	High	Not started.
7	Generator for Town Hall and Water/Wastewater facilities	Cyber-Attack, Dam Failure, Earthquake, Flooding, Severe Summer Weather, Severe Winter Weather, Human Conflict, Tornado/Wind, Volcanic Ash, Wildfire	Town of Joliet	Joliet Road Department	Carbon County DES, Rural Water Systems, Utilities Companies, City Council, Town of Joliet Commissioner	Moderate	HMEP, BRIC Grants	Medium-Term	Medium	New in 2023.
8	Research needed to enhance spillway plug at Cooney Dam.	Dam Failure	Carbon County	County DES	State Water Projects, FWP, Dam Owners	Moderate	HMEP, BRIC Grants/Staff Time & Dept. Budget	Short-Term	Low	In progress.
9	Review contents of Emergency Action Plan for failure of Glacier Lake Dam with DES every other year.	Dam Failure	City of Red Lodge	Red Lodge Road Department	County DES, DNRC, LEPC, Sheriff's Office, Local Fire and EMS, SAR, City of Red Lodge Planning Board	Low	Staff Time & Dept. Budget	Ongoing	Medium	In progress.

#	Action/Project Name & Description	Hazards Mitigated	Jurisdiction	Lead Agency	Partner Agencies	Cost Estimate	Potential Funding Sources	Schedule/ Timeline	Priority	Implementation Notes
10	Update land use map to identify hazard prone areas to limit development	Dam Failure, Earthquake, Flooding, Hazardous Materials Incident, Landslide/Tornado/Wind, Volcanic Ash, Wildlife	City of Red Lodge	City of Red Lodge Planning Board	County Planning Board, DES	Low	Staff Time & Dept. Budget	Short-Term	Low	New in 2023.
11	Develop evacuation policies and standard operating guides to increase efficiency of evacuations.	Dam Failure, Earthquake, Flooding, Hazardous Materials Incident, Landslide, Severe Summer Weather, Severe Winter Weather, Human Conflict, Tornado/Wind, Transportation Accident, Volcanic Ash, Wildlife	Carbon County, Town of Bearcreek, Town of Bridge, Town of Fromberg, Town of Joliet, City of Red Lodge	County DES	Carbon DES, Commissioners, LEPC, All Municipality Officials, Law Enforcement, First Responders, and SAR, Bearcreek Town Council, Bridge Police Department, Fromberg Town Council, Joliet Town Council, Red Lodge Police Department	Low	Staff Time & Dept. Budget	Short-Term	High	In Progress. Working with SAR, GIS, and LE to update policies, procedures, and evac resources.
12	Ensure agreements and Memorandums of Understanding are in place and current to facilitate mutual aid.	Dam Failure, Earthquake, Flooding, Hazardous Materials Incident, Landslide, Severe Summer Weather, Severe Winter Weather, Human Conflict, Tornado/Wind, Transportation Accident, Volcanic Ash, Wildlife	Carbon County, Town of Bearcreek, Town of Bridge, Town of Fromberg, Town of Joliet, City of Red Lodge	County DES	Town and City Commissioners, Mutual Aid Partners, and Elected Officials, Bearcreek Town Council, Bridge Police Department, Fromberg Town Council, Joliet Town Council, Red Lodge Police Department	Low	Staff Time	Annual Implementation	High	In Progress. Mutual Aid agreement in the works for Eastern District emergency managers
13	Identify access & functional needs populations.	Dam Failure, Earthquake, Flooding, Hazardous Materials Incident, Landslide, Severe Summer	Carbon County, Town of Bearcreek,	County DES	County Planning, Carbon Public Health, PHEP, DPHHS, Bearcreek Town	Moderate	Staff Time & Dept. Budget, ESG Program	Ongoing	Low	In Progress. Working with local public health

