

Annex K Yellowstone County

K.1 Mitigation Planning and County Planning Team

This County Annex builds on previous versions of the Yellowstone County Hazard Mitigation Plan (HMP) completed in 2019. As part of the regional planning process, the County established a County Planning Team (CPT) to develop the mitigation plan and identify potential mitigation projects. The following incorporated communities participated in the DMA planning process with the County:

- City of Billings
- City of Laurel
- Town of Broadview

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.

K.2 Community Profile

K.2.1 Geography and Climate

Yellowstone County is in south-central Montana, between the Great Plains and the Rocky Mountains. The County is bordered by Musselshell County to the north, Treasure County to the northeast, Big Horn County to the southeast, Carbon County to the southwest, Stillwater County to the west, and Golden Valley County to the northwest. Billings, the County seat, is in central Yellowstone County and at 43 square miles is the largest city in Montana. The Crow Indian Reservation occupies the southeast portion of Yellowstone County. Figure K-1 presents a location map of Yellowstone County.

The Yellowstone River forms the dominant physiographic feature in Yellowstone County. As the river winds its way from the southwest portion of the County near Laurel to the northeast corner near Custer, it is flanked by a broad alluvial valley. The only tributaries of the Yellowstone River that carry water year-round are the Clarks Fork of the Yellowstone River, Bighorn River, and Pryor Creek. The Clarks Fork defines a small segment of the west County boundary while the Bighorn River forms a small segment of the east County boundary. Other County drainages that flow intermittently but with some regularity include Alkali Creek, Blue Creek, and Canyon Creek. There are approximately seven lakes and reservoirs in the County.

Plains occupy the largest portion of the County north and south of the Yellowstone River. The topography of the plains varies with the thickness of the underlying shale and the presence of sandstone beds. Thicker shale beds translate into more gently rolling terrain cut by steep-sided coulees. Rimrocks, rough ridges and frequent outcrops occur where eroded shale layers expose the interbedded sandstone formations. Elevation in the County ranges from 2,680 feet above sea level on the Yellowstone River near Custer to 4,971 feet at Stratford Hill in the southwest corner.

Yellowstone County consists of approximately 1,693,751 acres. Eighty-two (82) percent of the County is under private ownership, while federal land managers (BLM, U. S. Bureau of Reclamation, and U.S. Fish & Wildlife Service) administer 5 percent of the land area. State agencies, including Montana DNRC (responsible for State Trust Land), and the Montana Dept. of Fish Wildlife and Parks (responsible for State Parks and fishing accesses), administer 4 percent of the acreage. The Crow Indian Reservation comprises 8 percent of the County. Figure K-1 also shows the landownership in Yellowstone County. Population density in Yellowstone County is 64.2 persons per square mile. Yellowstone County is the most populous county in Montana with approximately 164,731 people according to the 2020 US Census. There are three incorporated towns and cities in Yellowstone County: City of Billings, City of Laurel, and Town of

Broadview. Interstates 90 and 94 are the major transportation routes in the County, in addition to State Highways 87, 47, and 212, which are north-south routes that intersect Interstate 90.

Yellowstone County has a semiarid climate which is relatively mild with few significant weather events during an average year. Extremely low temperatures, less than 0 degrees Fahrenheit, may prevail in the winter for short periods of time. High wind events are possible in the spring and summer and may include rare tornadic activity. Heavy rainfall is rare, but localized thunderstorms can deposit significant rainfall in a small area resulting in flashfloods. Flooding is a problem on the Yellowstone River and tributaries particularly when warmer temperatures rapidly melt snow and ice during spring break up.

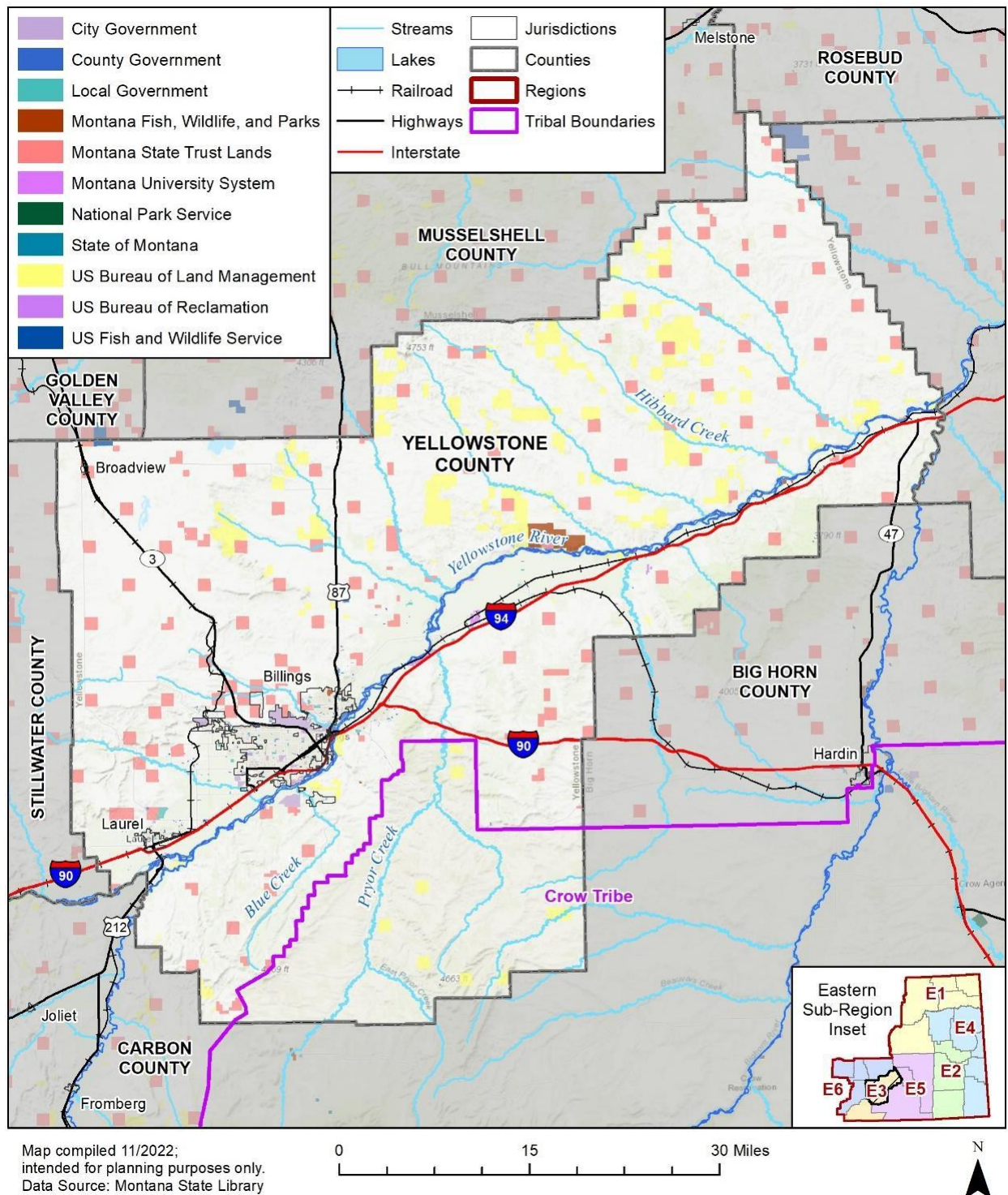
Yellowstone County's complex topography and lack of common slopes or drainage pattern result in a wide variety of local microclimates. In general, the Yellowstone River valley, where most of the population resides, has the greatest range of highs and lows. The areas outside of the river valley tend to have lower temperatures. Precipitation rates vary along a west to east gradient, dropping significantly from Laurel to Custer. Winter Chinooks originating in the mountains move northeastward through the County, moderating winter temperatures. Cold fronts from the north tend to affect the eastern highlands more than they do the rest of the County. Cultivated lands usually experience little variance in the growing season, which averages 129 days, normally extending from mid-May through mid-September.

The average annual rainfall is 15.09 inches, with an average of 57 inches of snow. Forty (40) percent of the precipitation falls in the wet spring months of April, May and June. The maximum monthly rainfall recorded was in May 1981, 7.7 inches, while the maximum 24-hour rainfall was recorded at 2.9 inches in June 8, 1997. The maximum monthly snowfall was 42.3 inches in April 1955, while the maximum in 24 hours was 23.7 inches, also in April 1955.

Winters are cold, but usually not severe. January's average maximum is 36 degrees and minimums average 18 degrees. Summers are warm with good sunshine and low humidities, but the nights are generally cool. Extremes in temperature have ranged from 106° F in 1937 to -38°F in 1936. The average number of days per year with temperatures of 90° F or above is 28. The number of days with temperatures of 32°F and below is 48.

Average wind speeds are greatest during the winter months when they range from 10.5 mph to 12.5 mph. The most blustery month is December when wind speeds average 12.5 mph. Winds are slowest in July and August when speeds average 9.0 mph. The average prevailing wind is from the southwest. In June 1968, the extreme wind speed of 79 mph was recorded.

Figure K-1 Yellowstone County Base Map and Land Stewardship



K.2.2 Population Trends

According to the 2020 U.S. Census, Yellowstone County is the most populous county in Montana with a total population of 164,731. The U.S. Census Bureau reported the County experienced a 11.3% increase in population since the 2010 census. Trends show that the population has increased in the County and the

incorporated jurisdictions like Billings and Laurel. Specific demographic variables for the County are provided in Table K-1 below.

Table K-1 Population Trends in Yellowstone County, 1980-2020

Incorporated Community	1980	1990	1980-1990 Change	2000	1990- 2000 Change	2010	2000- 2010 Change	2020	2010- 2020 Change
City of Billings	68,361	81,151	+18.7%	89,847	+10.7%	104,170	+15.9%	117,116	+12.4%
Town of Broadview	125	133	+6.4%	150	+12.8%	192	+28.0%	139	-27.6%
City of Laurel	5,469	5,686	+4.0%	6,255	+10.0%	6,718	+7.4%	7,222	+7.5%
Yellowstone County	107,661	113,419	+5.3%	129,352	+14.0%	147,972	+14.4%	164,731	+11.3%

NOTES:

1 - During review of this plan, Yellowstone County noted their population was larger than counted by the 2020 US Census and the 2021 American Community Survey estimate. The 2022 population estimate for Yellowstone County is 169,852 according to the ACS, and this is a more current estimate of the County's population at the time of this plan development.

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

K.2.3 Demographics

The 2016-2020 American Community Survey (ACS) reports demographic estimates for Yellowstone County which are summarized in the table below Table K-2.

Table K-2 Demographic Estimates for Yellowstone County (2016-2020 ACS)

Characteristic	Yellowstone County	State of Montana
Percentage of persons below 150% poverty estimate	19.9%	24.1%
Unemployment Rate estimate	2.3%	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	19.4%	21.4%
Percentage of persons with less than a high school diploma (age 25+) estimate	6.6%	7.5%
Percentage uninsured in the total civilian noninstitutionalized population estimate	8.5%	9.6%
Percentage of persons aged 65 and older estimate	22.5%	22.1%
Percentage of persons aged 17 and younger estimate	21.1%	21.3%
Percentage of civilian noninstitutionalized population with a disability estimate	16.2%	15.6%
Percentage of single-parent households with children under 18 estimate	3.2%	3.9%
Percentage of persons (age 5+) who speak English "less than well" estimate	0.0%	0.3%
Minority (other than white non-Hispanic) estimate	9.9%	14.6%
Percentage of housing in structures with 10 or more units estimate	1.9%	3.3%
Percentage of mobile homes estimate	7.3%	13.1%
Percentage of occupied housing units with more people than rooms estimate	0.9%	2.1%
Percentage of households with no vehicle available estimate	5.2%	4.9%
Percentage of persons in group quarters estimate	2.5%	2.8%
Percentage Female estimate	50.7%	49.7%

Characteristic	Yellowstone County	State of Montana
Median Age estimate	38.7	40.1
Median Gross Rent estimate	\$910	\$836
Median House Value estimate*	\$330,800*	\$366,400*
Percent Unoccupied Housing Units estimate	6.2%	15.3%

Source: ACS 2016-2020, <https://data.census.gov/> | *2022 ACS 1-year estimate

K.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 influences 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 (NRI) can be found in Section 4.1.1.5 of the Base Plan.

The social vulnerability index (SoVI) rated the social vulnerability in Yellowstone County as “Relatively Low”, with a score of 32.8. Thus, Yellowstone County is less socially vulnerable than roughly three-fourths of all Montana Counties. 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 K-2, such as percentage below poverty level or over the age of 65. The ACS reports that most of these factors are at or below statewide averages.

With regards to hazards, socially vulnerable populations may be disproportionately impacted by hazards that include flooding, wildfires, and dam failures. Severe weather hazards may result in power outages that could have a greater impact on these socially vulnerable populations including those dependent on electricity for medical reasons and those that lack access to a vehicle to safely get to a community center or shelter location with electricity.

K.2.5 Development Trends

According to the Montana Department of Commerce Regional Economic Models Incorporated Population Projections¹, the population of Yellowstone County is expected to increase to 179,726 by 2030, a 6.0% growth from the 2022 ACS 5-year estimate. To accommodate the growth, new commercial, industrial, and residential development will occur. However, at this time, residential development is the most rapidly growing sector of land use in Yellowstone County. Most of the anticipated growth is expected to occur within and near the communities of Billings and Laurel.

The County has experienced an increased demand for housing. Since the 2008 Recession, new construction rates have remained low, creating a deficit of over 4,000 residential units. This created a housing shortage for residents and new arrivals. This shortage was further exacerbated by COVID-19 pandemic and the heavy shift of urban dwellers relocating into smaller, more rural areas like Yellowstone County and Billings.

In 2008, the Yellowstone County Board of County Commissioners and the City of Billings adopted updates to the Yellowstone County / City of Billings Growth Policy. This plan includes individual neighborhood growth plans to better reflect the communities’ vision for development. Specific growth trends by jurisdictions are listed below:

- **Yellowstone County:** According to the CPT, the housing shortage for current residents and those

¹ <https://ceic.mt.gov/People-and-Housing/Population>

new to Yellowstone County has caused housing prices to rise by nearly 41%, making the average home price \$357,000. However, according to the 2022 ACS 1-Year Estimates (which is the most recent ACS publication), the median value of a home in Yellowstone County is \$330,800. While the amount of development growth has remained low and the implementation of the Yellowstone County Growth Policy limits growth, population growth in the County has increased and thereby slowly increased the overall exposure of people within the County to atmospheric/weather hazards.

- **City of Billings:** The City of Billings and Yellowstone County are seen as ideal for new business because there is not only an airport located nearby, but Billings has one of the largest populations in the state. New businesses interest seems to favor the relocation or new creation of data/server centers in the area. There has been a decrease in demand for traditional office space, which is believed to be a result of the pandemic. Overall, there is seen to be an increase in businesses throughout the City of Billings. Billings and Yellowstone County are also seeing increased interest in shovel ready sites for development. There have been requests for building and warehouse spaces larger than 30,000 square feet. Being the commerce hub for a 400+ mile radius region with two major interstates dissecting the area and a north/south interstate corridor nearby, easy access to the major airport, and rail service make this area highly desirable. There are also several new, large building projects including the new Coca-Cola manufacturing plant south of the interstate and two new warehouse projects between west Billings and downtown. The City of Billings Growth Policy has helped the City manage population growth and housing development; however the City's steady increase in population has gradually increased the overall exposure of the City to atmospheric hazards.
- **City of Laurel:** The City of Laurel has prime proximity to I-90 providing optimum conditions for growth. Within the city limits, Highway 10 and the SE 4th Street corridors provide opportunity for business growth with some vacant industrial and commercial zoned tracts. The potential for large industrial sites remains small due to infrastructure concerns and the inability for the city to provide water without investing in substantial upgrades. Where the city's greatest potential lies is in the redevelopment of vacant commercial buildings located in the downtown area, as well as along First Avenue south of the underpass. The City of Laurel has experienced some population growth over the past five years, which has resulted in a slight increase in the overall exposure of the City to hazards.
- **Town of Broadview:** The growth potential of the Town of Broadview was analyzed and found to be constrained by the development of a better water supply and the construction of a railroad spur from the Bull Mountain Mine to the railroad main line southeast of town. Without a better, more reliable water supply, additional growth is not likely. The Montana Bureau of Mines and the Montana DNRC have collaborated with the town to define and evaluate favorable sites for development of additional viable groundwater sources. Because the limited water supply the Town has experienced a gradual decline in population growth and development, which has resulted in a slight decrease in the overall hazard exposure of the Town.

The U.S. Census Bureau Building Permit Survey provides information and local statistics on new privately-owned residential construction. Figure K-2 below displays the new privately owned housing unit authorizations by year in Yellowstone County. This data indicates that there was a sharp increase in housing units in 2013, which has remained fairly high since. 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 unknown how this development will impact vulnerability to specific hazards, such as wildfire and flooding.

Figure K-2 New Privately Owned Housing Unit Authorizations



K.2.6 Economy

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

Table K-3 Yellowstone County Economic Profile

Economic Characteristics	Yellowstone County
Families Below Poverty Level	6.9%
Individuals Below Poverty Level	18.4%
Median Home Value	\$330,800
Median Household Income	\$62,630
Per Capita Income	\$37,261
Population > 16 Years Old in Labor Force	66.7%
Population Employed	64.3%

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

Table K-4 below shows the breakdown of employment in Yellowstone County by the industry sector. According to the ACS, the leading employment sectors in the County are "Educational, Healthcare, and Social Assistance Services" which composes of over 20% of the total employment in the County with 19,395 people. This is followed by "retail trade" with 9,969 people. A close third is the "Arts, entertainment, and recreation, and accommodation and food services" Industry with over 10% of the population in Yellowstone County employed.

Table K-4 Yellowstone County Occupation by Industry Profile

Industry	Population Employed	Percent of Labor Force
Educational services, and health care and social assistance	19,395	23.8%
Retail trade	9,969	12.2%
Arts, entertainment, and recreation, and accommodation and food services	8,892	10.9%
Professional, scientific, and management, and administrative and waste management services	8,006	9.8%
Construction	6,805	8.3%
Transportation and warehousing, and utilities	5,817	7.1%
Finance and insurance, and real estate and rental and leasing	4,771	5.8%
Other services, except public administration	4,409	5.4%
Manufacturing	4,325	5.3%
Public administration	3,070	3.8%
Wholesale trade	2,705	3.3%
Agriculture, forestry, fishing and hunting, and mining	2,201	2.7%
Information	1,244	1.5%

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

K.3 Hazard Identification and Risk Assessment

K.3.1 Identified Hazards

The CPT reviewed significant hazards for inclusion in the HMP. Some changes were made from the 2019 Yellowstone County Hazard Mitigation Plan to be consistent with the 2023 Eastern Montana Region Hazard Mitigation Plan. The previous 2019 Yellowstone County HMP profiled the following hazards:

- Severe Weather and Drought
- Wildfire
- Ditch and Drain Failure
- Terrorism, Violence, and Civil Unrest
- Cyber Security
- Hazardous Material Incidents
- Transportation Accidents
- Flooding and Dam Failure
- Communicable Disease
- Landslide /Rockfall

In this plan update, severe weather hazards are organized into severe summer weather and severe winter weather. Terrorism, Violence, and Civil Unrest are covered in Human Conflict. Cyber Security is covered in Cyber Threats. Dam Failure is also a stand-alone section. Ditch and Drain Failure is also covered in this Annex, but not in the Eastern Montana Regional HMP. Table K-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 K-5 Yellowstone County Overall Hazard Significance by Hazard and Jurisdiction*

Hazard	Yellowstone County	City of Billings	Town of Broadview	City of Laurel
Avalanche	Low	Low	Low	Low
Communicable Disease	High	High	High	High
Cyber-Attack	Medium	High	High	High
Dam Failure	Low	Medium	Low	Medium
Ditch & Drain Failure	High	High	Low	High
Drought	High	High	High	High
Earthquake	Low	Medium	Medium	Medium
Flooding	High	High	High	High
Hazardous Materials Incident	High	High	High	High
Human Conflict	High	High	Medium	Medium
Landslide	Low	Low	Low	Low
Severe Summer Weather	High	High	High	High
Severe Winter Weather	High	High	High	High
Tornadoes & Windstorms	High	High	High	High
Transportation Accidents	Medium	Medium	Medium	Medium
Volcanic Ash	Low	Low	Low	Low
Wildfire	High	High	High	High

*Significance based on a combination of Geographic Extent, Potential Magnitude/Severity and Probability as defined below

Geographic Extent <u>Negligible:</u> Less than 10 percent of planning area or isolated single- point occurrences <u>Limited:</u> 10 to 25 percent of the planning area or limited single-point occurrences <u>Significant:</u> 25 to 75 percent of planning area or frequent single-point occurrences <u>Extensive:</u> 75 to 100 percent of planning area or consistent single- point occurrences Potential Magnitude/Severity <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. <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	Probability of Future 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>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>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>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. Overall Significance <u>Low:</u> 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.
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the jurisdiction, or results in very few permanent disabilities. <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. <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.	<u>Medium</u>: 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>High</u>: 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.
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K.3.2 Building Inventory and Assets

People, property, critical facilities/infrastructure, and other important assets in Yellowstone County are exposed to the hazards identified in this plan. Table K-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 parcel type and 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 GIS databases were utilized. Parcel and assessor data was obtained through Montana's MSDI Cadastral website. 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 K-6 Yellowstone County Building Inventory and Value by Jurisdiction

Jurisdiction	Improved Parcels	Improved Value	Content Value	Total Value
Billings	43,604	\$11,862,503,189	\$6,844,972,623	\$18,707,475,812
Broadview	95	\$9,153,276	\$5,253,798	\$14,407,074
Crow Tribe	111	\$19,469,548	\$15,982,369	\$35,451,917
Laurel	3,039	\$545,083,990	\$311,062,124	\$856,146,114
Yellowstone County	17,137	\$4,260,860,990	\$2,697,545,405	\$6,958,406,395
Total	63,986	\$16,697,070,993	\$9,874,816,319	\$26,571,887,312

NOTE – A portion of the Crow Tribe is in Yellowstone County, although predominantly located in Big Horn County. Source: MSDI Cadastral database, <https://msl.mt.gov/geoinfo/msdi/cadastral/>

Total building exposure with contents within Yellowstone County based on an analysis of improved parcels is over \$26 billion, with over \$16 billion in improved value properties and \$9 billion of contents. The City of Billings accounts for more than \$18 billion of this total number. Residential properties represent the greatest

portion of structures in the County, accounting for over \$21 billion of the nearly \$26.5 billion improved property value, as shown in

Table K-7 below.

