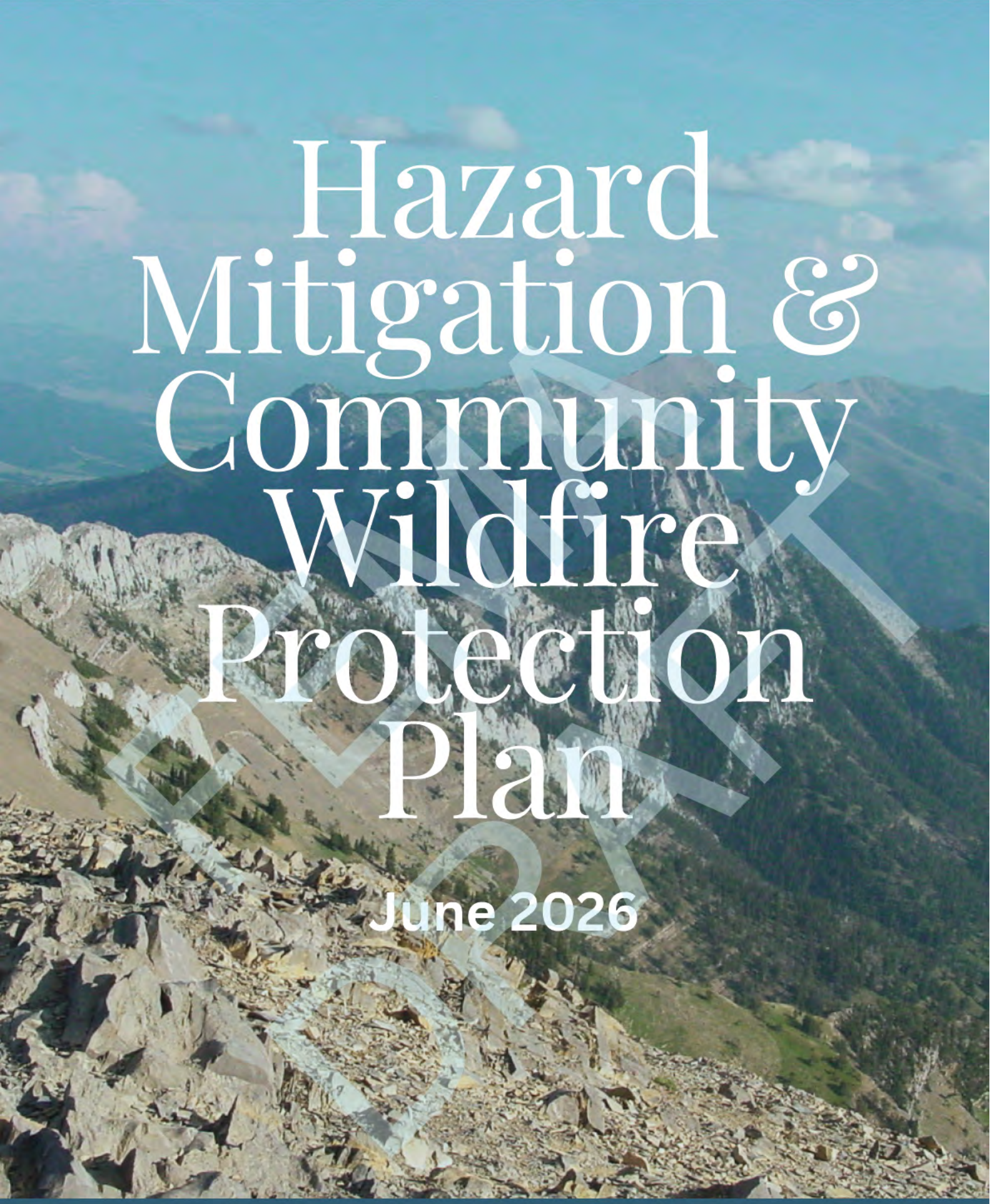


Hazard Mitigation & Community Wildfire Protection Plan

June 2026

Gallatin County Emergency Management

Preparing Our Community

For the communities of:
Belgrade, Big Sky, Bozeman, Manhattan, Three Forks, West Yellowstone and Unincorporated Gallatin County.

Mission Statement

Gallatin County Emergency Management's mission is protecting lives, property, and the environment from natural and man-made disasters through mitigation, preparedness, response, and recovery activities.

Guiding Principles

Maintain and grow **c llaborative** Emergency M nagemen Wildfire, Hazardous Materials and Public Health Eme gency Preparedness Programs

Maint in a **resilient** government to continue s rvices to the communi y in times of need

Support our comm ni y's all hazard response **capabi ities** thro gh rapid deployment to support local partners and our ne ghbors

Motto

Preparing **Our** Community

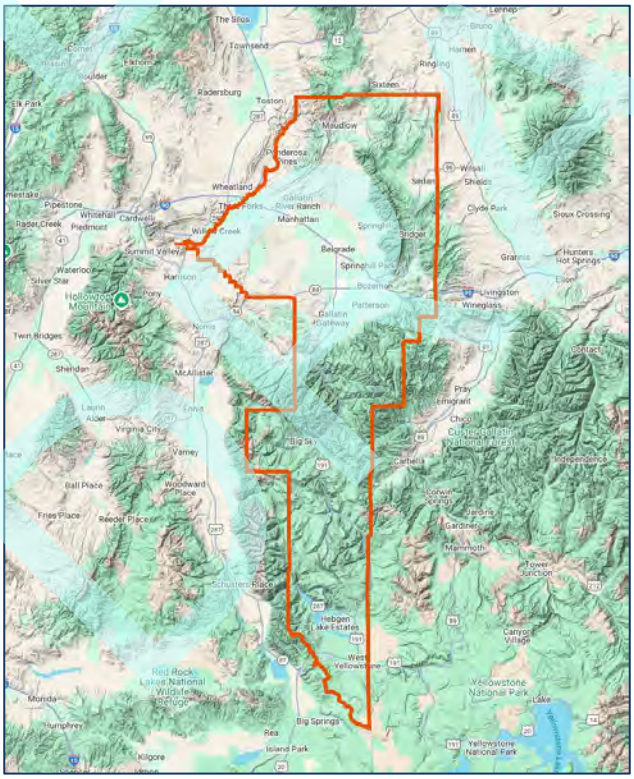


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EXECUTIVE SUMMARY

Disasters can strike at any time in any place. In many cases, actions can be taken before disasters strike to reduce or eliminate potential negative impacts. These actions can often mitigate the adverse effects of disasters and protect life, property, the economic and other values. The Gallatin County Hazard Mitigation & Community Wildfire Protection Plan (HM-CWPP) addresses 30 major hazards with respect to risk and vulnerability across the Gallatin County Emergency Management's service area, including the communities of Bozeman, Belgrade, Big Sky, Manhattan, Three Forks, and West Yellowstone. Through a collaborative planning p oc the hazards were identified, researched, profiled, and prioritized.

The major hazards are each profiled in rms of their aza description, history, probability and magnitude, mapping, vulnerabilities, dat i tations, an her factors. The vulnerabilities to critical facilities; critical infrastructure; structure th opulation economic, ecologic, historic, a social values; and future development are updated for e h hazar Based on the probability a extent of potential impacts that were dentified in the risk as ssment, the prioritizations of az ds within Gallatin County, and the M son unty port on of Big Sky, are displayed in th lan. Th ervice area prioritizations ar derived m haz d prio tization and ranking exercises held at six loc ns across the service a a in late 2024. ach comm y identified and prioritize hazards specific to th community. Th ndividuals' prioritiz hazards were combined for a ov ll service area wide hazard table. Estim s of risk fo he Service A a were developed using thodologies omoted by the Federal Eme ncy Ma gement Agency's (FEMA) Local Mitigation P ning P cy Guide [FP 206-21-00]



GCEM Service Area Map

2024 Service Area Hazard Prioritizations

	Probability of Occurrence	Population Impact	Property Impact	Economic Impact	Relative Overall Risk
	(0-3)	(1-3) raw	(1-3) raw	(1-3) raw	(0-54)
Wind Events	3.0	3.0	3.0	2.0	51.0
Earthquake	2.5	3.0	3.0	2.8	44.6
Railway Incidents	2.8	2.8	2.5	2.3	42.6
Severe Weather	2.8	2.7	2.5	2.0	42.5
Electrical Outage	3.0		1.5	1.5	40.5
Wildfire - WUI	2.8	2.3	2 3	2.2	39.2
Community Access	3.0	0	1.0	2.0	39.0
Air Quality	3.0	3.0	1.0	1.0	36.0
Critical Infrastructure Failure	0	2.7	1.3	1.3	6.0
Public Notification Limitations	3.	3.0	1.0	1.0	36.0
Utility Outage - Water & Gas	2.8	2.5	1.8	1 0	33.0
Communicable Disease	2.8	2.7	1.2	2	6
Flooding	2 7	2.3	1.5	1.7	31.
Water Supply/ Dro ht & Quality		2.5	1.3	1.5	31.1
Wildland Fire - F est	3.0	2.0		2.0	30.0
Cybersecuri	2.5	2.3	1.3	1	25.6
Urban Confl ation	2.3	1.7	3	1.7	21.8
Haza us Mat l ncident	2.2	2.0	1.	1.3	21.7
Tr sportation Acc nts	2.8	1.4	1.0	1.0	20.2
ctive Killer	2.0		1.3	1 3	20.0
Mental He h	2.5	1.5	1 0	1	18.8
iatio ncidents	2.7	.0	1.5	1.0	18.7
Co unity Resilience	2 0	0	1.0	1.0	18.0
Mass ualty Incident	3.	1	1.0	1.0	18.0
Illegal Dru	2.5	1.0	1.5	1.0	17.5
Terrorism	1.8	2.0	1.3	1.3	17.1
Volcano Eruption	1	2 8	2.8	2.8	16.8
Dam Failures	1.3	1.7	1.5	1.5	12.7
Landslide & Avalanche	1.8	1.0	1.0	1.3	10.9
Violence and Civil Unres	8	1.0	1.0	1.0	10.8

The following goal are outlined in the Mitigation Strategy (Section 5.0) based on risk assessment results:

- Goal 1: duce impacts f m wildfire
- Goal 2: Red e impact rom severe weather and drought
- Goal 3: Reduce cts from earthquakes
- Goal 4: Reduce impacts from critical infrastructure disruption
- Goal 5: Reduce impacts from flooding
- Goal 6: Reduce losses from a transportation or hazardous materials accident
- Goal 7: Prevent significant loss of life from communicable disease and bioterrorism
- Goal 8: Promote all-hazard mitigation measures

Associated with each of the goals are objectives and mitigation actions that range from implementing security measures to increasing available data to providing community education. The mitigation projects are prioritized based on cost, feasibility, population benefit, property benefit, and the probability and impact of the hazards being mitigated. An implementation plan outlines the suggested course of action, given the limited resources available to Gallatin County and individual jurisdictions. Gallatin County Emergency Management (GCEM) is responsible for implementing and maintaining the plan. Other recommended activities, such as integrating this plan into a variety of county, city, and town plans, regulations, and documents, will further the goals of hazard mitigation throughout the service area.

The Gallatin County HM-CWPP has been prepared in omplian w Section 322 of the Robert T. Stafford Disaster Relief and Emergency A sistance Act taff d Act),42 U.S. C. 5165, enacted under Sec. 104 of the Disaster Mitigation Act of 0 (DMA 20 Public Law 106-390 of October 30 2000, as implemented in Title 44, Chapter 1, Part 01 he Code Federal Regulations (CFR) date ctober 2007, and most recently amended on Oc ber 2015 (FR 59459). The HMP i ludes risk assessments for multiple ha ds a public ou reach rt, and development of a mit at strategy that incorporates measures in de eliminate or reduc the effects of future disas s within llatin County Emergency M nagemen Service a

The U.S. Con ss passed historical, i-partisan legislation, The Heal y Forests Restoration Act (HFRA), in 03. This leg ation expand he initial effort under the I and direct ederal agencies to collaborat with c mmunities in developing CWPPs which in de th identification and priori zation of a needing hazar us fuels treatment. It further provides rtunities and authority fo federal agencies expedit he National Environmental Policy Act (NE A) process for fuels eduction projects on fe al nds. The act also requires th 50% f funding alloca d to fuels projects e used in he WUI.

FEM requires state, tribal, and local governm ts to develop n dopt hazard mitigation plans as a conditio for receiving certain types of n-emer ncy disas assistance, including funding for mitigation ojects. Through the Haz d Mitigati Assistanc (HMA) grant programs (Hazard Mitigation Grant Program-HMGP, P Disaster Mit ation-PDM, B ilding Resilient Infrastructure and Communities (BRIC), Flood Mitigation ssista -(FMA), A offers planning grants that support state, tribal, and local governments in d oping and updating mitigation plans. Montana State Resiliency Fund has also b g al fundin o match federal programs in recent years.

This plan has been proved by FEMA an accep ed hazard mitigation plan; therefore, the county and various jurisdi ns associated with he plan may be eligible for federal mitigation funds and grants. This plan serve s a guide for u erstanding the major hazards present in Gallatin County Emergency Management s rvice Area nd provides a strategy for preventing or reducing some of the potential impacts that coul esul om these hazards.

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LIST OF ACRONYMS

ACS – American Community Survey (US Census)
AHAD – All Hazards All Disciplines
A.D. – Anno Domini
BFE – Base Flood Elevation
BLM – Bureau of Land Management
BNSF – Burlington Northern Santa Fe
BP - Burn Probability
BTU - British Thermal Unit
CAMA – Computer Assisted Mass Appraisal
CDBG – Community Development Block Grant
CDCP – Centers for Disease Control & P ention
CFL - Conditional Flame Length
CFR – Code of Federal Regulations
CFS – Cubic Feet per Second
CGNF – Custer-Gallatin Nat al Forest
CMZ – Channel Migration Z e
CWPP – Community Wildfire P tection n
DEM – Digital Ele tion Model
DEQ – Departm t of Environmental uality
DES – Disas and Emerg cy Services
DHS – Dep ment of H meland Security
DMA Disast Miti tion Act
DNRC – Departm of Natural R ources and Conservation
D T – Department o Transpo tion
DPHHS – D artment o ic Health and Human Servic
EAP – E rgency Action Plan
E A Economic Development Administration
EO xecutive Order
EOC – ergency Operations Center
EMS – Em gency Medical Services
EPA – Environmental Protection Ag cy
EPCRA – Emergency Planning Comm ity Righ o K
ERC - Energy Release Component
FACLN - Fire Adapted Com ities Learni Network
FBI – Federal Bureau of vestigati
FEMA – Federal Em gency Managem t Agency
FIRM – Flood Insu nce Rate Map
FIS – Flood Insurance udy
FLAME - Federal Land A sistance, Mana ement, and Enhancement (Act, 2009)
FMA – Flood Mitigation As tance
FR – Federal Register
FRA – Federal Railroad Administ tion
FS – Forest Service
FWS – Fish & Wildlife Service
GCEM – Gallatin County Emergency Management
GIS – Geographic Information System
GNFAC – Gallatin National Forest Avalanche Center

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HAZMAT – Hazardous Materials
HAZUS-MH – Hazards United States Multi-Hazard
HFI - Healthy Forests Initiative (2002)
HFRA - Healthy Forests Restoration Act (2013)
HMGP – Hazard Mitigation Grant Program
HMP – Hazard Mitigation Plan
HUD – Housing and Urban Development
HVAC – Heating, Ventilating, and Air Conditioning
ITRR – Institute for Tourism & Recreation Research
LANDFIRE – Landscape Fire and Resource Manag ment nning Tools Project
LP – Liquefied Petroleum (propane)
MATIC – Montana All Threat Intelligence Center
MCA – Montana Code Annotated
MCI – Mass Casualty Incident
MDT – Montana Department of Transport ion
MRL – Montana Rail Link
MSU – Montana State Univ ty
NCDC – National Climatic D a C er
NEPA - National Environmenta Policy A
NIFC – National In agency Fire nter
NIH – National stitutes of Health
NFIP – Natio al Flood Insu nce Progra
NFP – Nati l Fire Pla
NID – Nationa ven ry of Dams
NO A – National eanic and At ospheric Administration
N S – National Park rvice
NPMS – Na onal Pipeli M pping System
NRCG - N rthern Rockies Coordinating Group
N CS Natural Resources Conservation Service
NRM CD – Northern Rocky Mountain Resour Conservation n Development
NTSB National Transportation Safety Bo d
NWCC – tional Water & Climate Ce r (USDA)
NWCG - National Wildfire Coordina ng Group
NWS – National Weather Service
OPEC – Organization of Petroleum Expo ng ountries
PCB – Polychlorinated Biphen ls
PDM – Pre-Disaster Miti tion
PGA – Peak Ground celeration
PSA - Predictive S ice Area
RAWS – Remote Au mated Weather Sta ns
RFA – Rural Fire Assist ce
RFP – Request for Proposa
RFC – Repetitive Flood Claim
SARA – Superfund Amendment d Reauthorization Act
SARS – Severe Acute Respiratory Syndrome
SBA – Small Business Administration
SFHA – Special Flood Hazard Area
SHELDUS – Spatial Hazard Events and Losses Database for the United States
SRL – Severe Repetitive Loss

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STAPLEE – Social, Technical, Administrative, Political, Legal, Economic, Environmental
URL – Uniform Resource Locator
USACE – United States Army Corps of Engineers
USDA – United States Department of Agriculture
USGS – United States Geological Survey
USFA – United States Fire Administration
USFS – United States Forest Service
VFA – Volunteer Fire Assistance
WFDSS - Wildland Fire Decision Support System
WMD – Weapons of Mass Destruction
WPDG – Wetland Program Development Grant
WRCC - Western Regional Climate Center
WUI – Wildland Urban Interface
YNP – Yellowstone National Park
YVO – Yellowstone Volcano Observatory

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Introduction



1.0 INTRODUCTION

Emergency management is typically divided into four interrelated actions: mitigation, preparedness, response, and recovery. This plan focuses on the mitigation phase only. Mitigation actions involve lasting, often permanent, reduction of, exposure to, probability of, or potential loss from hazard events. These actions tend to be centered on where and how to build, improvements and modifications (retrofits) to existing structures to increase resiliency and management of potential hazards such as wildfire fuel mitigation activities. Examples inclu e z g and building code requirements for building or rebuilding in high hazard areas, floodpla buyouts, d wildfire mitigation. Mitigation also involves educating businesses and the public on sim le me ures th y an take to reduce loss and injury, like fastening bookshelves, water ers, and filin binets to walls to keep them from falling during earthquakes.

Cost-effective mitigation measures are the ke to re ing d aster losses in the long te In hazard-prone areas, mitigation can ea he cycle of aving t ebuild repeatedly with ev y recu nce of floods, wildfires, earthquakes, other ards. Where there is a willingness to mitigate, opport ties can be found to mi mize future pacts. It nerally considered that f every dollar spent mitigation activi s, there is a six-do r benefit to the community. On ng efforts might include: educating th private secto about what can do to mitigate at hom and at work eaching out to planning, zo ng, and velopment agencies to ensure that hazard ndition are considered in comp hensive n construction ermits, building codes, design app s, etc.; and creating inv ntories of exist structures nd their vulnerabilities, to aid mitigation pl ing. Planning is also eeded to take advantag of m gation opportunities in the fte th of an emerge y or disaster when hazard aw ness is high, f nds are possibly available, and d uption o status quo makes it possible t ethi k design and location of some facilities and infrastruc e. Atte ion to gation opportunities can ke communities safer. The HM-CWPP is combined ef rt f Gallatin and Madison Counties; the citie f Bozeman, Belgrade, and Three orks; th Towns of anhattan and West Yellowstone; the community f Big Sky; and the public

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1.1 PURPOSE

Gallatin County recognizes that hazards, both natural and human-caused, threaten communities. Rather than wait until disaster strikes, the jurisdictions can take proactive measures to prevent losses and lessen the impact from these hazards. Actions taken to reduce or eliminate the long-term risk from hazards are defined as mitigation. Disaster mitigation is an investment that can save lives and money.

The purpose of this HM-CWPP is to:

- Serve as a consolidated, comprehensive so c f hazard information
- Educate the communities, including governm nt leaders d the public, on their vulnerabilities
- Fulfill federal, state, and local h a d mitigation nning responsibilities
- Prioritize and promote cost-effect e m gation so ions
- Support requests for grant funding
- Encourage long-term om nity susta nability

Effective mitiga n planning prom s a broader understanding of th hazards threatening the communities nd provides clearer visi and competitive edge for f ure mitigatio grant funding. By integrat mitigati concepts into local thinking, the comm ities wil find many more opport nities fo dis er resistance b yond grant funding. For example, t c sideration of disaster mi gation when d gning subdi sions may include multiple access points removal of drinking ater wells from the fl dplai hat will provide greater di st sistance, reduce ture expenses and contribute community s tainability.

The p n's intent is to assist the communities i king financi cisions for mitigation projects and clarify a ions that could be taken throu additio l funding Through an effective and inclusive planning pr ess, communities will b ome more are of thei azards and will take a proactive approach to disaster prevention and igation.

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1.2 AUTHORITIES

The Gallatin County HM-CWPP was prepared in compliance with Section 322 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act),42 U.S. C. 5165, enacted under Sec. 104 of the Disaster Mitigation Act of 2000 (DMA 2000), Public Law 106-390 of October 30, 2000, as implemented in Title 44, Chapter 1, Part 201 of the Code of Federal Regulations (CFR) as amended. This legislation required all local governments to have an approved hazard mitigation plan in place to be eligible to receive Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation (PDM), Building Resilient Infrastructure and Communities IC) and Flood Mitigation Assistance (FMA) funding, as well as other types of disaster and mitiga n fun

Gallatin and Madison Counties and the ci es of Bozem Be rade, and Three Forks, and the Towns of Manhattan and West Yellowstone hav a ted this HM CWPP by resolution (see **Appendix G** for copies of the resolutions). These governing bo s have th uthority to promote mitigation tivities in their jurisdictions. This plan is developed prom gated, d maintained pursuant to t following state and federal statutes an ulations:

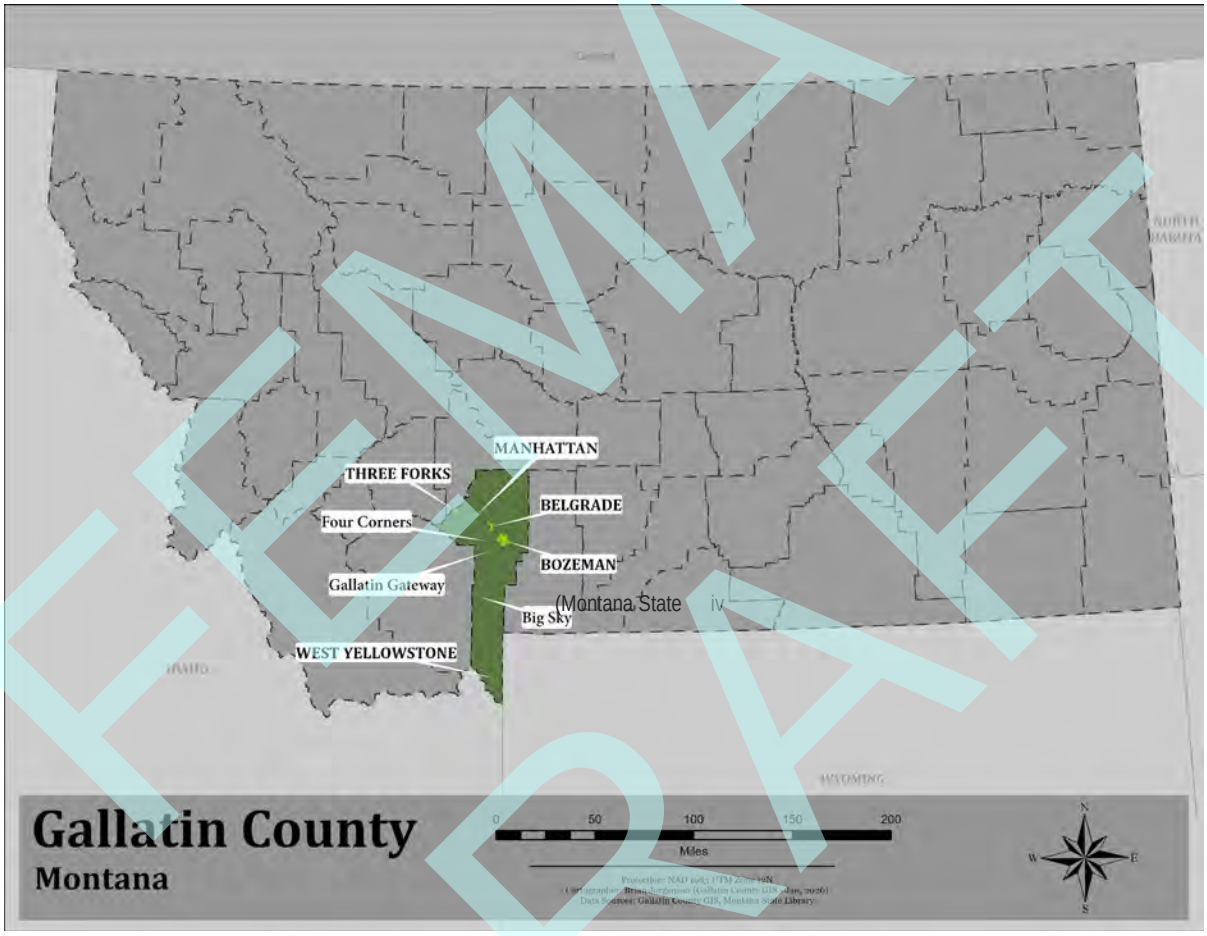
- Code of Fed al Regula ns Title Pa 201, 205 and 206
- Public L w 106-390, Disast Mitigation Act of 2000
- Pub c Law 93-28 The Disaster elief Act of 1974, as ame ed by Public aw 100-707, the R ert T afford Disaster Relief and Emergency Assistan Act

  Public L 96-342, Impr ed Civil Defense 1980
- Public Law 9 499, S perfund Amendment and horization Act (S RA) of 1986, Title III Emergency P ning Community Right-to-Kn w (EPCR Title 42, Ch pter 116
- Public Law 920, Federal Civil Defense Act of 1950, amen d
- Public Law 105-19, Volunteer Prote ct of 1997
- R ponse to Hazardous Materia Incidents itle 10, Ch ter 3, Part 12 MCA

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1.3 BACKGROUND

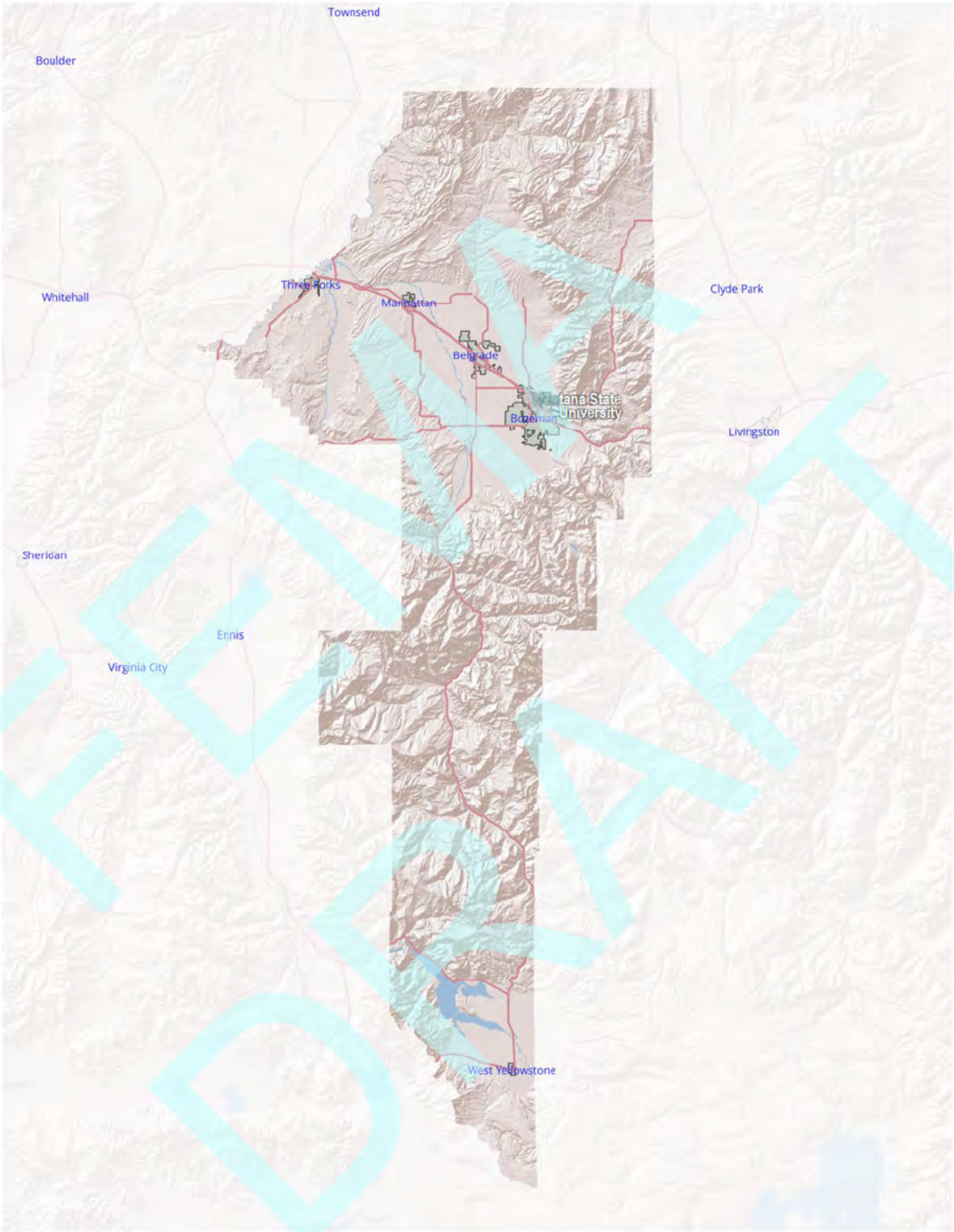
Gallatin County is located in southwest Montana as shown, with an area of approximately 2,631 square miles and elevations ranging from approximately 4,000 to 10,700 feet. Gallatin County is bordered by Meagher County to the north, Park County to the east, Jefferson and Broadwater Counties to the northwest, Madison County to the west, and Yellowstone National Park to the southeast. The City of Bozeman is the county seat and other incorporated communities include the cities of Belgrade and Three Forks, and the Towns of Manhattan and West Yellowstone. The communities of Big Sky, Four Corners, and Gallatin Gateway represent other popu centers.