#	Action/Project Name & Description	Hazards Mitigated	Jurisdiction	Lead Agency	Partner Agencies	Cost Estimate	Potential Funding Sources	Schedule/ Timeline	Priority	Implementation Notes
		Weather, Severe Winter Weather, Human Conflict, Tornado/Wind, Transportation Accident, Volcanic Ash, Wildfire	Town of Bridger, Town of Fromberg, Town of Joliet, City of Red Lodge	County DES; County Sheriff	Council, Bridger Police Department, Fromberg Town Council, Joliet Town Council, Red Lodge Sustainability Board					department and DPHHS
14	Develop emergency notification system.	Dam Failure, Earthquake, Flooding, Hazardous Materials Incident, Landslide, Severe Summer Weather, Severe Winter Weather, Human Conflict, Tornado/Wind, Transportation Accident, Volcanic Ash, Wildfire	Carbon County	County DES; County Sheriff	Elected Officials	Moderate	HMGP Grant, Staff Time & Dept. Budget	Short-Term	High	In Progress: CodeRED system established. Continue working on promoting.
15	Maintain shelter agreements with American Red Cross.	Dam Failure, Earthquake, Flooding, Hazardous Materials Incident, Landslide, Severe Summer Weather, Severe Winter Weather, Tornado/Wind, Transportation Accident, Volcanic Ash, Wildfire	Carbon County	County DES	Carbon Public Health	Low	Staff Time & Dept. Budget	Ongoing	High	In progress. Continuing with Red Cross
16	Invite the Montana Department of Environmental Quality to make a presentation to the county, local government public works directors, and unincorporated community's water system operators on developing wellhead protection plans and management of groundwater systems during drought to reduce potential impacts to well water quality and quantity, in alignment with the County Growth Policy Objective 2.5.	Drought	Carbon County	County Planning	Montana Rural Water Systems, DEQ, Local Government and Utilities	Low	Staff Time & Dept. Budget	Medium-Term	Medium	In progress.
17	Invite the NRCS to develop individualized conservation plans for farmers and ranchers	Drought	Carbon County	County Planning	Conservation District, USDA FSA, County DES	Low	Staff Time & Dept. Budget	Medium-Term	Medium	In progress.

#	Action/Project Name & Description	Hazards Mitigated	Jurisdiction	Lead Agency	Partner Agencies	Cost Estimate	Potential Funding Sources	Schedule/ Timeline	Priority	Implementation Notes
	In the County. The plans involve an inventory of vegetation types on the farm/ranch and recommendations to reduce soil erosion in the wake of drought. The plans are prepared for free through Farm Bill funding and generally cover a 1-year time period.									
18	Install additional waterline under railroad tracks. (Damage to existing line would leave entire town without water.)	Drought	Town of Fromberg	Town of Fromberg Roads Department	DEQ, Montana Rural Water Systems, Sanitarian, FEMA, USDA, State DES	Moderate	HMGF, BRIC Grants	Short-Term	High	Planning in progress.
19	Install security fencing around storage tank and municipal wells.	Drought, Human Conflict	Town of Fromberg, Town of Joliet	Town of Fromberg Roads Department	Town of Joliet Roads Department, County DES, Carbon DES, DEQ, Montana Rural Water Systems	Moderate	Homeland Security Grants, ISR Grant Program	Medium-Term	Medium	Not started.
20	Install green infrastructure that can withstand high winds and drought.	Drought, Severe Summer Weather, Tornadoes and Windstorms	City of Red Lodge	Red Lodge Sustainability Board	Public Works, City of Red Lodge Roads Department	Moderate	HMGF, BRIC, Staff Time/Dept Budget	Medium-Term	Medium	New in 2023.
21	Pursue a grant to install a 6' main from 2nd Avenue South to 3rd Avenue South across creek for an alternative route from 5th St. as the existing line has been broken several times and goes under the creek and irrigation ditch.	Drought, Wildlife	Town of Bearcreek	Bearcreek Town Council	County DES, Engineer, State DES, DEQ, FEMA, Sanitarian, PHEP	Moderate	HMGF, BRIC Grants/Staff Time & Dept Budget	Long-Term	Medium	In progress. Town of Bearcreek working with Interstate Engineering
22	Increase monitoring of drought, invasive species and disease on the Custer-Gallatin National Forest.	Drought, Wildlife	Carbon County	County DES	USFS, BLM, Fire Warden, LEPC, BLM	Moderate	Staff Time & Dept Budget, USDA WUI Community Fire Assistance Program	Ongoing	Medium	In progress.