Table K-7 Yellowstone County Total Exposure by Jurisdiction and Property Type

Jurisdiction	Property Type	Improved Parcels	Improved Value	Content Value	Total Value
Billings	Agricultural	2	\$257,990	\$257,990	\$515,980
	Commercial	321	\$131,041,427	\$131,041,427	\$262,082,854
	Exempt	736	\$1,599,410,120	\$1,599,410,120	\$3,198,820,240
	Industrial	35	\$45,193,570	\$67,790,355	\$112,983,925
	Residential	42,487	\$10,080,254,702	\$5,040,127,351	\$15,120,382,053
	Vacant	23	\$6,345,380	\$6,345,380	\$12,690,760
	Total	43,604	\$11,862,503,189	\$6,844,972,623	\$18,707,475,812
Broadview	Exempt	8	\$896,680	\$896,680	\$1,793,360
	Industrial	1	\$228,820	\$343,230	\$572,050
	Residential	86	\$8,027,776	\$4,013,888	\$12,041,664
	Total	95	\$9,153,276	\$5,253,798	\$14,407,074
Crow Tribe	Agricultural	62	\$11,182,680	\$11,182,680	\$22,365,360
	Commercial	2	\$582,910	\$582,910	\$1,165,820
	Exempt	7	\$727,950	\$727,950	\$1,455,900
	Residential	38	\$6,974,358	\$3,487,179	\$10,461,537
	Vacant	2	\$1,650	\$1,650	\$3,300
	Total	111	\$19,469,548	\$15,982,369	\$35,451,917
Laurel	Commercial	11	\$1,417,180	\$1,417,180	\$2,834,360
	Exempt	46	\$62,847,717	\$62,847,717	\$125,695,434
	Industrial	4	\$6,387,680	\$9,581,520	\$15,969,200
	Residential	2,978	\$474,431,413	\$237,215,707	\$711,647,120
	Total	3,039	\$545,083,990	\$311,062,124	\$856,146,114
Yellowstone County	Agricultural	993	\$196,379,255	\$196,379,255	\$392,758,510
	Commercial	95	\$38,448,680	\$38,448,680	\$76,897,360
	Exempt	190	\$195,326,541	\$195,326,541	\$390,653,082
	Industrial	38	\$351,257,020	\$526,885,530	\$878,142,550
	Residential	15,748	\$3,477,888,190	\$1,738,944,095	\$5,216,832,285
	Vacant	73	\$1,561,304	\$1,561,304	\$3,122,608
	Total	17,137	\$4,260,860,990	\$2,697,545,405	\$6,958,406,395

Jurisdiction	Property Type	Improved Parcels	Improved Value	Content Value	Total Value
	Grand Total	63,875	\$16,677,601,445	\$9,858,833,950	\$26,536,435,395

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. Much of this data is 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). Where applicable, this information was used in an overlay analysis for hazards such as dam failure, flood, and wildfire.

FEMA organizes critical facilities into seven lifeline categories as shown in Figure K-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 K-3 FEMA Lifeline Categories



Source: FEMA

Table K-8 below summarizes the number of critical facilities by jurisdiction. Figure K-4 through Figure K-7 display the location of critical facilities by FEMA Lifeline in Yellowstone County, the City of Billings, the Town of Broadview, and the City of Laurel.

Table K-8 Yellowstone County Critical Facilities by Jurisdiction

Jurisdiction	Communications	Energy	Food, Water, Shelter	Hazardous Materials	Health and Medical	Safety and Security	Transportation	Total
Billings	85	9	37	15	16	106	55	323
Broadview	-	1	-	-	1	1	-	3
Laurel	4	1	8	-	1	6	1	21
Yellowstone County	143	67	18	22	8	44	239	541
Total	232	78	63	37	26	157	295	888

Source: HIFLD 2022, Montana DES, National Bridge Inventory

Figure K-4 Yellowstone County Critical Facilities

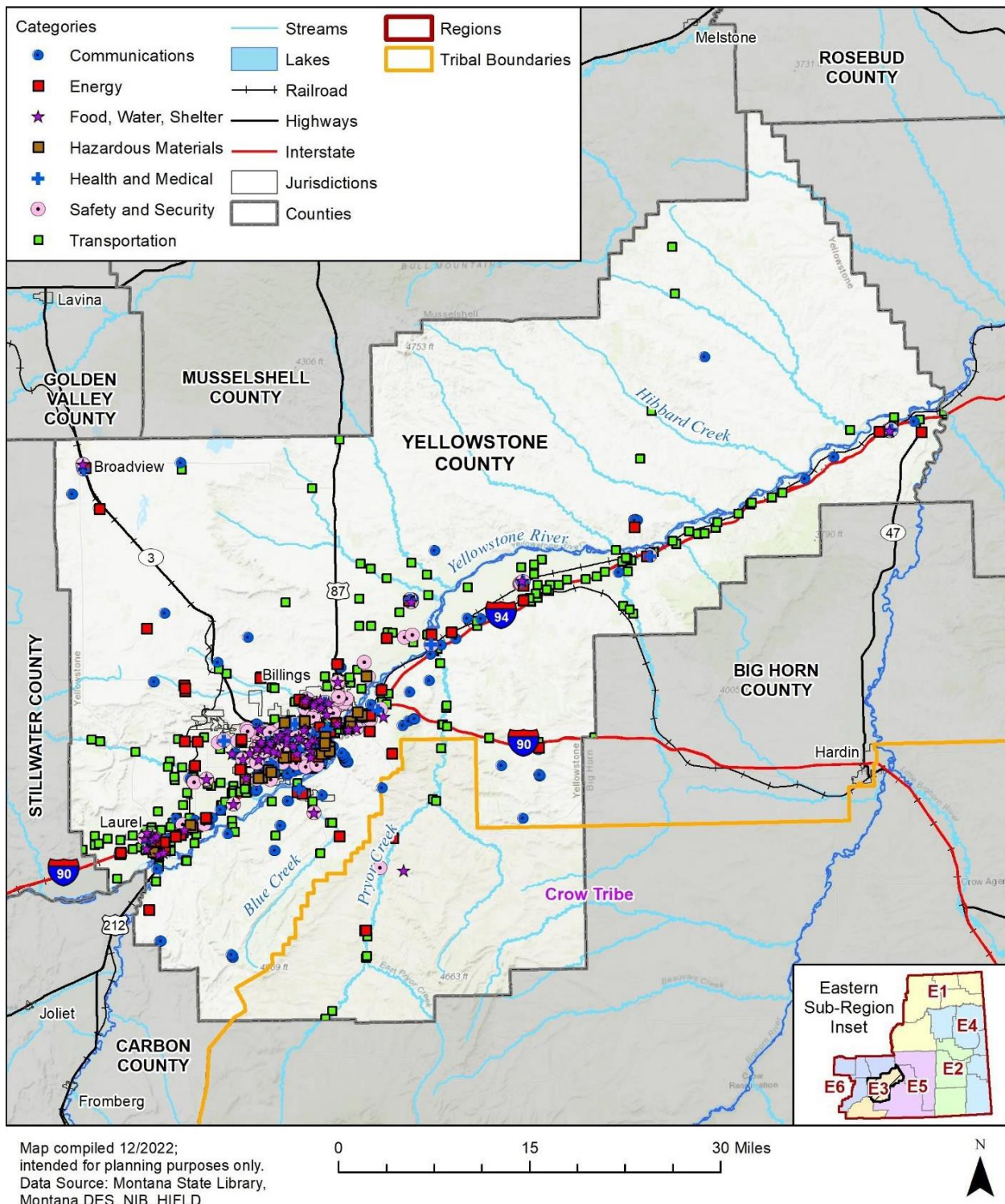


Figure K-5 City of Billings Critical Facilities

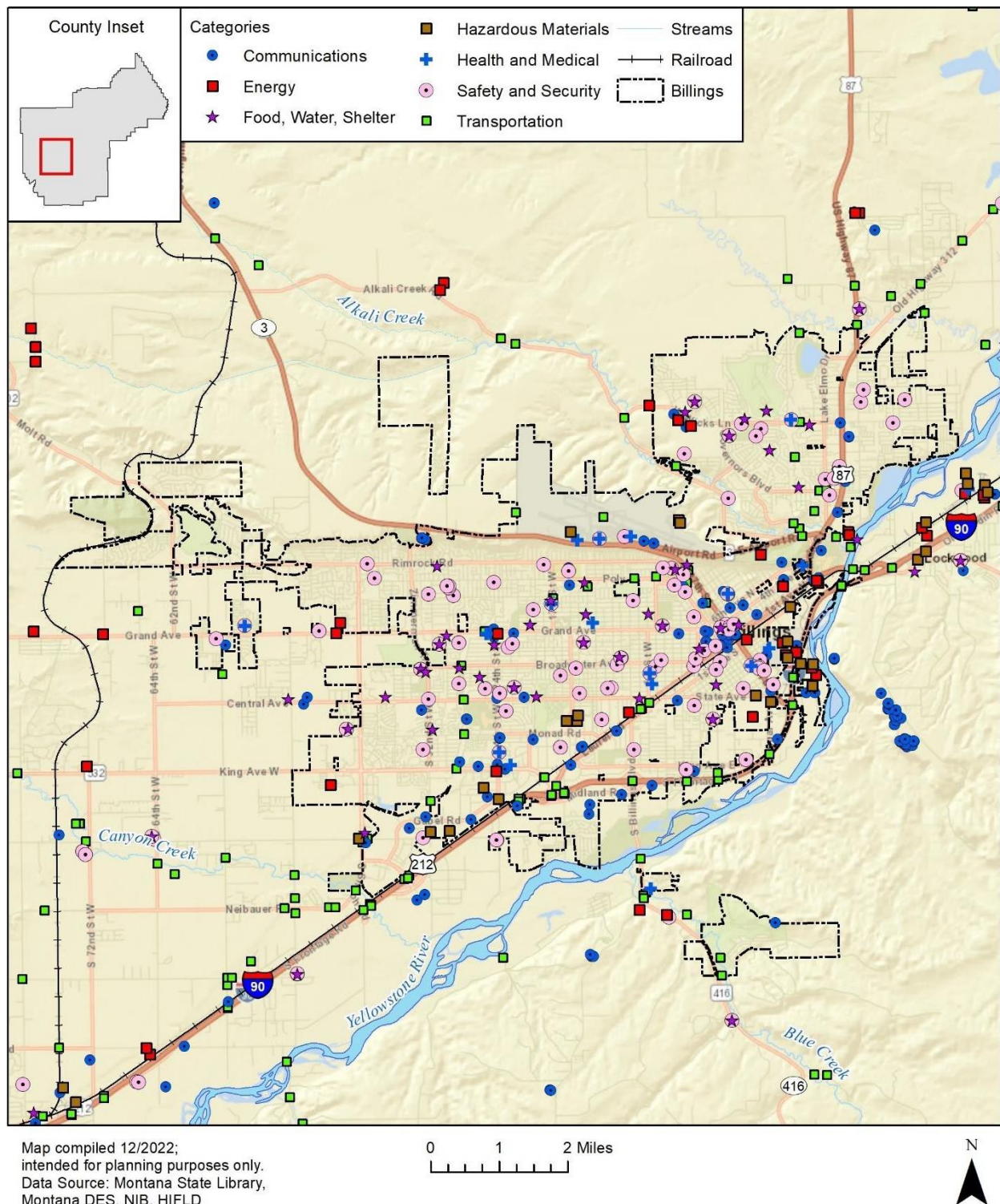


Figure K-6 Town of Broadview Critical Facilities

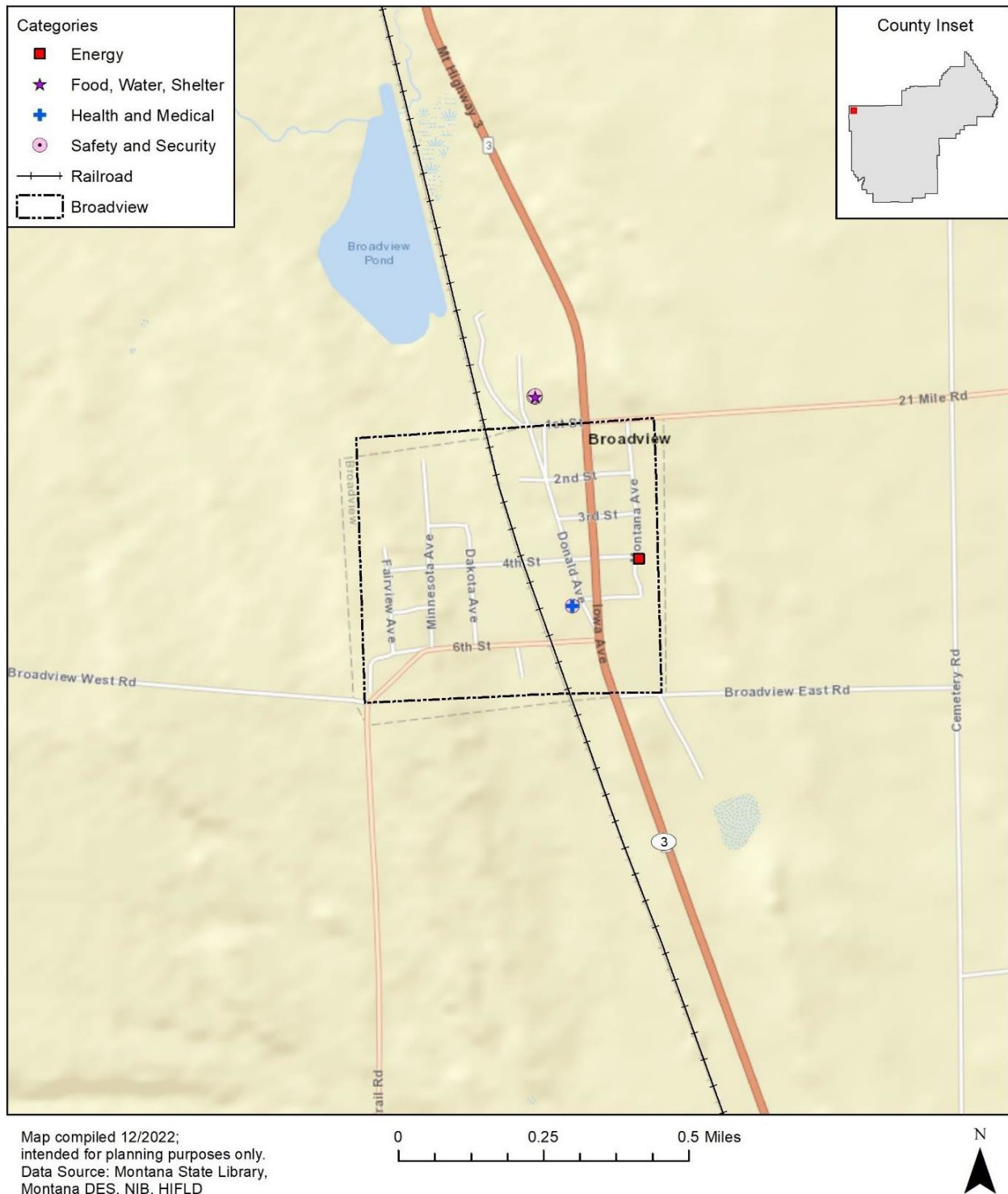
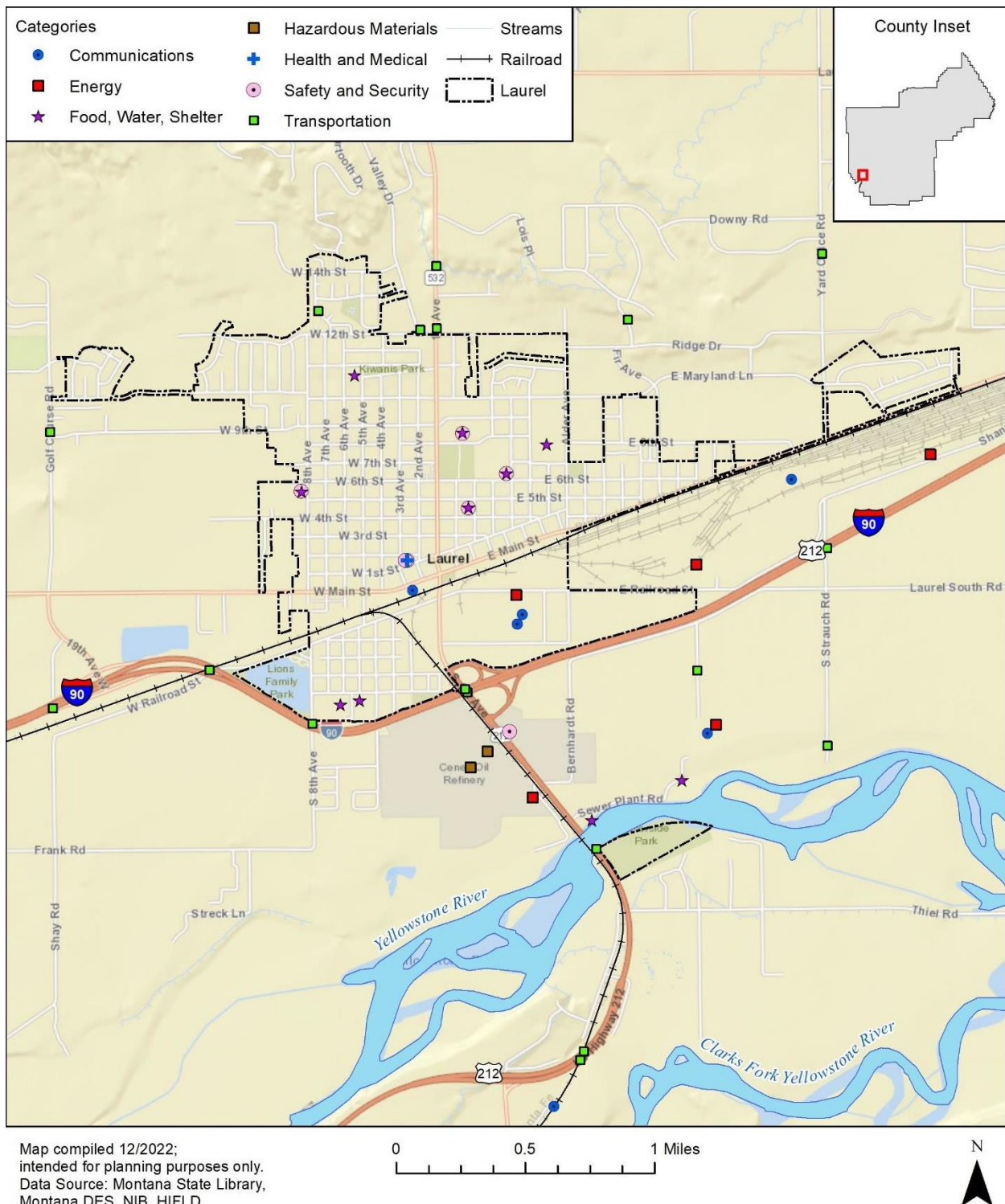


Figure K-7 City of Laurel Critical Facilities



Natural, Historic, and Cultural Assets

Assessing the vulnerability of Yellowstone 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 K-9 below lists the properties that are identified as having cultural and historic significance in Yellowstone County as recorded by the National Register of Historic Places.