Gallatin County Location

Gallatin County Em gency Managemen ervices 2 27 square miles (2631 Gallatin & 96 Madison) of land area varying in opography. Nearly alf of all the land in the Service Area is under public ownership by the USD Forest Service State of Montana, Bureau of Land Management, or the National Park Service. The vice Area ntains several mountain ranges which are marked by pristine rivers, creeks, and streams. T Ga tin River flows through Gallatin County from the top of the Gallatin Canyon where it combin with the Madison and Jefferson Rivers near Three Forks to form the headwaters of the Missouri River.

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Gallatin County Features

The climate of service area varies greatly. Below are the climate statistics recorded by four weather stations positioned within the service area.

Gallatin County Climate Statistics [National Weather Service, 2025]

	Bozeman Airport	Bozeman MSU	Big Sky 2 NW - (Data stopped in 2021)	West Yellowstone Gate
Records Began	1941-2025	1892-2025	1967 - 2021	2007-2025
Annual average Maximum Daily Temperature	56.8	56.2	51.6	50.9
Annual average Minum Daily Temperature	29.1	32	23.8	19.5
Annual Average Total Precipitation - inches	13.43	20.03	23.31	25.97
Annual Average Total Snowfall - inches	NA	91.3	174.6	135.5
All Time Maximum temperature	106 on July 6, 2007	105 on July 31, 1892	95 on July 13, 2002	95 on July 11, 2022
All Time Minimum temperature	-46 on Dec 24, 1983 and -46 on Jan 26, 1957	-43 on February 8, 1936	-42 on February 3, 1989	-49 on December 22, 2022
Annual Average number of days below freezing	196 Days	178 Days	221 Days	245 Days
Annual Average number of days staying below freezing	51 Days	46 Days	52 Days	77 Days
Annual number of days 90 degrees or warmer	21 Days	8 Days	1 Day	2 Days
Highest Annual precipitation - inches	20.04 inches in 1969	25.57 inches in 1997	27.08 inches in 2005	27.35 inches in 2022
Lowest Annual precipitation -inches	8.65 inches in 1961	10.54 inches in 1934	13.32 inches in 1988	20.09 inches in 2020
Highest Annual Snowfall -inches	NA	158.5 -> July 1996 - June 1997	244.9 -> Jul 2007 to Jun 2008	226.1 in - July 2010 thru Jun 2011
Highest 1 day maximum precipitation - inches	2.14 inches - June 25, 1969	2.68 inches - May 7, 1988	1.96 inches - June 13, 2001	2.18 inches - June 13, 2022
Highest 2 day maximum precipitation - inches	3.10 inches - June 25-26, 1969	3.40 inches - June 25-26, 1969	2.57 inches - May 9-10, 1991	3.08 inches - June 5-6, 2009

Data Abnormalities:

- *Trident stopped being a station in 2010 and was removed from this upda*
- *Big Sky stopped being a station in 2021, d was still used but will not be id in the ne ion..*
- *Belgrade ASOS had an error of about warm in July 2007. De n was to lea as is, so Belgrade probably has temperature records l nev oken*
- *July of 1892 was very warm for Bozem U W d ys at Bozeman M were the first d came on-line and are suspect. (Otherwise, the m never goes 100 degrees at Bozeman MSU again, in 133 years.)*

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1.4 PLAN SCOPE AND ORGANIZATION

The Gallatin County HM-CWPP is organized into sections that describe the planning process (Section 2.0), assets and community inventory (Section 3.0), risk assessment/hazard profiles (Section 4.0), mitigation strategies (Section 5.0), and plan maintenance (Section 6.0). Appendices containing supporting information are included at the end of the plan.

This plan, particularly the risk assessment section, outlines each hazard in detail and how it may affect the Plan's service area. The mitigation strategy ou s long-term solutions to possibly prevent or reduce future damages. Additional hazards may exi that w not apparent to local government or participants through the development of this plan, an certainly d ers can occur in unexpected ways. Although any and all hazards can t be fully m igat , this plan will help the communities understand the hazards better and becom m e disaster r tant and resilient.

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Planning Process & Methodologies



2.0 PLANNING PROCESS AND METHODOLOGIES

Mitigation planning is a community effort and takes time and expertise. For Gallatin County, an effective Hazard Mitigation and Community Wildfire Protection Plan require input from a variety of stakeholders, including elected officials, first responders, emergency management, healthcare providers, public works, road officials, state and fed al cies, businesses, non-profit organizations, academia, and the public. After a disaster, many o hese sta lders will be overwhelmed with recovery responsibilities. Therefore, planning for miti tion an invo as many stakeholders as possible before a disaster occurs will m mitigation a ivi es easier after a disaster and may even prevent the disaster in the first place.

2.1 INITIAL PLANNING PROCESS

The planning process for th coun 's first ha ard mitigation plan began in Jan ry 2001 ith an advertised public mee ng that w held to ick o f original Project Impact effo s. Over several y rs, Project Impact wa phased out and e Gallatin ounty All Hazards All D ciplines (AHAD) grou became the pri ary guiding body for h rd mitigation. In 2026 AHAD w s replaced with the Gallatin Emergency lanning Co mittee (EPC). The EPC group consist f represent ves from local emergency m geme , fire services medical and health services, law nforc ment, media, public indiv uals, volun organization and government administration.

n 2011, the 5-year plan vi n process was initiated wit pub takeholder me gs. This process ulminate in an updated HMP that was approved by FEMA n Septem 18 2012.

In 2 8 the Hazard Mitigation Plan update p s was starte d the County's 2009 Community Wildfire otection Plan was integrated as append This upd e concluded with FEMA's adoption on January , 2021.

2.2 PLAN UPDAT PROCESS

In late 2024 Gallatin C nty began th ext upda of this plan with the primary goals of including the Madison County p ion of Big Sky an etter integrating the Community Wildfire Protection Plan component. Parts of planning process ere delayed in 2025 due to frozen federal funds, contractor delays and competing p jects. The plan was completed in mid 2026 and submitted to FEMA for review.

The AHAD group once again ser ed as the managing body for HM-CWPP participation and review via presentations of plan status and solicitation of comments and input. Community, topic and discipline specific meetings were also held for specific activities such as hazard identification and prioritization, goal and objective development and CWPP data review.

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The 2026 Plan update builds on the original 2021 plan with revised data for each of the defined hazards, and an updated and reprioritized list of goals and actions to mitigate identified risks. These risks were discussed with community members in several public meetings held across the county.

The plan update process consisted of the following steps:

1. Initial review of the existing plan was undertaken by staff.
    a. Base data tables updated by staf
2. A proposed outline for the updated plan was velope
3. Initial public meetings were held to inform th public n the p ming plan update, and to solicit preliminary comments. Th eetings wer ad rtised in the Bozeman Daily Chronicle, on the GCEM website, and invita on were sent d ectly to identified stakeholders.
    a. Meetings were held in com unities.
4. Subsequent public meetings wer held o re iew, determine what ges and accomplishments h ta place in t e county nd the jurisdictions over t past f years, and to brainstorm ideas ew ha ds m igation strategies) for the updated version.
5. Contractor as hired to con ct Quantit e Wildfire Risk Assessm t.
6. The M gation Strat gy and rem ining sections were updated.
7. Sta olders we asked to review the draft plan and provide c ments.
8 Definiti of Wildland Urba Interface was developed and adopte
9. The Draft F l plan up te, was posted on the GCEM website and dis uted for review and comment.
10. F lowing the public comment period, any commen received w incorporated and the final plan was sent to the state and FEMA for review.
1 Jurisdictions adopted the updated pl er before mmediately after state and FEMA ditional approval.

2.2.1 COMMUNITY CHAN S

A driving force in updating this type of p n inv ves the changes that have occurred in the community over the past five years. Perhaps the bigg change in plan's service area has been the significant increase in population a the ass ted com rcial and residential housing growth. According to U.S. Census estimate the Gallatin Co ty popul n increased by 57% over the past 20 years with 80,778 residents in 05 and 126,984 in 2 24 [U.S. Census Bureau].

2.2.2 PLAN CHA GES

Another principal componen upd ng the plan is adherence to the latest requirements for HMP development, as provided by th deral government. Compliance requires periodic additions and changes to the plan. Appropriate changes were implemented and reviewed by the communities. Other changes were proposed by community members and included where applicable. Data, methods, and information used in the 2020 plan were reviewed by staff and changes made where updated information was available. Other items, such as mitigation actions and plan maintenance procedures, were reviewed

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by local individuals and changes made as necessary. **Appendix D** provides a summary of HM-CWPP changes completed with this 2026 update.

This 5-year plan review featured updates to all sections to improve readability, usability, and methodologies. Specifically, the following major changes were part of the plan's update:

- Reformatting of document
- Incorporation of each communities hazard r king for each hazard profile, along with the consolidated county wide ranking.
- Updated Geographic Information System (GI mapping
- True integration of Community ldfire Protec n P an into the Wildfire Hazard Profile.
- Cost estimates were shifted to sc ar and mark rate based approaches due to signi ant holes in data, especially for government frastruct e.
- New mitigation goal and strategies ere ad d some were modified, and oth moved to reflect current con ons d complet n of mi ation actions from the pr ous pla

2.2.3 Juri ICTION Pa ICIPATI

This plan incl des the follow ng commu ies and jurisdictions:

- Galla C nty
- City of B rade
- Community Big ky
- ty of Bozeman
- Town of Ma tta
- City of Three Fo
- n of West Yello tone
- Madison nty

Each urisdiction participated in a variety of w ys depending n he resources that were available. Repres atives from several county office were a ve in all a ects of the plan's update. The cities and towns rticipated in the plan's up e by sendi representa ves to public meetings, discussing elements of the plan at the public m etings, provi ng informati and comments when requested, hosting public meetings, and reviewing he draft an. **p i C** provides copies of sign in sheets for the plan revision process. **Appendix** pr ides a general list of project stakeholders; stakeholder participation invitation lette munity le rs and e-mail notices for public meetings; legal order confirmation; and e-mai nnouncem ts and G EM webpage postings used to solicit comments and feedback for draft ve ons of the HMP

2.2.4 Neigh RING Commun IES

Representatives from B dwater, Madi n and Park counties were invited to participate in the planning process via person letter an ttended at least one meeting. Invitation letters were not sent to representatives in either Jef so or Meagher counties, and no one participated in the planning process from those jurisdictions. I is noted that both Jefferson and Meagher counties have relatively small borders with Gallatin County with no primary connecting roads and limited interaction.

2.2.5 Public Participation

To encourage public interaction and participation in plan content and development, meetings were held in 6 communities across the County.

- West Yellowstone
- Big Sky
- Bozeman
- Belgrade
- Manhattan
- Three Forks

Initial public meetings were held in fall 2024. Num ous top pecific meetings were held through 2025 and 2026. Updates and discussions were prov ed every th onth at the All Hazard All Discipline Meeting. Invitations and notic for all activi s w e distributed to planning partners. The completed draft document was posted on GCEM webs in Summer 2026. Public comments could be provided by email or via an online f m r comme s available on the GCEM web e. Any comments received were reviewed and integ ated ere app cable. Comments were read accepted throughout the planning proc ss

Since county commission an own ncil me tings are also open public meetings, the disc ions and subsequent adop on of the n by th ov rning bodies provided addi nal opportunities r public comment he jurisdictions dvertised these meetings using their sual public notificatio procedures, ty ally by posting meeti agendas on their websites, in cal newspapers, and at the meeting loc ons.

All urisdictions ad ted the pla hrough resolution or executive letter upon ompletion.

2 6 INCORPORATION OF EXISTING INFORMA ON

In rm tion from existing plans, studies, reports, and tec ical formation related to hazards, mitig on, and community planning were d via pers contact throughout the planning process, d by reviewing 2020 plan. M y nation and state lans, reports, and studies provided background nformation. Data processi g and map pr duction was mpleted by Gallatin County using information collected from a wide va ty of sour d bject matter experts. The information was organized into a clear, usable, and maint abl ormat for the county ensuring that federal regulations regarding hazard mitigation plans were me A list of existing local plans and documents that were evaluated as part of pla develop nt and a included below as a list of reference sources for information accessed nd included in th HM-CW

Existing Loca ans and Documents Incorporated

n/Report/Stud Name	Plan/Document Date
Gallatin County Grow Polic	December 2024
Gallatin County Subdivis Regulations	January 2025
City of Bozeman Capital Improvements Program (FY 2025 – 2029)	December 2023
Prospera Economic Profile of Gallatin and Park Counties	2023
Bozeman Municipal Code	February 2026
Bozeman Community Plan (Growth Policy)	November 2025

Bozeman Unified Development Code	February 2026
Belgrade Growth Policy	January 2020
West Yellowstone Growth Policy	2017
Manhattan Municipal Code	September 2023
Belgrade Municipal Code	December 2023
Three Forks Municipal Code	January 2024
West Yellowstone Municipal Code	September 2025
City of Bozeman Drought Management Plan	May 2022
Gallatin County Hazardous Materials Plan	April 2009
Gallatin County Emergency Management Plan	N ber 2022
Gallatin Triangle Community Pl	March 2020
Greater Bozeman Area Transporta on an (2007 date)	2007
Bozeman Transportation Master Pla	April 2017
Belgrade to Bozeman Corridor, Fronta e Roa Study	May 2017
City of Bozeman Cli te lnerability ssessm t and Resiliency Strategy	April 2019

The Gallatin ounty HMP a living, exp dable document that can h e new inform tion added and changes mad s neede The plan's purpose is to improve disaster r tance t ough projects and progr ms, and th f e, opportuniti for changes and public involvement xist as disasters occur an mitigation con ues. Detail on the plan's maintenance and continued p lic involvement are urther outlined in Sect 6 Plan Maintenance.

2. Risk Assessment Methodologies

A key ep in preventing disaster losses i Gal n County d the incorporated jurisdictions is developing comprehensive understan g of the zards that se risks to the communities. The following terms can be found through ut this plan[1]:

- **Hazard:** A source of danger
- **Risk:** Probability injury
- **Vulnerabilit** Open to attack r damag

This all-hazard risk as sment and mitiga n strategy serves as an initial source of hazard information for those in Service Area ther plans ma be referenced and remain vital hazard documents, but each hazard has its own profile in s plan s more data becomes available and disasters occur, individual hazard profiles and mitigation egies can be expanded, or new hazards are added. This risk assessment identifies and describes the hazards that threaten the communities and determines the values at risk from those hazards. Risk assessment is the cornerstone of the mitigation strategy and provides the basis for many of the mitigation goals, objectives, and potential projects.

[1] Local Mitigation Planning Policy Guide, 2022; Local Mitigation Planning Handbook, 2023

The assets and community inventory section includes elements such as critical facilities, critical infrastructure, population, structures, economic values, ecologic values, historic values, social values, current land uses, new development, and future development potential. The list of critical facilities and infrastructure included in the previous HMP were reviewed and updated to reflect current locations and status of these assets.

Individual hazard profiles allow for comprehensive analysis of each hazard from many different aspects. Each hazard profile contains a description of the hazard containing information from specific hazard experts and a record of the hazard history com le m a wide variety of databases and sources.

Using local historical occurrence, or more specific cument on ailable, a probability was determined. In most cases, the number o ears recorde wa divided by the number of occurrences, resulting in a simple past-determined rec rr e interval the hazard lacked a definitive hi torical record, the probability was assessed qualitat vely sed on re onal history or other contributi g factors. The magnitude or extent of the hazard descr es a r listic a roximation of the worst e scenario. This qualitative approxima based on pas occurre es in the county or in nearb coun s If the past occurrence was not an a urate resent ion, general knowledge of the hazard was u d to approximate the typ of impacts t are exp e from a low-frequency, high magnitude event.

Mapping of th hazards, wh re spatial ifferences exist, allows for h ard analyses by geographic location. S e hazards ch as riverine flooding, can have varying els of risk ased on location (i.e., n ar the r r ve us far away f m the river). Other hazards, such win r storms or drought, cov larger geogr ic areas and lineation of hazard areas is not typically ilable or useful on the unty scale.

ritical f ilities were mapped using data provided by Galla n County apping of the facilities all d for the comparison of building locations to the hazar rea where such hazards are spatially recog ed. Base maps depicting the critical f ocations w compared to available hazard layers to show proximity of the facilities to he hazard reas. Give the nature of critical facilities, the functional losses and costs for alterna arrangemen typically ex d beyond structural and contents losses. These types of losses can be in rred base nd function of the facility.

Critical infrastructure for s i s such as ectricity, heating fuels, telephone, water, sewer, and transportation systems w assessed a narrati format using history and a general understanding of such systems to det mine what infras cture los s may occur. Basic mapping exists of the road networks in the cou These layers were dditionally compared to the hazard areas. Most of the other types of infrastructure not have digita mapping or were withheld by the managing company for security reasons.

Structures were mapped and an zed in a similar manner to critical facilities. Data showing the locations of most structures countywide was provided by Madison and Gallatin counties. This GIS mapping allowed for comparison of building locations to the mapped hazard areas. Using this technique, an approximate number of structures in the various hazard areas can be determined. The County approached this is a couple avenues and ultimately ended up utilizing a market value approach. It was discovered that very little of our critical infrastructure has an assessed value or square footage

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listed in the Montana CADASTRAL System, or in the case of utilities is lumped together and hard to split out.

Population impacts were qualitatively assessed based on the number of structures estimated to be in the hazard area. Given 99,685 housing units and a population of 126,409, both based on 2023 U.S. Census data (U.S. Census, 2023), an estimate of 1.26 people per structure was derived. Depending on the time of year, population concentrations are likely much greater due to non-resident populations. Other factors used in evaluating the population impacts included the ability of people to escape from the incident without casualty and the degree of warning hat ld be expected for the event. In general, the loss of life and possible injuries are difficult to det mine and nd on the time of day, day of the week, time of year, extent of the damage, and other haz d spec c cond ns.

Qualitative methodologies, such as co pa ons to p vious disasters, occurrences in earby communities, and plausible scenarios, help d de mine th potential losses to economi ecologic, historic, and social values. In many cases, a d lar fig cann t be placed on values, pa arly those that cannot be replaced. The ore hese types f losses re quantified through nar ive des iptions and provide some background what m occu during a disaster.

The assessment n the impact to futur development is based on the mech nisms currently in place to limit or regu e developm t in hazardou reas. Some hazards can b mitigated dur g development, others canno The imp ts were assessed through a narrative on how ture d elopment could be impa d by the d based on cu nt regulations.

Many unknown variab lim the ability to quantitative ass all aspects of azard with high ccuracy herefore, data imitations provide a framewor for identi the missing or variable in rm ion. These limitations were determined by hazard thro gh the sk asses ent process. In some case he limitations may be resolved throu esearch or t collection. If a limitation can be reasona resolved through a mitigation p ject, th esolution included as a potential action in the mitigation s ategy. Other factors were termined b ed on an ev ation of past events and a general understanding of the hazard charac stics. This sic listing of secondary hazards provides a link between the hazard profiles and identif addi onal hazards at may compound the impacts of the primary event (i.e., poor air quality because smoke during a wildland fire).

At the end of the risk essment, the mmary b gs together data from each of the hazards to show comparisons and u mately rank the haz ds by jurisdiction. The overall hazard rating is determined using qualitative rank gs of the probabil of future occurrences and likely impacts when compared to other hazards.

Due to the inherent errors poss le i any disaster risk assessment, the results of the risk assessment should only be used for planning purposes and in developing projects to mitigate potential losses.

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Risk Assessment & Community Inventory



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3.0 Risk Assessment and Community Inventory

This hazard risk assessment serves as a single source for hazard information in the Service Area. Other plans may be referenced and remain vital hazard documents, but each hazard has its own profile in this plan. As more data becomes available and disasters occur, the individual hazard profiles can be updated, or new hazards can be added. This summary of hazar d ntifies and describes the hazards that threaten Gallatin County, including Belgrade, Big Sky, ozema Manhattan, Three Forks and West Yellowstone, and determines the values at risk fro those h a The risk assessment is the cornerstone of the mitigation strategy and rovides the b is f many of the proposed actions.

3.1 Hazard Identification

The Service Area is exposed to many hazards The h rds we identified and profiled th gh several different means. Hazards w in lly identifi d and ra ed by participants in the fir round f public meetings in 2024 by commun A bined ounty wide hazard list was compiled by taki the average score for a ven hazard mong the munities that identified th hazard. For examp Belgrade identifi d railroad hazards, t West Yellowstone has no railro Participants represented governmenta gencies, priv e sector int sts, and the general public

Overa 30 maj h ards with resp t to risk and vulnerabilities were s c d for assessment at a co tywide-level. 2020 Gall n County HMP identified 19 hazard descrip ns. A summary of the hanges in countywide zar dentification includes:

- The 2020 HMP included wildfire as a single category wher he 2026 p an differentiates the difference between fires in the built e nment and t in the backcountry. dditionally, the participants felt e frequ cy and/ or der impact of other hazards were of ore risk from 2025 when ildfire ranke highest.
- The 2020 HMP moved all w her event l category. The 2026 participants felt the increase in damaging wind e nt ustified wind being pulled out and ranked it as the highest risk.
- The 2026 plan dds several h rds that e not a natural hazard and would not be addressed as a traditi al mitigation activi but they felt were impacts to their communities that should be id tified. These inclu Active Killers, Mental Health, and Illegal Drugs.
- Critical Access added as a h ard due to several communities have limited options for egress that could be pacted y numerous types of incidents.
- Air Quality was added d to the increased presence of wildfire smoke impacts and their impacts on health and the tourism economy.
- Public Notifications was identified as a non traditional hazard that impacts our ability to communicate with resident populations in several areas of the County as well as our tourist population.

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The hazards (in alphabetical order) are listed below. The jurisdictions affected, and brief descriptors of how and why the hazard was identified, are provided in this table. The level of detail for each hazard is based on the relative risk to the effected communities and is limited by the amount of data available.

Gallatin County Hazards

Hazard	Jurisdiction	How Identified	Why Identified
Avalanche and Landslide	/ Gallatin County	/ State DES Website / Historical rec m the avalanche.org abas / Colorado Avalan e Info. Cen / Montana Hazard/ nerabili ysis (1989) / U G ational Land e Study / Mo ana partment o Tran ortat District 2 iorities / Public eeting ut / 2018 HAZUS-MH dy	/ Potential for landslides and avalanches due to varied rain / History of fatal avalanches / 2005 HAZUS study iden ified areas of significant la lide risk
Aviation Accident	/ latin County All Incorporated Cities and Towns	/ Feder ion Administration National Transportation Safety ard	/ Potential for mass casualty inci nt / reased aircraft traffic at Bozeman-Yellowstone Internationa irport
Civil nrest	/ Gal in County l Incorporated ies and Tow	State Dept. of Justice website / Public meeting input	Potenti or organized m trations and protests to ca significant disruptions to daily ivities
nicable Dis and Bioter sm	/ Gallatin County / All Incorporated Cities and Towns	/ Centers for Disease Cont and Prevention website / Publi input / L l Health D artment	/ Large nu r of livestock areas H f an influenza outbreak / The area is highly traveled by tourists / Rapid disease spread potential through urban areas
Critical Infrastructure Disruption	/ Gallatin County / All Incorporated Cities and T s	/ blic m ing input / Su matter experts	/ Dependence of population on utility services
Dam Failure	/ Galla County / B ade, Three rks	National entory of Dams ebsite / D m Emergency Action Plans	/ Several high hazard dams and several significant hazard dams exist in the county
Drought	/ Galla County / All Incorp ted Cities and T s	/ M ana Drought Advisory / N onal Drought Mitigation / ata from the Western Regional Climate Center / NOAA Paleoclimatology	/ Frequent historical drought events / USDA Disaster Declarations / Importance of agriculture to the local economy
Earthquake	/ Gallatin County / All Incorporated Cities and Towns	/ Montana Bureau of Mines and Geology / US Geological Survey / 2018 HAZUS-MH Study	/ History of nearby earthquakes greater than 6.0 magnitude / Proximity to the active geological region of Yellowstone National Park

FINAL DRAFT

Hazard	Jurisdiction	How Identified	Why Identified
			/ Numerous active faults in and adjacent to Gallatin County / 2018 HAZUS-MH scenarios defined a significant hazard
Environmental Hazards	/ Gallatin County / All Incorporated Cities and Towns	/ Montana Dept. of Environmental Quality / U.S. Environmental Protection Agency / Public meeting np	/ Recent increases in air quality impacts due to wildfires / Surface and groundwater contamination potential
Flooding	/ Gallatin County / All Incorporated Cities and Towns	/ FEMA; Flood In rance Rat Maps (FIRMs) / U Army Corp of E ine / E	/ History of flooding / Large areas of identified floodplain in developed areas
Ground Transportation Accident	/ Gallatin C ty / All Incorp ed Cities and To s	/ Nat nal T portation fety Boar / Montan Highway trol Federal R lroad Administration / Mo a D artment of Transpor n	/ Heavily traveled Inte te 90 and Highway 191 erse the county / History of s l tran rtation accidents / Poten al for larger tr portation accidents using mass casualties
Haza dous M ials ease	G tin County / l Incorporated s and Tow	/ Gallatin County Hazardous Material Plan Environmental Protection Agency / US Department of Tra rtation Emergency Response and	Fixed faciliti exist in the county tha use hazardous material / r highway and railroad tra transport of hazardous mater / History of zardous material eleases
Ra d Accid	/ Gallatin County / Belgrade. Bozeman, Manhattan, and Three Forks	/ Montana Rail Link flow st y / Publi input / U Dept. of T nsportation	/ Significant rail traffic through county with potentially hazardous cargo
Severe Weather	/ Gallatin County / All Incorporated Cities and Towns	National Cli ic Data Center atabase / N n Weather Service / Storm ediction Center	/ History of severe weather events, including damages
Terrorism	/ atin County / All I rporated Cities a Towns	Bureau o cohol, Tobacco & rearms / F ral Bureau of Investigation / G tin Co. Emergency Operations Pl / uthern Poverty Law Center website / Anti-Defamation League website	/ Heightened alert since September 11, 2001 / Small scale incidents have occurred in Gallatin County / Proximity to Yellowstone National Park and National Forest lands
Urban Conflagration	/ Gallatin County / All Incorporated Cities and Towns	/ Local fire departments, districts and fire service areas	/ Increased urbanization and development densities combined with lighter weight home construction materials
Violence	/ Gallatin County	/ Local law enforcement / Public meeting input	/ Rapid increases in population

Hazard	Jurisdiction	How Identified	Why Identified
	/ All Incorporated Cities and Towns		/ Increased drug traffic and general crime within county
Volcano	/ Gallatin County / All Incorporated Cities and Towns	/ Yellowstone Volcano Observatory / Montana Disaster and Emergency Services	/ Proximity to active volcanic caldera / History of ash fall over the county
Wildfire	/ Gallatin County / All Incorporated Cities and Towns	/ Montana Department of Natural Resources and Conservation / US Forest Ser e / Gallatin County mmunity Wildfire Protecti Plan (CWP	/ Local history of wildfire / Numerous areas of Wildland-Urban Interface (WUI)

3.2 ASSETS AND COMMUNITY INVENTORY

An important piece of assessing the risk of t com unities the studied hazards is to rec gnize what assets are more vulnerable to ose hazards th other Identifying the assets in the comm ties is the first step in assessing the vu rab ies to tho e assets. n many cases, once imp ant faci es are identified, they can then be pr itized f mit ation. Examples of community assets includ he population, critical acilities, govern ent (public y owned) facilities, busine s, residences, structur housing vulner le populations, road an utility infrastructure, natural res rces, and the economy. The most impor t facilities ty cally protect t continuity of governmen he safety of e population, or the economy.