#	Action/Project Name & Description	Hazards Mitigated	Jurisdiction	Lead Agency	Partner Agencies	Cost Estimate	Potential Funding Sources	Schedule/ Timeline	Priority	Implementation Notes
23	Install gauging device in Rock Creek south of Red Lodge to inform when flood conditions are imminent.	Flooding	Carbon County	County DES	Carbon DES, DNRC, NWS, USGS, USFS, Floodplain Managers	Low	HMGP, BRIC Grants, Staff Time & Dept. Budget	Short-Term	High	In Progress. DES is working with NWS, USGS, DNRC, NRCS, MSU Extension, and USFS
24	Replace the dike in Rock Creek at the end of Grapevine Road.	Flooding	Carbon County	County Road Dept.	Carbon County Road Dept.	Moderate	FMA Grants, BRIC Grant	Medium-Term	Low	In progress.
25	Remove bridge abutments from floodplain when county bridges are replaced.	Flooding	Carbon County	County Road Dept.	Carbon County DES, Floodplain Management, Conservation District, FWP, USACE	Moderate	FMA Grants, BRIC Grant, Staff Time	Medium-Term	Medium	In progress. 2022 flood changed plans. Being evaluated with flood recovery and repair.
26	Continue to provide information to property owners about building in the floodplain.	Flooding	Carbon County	County Floodplain Administrator	Carbon County Floodplain, County DES, Conservation District, DNRC	Low	Staff Time & Dept. Budget	Ongoing	High	In progress. Continued work after 2022 floods
27	Provide educational materials about flood insurance—what is covered by what types of policies.	Flooding	Carbon County	County Floodplain Administrator	Floodplain Managers, County DES, DNRC	Low	FMA Grants, BRIC Grant, Staff Time & Dept. Budget	Ongoing	High	In progress.
28	Mitigate flooding along Two-Mile Bridge and Rock Creek.	Flooding	Carbon County	County DES	County Road and Bridge Dept, Floodplain, Conservation, FWP, USACE	Moderate	FMA Grants, Staff Time & Dept. Budget	Medium-Term	Medium	In progress.
29	Investigate benefits of applying for a grant to develop detailed floodplain map.	Flooding	Town of Bearcreek	Bearcreek Town Council	DNRC, County DES	Moderate	Staff Time & Dept. Budget; DNRC; FEMA RiskMAP	Short-Term	High	In progress.

#	Action/Project Name & Description	Hazards Mitigated	Jurisdiction	Lead Agency	Partner Agencies	Cost Estimate	Potential Funding Sources	Schedule/ Timeline	Priority	Implementation Notes
30	Mitigate flooding related to the Sand Creek Canal.	Flooding	Town of Bridger	Town Public Works Department	County DES, Engineer, State DES	Moderate	FMA Grants, BRIC Grant, HMGP	Medium-Term	Medium	In progress. Submitting mitigation grant 2023
31	Stabilize bank of Clark's Fork River between Lovers Lane and E River Rd to protect private and public property (i.e., Town wells).	Flooding	Town of Fromberg	Town of Fromberg Council	FEMA, FWP, USACE, State DES, County DES	Moderate	HMGP Grants, FMA Grants, BRIC Grant	Medium-Term	High	Planning in progress.
32	Protect Town's wastewater treatment facility from Rock Creek channel migration.	Flooding	Town of Joliet	Town of Joliet Council	County DES, Sanitarian, FEMA, State DES, Engineering	Moderate	BRIC, HMGP, FMA Grants, Staff Time & Dept. Budget	Medium-Term	High	Not started.
33	Enhance abutments at bridge along Joliet-Fromberg road to prevent additional erosion from Rock Creek.	Flooding	Town of Joliet	Town of Joliet Council	MDT, Utilities, County DES, FEMA, FWP, USACE, State DES, Conservation	Moderate	BRIC, HMGP, FMA Grants, Staff Time & Dept. Budget	Short-Term	Medium	Not started.
34	Implement storm water drainage plan for city.	Flooding	City of Red Lodge	City of Red Lodge Public Works	Red Lodge Parks and Rec.	Moderate	Staff Time & Dept. Budget	Ongoing	Medium	In progress.
35	Monitor Rock Creek channel migration and assess impact to City of Red Lodge wastewater treatment facility.	Flooding	City of Red Lodge	City of Red Lodge Public Works Department	DNRC Floodplain, FWP, USACE, FEMA, County DES, Sanitarian	Moderate	Staff Time & Dept. Budget	Ongoing	Medium	In progress.
36	Acquire Eagle's Nest Hotel and reclaim land in floodplain.	Flooding	City of Red Lodge	City of Red Lodge Public Works Department	State DES, FEMA, Carbon County DES, Floodplain	Moderate	FMA Grants, Staff Time & Dept. Budget	Medium-Term	Medium	In progress. Work with property owner to bring into compliance. Not interested in selling 4/2023
37	Improve storm drainage system.	Flooding	Town of Joliet	Town of Joliet Council	Engineer, Carbon DES, Carbon County Roads,	High	Staff Time & Dept. Budget, FMA Grants	Medium-Term	Medium	New in 2023.