Table K-9 Historic Properties and Districts on National Registers

Property Name	City/Town	Location	Date Listed
Huntley Project Office	Ballantine	2291 2 nd Street W	6/5/2017
Acme Building	Billings	109-111 N. Broadway	11/9/2005
Armour Cold Storage	Billings	1 S. Broadway	7/7/2004
Babcock Theatre Building	Billings	114-124 N. 28 th Avenue & 2808-2812 2 nd Avenue	4/9/2013
Billings Chamber of Commerce Building	Billings	303 N. 27 th Street	1/20/1972
Billings Communal Mausoleum	Billings	1704 Central Avenue	06/28/2021
Billings Historic District	Billings	Roughly bounded by N. 23 rd Street & N. 25 th Street, 1 st Avenue & Montana Avenue	3/13/1979
Billings Old Town Historic District	Billings	Generally bounded by Montana Ave. on the N, S. 26 th on the E, 1 st Avenue S on the S, & S. 30 th Street on the W	09/16/2010
Billings Townsite Historic District (Boundary Increase)	Billings	2600(2528), 2604-2606, 2608, 2610-2614, & 2624 Montana Avenue	4/20/2006
Billings West Side School	Billings	415 Broadwater Avenue	3/20/2002
Black Otter Trail	Billings	Black Otter Trail	1/5/2007
Boothill Cemetery	Billings	N of Billings	4/17/1979
Dude Rancher Lodge	Billings	415 N. 29 th Street	7/22/2010
Electric Building	Billings	113-115 Broadway	3/1/2002
Fire House #2	Billings	201 E. 30 th Street	2/29/1980

Property Name	City/Town	Location	Date Listed
Fratt-Link House	Billings	142 Clark Avenue	11/9/2020
Garfield School	Billings	3212 1 st Avenue S.	10/3/2012
Graf, Arnold, House	Billings	633 Highland Park Drive	4/20/2015
Hoskins Basin Archeological District	Billings	Address Restricted	11/20/1974
James F. Battin Federal Building (Courthouse & Federal Office Building)	Billings	316 N. 26 th Street	1/13/2023
Kate Fratt Memorial Parochial School	Billings	205 N. 32 nd Street	7/28/2020
L and L Building	Billings	2624 Minnesota Avenue	12/19/2008
Masonic Temple	Billings	2806 3 rd Avenue N.	4/17/1986
McKinley Elementary School	Billings	820 N. 31 st Street	3/16/2021
McMullen Hall	Billings	1500 University Drive	9/8/2015
Montana National Bank	Billings	201 North Broadway	3/14/2022
Moss, Preston B, House	Billings	Address Restricted	4/30/1982
North Elevation Historic District	Billings	Bounded by 12 th Avenue N., alley between N. 31 st Street & N. 30 th Street, 9 th Avenue N. & 32 nd Street N.	11/29/2016
North, Austin, House	Billings	622 N. 29 th Steet	11/23/1977
Northern Hotel	Billings	19 N. Broadway	6/12/2013
O'Donnell, I.D., House	Billings	105 Clark Avenue	11/23/1977
Oliver Building	Billings	2702 Montana Avenue	12/19/2008
Parmly Billings Memorial Library	Billings	2822 Montana Avenue	10/26/1972
Pictograph Cave	Billings	7 miles SE of Billings in Indian Caves Park	10/15/1966
Pioneer Park	Billings	Roughly bounded by Parkhill Drive, 3 rd Street W., & Virginia Lane	4/13/2021
Prescott Commons	Billings	Rimrock Road	4/30/1982
Ruth, Harold and Marion, House	Billings	111 Emerald Drive	6/21/2007
US Post Office & Courthouse – Billings	Billings	2602 1 st Avenue N.	3/14/1986
Yegen, Christian, House	Billings	208 S. 35 th Street	10/1/1979
Yegen, Peter, House	Billings	209 S. 35 th Street	4/16/1980
Antelope Stage Station	Broadview	E of Broadview	1/19/1983
Erb, Abraham & Carrie, House	Laurel	110 4 th Avenue	6/9/2005

Property Name	City/Town	Location	Date Listed
Laurel Downtown Historic District	Laurel	Roughly bounded by the Burlington Northern Santa Fe Railway Company tracks to the S, Third S to the N, Wyoming Ave	9/16/2010
Mossman Overpass	Laurel	Mile 57, N. of I-90 Frontage Road	3/26/2012
Pompey's Pillar	Pompey's Pillar	W. of Pompey	10/15/1966
Huntley Bridge	Huntley	Mile 12, MT 312	3/26/2012

Source: National Register of Historic Places National Archives (records up until end of 2012) <https://www.nps.gov/subjects/nationalregister/database-research.htm>; National Register of Historic Places, NPGallery Database (records listed after 2013) <https://npgallery.nps.gov.nrhps>

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 flood waters.

Wetlands are a valuable natural resource for communities, due to their benefits to water quality, wildlife protection, recreation, and education, and play an important role in hazard mitigation. Yellowstone County has over 7 lakes and reservoirs. The County is made up of approximately 16 square miles of water.

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.

K.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 seven classes of assets (People; Property; Critical Facilities and Lifelines; the Economy; Historic and Cultural Resources; and 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 quantifiable vulnerability to specific hazards, 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, 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 risk does not vary significantly enough 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
- Ditch and Drain Failure

K.4.1 Avalanche

An avalanche is a low significance hazard for Yellowstone County and its jurisdictions (Table K-5). To distinguish between counties where avalanches have not occurred and those that have no possibility of avalanche occurrence, FEMA created a control table overlaying avalanche forecast zones and counties which have experienced losses due to credible avalanche events. Based on this analysis, Yellowstone County was determined to be an area where avalanches have no possibility of occurrence. Therefore, mitigation actions were not included for this hazard.

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

K.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 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 high significance hazard for Yellowstone County and there were no noted jurisdictional differences. As Billings is the largest city in an approximately 500-mile radius, it serves as a medical hub for approximately two-thirds of Montana and a significant portion of boarding states, making communicable disease a significant threat in Yellowstone County.² Billings is also the only city in Montana with a certified Level 1 Trauma Center.³ As of October 2023, according to data from the Centers for Disease Control and Prevention (CDC), Yellowstone County reported approximately 47,850 confirmed cases of COVID-19 in Yellowstone County. Among these cases, 2,913 individuals were hospitalized directly related to COVID-19, with 302 admitted to the ICU, and nearly 580 deaths. According to USA Facts, the pandemic resulted in a 12% increase in closures of retail food establishments and 13% increase closures of wholesale food establishments. All K-12 schools were closed from March 16, 2020, through May 6, 2020.

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

² <https://riverstonehealth.org/about-billings-montana/>

³ <https://www.billingsclinic.com/services-specialties/emergency-services/trauma-services/>

K.4.3 Cyber-Attack

All servers, networks, and users are vulnerable to cyber-attacks in Eastern Montana. Yellowstone County is ranked high, 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 equally vulnerable to cyber-attacks, the City of Billings has a greater population and therefore more people exposed to a cyber-attack event.

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

K.4.4 Dam Failure

Dam failure in Yellowstone County and the Town of Broadview is rated a low significance hazard. The City of Billings and the City of Laurel rate dam failure as a medium significance hazard (Table K-5). Chapter 4 provides a discussion of the dam failure risk in the Eastern Region, including Yellowstone County. See Section 4.2.4 *Dam Failure*.

There is one high hazard dam (HHPD) in Yellowstone County (Lakeside Dam), and two significant hazard potential dams in the County (Table K-10, Figure K-8). GIS delineations of the dam failure inundation zoned for these dams are unavailable. This prevents identification of specific assets that could be exposed in the event of a dam failure. The analysis of vulnerable assets, below, does not consider failure of these three dams. Refer to Chapter 4 for a discussion of the dam failure risk relative to Yellowstone County and the Eastern Region, and of the typical reasons that dam failure inundation zones are not made available for hazard mitigation planning. At least two additional HHPDs exist upstream of Yellowstone County and are discussed below.

Table K-10 Dams in Yellowstone County

Hazard Class	Dam Name	Owner	River	Nearest Downstream City	Distance to Nearest Downstream City (miles)	Emergency Action Plans (EAP)
High	Lakeside	Lakeside Homeowners Association	Off Stream (High Ditch)	Billings	0	Yes; Prepared 1/5/2021
Significant	Dreves	Oreves Farming Corp	Coulee	None	0	Not Required
Significant	Retriever #1	Montana Retriever Club	Twelve Mile Creek Off Stream	Huntley	6	Not Required

Source: National Inventory of Dams (NID)

The Cooney Dam is an HHPD upstream of Yellowstone County in Carbon County, seven miles west of Boyd and 19 miles west of Joliet (Figure K-8). This irrigation reservoir is owned by the Montana DNRC, measures 102 feet tall, nearly a half-mile wide, and has the potential to inundate parts of both Laurel and Billings. The inundation zone for this dam was made available for this HMP update and is shown in purple on Figure K-8. The delineation extends just past Billings and stops, despite the fact that dam failure hazards would continue further downstream. The analysis of assets in Yellowstone County that are vulnerable to dam failure hazards is based entirely on this one delineation.

The Yellowtail Dam and Reservoir is another HHPD upstream of Yellowstone County. This dam is a concrete thin-arch hydroelectric dam, towering 525 feet and stretching 1,480 feet across Bighorn Canyon in Big Horn

County. Failure of this dam would inundate the land along the Bighorn River on the eastern boundary of Yellowstone County. The dam inundation zone for the Yellowtail Dam is unavailable and the potential impact of failure of this dam on assets is not included in the vulnerability analysis below.

The SoVI-based rating of social vulnerability is relatively low in Yellowstone County (Section K.2.4 Social Vulnerability). Regardless of how Yellowstone County rates in social vulnerability, severe floods can be devastating events that are difficult to recover from both financially and emotionally. Floods may result in injuries or fatalities in situations with limited warning or when evacuation orders are not adhered to.

Table K-11

Table K-11 summarizes the estimated number of improved parcels, building values, and people within inundation zones in Yellowstone County by property type. A total of 5,971 people reside within the dam inundation zone in Yellowstone County, over 3% of the total County population. Half of these people 3,017, live in Billings.

Yellowstone County has a \$1.3 billion total property value located within the inundation zone. Residential property types represent the greatest total number of improved parcels and most property value, with approximately \$621 million in total property value at risk. A substantial amount of people (over 5,000 estimated) reside within the limited inundation area mapped in the County (primarily Cooney Dam); thus the risk of loss of life and injury would be significant without adequate warning and evacuation.

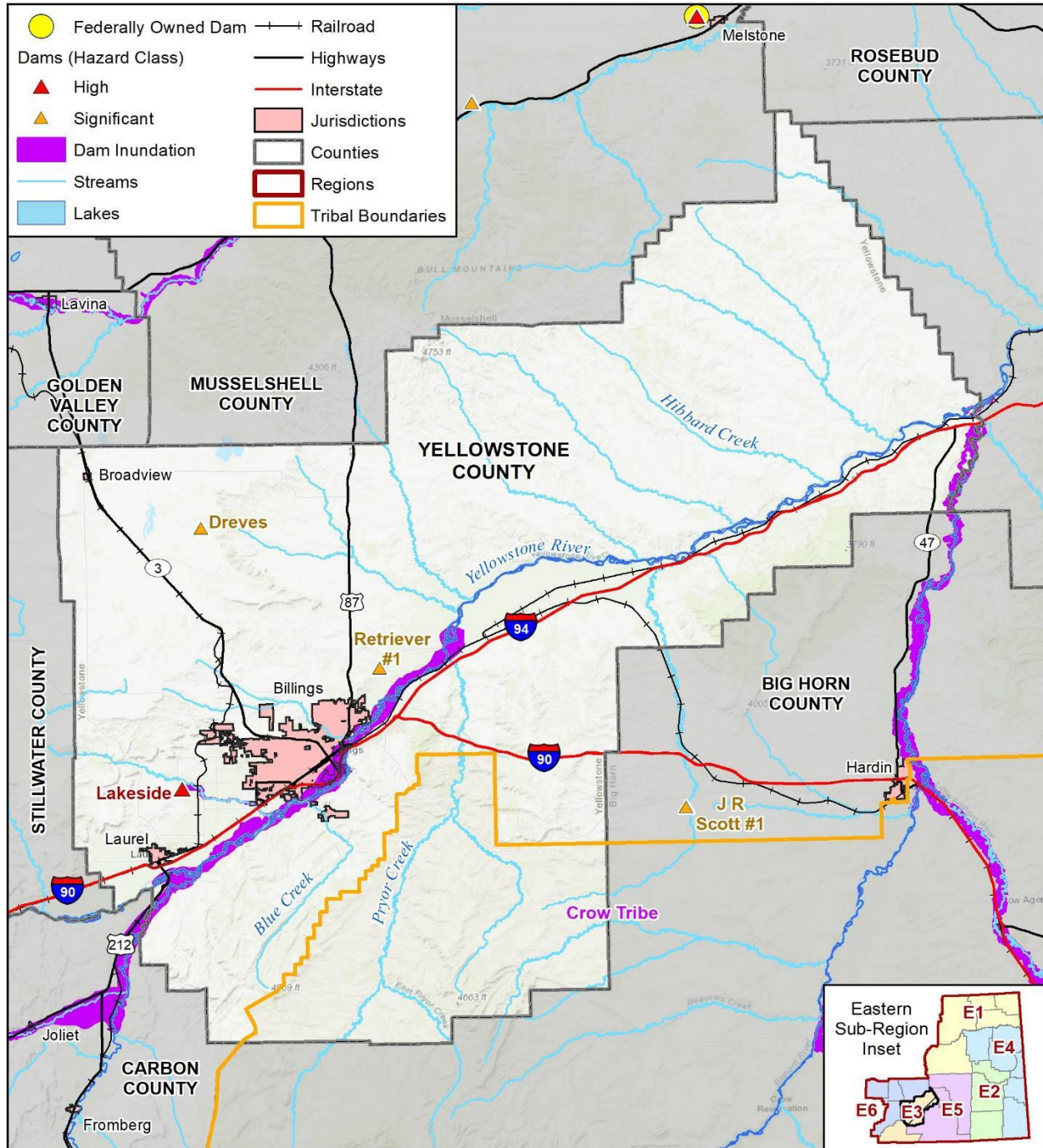
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Table K-11 Yellowstone County Parcels at Risk to Dam Inundation by Property Type

Jurisdiction	Property Type	Improved Parcels	Improved Value	Content Value	Total Value	Population
Billings	Commercial	9	\$2,129,410	\$2,129,410	\$4,258,820	-
	Exempt	41	\$80,771,767	\$80,771,767	\$161,543,534	-
	Industrial	13	\$18,304,530	\$27,456,795	\$45,761,325	-
	Residential	1,306	\$230,399,990	\$115,199,995	\$345,599,985	3,017
	Vacant	4	\$57,290	\$57,290	\$114,580	-
	Total	1,373	\$331,662,987	\$225,615,257	\$557,278,244	3,017
Yellowstone County	Agricultural	35	\$8,934,450	\$8,934,450	\$17,868,900	-
	Commercial	4	\$1,972,630	\$1,972,630	\$3,945,260	-
	Exempt	20	\$59,791,770	\$59,791,770	\$119,583,540	-
	Industrial	7	\$160,264,770	\$240,397,155	\$400,661,925	-
	Residential	1,279	\$183,987,409	\$91,993,705	\$275,981,114	2,954
	Vacant	21	\$176,370	\$176,370	\$352,740	-
	Total	1,366	\$415,127,399	\$403,266,080	\$818,393,479	2,954
	Grand Total	2,739	\$746,790,386	\$628,881,337	\$1,375,671,723	5,971

Source: County Assessor data, NID, MT DNRC, WSP GIS Analysis

Figure K-8 Yellowstone County Dam Inundation



Map compiled 12/2022;
intended for planning purposes only.
Data Source: Montana State Library, NID,
MT DNRC Dam Safety Program

0 15 30 Miles



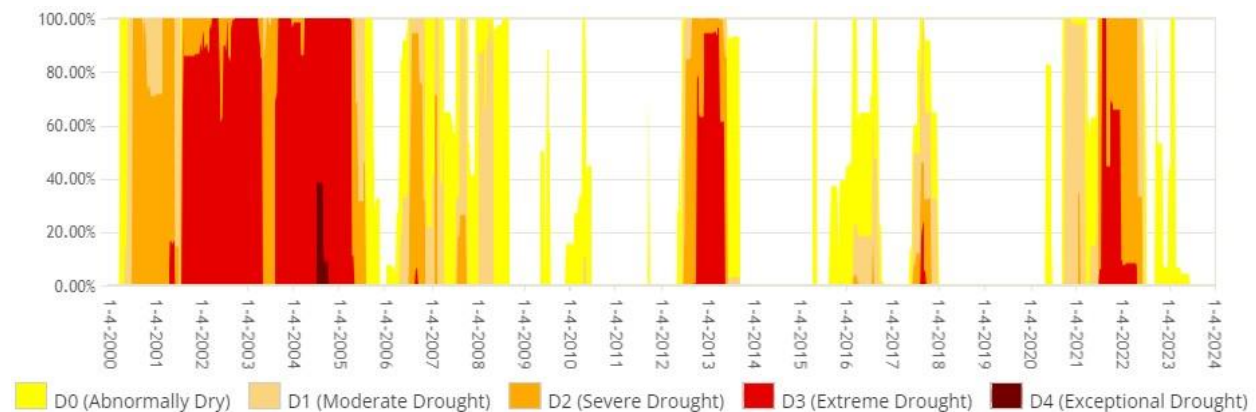
K.4.5 Drought

Drought was rated as a hazard of high significance hazard in Yellowstone County and all three participating jurisdictions (Table K-5). Yellowstone County experienced 12 USDA drought declarations from 2012-2021. These declarations occurred in 2012, 2013, 2016, 2017, 2019, 2020, and 2021. Per the Billings Chamber of Commerce, “The major crops grown in Yellowstone County are alfalfa, wheat, barley, corn, and sugar beets. Alfalfa and other hay grown in the area is predominantly raised and saved to feed livestock during the colder months.”⁴ The Drought Impact Reporter recorded 16 drought impact reports in Yellowstone County between 2000-2023, including, low hay reserves and slowing alfalfa growth.^{5,6}

The U.S. Drought Monitor (USDM) is a national data set released weekly, showing the severity of drought in locations across the nation. Figure K-9 displays a time series showing the severity of drought in Yellowstone County between 2000 and 2023. The figure indicates that the County experienced exceptional drought (D4) in 2004. The HMPC and CPT noted that the Governor’s Drought and Water Supply Advisory Committee meets monthly to share water supply and moisture conditions to effectively manage natural resources and support constituents most likely to be affected by drought. Refer to Chapter 4 for a discussion of the drought risk relative to Yellowstone County and the Eastern Region.

Chapter 4 of the base plan provides a discussion of the drought risk relative to Yellowstone County and the Eastern Region. In particular, all assets are exposed to drought, but assets are variably impacted by drought. In the case of Yellowstone County and its jurisdictions, dry-land agriculture is especially vulnerable. In terms of financial impact to agriculture, Yellowstone County is not among the most impacted counties in the Eastern Region (Figure 4-22), though the County does have an expected annual loss rating of relatively moderate from the NRI (Figure 4-23). As is the case across the Eastern Region, climate change is projected to cause a moderate increase in drought frequency in coming decades (see the base plan, Section 4.2.5, subsection *Climate Change Considerations*).

Figure K-9 Yellowstone County Percent Area in USDM Categories



Source: USDM; www.drought.gov

K.4.6 Earthquake

Earthquake is rated as low significance hazard in Yellowstone County overall, though all three participating jurisdictions within the County rated it as a medium significance hazard (Table K-5).

⁴ <https://www.billingschamber.com/business-advocacy/agriculture/>

⁵ <https://www.ktvq.com/news/local-news/montana-growers-navigating-hay-shortage-during-drought>

⁶ https://unldroughtcenter.maps.arcgis.com/apps/dashboards/46afe627bb60422f85944d70069c09cf_

There are several known fault systems throughout the State of Montana, mostly concentrated in the Western Region (Figure 4-24). The probability of exposure to earthquake hazards, however, is not uniform across the state. Most, but not all, earthquake epicenters are well west of the Eastern Region and Yellowstone County and Yellowstone County is roughly on the edge of the area identified by USGS as having a slightly elevated earthquake risk on the Long-Term National Seismic Map (Figure 4-27).

In terms of susceptibility to earthquake damage, Yellowstone County has a few key concerns. First, most parts of Yellowstone County have soils with an insignificant risk of liquefaction. However, liquefaction risk is elevated and even moderate in river valleys, where most development has occurred (Figure 4-25). Second, Yellowstone County is physically closer to seismically active areas than most counties in the Eastern Region (Figure 4-24). Third, Yellowstone County has relatively well-developed cities, especially Billings but also Broadview and Laurel. Taken together, Yellowstone County is near enough to seismically active areas to experience harmful ground shaking, has soils that could magnify the impacts of shaking on buildings, and has many structures that would be exposed to ground shaking hazards in the event of a major earthquake.

According to a Hazus probabilistic loss analysis conducted for a scenario with 2% in 50 years recurrence, The probabilistic scenario estimated Yellowstone County will experience the highest total economic losses in the Eastern Region of any county in the Eastern Region. Hazus-simulated economic losses in Yellowstone County were \$71,054,000, which is over half of all losses in the Eastern Region and more than double the next-most impacted county (Table 4-24). While all jurisdictions in the County have adopted building codes, the City of Billings and City of Laurel are likely to experience greatest losses due to the concentration of population and infrastructure and therefore have higher risk ratings. Older and historic buildings, constructed before adoption of building codes, are more vulnerable to earthquake shaking.

Chapter 4 provides a further discussion of the earthquake risk relative to Yellowstone County and the Eastern Region.

K.4.7 Flooding

Flooding is rated as a high significance hazard in Yellowstone County and all three participating jurisdictions (Table K-5).

Table K-12 below summarizes the building counts and improved value of parcels in the County that fall within the 1% chance floodplains. A total of 1,830 people reside within the 1% chance floodplain in Yellowstone County, approximately 1% of the total County population. Of these people, 6% (111) live in Billings and 360 (~20%) live in Laurel.

Additionally, Table K-12 summarizes loss estimate values, which are calculated based upon the improved value of parcels that fall within the 1% chance floodplain, and estimated contents value and assumes a two-foot-deep flood which usually results in losses equal to 25% of the total value, based on FEMA depth-damage curves. NFHL flood data was used to perform this analysis.