3.2.1 CRITI L FACI ITIES AND INFRASTRUC RE

Critical faci es and inf cture protect the safety of th popula the continu of government, the v ues of the community. In many cases, critical cilities fu portant public safety, em ncy response, and/or disaster recovery functions. In oth r cas , critical facilities may protect a vulner le population, such as a school or eld facility. Exa les of critical facilities include: 911 emergenc all centers, coordination cent s, police a d fire statio , public works facilities, sewer and water facilities, hospitals, jails, schoo , essential b inesses, shel s, and public services buildings. The transportation network is anoth importan re that relies on bridges and road/rail segments.

Utilities such as electri y, natura as/propa telephone, water, and sewer rely on established infrastructure to prov e services. The p viders o hese services use a variety of systems to ensure consistent service i he county. Each of ese services is important to daily life in the Service Area and, in some cases, is ical to protecting fe and property.

3.2.1.1 CRITICAL CILITIE

Critical facilities were initially i ied throughout the planning process for the 2012 and 2020 plans and then reviewed and updated in 2026. Because site-specific replacement values were unavailable for all critical facilities, representative replacement cost ranges were developed using recent public facility construction projects, industry cost references, and municipal infrastructure planning guidance. Typical replacement values for critical facilities in the planning area range from approximately $5 million for smaller emergency service facilities to more than $1 billion for major healthcare facilities.

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Facility Class	Typical Size	Typical Replacement Cost Range
Fire Station	8,000–20,000 sq ft	$12M–$30M
Fire Headquarters / Training Facility	20,000–50,000 sq ft	$30M–$75M
Police Station / Sheriff's Office	1 0 –40,000 sq	$20M–$60M
Emergency Operations Cen (EOC)	000–20 000 sq ft	$10M–$40M
Public Wor Facility	15,000–60,000 sq ft	$1 M–$75M
Rural Amb lance Stati	4,000–10,000 sq ft	$5M–$15M
Hospi (Critical Access)	25 0 –100 0 sq ft	$50M–$250M
Regional Medical Center	50,000 0,000 q	$300M–$1B+
Elementary School	0,000–8 00 sq ft	$25M–$60M
Middle School	70 00–120,000 sq ft	$40M–$100M
High School	100,000–250,000 sq ft	$75M–$250M
Water Treatment Plant	Varies by capacity	$10M–$200M

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Wastewater Treatment Plant	Varies by capacity	$25M–$300M
Water Storage Tank	250,000–2 million gallons	$2M–$15M
Electrical Substation	Distribution- vel	$5M–$40M
Major Transmission Substation	Re ion	$25M–$100M+
Communications T er Site	Sing ow r	$0.5M–$5
911 Dispatc Center	5,000–20,000 sq ft	$10 $50M
Airport Terminal Faci	Regional airport	$20M–$200M
Airpor ir Traffic Control Tower	Re onal airp rt	$10M–$30M
Major Bridge	H w y structure	$5M–$100M+
Interstate Interchan	F l reconstr ction	$25M–$200M+

Data sourced from open source tra dustry repo ng on recently completed facilities.

FEMA DRAFT

Critical Facilities - Local Government and Law Enforcement

Name	Address
Montana Highway Patrol	39 Gold Miner Ln, Belgrade, MT 59714
Montana National Guard	415 Sugarloaf Loop, Belgrade, MT 59714
Fish, Wildlife and Parks, Region 3	1400 S 19th Ave, Bozeman, MT 59718
Montana Dept. of Transportation	100 Nelson Rd, Bozeman, MT 59718
Montana Department of Natural Resources and Conservation	2273 Boot Hill Ct STE 110, Bozeman, T 59715
US Forest Service, Custer-Gallatin National Forest Supervisor's Office	10 E B co e Bozeman, MT 59771
US Forest Service, Bozeman Ranger D & Interagency Dispatch Center	10 Fallon St # C, Bozeman, MT 59718
US Forest Service, Hebgen Lake Ranger D trict	33 US-191, West Yellowstone MT 59758
USFS West Yellowstone In agen Fire Cen er Smokejumper Base	670 Air Center Rd, West ellowston MT 59758
US Forest Servi , Shenango Heli se	N 45° 27.340 W 11° 14.600
USGS No ern Rocky M untain Scien Center	2327 Univers Way STE 2 Bozeman, MT 59717
Fede al Build (G A) & US Post ffice	32 E Babcock S o man, MT 59715
N tional Park Ser e - West Y lowstone Visitor Center	30 Yellowstone Ave West Yellowstone, T 758
US For t Service - Hebgen Lake Ranger Station	33 US-191, t Yellows one, MT 59 8
Ye wstone National Park – West Entrance	N 44 5 10, W 111.089921
US Pos Office - Bozeman	2201 B xter Ln, Bozeman, MT 59718
US Post Office - Big Sky	110 Mea w Village Dr, Big Sky, MT 59716
US Post Office - Three Forks	9 E Front St, Three Forks, MT 59752
US Post Office - Belgrad	96 N Weaver St, Belgrade, MT 59714
US Post Office - M hattan	201 E Railroad Ave N, Manhattan, MT 59741
US Post Office - Ga tin Gateway	4 Rabel Ln, Gallatin Gateway, MT 59730
US Post Office - West Y wstone	209 Grizzly Ave, West Yellowstone, MT 59758
City of Bozeman - Planning, E eering, GIS	20 E Olive St, Bozeman, MT 59715
City of Bozeman - City Hall	121 N Rouse Ave, Bozeman, MT 59715
City of Bozeman - City Vehicle Maintenance	814 N Bozeman Ave, Bozeman, MT 59715
West Yellowstone Town Hall	440 Yellowstone Ave, West Yellowstone, MT 59758

West Yellowstone Airport	721 Airport Rd, West Yellowstone, MT 59758

Critical Facilities – Fire and Emergency Medical Service (EMS) Stations

Name	Address
AMSTERDAM RURAL FIRE MAIN STATION	7170 CHURCHILL RD
BIG SKY RURAL FIRE MEADOW STATION	650 RAINBOW T T RUN
BIG SKY RURAL FIRE MOUNTAIN VILLAGE FIRE STATION	9091 LONE MOUNT IN TR
BOZEMAN FIRE STATION 1	300 E OAK S
BOZEMAN FIRE STATION 2	575 W KAGY BLVD
BOZEMAN FIRE STATION 3	705 VAQ ER PKWY
Bozeman-Yel wstone Internation Airport Fire Station	780 Gal in Field Rd.
BRI GER CA Y N R RAL FIRE MA N STATION	081 BRIDGER CANYON RD
CENTR L VALLEY FI E TAT ON 1	215 WINGS WAY
CE TRAL VALLEY FIRE STAT N 2	3650 SPRIN L RD
CENTRA VALLEY FIRE STATION 3	275 CE CENTER N
CENTRAL VALLEY FIRE STATION 4	13683 S RINGHILL RD
CENTRAL VALLEY F RE STATION 5	960 WALKE RD
CENTRAL VAL Y FIRE STATION 6	370 POL YWOG LN
CENTRAL VALLEY F E STATION 7	9017 DRY CREEK RD
CENTRAL VALLEY/BELGRADE FIRE STATION 1	205 E MAIN ST
CLARKSTON RURAL FIRE STATION	12455 CLARKSTON RD

FORT ELLIS RURAL FIRE SERVICE MAIN STATION	3725 BOZEMAN TRAIL RD
GALLATIN FIELD FIRE STATION	780 WINGS WAY
GALLATIN GATEWAY RURAL FIRE STATION 1	320 WEBB ST
GALLATIN GATEWAY RURAL FIRE STATION 2	75 SPANISH PEAK DR
GALLATIN RIVER RANCH RURAL FIRE MAIN STATION	480 EQUESTRIAN ENTER L
HEBGEN BASIN RURAL FIRE STATION 1	10 S FA TH UL ST
HEBGEN BASIN RURAL FIRE STATION 2	20 TERN LN
HEBGEN BASIN RURAL FIRE STATION 3	10 DE NY CREEK RD
HEBGEN BASI RURAL FIRE STATI N 4	6 M OSE DR
HYALITE URAL FIR COTTONW OD STATION	10200 COTTONWOOD RD
H ALITE RUR FIRE RAE STATION	400 GOOCH HILL RD
HYALITE RURAL FIR SOUR OUGH STATION	4541 S 3RD AVE
M NHATTAN RURAL FIRE MAIN STATION	222 E MAIN
THREE RKS CITY FIRE STATION	13 E ATE ST
WEST YELLOSTONE AIRPORT FIRE	721 AI POR RD
WILLOW CREEK RUR FIRE STATION	10 MAIN S
YELLOWSTONE CLUB FIRE STATION	8 SEVE BEARS TRL

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Critical Facilities - Hospitals and Clinics

Name	Address
Bozeman Health Cottonwood Clinic Primary Care	875 S Cottonwood Rd Suite 200, Bozeman, MT 59718
Bozeman Clinic	1245 N 15th Ave, Bozeman, MT 59715
Bozeman Deaconess Hospital	905 – 931 Highland Blvd, Bozeman, MT
Bridgercare	1288 N 14th Ave # 1, Boz n MT 59715
West Yellowstone Clinic - Billings Clinic	11 S. Electric St, Wes Yellow tone, M 59758
Bozeman Health Big Sky Medical Center	334 Tow Cen r Avenue Big Sky, MT
Bozeman Health Belgrade Clinic	06 Alaska F ontage R Belgrade, MT
Bozeman Health O patient Services	1 N. 19th S D, Bozeman, MT
B2 UrgentC e Main Stree	1006 Main St, Bozeman, MT 5971
Gallatin C munity C nic	214 E Mendenhall St, Bozeman, MT 715
Gall in Coun H lth D partment	4 E Babcock St, Bozeman, MT 59715
Three Rivers Medical lini	16 Railway Ave, Three F rks, T 59752
Allergy Asthma n tants of Montana	1188 N 15th Ave #3, Bozem n, MT 5 715
Bes Med Urgent Care - Belgra	403 W M St, B grade, MT 9714
Rocky Mountain Natural Health	702 N 19th Ave, B zeman, MT 5 18
Gallatin Valley Natural Medicine	2002 N 2 Ave #2, Bozeman, MT 59718
Family Dermatology C nter	24 W Main Unit #1, Bozeman, MT 59718
Alcohol and Drug ervices of Gallatin County	2310 N h Ave. Ste. A, Bozeman, MT 59715
Bridger Orthopedic Ea	1450 Ell St, Bozeman, MT 59715
Bridger Orthopedic West	3400 aramie Dr, Bozeman, MT 59718
Swingle Health Center	5 S 7TH AVE, Bozeman, MT 59715
Alpine Physicians Health Center	613 W Lamme St, Bozeman, MT 59715
Bozeman Creek Family Health	316 E Babcock St, Bozeman, MT 59715

Critical Facilities - Transportation

Name	Address
Bozeman-Yellowstone International Airport	850 Gallatin Field Rd. Belgrade
Yellowstone Airport	625 Yellowstone Airport Rd. West Yellowstone
Pogreba Field	1680 Airport Rd. Three Forks
Montana Rail Link	99 Northern Pacifi Rd. Belgrade
Jefferson Lines	1500 N. 7th Bozem
Buffalo Bus Lines Inc.	415 Yell ws e West Yell wsto
Karst Stage	511 N. Wal ce zeman
First Student Inc	3425 N 7th A e. B eman
Belgrade Sch ol District No. 44, T nsportation	1706 Frontage Road Belgrad
Harlow's P Serv es	1085 Yadon Road M hattan
hree Forks Publ Schools	10 E. Neal Street Three Forks
Big Sk School District No 7	45465 Gallatin Road Big Sky
W Yellowstone Schools	411 N. Geyser West Yell wston

Critical Facilities - State Government

Name	Addr
Montana Highway Patrol	39 Gold M er Lane, Suite B Belgrade
Montana National G ard	35 Airport R Belgr e
Fish, Wildlife an Parks, Region 3	1400 S. 9th Ave. Bozema
Montana Dept. of Transportation	100 Ne on Road Boz man
Montana Department of Natural Resources and Conservation	2273 Boothill Court Bozeman

Critical Facilities - Federal Government

Name	Address
US Forest Service, Custer-Gallatin National Forest Supervisor's Office	10 East Babcock (Federal Building) Bozeman
US Forest Service, Bozeman Ranger District & Interagency Dispatch Center	3710 Fallon St. (Suite C) Bozeman
US Forest Service, Hebgen Lake Ranger District	330 Gallatin Rd. West Yellowstone
USFS West Yellowstone Interagency Fire Center Smokejumper Base	670 Air Center Rd. West Yellowstone
US Forest Service, Shenango Helibase	Gallatin an n (N 45.456 ° N 111.2432 W)
Federal Building (GSA) & US Post Office	32 East Bab ock Bozeman
National Park Service West Yellowstone Visitors Center	30 llowstone Ave. West Ye wston
National Park S ice Yellowstone N l Park – W. Entranc	High y 191 Yellow ne National Park
US Post Off	5711 E. Baxter Lane Boze an
U Post Office	9 ont St. hree Forks
US Post fice	96 N. Weaver Belgrade
U ost Office	201 E. Railroad Manhattan
US Pos ffice	4 Rabel la Gallatin ateway
US Post Office	209 izzly Ave. West ellowston

Critical Facilities - Assisted Living and Senior Housin

Name	dress
Bozeman Health and Rehabilitation Cen	321 N. Ave, B eman
Bozeman Health Hill st Senior Living	1201 Hig and Blvd, Bozeman, MT 59715
Bozeman Senior Social Center	807 Tracy Ave, Bozeman, MT 59715
Highgate Senior Living - Bozeman	2219 W Oak St, Bozeman, MT 59718
Brookdale Springmeadows	3175 Graf St, Bozeman, MT 59715
Open Arms Elder Care	505 Minnesota St, Belgrade, MT 59714

Our Home Child Care	190 Milestone Dr, Belgrade, MT 59714
Parkhaven Retirement	100 Hamilton Ct, Manhattan, MT 59741
Pathways Assisted Living Inc	622 S Main St, Three Forks, MT 59752
Edgewood Belgrade Memory Care	1011 Cardinal Dr, Belgrade, MT 59714
Churchill Retirement Home Inc	6151 Shady Rest St Manhattan, MT 59741
Mercy Manor	5830 Sypes Canyon R Bozema T 59715
Gallatin County Rest Home	1221 W rston Rd, B em n, 59715
High Country Care	8659 Hag er Ln, Bozem n, MT 59715
Hyalite Care Inc	6040 S 3rd d, B man, M 59715
Darlinton Manor	606 N 5th Av Bozem n, MT 59715
Legion Villa Inc	1215 rston Rd Bozeman, MT 59715

Critical Facilities - Sch s

Name	Addres
Amsterdam ementar Scho	6360 Camp Creek Rd
msterdam Schoo	285 Camp Creek Rd
Anderson S hool	10040 Cottonwood Rd
Anders School District 41	10045 Cottonwood Rd
B ade Elementary School Mult vel Grey Siding	807 Bolinger
Belgrade igh School	303 N Hoffman St
Belgrade Intermediate School	421 ooner Rd
Belgrade Middle School	410 Tripl own Rd
Belgrade School-admin Office	312 Weaver
Big Sky Discovery chool	1700 Lo Mountain Trl, Unit 3
Bozeman Christian Sc ol	32 Red F x Ln
Bozeman High School	205 N Th Ave Bozeman, Mt
Bozeman Montessori	7 Equestrian Ln, Bozeman, Mt 59718
Bridger View Learning Center	91 Stiles Ave
Chief Joseph Middle School	4255 Kimberwicke St
Children's Development Center	804 S Willson Ave

Cottonwood Day School	10180 Cottonwood Rd
Cottonwood School	13233 Cottonwood Rd
Dist. No. 25 Pass Creek	3747 Pass Creek Rd
Divine Mercy Academy	601 W Cameron Ave
Eagle Mount Learning Center	6901 Goldenstein Ln
Emerge Homeschool High School	1701 S 19Th Ave
Emily Dickinson School	2435 Annie St, Boze an, Mt 59
Gallatin Gateway School	100 Mill St
Gallatin High School	4455 An ie Bozeman Mt, 59718
Gallatin-Madison Special Education Co-op	21000 Fron age R Belgra Mt 59714
Great Beginnings Montess School	10 pringhill n
Hawthorne Eleme ary	1 N Rouse
Headwaters A demy	1005 rston Rd, Bozeman, Mt, 59715
Hearts An Hands Montessori	509 Amsterdam Blvd
He age Christia ementary	10 Durston Rd
Heritage C istian High School	4310 Durston Rd
H and Montessori	111 Highland Blvd
Hrdc ad Start	93 Quaws lvd
Hyalite S ol	3600 W Babcock
Irving Elementary	611 8Th Ave
Lamotte School	841 Bea Ca on Rd
Learning Circle Montesso School	5 W Cleve d St, Bozeman, Mt 59715
Lone Peak High S ool	45465 llatin Rd
Longfellow Elemen y	516 S Tr y Ave
Malmborg School	375 Jack on Creek Rd
Manhattan Christian School	8000 hurchill Rd
Manhattan Elementary	6 N Broadway St
Manhattan High School	416 N Broadway St
Meadowlark Elementary School	4415 Durston Rd, Bozeman, Mt 59718

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Middle Creek Montessori/gray Added On Bldg	1572 Cobb Hill Rd
Monforton Middle School	415 Circle F Trl
Monforton School	6001 Monforton School Rd
Monforton School K-1	6001 Monforton School Rd
Montana Bible College	3625 S 19Th Ave
Morning Star School	830 W Arnold St, B zem
Mount Ellis Academy	101 Academy Dr
Mt Ellis Acad/industrial Arts	108 Can en Way
Mt Ellis Acad/mens Residence	123 Aca my r
Mt Ellis Acad/old Machine Shop	104 Academ Dr
Mt Ellis Acad/womens Residence	9 Acad y Dr
Mt Ellis Acade y Gymnasium	126 A demy Dr
Mt Ellis El entary S ool	3835 Bozeman Trail Rd
Oph Elementa hool	60 indy Pass Trl
phir Middle Scho	5465 Gallatin Rd
Petra Aca my	4720 Classical Way, Boze an, M 718
etra ademy/2 Sty Office	100 Discovery Dr
Ri view Elementary Schoo	117 Green B
Sacajawea Middle School	3525 S Rd Ave
Saddle Peak Elementary School	400 J krabbit R
Secret Garden Montessori	900 Cobb l Rd
Sourdough Montessori School	4310 urdough d
Springhill School	6020 Spr ghill Community Rd
Summit School	3001 W llard St, Bozeman, Mt 59718
Thomas B Quaw Elementa	91 W uthview Ave
Three Forks Elementary School	2 2 E Neal St
Three Forks High Schools	210 E Neal St
Valley Of The Flowers School	115 W Dickerson St, Bozeman, Mt, 59715, Usa

FINAL DRAFT

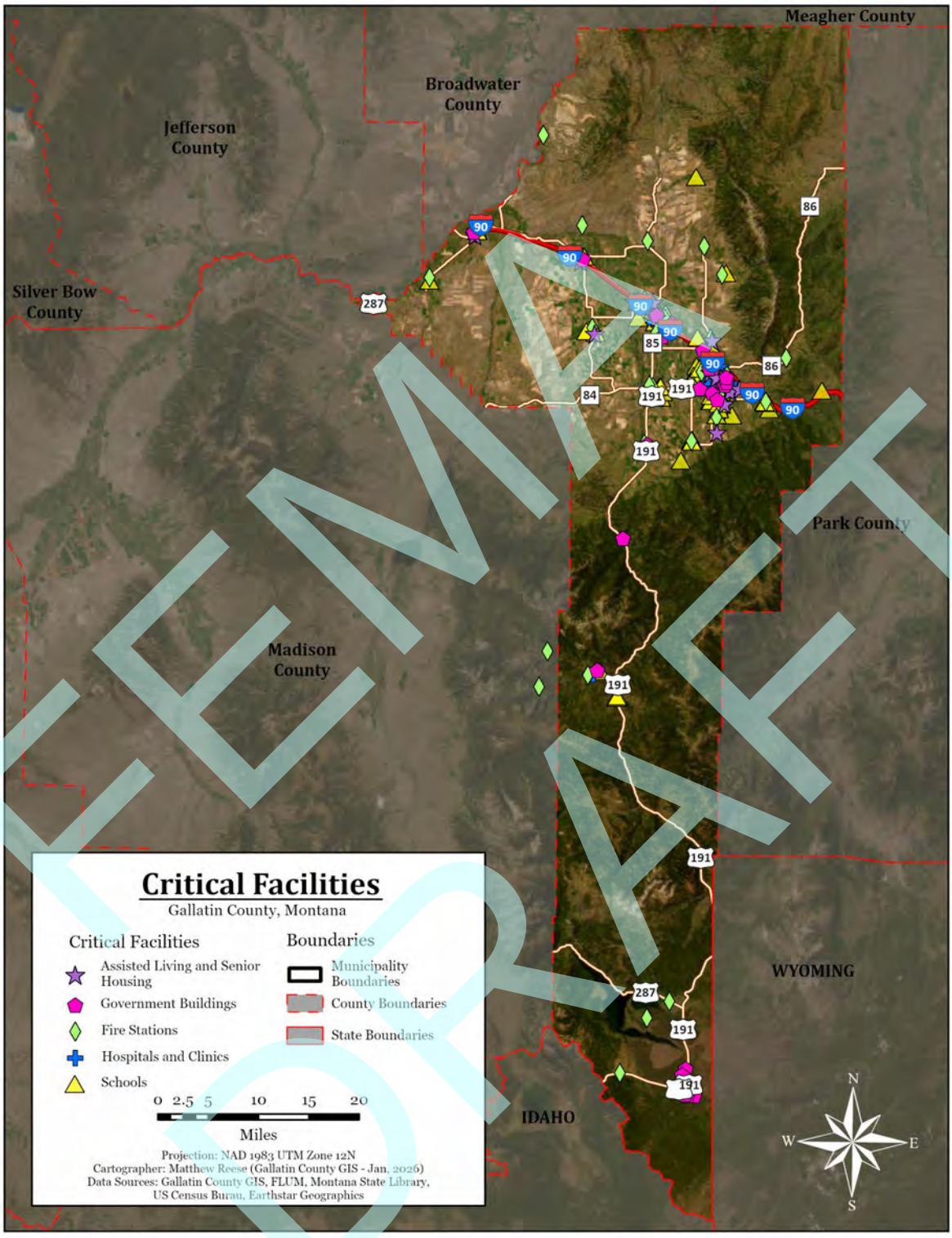
West Yellowstone Public School (Elementary And High School)	411 N Geyser St
Whittier Elementary	511 N 5Th Ave
Willow Creek Public School	407 Main St
Willson School	404 W Main St
Yellowstone Montessori School	1705 W Kagy Blvd

FEMA DRAFT

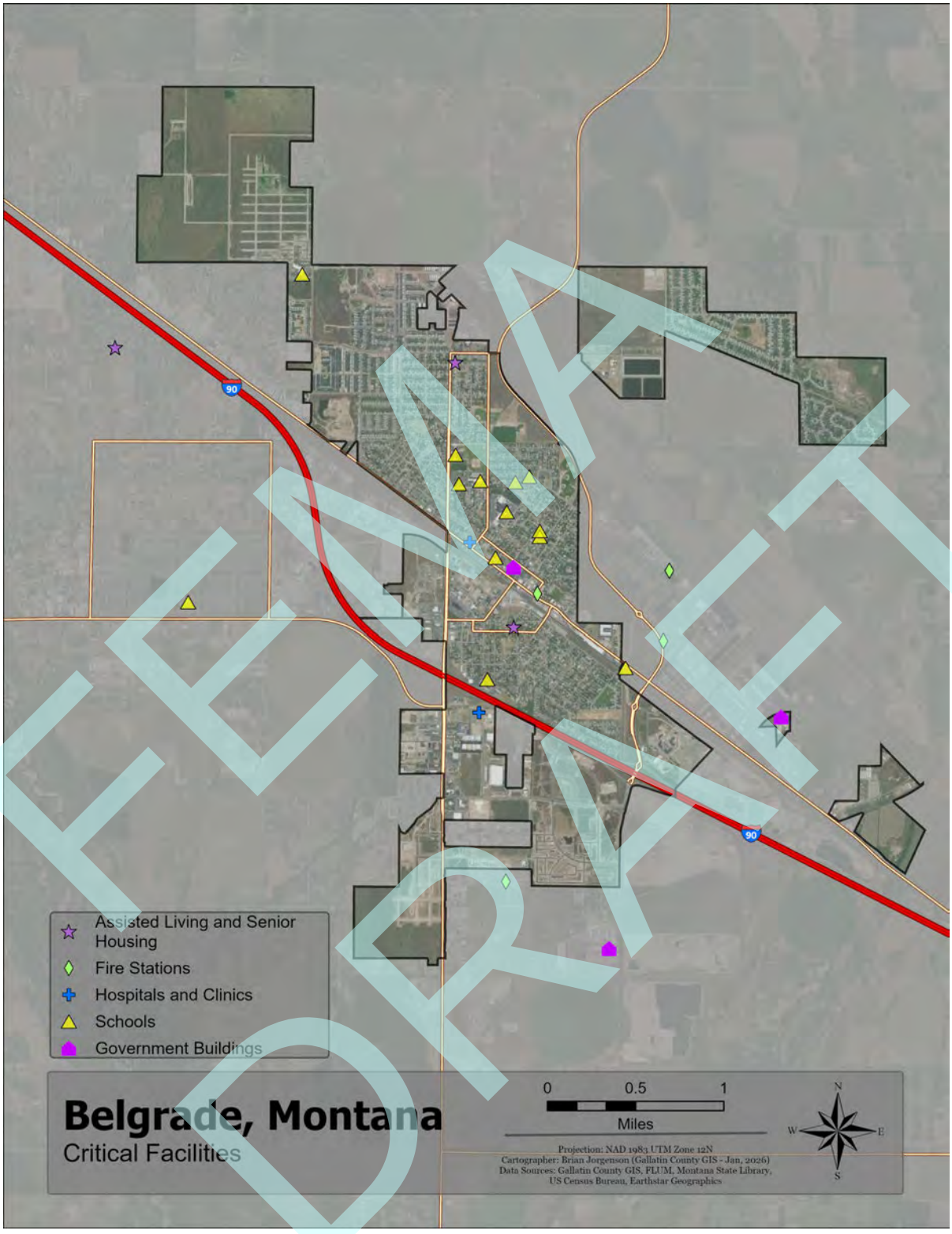
Critical Facilities - Child Care, Day Care and Preschools