#	Action/Project Name & Description	Hazards Mitigated	Jurisdiction	Lead Agency	Partner Agencies	Cost Estimate	Potential Funding Sources	Schedule/ Timeline	Priority	Implementation Notes
38	Property acquisitions and structure mitigations for Special Flood Hazard Area	Flooding	City of Red Lodge	City of Red Lodge Public Works Department	State DES, FEMA, Floodplain	High	FMA Grant, BRIC Grant	Long Term	Medium	New in 2023.
39	Complete Rock Creek Master Plan (mitigation and floodplain strategies)	Flooding	City of Red Lodge	City of Red Lodge Public Works Department	State DES, FEMA, DNRC Floodplain, USACE, Conservation District	Moderate	FMA Grant, BRIC	Medium-Term	High	New in 2023.
40	Complete Rock Creek Master Plan (mitigation and floodplain strategies).	Flooding	City of Red Lodge	City of Red Lodge Public Works Department	USACE, DES	High	FMA Grant, BRIC	Medium-Term	Medium	New in 2023.
41	Silver Jackets Project – Alluvial Fan Mapping for Post-Fire Flood Risk for the City of Red Lodge	Flooding	Town of Joliet	Department Town of Joliet Council	County DES	High	FEMA FMA, BRIC Grants	Short-Term	High	New in 2023.
42	Stream restoration for all major drainages, Rock Creek, East Rosebud, and Clarks Fork	Flooding	Carbon County	County DES	FEMA, State DES, DNRC Floodplain, Conservation District, USACE, Engineering, Floodplain and Planning	Unknown	FEMA FMA, BRIC Grants	Long Term	Medium	New in 2023.
43	Detention pond/wetland enhancements; improve water retention areas south of red lodge on public and/or private lands to slow management of high-volume events. Enhancing ecosystem services from headwaters and downstream will reduce flood risk to communities along rock creek	Flooding, Drought	Carbon County, City of Red Lodge	County DES, Red Lodge Parks and Rec.	FEMA, Floodplain Administrators	Moderate	FEMA FMA, BRIC Grants	Long-Term	Medium	New in 2023.
44	Stabilize bank along Clear Creek Canal in vicinity of Highway 308.	Flooding, Landslide	Carbon County	County DES	Carbon DES, Conservation District, DNRC	Moderate	FMA, BRIC Grants	Medium-Term	Medium	In progress. Private irrigation ditch company
45	Update City Zoning to include regulations for flood/fire mitigation	Flooding, Wildfire	City of Red Lodge	City of Red Lodge	DNRC, DNRC FP, DES	Low	Staff Time & Dept. Budget	Short-Term	Low	New in 2023.