For context, Yellowstone County as a whole has the second greatest total value within the 1% annual chance flood zone and the second greatest estimated loss of any county in the Eastern Region, behind only Custer County (Table 4-31 in the base plan). The greatest liability in terms of flood damage is to residential property. Residential parcels make up 87% of the parcels and 65% of the total value within the 1% annual chance flood zone in Yellowstone County, Billings, Laurel, and the Crow Indian Reservation (Table K-12). Nearly 1,800 people reside in the 1% annual chance floodplain, the majority within the unincorporated area and Laurel.

The SoVI-based rating of social vulnerability is *relatively low* in Yellowstone County (Section K.2.4 *Social Vulnerability*). Regardless of how Yellowstone County rates in social vulnerability, severe floods can be devastating events that are difficult to recover from both financially and emotionally. Floods may result in

injuries or fatalities in situations with limited warning or when evacuation orders are not adhered to.

Confirming the high vulnerability to flood hazards, Yellowstone County has experienced the highest historical National Flood Insurance Program (NFIP) dollars paid of any county in the Eastern Region (see Table 4-27 in the Base Plan, section *National Flood Insurance Program Policy Analysis*).

Table K-12 Yellowstone County Parcels at Risk to 1% Flood Hazard by Jurisdiction

Jurisdiction	Property Type	Improved Parcels	Improved Value	Content Value	Total Value	Estimated Loss	Population
Billings	Commercial	1	\$57,920	\$57,920	\$115,840	\$28,960	-
	Exempt	5	\$10,596,740	\$10,596,740	\$21,193,480	\$5,298,370	-
	Residential	48	\$12,421,652	\$6,210,826	\$18,632,478	\$4,658,120	111
Crow Tribe	Agricultural	1	\$59,260	\$59,260	\$118,520	\$29,630	-
	Exempt	1	\$160,640	\$160,640	\$321,280	\$80,320	-
Laurel	Commercial	3	\$447,840	\$447,840	\$895,680	\$223,920	-
	Exempt	1	\$178,540	\$178,540	\$357,080	\$89,270	-
	Residential	156	\$4,546,671	\$2,273,336	\$6,820,007	\$1,705,002	360
Yellowstone County	Agricultural	94	\$19,337,510	\$19,337,510	\$38,675,020	\$9,668,755	-
	Commercial	1	\$68,070	\$68,070	\$136,140	\$34,035	-
	Exempt	5	\$1,579,000	\$1,579,000	\$3,158,000	\$789,500	-
	Industrial	4	\$13,960,030	\$20,940,045	\$34,900,075	\$8,725,019	-
	Residential	588	\$104,865,256	\$52,432,628	\$157,297,884	\$39,324,471	1,358
	Vacant	7	\$49,340	\$49,340	\$98,680	\$24,670	-
	Total	915	\$168,328,469	\$114,391,695	\$282,720,164	\$70,680,041	1,830

NOTE – A portion of the Crow Tribe is located in Yellowstone County, although predominantly located in Big Horn County. Sources: DNRC, Hazus, FEMA NFHL

Yellowstone County has a total of 71 critical facilities located in the 1% annual chance floodplain. 55 are transportation lifelines, six are communication facilities, five are energy facilities, two are food, water and shelter and one is Safety and Security facilities. This is shown in Table K-13. Floodplain hazard areas are shown in Figure K-10 through Figure K-13.

Table K-13 Critical Facilities at Risk to 1% Annual Chance Flood Hazards by FEMA Lifeline

Jurisdiction	Communications	Energy	Food, Water, Shelter	Hazardous Materials	Health & Medical	Safety and Security	Transportation	Total
Billings	2	-	-	-	-	-	8	10
Laurel	1	-	-	-	-	-	-	1
Yellowstone County	3	5	2	2	-	1	47	60
Total	6	5	2	2	0	1	55	71

National Flood Insurance Program

The NFIP aims to reduce the impact of flooding on private and public structures by providing affordable insurance to property owners and by encouraging communities to adopt and enforce floodplain management regulations. These efforts help mitigate the effects of flooding on new and improved structures. The State has analyzed NFIP flood-loss data to determine areas of Montana's Eastern Region with the greatest flood risk. Montana's Eastern Region flood-loss information was obtained from FEMA's "Montana's Coverage Claims" for Montana's Eastern Region, which documents losses from 1978. This section was updated based on information obtained from FEMA's PIVOT database through Montana Department of Natural Resources and Conservation (MT DNRC) dated August 10, 2022.

There are several limitations to analyzing flood risk entirely on this data, including:

- Only losses to participating NFIP communities are represented;
- Communities joined the NFIP at various times since 1978;
- The number of flood insurance policies in effect may not include all structures at risk to flooding; and
- Some of the historical loss areas have been mitigated with property buyouts.

Yellowstone County has a total of \$76,606,000 in NFIP coverage, with 263 total flood claims, and 275 current policies in place. It also had the highest amount of dollars paid out due to flood claims with \$1,814,878 dollars paid out. NFIP data and statistics for Yellowstone County is summarized in Table K-14.

Table K-14 Yellowstone County NFIP Statistics

County	Date Joined	Effective Firm Date	Dollars Paid (Historical)	Flood Claims	Current Policies	Coverage (\$)
Yellowstone	11/18/1981	11/6/2013	\$1,814,878.16	263	275	\$76,606,000

Source: FEMA Pivot NFIP Data as of August 10th, 2022; FEMA Community Status Book Report

Repetitive Loss

Repetitive losses are NFIP-insured structures that have had at least two paid flood losses of more than \$1,000 each in any ten-year period since 1978. Yellowstone County has a total of 21 repetitive loss properties as of 2022. Ten of these structures are in Billings, four are in Laurel, two are in Worden, and the remaining five are in the unincorporated County.

Severe Repetitive Loss (SRL) properties have either four or more separate claims for flood damage (with each claim exceeding \$5,000 and with the sum of all payments exceeding \$20,000,) or two or more separate claims where the total of all claims exceeds the value of the property. Yellowstone County has no SRL properties.

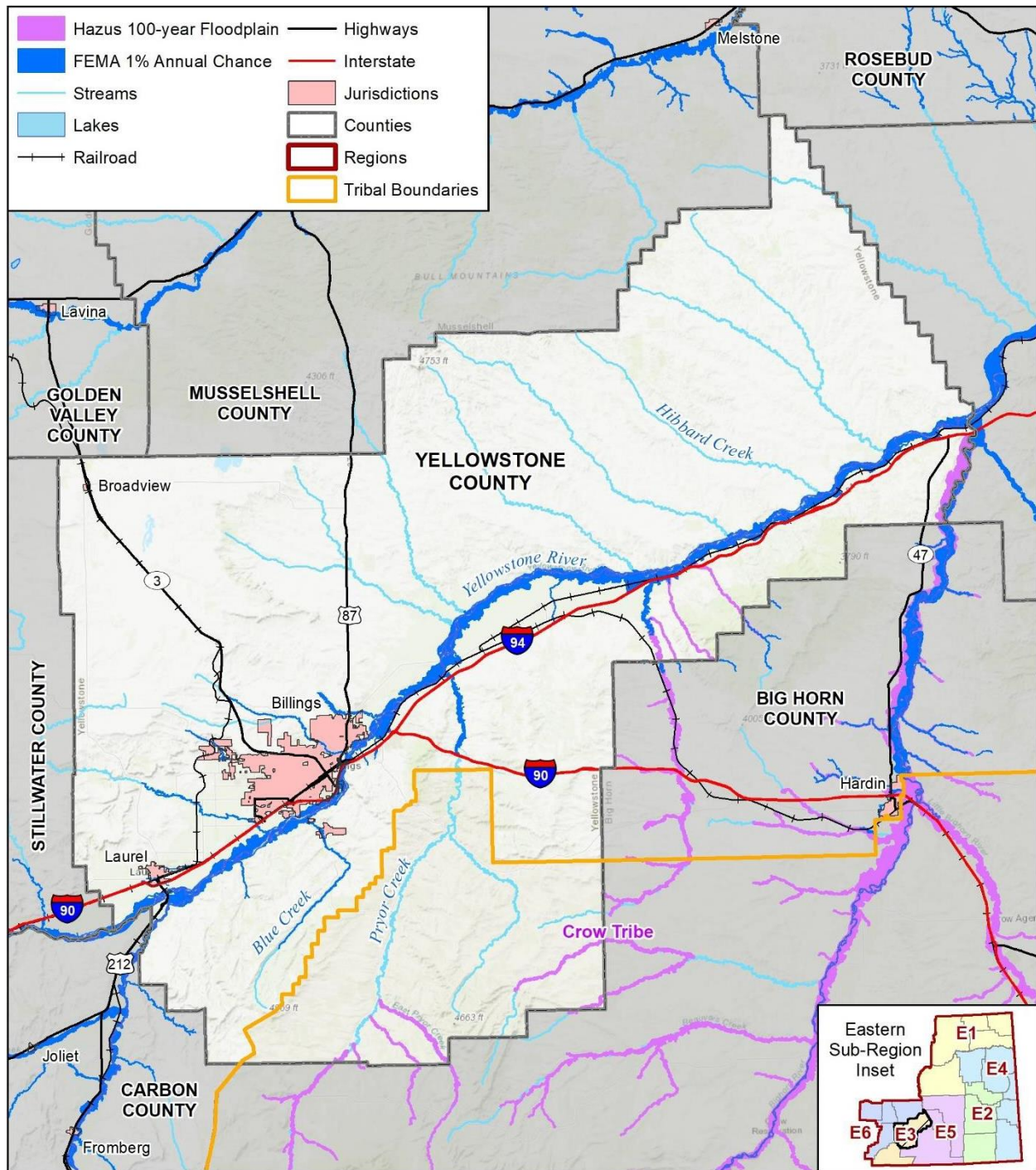
Table K-15 below lists that Yellowstone County has 21 repetitive loss structures, 53 repetitive loss claims and \$747,592.02 in funding paid.

Table K-15 Repetitive Loss Properties in Yellowstone County

County	Repetitive Loss Structures per County	Repetitive Loss Claims	Structure Type Single - Family	Structure Type – Multi-Family	Structure Type – Business/ Non-Residential	Total Paid Out
Yellowstone County	21	53	19	-	2	\$747,592.02

Source: FEMA Region VIII as of 9/10/2022.

Figure K-10 Yellowstone County Flood Hazard and Structures



Map compiled 12/2022;
intended for planning purposes only.
Data Source: Montana State Library,
DNRC, FEMA, Hazus

0 15 30 Miles



Figure K-11 City of Billings Flood Hazard and Structures

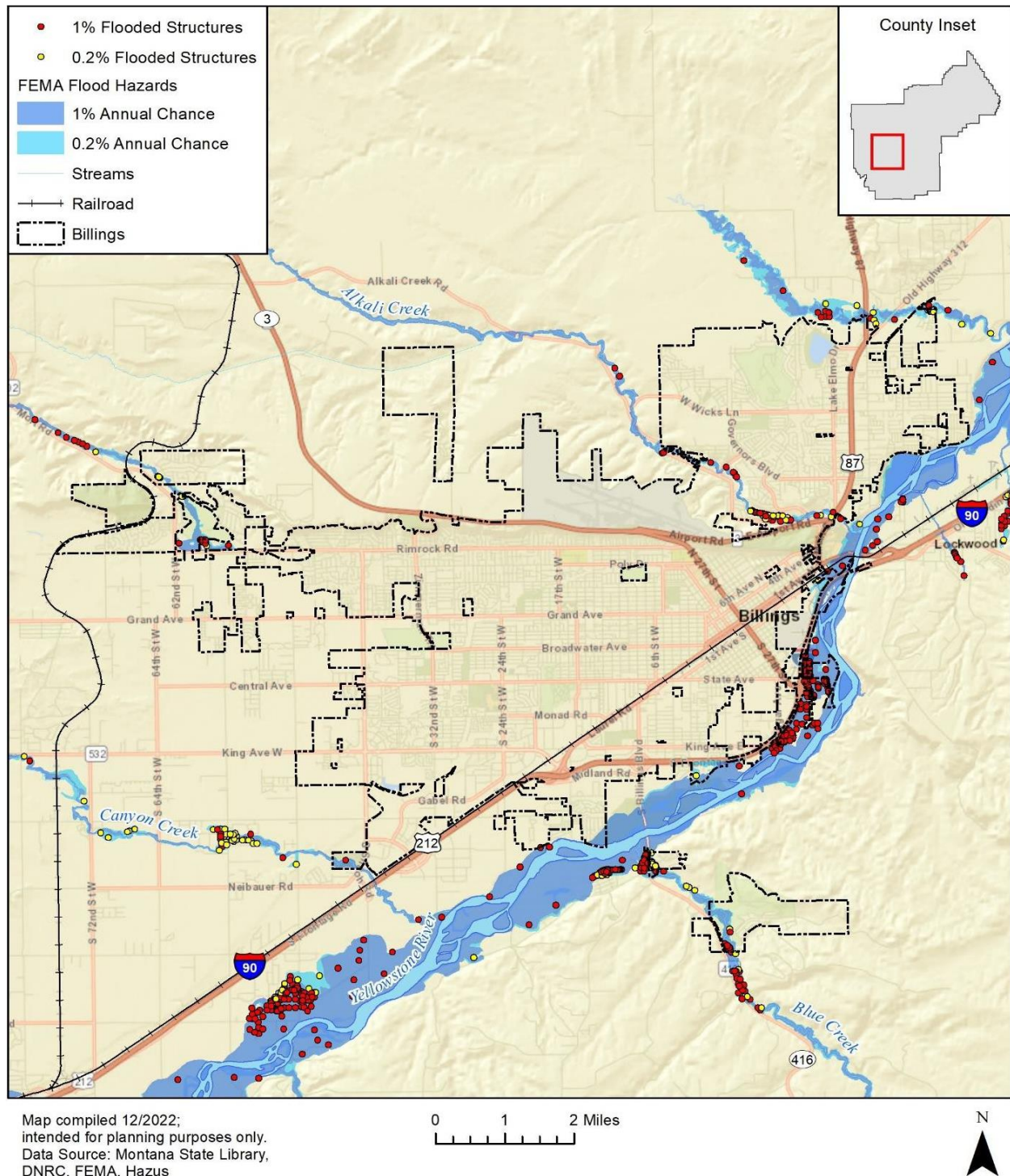


Figure K-12 Town of Broadview Flood Hazard and Structures



Figure K-13 City of Laurel Flood Hazard and Structures

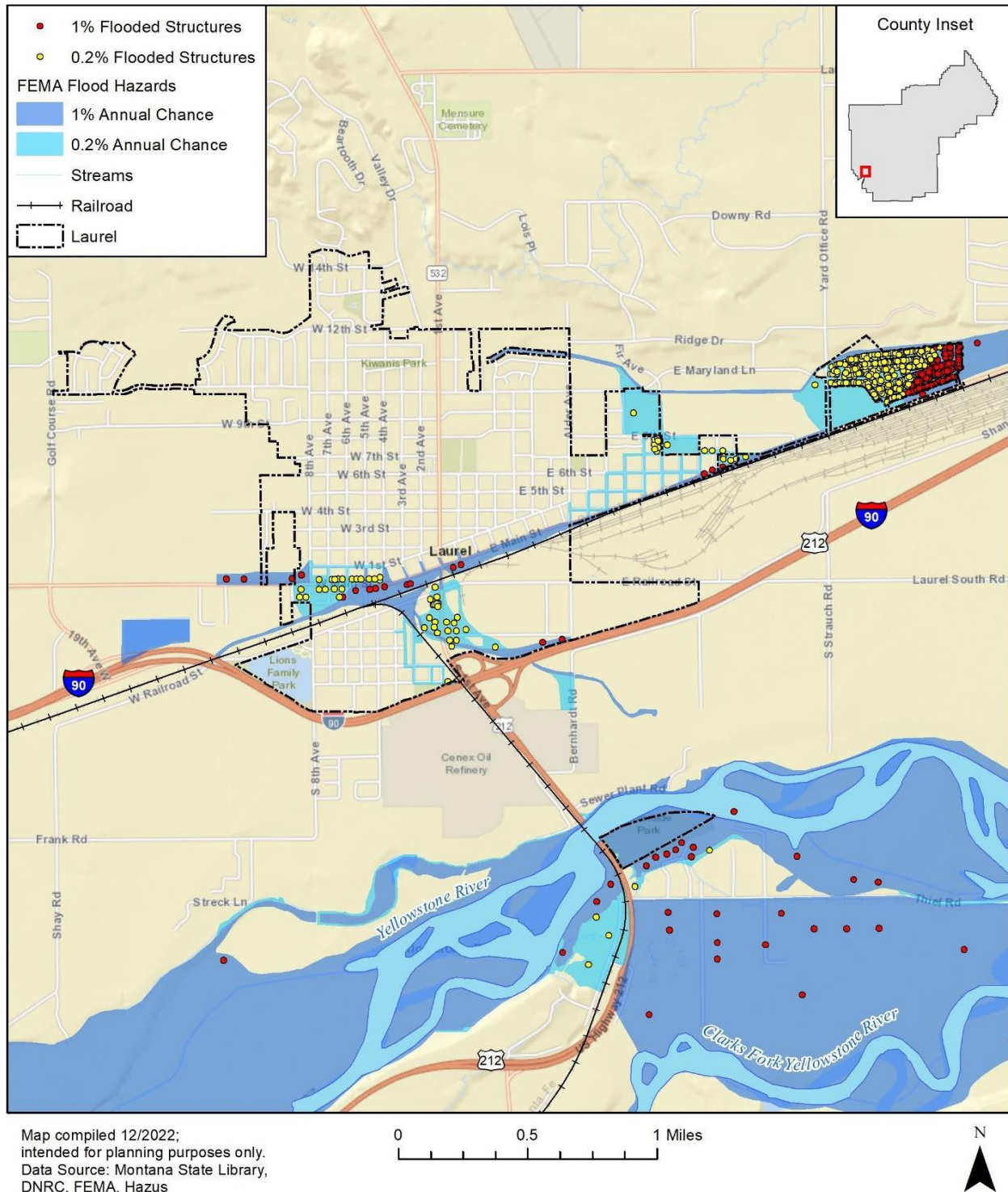
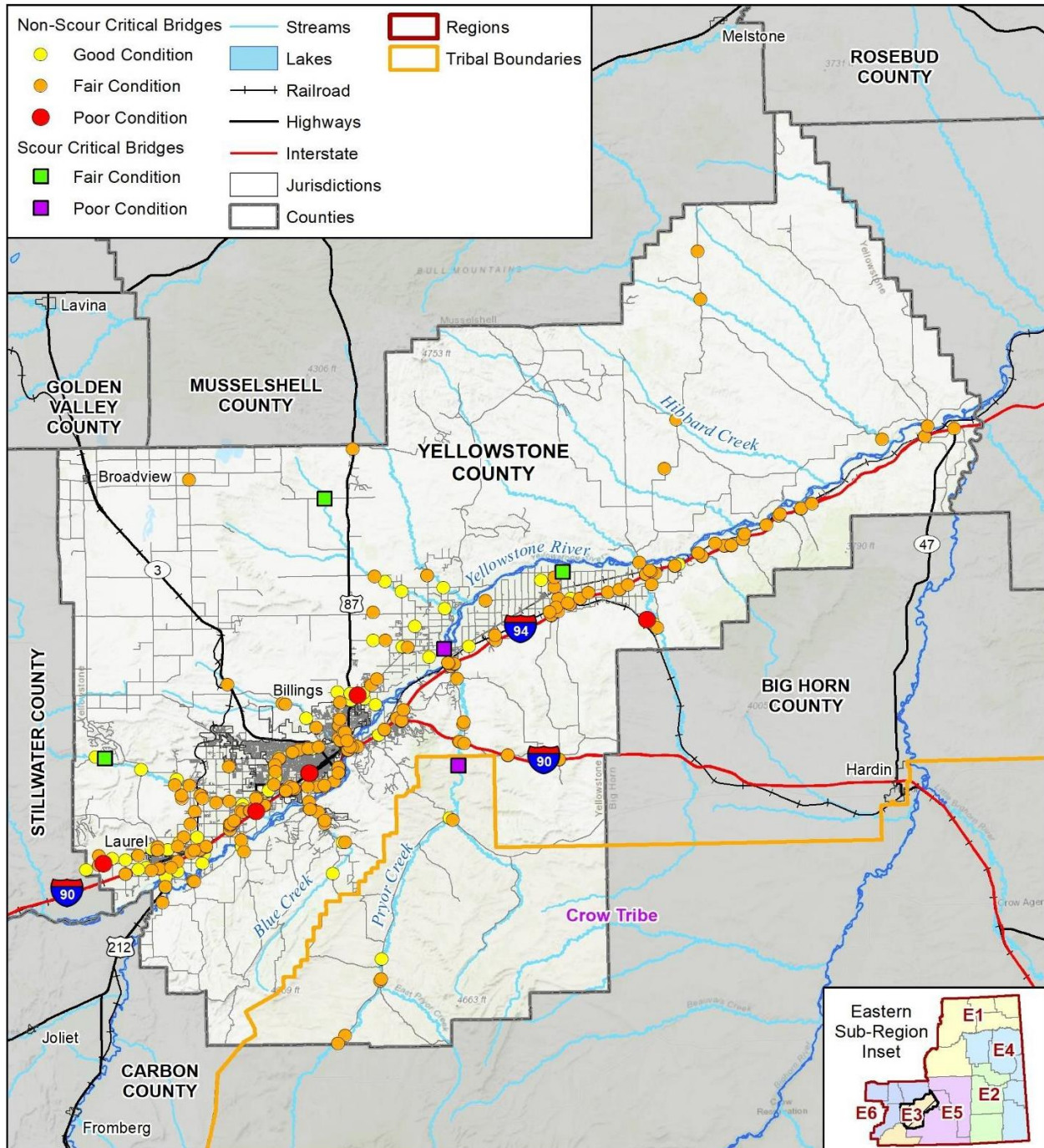


Figure K-14 below displays the location of bridges in Yellowstone County and their condition. Refer to Chapter 4 of the base plan for a discussion of the flood risk relative to Yellowstone County and the Eastern Region.