Name	Address
Ark Child Care Center	403 W. Central Belgrade
Little Lambs Child Development Center	308 Al Drive Belgrade
Building Blocks Academy	301 S. 19th Bozeman
Children's Development Center	804 S. Willson Bozeman
Montessori Children's House	145 W Kagy Bozeman
Great Beginnings Montessori	60 Sprin hi d B zema
Greenwood Academy	20 Wheat Dr. Boz man
Head Start	32 S Tracy Bozem n
Highland Montessori	11 Highland Blvd. B eman
Learning Circle	516 W. Cleveland Bozeman
Little People's cademy	1612 W. Babcock Bozeman
Methodist eschool	121 S. Willson Bozeman
Heritage Chr ian P school	4310 Durston Rd. Bozeman
ontana Kids	1105 Campbell Rd. Boz
MSU Chi Developm Center	Herr k Ha Boze an
lg m Preschool	2118 S 3rd Bozema
Sour ugh Montessori	4310 Sou ugh Rd. Bozeman
Southwoo Child Care	1805 S. Tra y Bozeman
Sunshine Day Care	5 S Tracy Bozema
Teddy Bear Express	411 Arnold Bozeman
Almost Home Child are	1440 Bobcat Dr. Bozeman
Little Geysers Ch d Care	603 Yellowstone Ave. West Yellowstone

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Meagher County
Broadwater County
Jefferson County
Silver Bow County
Madison County
Park County
WYOMING
IDAHO
Critical Facilities
Gallatin County, Montana
Critical Facilities
Assisted Living and Senior Housing
Government Buildings
Fire Stations
Hospitals and Clinics
Schools
Boundaries
Municipality Boundaries
County Boundaries
State Boundaries
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Projection: NAD 1983 UTM Zone 12N
Cartographer: Matthew Reese (Gallatin County GIS - Jan. 2026)
Data Sources: Gallatin County GIS, FLUM, Montana State Library, US Census Bureau, Earthstar Geographics
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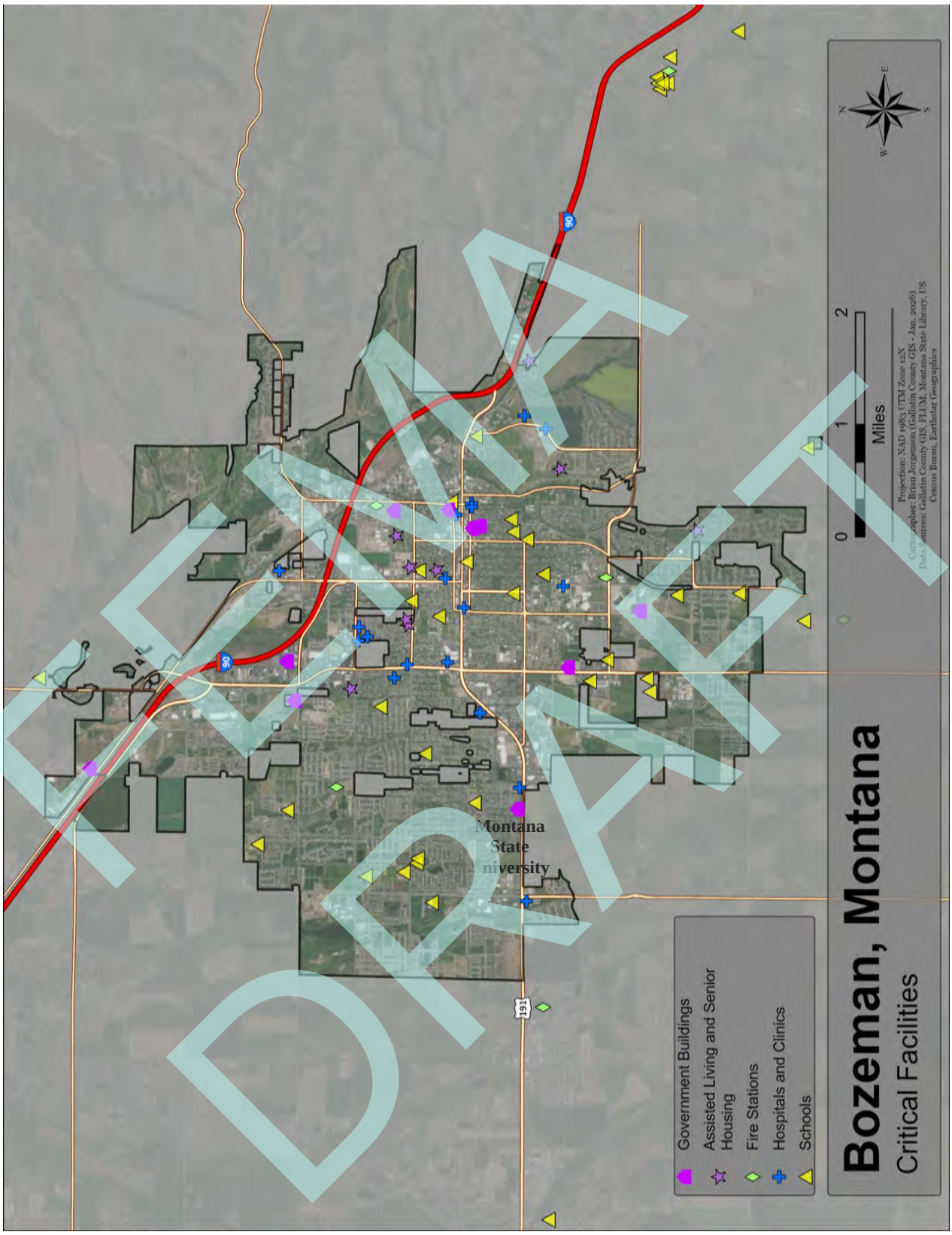
FEMA DRAFT


Assisted Living and Senior Housing
Fire Stations
Hospitals and Clinics
Schools
Government Buildings
Belgrade, Montana
Critical Facilities
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Projection: NAD 1983 UTM Zone 12N
Cartographer: Brian Jorgenson (Gallatin County GIS - Jan, 2026)
Data Sources: Gallatin County GIS, FLUM, Montana State Library, US Census Bureau, Earthstar Geographics

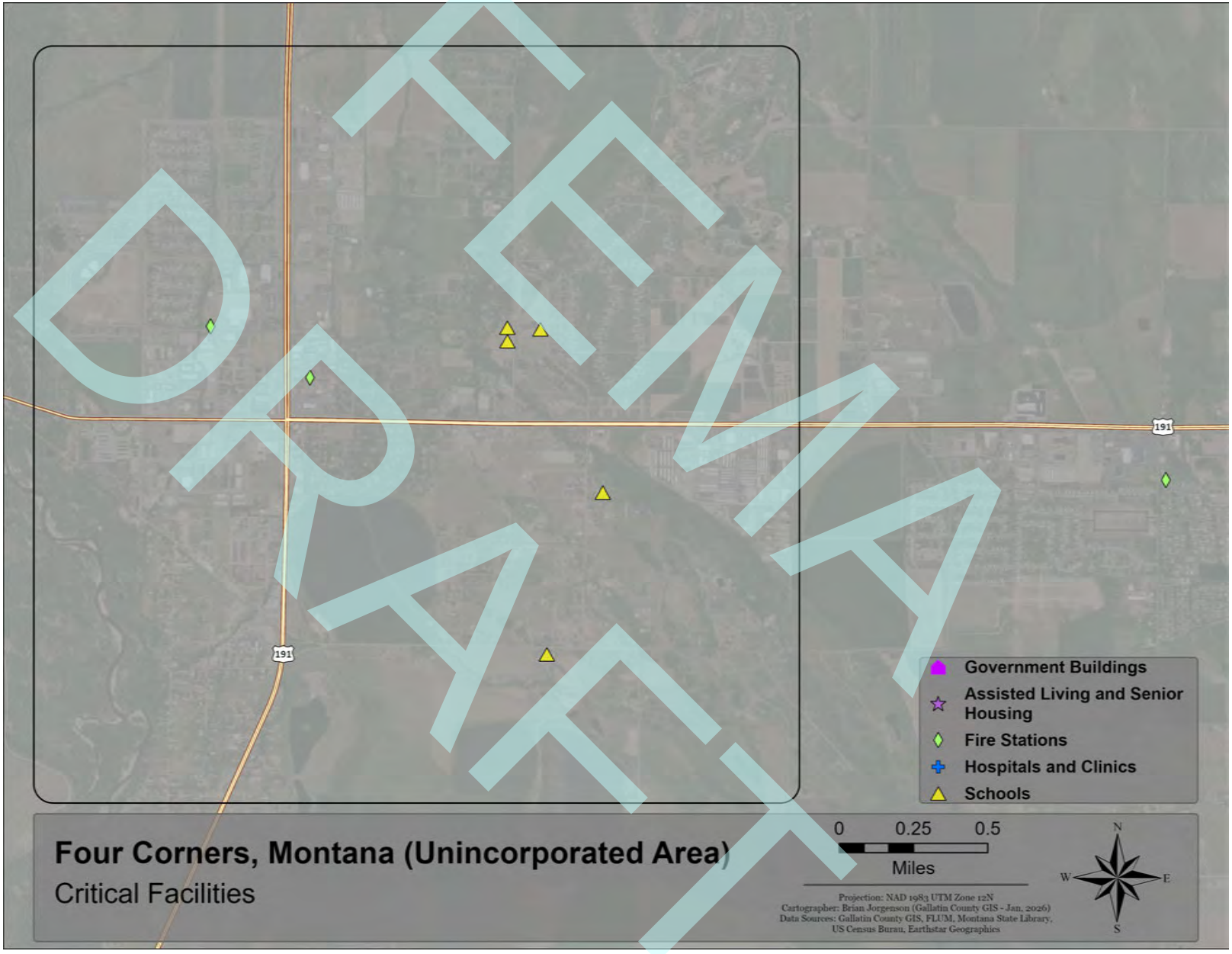
FEMA DRAFT

191
Big Sky, Montana (Unincorporated Area)
Critical Facilities
Government Buildings
Assisted Living and Senior Housing
Fire Stations
Hospitals and Clinics
Schools
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Projection: NAD 1983 UTM Zone 12N
Cartographer: Brian Jorgenson (Gallatin County GIS - Jan. 2026)
Data Sources: Gallatin County GIS, FLDM, Montana State Library, US Census Bureau, Earthstar Geographics

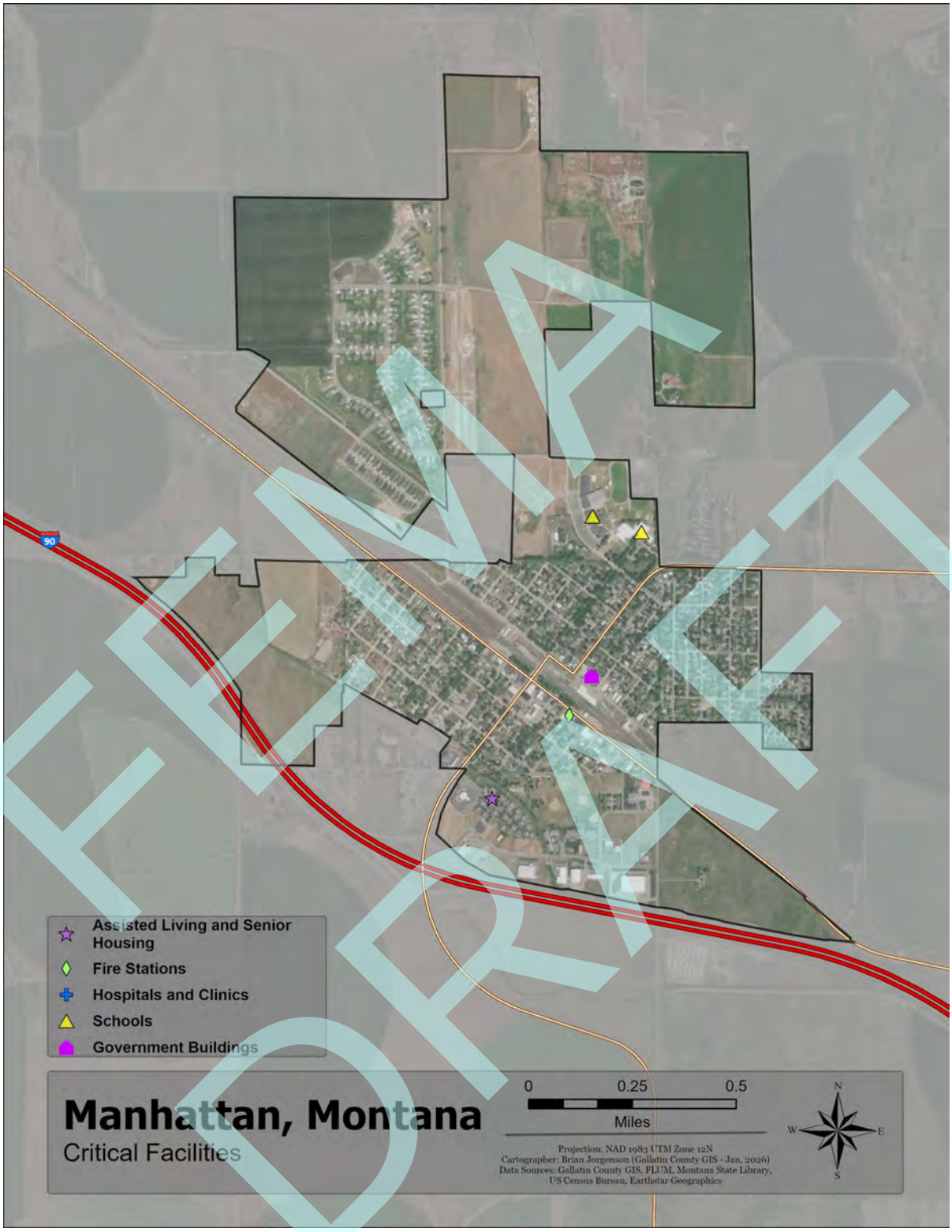
FEMA DRAFT


Bozeman, Montana
Critical Facilities
Government Buildings
Assisted Living and Senior Housing
Fire Stations
Hospitals and Clinics
Schools
Miles
0
1
2
90
191
Montana State niversity

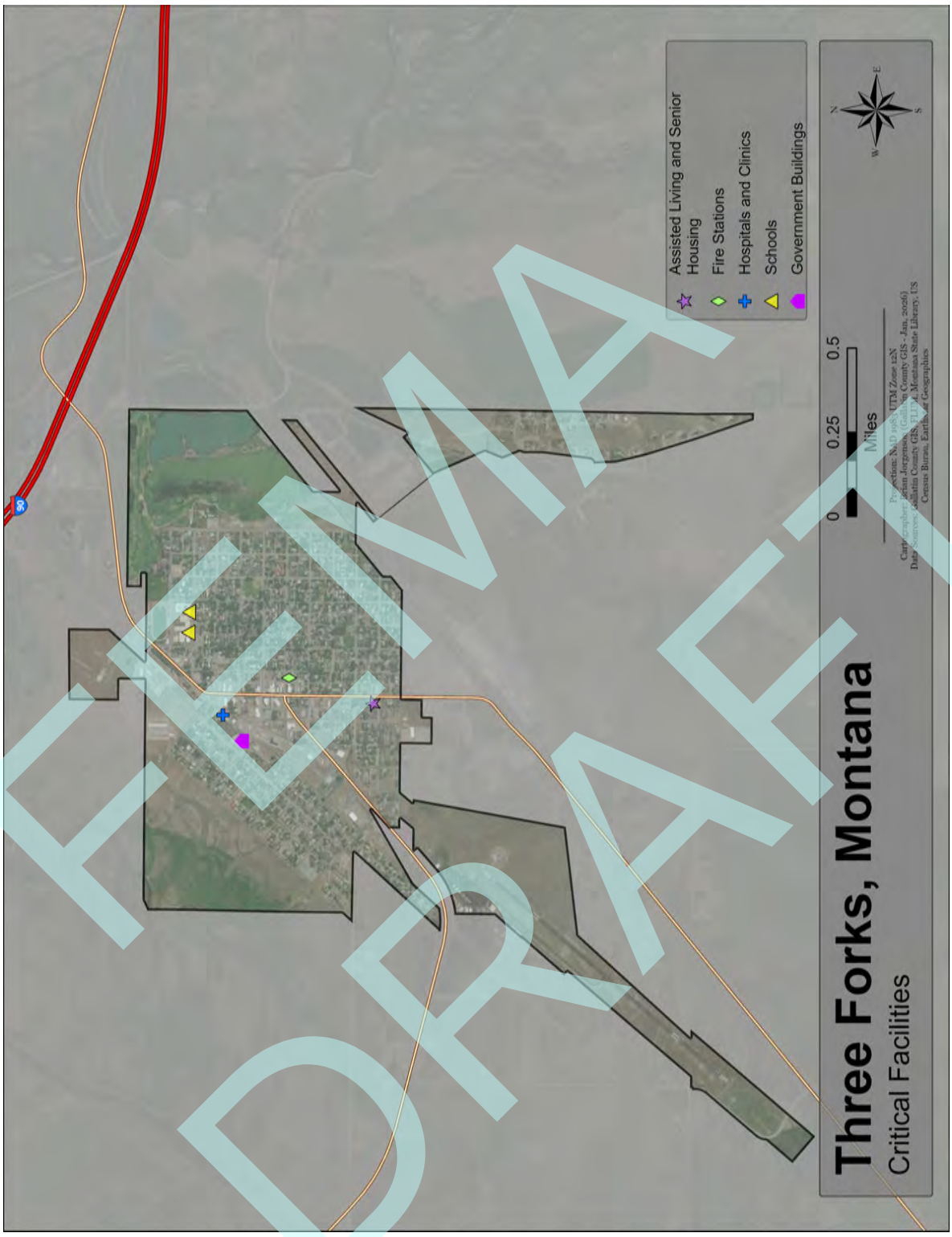
FEMA DRAFT


191
191
Government Buildings
Assisted Living and Senior Housing
Fire Stations
Hospitals and Clinics
Schools
Four Corners, Montana (Unincorporated Area)
Critical Facilities
0
0.25
0.5
Miles
N
W
E
S
Projection: NAD 1983 UTM Zone 12N
Cartographer: Brian Jorgenson (Gallatin County GIS - Jan, 2026)
Data Sources: Gallatin County GIS, FLUM, Montana State Library, US Census Burau, Earthstar Geographies

FEMA DRAFT


90
Assisted Living and Senior Housing
Fire Stations
Hospitals and Clinics
Schools
Government Buildings
Manhattan, Montana
Critical Facilities
0
0.25
0.5
Miles
N
W
E
S
Projection: NAD 1983 UTM Zone 12N
Cartographer: Brian Jorgenson (Gallatin County GIS - Jan, 2026)
Data Sources: Gallatin County GIS, FLUM, Montana State Library, US Census Bureau, Earthstar Geographics

FEMA DRAFT


Three Forks, Montana
Critical Facilities
Assisted Living and Senior Housing
Fire Stations
Hospitals and Clinics
Schools
Government Buildings
0
0.25
0.5
Miles
N
E
S
W

FEMA DRAFT

West Yellowstone, Montana
Critical Facilities
Government Buildings
Assisted Living and Senior Housing
Fire Stations
Hospitals and Clinics
Schools
191
20
0
0.25
0.5
Miles
N
E
S
W

FEMA DRAFT

3.2.1.2 CRITICAL INFRASTRUCTURE

Critical facilities were initially identified throughout the planning process for the 2012 and 2020 plans and then reviewed and updated in 2026. A list of critical infrastructure in Gallatin County is included below, with more detail provided in the sections below.

Critical Facilities - Utility and Infrastructure Services

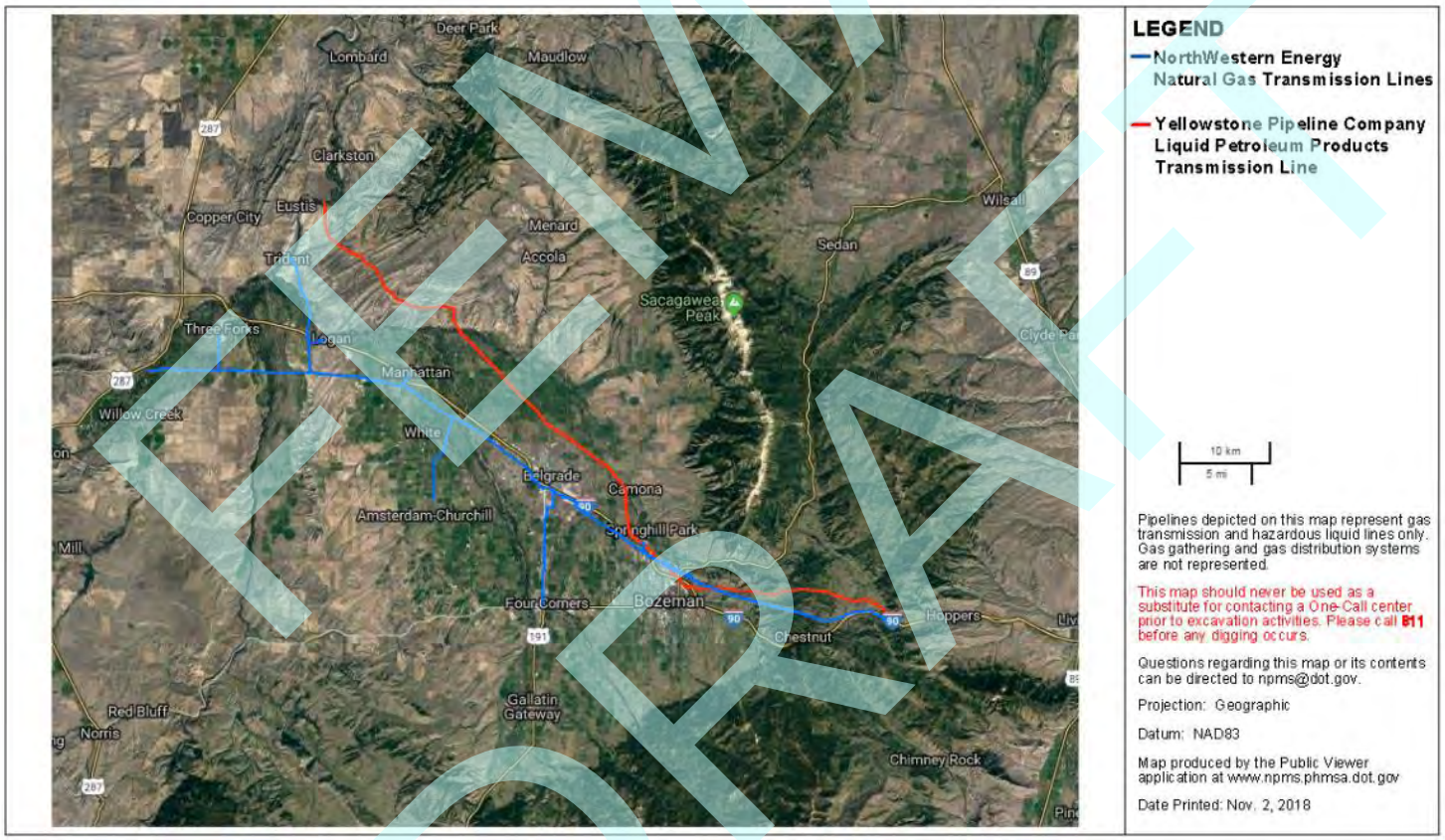
Name	Address
Northwestern Energy (local office)	121 E. Griffin Dr. Bozeman
Northwestern Energy (substation)	City of Bozeman W er Recla ion Facility
Northwestern Energy (substation)	Bohart L – Bozeman
Northwestern Energy (substation)	Quinn C ek d – Bozem n Pass
Northwestern Energy (substation)	South Chur h Rd. ozeman
Northwestern Energy (substation)	Coll & 11 Ave. – Bozeman
Northwestern E gy (substation)	Pa rson Road Bozeman
Northwest n Energy (substati)	Flander Mill Rd. – Bozeman
Northweste Ener (su station)	Fo Corners
Northwestern En y (substation)	Belgrade
Northw ern Energy (subs ion)	Three Forks
hwestern Energy (s tation)	Trident
North stern Energy (substat)	Big Sk
Northwestern Energy Natural Gas Transmission Line	
Fall River Rural Electric (substation)	West Yello tone
Fall River Rural El ric (substation)	1.3 m s west of W. Yellowstone
Fall River Rural E ctric (substation)	Romset
Fall River Rural Electri (substation)	North de of Hebgen Lake
ExxonMobil Bozeman Terminal	2 W. Griffin Drive Bozeman
Phillips66 Bozeman Products Terminal	318 W. Griffin Drive Bozeman
CHS (Cenex) Logan Petroleum Terminal	Logan

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Name	Address
Yellowstone Pipeline Company	
Energy West - Montana (West Yellowstone natural gas system)	145 N. Geyser St. West Yellowstone
Century Link	2707 W. Main St. Bozeman
3 Rivers Communications	12 Skywood Rd. Big Sky
Gallatin County Landfill	10585 2 Dog Rd. Logan
Bozeman Vehicle Maintenance	1812 N Rouse Bozem
Gallatin County Road Department	205 W. Baxt Lane Four Corn rs
Bozeman Water Reclamation Facility	2245 Spring ill Rd Bozeman
Bozeman Water Treatment Plant	7022 urdough Canyon Rd. ozeman
Bozeman Lym Water Treatment	St y Mill Rd. Boz an
Bozeman illtop Water Tank and Communica ons Site	Kenyon . Bozeman
B eman Sou gh Road eservoir (buried concrete ta	S urdough Rd. Bozeman
Riversid Water & Se Dist. N 310 (nor of eman/Riverside CC ar	Bozeman
RAE ater & Sewer District (west of Bozeman)	10 Rae ater Ln. Boz an
Four Corners Water & Sewer District No. 385 (Four Corners area)	495 ail Run d. Bozem
Gallatin Gateway Count Water & Sewer Distri	latin Gat y
Valley Grove Wat & Sewer District N 373 (northwest of Boz an)	299 W ow Blvd. Bozema
Belgrade Public Work	91 E. Ce ral Ave. Belgra
River Rock County Water & Sewer District No. 377 (west of Belgrade)	265 N. River Rock lgrade
Manhattan Public Works	107 S. 7th St. Manhattan
Amsterdam/Churchill County Sewer District No. 307	7200 Churchill Rd. Manhattan

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Name	Address
Three Forks City Shop	306 Railway Ave. Three Forks
Willow Creek Sewer District No. 306	Willow Creek
Big Sky County Water & Sewer District No. 363	561 Little Coyote Rd. Big Sky
West Yellowstone Public Works	314 Yellowstone Ave. West Yellowstone
Hebgen Lake Estates County Water & Sewer District (Horse Butte area)	West Yellowstone
Yellowstone Holiday Water & Sewer District No. 348 (N side of Hebgen Lake)	West Y owstone



Major Natural Gas and Petroleum line Routes (from N2ati l Pipeline Mapping System, www.npms.phmsa.dot.gov)

Electricity

Electricity provides power for h computers, medical equipment, water pumps, electric heating systems, refrigerators, freezers, televisions, and many other types of equipment. Northwestern Energy, headquartered in Sioux Falls, South Dakota, provides electricity to a large portion of the Service Area. Fall River Rural Electric Cooperative provides electric service to the southern portion of the Service Area, in the Hebgen Lake and West Yellowstone areas. Much of the electric service is run through

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overhead lines. These lines are supported by poles and have key components such as transformers and substations.