#	Action/Project Name & Description	Hazards Mitigated	Jurisdiction	Lead Agency	Partner Agencies	Cost Estimate	Potential Funding Sources	Schedule/ Timeline	Priority	Implementation Notes
46	Continue to provide training for responders in conjunction with pipeline companies.	Hazardous Materials Incident	Carbon County	Planning Board County DES	Industry/ Partners, Fire Departments, Rural Fire District	Low	HMGF, Staff Time & Dept. Budget	Ongoing	Medium	In progress.
47	Prepare a strategic plan for the LEPC	Hazardous Materials Incident	Carbon County	LEPC	Carbon DES, Elected Officials, Planners, Industry, Public LEPC Members	Moderate	Staff Time & Dept. Budget	Short-Term	High	In progress.
48	Conduct training sessions on response to hazard carried by the railroad / pipelines.	Hazardous Materials Incident	Carbon County	County DES	Fire, EMS, Law, SAR, Elected Officials, PIO	Low	Staff Time & Dept. Budget	Annual Implementation	Low	In progress.
49	Secure or acquire drone service to assist with all hazard mitigation projects.	Dam Failure, Earthquake, Flooding, Hazardous Materials Incident, Landslide, Severe Summer Weather, Severe Winter Weather, Human Conflict, Tornado/Wind, Transportation Accident, Volcanic Ash, Wildfire	Carbon County, Town of Bearcreek, Town of Bridge, Town of Fromberg, Town of Joliet, City of Red Lodge	County DES Bearcreek Town Council, Bridger Road Department, Fromberg Town Council, Joliet Road Department, Red Lodge Public Works	Moderate	Emergency Management Performance Grant, BRIC, HMGF, USDA Rural Development Programs		Medium-Term	Low	In Progress. DES looking a funding source
50	Host NWS weather spotter training in county annually.	Severe Summer Weather, Severe Winter Weather	Carbon County	County DES	NWS	Low	Staff Time & Dept. Budget	Annual Implementation	Medium	In Progress. Training held 4/2023. Plan to continue
51	Remove hazardous trees in town	Severe Summer Weather, Severe Winter Weather, Tornado/Wind, Transportation Accidents, Wildfire	Town of Joliet	Town of Joliet Road Department	County Fire Dept., County Roads Dept.	Moderate	Staff Time & Dept. Budget	Ongoing	Medium	New in 2023.
52	Remove hazard trees and branches in city parks.	Severe Summer Weather, Severe Winter Weather, Transportation Accidents, Wildfire	City of Red Lodge	City of Red Lodge Public Works Department	County Fire Dept.	Moderate	Staff Time & Dept. Budget	Ongoing	High	remove trees that were damaged during flood

#	Action/Project Name & Description	Hazards Mitigated	Jurisdiction	Lead Agency	Partner Agencies	Cost Estimate	Potential Funding Sources	Schedule/ Timeline	Priority	Implementation Notes
53	Replicate the fiber optic line from Billings to Red Lodge to reduce vulnerability in communications.	Severe Weather	Carbon County	County Planning	Industry, DES, Elected Officials	Moderate	HMGF, BRIC Grant	Medium-Term	Medium	In progress.
54	Enhance snow removal capability with impending climate change.	Severe Winter Weather, Transportation Accidents	Carbon County, Town of Bearcreek, Town of Bridger, Town of Fromberg, Town of Joliet, City of Red Lodge	County Road Dept.	County Road Dept, MDT, Bearcreek Town Council, Bridger Road Department, Fromberg Town Council, Joliet Road Department, Red Lodge Public Works	Moderate	Staff Time & Dept. Budget	Short-Term	Medium	In Progress.
55	Develop or purchase firefighter and EMS recruitment materials to promote volunteer recruitment at individual departments/districts.	Wildfire	Carbon County, Town of Bearcreek, Town of Bridger, Town of Fromberg, Town of Joliet, City of Red Lodge	County Fire Dept.	Carbon DES, RLFR, RLACF Rural Fire District, EMS District: County DES, Bearcreek Town Council, Bridger Public Works Department, Fromberg Town Council, Joliet Road Department, Red Lodge Parks and Rec	Low	Staff Time & Dept. Budget	Short-Term	High	In Progress. Red Lodge Fire Rescue hired a recruitment officer that is helping all county depts.
56	Conduct after action review (AAR) for all major incidents or at least one annually by the Fire Council.	Wildfire	Carbon County	LEPC	LEPC, DES	Moderate	Staff Time & Dept. Budget	Ongoing	Medium	In Progress. AAR for all incidents and plan to continue
57	Continue to pursue grant opportunities for equipment and training.	Wildfire	Carbon County	County DES	Sheriff, Rural Fire, EMS, Roads, County DES, BLM, FS, DNRC	Moderate	Staff Time & Dept. Budget	Ongoing	Medium	In progress.
58	Inventory/assess water supply infrastructure (e.g., hydrants, pumps, backup generators).	Wildfire	Carbon County	County Fire Dept.	County Fire Warden, County GIS, County DES	Low	Staff Time & Dept. Budget, AFG	Short-Term	High	In progress.