Figure K-14 Yellowstone County Bridges



Map compiled 12/2022;
intended for planning purposes only.
Data Source: Montana State Library,
National Bridge Inventory

0 15 30 Miles



K.4.8 Hazardous Materials Incident

Hazardous Materials Incidents are ranked as a high overall significance hazard for Yellowstone County. Yellowstone County has 11 Risk Management Program (RMP) facilities, and according to the National Response Center (NRC), there were 621 reported hazardous material incidents in the County since 1990, the greatest number in the Eastern Region. Yellowstone County also has gas transmission pipelines present, which travel through the communities of Billings and Laurel, as well as the unincorporated County. Hazardous liquid pipelines also traverse the County, going through Lockwood and Billings, as well as the unincorporated County. Many major transportation routes also cross Yellowstone County, including US Interstates 90 and 94, US Highways 87, 212, and 310, and Montana State Highways 3 and 47. These transportation routes are likely locations for future occurrences of hazardous material incidents in transit.

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

K.4.9 Landslide

Landslide is rated as a low significance hazard in Yellowstone County and all three participating jurisdictions (Table K-5).

Section 4.2.9 *Landslide* provides an analysis of the landslide hazard in the Eastern Region. Yellowstone County has an unusually high exposure to landslide hazards relative to the typically-very low exposure in most parts of the Eastern Region (Figure 4-40, 4-41). Yellowstone is one of two counties in the Eastern Region recognized as having an elevated landslide frequency (Figure 4-42). Nevertheless, the NRI rates Yellowstone County as having a relatively low risk index rating and a relatively moderate expected annual loss rating (Figure 4-43 and 4-44).

Unincorporated areas in the southwest of the County greater relief may be more likely to experience landslides. The probability of landslide is greater in spring. The greatest area of concern is in the Billings area below the Rimrocks, a geological rimrock sandstone formation, also called the Rims. Table K-16 lists landslide events in Yellowstone County that were recorded by the United States Geological Survey (USGS) or included in the 2019 Yellowstone County HMP. Although certain events are documented by both sources, it's important to note that no single database comprehensively captures the entire history of landslide events, therefore this is an inexhaustive list.

If landslide hazards occur, some assets are susceptible to damage, following a similar pattern as is discussed for each class of asset in Section 4.2.9, subsection titled *Vulnerability Assessment*.

According to the CPT, Yellowstone County has spent hundreds of thousands of dollars in mitigation, repair, and response to landslide and rockfall events over the last few years. The County CPT says a landslide occurring to the Billings Bench Water Association (BBWA) ditch is one of the most eminent and dangerous threats currently facing the County. Such an event could lead to a breach of the BBWA ditch, which would cause major flooding to the downtown area.

For more information refer to Chapter 4 for a discussion of the landslide risk relative to Yellowstone County and the Eastern Region.

Table K-16 Recorded Landslide Events in Yellowstone County

Date	Event Summary
October 9, 2010*	No one was hurt when a huge boulder crashed through the back of a house at 1313 Granite Ave. in Billings. A wet spot just below the top of the rimrocks showed where a large slab of sandstone fell off the side of the Rims. It broke into dozens of pieces when it hit the earth below, and the largest piece slammed through the back of a wooden house. The rock fall caused a noise described as thunder or an explosion and the dust cloud was larger than the Rims.
May 12, 2014*	Two rock falls during March led to the closure of Zimmerman Park. The park was closed for approximately two months until a stabilization project was completed, and the city road crew repaired the guardrail and damaged pavement. The MT Dept. of Transportation paid a contractor over \$700,000 for a rock removal and stabilization project at six locations along Zimmerman Trail. Rockslide areas were also identified at Swords Park and several hundred tons of rock were removed to mitigate rocks from falling onto Sixth Avenue North.
May 18, 2016*^	Phipps Park, on Molt Road west of Billings, was forced to close after a rockslide. A park user witnessed the rockslide and said a large portion of the rock just separated from the rimrock. A geotechnical survey was done of the area and existing trails in the rock fall zone were re-routed.
May 31, 2017^	A rockfall incident of medium scale, with an unknown trigger, originated from the Rimrocks in northern Billings, causing a significant rockslide in the area. Massive boulders were thrown through a residential structure, resulting in substantial damage.
June 26, 2018*^	A resident was lying in bed when she heard the roaring noise of about 150 yards of sandstone cliff face breaking free from the rimrocks and rolling towards her house below. The rockslide smashed through her garage on the 220 block of Mountain View Boulevard and covered roughly 75 yards of road below the Rims with rocks and debris. No one was injured.
August 15, 2018^	Massive boulders, comparable in size to an all-terrain vehicle and the cab of a semi-truck, detached from the Rims. These sizable pieces of sandstone were propelled through a residence in Billings, with one boulder finding its resting place inside what appeared to be the living room area. The family was not injured in the incident and no gas lines were damaged.

Source: * – 2019 Yellowstone County Hazard Mitigation Plan; ^ – USGS Landslide Inventory, <https://www.usgs.gov/tools/us-landslide-inventory>

K.4.10 Severe Summer Weather

Severe summer weather is rated as a high significance hazard in Yellowstone County and all three participating jurisdictions (Table K-5).

The impact of summer weather hazards in Yellowstone County is variable but by far most significant for hail. According to the National Centers for Environmental Information (NCEI) Storm Events Database, Yellowstone County experienced the second greatest number of total severe summer weather events in Eastern Region, including 447 hail events, 5 heavy rain and 4 lightning events.⁷ Property losses from severe summer weather in Yellowstone County totaled to \$14,085,500 from 1955 to 2022 (44.5% of total losses in the Eastern Region), mainly due to hail events. Yellowstone County also experienced \$2,500,000 in total crop losses from severe summer weather during the same time period (7.8% of total crop losses in the Eastern Region).

⁷ The NCEI Database records tornado events from January 1950 to present; tornado, thunderstorm wind, and hail from January 1955 to present and all other hazard events from January 1996 to present.

All assets located outdoors are exposed to hail, extreme heat, and heavy rain. Lightning typically strikes the highest objects in an area but can cause hazardous power surges that extend much further. Lightning strikes can also start fires. The secondary effects of fire are discussed in the section below titled *Wildfire*. The greatest property losses are likely to occur in the City of Billings, where people and infrastructure are concentrated. Refer to Chapter 4 for a discussion of the severe summer weather risk relative to Yellowstone County and the Eastern Region.

K.4.11 Severe Winter Weather

Severe winter weather is rated as a high significance hazard in Yellowstone County and all three participating jurisdictions (Table K-5).

Section 4.2.11 *Severe Winter Weather* in the Eastern Region base plan provides an analysis of these hazards in the region and relative to Yellowstone County. The main hazards of concern are blizzard, cold, heavy snow, ice storms, winter storms and winter weather, defined in Section 4.2.11. From that analysis, all assets located outdoors are exposed to these hazards and indoor plumbing is an additional concern for cold. Many assets in Yellowstone County are susceptible to damage from severe winter weather, following the pattern described in Section 4.2.11, subsection *Vulnerability Assessment*.

Yellowstone County experienced the tenth greatest number of NCEI recorded severe winter weather events in the Eastern Region and the NRI rated Yellowstone County as “relatively low” risk index rating for winter weather.

The NCEI Storm Events Database recorded a total of \$14,000 in property losses due to severe winter events in Yellowstone County from 1996 to (<1% of total recorded losses in the Eastern Region). However, the Storm Events Database uses data from the National Weather Service (NWS) for historical and current events, so any property loss data that was not reported to NWS will not be represented. The USDA recorded over \$4 million in crop losses in Yellowstone from cold winter weather, freeze, and frost, between 2007 and 2021.

Portions of the population are particularly susceptible to winter hazards. These populations include those who are houseless or who work outside. Susceptibility of agriculture operations is also a significant concern. Further analysis of winter weather impacts, including NRI ratings, is provided in Section 4.2.11 *Severe Winter Weather*.

K.4.12 Human Conflict

Human conflict is ranked as an overall high significance for Yellowstone County. Only one of the seven reported terrorist attacks in Montana occurred in the Eastern Region, a 1970 event that targeted police in Billings. Additionally, Billings experienced more than half of the total civil unrest incidents in the Region recorded by Count Love, while Laurel had one documented civil unrest incident.⁸ 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 human conflict risk relative to Yellowstone County and the Eastern Region.

K.4.13 Tornadoes & Windstorms

Tornadoes and windstorms are rated as a high significance hazard in Yellowstone County and all three participating jurisdictions (Table K-5).

Chapter 4 of the base plan, specifically Section 4.2.13 *Tornadoes & Windstorms*, provides an analysis of

⁸ Count Love recorded public displays of protests between January 20, 2017, and January 31, 2021, that were not a part of “regular business;” they did not include awareness events, townhalls, or political campaign rallies. <https://countlove.org/faq.html>

this hazard relative to Yellowstone County and the Eastern Region. From that analysis, all assets are exposed to tornadoes and windstorms. According to the NCEI Storm Events Database, Yellowstone County experienced the sixth greatest number of high wind and strong wind events in the Eastern Region, with 72 total events between January 1996 and December 2022. Additionally, Yellowstone County experienced the second greatest number of thunderstorm wind events (between January 1996 and January 2022) and tornado events (between January 1950 and December 2022), with a combined 321 events.

Many assets in Yellowstone County are susceptible to damage from tornadoes and windstorms, following the pattern described in Section 4.2.13, subsection *Vulnerability Assessment*. Most significantly for Yellowstone County, Mobile homes, which are disproportionately susceptible to tornado and windstorm events, comprise 7.3% of total housing in Yellowstone County.

Yellowstone County experienced the fifth greatest losses recorded by the NCEI Storm Events Database from thunderstorm wind events in the Eastern Region, with over \$3.2 million in recorded property and crop damages, two deaths and three injuries. Yellowstone County also experienced the greatest losses from tornado events in the Eastern Region, with \$32.58 million in recorded property and crop damages, together with three injuries.

K.4.14 Transportation Accidents

Transportation accidents are an overall high significance hazard for Yellowstone County. Yellowstone County has reported by far the greatest number of roadway crashes in the Eastern Region, with 16,475 crashes between 2016 and 2020. On average, this equates to 3,295 reported crashes annually.

While transportation accidents can occur along any type of transportation route in the County and the Region, a greater frequency of accidents occur along heavily traveled roadways, such as US Interstate 90 (I-90), which traverses the County, intercepting the Cities of Billings and Laurel, and Montana State Highway 3, which connects Billings to Great Falls, intercepting the Town of Broadview. Due to the presence of these roadways, along with the significant tourism volume, and the much higher population density than much of the Region, there is a high likelihood that this hazard will continue to occur at generally higher frequencies than most other counties in the Region.

Refer to Chapter 4 for a discussion of the transportation accident risk relative to Yellowstone County and the Eastern Region.

K.4.15 Volcanic Ash

All counties in the Eastern Region and all jurisdictions within Yellowstone County ranked volcanic ash as a low significance hazard.

Chapter 4, specifically Section 4.2.15 *Volcanic Ash*, provides an analysis of this hazard relative to Yellowstone County and the Eastern Region. The frequency and extent of volcanic ashfall is likely to be consistent across the Eastern Region and is discussed in Section 4.2.15, subsections *Past Occurrences* and *Frequency/Likelihood of Occurrence*. All assets are potentially exposed to volcanic ash. Even assets located indoors are exposed when ash penetrates the ventilation system of buildings. Many assets in Yellowstone County are susceptible to damage from volcanic ash, following the pattern described in Section 4.2.15, subsection *Vulnerability Assessment*.

K.4.16 Wildfire

Wildfire is rated as a high significance hazard in Yellowstone County and all three participating jurisdictions (Table K-5).

Wildfire hazards in the Eastern Region and Yellowstone County are evaluated in the base plan, Section 4.2.16 *Wildfire*. Many assets in Yellowstone County are susceptible to damage from wildfire, following the pattern described in Section 4.2.13, subsection *Vulnerability Assessment*. The analysis below compliments the base plan and provides greater detail relevant to Yellowstone County, the City of Billings, City of Laurel, and the Town of Broadview.

Yellowstone County has been included in seven federal disaster declarations for wildfire, including two declarations in 2020 and one in 2021. These fires, the Bobcat Fire (2020), the Falling Star Fire (2020), and the Buffalo Fire (2021), resulted in evacuations, tens of thousands of burned acres, and minimal damage to structures, but no deaths or injuries. The CPT did not single out any wildfire events in the past five years.

Billings is the largest city in the State, and Yellowstone County is the most populous county. This high population density lends itself to high numbers of individuals living in fire risk areas. Yellowstone County has by far the greatest number of individuals in the Eastern Region in wildfire risk areas, with over 85% of the population (about 140,000 people) living in a fire risk area, representing 60% of all Eastern Region residents who live in fire risk areas (Table K-17). All participating jurisdictions exist in very high and extreme fire risk zones.

The SoVI-based rating of social vulnerability is *relatively low* in Yellowstone County (Section K.2.4 *Social Vulnerability*). Regardless of how Yellowstone County rates in social vulnerability, wildfires can be devastating events that are difficult to recover from both financially and emotionally. Wildfires may result in injuries or fatalities in situations with limited warning or when evacuation orders are not adhered to.

Table K-17 summarizes the estimated exposed value of improvements in each wildfire risk category. Based on this analysis, roughly 116,702 improved parcels are exposed to low/medium or higher wildfire risk, totaling about \$39.0 billion in improved building and content value. This represents 99.9% 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 K-17 Yellowstone 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	Billings	14,533	\$3,424,387,681	\$1,796,724,678	\$5,221,112,359	33,135
	Broadview	70	\$7,021,957	\$4,186,749	\$11,208,706	143
	Crow Tribe	8	\$1,253,830	\$997,595	\$2,251,425	17
	Laurel	2,049	\$342,180,182	\$186,038,753	\$528,218,935	4,675
	Yellowstone County	7,447	\$1,321,149,887	\$686,274,747	\$2,007,424,634	16,881
	Total	24,107	\$5,095,993,537	\$2,674,222,521	\$7,770,216,058	54,852
At Risk to Very High Wildfire Hazards	Billings	16,918	\$4,190,610,857	\$2,507,107,422	\$6,697,718,279	38,076
	Broadview	20	\$1,671,139	\$836,960	\$2,508,099	44
	Crow Tribe	54	\$10,038,442	\$7,482,196	\$17,520,638	106
	Laurel	843	\$113,685,217	\$64,472,341	\$178,157,558	1,915
	Yellowstone County	7,104	\$1,835,313,003	\$1,017,511,675	\$2,852,824,678	15,301
	Total	24,939	\$6,151,318,658	\$3,597,410,593	\$9,748,729,251	55,442
At Risk to High Wildfire Hazards	Billings	278	\$305,806,288	\$197,503,398	\$503,309,686	589
	Broadview	-	\$-	\$-	\$-	-
	Crow Tribe	14	\$1,696,300	\$1,689,150	\$3,385,450	4
	Laurel	10	\$8,608,263	\$4,304,132	\$12,912,395	23
	Yellowstone County	498	\$184,415,496	\$148,715,065	\$333,130,561	684
	Total	800	\$500,526,347	\$352,211,744	\$852,738,091	1,300
At Risk to Medium/Low Wildfire Hazards	Billings	11,875	\$3,941,698,363	\$2,343,637,126	\$6,285,335,489	26,346
	Broadview	-	\$-	\$-	\$-	-
	Crow Tribe	35	\$6,480,976	\$5,813,428	\$12,294,404	34
	Laurel	137	\$80,610,328	\$56,246,899	\$136,857,227	266
	Yellowstone County	2,022	\$904,048,783	\$830,152,183	\$1,734,200,966	3,477
	Total	14,069	\$4,932,838,450	\$3,235,849,636	\$8,168,688,086	30,122

NOTE – A portion of the Crow Tribe is located in Yellowstone County, although predominantly located in Big Horn County. Source: MSDI 2022, MWRA

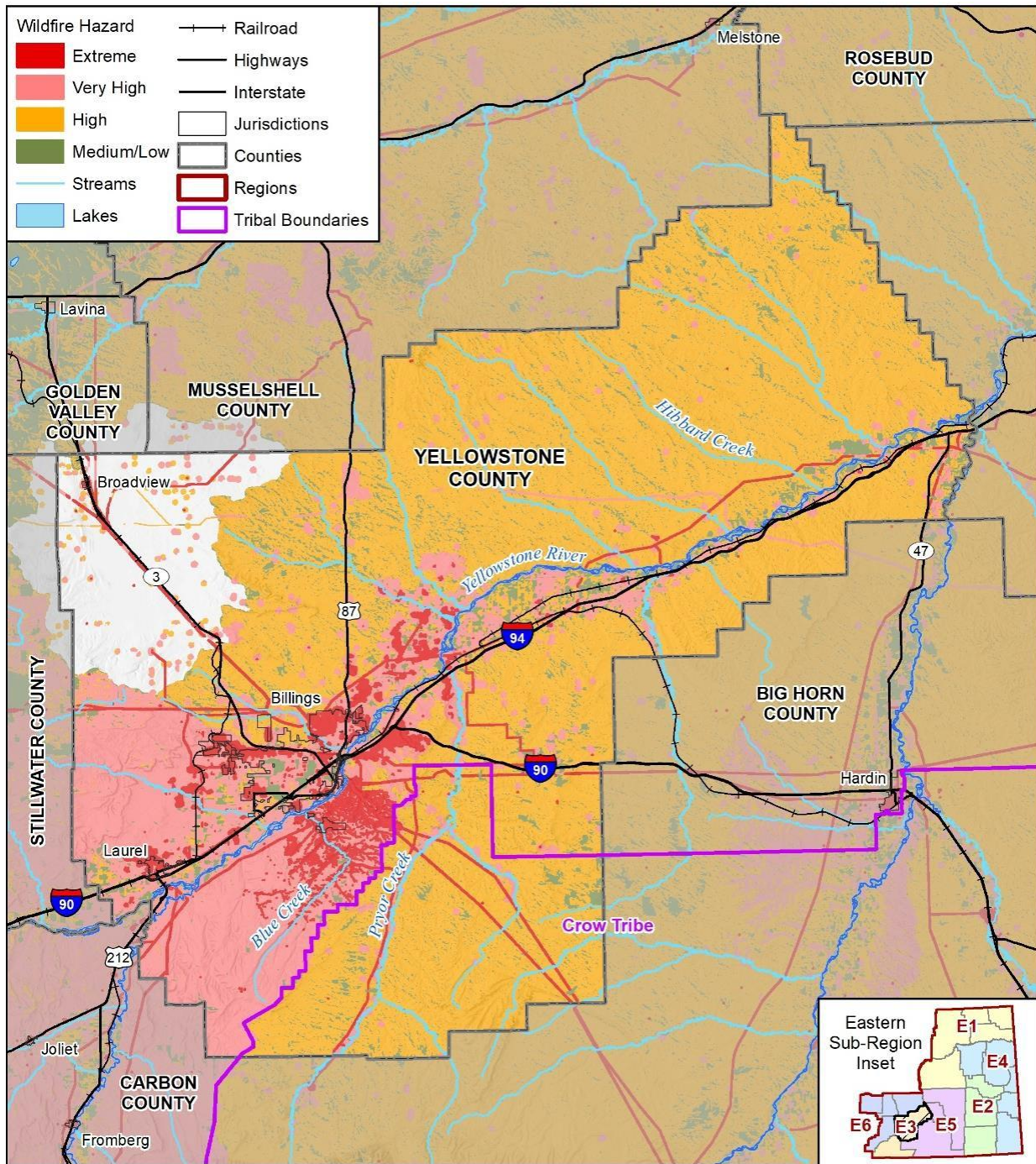
Table K-18 summarizes the potential impact of wildfire on critical facilities and lifelines in Yellowstone County and its associated jurisdictions. The table highlights the type and number of facilities in each jurisdiction in the County in Wildfire risk areas. See Chapter 4 for the methodology of the critical facilities at risk analysis.

Table K-18 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	Billings	10	2	3	-	4	11	7	37
	Broadview	-	-	-	-	1	1	-	2
	Laurel	-	-	5	-	-	2	1	8
	Yellowstone County	98	40	6	2	5	22	31	204
	Total	108	42	14	2	10	36	39	251
At Risk to Very High Wildfire Hazards	Billings	27	-	10	8	2	32	21	100
	Broadview	-	1	-	-	-	-	-	1
	Laurel	1	1	1	-	-	-	-	3
	Yellowstone County	22	16	5	7	-	10	113	173
	Total	50	18	16	15	2	42	134	277
At Risk to High Wildfire Hazards	Billings	3	1	-	3	-	1	5	13
	Yellowstone County	10	-	-	1	1	-	34	46
	Total	13	1	0	4	1	1	39	59
At Risk to Medium/Low Wildfire Hazards	Billings	45	6	24	4	10	62	22	173
	Laurel	3	-	2	-	1	4	-	10
	Yellowstone County	13	11	7	12	2	12	61	118
	Total	61	17	33	16	13	78	83	301

NOTE – A portion of the Crow Tribe is located in Yellowstone County, although predominantly located in Big Horn County. Source: HIFLD 2022, Montana DES, NBI, MWRA

Figure K-15 Yellowstone County Wildfire Hazard



Map compiled 12/2022;
intended for planning purposes only.
Data Source: Montana State Library,
MWRA

Yellowstone County has many efforts in place to protect its residents from the threat of wildfire. The Yellowstone County Fire Protection Services and Rural Fire Council consist of both municipal and volunteer fire departments. Billings and Laurel have municipal fire departments, with seven fire stations in Billings, including Central Headquarters at Fire Station #1. The City of Laurel operates one fire station. Additionally, fire departments are present at key locations such as the Billings-Logan International Airport, Phillips 66, Par Montana, and CHS refineries.