Natural Gas

During the cold winter months, the heating of homes and businesses is a necessity. The primary heating fuel used in the Service Area is natural gas, with liquid propane (LP) gas also widely used in rural areas of the county. Overall, several types of fuels are used for heating purposes as shown below. Most systems ultimately require electricity to run their th ostats and blowers. Natural gas in portions of the Service Area is provided by NorthWestern Ene y thr h underground pipeline infrastructure. Energy West provides natural gas service in West Yello stone. Bu s heated with propane typically have a nearby tank that is refilled regularly by a local v dor. T e vendor ses a truck to transport the propane to the users. Therefore, the vend ly on acces ity to the communities and rural residents via the road network. Should any areas be om solated d to poor road conditions, the ven or may not be able to access the tanks to refill them

Home Heating Fuel [US Census, 2023 r esti Americ Community Survey (ACS)]

	Natura l Gas	Bottled, ank, o P Ga	Ele cit y	Coal or Coke	Wood	S r ergy	Other Fuel	No Fuel Used
Gallatin C y (Total)	29,236	4,573	18,144	0	1,68	180	63	53
Big S y Comm y	24	78	531	0	63		97	0
y of Belgrade	2,991	63	1,587	0	63	0	0	23
City of Bozeman	13 2	338	8,437		384	18	225	107
Gallatin G way Comm ty	184	76	73	0	56		7	
of Manhattan	663	17	192	0	2	0	0	0
City Three Forks	620	0	19	0	62	0	0	0
Town of st Yellowston	153	2	292	0	5	0	22	0

Telephone

Local telephone services in the county ar rovided by Century Link (Gallatin Valley and West Yellowstone), and 3 R ers Com nication (Big Sky area). Similar to electric infrastructure, telephone can be run rough overhead undergr nd lines. Much of the telephone infrastructure in the Service Area lie within the road right of-way.

Water and Sewer

Municipal water and sewer sy ems ex t within the incorporated communities in the county. Several unincorporated communities, su Big Sky, Four Corners and Gallatin Gateway, as well as a few residential subdivisions, have local water or sewer districts (or both). The water systems typically consist of groundwater wells or pumps from a body of water. The sewer systems generally have treatment plants and/or lagoons. Both water and sewer use underground pipes to service customers. County residents living outside of municipal systems or local water and sewer districts rely on individual well and septic systems.

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Transportation

Transportation infrastructure within the Service Area includes road, rail, and air networks. The primary road transportation routes in the Service Area are: Interstate 90; US Highways 20, 191, and 287; and Montana Highways 2, 64, 84, 85, and 86. Local political subdivisions have:

Galatin County	1,250 Miles
City of Bozeman	300 Miles
City of Belgrade	00 iles
Town of Manhattan	3 Miles
City of Three Forks	20 Miles
Town of West Yellowstone	30 M les

Montana Rail Link operates two railroad line throu the cou y. A main line runs through e northern section of Gallatin County d connects to ozema Belgrade, Manhattan, and L an A second railroad branches from the m in l at Logan and run through Three Forks b re conn ing to various jurisdictions i Madison County. ra oad transports goods and raw materials along th lines.

Bozeman-Y owstone In national Airp t (BZN), located in Bel de, operat within Gallatin County. It is th busies irport in the State of Montana, and a full-service mme al airport with both dom ic and int tional flights 2024 the airport transported 2,642,70 ommercial passengers p s over 17,000 bus ss jet op ations and 89,000 general viation operations. dditionally, Gallatin County has wo smaller p ts - West Yellowstone Airp t (W which has se nal commercial affic as ell as private aircraft. WYS also houses the West Y lowstone gency Fire Center which is e ted by the U.S. Forest Service. Pogreba Field (9S5), loc ed in hree Forks, is a general aviation facili erving private, charter, and/or govern ircraft.

3.3 Population and Structures

Citizens, visitors, and their property are a isk from various disasters. Protection of life is the top priority in all disasters and Populat statistics are listed below.

P ulation Statistics [U. ensus Bur 2023a]

Location	July 1, 2023 Estimated Population	Change Since 2010 Census
Galla County	126,409	41.0%
Big Sky	2,919[1]	93.2%
Belgrade	12,509	69.3%
Bozeman	57,305	53.7%
Four Corners	5,631[1]	98.4%
Gallatin Gateway	5,121[1]	10.2%
Manhattan	2,109	38.8%
West Yellowstone	1,222	-3.9%
Three Forks	1,986	6.3%

[1] Sourced from US Census, American Community Survey (ACS) data for census-



Gallatin from Ross Pass, 2019. Photo court Galla unty Emergency Management.

H Statistics [US Census, 2023 1-year estimate American Community Sur y (AC

	Number of Housing Units	Numb f Mobi Homes	ner Occupi	Owner Occupied w/ Mortgage
Gallatin County (Total)	59,966	2,686	32,972	21,466
Big Sky Community	3,118	17	935	585
City of Belgrade	4,858	62	2,624	1,936
City of Bozeman	24,836	3	10,325	6,757
Gallatin Gateway Community	451	76	357	193
Town of Manhattan	909	17	641	355
City of Three Forks	895	5	660	383
Town of West Yellowstone	956	8	259	78

Structure Age [US Census, 2023 1-ye timate erican Community Survey (ACS)]

	Total Housing Units	202 later	2010 to 2019	2000 to 2009	1990 to 1999	1980 to 1989	1970 to 1979	1960 to 1969	1950 to 1959	1940 to 1949	1939 or earlier
Gallatin County (Total)	59,966	3,989	13,768	13,850	7,481	6,229	6,651	2,041	921	1,468	3,568
Big Sky Community	3,118	0	438	1,173	577	388	485	12	0	10	35
City of Belgrade	4,858	512	965	999	734	521	769	202	29	20	107
City of Bozeman	24,846	528	6,403	4,962	2,712	1,931	3,053	1,098	1,087	645	2,427

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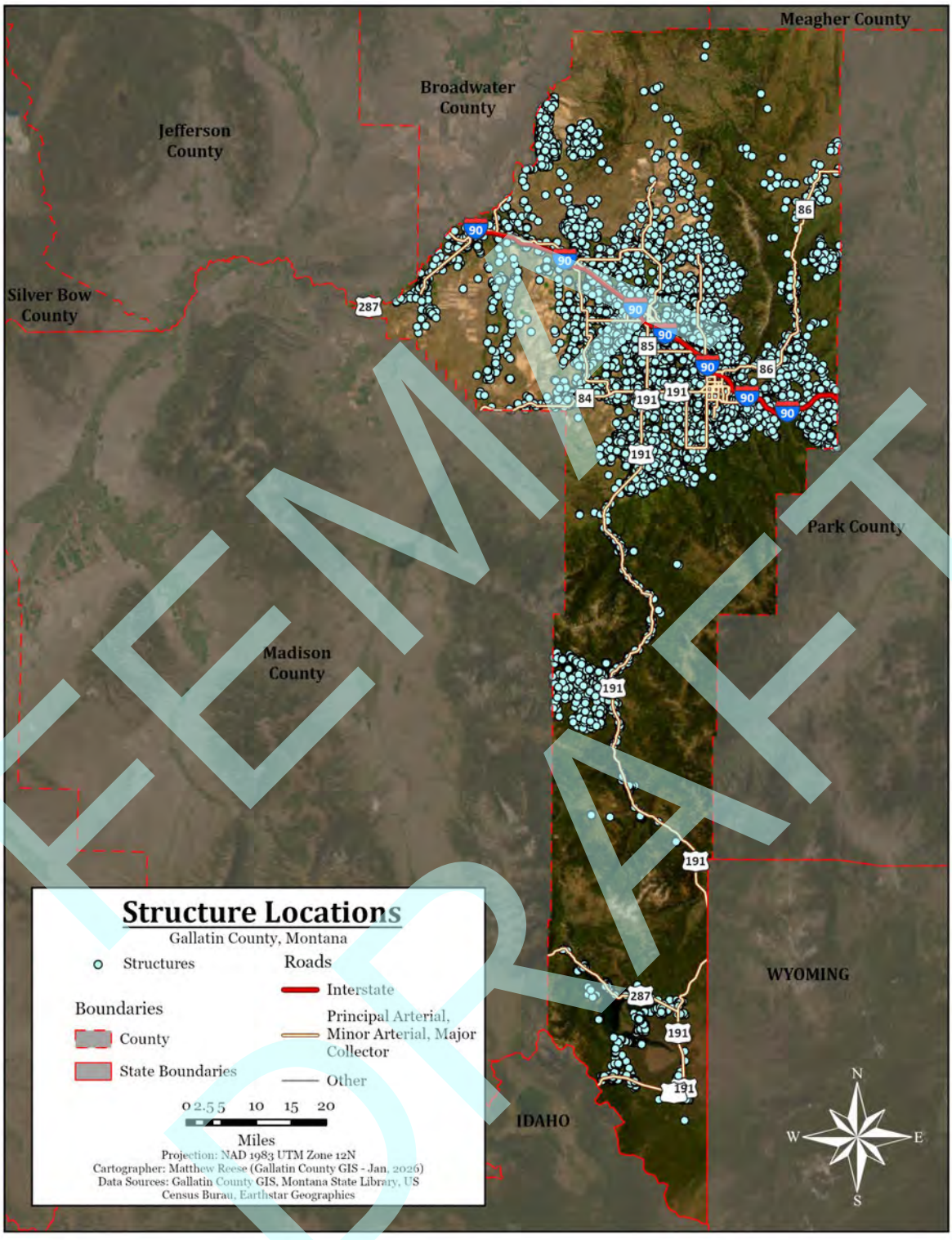
	Total Housing Units	2020 or later	2010 to 2019	2000 to 2009	1990 to 1999	1980 to 1989	1970 to 1979	1960 to 1969	1950 to 1959	1940 to 1949	1939 or earlier
Gallatin Gateway Comm.	451	0	64	50	107	60	83	8	22	2	55
Town of Manhattan	909	17	137	120	167	107	69	61	10	47	174
City of Three Forks	895	0	25	150	202	106	106	24	66	10	206
Town of West Yellowstone	956	0	56	203	123	167	116	70	81	60	80

The median home value in Gallatin County is $68 00 cording to 2025 Montana Department of Revenue reports. The cost to replace existing structur is liste low using U.S. Census data.

Structure Value 1 year average 2023 American Community Su y (ACS

	C su Estimated M dian Value Ow r Occupied
Gallatin County	$ 8,200
ig Sky Communit	$884,700
ty elgrade	$469,600
C f Boze	$614,900
Galla Gateway Commu	$747,900
Town of M attan	$460,400
City of Three F s	$382,400
Town of West Yellowst	$402,600

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Structure Locations

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3.4 Economic, Ecologic, Historic, and Social Values

The Service Area is characterized by its abundance of natural resources and beauty, in addition to its strong economic development and growth within recent years.

Disasters of any magnitude can threaten the fragile economies and well-being of residents. Basic economic statistics collected from U.S. Census data include:

- Median household income [US Census, ACS, 2023]: $87,454
- Persons below poverty [US Census, ACS, 2 4.1%
- Percent unemployed [US Census, ACS, 202 2026]: 3 2 9%

The largest private employment sectors in the county ac rding t U.S. C s data include (by number of persons employed) [US Census, ACS 3]:

- Health care and social assistance 7,200
- Retail trade: 7,000
- Professional, scien and technical ervices 5,400
- Construction: 5,600
- Accommo ion & food vices, en ment, and recreation: 5,80

Based on data fr m the USDA Census f Agriculture in 2022, the followin agricultural statistics were determined [SDA, Nation Agricultura tatistics Service, 2022]:

- Num r of fa s: 1,009
  Acres of mland: 655,883 acres
- Total marke lue of gricultural products sold: $163,081,000
  - ivestock an ultry sales: $5 816,73
  Crop sales: $10 264.270

Histo values represent a point in time. Hist alues can in e sites, buildings, documents, and other pie s that preserve times past and h e value people. G atin County has 108 properties and districts list on the National Register f Historic P ces [Nationa Park Service (NPS), March 2026], including the National Historic Lan mark at Th e F ks of the Missouri, designated in 1960 to recognize where the Lewis & Clark Exp ition amped in 1805

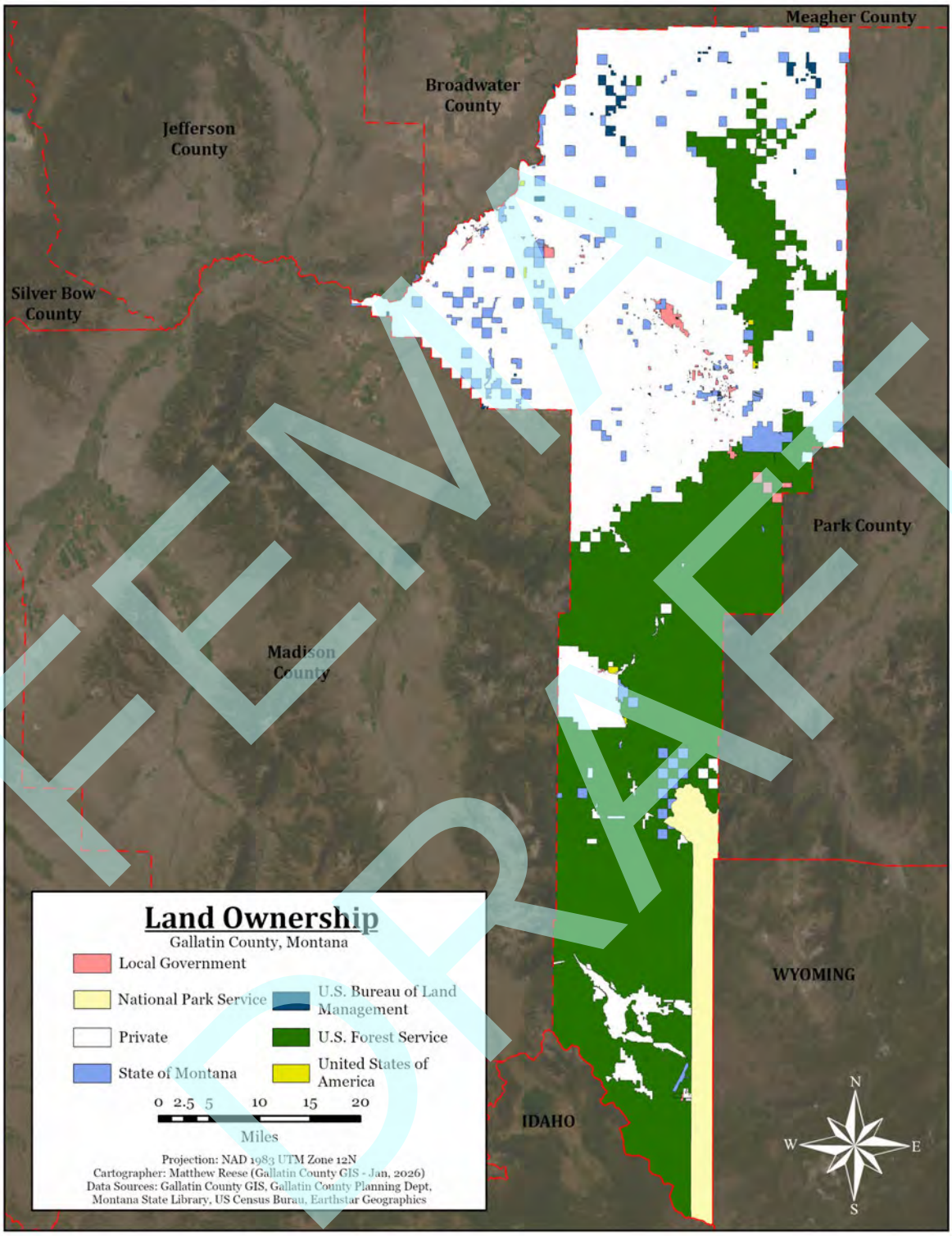
Social values often canno e quan d but ar n important aspect of quality of life and interpersonal relationships. Exampl of social val s in the rvice Area may include gatherings to promote community buildin personal achievem , freedom from tyranny, the ability to communicate with others, pride in makin the world a bette lace, and friendships. The realm of social values is only limited by the human ima ation and usu ly relates to how a person feels. Disasters, both natural and human-caused, can disrupt im ortant s ial activities and sometimes have lasting effects on society.

3.5 Current Land Use

The Service Area has varied land use, with nearly half of land under public ownership by the USDA Forest Service, State of Montana, Bureau of Land Management or the National Park Service. Both urban and rural communities are present, with individual residences and farms interspersed. Growth is

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occurring throughout the county. Federal, state, and local government ownership in the county is shown below.



Gallatin County Land Ownership

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3.6 New and Future Development

According to U.S. Census data, Gallatin County experienced a 32 percent increase in population between 2000 and 2010; from 2010 to 2020, the population of the county was estimated to have increased by 33 percent, with 8.2 percent between 2020 and 2025 [U.S. Census Bureau, 2025]. The rapid increase in population has been associated with an increase in development. Often, smart development is an inexpensive and effective way to reduce the impact of future disasters on the community. The following mechanisms are used by the jurisdictions to guide future development.

3.6.1 Growth Policies

Gallatin County and the incorporated jurisdictions all ve grow h po as required by state law. The growth policies do not have regulat authority b gu e community development regulations and ultimately replace comprehensive pla s. e Gallatin unty Growth Policy applies to the arts of Gallatin County that are not within the juri dicti s of the C y of Bozeman, City of Belgra , City of Three Forks, Town of Manhattan, or Town o West llowst e.

- Gallatin County Grow Policy 024
- City of Bel de Growth P licy, Janu 020
- City of B zeman Growth Pol June 1, 2009
- City Three Fork
- Tow f West Y llowstone, 2017

3.6.1.1 LLATIN CO NTY GROWTH POLICY

he Gallatin County G wth P licy was adopted in 2024 a h ument intended help guide future growth an and developm t in the county. It is the commun y's hope d the County s commitment, t gr th occur in a coordinated, logical, and cost-effective anner th t min s unplanned, costly spra The growth policy is used to guide land use decisions nd ecisions relative to the provision of publ facilities and services as well as th conser tion and p tection of environmentally sensitive lands. In s ion 3.14, Goal 1 of the pl is to prote human life nd property from natural hazards, and includes the following objective

- Encourage development in natural ard areas to mitigate potential hazard(s).
- Encourage dev pment on ep slope o mitigate potential hazards.
  - Prohibit evelopment and ro d building on slopes greater than 25 percent.
  - Support use of covenants t provide appropriate engineering to mitigate safety concerns of velopment in a as with potential and demonstrated unstable slopes and soils.
  - Encourage develop nt address emergency services access and driveway standards.
- Restrict development in flood hazard areas to protect property and life from flooding. Encourage compliance with the Floodplain Regulations and the standards developed by the Department of Health.
  - Encourage development to protect neighboring properties and communities from potential flood hazards associated with new development.

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- Discourage development in areas prone to wildland fire to protect property and life from fires.
  - Encourage mitigation of fire hazards, including creation of defensible space for each structure, prior to final plat.
  - Encourage reduction of fire fuel loads.
- Encourage development in geologically or seismically unstable areas to mitigate potential hazards.

Additionally, the plan supports hazard mitigation hrough following goals, objectives, and implementation measures:

- Retention of agricultural lands th ugh voluntar co ervation easements and land preservation programs
- Measures to ensure development a com atible w public safety needs
- Conservation of surf ce and ground ater an quality

Specific to fire, the policy emp asiz he provis on of a reasonable level of fire pro ction for r dents and property owners rough d nsible sp e nsideration of water suppli and response ti s fuels mapping, an other programs.

3 .2 CITY O BOZEMAN CO MUNITY PLAN

The City of B man' ommunity Plan (Growth Policy) was adopted in une 2 9. The Plan defines the c s goals a bjectives for g wth, provides maps and text that descr the characteristics and f ures of jurisdicti l areas d presents a timetable fo implementing elem s within the growth policy. Chap r 13 of th la discusses the city's planning fforts disaster preve on and response, with wil e listed as one of the natural hazards present in e Bozem a The Community Plan w c mpleted in 2025.

6.1.3 CITY OF BELGRADE GR WTH PO CY

The City of elgrade's Growth Policy as adopted 2020. Th plan defines the town's goals and objectives for growth, provides map nd text des bing the characteristics and features of the area, and presents a timetable for implemen g el ents withing he growth policy. The policy's key identified issues are: Housing Affordabi and Availability, Short-Term Commercial Rentals, Developing the 80 Acres own Ap arance, Z ing in Old Town, Economy, and Water and Sewer.

3.6.1.4 WN OF WEST YELL WSTONE GROWTH POLICY

The Town of West Y lowstone's Growt Policy was adopted in 2020. The plan defines the city's goals and objectives for g wth, provides maps and text describing the characteristics and features of the area, and presents a time le for im lementing elements withing the growth policy. The policy's goals include; Land and Agricu r Housing, Economics, Local Services, Public Facilities, Natural Resources and Mobility and Circulation.

3.6.1.5 CITY OF THREE FORKS GROWTH POLICY

The City of Three Forks has a Growth Policy outline adopted in 2022. The plan defines the city's goals and objectives for growth, provides maps and text describing the characteristics and features of the

area, and presents a timetable for implementing elements withing the growth policy. The policy's goals include; Adequate Circulation Systems, Commercial Vitality, Industrial Vitality, Planned Residential Development, Public Facilities and Development of Land Outside the City.

3.6.1.6 OTHER LOCAL GROWTH POLICIES

Other long-range growth and planning policy and study documents include Gallatin Triangle Planning Study [Sanderson Stewart, 2014], which includes recommendations for regional planning cooperation between Gallatin County and the cities of Belgrade d B eman.

3.6.2 SUBDIVISION REGULATIONS

All subdivisions must conform to stat d local req em nts, specifically the "Gallatin County Subdivision Regulations" in unincorpora d as or the propriate regulations for the incor orated political subdivision. Purposes of the regula ons clude th ollowing:

- Promote public heal h safety, and g eral w fare by regulating the subdivisio land
- Avoid danger or inj y by son of na ural haza d or the lack of water, dr nage, acc transportatio or other blic imp vem nts

3 2.1 SUBDIV ION REGULA NS

- Galla Coun Subdivision Regulations, March 5, 2019

  City of B rade Subdivi n Regulations
- City of Bozem Sub ivision Regulations 38.240
- T wn of Manhattan Subdivision Regulations Title

  City of Three Forks Subdivision Regulations Title 12
- Town of West Yellowstone Subdi ion R ulations T e 16

Lands cons ered unsuitable for dev opment incl de areas of tural and human-caused hazard, floodways, other waterways, and rip ian areas. S bdi isions may be required to have covenants to address public health and safety issues ch as owing to re e wildfires. Emergency access roads may be required and have their own set of ndards. Emergency services may provide the governing body with recommendati f e subdi on (e.g., fire protection standards, water supplies, ingress/egress, and def sible space).

Subdivisions that ar ocated within desig ted 100-year floodplains (as defined by Section 10 of the Subdivision Regulation are required to et certain standards, including:

- Land located with 100-yea loodplain may be used for the following purposes:
  - Agriculture
  - Open Space
  - Wildlife Habitat
  - Parkland
  - Recreation

- Any proposed lot that includes land within the 100-year floodplain must contain a designated building site outside of the 100-year floodplain, within which all new development activity (erection of structures, placement of fill, topographic reconfiguration, etc.) shall take place.
  - All structures built on such lot shall be designed and constructed so the lowest-floor elevation within the structure is at least two feet above the base (100-year) flood elevation
  - The required lowest-floor elevation for each building site shall be recorded on the plat or other applicable development document final site plan, Covenants, etc.).
- Subdivider shall demonstrate that safe acces o the d nated building site must be possible during the 100-year flood.
- Subdivisions should be designe avoid placin su division-related infrastructure (roads, bridges, utilities, etc.) within the ou daries of th 00-year floodplain. Infrastructure hat must be located within the 100-ye flo plain sha not adversely affect public he h and safety or increase flood hazards.
  - Bridges constru d ide a subdi sion sha be designed so the lowest orizon chord of the bridge is at l st two t abo the base (100-year) flood elevation.

Section 10 of the allatin County Su division Regulations defines the req ements for completing a flood hazard aluation for property t is located within a design d 100-year floodplain. The following t paragraph re the first two sections (A. and B.) within ction 10:

Gen al. Land su t to being floo d by a flood of 100-year frequency as d ed by Title 76, Chapter 5 MCA, or land subj to floo ng pursuant to these Regu ions, shall not be s divided for building or residentia purposes, er uses that may increase o aggra flood hazard o life, health or welfare, that may be prohibited by state or local floodplain r floodw ulations. Land subject to fl di g pursuant to these Regulations may include (but is t limi d to) lan subject to 100-year flood 500-year flooding, shallow flooding ndwater ris h storically flooded lands, and lands located i roximity to a watercourse.

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2008 flooding in Outla ubdivision north Bozeman.
Photo courtesy Gall n County Emergency M agement.

Intent. Th ntent of a fl d hazard evaluation is to assess possible oding haz ds to a proposed subdivision an esult g therefrom. Part of this evaluation must therefo add s the uncertainty of pred ed conditio during signifi nt meteorologic, geologic or hydrologic nts, and the evaluation d ws upon known d obser d flood behaviors and d mics for context. he flood maps and associated d umentatio in uded within the County-rec nize od studies ma contain some of is infor ation but do not address the full range of hazard and flood nditions necessary for a fl d zard evaluation.

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Hazard Profiles



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4.0 HAZARD PROFILES

In February 2024, public meetings were held in the six communities to rank identified hazards. Each community covers one population center, which consists of the incorporated cities and towns as well as the unincorporated area around it. Localized hazar ankings were developed for Belgrade, Big Sky, Bozeman, Manhattan, Three Forks, and West Yellow tone

Within each community, identified hazards were rank d for th ir prob ity of occurrence and the impacts that would result to the populatio operty, and o omy should the hazard occur. The hazard occurrence probability and each of the po nt impact ca gories were assigned numeric val s of 1 (Low), 2 (Moderate), or 3 (High). A weigh ing m hod wa hen applied to the hazard im ct values by multiplying the populatio impact value y 3, th proper y impact value by 2, an economy impact value by 1. A final r v is assigne to each azard by taking the sum o weight impact values and multiplying by the h ard pro bility alue.

Each of the iden ied hazards includ a table at the end of the hazard pr ile which summarizes the relative over risk value, b h at the co munity level and as an aggr ate value for he county. The calculated n eric risk alue is provided in parentheses following th descripti risk value (Low, Mode e, High) n he range of ri values for each jurisdiction follows a cond parentheses.

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4.1 AVALANCHE AND LANDSLIDE

4.1.1 DESCRIPTION

Avalanches and landslides are similar in nature such that both occur when a material on the surface of the earth cannot be supported any longer and gives way to gravity. In the case of an avalanche, the substance is snow, and for a landslide, the substance is mud, rock, or other geologic material. Both can occur rapidly with little warning.