#	Action/Project Name & Description	Hazards Mitigated	Jurisdiction	Lead Agency	Partner Agencies	Cost Estimate	Potential Funding Sources	Schedule/ Timeline	Priority	Implementation Notes
59	Pursue WUI fuel reduction projects in high-risk areas around the county.	Wildfire	Carbon County	County DES	Rural Fire Districts, County Fire Warden, BLM, DNRC, County DES	Moderate	BRIC Grants, Staff Time & Dept. Budget	Ongoing	High	In progress.
60	Continue fuel reduction work in the 400 Ranch.	Wildfire	Carbon County	County Fire Dept.	County Fire Warden, County DES	Moderate	BRIC Grants, Staff Time & Dept. Budget	Ongoing	Medium	In progress. Red Lodge Fire is involved with this.
61	Continue Forest Service project to offer fuels reduction around recreation residences in the Main Canyon and the West Fork of Rock Creek.	Wildfire	Carbon County	County Fire Dept.	Rural Fire District, County Fire Warden, County DES	Moderate	Staff Time & Dept. Budget	Ongoing	Medium	In progress.
62	Meet annually with special interests' groups and cabin owners leasing property in the Custer Gallatin National Forest to discuss fire prevention, fire protection, and evacuation plans.	Wildfire	Carbon County	County Fire Dept.	Rural Fire Districts, County Fire Warden	Low	Staff Time & Dept. Budget	Annual Implementation	Low	In progress.
63	Host a workshop to educate people on home ignition zones, defensible space and general firewise principles.	Wildfire	Carbon County	County Fire Dept.	County Fire Warden, County DES, County PIO	Low	Staff Time & Dept. Budget	Annual Implementation	Medium	In progress.
64	Pursue fuels reduction and create defensible space in the base area of Red Lodge Mountain.	Wildfire	Carbon County	County Fire Dept.	County Fire Warden, FS, BLM, DNRC	Moderate	CWDS Grants, Staff Time & Dept. Budget	Short-Term	Medium	In progress.
65	Conduct home ignition hazard assessments in WUI areas.	Wildfire	Carbon County	County Fire Dept.	County Fire Warden, FS, BLM, DNRC	High	CWDS Grants, Staff Time & Dept. Budget	Ongoing	Medium	In progress.
66	Develop GIS layer of water sources available for firefighting.	Wildfire	Carbon County	County Fire Dept.	Fire Warden, Fire Districts	Low	Staff Time & Dept. Budget	Short-Term	High	In progress.
67	Determine locations for additional water supplies and pursue funding to develop new water sources available for fire protection.	Wildfire	Carbon County	County Fire Dept.	County Fire Warden, County GIS, DNRC	Low	Staff Time & Dept. Budget	Short-Term	Low	In progress.
68	Assess best method to address non-functioning or poorly maintained dry hydrants in subdivisions.	Wildfire	Carbon County	County Fire Dept.	Fire Departments, DNRC	Low	Staff Time & Dept. Budget	Short-Term	Low	In progress.