In Yellowstone County, a volunteer fire protection system is established to combat wildfires. This system is divided into several fire districts, each having its own volunteer fire department, including Blue Creek VFD, Broadview VFD, Custer VFD, Fuego VFD, Haley Bench VFD, Lockwood VFD, Molt VFD, Shepherd VFD, and Worden VFD. The Rural Fire Council, comprising these volunteer fire departments, offers advice and information to the Yellowstone Board of County Commissioners concerning fire and life safety services. The council fosters collaboration and communication among its members, enhancing operational efficiency and ensuring community fire protection. Mutual aid agreements have been signed within Yellowstone County and with adjacent counties, as well as state and federal fire control agencies.

Montana's Department of Natural Resources and Conservation (MT DNRC) Forestry Division is responsible for forestry and fire management programs across the state. The Fire and Aviation Management Bureau coordinates resources and leadership to protect lives, property, and natural resources from wildland fires, working closely with local, tribal, state, and federal partners. Montana DNRC focuses on fire preparedness through fire prevention, training, equipment development, and financial support programs. The Bureau of Land Management (BLM) Montana/Dakota District Office is involved in planning activities for public land within Yellowstone County, with an initial attack MOU for BLM or County fires.

The National Fire Prevention Association's (NFPA) FireWise Communities Program promotes safety by engaging homeowners in wildfire risk mitigation. It's a key part of the Fire Adapted Communities approach and is co-sponsored by various federal agencies. The program educates people about living with wildfire and encourages community action to prevent losses and protect lives and property.

K.4.17 Ditch and Drain Failure Hazards

Ditch and drain failure hazards in Yellowstone County, Montana, primarily pertain to the potential dangers associated with the extensive network of ditches and canals in the region. These hazards are typically connected to irrigation canals, drainage, and stormwater management systems and can pose risks to public safety and property. The irrigation facilities were constructed to deliver water to areas far removed from the original water intake. Yellowstone County is intersected by a total of 23 ditches, with 7 of these ditches situated within the boundaries of the City of Billings. Many of the ditches carry irrigation water for agriculture and private lawns and gardens, and parks and provide a valuable function to agricultural operations, residential and commercial outdoor watering, and groundwater recharge. Many of the ditches are open waterways with steep sides; however, there are several miles of culverts and pipes that carry ditch water beneath the City of Billings.

The (BBWA) is the most prominent canal in Billings. It is a gravity-fed canal that is diverted from the Yellowstone River near Laurel. The canal consists of 63 miles of main canal and over 200 laterals, distribution canals, and two storage reservoirs. It runs 20 miles through the City of Billings, somewhat parallel to Poly Drive before disappearing through an 1,800- foot tunnel in the rimrocks and Alkali Creek, then flows north through Billings Heights before discharging into Five Mile Creek. Ninety (90) percent of the farms from the Heights to Shepherd depend on the BBWA for irrigation. The value of the crops along the canal is in the millions of dollars. The BBWA has 1,463 customers and the canal waters the greens of three golf courses and lawns at many adjoining residences. The County also contains several other ditches and canals in the Billings area, such as the Hi-Line Ditch, Big Ditch, and Cove Ditch in West Billings.

Most of the ditches and drains are controlled and maintained through easements and prescriptive rights by private ditch companies, and the City of Billings and Yellowstone County do not have any ownership other than repair and replacement of street culvert crossings. Therefore, to address these ditch hazards and promote public safety, Yellowstone County would need regulations and procedures in place to manage ditches effectively. This could involve regular maintenance, inspections, and the enforcement of guidelines for construction and land use near ditches. According to the 2019 Yellowstone County HMP, there are approximately 112,093 acres in Yellowstone County (6.6 percent) located within ditch and drain failure impact areas. Because ditch and drain failure can greatly impact residences, commercial and industrial buildings, and critical facilities, future residential development along the Yellowstone River Valley in these areas should be minimized to reduce property losses. As noted in Section K.4.10, the County has spent hundreds of thousands of dollars in mitigation, repair, and response to landslide and rockfall events over the last few years. And an active landslide occurring on the BBWA ditch is one of the most eminent threats and contributing factors that may result in the breach of the BBWA ditch, given this hazard would cause major flooding to downtown Billings.

Residents and property owners in the County should be aware of the potential hazards associated with ditches, and they should take measures to ensure their safety, such as avoiding constructing structures in or near ditches, reporting blockages and erosion, and being prepared for potential flooding events. Also, local government and authorities typically work to mitigate these hazards and protect public safety, while also ensuring that the essential functions of the ditches, such as irrigation and drainage, are not compromised.

K.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. 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.

K.5.1 Regulatory Mitigation Capabilities

Table K-19 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 K-19 Yellowstone County and Jurisdictions Regulatory Mitigation Capabilities

Plans & Regulations	Yellowstone County	City of Billings	City of Laurel	Town of Broadview
Building Codes	State	Yes	Yes	No
Building Codes Year	2022	2022	2023	No
BCEGS Rating	-	-	-	
Capital Improvements Program (CIP) or Plan	Yes. Yellowstone County FY 2023	Yes. City of Billings Capital Improvement Plan FY20-FY24	N/A	No
Community Rating System (CRS)	Yes. CRS-7	No	No	N/A
Community Wildfire Protection Plan (CWPP)	Yes. Version 2006	Part of County Plan	Part of County Plan	Part of County Plan
Comprehensive Master or General Plan	Yes. Current planning of neighborhoods, community, & transportation.	Yes. Community Master Plans	Yes. Community Master Plans	No
Economic Development Plan	Yes	Yes	Yes	No
Elevation Certificates	Yes	N/A	N/A	N/A
Emergency Operations Plan (EOP)	Yes	Part of County Plan	Part of County Plan	Part of County Plan
Erosion/Sediment Control Program	No	N/A	N/A	N/A
Floodplain Management Plan	Yes	Yes	Yes	No
Flood Insurance Study	Yes	N/A	N/A	N/A
Growth Management Ordinance	Yes. Adopted 2008.	Yes. Adopted 2016.	Yes. Adopted 2020.	No
Hazard-Specific Ordinance or Plan (Floodplain, Steep Slope, Wildfire)	Yes. HAZMAT, Wildfire, Floodplain, Communicable Disease, Source Water Protection	Part of County Plans.	Part of County Plans.	Part of County Plans.
National Flood Insurance Program (NFIP)	Yes	Yes	Yes	No
Site Plan Review Requirements	Yes	N/A	N/A	N/A
Stormwater Program, Plan, or Ordinance	Yes	Yes	Yes	Yes

Plans & Regulations	Yellowstone County	City of Billings	City of Laurel	Town of Broadview
Zoning Code or Ordinance	Yes	Yes	Yes. 2020	Yes
Climate Adaptation or Resiliency Plan	Yes	N/A	N/A	N/A
Subdivision Ordinance	Yes	Yes	Yes. Code of Ordinances Title 16	No
Open Space/Conservation Program	Yes, through Zoning Regulations, development planning, and the Billings Parks and Recreation Department	Yes, through Zoning Regulations, development planning, and the Billings Parks and Recreation Department.	N/A	N/A
Resource Management Plan	No	No	No	No
Threat Hazard Identification and Risk Assessment (THIRA)	Yes	Part of County Plan	Part of County Plan	Part of County Plan
Other?	-	-	-	-

Discussion on Existing Regulatory Mitigation Capabilities

The CPT noted that in accordance with the City of Billings Site Development Ordinance, specific regulations mandate the implementation of mitigation measures concerning stormwater management along the Rimrock geologic formation. These measures necessitate the on-site storage of stormwater to minimize the discharge of water over the Rimrock formations. Subdivision regulations also require the evaluation of potential flood hazards, floodplains, landslides, steep slopes, stormwater management and high-water tables. This evaluation is conducted in collaboration with the City's Planning Department.

The City/County Planning Division is responsible for overseeing Subdivision Regulations within both the City of Billings and Yellowstone County. These regulations stipulate requirements for assessing flood hazards whenever certain predetermined thresholds or parameters are met. Furthermore, the Subdivision Regulations prohibit the development of areas with slopes exceeding 25%, and such areas must be clearly indicated on plats. In addition, there are specific environmental assessment requirements, especially within the County, which demand an in-depth analysis of natural hazards related to geology, soils, and slopes. Details on Flood Hazard Evaluation requirements can be located in Appendix K of the subdivision regulations.

The CPT emphasized that the City of Billings is obligated to align its building codes with those adopted by the State of Montana. As of September 1, 2022, the City of Billings has officially adopted a set of codes, accessible at this link: <https://billingsmt.gov/323/Adopted-Codes>. The responsibility for enforcing these building codes within the City Limits falls under the jurisdiction of the City Building Division. These codes encompass various hazard-specific considerations, including fire prevention requirements, as well as mandatory structural design criteria for wind and snow loads.

It's important to note that the State of Montana operates on a 3-year code update cycle. Consequently, the City of Billings is anticipated to adopt the subsequent set of updated codes in either 2024 or 2025. The State Fire Marshal's Office oversees the adoption of the fire code, which is then enforced within the

city by the Fire Prevention Bureau.

In a distinct capacity, the City/County Planning Division does not manage building codes. However, the planning staff plays an integral role in the permitting process within the City Limits, conducting site reviews. In the zoned areas of Yellowstone County, the Division is responsible for administering County Zoning Regulations, which encompass site and structural requirements. The approval of new developments within these zoned areas necessitates a County Zoning Compliance Permit.

Montana state law (Montana Code Annotated [MCA] Title 76 Land Resources and Use, Chapter 5 Flood Plain and Floodway Management 1-4) contains land use regulations that require floodplain management regulations within sheetflood areas as determined by FEMA. It is in the best interest of the political subdivision (e.g., incorporated cities or towns or any county) and the public to manage the regulation of flood-prone lands and waters in a manner consistent with prudent land and water use practices. This approach aims to prevent and alleviate threats posed by flooding to human life and health, while also reducing economic losses incurred by both individuals and the public.

Discussion on NFIP Participation and Compliance

Yellowstone County, along with the cities of Billings and Laurel, actively participate in the NFIP. This program necessitates that jurisdictions implement floodplain development regulations. In return for the local adoption and enforcement of regulations which adhere to the NFIP's minimum criteria, FEMA offers the availability of flood insurance coverage within Yellowstone County and the Cities of Billings and Laurel. Additionally, Yellowstone County began participation in the Community Rating System (CRS) in 2003. As of July 2024, the County is currently Class 7, which makes structures in the special flood hazard area (SFHA) eligible for a 15% discount on flood insurance, and those outside of the SFHA eligible for a 5% discount.

According to the 2022 Yellowstone County Floodplain Hazard Management Regulations, the County Floodplain Administrator is appointed and is the responsibility of the Office of the County Public Works Department. Within the County Public Works Department, the building official is appointed to serve as the floodplain administrator and shall administer and implement the provisions of the 2013 City of Billings Floodplain Hazard Management Regulations. According to the 2018 City of Laurel Floodplain Hazard Management Regulations, the City Floodplain Administrator is appointed and is the responsibility of the City Planner. The most recent flood insurance rate maps (FIRMs) were adopted in 2013 for the City of Billings, City of Laurel, and Yellowstone County.

Each jurisdiction's floodplain regulations set forth baseline standards for development within the regulated flood hazard areas and significantly influence decisions related to land use. Every jurisdiction requires a floodplain permit for development projects in a mapped floodplain. Artificial obstructions and alternations may be allowed by permit within the floodway, provided they are designed and constructed to ensure that they do not adversely affect the flood hazard on other properties and are reasonably safe from flooding and ensure that the carrying capacity of the floodway is not reduced. Yellowstone County typically issues an average of ten floodplain permits each year.

Additionally, following a hazard event in each jurisdiction, it is the role of that floodplain administrator to notify structure owners about the potential necessity for a permit required for alterations or substantial improvements before beginning the repair or reconstruction of damaged structures. Property owners are informed that structures experiencing substantial damage or undergoing substantial improvements must go through the floodplain application and permit process. Additionally, these structures must be upgraded during the repair or reconstruction process to meet the minimum building standards outlined in the regulations. This approach ensures compliance with floodplain management measures, enhancing the overall safety and resilience of the affected structures. Each jurisdiction's floodplain administrator is

also responsible for educating the community about floodplain management and the various ways property owners and businesses can participate in the process by learning about floodplain regulations and building codes in flood prone areas, modifying or retrofitting existing buildings, and controlling stormwater runoff.

The Town of Broadview does not participate in the NFIP as neither a FIRM nor a flood hazard boundary map has been identified for the Town, thus participation is optional.

K.5.2 Administrative and Technical Mitigation Capabilities

Table K-20 identifies the County and participating jurisdictions personnel responsible for activities related to mitigation and loss prevention in Yellowstone County.

Table K-20 Yellowstone County Jurisdictions Administrative/Technical Mitigation Capabilities

Administrative & Technical	Yellowstone County	City of Billings	City of Laurel	Town of Broadview
Emergency Manager	Yes	Yes	Yes	Yes
Floodplain Administrator/ Position/ Department	Yes	Yes	Yes	No
Community Planning	-	-	-	-
- Planner/Engineer (Land Development)	Yes	Yes	Yes	No
- Planner/Engineer/Scientist (Natural Hazards)	Yes	Yes	No	Yes
- Engineer/Professional (Construction)	Yes	Yes	Yes	No
- Resiliency Planner	-	-	-	-
- Transportation Planner	Yes	Yes	Yes	No
Full-Time Building Official	Yes	Yes	Yes	No
GIS Specialist & Capability	Yes	Yes	Uses County	Uses County
Grant Manager, Writer, or Specialist	No	No	No	No
Housing Authority	Yes	Yes	Yes	Yes
Warning Systems	Yes	Yes	Yes	Yes
- Sirens	No	No	No	No
- Reverse 911	No	No	No	No
- IPAWS/ Wireless Emergency Alerts (WEA)	Yes	Yes	Yes	Yes
- Opt-In Notification (CodeRed, EverBridge, etc)	Yes	Yes	Yes	Yes

K.5.3 Financial Capabilities

Table K-21 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 K-21 Yellowstone County Jurisdictions Financial Capabilities

Financial Capabilities	Yellowstone County	City of Billings	City of Laurel	Town of Broadview
Ability to fund projects through Capital Improvements funding	Yes	Yes	Yes	Yes
Ability to incur debt through general obligation bonds	Yes. Up to \$2M w/o voter approval	No	No	No
Ability to incur debt through private activities	No	No	No	No
Ability to incur debt through special tax bonds	Yes	No	No	No
Authority to levy taxes for a specific purpose with voter approval	Yes	Yes	Yes	Yes
Authority to withhold spending in hazard prone areas	No	No	No	No
Community Development Block Grants	Yes	Yes	Yes	Yes
FEMA Hazard Mitigation Assistance grants	Yes	Yes	Yes	Yes
FEMA Public Assistance funds	Yes	Yes	Yes	Yes
Stormwater Service Fees	Yes	Yes	Yes	No
System Development Fee	No	Yes	Yes	No
Utility fees (water, sewer, gas, electric, etc.)	Yes	Yes	Yes	No
Other?	No	No	No	No

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
- USDA Environmental Quality Incentive Program.
- USDA Conservation Reserve and Conservation Reserve Enhancement Program.
- USDA Small Watersheds (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. Yellowstone County and its jurisdictions have participated in several of these hazard mitigation assistance projects in the past, as summarized in Table K-22 below.

Table K-22 Yellowstone County Hazard Mitigation Assistance Projects

Program	Date Approved	Project Type	Status	Location
HMGP	4/23/1998	106.1: Other Non-Construction (Regular Project Only)	Closed	Yellowstone
HMGP	11/6/1998	201.1: Relocation of Private Structures – Riverine	Closed	Yellowstone
HMGP	11/6/1999	401.1: Water & Sanitary Sewer System Protective Measures	Closed	Yellowstone
HMGP	2/16/2001	401.1: Water & Sanitary Sewer System Protective Measures	Closed	Yellowstone
HMGP	2/20/2002	201.1: Relocation of Private Structures – Riverine	Closed	Yellowstone
HMGP	3/13/2007	201.1: Relocation of Private Structures Riverine	Closed	Yellowstone
HMGP	9/15/2009	401.1: Water Sanitary Sewer System Protective Measures	Closed	Yellowstone
HMGP	2/9/2015	106.1: Other Non-Construction (Regular Project Only)	Closed	Yellowstone
HMGP	11/28/2016	201.1: Relocation of Private Structures - Riverine	Closed	Yellowstone
HMGP	1/28/2021	106.1: Other Non-Construction (Regular Project Only)	Obligated	Yellowstone & 52 other counties*
* Other 52 counties: Beaverhead, Big Horn, Blaine, Broadwater, Carbon, Carter, Cascade, Chouteau, Custer, Daniels, Dawson, Fallon, Fergus, Flathead, Gallatin, Garfield, Glacier, Golden Valley, Granite, Hill, Jefferson, Judith Basin, Lake, Lewis and Clark, Liberty, Lincoln, Madison, McCone, Meagher, Mineral, Missoula, Park, Petroleum, Phillips, Pondera, Powder River, Powell, Prairie, Ravalli, Richland, Roosevelt, Rosebud, Sanders, Sheridan, Stillwater, Sweet Grass, Teton, Toole, Treasure, Valley, Wheatland, & Wibaux				
HMGP	2/10/2022	106.1: Other Non-Construction (Regular Project Only)	Approved	Yellowstone & 21 other counties**
** Other 21 counties: Carbon, Carter, Custer, Daniels, Dawson, Fallon, Garfield, Golden Valley, McCone, Musselshell, Powder River, Prairie, Richland, Roosevelt, Rosebud, Sheridan, Stillwater, Treasure, Valley, Wheatland, & Wibaux				

Source: FEMA Opendata

K.5.4 Education and Outreach Capabilities

Table K-23 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 K-23 Yellowstone County Education and Outreach Capabilities

Education & Outreach Programs	Yellowstone County	City of Billings	City of Laurel	Town of Broadview
Ongoing public education programs (fire safety, responsible water use, household preparedness, etc.)	Yes. DES & City of Billings Fire Department	Yes	Yes	Yes
Local citizen groups that communicate hazard risks	Yes. LEPC & Yellowstone County COAD	Yes	Yes	Yes
Firewise or other fire mitigation program	Yes. Hazardous Fuels Program	Yes	Yes	Yes
National Weather Service StormReady	Yes	Yes	Yes	Yes

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

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

Table K-24 shows the local chapters partnered with the County and participating jurisdictions.

Table K-24 Yellowstone County Non-Governmental Organizations (NGOs)

Non-Governmental Organizations (NGOs)	Yellowstone County	City of Billings	City of Laurel	Town of Broadview
American Red Cross	Yes	Yes	Yes	Yes
Chamber of Commerce	Yes	Yes (2)	Yes	Yes
Community Organizations (Lions, Kiwanis, etc.)	Yes. Breakfast Exchange & Optimist	Yes	Yes	Yes
Environmental Groups	Yes	Yes	Yes	Yes
Homeowner Associations	Yes	Yes	Yes	Yes
Neighborhood Associations	Yes. Billings Task Forces.	Yes	Yes	Yes
Salvation Army	Yes	No	No	Yes
Veterans Groups	Yes	Yes	Yes	Yes
Other	Yes. United Way	-	-	-

K.5.6 Opportunities for Enhancement

Based on the capabilities assessment, Yellowstone County has the potential for expanding these hazard mitigation capabilities, but it is circumscribed primarily by budgetary constraints and the limitations of available staff resources. If grant funding for mitigation projects is not secured or if the County fails to allocate matching funds for these initiatives, their progression becomes unfeasible. Currently, the DES Office manages most of the grant applications, from the initial submission to project closure. Given the constraints of a two-person, full-time equivalent (FTE) team working within standard 40-hour workweeks, it becomes challenging to juggle these responsibilities alongside their daily duties and obligations.

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.

With support from other County departments like emergency management, the County grant writer should research potential funding new staff positions and opportunities for post-disaster support aimed at reaching vulnerable populations. Improved cross jurisdictional communication can also help identify areas for collaboration and support staffing and other capacity gaps. Other specific opportunities for improvement are listed below:

Yellowstone County:

- Explore opportunities to improve CRS class rating, particularly for public outreach activities.
- Explore additional partnerships with area agencies to develop hazard mitigation programs.
- Consider employing a grant writer to enhance access to funding opportunities.
- Address ditch and drain failure in County growth policies, Subdivision Regulations, and Zoning Ordinances.

City of Billings:

- Consider developing an economic development plan to ensure future development aligns with City goals and vision.
- Consider joining FEMA CRS to lower the cost of flood insurance.
- Consider ways to establish ongoing public outreach on hazard awareness and preparedness.

City of Laurel:

- Consider joining FEMA CRS to lower the cost of flood insurance and better protect residents and structures located in the floodplain.