When snow accumulations on a slope cannot be supp ted any ger, the snow support structure may break and fall creating an avalanche. The subsequent sh of un upp d snow can bury and move things in its path. Most avalanches do t cause any dam ge; however, occasionally people and property may fall in their paths. Snow a la hes kill mo people on national forests than any other natural hazard. Each winter, 25 to 30 peopl die avalanch in the United States, and nearl ll these deaths involve recreation on national forests

Avalanche formation requires slope allow en ugh for snow to accumulate but s ep enough r the snow to accelerate o e set in mo n by the m nation of mechanical failur of the snowpack) d gravity. The angl f the slope that c hold snow, called the angle of repo , depends on a variety o factors such a crystal form nd moistu content. Slopes flatter than degrees or steeper than 60 degrees typ lly have a l wer incidence of avalanches. Human-trigger avalanch have the greatest incidence when e sn w's angle of r pose is between 35 and 45 degrees; e c ical angle, the angle at w ch human-tr ered avalan s are most frequent, is 38 degrees. The r of thumb is: *A slope at is flat enough to ld sn but steep enough to ski a he potential to ge ate an avalanche, regardless he angle.*

Lan ides encompass a wide range of ground movements, nclu ng rockfalls, deep-seated slope failure shallow debris slides, earthflows, a de flows. Th behavior varies dramatically: some landslides eep imperceptibly — often ss than a ter per ye — causing cumulative damage to roads, foundations, utilities, and agric tural land ov years or deca s, while others mobilize suddenly and travel at speeds capable of overru ing stru , transportation corridors, and causing injuries or fatalities within seconds. Fast- v g debris flows are particularly hazardous because they can entrain rock, soil, veget nd structu into a dense slurry that travels far beyond the original failure zone.

The fundamental dri of all landslide mo ment is gravity. A slope remains stable as long as the shear strength of the underly earth material xceeds the gravitational shear stress acting on it; failure occurs when the balance be een these rces is disturbed — either by an increase in driving stress, a reduction in material strength, both The conditions that allow gravity to overcome the resistance of slope materials include[3]:

[2] USFS, National Avalanche Center, www.avalanche.org

[3] *What is a landslide and what causes one?*, USGS

- **Saturation by water** — from prolonged or intense rainfall, rapid snowmelt, rising groundwater, leaking utilities, or irrigation — which adds weight, increases pore-water pressure, and reduces internal cohesion.
- **Steepening or undermining of slopes** through natural stream and wave erosion, glacial retreat, or human activities such as road cuts, grading, excavation, and the placement of fill or structures at the crest of a slope.
- **Alternating freezing and thawing**, frost wedging, and seasonal soil moisture cycles that progressively weaken near-surface materia
- **Earthquake shaking**, which generates trans nt stresses uefies saturated soils, and can trigger thousands of landslides across a wide r ion fr m a sing eismic event.
- **Volcanic eruptions**, which pro c lahars, pyro tic-driven slope failures, and edifice collapses, sometimes traveling ten of lometers m the source.
- **Loss of vegetative cover and root reng** from l ging, land clearing, drough tress, insect mortality, o fire, which re oves th mechanical reinforcement th roo rovide to shallow soils.

Landslides are st commonly trigg d by hydrologic events — parti larly periods of heavy or prolonged ra fall, intense nvective st ms, and rapid snowmelt — nd the majo y of landslides worldwide f which a rigger can be identified are precipitation-dr n. Bec se landslides and floodi g share th e ggers, the two azards frequently occur together and mpound one another: lan slides can dam reams and ivers, producing temporary impoundments whose sudden failure auses downstream fl d su es; they can deliver large vol s of sediment, oody debris, and boulders th t elevate chan l beds, undermine bridges, and worsen o ank floodi g; and they can d mag evees, culverts, and stormwater infrastructure in way that m nify f impacts[4].

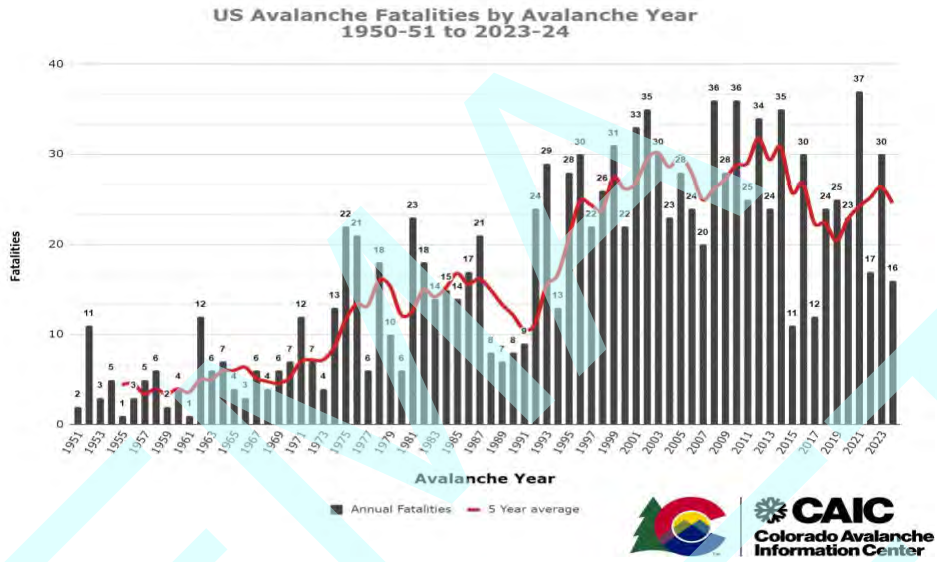
Wildfir urned watersheds are an especial sensit landslide azard environment for several years after a fire. e combustion of organic ter and the rmation of hydrophobic (water-repellent) soil layer reduce infiltration and dramati y increase ru off; the loss of anopy and ground cover removes rainfall interception and surface roug ess; a the decay burned root systems progressively weakens shallow soils on hillslopes. As a lt, burned slopes can produce debris flows and shallow landslides during rainfall ent t would ave been too small to initiate failure in unburned conditions, a relation ip documente globally nd confirmed in recent peer-reviewed analyses showing that post-f mass movements a preceded by significantly less precipitation than failures in unburned terrain. Ele ted post-fire land de and debris-flow risk typically persists for one to five years after a burn, until v etation re-esta shes and soil structure recovers[5].

[4] Landslides, Pacific Northwest Seismic Network, pnsn.org

[5] The Good, the Bad, the Ugly: How Wildfires Reshape Landscapes, USGS, 2025

4.1.2 History

The history of avalanches in the Service Area is much more pronounced than that of landslides. Both, however, have occurred. Avalanches are a normal occurrence in the Service Area and typically do not cause significant damage; however, injuries and casualties have occurred. The image below outlines the annual number of fatalities due to avalanches across the US beginning in 1950.



Avalanche F ities by Avalanche ear [Colorado Avalanche Inform Center, US lanche Accident Reports f Montana, 2024]

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The number of annual fatalities is increasing due to increased use of snowmobiles in the backcountry. Since 1951, 117 people have been killed by avalanches in Montana with numerous additional injuries. The Service Area has experienced 18 fatalities since 1996. Each incident is detailed below.

Avalanche Incidents in Gallatin County [Avalanches.org 2024]

Date	Location	Damage
4/3/2022	Bozeman	1 caught/ 0 buried/ 0 killed
2/06/2022	West Yellowstone	snowmobiler caught, patirally buried-cri nd killed
12/14/2021	Big Sky	2 splitboa ught, 1 partially buried nd fatally ur
2/26/2019	Brid Range	kier ght, partially buried-critical, a k ed
4/14/2018	Bridge Ran	1 s country rider, partially buried, kill
1/2/2018	S. Madis Rang	1 sno obiler buried and killed
10/7/2017	S. Madison ange	kiers caught, 1 killed
1/19/2016	N. dison R ge	1 ski patroller caught, partly burie and killed
4/11/20	N Madison R e	1 backcountry tourer cau and killed
1/1 014	N. llatin Range	1 snowmobiler caugh nd killed
14/2011	Bridge Range	1 skier triggered, ght and kille
4/ 2010	N Madison Range	2 snowmobilers caugh kill
12/10/2	N. Gallatin Range	1 climber caught, partially ried and kill d
2/11/2009	West Yellowstone	3 s wm caught, 1 killed
1/20/2008	N. Madison Range	1 ski triggered, buried and killed
3/3/2007	N. Madison Range	1 skier gere aught, buried and killed
12/28/2006	S. Ma on Range	2 snowmo ers caught, 1 buried and killed
3/24/2002	Madison Range	1 snowmobil riggered, caught and killed
4/4/2001	Br r Rang	1 sk ht, buried and killed
11/26/1999	N. Ma Range	2 skiers caught, 1 buried and killed
3/9/1996	West Yello ne	1 snowmobiler buried and killed
2/25/1996	W Yellowsto	1 snowmobiler buried and killed

The most consequenti andslide event in he region's modern history occurred immediately adjacent to Gallatin County. On A ust 17, 1959 he M7.3 Hebgen Lake earthquake, centered approximately 15 miles north of West Yel wstone riggered the Madison Slide, the largest seismically induced landslide in recorded North Ame n history. A 1,300-foot-high section of the south wall of Madison Canyon collapsed, depositing an estimated 37–43 million cubic yards of rock and debris across the Madison River, killing 28 people (19 of whom were never recovered from beneath the slide), and forming Earthquake (Quake) Lake behind a 220-foot natural dam. The 1959 event remains the deadliest

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earthquake and the deadliest landslide in Montana's history and is a direct demonstration of the seismic landslide potential within the Intermountain Seismic Belt that runs through the Service Area[6].

The Service Area's mountainous terrain produces routine seasonal landslide and debris-flow activity along recreational trails, U.S. and state highway corridors (notably US 191 through Gallatin Canyon, US 287 along the Madison, and MT 64 to Big Sky), and steep residential subdivisions. A recent example occurred on July 29, 2025, when a severe convective storm delivered intense rainfall over the Bridger Range, carving erosion channels three to six feet deep and producing debris flows that deposited logs, rocks, and sediment across Truman Gulch Trail No. 535, Bridger Foothills Trail No. 534, and Middle Cottonwood Trail No. 586, forcin the ster Gallatin National Forest to close a segment of Truman Gulch Trail for repairs. The even lso cause hillside along Storm Castle Road to slide onto the road, trapping vehicles for 24 hours Event of this e — short, high-intensity summer storms over steep, recently di ed or burn rain — are the dominant non-seismic landslide trigger across the county.

Landslide History in Gallatin County

Date	Locati	Damage
7/29/2025	Gallat unt	Damaged trails and roads
8/17 59	H gen Lake	28 killed

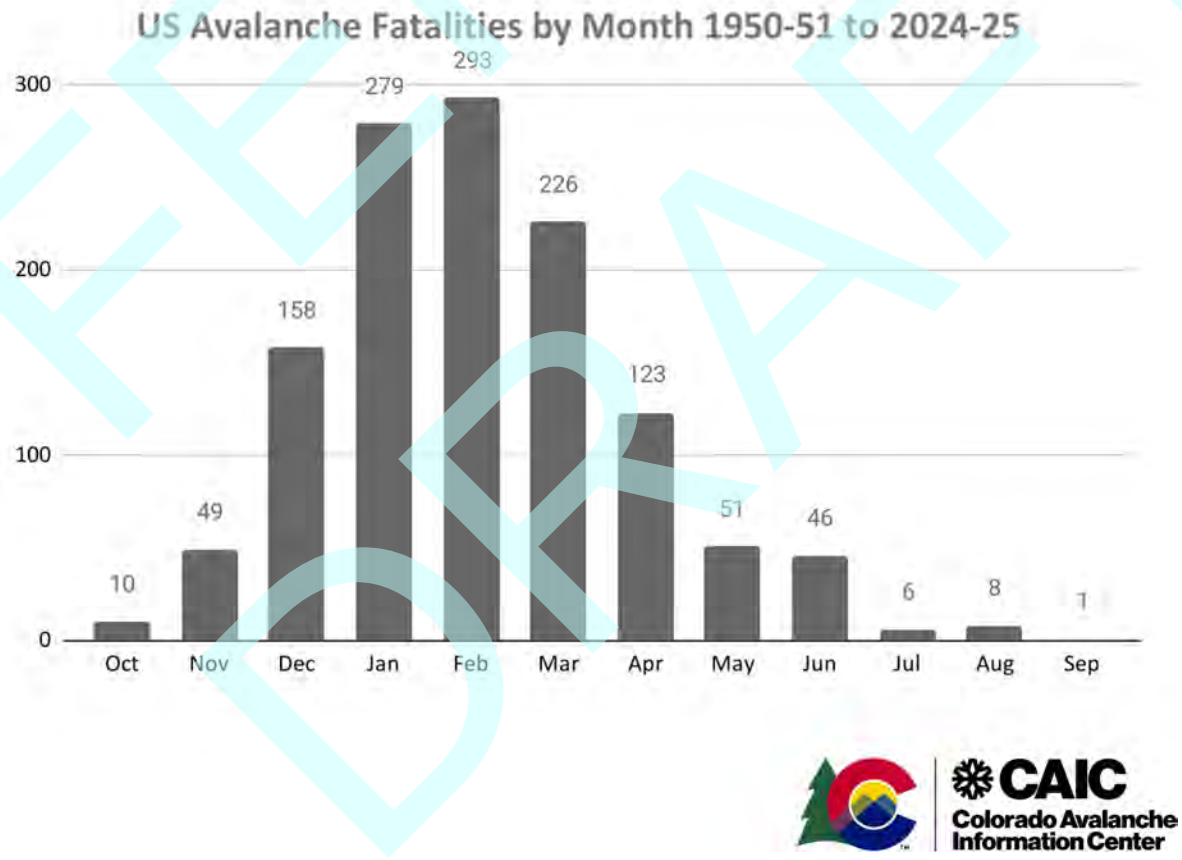
4.1.3 PR B BILITY AND AGNITUDE

Th Colorado Avala he Inform ion Center has compiled statistics on a statew e basis on avalanche atalities. Montana rank fifth n the nation with 117 fatalit s si 1951. The top t e activities being undertake t the time of a avalanche were backcountry sk g, snowm iling, and c imbing. Ratings h e n been compiled for counties within Montana; howev the hi orical bases show that the Ser Area is one of the more vulnerable counties in the state m valanche, particularly in the West Yellow ne and Gallatin Canyon areas. B w dem nstrates th the population is most vulnerable to avalanches uring the months of Decem r, January ebruary, an March.

[6] The 1959 Madison Slide, Part1: A deadly consequence of the Hebgen Lake Earthquake, Yellowstone Volcano Observatory, 2024

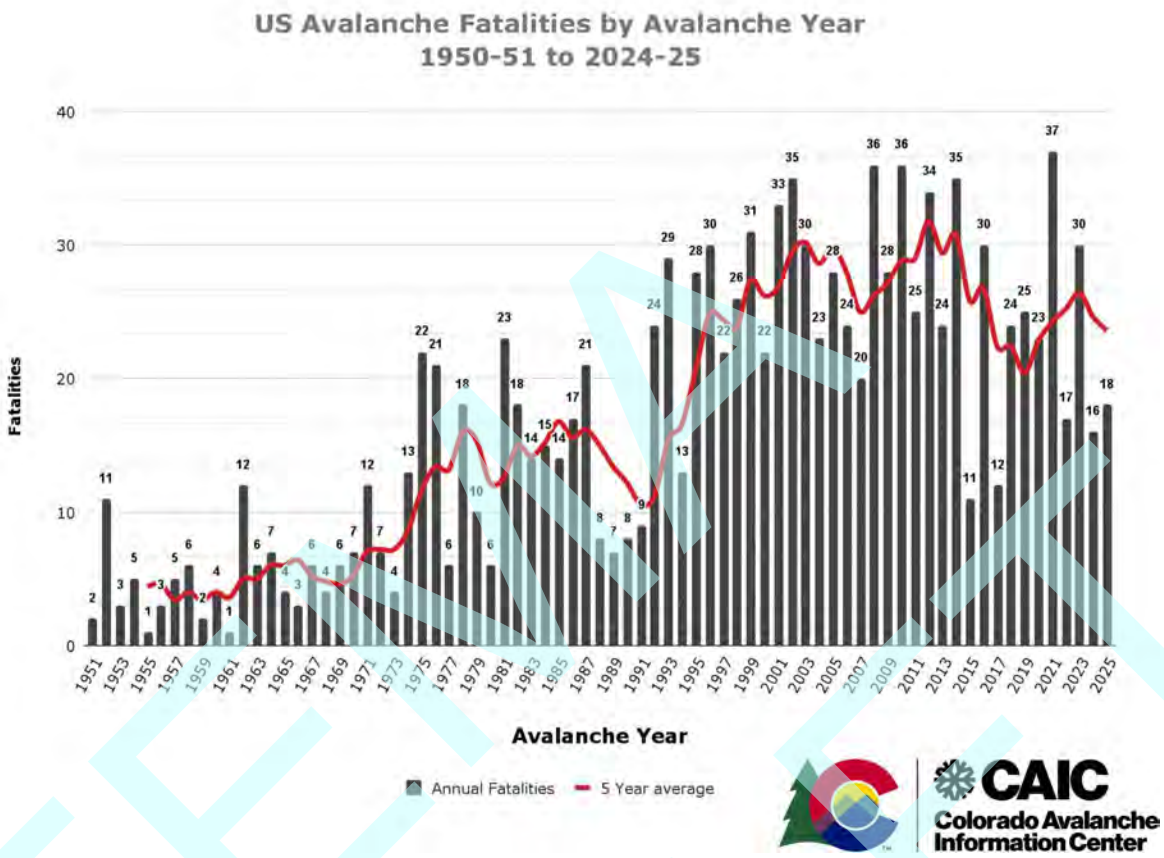


Wet s avalanch low Beeh Peak n Northern Madison Range, May 1 2019.



Avalanche Fatalities in US by Month [Colorado Avalanche Information Center, US Avalanche Accident Reports, 2025)]

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S Avalanche F alities by Ye Col do Avalanche Information Center, 25

L ds es have an even lower probability of creating a dis er ba d on a y limited history of even Should landslides occur in this area, th ically do no f ct life or property. The probability of a dam ing landslide could greatly inc ase if de lopment w e to occur in landslide prone areas. Wildfire bu areas also greatly increa the probabi y of a lands e triggered by precipitation.

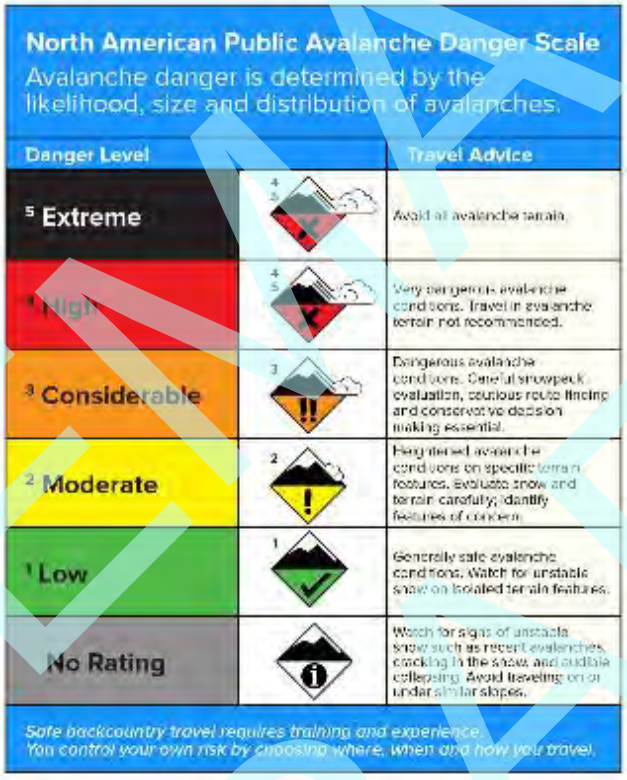
The probability of an avalanche or lan ide using enough amage for a county, state, or federal disaster is considered low based on the his cal record, but the impact can be significant as seen in the 1959 Hebgen Lake E hquake d the 28 f lities.

4.1.4 WAR NGS, WATCHES, A D ADVISORIES

Avalanche warnings m be issued by th National Weather Service (NWS) in conjunction with the Gallatin National Forest A lanche Cen (GNFAC). This type of warning brings attention to severe avalanche dangers. During lanc season, GNFAC issues detailed advisories outlining the avalanche hazards. The US Avala he Danger Scale includes the following levels:

- **Extreme Avalanche Danger:** Avoid all avalanche terrain. Travel only on gentle slopes well away from areas affected by avalanches.
- **High Avalanche Danger:** Very dangerous conditions. Travel in avalanche terrain is not recommended. Extensive skill, experience, and local knowledge are essential.

- **Considerable Avalanche Danger:** Dangerous avalanche conditions. Use conservative decision making, careful route finding, and good travel habits. Training and experience are essential.
- **Moderate Avalanche Danger:** Dangerous avalanche conditions on some terrain features. Evaluate the snow and terrain carefully and use good travel habits.
- **Low Avalanche Danger:** Generally safe avalanche conditions. Watch for unstable snow on isolated terrain features.



Avalanche Danger S

Destructive landslides are often asso ted with hea y rain and fla flooding. The NWS issues flash flood watches and warnings. These al are likel tially significant landslides. The alerts and warnings issued by the NWS include

- **Flash Flood Wa h:** Fla flood wat s inform the public of conditions which may cause short duration ntense floodin from hea precipitation, snow melt, dam failure, or ice jams within the xt 36 hours, but the ooding is neither certain nor imminent.
- **Flash Flood rning:** Flash flo warnings are issued when flooding is imminent during short term events quiring imm diate action. Flash flooding occurs when the water level rises rapidly to inund ion wi in 6 hours of a causative event (i.e., heavy precipitation, snow melt, dam failure, or ice ms).

Additionally, landslide risk may be increased following wildfire. The burnt area is often prone to landslides, particularly when combined with heavy rainfall.

4.1.5 MAPPING

Avalanches and landslides are difficult to map, due to their site-specific nature, based on terrain and snow conditions. Geotechnical engineers, engineering geologists and avalanche specialists are typically consulted to assess the avalanche or landslide susceptibility for a specific location. Several organizations, including the GNFAC (www.mtavalanche.com) and the American Avalanche Institute (www.americanavalancheinstitute.com), offer training courses to recreationists, ski patrol, and search and rescue personnel with the goal of introducing basic concepts of snow science and evaluation of snow and terrain conditions. This knowledge can th n be applied practically to promote avalanche hazard mitigation and safe backcountry travel techni ues.

4.1.6 VULNERABILITY

4.1.6.1 PROPERTY

Critical facilities in the Service Area hist rical have n suffered losses or been th tened by avalanches or landslides. The site-specific thr t of a anche and landslides to critical ities in the Service Area can only be rea tica determine by a ge echnical engineer or proj geolog More generally, those buildi gs on fla rrain o rrou ded by other structures likely have little vulnera lity to landslides and av anches. Simil ly, building n steep slopes, at the bott m of hills, or in unstab soils likely hav higher vulnerability avalanches and landslides.

Critical infra ucture m y be at risk from avalanches and landslides. e trans rtation network is likely e most n ble, particula during periods of heavy rain, snow, wmelt. Infrastructure su as power lines uld be de oyed by a large landslide or avalanche; ho ver, historical record oes not demonstrate t pot tial. The most probable ar s f l ndslides are on eep slopes, at the bottom of lls, and in un able soils. Without a detailed s l and slop map depict ng the landslide p enti the number of residential structures at risk from lan lides is nknow Similarly, predicting aval ches requires an in-depth understanding f the snow sur c nd other factors. Fortunately, the Service ea does not have any history of uctures eing destr ed by avalanches or landslides.

4.1.6.2 POPULATION

The primary threats to the population f m avala hes and des are while recreating and driving. Avalanches and landslides can quickly bu d destroy road infrastructure, endangering those on the roadways. Additionally, th p ion could threatened by an avalanche or landslide that damages an occupied structure ost often, a nches th aten those in hazard areas such as snowmobilers, skiers, snowboarde and climbers.

4.1.6.3 ECO MY

Widespread economic imp s due to a lanches or landslides are not expected in The Service Area; however, economic impacts ma occ either temporarily or by isolated sectors, such as the recreational snow sport industry. Possible econ mic losses include commerce losses due to closed roadways, timber losses in avalanche and landslide areas, and tourism losses due to avalanche and landslide concerns.

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4.1.6.4 FUTURE DEVELOPMENT

Unless evaluated by a geotechnical engineer or similar professional, new development could occur in landslide and avalanche hazard areas. Some provisions are in place within the county subdivision regulations to restrict development in hazardous areas. More specifically, lands unsuitable for subdivision include potential hazard areas from snow avalanches, rock falls, landslides, steep slopes in excess of 25 percent grade, subsidence, and slumping. These restrictions may prevent subdivisions in the most hazardous areas. Non-subdivision developments may still occur in some hazardous areas and others may have an unknown landslide or avalanche hazard at the time of evaluation.

4.1.7 DATA LIMITATIONS

In general, data on avalanche and landslide hazards in The S vice Ar is quite limited. The data limitations include:

- Limited studies of the hazards for he ea
- Site-specific nature of the hazards

4.1.8 HAZARD PR ILE

Jurisdiction	Probability of Occur nce	operty act	Population Impact	Econo Im ct	Overall Risk [1] (Relative Score))
Servic rea	.75	1.00	1.00	25	10.94
Belgrade					0.00
Big Sky	3.00	1.00	1.00	1.00	18.00
Bozeman	2.0	1.00	1.0	1.00	12.00
Ma ttan					0.00
ree Forks	0.00	1.00	1.00	1.00	0.00
W Yellowstone	2.00	1.00	1.00	2.00	14.00

[1] Each juris n determined the hazard's overall risk by assignin lues to rankin etrics that included: 1) probability that the hazard occurs, and 2) ential impacts to property, populati nd the economy

The hazard risk scores for each jurisdiction we nsolidated and th averaged to determ an overall risk score at the county level. The countywide risk scores were assigned a risk descr (Low, Mod their composite score ranking among all 30 identified hazards and by applying judgment to the final hazard r gs.

4.2 AVIATION ACCIDENT

4.2.1 DESCRIPTION

Aviation accidents can occur for a multitude of reasons ranging from mechanical failure to poor weather conditions to intentional causes. Accidents can vary from small single engine aircraft to large commercial jets. The location of the accident, such as a remote area versus a populated location, also plays an important role in the amount of destruction caused.

The Service Area has one large and two smaller airp rts. B man-Yellowstone International Airport (BZN), located in Belgrade, is the largest of the three nd the bu airport in the State of Montana. Progreba Field (9S5) is located in Three Forks and prim ly ser s smalle ingle engine aircraft. West Yellowstone Airport (WYS) is located West Yello ne and is primarily used in the summer months for tourism to Yellowstone Park an s a base ation for fixed and rotor wing w dland firefighting aircraft.

BZN is a full-service comm ia irport servi g the ne s of travelers in the regio BZN has a significant cargo capacity and p vate an lary s vices. In 2025 the airport served a total of 2,80 419 passengers over 19 88 business j operation d 71,682 general aviation perations. Eight maj airlines offer fli ts with non-stop ser e to 28 U.S. cities[7].

Large passen r aircraft rving these airports often fly over the Servic rea. Sm aircraft accidents may b relativel min in nature inv ving none or few casualties, whereas la e commercial aircraft co d create a mass sualty inci nt requiring outside assistance.

In addition established orts and fixed wing traffic, he copters d other aircra can be found in st oth areas of the county. An active wildfire season inc ases spo ng suppression activities by and helibases may be set up in many locations. Oth lo tions, such as Bozeman Health Deaco s Hospital, have frequent helic ter ffic condu ng medical transports. Three air ambulanc ompanies (Life Flight, Billi s Clinic, A Idaho) op te in the county providing medical response and transport capabilities one Mounta Land Comp y operates a frequent helicopter shuttle operation between the Bozeman Yellowst Int l and Big Sky (Ennis) Airports to their properties in Big Sky.

[7] Gallatin Airport Authority year-end press release, January 13, 2026, bozemanairport.com

4.2.2 History

Below summarizes the aviation accident reports filed by the National Transportation Safety Board (NTSB) from 1996 to 2025.