#	Action/Project Name & Description	Hazards Mitigated	Jurisdiction	Lead Agency	Partner Agencies	Cost Estimate	Potential Funding Sources	Schedule/ Timeline	Priority	Implementation Notes
69	Identify subdivisions with constructed assets at risk and no physical access. Meet with property owners or subdivision associations to pursue remedies. (e.g., Bridges at Western Ranch Estates, WRE II and Shane Ridge Rd.).	Wildfire	Carbon County	County Fire Dept.	Planning, County Fire Warden, DNRC, FS, County DES	Low	Staff Time & Dept. Budget	Short-Term	Medium	In progress.
70	Create fire district or fire service area for southeast Carbon County where no fire protection area exists.	Wildfire	Carbon County	County Fire Dept.	County Commissioners, Local Rural Fire Districts	Low	Staff Time & Dept. Budget	Short-Term	Medium	In progress.
71	Pursue grant to replace water main from MM6 on State Highway 308 to intersection of First and Main streets and install fire hydrant at intersection.	Wildfire	Town of Bearcreek	Bearcreek Town Council	Town Council, Engineer, State DES, DEQ, FEMA	Moderate	HMG, BRIC Grants, Staff Time & Dept. Budget	Short-Term	High	In progress. Town of Bearcreek working with Interstate Engineering
72	Evaluate fire hydrant coverage of town. Add/replace hydrants as indicated. (12)	Wildfire	Town of Fromberg	Town of Fromberg Council	County Fire Warden, County DES	Moderate	CWDG Grants/Staff Time & Dept. Budget	Medium-Term	Medium	In progress.
73	Develop procedures for evacuation of town from a wildland fire.	Wildfire	City of Red Lodge	City of Red Lodge Planning Dept.	Carbon County DES, Sheriff's Office, SAR, Local Fire Dept.	Low	Staff Time & Dept. Budget	Short-Term	Low	In progress.
74	Remove hazardous fuels near Sage Creek in Pryor Mountains.	Wildfire	Carbon County	County Fire Dept.	County Fire Warden, County DES, BLM, DNRC, Rural Fire	Moderate	Staff Time & Dept. Budget	Short-Term	Low	In progress.
75	Wildland Fire wide ecotonal categorical exclusion (CATX) to facilitate vegetation management to achieve desired conditions.	Wildfire	Carbon County	County Fire Dept.	Carbon County Fire Warden, BLM, DNRC, Rural Fire Districts	Low	Staff Time & Dept. Budget	Ongoing	Medium	In progress.
76	Implement mechanical thinning, prescribed burns, and other fuel-reduction techniques to reduce vegetation density and ladder fuels.	Wildfire	City of Red Lodge	City of Red Lodge Fire Department	Red Lodge Sheriff's Department, DES, Fire Warden, DNRC	Unknown	Staff Time, Dept. Budget, CWDG	Ongoing	Medium	New in 2023.

#	Action/Project Name & Description	Hazards Mitigated	Jurisdiction	Lead Agency	Partner Agencies	Cost Estimate	Potential Funding Sources	Schedule/ Timeline	Priority	Implementation Notes
77	Raise awareness of fire danger through an advertising campaign including a series of articles, mailings, and billboards.	Wildfire	Carbon County	County Fire Warden	County DES, LEPC	Moderate	Staff Time & Depl. Budget/USDA WUI Grants	Ongoing	Medium	In progress.
78	Develop or purchase evacuation pamphlets and distribute to rural residents.	Wildfire	Carbon County	County Fire Dept.	USFS, BLM, County Fire Warden, Sheriff, Elected Officials	Low	Staff Time & Depl. Budget	Ongoing	Low	In progress.
79	Review methodology for defining WUI and revise GIS WUI layer.	Wildfire	Carbon County	County DES	Carbon DES, USFS, BLM, DNRC	Low	Staff Time & Depl. Budget	Short-Term	Low	In progress.
80	Raise awareness of benefits of adopting WUI code.	Wildfire	Carbon County	County Fire Dept.	Rural Fire District, County Commissioners, FS, BLM, DNRC	Low	Staff Time & Depl. Budget	Short-Term	Low	In progress.

NOTES: Acronyms for lead agency, partners, and funding are defined below:

AFG – Assistance to Firefighters Grant
 CSCO – Carbon County Sheriff's Office
 CWDS – Community Wildlife Defense Grant
 DEQ – Department of Environmental Quality
 DES – Department of Emergency Services
 DNRC – Department of Natural Resources and Conservation
 DPHHS – Department of Public Health and Human Services
 ESG – Environmental Justice Small Grants
 EMS – Emergency Medical Services
 FEMA – Federal Emergency Management Agency
 FEMA – Flood Mitigation Assistance
 FPA – Floodplain Administrator
 FSA – Farm Service Agency
 HIMEP – Hazardous Materials Emergency Preparedness
 ISR – Infrastructure Security and Resilience Grant Program
 LEPC – Local Emergency Planning Committee
 MDT – Montana Department of Transportation
 MT DNRC – Department of Natural Resources and Conservation
 MT DPHHS – Montana Department of Public Health and Human Services
 MT FWP – Montana Fish, Wildlife, and Parks
 MT PHEP – Montana Public Health Emergency Preparedness
 NWS – National Weather Service
 PHEP – Carbon County Public Health, Public Health and Emergency Preparedness
 PIO – Public Information Officer
 RLACF – Red Lodge Area Community Foundation
 RLACF – Red Lodge Area Community Foundation
 RLFR – Red Lodge Fire Rescue
 SAR – Search and Rescue
 USACE – U.S. Army Corps of Engineers
 USDA – U.S. Department of Agriculture
 USFS – U.S. Forest Service
 USGS – U.S. Geological Survey
 WUI – Wildland Urban Interface