Town of Broadview:

- Continue to collaborate with Yellowstone County and the City of Billings and City of Laurel on emergency preparedness and hazard mitigation activities.
- Consider working with the City of Billings Planning Department to adopt and enforce Building Codes that apply to the Town of Broadview.

K.6 Mitigation Strategy

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

K.6.1 Goals

During the creation of the 2023 Regional Plan, the counties in the Eastern Montana 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 when possible.

The Yellowstone County Planning Team also developed the following County-specific objectives to supplement the region-wide goals:

The 2019 Yellowstone County Hazard Mitigation Plan outlined the following goals:

- Goal 1: Reduce impacts from severe weather and drought.
- Goal 2: Reduce impacts from wildfire.
- Goal 3: Reduce impacts from ditch and drain failure.

- Goal 4: Reduce impacts from terrorism, violence, civil unrest, and cyber security.
- Goal 5: Reduce impacts from transportation accidents and hazardous materials incidents.
- Goal 6: Reduce impacts from flooding and dam failure.
- Goal 7: Reduce impacts from communicable disease.
- Goal 8: Reduce impacts from landslides and rock falls.
- Goal 9: Reduce impacts associated with all hazards.

K.6.2 Progress on Previous Actions

During the 2023 planning process, the Yellowstone CPT reviewed all the mitigation actions from the 2019 plan. As shown in Table K-25, of 87 actions in the previous plan, 14 have been completed, and 9 have been deleted.

Table K-25 Completed and Deleted Actions

ID	Action Name & Description	Hazard(s) Mitigated	Jurisdiction	Status
DELETED ACTIONS				
1.2.4	Support drought programs implemented through the Conservation District, NWS, FSA, NRCS, DNRC, and MSU Extension.	Drought	Yellowstone	Too vague. Too hard to measure.
2.1.4	Conduct feasibility study to identify best method to dispose of fuel mitigated material so all of it doesn't have to travel long distances to a landfill.	Wildfire	Yellowstone	Lack of plans/ projects and Loss of funding.
3.2.4	Conduct study on how to improve drains and outlet structures to mitigate flood risk.	Ditch & Drain Failure	Billings	Too vague/ hard to measure & too large to fund.
5.2.1	Improve public messaging when episodes of refinery flaring occur.	HAZMAT Incidents	Yellowstone, Billings, & Laurel	Refineries handle in-house.
9.1.6	Recruit and train emergency response personnel.	All Hazards	All Jurisdictions	Too vague.
9.3.2	Develop plan for short-term water supply in Billings.	All Hazards	Billings	Not feasible/ no money available.
COMPLETED ACTIONS				
1.3.1	Encourage utility companies to ensure right of way around power lines are free of trees or limbs that could cause damage.	Severe Weather	All Jurisdictions	2019
1.4.2	Promote the use of hurricane clips for buildings vulnerable to high winds.	Severe Weather	All Jurisdictions	2021
2.1.2	Develop database of hazardous fuel assessments and landowner fuel reductions projects to support future grants.	Wildfire	Yellowstone & Billings	2023
2.5.2	Develop database of water supplies, access points, fire breaks, and other relevant criteria to enhance fire agency response.	Wildfire	Yellowstone & Broadview	2023
3.1.1	Remove unstable rocks above North 14 th Street that could fall and block BBWA ditch at tunnel entrance.	Ditch & Drain Failure	Billings	2019

ID	Action Name & Description	Hazard(s) Mitigated	Jurisdiction	Status
3.1.2	Re-establish City-County Drain Outfall, at Washington Street, with an adjustable weir and 4,500 feet of 48-inch diameter pipe washed out in the 2018 spring runoff.	Ditch & Drain Failure	Billings	2019
3.1.4	Evaluate, maintain and improve rip-rap along Yellowstone River from Laurel to Huntley near ditch head gates to prevent failures that may cause uncontrolled flows into ditches increasing flood risk	Ditch & Drain Failure	Yellowstone, Billings, & Laurel	2019
3.1.5	Install rip-rap along Yellowstone River for approximately 2,200 feet at Huntley Project to protect diversion dam and drainage ditch and maintain irrigation.	Ditch & Drain Failure	Yellowstone	2019
3.2.1	Assess legal status of existing irrigation ditches and drains to determine Municipal legal authority for operations and maintenance responsibilities.	Ditch & Drain Failure	Billings	2021
3.3.1	Obtain easements to access ditches and drains for operational and maintenance purposes.	Ditch & Drain Failure	Billings	2019
4.3.3	Develop cloud-based backup system for city County network systems.	Cyber Security	Yellowstone, Billings, & Laurel	2023
6.4.2	Consider certifying dikes around water and wastewater treatment plants to ensure adequate protection.	Flooding	Billings & Laurel	2023
6.4.3	Update flood protection measures at Riverside Park in Laurel to prevent flooding.	Flooding	Laurel	2022
7.3.2	Expand list serve for Health Alert Network	Communicable Disease	All Jurisdictions	2019-2020
9.1.1	Implement mass notification capabilities throughout Yellowstone County.	All Hazards	All Jurisdictions	2019
9.1.2	Enhance rural communications by coordinating and cooperating on getting First Net in place in Yellowstone County to improve first responder communications.	All Hazards	All Jurisdictions	2019

K.6.3 NFIP Continued Compliance

Compliance with the NFIP is also important to reducing losses to future development is continued. The County, the City of Billings, and the City of Laurel will continue to make every effort to remain in good standing with the program. This includes continuing to comply with the NFIP regarding adopting floodplain maps and implementing, maintaining, and updating floodplain ordinances. See Section 5.4.2 in the base plan for more discussion on NFIP compliance.

K.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 Yellowstone County and its jurisdictions. The process used to identify, develop, and prioritize these actions is described in Chapter 5 of the base plan. Yellowstone County has 64 continuing or in progress mitigation actions carried over from the previous plan and has added an additional 5 new actions.

Table K-26 lists the 2023 Mitigation Action Plan for Yellowstone 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 Yellowstone County Plan; little to no work has been completed.
- **In Progress:** project is carried over from the previous Yellowstone County Plan; work has begun on the project and is proceeding.
- **Annual:** project is carried over from the previous Yellowstone 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 K-26 below lists the mitigation actions for each participating jurisdiction in Yellowstone County. All jurisdictions have developed mitigation actions for each identified hazard in the HMP.

Table K-26 Mitigation Actions by Hazard and Jurisdiction Summary

ID	Action Name & Description	Hazards Mitigated	Jurisdictions	Lead Agency	Partner Agencies	Cost Estimate	Potential Funding	Timeline	Priority	Status & Implementation Notes
1	Obtain mobile repeaters for patrol cars to improve communications to prepare for and respond to natural hazard events and transportation accidents.	Dam Failure, Ditch and Drain Failure, Earthquake, Flooding, Hazardous Material Incident, Landslide, Transportation Accidents, Wildfire	Yellowstone County	County Sheriff's Office	N/A	High	County General Funds	Medium-Term	High	Not Started
2	Interact with public safety officials and schools on planning for emergencies to enhance public awareness and education on hazard impacts and mitigation.	Dam Failure, Ditch and Drain Failure, Earthquake, Flooding, Hazardous Material Incident, Landslide, Severe Summer and Winter Weather, and Wildfire Hazards,	Yellowstone County, Billings, Broadview, Laurel	Yellowstone County DES	LEPC, School Resource Officers, City of Billings Planning & Community Services, City of Laurel Fire Department, Town of Broadview Town Council	High	County & City School District General Funds	Ongoing	High	Annual Implementation
3	Obtain stationary and/or mobile generators for critical facilities and emergency shelters and install hookups during severe weather events .	Severe Summer and Weather	Yellowstone County, Billings, Broadview, Laurel	Yellowstone County DES	DES, Critical Facility Owners, City of Billings Communication Center City of Laurel Fire Department, Town of Broadview Town Council	Medium	County & State General Funds	Medium-Term	High	Not Started
4	Identify facilities that meet national standards to serve as emergency shelters during severe weather events and create Memorandums of Understanding.	Severe Summer and Winter Weather	Yellowstone County, Billings, Broadview, Laurel	Yellowstone County DES	DES, American Red Cross, City of Billings Planning & Community Services, City of Laurel Fire Department, Town of Broadview Town Council	Medium	County & State General Funds	Medium-Term	High	In-Progress
5	Continue to aggressively address hazards around rural properties, such as flooding	Flooding, Wildfire	Yellowstone County	Yellowstone County Dispatch	County Planning Department, City of	Medium	State, County & City General	Ongoing	High	Annual Implementation

ID	Action Name & Description	Hazards Mitigated	Jurisdictions	Lead Agency	Partner Agencies	Cost Estimate	Potential Funding	Timeline	Priority	Status & Implementation Notes
	and wildfire.				Billings Planning & Community Services, City of Laurel Fire Department, Town of Broadview Town Council		Funds			
6	Provide special needs facilities with guidelines for disaster preparedness, including pet needs.	Dam Failure, Ditch and Drain Failure, Earthquake, Flooding, Hazardous Material Incident, Landslide, Transportation Accidents, Wildfire	Yellowstone County, Billings, Broadview, Laurel	Yellowstone County DES	Special Needs Facilities, MT Migrant Worker Council, City of Billings Planning & Community Services, City of Laurel Fire Department, Town of Broadview Town Council	Medium	County, City, & General Funds, Special Needs Facilities budgets	Ongoing	High	Not Started
7	Update growth policies and subdivision regulations as needed to consider hazard mitigation.	Dam Failure, Ditch & Drain Failure, Earthquake, Flooding, HAZMAT Incident, Landslide, Transportation Accidents, Wildfire	Yellowstone County & Billings	County Planning Department	City of Billings Planning Department	High	County & City Staff Resources	Ongoing	High	Not Started
8	Enhance GIS data to better assist with natural hazard mitigation.	Dam Failure, Ditch and Drain Failure, Earthquake, Flooding, Hazardous Material Incident, Landslide, Transportation Accidents, Wildfire	Yellowstone County, Billings, Broadview, Laurel	County GIS	N/A	Low	County Staff Resources	Ongoing	Medium	Annual Implementation
9	City/County emergency communications/resiliency - current facility is overly exposed	Dam Failure, Earthquake, Flooding, Hazardous	Yellowstone County, Billings,	City of Billings Sheriff's Office	Yellowstone County DES, MT DES, MT	Very High	FEMA HMA Grants, HMGP,	Short-Term	High	New in 2023

ID	Action Name & Description	Hazards Mitigated	Jurisdictions	Lead Agency	Partner Agencies	Cost Estimate	Potential Funding	Timeline	Priority	Status & Implementation Notes
	to numerous failure points representing complete failure of 911, public safety resource dispatching of all city/county responder agencies. All community alerting/warning and three dozen city county state and federal agencies communications with no viable consistencies	Materials Incidents, Landslide, Severe Summer and Winter Weather, Human Conflict, Tornadoes and Windstorms, Transportation Accidents, Volcanic Ash, Wildfire, Ditch and Drain Failure	Broadview, Laurel		DOJ, State Highway Patrol		BRIC, Local Budget			
10	Increase immunization rates for vaccine preventable communicable disease in all populations.	Communicable Disease	Yellowstone County, Billings, Broadview, Laurel	RiverStone Health Administration Department	County DES, City of Billings Planning & Community Services, City of Laurel Fire Department, Town of Broadview Town Council	High	County, City, & Town General Funds	Ongoing	High	Annual Implementation
11	Continue to prevent and control communicable disease by surveillance.	Communicable Disease	Yellowstone County, Billings, Broadview, Laurel	RiverStone Health Administration Department	County DES, City of Billings Planning & Community Services, City of Laurel Fire Department, Town of Broadview Town Council	High	County, City, & Town General Funds	Ongoing	High	Annual Implementation
12	Continue to conduct risk-based inspections of all food service establishments.	Communicable Disease	Yellowstone County, Billings, Broadview, Laurel	RiverStone Health Administration Department	County DES, City of Billings Planning & Community Services, City of Laurel Fire Department, Town of Broadview Town Council	High	County, City, & Town General Funds	Ongoing	High	Annual Implementation
13	Continue to promote public education on preventing communicable disease.	Communicable Disease	Yellowstone County, Billings, Broadview, Laurel	RiverStone Health Administration Department	County DES, City of Billings Planning & Community Services, City of Laurel Fire Department, Town of	High	County, City, & Town General Funds	Ongoing	High	Annual Implementation

ID	Action Name & Description	Hazards Mitigated	Jurisdictions	Lead Agency	Partner Agencies	Cost Estimate	Potential Funding	Timeline	Priority	Status & Implementation Notes
					Broadview Town Council					
14	Continue to provide education and/or training for Health Department staff and key partners in medical community.	Communicable Disease	Yellowstone County, Billings, Broadview, Laurel	RiverStone Health Administration Department	County DES, City of Billings Planning & Community Services, City of Laurel Fire Department, Town of Broadview Town Council	High	County, City, & Town General Funds	Ongoing	High	Annual Implementation
15	Collaborate with community partners to train and exercise public health emergency response plans.	Communicable Disease	Yellowstone County, Billings, Broadview, Laurel	RiverStone Health Administration Department	County DES, City of Billings Planning & Community Services, City of Laurel Fire Department, Town of Broadview Town Council	High	County, City, & Town General Funds	Ongoing	High	Annual Implementation
16	Collaborate and coordinate with community partners to review and update public health emergency response plans annually.	Communicable Disease	Yellowstone County, Billings, Broadview, Laurel	RiverStone Health Administration Department	County DES, City of Billings Planning & Community Services, City of Laurel Fire Department, Town of Broadview Town Council	High	County, City, & Town General Funds	Ongoing	High	Annual Implementation

ID	Action Name & Description	Hazards Mitigated	Jurisdictions	Lead Agency	Partner Agencies	Cost Estimate	Potential Funding	Timeline	Priority	Status & Implementation Notes
17	Begin multi-hazard public education and awareness campaign to help residents understand what hazards are present, how to prepare, and personal accountability. Keeping residents informed about natural hazards and opportunities for mitigating risks can help protect public health, safety, and welfare. Special consideration will be given to meeting the needs of vulnerable and underserved populations. Planned activities for this program include hosting annual briefings on recent advancements in mitigation strategy, distribute topic specific brochures and mailers prior to vulnerable seasons such as promoting Firewise practices in the spring to help property owners take preventative action against summer wildfires, organize storm spotting course in partnership with local NWS office, and provide online resources for home insurance policies and details on flood insurance/NFIP.	Communicable Disease, Drought, Flooding, Wildfire, Severe Summer Weather, Severe Winter Weather	Yellowstone County, Billings, Broadview, Laurel	Yellowstone County DES	City of Billings Planning & Community Services, City of Laurel Fire Department, Town of Broadview Town Council	Low	City, and Town General Funds and Time	Ongoing	High	New in 2023
18	Continue to provide end-user training on email-related threats.	Cyber-Attack	Yellowstone County, Billings, Broadview, Laurel	RiverStone Health Administration Department	County DES, City of Billings Information Technology, City of City of Laurel Fire Department, Town of Broadview Town Council	High	County, City, & Town General Funds	Ongoing	High	Annual Implementation
19	Continue to conduct vulnerability assessment of critical cyber infrastructure with priorities for enhanced security.	Cyber-Attack	Yellowstone County, Billings, & Laurel	Yellowstone County IT Department	City & Town IT Departments	High	County, City, & Town General Funds	Ongoing	High	Annual Implementation
20	EOC and Comms backup location. Currently only have 1 location for EOC and Comms	Cyber-Attack	Yellowstone County, Billings,	Yellowstone County 911	County DES, Elected Officials, State, City of	Very High	FEMA HMA HMGP, BRIC,	Medium-Term	High	New in 2023

ID	Action Name & Description	Hazards Mitigated	Jurisdictions	Lead Agency	Partner Agencies	Cost Estimate	Potential Funding	Timeline	Priority	Status & Implementation Notes
	Center equipment in vulnerable location.		Broadview, Laurel	Dispatch	Billings Communication Center, City of Laurel Fire Department, Town of Broadview Town Council		Grants			
21	Participate in dam failure exercises on high hazard dams, such as Lakeside Dam within the County and upstream dams like Yellowtail Dam and Cooney Dam that could impact Yellowstone County.	Dam Failure	Yellowstone County, Billings & Laurel	Yellowstone County DES	City of Billings & City of Laurel Planning & Community Services, Dam Owners, Lakeside Home Owners Association, Bureau of Reclamation, State Water Projects	High	DES, Local Staff Time	Ongoing	Medium	Annual Implementation
22	Create an alternate water supply for the City of Billings with off stream storage and water treatment.	Drought	City of Billings	City of Billings Public Works Department	N/A	Medium	Billings General Funds	Medium-Term	High	In-Progress
23	Encourage water conservation by domestic, municipal, and industrial users.	Drought	Yellowstone County, Billings & Laurel	Yellowstone County DES	City of Billings Planning & Community Services, City of Laurel, & Billings and Laurel Public Works	High	Billings & Laurel City General Funds, Local Staff Time	Ongoing	High	Annual Implementation
24	Address earthquake hazards on older and historic buildings in the County constructed before adoption of building code by conducting an inventory of these buildings to determine if seismic retrofits are needed to preserve the integrity of the County's historical assets.	Earthquake	Yellowstone County, City of Billings, City of Laurel, Town of Broadview	Yellowstone County	Yellowstone County Planning Division	Medium	FEMA HMA HMGP, BRIC Funds, General Funds, Local Staff Time	Long-Term	Low	New in 2023

ID	Action Name & Description	Hazards Mitigated	Jurisdictions	Lead Agency	Partner Agencies	Cost Estimate	Potential Funding	Timeline	Priority	Status & Implementation Notes
25	Locate and re-establish unloader structures used to divert surge flow throughout the County and Billings and identify potential downstream impacts.	Flooding	Yellowstone County & Billings	Yellowstone County DES	Billings Public Works, BBWA, City of Billings	Medium	BBWA & Other Ditch Associations, County & City General Funds, USACE Small Flood Control Projects, Silver Jackets	Long-Term	High	In-Progress
26	Conduct bank stability assessment of BBWA canal and laterals within the Billings City limits.	Flooding	Yellowstone County & City of Billings	BBWA (no specific department)	County DES, City of Billings Public Works Flood Administrators	High	BBWA General funds	Medium-Term	High	In-Progress
27	Conduct feasibility study to reduce risk of ditch failure that could impact EOC, City-County dispatch and both hospitals.	Flooding	City of Billings	Billings Public Works	N/A	High	City General Funds, HMGP, BRIC, FMA, CDBG, Economic Development Administration (EDA) Public Works Program, USACE Planning Assistance to States (PAS)	Short-Term	High	In-Progress
28	Encourage BBWA to implement recommendations of Main Canal Evaluation Study.	Flooding	City of Billings	Billings Public Works	City of Billings Planning & Community Services	High	BBWA General Funds, Local Staff Time	Long-Term	High	In-Progress

ID	Action Name & Description	Hazards Mitigated	Jurisdictions	Lead Agency	Partner Agencies	Cost Estimate	Potential Funding	Timeline	Priority	Status & Implementation Notes
29	Continue to provide outreach to citizens that dumping of debris on ditch bank or within ditch can adversely impact the City's stormwater system and increase potential for flooding and cause ditch bank overflows.	Flooding	Yellowstone County, Billings & Laurel	Billings Public Works	City of Laurel Fire Department	High	Billings & Laurel City General Funds	Ongoing	High	Annual Implementation
30	Continue to implement Stormwater Master Plan to reduce impacts to private property from surface water runoff.	Flooding	Billings	Billings Public Works	N/A	Medium	Billings General Funds, HMGP, BRIC, FMA, CDBG, EDA Public Works Program, USACE PA	Ongoing	High	Annual Implementation
31	Evaluate and replace culverts at street crossings in Billings. Upgrade and maintain culverts, bridges, and roads to improve conveyance of flood water elsewhere in the County.	Flooding	Yellowstone County, Billings, Broadview, Laurel	County Road Department	All Public Works, City of Billings Public Works, City of Laurel Fire Department, Town of Broadview Town Council	High	County and City General Funds, HMGP, BRIC, FMA, CDBG, EDA Public Works Program, USACE PA	Ongoing	High	Annual Implementation
32	Continue community outreach on potential for flooding.	Flooding	Yellowstone County, Billings & Laurel	County Road Department	County Public Works, City of Billings Public Works, City of Laurel Fire Department	High	County and City General Funds, FMA, Community Assistance Program (CAP)	Ongoing	High	Annual Implementation
33	Promote those homeowners in flood-prone areas purchase flood insurance through National Flood Insurance Program.	Flooding	Yellowstone County, Billings, Broadview, Laurel	City of Laurel Flood Administrators	City of Billings & Town of Broadview Flood Administrators	High	County and City General Funds, FMA, CAP	Ongoing	High	Annual Implementation
34	Study options for mitigating stormwater runoff from Highway 3 near Billings Airport	Flooding	Billings	Yellowstone County DES	Billings Public Works	High	DES, Billings Public Works,	Medium-Term	High	Not Started