Aviation Accidents in the Service Area [NTSB, 2025]

Date	Location	Aircraft Type	Casualties
8/3/2025	Clarkston	Robinson R-44	Nonfatal
7/18/2025	West Yellowstone	iper PA-28	Fatal
6/15/2025	Three Forks	ssnae M	None
8/27/2024	Belgrade	B hcraft J35	None
8/11/2024	Manha	Pip PA	None
5/10/2024	Three F ks	Cessn 82H	Nonfatal
7/04/2023	Belgrad	Maule MX 180C	Nonfatal
7/20/2022	Three Forks	M le M-5 35C	Nonfatal
3/17/2022	lgrade	CubC ers CC11-160	Nonfatal
7/25/2 1	Bozeman	Stinson 108-1	Nonf
3 /2021	Th Forks	Piper PA-18-150	N fatal
5/13/2019	Belg	Siai-Marchetti SM	Nonfatal
7/19/2018	Bozeman	Cessna 180	Nonfatal
/2 8	zeman	DA 42 NG (A1); Piper PA 12 (A2)	N al
7/21/2 7	Bozeman	Robi n Helico er	Nonfata
3/22/2017	Bozeman	STOL ng	Nonfatal
7/8/2015	Belgrade	Pilatus P 2	Non
6/13/2015	Bozeman	Cessna P210	Nonfatal
9/16/2013	Bozem	iper PA 11	Nonfatal
8/12/2013	West Y owstone	Beech E35	Fatal
8/1/2013	West lowstone	GBVB	Nonfatal
7/14/2013	Bozem	Boeing E75	Nonfatal
1/15/2011	Three Forks	Bell 206B3	Nonfatal
8/30/201	B ade	Cessna 182C	Fatal
1/18 009	Three F ks	Byan Nanon	Nonfatal
10/3/2	Bozem	Fisher DAK	Nonfatal
9/5/2009	Bozem	Piper PA-20	Nonfatal
4/3/2008	Thr orks	Piper PA-22	Nonfatal
7/29/2007	ree Forks	Hughes 269C	Nonfatal
6/24/2007	Bozeman	Cessna 170A	Nonfatal
2/6/2007	Belgrade	Beechcraft 200	Fatal
8/2/2006	Belgrade	Cessna 180A	Fatal
4/14/2006	Belgrade	Cessna 425	Nonfatal

Date	Location	Aircraft Type	Casualties
8/3/2025	Clarkston	Robinson R-44	Nonfatal
7/18/2025	West Yellowstone	Piper PA-28	Fatal
6/15/2025	Three Forks	Cessnae 182M	None
8/27/2024	Belgrade	Beechcraft J35	None
8/11/2024	Manhattan	Piper PA-18	None
5/10/2024	Three Forks	Cessna 182H	Nonfatal
7/04/2023	Belgrade	M ule M 180C	Nonfatal
7/20/2022	Three Forks	Ma e M-5-235C	Nonfatal
3/17/2022	Belgra	CubC fters CC 1-60	Nonfatal
7/25/2021	Bozem n	Stinso 08-1	Nonfatal
3/17/2021	Three For	Piper PA -150	Nonfatal
5/13/2019	Belgrade	S Marche SM	Nonfatal
7/19/2018	Bozeman	Ce a 180	Nonfatal
4/4/20	Bozem	DA 42 NG (A1); Piper PA 12 (A2)	Nonfa l
7 1/2017	B man	Robinson Helicopter R22	N nfatal
3/22/2017	Bozem	STOL King	Nonfatal
11/29/20	Belgrade	Cessna 425	Fatal
1 004	elgrade	Cirrus SR22	F
6/24/2 4	Bozeman	Cessn 5F	Nonfat
3/31/2004	Bozeman	Cessna 05A	Nonfatal
11/5/2002	Bozeman	Riddel I P	
7/31/2002	Belgrade	Blanik L-1	Nonfatal
6/26/2001	Bozema	er PA-38-1	Nonfatal
6/26/2001	Boz an	essna 172M	Nonfatal
3/4/2001	B man	ia Stroitel AC-	Nonfatal
2/8/2001	Bozem	Piper PA-12	Nonfatal
3/16/2000	Three Forks	Piper PA-18-150	Nonfatal
3/4/2000	B man	Cessna 180H	Nonfatal
10/2 1999	Bozem	Piper PA-24-250	Nonfatal
8/21/1	Belgra	Cessna 180A	Nonfatal
6/17/1999	Belgr	Let L-13	Nonfatal
2/15/1998	B man	Piper PA-17	Nonfatal
12/7/1997	ozeman	Pitts S-2B	Fatal
12/7/1997	Bozeman	Cessna P206A	Fatal
10/5/1996	Big Sky	Aerospatiale SA-315B	Nonfatal
8/25/1996	Bozeman	Forney F-1	Nonfatal
8/3/1996	Belgrade	GS G-164A	Nonfatal

4.2.3 Probability and Magnitude

As the historical record demonstrates, the probability of a private, small aircraft accident is much greater than one involving a large commercial jet in the Service Area. Although an incident involving a commercial passenger flight and mass casualties cannot be ruled out, the probability is considered low. Statistics compiled based on NTSB incident reports over the last 20 years can be found below.

Accident Summary [NTSB, 2025]

Location	Number of Incide	Fatalities
Bozeman	24	3
Belgrade	15	
Manhattan	2	0
Three Forks	9	0
West Yellowstone	3	4
Big Sky	1	0
Tota	54	12

According to the N onal Transp ation an a ty Board, 128 aviation ac ents have occurred the Service Area nce 1965, including 8 fatalities. In this period, there wa n average of 2.13 aviation accidents per ar, with an erage of 0. aviation accidents involvin atalities per year.

4.2.4 M PP G

Av tion incidents occur both n and off airport facilities. Areas close to orts are theoretically greater risk due to th prox mity to local air traffic, thou h a eas within the c ty are vulnerable.

4.2.5 Associated Hazards and Other Fact RS

The zard of aviation accidents can involve ltiple factors Th two most significant include the location the accident and the cargo on b rd. The cation of a aviation accident will determine the significance f ground casualties and d mages. An a raft acciden n a populated downtown area has a much greater potential for addition asualties an pr perty damage than one that occurs in a remote part of the county. The location also a cts t ability of re ponders to get to the crash site. The mountainous terrain in the Service Area ca make rescues and recovery difficult, particularly during inclement weather. The go is an portant tor, if such cargo would create a hazardous material release or increased fi hazard. Shoul he conte of the aircraft be hazardous, the situation would need to be treated n only as an aviation cident but also as a contaminated site. The possibility of an aviation accident as an tentional act can t be ruled out, in which case the accident site would also become a crime scene and ossibly invol mass casualties.

Any hazard that involves aircr i the response or recovery could have an aircraft accident as an associated hazard. The helicopter crash during the Fridley Fire in adjacent Park County in 2001 is an example, where a firefighting helicopter crashed during bucket operations. Other possibilities include supply aircraft hauling recovery materials following an earthquake or flood.

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4.2.6 VULNERABILITY

4.2.6.1 PROPERTY

All critical facilities in the Service Area are at risk from aircraft accidents. Given the nature of historical events and the probability of a specific facility being hit, the overall vulnerability of any given critical facility is considered very low. Bozeman Health Deaconess Hospital and Big Sky Medical center, however, have been identified as facilities at an increased risk due to the helicopter medical transport operations conducted there. Both physical infrastructure and critical functionality losses are possible. Frequent shuttles by helicopter into the Yellowstone Cl ccur.

All above-ground critical infrastructure is at risk from a ation acc en well as some below-ground infrastructure. Tall communications towe and power l es c ry a slightly elevated risk, due to their elevation. Critical infrastructure damage ay sult in los f functionality.

All structures are at risk from aircraft accid nts, t ugh the kelihood of an accident im acting any given structure is extremely If an aircraf directly mpacts a residential structur dam ge could vary in the tens or hundreds f tho nds of ollars, depending on the structure and natur f the accident. Both structu and con t losses ld e incurred.

4.2.6 POPULATION

Aviation ac ents pose th greatest threat the population, due to the tory of fatal es in the Service Area. In accid ts, the mpact on population is dependent on the type of craft volved, the number of p ple on boar he location of e accident, and the number of people in area of the crash site. T ically, with aircr acciden very little warning exist o the population w ld be unaware until after the eve occurred.

4.2.6.3 ECONOMY

Tour m and recreation are significant economi d ivers in the ice Area. Aviation accidents large enough prevent or otherwise deter futu tourist from enter g the area could have a significant impact on local economy. Additi al possible onomic los s include localized agriculture or business losses, and business and re ue losses du o decreased tourism. Losses in the Belgrade area may be slightly higher, as the primary a ort o he region is lo ated just outside city limits.

4.2.6.4 FUTUR EVE MENT

Due to the unpredictab location of a raft acci ts, the impact of future development is generally the same regardles where that develop ent occurs, with a possible exception being the immediate airport vicinity. There re, the impact of f re development is considered minimal.

4.2.7 DATA LIMIT IONS

Data limitations related to the a n accident hazard include difficulty in predicting where future aircraft accidents will occur and the presence of aircraft across the entire service area.

4.2.8 HAZARD PROFILE

District / Jurisdiction	Probability of Occurrence	Property Impact	Population Impact	Economic Impact	Overall Risk [1] (Relative Score)
Service Area	**2.67**	**1.00**	**1.50**	**1.00**	**18.67**
Belgrade	**3.00**	**1.00**	**2.00**	**1.00**	**24.00**
Big Sky	**3.00**	**1.00**	**1.00**	**1.00**	**18.00**
Bozeman	**2.00**	**1.00**	**1.00**	**1.00**	**12.00**
Manhattan	**3.00**	**1.00**	**3.00**	**1.00**	**30.00**
Three Forks	**3.00**	**1.00**	**1.**	**1.00**	**18.00**
West Yellowstone	**2.00**	**1.00**	**00**	**1 00**	**12.00**

[1] Each jurisdiction determined the hazard's overall risk sc e by assigning val to ran g metrics tha ncluded: 1) probability that the hazard occurs, and 2) potential impacts to property, population economy.

The hazard risk scores for each jurisdiction were conso at nd then averag to determine an overall risk score at the county vel. The countywide risk scores were assigned a risk descriptor (L w, M rate, High) b d on their composite score ranking among all dentified hazards and by applying judgment to the final hazard rankin

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4.3 Civil Unrest

4.3.1 Description

Civil unrest, or disobedience, typically occurs when large groups, organizations, or distraught individuals act with potentially disastrous or disruptive results. Civil unrest can be the product of another event that creates panic in the community. Within the past year there have been several instances of civil unrest that have gained national attention; an armed standoff in defiance of federal land policies at the Malheur National Wildfire Refuse near Burns, Oregon, and the Dakota Access Pipeline, Standing Rock protests in the Dakotas ov p ntial impacts to drinking water and cultural sites, to name a few.

The GCEM Service Area has a politically and socially tive opulace, and as such many events and protests are held in the County each year. e historical hese protests are both peaceful and lawful, the potential exists for any event to escalat int ivil unres



Rescue Task F ce Training. 2 Courtesy Gallatin County Emergenc Manage

4.3.2 History

Fortu tely, The Service Area has not experie ajor incide n which civil unrest caused notable damages injuries. In recent years isolat d events ve occurr in which rapid police response de-escalated si ations which had the pot ial to devel into civil u est. Examples include a protest in front of the Bozeman Islamic Center, which a ma ed man was se n openly carrying a shotgun while protesting, as well as the anti-gay prote eld MSU by the estboro church, in which hundreds of community members staged a simultaneou ounter-protest. Another example of civil unrest that has occurred numerous times r m years are e protests near Yellowstone National Park to stop the hazing and roundup of son due to th threat of reading brucellosis.

4.3.3 Proba LITY

With very little experienc nd data local on this hazard, a specific probability for future civil unrest is hard to determine. Based o he his ical record and ability of law enforcement to rapidly identify and deescalate potential civil unr tuations, the probability of a large-scale civil unrest is considered low.

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4.3.4 Mapping

The City of Bozeman is the most populous part of the Service Area. Thus, this area is most likely to experience civil unrest. The Big Sky community is a frequent host to high profile individuals and often hosts events. However, civil unrest can occur anywhere people are able to meet, and thus the risk is considered present in all jurisdictions and throughout the entire county.

4.3.5 Associated Hazards and Other Factors

Civil unrest is often triggered by an emotionally cha g d event or outcome. Once initiated, it can lead to other hazards such as violence.

4.3.6 Vulnerability

4.3.6.1 Property

Critical facilities in The Service Area are at w ri from c l unrest. While damage is p ssible, it is considered unlikely. Reside l and business roperty osses are considered the most ke structure losses. Looting is commonly und associat n with these types of events. Urb n areas, p es of public gathering, and mportant g vernmen r e nomic assets are generally ing to be the are of greatest risk.

4 6.2 Popul ion

The effects of vil unr can be felt by the population, though usually on imite cale, in comparison with her human sed violence ch as terrorism. The greatest risk is to man lives during times o nrest.

.6.3 Economy

E no c losses will vary dramatically depending upon th ncide Small, olated incidents are unlik y to have a major impact on the local e my. Large, n i ally publicized incidents have the potentia deter tourism.

4.3.6.4 Future Develo ent

Development should have little impact the ci l unrest th The exception would be the increase in population and associated large venues atherings with the potential to hold large events..

4.3.7 Data L mitations

Since civil unrest in dents tend to be iso ed events, and little history exists in The Service Area, the probability and pote al losses are diffic t to quantify. Therefore, generalities have been made to estimate where potenti losses could b Site specific surveys would allow for an analysis of weaknesses of critical facili s infrastr ture, and vulnerable populations to civil unrest incidents.

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4.3.8 Hazard Profile

Jurisdiction	Probability of Occurrence	Property Impact	Population Impact	Economic Impact	Overall Risk [1] (Relative Score)
Service Area	1.80	1.00	1.00	1.00	10.80
Belgrade	2.00	1.00	1	1.00	12.00
Big Sky					0.00
Bozeman	2.00	1.00	1.00	1.0	12.00
Manhattan	1.00	1.00	1.00	1.00	6.00
Three Forks	2.00	1.00	1.00	1.00	12.00
West Yellowstone	2.00	1.00	00	1.00	12.00

[1] Each jurisdiction determined the haz verall risk score by ssigning s to ranking metrics that included: 1) pro li t the hazard occurs, and 2) potential impacts to pr y, p lation and the e omy.

The hazard risk scores for each jurisdi were lidated an then averaged to determine an overall risk scor at the county The countywide risk scores wer signed a ris scriptor (Mod te, High) based on their composite score nking among all 30 id ied hazards and by applying j ment to the final rd rankings.

4.4 COMMUNICABLE DISEASE AND BIOTERRORISM

4.4.1 DESCRIPTION

Diseases affect humans, animals, and plants continuously. Each species has its own natural immune system to ward off most diseases. The causes and significance of diseases vary. Of significance in the disaster prevention realm are communicable diseases with the potential for high infection rates in humans or those which might necessitate the destruction of livestock or crops. Such diseases can devastate human populations and the economy.

Disease transmission may occur naturally or intentio lly, as in case of bioterrorism, and infect populations rapidly with little notice. New diseases reg arly em rge or m ate. Known diseases, such as influenza, can be particularly sever any given a n. Terrorism experts also theorize the possibility of attacks using biological agen s.

4.4.2 HUMAN DISE SE

Human epidemics may lead qua tines, large-scale medical needs, and mass f lities. Ty cally, the elderly, young ch ldren, an hose w sup ressed immune systems are at greatest risk m communicable dis ses. The follow g biologic agents are considered the hi hest bioterrorism threa (Category A) b ause of their ease of semination or person-to-person ansmission, high mortality rate with p ntial for maj public health impacts, potential for publi nic and soc disruption, and the necessity f speci public health preparedness[8]:

- Anthrax
- B ulism
- Plague
- Smallpox
- T remia
- Viral Hemorrhagic Fevers

In addition to global disease nd bioterro m concerns, naturally occurring diseases can threaten communities. Natural ill sses of p cular con rn, among others, include:

- Food-born lnesses, such as E. li and Salmonella
- Influenza
- Meningitis
- Pertussis/Whooping Cou
- Measles
- Norwalk Virus

[8] Infection Control Considerations for High-Priority (CDC Category A) Diseases, 2023

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/ Severe Acute Respiratory Syndrome (SARS)

These diseases can infect populations rapidly, particularly in large-group settings such as schools, assisted living facilities, and workplaces.

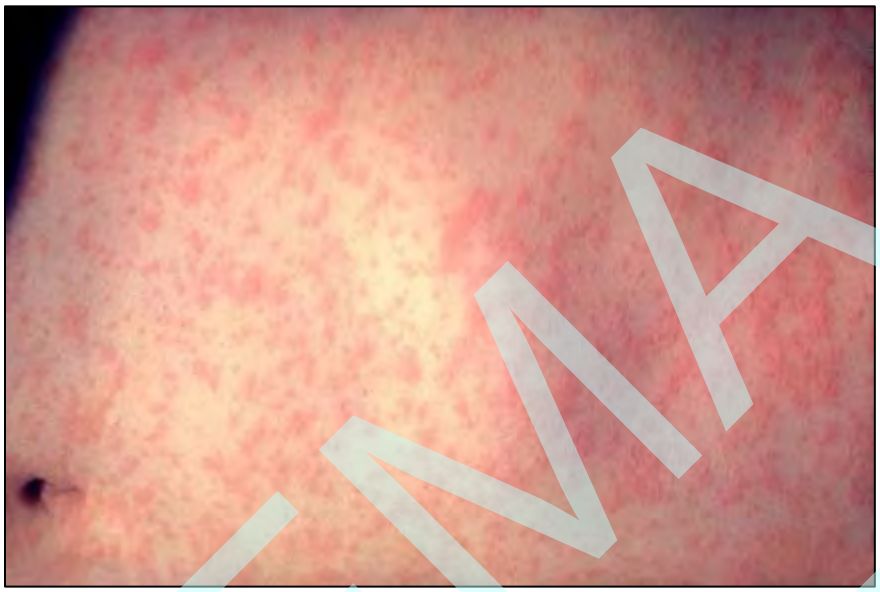


Photo of measle ash (CDC via G y Images). E y 2019 saw the highest number of measles cases he U.S. in 20 rs.

Well-d veloped urv llance and idemiologic capacity are the fou dat n on which health dep tments detect valuate, and itigate disease and bioterrorism impacts. mplementing the need accurate and time case ports is the need for exp t to analyze the i rmation properly. Epidemiolo c expertise ritical to judging whether th nciden volves biolog al or chemical ents o s a consequence of a natural phenomenon, an accid t, or terr is Extraordinary measures are necessary to develop a comprehensive terrorism health rveil nce and epidemiologic network. Initiat partnerships and developing new o isting data ks have always been components of public he h systems while using curre technolo y to prom timely disease identification and reporting.

Gallatin County Public Health Depa ent p sesses th al authority to receive reports and investigate unusual illness clusters. The he care system lacks the capabilities needed to effectively handle large numbers of vi

4.4.3 ANI L DISEASE

The Service Area is a gricultural and ra hing community. Animal diseases, particularly those that infect livestock, can distr the agricultu al community. Such diseases could lead to food shortages and negative economic impa depe ng on the animals infected and the geographic extent of the disease. Under MCA 81-2-107 D y to Report Contagious Disease) and ARM 32.3.104 (Subject Diseases or Conditions), the Montana Department of Livestock requires immediate reporting of the following diseases and conditions; those marked with an asterisk (*) are zoonotic (transmissible to humans), and those identified in rule require quarantine in addition to reporting[9]:

[9] Montana Department of Livestock, Montana Reportable Animal Diseases, November 2024; ARM 32.3.104

4.4.3.1 MULTIPLE SPECIES

- Akabane disease
- Anthrax *
- Bluetongue
- Brucellosis *
- Crimean-Congo hemorrhagic fever
- Echinococcosis / hydatidosis *
- Foot and Mouth Disease
- Heartwater
- Heartworm
- Japanese encephalitis *
- Leishmaniasis *
- Longhorned tick
- Malignant tarrhal fever
- Mang
- M oidosis
- Nipah us cephalitis *
- Paratuberc sis (John disease)
- Q-F ver *
- Rabies *
- Rift Valley fever *
- lmonellosis *
- Screwworm (New & Old W ld)
- Surra
- Trichinellosis *
- Trypanosomos
- Tuberculo *
- Tularemia *
- Vesicular stomati *
- West Nile Virus *

4.4.3.2 CATTLE / BISON

- Bovine anaplasmosis
- Bovine babesiosis
- Bovine genital campylobacteriosis

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- Bovine spongiform encephalopathy (BSE) *
- Bovine viral diarrhea (BVD)
- Cattle fever tick
- Contagious bovine pleuropneumonia
- Enzootic bovine leukosis
- Hemorrhagic septicemia (*Pasteurella multocida*)
- Infectious bovine rhinotracheitis / infectiou pu r vulvovaginitis (IBR/IPV)
- Lumpy skin disease
- Rinderpest
- Theileriosis
- Trichomoniasis

4.4.3.3 SWINE

- African swin fever
- Classical wine fever
- Porc e coronaviru s (PEDv, E, Delta)
- Por e cystic osis *

  Porcine oductive and piratory syndrome (PRRS)
- Pseudorabies Aujesz s disease)
- S eca Valley vir s (Seneca virus A)
- Swine influenza *
- Swine vesicular disease
- V icular exanthema

4.4.3.4 SHEEP / GOATS

- Caprine arthritis/encephalitis (CA
- Contagious agal a
- Contagious prine pleuropneu onia
- Contagious ot rot
- Enzootic abortio of ewes (Ovin chlamydiosis)
- Nairobi sheep diseas
- Ovine epididymitis (*Bruc la ovis*)
- Ovine progressive pneumonia / Maedi-Visna
- Salmonellosis (*S. abortusovis*)
- Peste des petits ruminants

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- Scrapie
- Sheep pox and goat pox

4.4.3.5 AVIAN / POULTRY

- Avian chlamydiosis (Psittacosis) *
- Avian infectious bronchitis
- Avian infectious laryngotracheitis
- Avian influenza (HPAI or LPAI) *
- Avian mycoplasmosis (*M. gallisepticum, M. s noviae*)
- Duck virus enteritis
- Exotic Newcastle disease *
- Fowl typhoid
- Infectious bursal d (Gumboro d ease)
- Pullorum dis ase
- Turkey rh otracheitis (Av pneumovi us)

4 .6 EQUINE

- Afri horse ckness

  Contagio equine metrit
- Dourine
- Equine encephalomyelitis (EEE/WEE/VEE) *

  Equine infectious anemia
- Equine influenza
- Eq ne piroplasmosis
- Equine rhinopneumonitis (E V-1, neuro i)
- Equine viral arteritis
- Glanders *
- Hendra viru isease *
- Pigeon feve
- Strangles

4.4.3.7 CERVIDS

- Chronic wasting disease (CWD)
- Epizootic hemorrhagic disease (EHD)

4.4.3.8 AQUACULTURE

- Epizootic hematopoietic necrosis

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- Epizootic ulcerative syndrome
- Gyrodactylosis
- Infectious hematopoietic necrosis
- Infectious salmon anemia
- Koi herpesvirus disease
- Red Sea bream iridoviral disease
- Salmonid alphavirus
- Spring viremia of carp
- Viral hemorrhagic septicemia

4.4.3.9 LAGOMORPHS

- Myxomatosis
- Rabbit hemorrhag i se

4.4.3.10 C NINE / FEL E

- Brucella anis *
- Pla e *

** Zo otic (trans ble to human*

4.4 PLANT DISEASE

M lant and crop diseases exist. Of most concern are thos dise es that spread rapidly and cause widesp ad economic losses. The specific d that could use plant epidemics depend on the species. O pecific concern in The Servi Area wou be those d eases that affect forage/hay, barley, wheat, oats, or potatoes. Although no ategorized a a disease, ne pests and weeds introduced could have similar impacts.

4.4.5 HISTORY

Diseases are a part of e ryday life. In ses wher disease significantly impacts the population actions can be taken to pre nt additional infect Most recently, a statewide measles outbreak in 1988 was noted by the Gallatin County Health Dep tment. Approximately three human influenza pandemics have occurred over the p 100 years, on everely affecting the United States. Following World War I, the Spanish influenza pan mic of 1 8 killed 20-40 million people worldwide, including 675,000 Americans [Billings, 1997]. In S e of Montana, the Spanish influenza caused 9.9 deaths per 1,000 people from 1918-1919 [Brainerd, 2002]. In 2008, an outbreak of the infectious disease anthrax killed 25 domestic bison on the Flying D Ranch southwest of Bozeman.

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4.4.6 Probability and Magnitude

Quantifying the probability of a human epidemic affecting The Service Area presents challenges due to a limited history of outbreaks. Data documenting disease outbreak in recent years has been compiled by the Montana Department of Public Health and Human Services and is listed below. Blank cells indicate data was not available.

Documented Communicable Disease in Montana [Communicable Disease in Montana, 2023, DPHHS]

Appendix II: Comparative Statistics for Reportable Communicable Diseases—Montana, 2018–2023†

Condition	Reported Cases and Incidence (cases per 100,000 population)										5-Year Average Incidence, 2018-2022	2023 Reported Cases	2023 Incidence
	2018		2019		2020		2021		2022				
	Cases	Incidence	Cases	Incidence	Cases	Incidence	Cases	Incidence	Cases	Incidence			
Campylobacteriosis	432	40.7	374	35.0	300	27.8	273	24.7	358	31.9	32.0	438	38.7
Chikungunya virus	0	0	0	0	0	0	0	0	0	0	0.0	1	0.1
Chlamydia	4901	461.4	4752	444.6	4138	382.9	4033	364.6	4088	364.1	403.5	3655	322.6
Coccidioidomycosis	28	2.6	25	2.3	15	1.4	22	2.0	18	1.6	2.0	16	1.4
Colorado tick fever	0	0	1	0.1	21	1.9	19	1.7	7	0.6	0.9	10	0.9
COVID-19	NA	NA	NA	NA	85195	7884.2	116257	10509.3	122903	10945.5	9779.7*	25678	2266.7
Cryptosporidiosis	81	7.6	72	6.7	48	4.4	56	5.1	56	5.0	5.8	95	8.4
Cyclosporiasis	10	0.9	2	0.2	1	0.1	4	0.4	4	0.4	0.4	9	0.8
Dengue virus infection	0	0	6	0.6	0	0	0	0	0	0	0.1	1	0.1
Ehrlichiosis, *chaffeensis*	0	0	0	0	0	0	1	0.1	0	0	0.0	1	0.1
Giardiasis	89	8.4	79	7.4	76	7.0	60	5.4	65	5.8	6.8	94	8.3
Gonorrhea	1176	110.7	1571	147.0	1696	157.0	1451	131.2	1311	116.8	132.5	767	67.7
Haemophilus influenzae, invasive	17	1.6	27	2.5	13	1.2	16	1.4	18	1.6	1.7	14	1.2
Hepatitis A, acute	0	0	17	1.6	8	0.7	3	0.3	5	0.4	0.6	2	0.2
Hepatitis B, acute	1	0.1	4	0.4	5	0.5	2	0.2	2	0.2	0.2	5	0.4
Hepatitis B, chronic	20	1.9	25	2.3	21	1.9	22	2.0	30	2.7	2.2	16	1.4
Hepatitis C, acute	13	1.2	19	1.8	17	1.6	30	2.7	37	3.3	2.2	27	2.4
Hepatitis C, chronic	1530	144.0	1335	124.9	982	90.9	1033	93.4	1011	90.0	108.6	1063	93.8
HIV/AIDS	23	2.2	26	2.4	16	1.5	20	1.8	15	1.3	1.8	28	2.5
Legionellosis	10	0.9	14	1.3	7	0.7	15	1.4	11	1.0	1.1	20	1.8
Listeriosis	0	0	0	0	2	0.2	2	0.2	4	0.4	0.2	2	0.2
Lyme disease	7	0.7	8	0.8	3	0.3	13	1.2	13	1.2	0.8	11	1.0
Malaria	3	0.3	0	0	2	0.2	2	0.2	2	0.2	0.2	2	0.2
MIS-C	NA	NA	NA	NA	4	0.4	19	1.7	7	0.6	0.9*	1	0.1
Mumps	6	0.6	17	1.6	1	0.1	1	0.1	0	0	0.5	3	0.3
Paratyphoid fever (*Salmonella Paratyphi*)	0	0	0	0	0	0	0	0	0	0	0.0	1	0.1
Pertussis	143	13.5	494	46.2	40	3.7	1	0.1	3	0.3	12.8	47	4.1
Q fever, Acute	3	0.3	2	0.2	1	0.1	2	0.2	2	0.2	0.2	1	0.1

†Conditions for which there were zero cases in 2023 are not reflected in this table. NR = Not Reportable. NA = Not Applicable. Small numbers of reported cases may result in unstable rates and should be interpreted with caution.
*Three-year average incidence reported, due to the condition not being reportable from 2018-2019.