A.7 Plan Implementation and Maintenance

Moving forward the Carbon County CPT will use the mitigation action table in the previous section to track progress on implementation of each project. Implementation of the plan overall is discussed in Chapter 6 of the base plan.

A.7.1 Integration into Existing Planning Mechanisms

As described in the capability assessment, the County already implements policies and programs to reduce losses to life and property from hazards. This plan builds upon the momentum developed through previous and related planning efforts and mitigation programs and recommends implementing actions, where possible, through these other program mechanisms. Where applicable, these existing mechanisms could include:

Carbon County

- Carbon County Growth Policy, 2020
- Carbon County Flood Insurance Study, 2017
- Carbon County Emergency Operations Plan, 2010
- Carbon County Subdivision Regulations, 2018
- Carbon County CWPP, 2013

Town of Bearcreek

- Town of Bearcreek Capital Improvements Plan, 2008
- Town of Bearcreek Zoning Ordinance, 2008
- Town of Bearcreek Floodplain Ordinance, 2013

Town of Bridger

- Town of Bridger Floodplain Ordinance, 2016

Town of Fromberg

- Town of Fromberg Floodplain Ordinance, 2016
- Town of Fromberg Zoning Ordinance
- Town of Fromberg Subdivision Regulations

Town of Joliet

- Town of Joliet Capital Improvement Plan
- Town of Joliet Floodplain Ordinance, 2017
- Town of Joliet Subdivision Regulations

City of Red Lodge

- City of Red Lodge Growth Policy, 2020
- City of Red Lodge Capital Improvement Plan
- City of Red Lodge Comprehensive Parks Plan, 2015
- City of Red Lodge Zoning Ordinance, 2016
- City of Red Lodge Subdivision Regulations, 2011

The jurisdictions did not meaningfully integrate the previous Carbon County HMP into other planning mechanisms, which has been noted as an area of improvement for the next five years. The process for integration of the Regional HMP into other planning mechanisms can be as simple as cross-referencing the HMP where applicable. For example, information from the wildfire hazard profile can be leveraged to update the County CWPP, or information from the flood hazard profile can be leveraged for any future updates to the floodplain regulations for the Towns of Bridger, Fromberg, and Joliet. Additionally, the City of Red Lodge can align any updates to their growth policy or capital improvement plan with mitigation goals and actions.

A.7.2 Monitoring, Evaluation and Updating the Plan

Carbon County will follow the procedures to review and update this plan in accordance with Montana Eastern Region as outlined in Chapter 6 of the Regional Plan. The County and municipalities realize that it is important to review and update this plan regularly and update it on a five-year cycle. The Carbon County Annex to the Montana Eastern Region Plan will be evaluated on a regular basis to determine the effectiveness of programs, and to reflect changes in land development or programs that may affect mitigation priorities.

A.7.3 Continued Public Involvement

Continued public involvement will be followed as outlined in Chapter 6 of the base plan, with an emphasis on vulnerable populations or groups that could have been missed during the 2023 process. Carbon County and the Towns of Bearcreek, Bridger, Fromberg, Joliet, and Red Lodge will continue to solicit participation from the public in the following ways:

- Hard copies of the updated HMP will be available at County and municipal offices, with an electronic version available on the County website.
- The public will be invited to LEPC meetings where the HMP is discussed. The meetings will provide the public a forum for which they can express concerns, opinions, or ideas about the plan.
- The DES Coordinator will publicize meetings through newspapers, radio, and the internet.
- The CPT will monitor and evaluate public outreach processes for potential improvements during plan implementation.

The County will also make efforts during plan implementation to increase the participation of underserved communities, particularly rural and isolated communities by holding public meetings in convenient and familiar locations within each municipality. The County will also consider transportation options and meeting times that better accommodate different schedules, such as evening and weekend meetings.