ID	Action Name & Description	Hazards Mitigated	Jurisdictions	Lead Agency	Partner Agencies	Cost Estimate	Potential Funding	Timeline	Priority	Status & Implementation Notes
							FEMA HMA FMA			
35	Assess flood potential at Zoo Montana property and address options for managing zoo animals in the event of a flood.	Flooding	Billings	Yellowstone County DES	Billings Public Works	High	DES, Billings Public Works, County and City General Funds	Long-Term	Medium	In-Progress
36	Update boundaries of approximate study areas for future floodplain mapping.	Flooding	Billings	Yellowstone County DES	County Floodplain Administrator, DNRC, City of Billings Public Works	Medium	DES, County Floodplain Administrator, DNRC	Medium-Term	High	Annual Implementation
37	Construct two small storage features on Cove and Little Cove Creeks and improve flood conveyance through the West Billings area.	Flooding	Billings	Billings Public Works	N/A	Medium	Billings Public Works, FEMA HMA FMA	Ongoing	High	Not Started
38	Review NFIP Repetitive Loss properties in Yellowstone County and address means to eliminate or reduce impacts from flooding.	Flooding	Yellowstone County	County Floodplain Administrator	Yellowstone County Public Works, Yellowstone County DES, Yellowstone County GIS, Billings Public Works, Billings Floodplain Administrator, Laurel Floodplain Administrator	Medium	County General Funds, Floodplain Administrator, Local Staff Time	Long-Term	Medium	Annual Implementation
39	Strengthen subdivision regulations to ensure homes are not built where potentially impacted by flood flows from dry washes.	Flooding	Yellowstone County	County Floodplain Administrator	Yellowstone County Public Works, Yellowstone County: DES & GIS; Billings: Public Works & Floodplain Admin; Laurel Floodplain Admin, City/County Planning Department	High	County General Funds, Local Staff Time	Medium-Term	Medium	Annual Implementation
40	BBWA Breach - move the ditch.	Flooding, Landslide, Drain and Ditch	Yellowstone County	Yellowstone County DES	Billings Public Works, BBWA	Very High	FEMA HMA Grants, FMA	Medium-Term	High	New in 2023

ID	Action Name & Description	Hazards Mitigated	Jurisdictions	Lead Agency	Partner Agencies	Cost Estimate	Potential Funding	Timeline	Priority	Status & Implementation Notes
		Failure								
41	Rail accident at downtown 27th - spill no fire, spill with fire, BLEVE Plume access evacs and test/exercise plan	Hazardous Materials Incidents	Yellowstone County, City of Billings	County DES	Billings Public Works, National Weather Service, LEPC, BNSF, DOT, elected officials DEQ, EPA, NTSB, FRA	High	FEMA HMA Grants, County and City General Funds	Short-Term	High	New in 2023
42	Laurel Railyard - spill no fire, spill with fire, BLEVE Plume access evacs and test/exercise plan	Hazardous Materials Incidents	Yellowstone County, City of Laurel	County DES	National Weather Service, LEPC, BNSF, DOT, elected officials DEQ, EPA, NTSB, FRA, Laurel Fire Department	High	FEMA HMA Grants, County and City General Funds	Short-Term	High	New in 2023
43	Encourage legislative support for funding of Billings Regional HAZMAT Response Team.	Hazardous Materials Incidents	Yellowstone County, Billings, Broadview, Laurel	County Commissioners	County DES, Fire Departments, City of Laurel Fire Department, Town of Broadview Town Council, Town of Billings Public Works	High	County & City General Funds	Medium-Term	High	Annual Implementation
44	Obtain personal protective kits for Laurel first responders and patrol cars so they can secure scene before HAZMAT Team arrive.	Hazardous Materials Incidents	City of Laurel	Laurel Fire Department	Billings HAZMAT Team, LEPC, City of Laurel Fire Department	Medium	Laurel City General Funds	Medium-Term	High	Annual Implementation
45	Provide basic and refresher HAZMAT response training with first responders and exercise regularly.	Hazardous Materials Incidents	Yellowstone County, Billings, & Laurel	County DES	All Fire Departments, HAZMAT Team, City of Laurel Fire Departments, City of Billings Public Works	High	County & City General Funds	Ongoing	High	Annual Implementation
46	Update and maintain resource list of emergency response supplies and vendors.	Hazardous Materials Incidents	Yellowstone County, Billings, Broadview, Laurel	Yellowstone County	City of Billings Public Works, City of Laurel Fire Department, Town of Broadview Town Council	High	County General Funds	Ongoing	High	Annual Implementation
47	Identify railroad point of contact and establish protocol to shut down rail traffic	Hazardous Materials Incidents	Yellowstone County, Billings,	County DES	All Fire Departments, LEPC, Railroads, City	High	County & City General Funds,	Short-Term	High	Annual Implementation

ID	Action Name & Description	Hazards Mitigated	Jurisdictions	Lead Agency	Partner Agencies	Cost Estimate	Potential Funding	Timeline	Priority	Status & Implementation Notes
	when needed.		& Laurel		of Billings Public Works, City of Laurel Fire Department		Local Staff Time			
48	Increase participation of local, state and federal partners, industry, and utilities in Yellowstone County LEPC.	Hazardous Materials Incidents	Yellowstone County, Billings, Broadview, Laurel	Yellowstone County DES	LEPC, City of Billings Public Works, City of Laurel Fire Department, Town of Broadview Town Council	High	County General Funds	Ongoing	High	Annual Implementation
49	Identify and prioritize intersections that could be improved to enhance safety.	Hazardous Materials Incidents	Yellowstone County, Billings, & Laurel	County Public Works	MDT, City of Laurel Fire Department, Billings Public Works	High	County & City General Funds, Local Staff Time	Short-Term	High	Annual Implementation
50	Protect storm drains in industrial areas to ensure no hazardous materials are released to the river.	Hazardous Materials Incidents	Laurel	Laurel Public Works	N/A	Medium	City General Funds	Short-Term	High	In-Progress
51	Continue active shooter preparedness training.	Human Conflict	Yellowstone County, Billings, Broadview, Laurel	Yellowstone County DES	County Law Enforcement, DHS, City of Billings Public Works, City of Laurel Fire Department, Town of Broadview Town Council	High	County & City General Funds, DHS	Ongoing	High	Annual Implementation
52	Coordinate state/federal agencies and private industry on potential threats that may target critical facilities or large events.	Human Conflict	Yellowstone County & Billings	Yellowstone County LEPC	DHS, MT Dept. of Justice, MATIC, FBI, Private Industry, City of Billings Public Works	Medium	County & City General Funds, State & Federal Partners, Private Industry	Ongoing	High	Annual Implementation

ID	Action Name & Description	Hazards Mitigated	Jurisdictions	Lead Agency	Partner Agencies	Cost Estimate	Potential Funding	Timeline	Priority	Status & Implementation Notes
53	Continue physical hardening of critical facilities and schools (i.e. anti-vehicle barricades / interior barricades for locking doors [door kicks, door stops] / perimeter fencing / controlled access gates).	Human Conflict	Yellowstone County, Billings, Broadview, Laurel	Yellowstone County DES	DES, Law Enforcement, Building Departments, City of Billings Public Works, City of Laurel Fire Department, Town of Broadview Town Council	Medium	County & City/Town General Funds, Homeland Security Grant Program (HSGP), Transit Security Grant Program (TSGP), Buffer Zone Protection Program (BZPP), Infrastructure Security and Resilience (ISR) Grant Program, Department of Defense (DoD) Defense Critical Infrastructure Program (DCIP), U.S. Department of Education's Project SERV (School Emergency Response to Violence)	Ongoing	High	Not Started

ID	Action Name & Description	Hazards Mitigated	Jurisdictions	Lead Agency	Partner Agencies	Cost Estimate	Potential Funding	Timeline	Priority	Status & Implementation Notes
54	Raise level of awareness on what public can do to prevent and /or mitigate threat of lone gunman/active shooter incident (report suspicious or unusual behavior, stop-the-bleed training, etc.)	Human Conflict	Yellowstone County, Billings, & Laurel	Yellowstone County DES	DHS, Chamber of Commerce, MT Migrant Worker Council, City of Billings Public Works, City of Laurel Fire Department	High	County General Funds, DHS	Ongoing	High	Annual Implementation
55	Conduct comprehensive vulnerability assessment of critical facilities with priorities for enhanced security.	Human Conflict	Yellowstone County, Billings, & Laurel	Yellowstone County DES	DES, DHS, Law Enforcement, City and County Building Departments, City of Billings Public Works, City of Laurel Fire Department	High	County and City/Town General Funds, DHS SHSGP	Medium-Term	High	Annual Implementation
56	Review Crisis Action Plans in all schools and hospitals to ensure adequate security measures are in place.	Human Conflict	Yellowstone County, Billings, Broadview, Laurel	Yellowstone County School Resource Officers	DES, Hospitals, City of Billings Public Works, City of Laurel Fire Department, Town of Broadview Town Council	Medium	County and City/Town General Funds, Hospitals	Ongoing	High	Not Started
57	Identify, preserve, and stabilize rock fall prone areas	Landslide	Yellowstone County & Billings	Yellowstone County DES	Billings Public Works	Medium	County and City General Funds, FEMA HMA HMGP	Ongoing	High	Annual Implementation

ID	Action Name & Description	Hazards Mitigated	Jurisdictions	Lead Agency	Partner Agencies	Cost Estimate	Potential Funding	Timeline	Priority	Status & Implementation Notes
58	On older structures as needed, install 3-mil window film on windows of schools and critical facilities to prevent shattering.	Severe Summer and Winter Weather	Yellowstone County, Billings, Broadview, Laurel	Yellowstone County School Districts	City of Billings Public Works, City of Laurel Fire Department, Town of Broadview Town Council	High	School District Funding, USDA Community Facilities Direct Loan & Grant Program, HUD Community Development Block Grant Mitigation (CDBG-MIT)	Ongoing	Medium	Not Started
59	Continue community outreach on preparation and safety during severe storms and tornadoes.	Severe Summer and Winter Weather	Yellowstone County	Yellowstone County DES	City of Billings Planning, City of Laurel Fire Department, Town of Broadview Town Council	High	County Resources, NWS	Ongoing	High	Annual Implementation
60	Encourage community partners to participate in NWS Weather Ready Nation Ambassador program.	Severe Summer and Winter Weather	Yellowstone County, Billings, Broadview, Laurel	Yellowstone County DES	LEPC, City of Billings Planning, City of Laurel Fire Department, Town of Broadview Town Council	High	County General Funds	Ongoing	High	Annual Implementation
61	Encourage utility companies to bury electric and communication lines in hazard prone areas.	Severe Summer Weather, Tornadoes & Windstorms	Yellowstone County, Billings, Broadview, Laurel	Yellowstone County Commissioners	LEPC, City of Billings Planning, City of Laurel Fire Department, Town of Broadview Town Council	Medium	County General Funds	Ongoing	High	Not Started

ID	Action Name & Description	Hazards Mitigated	Jurisdictions	Lead Agency	Partner Agencies	Cost Estimate	Potential Funding	Timeline	Priority	Status & Implementation Notes
62	Encourage development of tornado safe rooms in schools, including Broadview Elementary.	Severe Summer Weather, Tornadoes & Windstorms	Yellowstone County, Billings, Broadview, Laurel	Yellowstone County DES	LEPC, School Districts, City of Billings Planning, City of Laurel Fire Department, Town of Broadview Town Council	Medium	School District Funding, , FEMA HMA HMGPHMGP, BRIC, CDBG, USDA Rural Development Community Facilities Programs, CDBG-MIT	Medium-Term	Medium	Not Started
63	Continue to maintain NWS StormReady status for Yellowstone County and City of Billings and enhance communications and support with the City of Laurel.	Severe Summer and Winter Weather, Tornadoes & Windstorms	Yellowstone County, Billings, & Laurel	Yellowstone County DES	City of Billings Planning, City of Laurel Planning	High	NWS, County Resources, Billings & Laurel General Funds	Ongoing	High	Annual Implementation
64	Conduct wildland fire mapping to identify high-risk areas	Wildfire	Yellowstone County	Yellowstone County DES	Yellowstone County DES & GIS, BLM, DNRC, Southern Land Office	High	County General Funds, DNRC Fire Suppression Fund, BLM Fuels Management Program	Short-Term	High	Not Started
65	Provide timely messaging on wildfire smoke to protect vulnerable populations.	Wildfire	Yellowstone County, Billings, Broadview, Laurel	Yellowstone County DES	NWS, City of Billings Planning, City of Laurel Planning, Town of Broadview Town Council	High	County General Funds	Ongoing	High	Annual Implementation
66	Continue grants programs to support hazardous fuel assessments and cost-share opportunities for landowners to create defensible space in the WUI.	Wildfire	Yellowstone County, Billings, Broadview, Laurel	Yellowstone County DES	BLM, DNRC, City of Billings Planning, City of Laurel Planning, Town of Broadview Town Council	High	NFIC Rural Fire Assistance Grant, USDA Community Fire Protection Program, USDA National Fire Plan, USDA Forest Service's	Ongoing	High	Annual Implementation

ID	Action Name & Description	Hazards Mitigated	Jurisdictions	Lead Agency	Partner Agencies	Cost Estimate	Potential Funding	Timeline	Priority	Status & Implementation Notes
							Community Wildfire Defense Grant (CWDG), USDA NRCS Environmental Quality Incentives Program (EQIP)			
67	Update Yellowstone County Community Wildfire Protection Plan.	Wildfire	Yellowstone County, Billings, Broadview, Laurel	Yellowstone County DES	Fire Council, City of Billings Planning, City of Laurel Planning, Town of Broadview Town Council	High	FEMA Grant, MT DES, DNRC Fire Suppression Fund	Medium-Term	High	Not Started
68	Continue community outreach on FireWise building practices in the wildland urban interface.	Wildfire	Yellowstone County, Billings, Broadview, Laurel	Yellowstone County DES	Fire Council, City of Billings Planning, City of Laurel Planning, Town of Broadview Town Council	High	County General Funds, Local Staff Time	Short-Term	High	In-Progress
69	Promote and encourage individual fire departments to implement a FireWise program that will create fire adapted communities throughout the County.	Wildfire	Yellowstone County, Billings, Broadview, Laurel	Yellowstone County DES	Fire Council, DNRC, City of Billings Planning, City of Laurel Planning, Town of Broadview Town Council	High	County & City General Funds	Ongoing	High	Not Started
70	Continue pushing out information on Red Flag Warnings for broadcast when conditions exist.	Wildfire	Yellowstone County, Billings, Broadview, Laurel	Yellowstone County DES	NWS, City of Billings Planning, City of Laurel Fire Department, Town of Broadview Town Council	High	NWS, County General Funds, staff time	Ongoing	High	Annual Implementation
71	Explore whether subdivision regulations could be strengthened to require defensible space and construction with fire-proof materials.	Wildfire	Yellowstone County, Billings, & Laurel	Yellowstone County Planning Department	City of Billings & City of Laurel Planning Departments	Medium	County & City General Funds	Ongoing	High	Not Started

ID	Action Name & Description	Hazards Mitigated	Jurisdictions	Lead Agency	Partner Agencies	Cost Estimate	Potential Funding	Timeline	Priority	Status & Implementation Notes
72	Continually improve fire agency training and infrastructure	Wildfire	Yellowstone County, Billings, Broadview, Laurel	Fire Council	County DES, City of Billings Planning Department, City of Laurel Fire Department, Town of Broadview Town Council	High	County & City General Funds, Local Staff Time	Ongoing	High	Annual Implementation
73	Install HVAC systems that meet air quality system specifications for high dust and ash filtration at all designated County emergency shelters to mitigate volcanic ash risk	Volcanic Ash	Yellowstone County, Billings, Broadview, Laurel	Yellowstone County DES	County DES, City of Billings Council, Laurel Fire Department, Town of Broadview Town Council	Medium	FEMA HMA HMGP Grants	Long-Term	Low	New in 2023

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

- BBWA – Billings Bench Water Association

BLM – Bureau of Land Management

BNSF – BNSF Railway

BRIC – Building Resilient Infrastructure and Communities Program

BZPP – Buffer Zone Protection Program

CAP – Community Assistance Program

CDBG-MIT – HUD Community Development Block Grant Mitigation

COAD – Community Organizations Active in Disaster

DCIP – Department of Defense (DoD) Defense Critical Infrastructure Program

DEQ – Department of Environmental Quality

DES – Department of Emergency Services

DHS – Department of Health Services

DPHHS - Department of Public Health and Human Services

DOT – Department of Transportation

EDA – Economic Development Administration

EPA – Environmental Protection Agency

EQIP – Environmental Quality Incentives Program
- FMA – Flood Mitigation Assistance

FRA – Federal Railroad Administration

HMA – Hazard Mitigation Assistance

HMGP – Hazard Mitigation Grant Program

HS GP – Homeland Security Grant Program

ISR – Infrastructure Security and Resilience Grant Programs

LEPC – Local Emergency Planning Committee

MT DNRC - Department of Natural Resources and Conservation

NRCS – USDA Natural Resources Conservation Service

NTSB – National Transportation Safety Board

NWS - National Weather Service

PAS – Planning Assistance to States

Project SERV – U.S. Department of Education's Project School Emergency Response to Violence

TSGP – Transit Security Grant Program

USACE – US Army Corps of Engineers

USDA – U.S. Department of Agriculture

USACE - U.S. Army Corps of Engineers

K.7 Plan Implementation and Maintenance

Moving forward the Yellowstone 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.

K.7.1 Incorporation into Existing Planning Mechanisms

Yellowstone County and the City of Billings have made significant strides in integrating their previous mitigation plan into their respective planning mechanisms. The County Public Works Department recently updated the Flood Emergency Response Plan to address water and sewer system operations more effectively. The department also oversees the stormwater management program, guided by the Stormwater Management Manual, which is mandated for subdivision infrastructure and site development. This manual provides a framework to mitigate stormwater runoff from new development and redevelopment, aligning with the broader goals of the mitigation plan.

The growth policies for Billings and Yellowstone County reflect the unique needs and priorities of each area. These policies evaluate various elements, such as housing, the economy, community facilities, local services, and natural resources. Despite their differences, these growth policies are designed to be complementary and can function synergistically with other adopted community plans. Although they are not regulatory and do not exclusively dictate planning, their integration with the mitigation plan enhances their effectiveness and ensures that risk management and mitigation objectives are woven into the fabric of local development strategies.

When the opportunity arises, each jurisdiction will follow the process outlined in Section 6.3.3 of the Eastern Region Base Plan to integrate information from the HMP into planning mechanisms. The process for incorporation of the Regional HMP into other planning mechanisms by each jurisdiction can be as simple as cross-referencing the Hazard Mitigation Plan where applicable or including data, goals, or actions from the HMP in these mechanisms. Mitigation projects associated with wildfire can be integrate into the future version of the County's community wildfire protection plan. The Cities of Billings and Laurel and Town of Broadwater each utilize growth or zoning policies to guide development. Findings from the hazard profiles can be incorporated into future revisions of these policies to ensure limited or appropriate growth in high-hazard areas. The CPT will collaborate with the staff responsible for these plans or programs.

Additional opportunities for integration for each jurisdiction are listed below.

Yellowstone County:

- Yellowstone County Growth Policy, 2008
- Yellowstone County Floodplain Regulations, 2017
- Yellowstone County Community Wildfire Protection Plan, 2006
- Yellowstone County Dept. of Emergency & General Services, Capabilities Assessment and Strategic Improvement Plan, FY2023-2028
- Yellowstone County Emergency Operations Plan, 2019
- Yellowstone County Emergency Resource Information, 2016

City of Billings:

- Groundwater Model and Background Data, West Billings Flood Mitigation and Groundwater Recharge Study (PBS&J, 2010)
- City of Billings Growth Policy, 2016
- City of Billings Subdivision Regulations, 2015
- City of Billings Zoning Regulations
- Billings Heights Neighborhood Plan, 2006
- Central Terry Park Neighborhood Plan, 1999
- Highland Neighborhood Lockwood Community Plan, 2006
- Lockwood Growth Policy, 2016
- North Elevation Neighborhood Plan, 1994
- North Park Neighborhood Plan, 2008
- Northwest Shiloh Neighborhood Plan, 2005
- Shepherd Community Action Plan
- South Billings Master Plan, 2012
- Southside Neighborhood Plan, 2008
- West Billings Plan, 2001
- City of Billings Strategic, 2014
- City of Billings Capital Improvement Plan, FY 2020 to FY 2024
- Billings Urban Area Transportation Improvement Program, 2015-2019
- Billings water/Wastewater Master Plan, 2006
- Billings Long-Range Transportation Plan, 2014

City of Laurel:

- City of Laurel Growth Management Plan, 2013

Town of Broadview:

- Town of Broadview Zoning Regulations

The CPT noted that creating a regional hazard mitigation plan will offer insights into the hazards and challenges faced by surrounding counties, aiding in the revision of current plans and the development of future exercises and drills. It will also enhance understanding of how hazards in neighboring counties can impact each jurisdiction, allowing for more effective and efficient planning and response.

K.7.2 Monitoring, Evaluation and Updating the Plan

Yellowstone County will follow the procedures to review and update this plan in accordance with Eastern Montana 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 Yellowstone County Annex to the Eastern Montana Region HMP 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.

K.7.3 Continued Public Involvement

Yellowstone County, along with Billings, Laurel, and Broadview, is committed to involving the public in the review and updates of the MJHMP. The CPT and DES office will review and update the plan annually or as needed. Public feedback will be encouraged, with copies of the plan available at the Yellowstone County DES office, Clerk and Recorder's office, and Billings Public Library. The Plan and proposed changes will also be posted on the Yellowstone County website, which will provide contact information for submitting

comments and concerns. Public meetings will be held at least twice a year to discuss the plan, offering a forum for expressing opinions and ideas. The DES Director will ensure these meetings are well-publicized through the County website, newspapers, and other media outlets to maintain public involvement. The County will also make efforts during plan implementation to increase the participation of underserved communities by holding public meetings in convenient and familiar locations. The County will also consider transportation options and meeting times that better accommodate different schedules, such as evening and weekend meetings.