Appendix II: Comparative Statistics for Reportable Communicable Diseases—Montana, 2018–2023†, Continued

Condition	Reported Cases and Incidence (cases per 100,000 population)										5-Year Average Incidence, 2018-2022	2023 Reported Cases	2023 Incidence
	2018		2019		2020		2021		2022				
	Cases	Incidence	Cases	Incidence	Cases	Incidence	Cases	Incidence	Cases	Incidence			
Q fever, Chronic	0	0	0	0	0	0	0	0	0	0	0.0	1	0.1
Rabies, animal	17	1.6	18	1.7	13	1.2	20	1.8	13	1.2	1.5	25	2.2
Rabies, post-exposure prophylaxis (PEP)	223	21.0	208	19.5	178	16.5	279	25.2	210	18.7	20.2	237	20.9
Salmonellosis	135	12.7	136	12.7	190	17.6	108	9.8	165	14.7	13.5	177	15.6
Shiga toxin-producing *Escherichia coli (STEC)*	121	11.4	69	6.5	92.0	8.5	104	9.4	118	10.5	9.3	139	12.2
Shigellosis	12	1.1	11	1.0	15	1.4	7	0.6	15	1.3	1.1	21	1.9
Soft Tick Relapsing Fever	0	0	0	0	0	0	0	0	1	0.1	0.0	1	0.1
Spotted Fever Rickettsiosis	9	0.8	3	0.3	2	0.2	2	0.2	2	0.2	0.3	2	0.2
Streptococcal toxic shock syndrome (STSS)	2	0.2	2	0.2	0	0	1	0.1	2	0.2	0.1	4	0.4
Streptococcus pneumoniae, invasive	121	11.4	131	12.3	84	7.8	113	10.2	104	9.3	10.2	110	9.7
Syphilis, congenital	0	0	1	0.1	2	0.2	9	0.8	15	1.3	0.5	19	1.7
Syphilis, primary and secondary	45	4.2	59	5.5	44	4.1	97	8.8	326	29.0	10.3	312	27.5
Syphilis, total	103	9.8	123	10.9	97	9.1	218	19.7	615	54.8	20.9	781	68.9
Transmissible Spongiform Encephalopathies (TSE)	2	0.2	2	0.2	3	0.3	1	0.1	3	0.3	0.2	2	0.2
Trichinosis (Trichinellosis)	0	0	0	0	0	0	0	0	0	0	0.0	1	0.1
Tuberculosis	5	0.5	2	0.2	4	0.4	3	0.3	6	0.5	0.4	8	0.7
Tuberculosis, Latent Infection (LTBI)	NR	NA	NR	NA	178	16.5	261	23.6	234	20.8	20.3**	252	22.2
Tularemia	4	0.4	2	0.2	1	0.1	2	0.2	2	0.2	0.2	2	0.2
Varicella (Chickenpox)	57	5.4	52	4.9	33	3.1	21	1.9	22	2.0	3.5	37	3.3
Vibriosis	14	1.3	2	0.2	3	0.3	4	0.4	8	0.7	0.6	13	1.1
West Nile virus, neuroinvasive	25	2.4	3	0.3	1	0.1	2	0.2	0	0	0.6	23	2.0
West Nile virus, non-neuroinvasive	22	2.1	0	0	0	0	0	0	0	0	0.4	19	1.7

†Conditions for which there were zero cases in 2023 are not reflected in this table. NR = Not Reportable. NA = Not Applicable. Small numbers of reported cases may result in unstable rates and should be interpreted with caution.
*Three-year average incidence reported, due to the condition not being reportable from 2018-2019.
**Three-year average incidence. LTBI became reportable in Montana in 2020. True case rates may be higher, due to limited availability to follow up on cases because of COVID-19 pandemic response.

Medical advances over the past 50 years prevent many disease outbreaks, yet the potential remains. The Service Area is a popular tourist destination and has a substantial transient population due to Montana State University and Gallatin College students. Travelers that pass through the county after being exposed to a disease could potentially start an epidemic. Lacking the resources of larger population areas, any exposure to one of these diseases could quickly overwhelm county public health capabilities.

Animal and plant disease outbreaks are even harder to predict. Most global livestock diseases have been confined to specific countries due to strict import re ulat Any plant disease outbreaks have been relatively easily contained.

The magnitude of a communicable dis outbreak v i from everyday disease occurrences to widespread infection. During the 1918 Influ a Pandem infection rates approached 28% in the United States (Billings, 1997). Such a pa dem affectin The Service Area represen a severe magnitude event. Almost a y highly cont ious, capaci ating disease that enter regional population could overwhelm cal alth resour es. Simi ly, any rapidly spreading oterror event for which little vaccin tion or c tainme apab ity exists is a high magnitude event.

4.4 MAPPING

The communi ble di ase hazard is uniform across the county, and refo mapping does not enha e this haza rofile. Urban eas may be slightly more vulnerable to apid spread of human di ase; however, ru areas ar more vulnerable to plant a d animal disease.

4 .8 ASSOCIATED HAZARDS AND OTHER FAC RS

O r seases such as those that result in the loss or contamina on of table wa r or sanitary services may ult in an increased probability of dise Often disea i a concern following a large-scale disaster. e time of year and weather cond ons may lso be a fa or I the development of an epidemic. A bioterrori m event may be tied to or ne in conju tion with a rger scale terrorism event.

4.4.9 VULNERABILITY

4.4.9.1 PROPER

In general, critical facil es are not str turally th atened by communicable disease and bioterrorism; however, their acce bility and function an be los . Contamination of a critical facility could render the facility non-func nal until decontam ation or the threat has passed. With the loss of function of facilities supporting em ency response, ays in emergency services could result. Additionally, with a significant human disease tbreak, res urces such as ambulance services and hospitals could quickly become overwhelmed. This is eci y true in rural areas, such as Manhattan and Three Forks, where limited resources exist and replac g any effected staff would be difficult due to a limited population.

Should a building become contaminated by some disease agent, cleanup costs and the loss of use of the buildings could result. Such costs could be significant. For this reason, all critical facilities are assumed to be at some risk from communicable disease.

FINAL DRAFT

Diseases can spread quickly in facilities housing vulnerable populations such as schools and elderly housing. Often these facilities, as well as the hospitals and medical clinics, are the first places where diseases are identified and treated.

In most cases, infrastructure would not be affected by communicable disease. Scenarios that would affect infrastructure include the contamination of the water supplies and diseases that require special provisions in the treatment of wastewater. Should an epidemic necessitate a quarantine or incapacitate a significant portion of the population, support of and physical repairs to infrastructure may be delayed, and services may be disrupted for a time due to limi ti in getting affected employees to work.

The structural integrities of residential buildings are no enerally re d by communicable disease. As with critical facilities, should a structu become con min ed, cleanup costs could be expensive.

4.4.9.2 POPULATION

Perhaps the most significant impact from omm icable d ease is to the population sease can spread rapidly through sch universities, health cilities, and communities. Th en e county population of 126,784 (2024 ima US Cens Bureau) plus non-residents are at k for con cting a communicable disea e. The In tute for uris and Recreation Research (ITRR) at the Univ ity of Montana report nearly 4,789, 0 non-resid visitors to Bozeman alo in 2023 [ITRR, 2023 meaning a sign cant number of peop could be affected by communic le disease. The number of infections a fatalities w d depend on e transmission and morta y rates. In th case of human disease, resi ts and isitors in urban areas such as Bozeman, B rade, B g Sky, and West Yello tone are o at risk.

sing a general estima f 35 ercent for the infection rate n mortality rate (on infected) of 20%, as can be th case in an inf nza pandemic, approximately 157 res ts of The S vice Area could infe d, with about 7,832 fatal infections. This estimate is xtreme b t us lausible infection and mo ty rates.

As with a disease, age and other health onditions n be a con buting factor. The ability to control the spread of disease depends on th virulence of he disease, t time lapses before the onset of symptoms, the movement of the popu ion, and t time involved. Vaccinations, anti-virals, quarantines, and other protective measu m y also prevent the spread and impact of the disease. Besides human diseases, anim l and plant d ases could negatively affect agriculture and limit food supplies.

4.4.9.3 ONOMY

Potential economic im acts include serv industry losses during human quarantines and limited travel, business interrupt s due to a la of workers and customers during human outbreaks, and direct agricultural losses d ng anim or plant disease outbreaks. Areas which depend almost exclusively on tourism, such as Yellowstone, are most susceptible to economic losses associated with communicable disease.

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4.4.9.4 Impact of Future Development

Future development would have little impact on the communicable disease vulnerabilities, unless the new structures regularly processed or handled biological disease agents. New residents add to the number of people threatened in The Service Area, but the location of such population increases is unlikely to affect the overall hazard.

4.4.10 Data Limitations

The data limitations related to communicable disease and bioterrorism hazard include:

- Uncertainties related to how and when a dis se w read through a population
- The emergence of new, unstudied diseases

4.4.11 Hazard Profile

Jurisdiction	Probab ity Occurr e	Property Impact	Po lation Impact	Economic Impact	Ov Risk [1] (R lativ core) (Range)
Service Area	2.83	2.67	17	1.17	32.58
Belgrade	3.00	2	1.00	1.00	36.00
Big Sky	3.00	2.00	1.00	1.00	27 0
Bozeman	3 0	3.00	1.00	1.00	6.00
Ma attan	2.00	00	1.00	1.00	24.00
hree Forks	3 00	2.00	2.00	2.00	36.00
West Yello one	3	3.00	1.00	0	00

ch juri ion determined the hazard's overall risk score by assigning values to rankin metrics that i ud bability that the hazard occurs, 2 tential impacts to property, population and the economy.

Th ard risk scores for each jurisdiction were consolidated hen averaged to r e an overall risk score at the county level. The county e risk scores were assigned a risk descriptor (Low d High) based on r composite score ranking among all 30 identified hazards y applying judgment to the final hazard ranki .

4.5 Critical Infrastructure Disruption (includes cyber-security)

4.5.1 Description

Critical infrastructure disruption, which can include utility outages and building/infrastructure closures, can be caused by almost any of the hazards described in this risk assessment or because of human error or equipment failures. Electric, gas, water, telephone and internet are all important services that could become problematic should a long-term outage occu E tricity is used to power many homes in The Service Area, to pump wells, and run heating systems ven if e icity is not the primary fuel source. Therefore, if electricity was lost for a long period of tim many r iden uld be without heat, water, and other appliances. Vulnerable pop tions needin p wered medical equipment would be additionally threatened by a long-term p we utage. Na al gas is used as a heat source fo many residents in the northern half of The Servic Are Should t t utility be lost in the winter m nths, the concerns associated with extended cold coul be sig ificant elephone services are m critical for 911 communications, and t ap d dispatch of eeded ergency services. Cell pho s wou also be lost if telephone service went wn. M y of th larger communities in The Service Area have blic water supplies. Shou those servi be lost, m n citizens would be without w ter and possibly se services. Any of hese disruptions c be handled in a short time fram but can quickly become problematic i ong term sit tions.

4.5.2 H T RY

Th Service Area ha ot had an significant utility outage that can be consid d disastrous, though hort-term and minor d pt ns are common.

4.5.3 Probability

Due t he history of critical infrastructure di p s, the prob ity of a major critical infrastructure disruptio n The Service Area is consid d moder e. As grow occurs, the ability of many of the utility systems to keep up with the incr sed demand ay increase th probability of a long-term outage.

West Yellowstone is at increased risk of ili outages, as propane used by the city is delivered via truck daily, and the city is l able to ma ain a small amount of fuel reserves. The city is only accessible via US Highw s 191 and Should e or both routes become inaccessible; a fuel shortage would rapidly devel in the area. As uch, the obability of critical infrastructure disruption is considered high in st Yellowstone.

4.5.4 Mapping

Many of the public utility featu in he Service Area have yet to be mapped and those that have been mapped are withheld for system s curity purposes. Mapping is maintained by the entity managing the utility.

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4.5.5 Associated Hazards and Other Factors

Critical infrastructure disruption can be caused by many of the hazards described in these profiles. Anything from an earthquake to a terrorist event could cause utilities to fail. Events that utility systems are particularly vulnerable to include earthquakes, floods, severe thunderstorms, tornadoes, high winds, winter storms, wildfires, and dam breaks.

4.5.6 Vulnerability

4.5.6.1 Property

Critical facilities are vulnerable to utility outages. So e critical lities do have back-up generators in case of an electricity outage. Most emergency servic s facili s, incl ng the 911 dispatch center and the emergency operations center back up p w . Others, however, may have limited functionality following an event due to a u ility failure or c ical infrastructure disruption.

Critical infrastructure disruptions typically do ot imp t stru ures directly. A long-term ity outage during extended cold could sul numerous rozen w r pipes inside homes an usines Most often, economic losses occur ing lo term tility outages. These losses would be most f by businesses that requ e electricity o water to op e.

4.5 2 Popula on

Without ser es such heated shelters, food, and drinking water, e popu ion could suffer. Signif ant cas tie would not b xpected since these services could e vailable in a nearby co munity. If no ecessary ltering and feeding provisions would b made to protect the opulation. Significant loca ns of vulnerable populatio a disruption of nor l lifestyles would be expecte

Pop tions in urban areas would be most vulnerable to critica nfr tructure disruptions, as people in these c munities are more likely to rely o he in structure t ulfill daily needs. Examples include sanitary sy ms, and heat. Rural areas o side of the ncorporate ities and towns may have a higher portion of the population which util e on-site wat , sewer, and el storage, and thus rely less on critical infrastructure.

As noted previously, West Y tone is pa cularly vulnerable to heating fuel disruptions due to the need to import fuel dail Should co tions pr nt or delay several deliveries, a substantial portion of the population wo d be left with no w y to heat t eir homes. Depending on temperature and season, this could have a dis rous impact on the pulation.

4.5.6.3 Econo y

Critical infrastructure disrupti often auses temporary business closures, as most businesses rely on internet and telecommunications rvices to process payments, and other utilities for production, sanitation, and employee wellbeing. These disruptions are expected to be more pronounced in areas with significant tourism, as visitors are likely to leave the area if critical services and utilities are not available.

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4.5.6.4 Future Development

Future development is not expected to have significant impact on this hazard. Increased populations add to the challenges of managing a long-term utility outage but may not increase the damage.

4.5.7 Data Limitations

Since long term utility outages are not a normal event for The Service Area, understanding the specific problems and concerns of this hazard are the greatest limitation. Studies of each of the critical facilities would allow for a more in-depth discussion of their v erabilities.

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4.5.8 Hazard Profile – Critical Infrastructure

District / Jurisdiction	Probability of Occurrence	Property Impact	Population Impact	Economic Impact	Overall Risk [1] (Relative Score)
Service Area	3.00	2.67	1.33	1.33	36.00
Belgrade					0.00
Big Sky	3.00	3.00	1.00	1.00	36.00
Bozeman	3.00	3.00	1 0	1.00	36.00
Manhattan					0.00
Three Forks	3.00	2.00	2.00	2.0	36.00
West Yellowstone					0.00

[1] Each jurisdiction determined the hazard's overall risk score ass g values to ra g metrics that included: 1) probability that the ha occurs, and 2) potential impacts to property, population and the eco my.
The hazard risk scores for each jurisdiction were consolida d and averaged determine an overall risk score at the nty level. The countywide risk scores were assigned a risk descriptor (Low, Moderate h) base n their composite score ranking ami 1 30 identified hazards and by applying judgment to l hazard rankings.

4.5.9 Hazard Pro le – Cy rsecur y

Distri Jurisd on	Probability O urrence	Pro ty Impact	Population Impact	E nomic act	O erall Risk [1] Relative Score)
Serv Area	2.50	2 5	1.25	1.00	25.63
B grade	2.50	2.00	2.00	1.00	33.00
Big Sky					00
Bozeman	2.0	3.00	1.00	1.0	24 00
Manh an	2.00	3.00	1.00	1.0	24.00
Th Forks					0.00
West Y wstone	3.00	1.00	1.	1.00	18.00

4.5.10 Hazard Profile – Utilit Outage

District / Jurisdiction	Prob b f currence	Property mpact	Population Impact	Economic Impact	Overall Risk [1] (Relative Score)
Service Area	2.75	2.50	1. 5	1.00	33.00
Belgrade	00	2.00	2.00	1.00	33.00
Big Sky	2.	3.00	3.00	1.00	32.00
Bozeman					0.00
Manhattan	3.00	00	1.00	1.00	27.00
Three Forks					0.00
West Yellowstone	3.00	3.00	1.00	1.00	36.00

4.6 DAM FAILURE

4.6.1 DESCRIPTION

Dams have been constructed throughout Montana for various reasons including recreation, flood control, irrigation, water supply, hydroelectricity, and mining. Dams are built and owned by a variety of entities such as private individuals, businesses, and government. The structural integrity of a dam depends on its design, maintenance, and weather/drainage situation. Dam failure occurs when the forces of gravity or other external forces overcome the structural integrity of a dam. The reasons for failure can include poor construction, deterioration, extrem winds, and earthquakes. When dams fail the resulting flow can be compared to riverine or flash loodin i the area downstream from the dam. Problems arise when a dam fails, and people and/or pr erty lie in inundation area.

Hazard ratings are assigned to dams for gency man e nt planning purposes. These ratings are based on the potential for loss of life and rop ty damag hould the dam fail, and do not ref ct the condition or probability of dam failure. Def itio as accep d by FEMA[10], are as follows

- **Low Hazard Poten ial:** Dam failur or mis eration results in no probable l f human life and low economic d/ nvironmen l losses osses are principally limit to th wner's property.
- **Significan Hazard Pote al:** Dam f e or mis-operation results no probable loss of human e but can cause eco mic loss, environmental damage ruption of lifeline facil es, or can im act other co erns.
- **Hig Hazard P tential:** Dam failure or improper operation is ely to c se loss of life.



Hyalite Reservoir, 2011. Photo courtesy Patr L rgan & Summit Air Ambulance.

The Service Area has, or could be affected by ight high hazard dams, five significant hazard dam, and four low hazard dams as own bel

[10] FEMA P-333: Federal Guidelines for Dam Safety: Hazard Potential Classification System for Dams (April 2004)

FEMA DRAFT

Dams Located in the Service Area (or with potential significant impacts to the county) [National Inventory of Dams, 2026]

	Hazard Rating	Height (ft)	Storage (acre-ft)	Dam Purpose	Year Constructed	River	Owner
Big Sky Dam/Lake Levinsky[1] (Madison County)	High	52	172	Recreation/ Water Supply	1973	Middle Fork of West Fork Gallatin River	Boyne USA
Golden Meadow	Low	8	63	Stock	1974	Meadow Creek	Higgins Brothers
Green Hollow Creek Dam	High	45	300	creatio	1990	Green Hollow Creek	Turner Enterprises, Inc.
Hebgen Dam	High	120	525,620	Flood ontrol, Hydro ctri	1915	Madison River	Northwestern Energy
Kistner Hardy Dam	Significant	8		Stoc	1945	S. Fork Muddy Creek	R bert W rhauser
Madison Dam [2] (Ennis Lake, Madison County)	Hig	39	42 53	H droelectr R ation	1906	Madison River	orthWestern Energy
Middle Creek (Hyalite) Dam	High	125	0 184	Irrigation, Water Supply	1951	Middle reek	Mo a DNR
Pacabo	Low	15	69	Fire Protection, Stock	1956	Darlington Ditch	Harry Gillingham
Real Close	Low	20	52	Irrigation	1963	Du C ek	Rupert D Koelza
Sch er Reservoir	Low	17	200	Irrigation	Not Available	N/A	Cliff Schutter
Willow Creek Dam [3] (Madison unty)	h	105	18,000	Irrigati Recreati		Willo reek, Dry Ho Ck, ian Ck	Montana DNRC
Big y County Wast ter Pond 1	High	24	18	Wastewater	997		Big Sky County Water and Sewer District
Big Sky Co y Wastewater Pond 3	High	22	60.1	astewater	997		Big Sky County Water and Sewer District
Belgrade Waste Water Treatment Pond 1	Low	18	250	Wastewat	2002		City of Belgrade

[1] Big Sky Dam/Lake Levinsky is located in Madison County, ximately 1 mile west of the Gallatin County boundary. It is included in this table because the effects of a dam failure w ost entirely n Gallatin County.

[2] Madison Dam/Ennis Lake is loc in Madison C approxim 9 miles south of MT Highway 84. It is included in this table because the effects of a dam failure could im t portions of Gallatin nty.

[3] Willow Creek Dam/Reserv (Harrison Lake) is located in adison County, approximately 3 miles southwest of the Gallatin County boundary. It is included in this table becau e effects of a dam failure co significantly impact portions of Gallatin County.

4.6.2 History

There are no known acciden dam eaks in the history of the Service Area. Several dams have purposely been breached for vari reasons in the past. The most recent was the Mystic Lake Dam in Sourdough Canyon, this dam was breached as a mitigation measure to prevent a future failure. The Mystic Lake Dam was a water retention dam for the City of Bozeman water supply.

In August 2008, two of the mechanical outlet gates at the Hebgen Lake Dam failed causing a rapid increase in water discharge from the dam (flows increased from 800 cubic feet/second [cfs] to 3,400

cfs. Subsequent inspections revealed that the dam was structurally sound. This incident initiated a large-scale repair and replacement project of the dam's outlet works and emergency spillway.

In March 2016, a holding pond containing treated wastewater from the Yellowstone Club breached and spilled approximately 30 million gallons which eventually reached the South Fork West Fork of the Gallatin River. Data results from sampling that occurred immediately following the spill indicated that Montana health standards were not exceeded. Aquatic life standards were exceeded for ammonia and sediment.

In spring of 2018, failures of two dams in Meagher C unty re d in noticeable increased flows into Sixteenmile Creek in northern Gallatin County.

4.6.3 Probability

Several dams throughout the county are cl ssifi as high zard; however, the probabilit of those dams breaking is considered low. High or gnific t haza dams are the most prob e to cause damages, and none are kno e unstable. The Mon na DNRC keeps an assess nt of ms not meeting safety standards.

4.6.4 Mapping

Figure 4-4 ovides mapp g of inundati areas for breaches of th x high-haza dams listed in Table 4-5; th of the ams (Green Hollow Creek, Hebgen, and Mid Creek are located in The Servi Area, wh e other three d ms (Big Sky, Madison, and Willow Cre are located in Madison C nty but have br h inunda n areas that significantly affect The Service rea. Below shows a arger scale map of the un tion area for the Middle C ek (lite) Dam dur an overtopping flood eve Inundation mapping for breaches of all high-ha rd dams luded in their Emergency A ion lans (EAPs).

4 5 Associated Hazards d Othe Factors

Dam failure s most often associated w h other haza s. Heavy rain ll or high-water levels from rapid snowmelt are typically a contributing ctor in d f I this scenario, flooding may already be occurring, in which case a dam failure w d gravate the situation. Dams have also failed as a result of significant earthquakes.

Dam failure resultin rom a terrorist is possi although unlikely due to the well-documented engineering princip and design standard hat are required to ensure that dams can withstand a variety of unusual and extrem onditions in the n ural environment. These rigorous design and construction processes produce inheren robust stru res that cannot be easily exploited by terrorists.

4.6.6 Vulnerability

4.6.6.1 Property

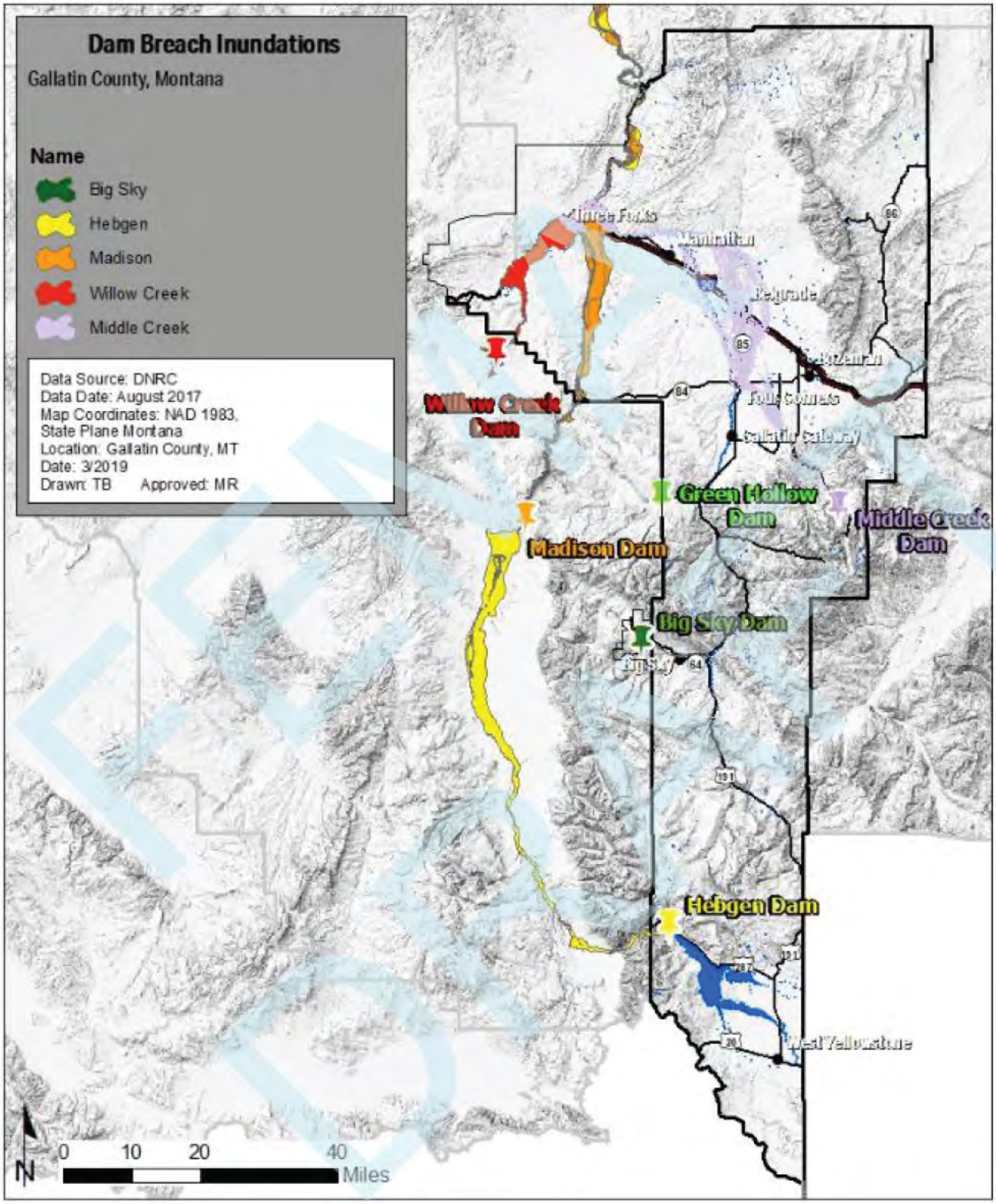
There are a few critical facilities located within dam failure inundation areas in the county. During a failure, these facilities could be expected to be significantly impacted. Some roadways may become impassable, making travelling to critical facilities more difficult.

Depending on the type of infrastructure, dam failure could result in long-term disruptions while new arrangements are made. According to the dam breach models, much of Belgrade, Four Corners, and significant portions of Interstate 90 and Highway 191 would be inundated and susceptible to significant damage following a breach of Middle Creek Dam. Furthermore, the airport would be inaccessible, and the railroad would be disconnected in several places. Interruptions in drinking water and utility services would be expected in some areas.

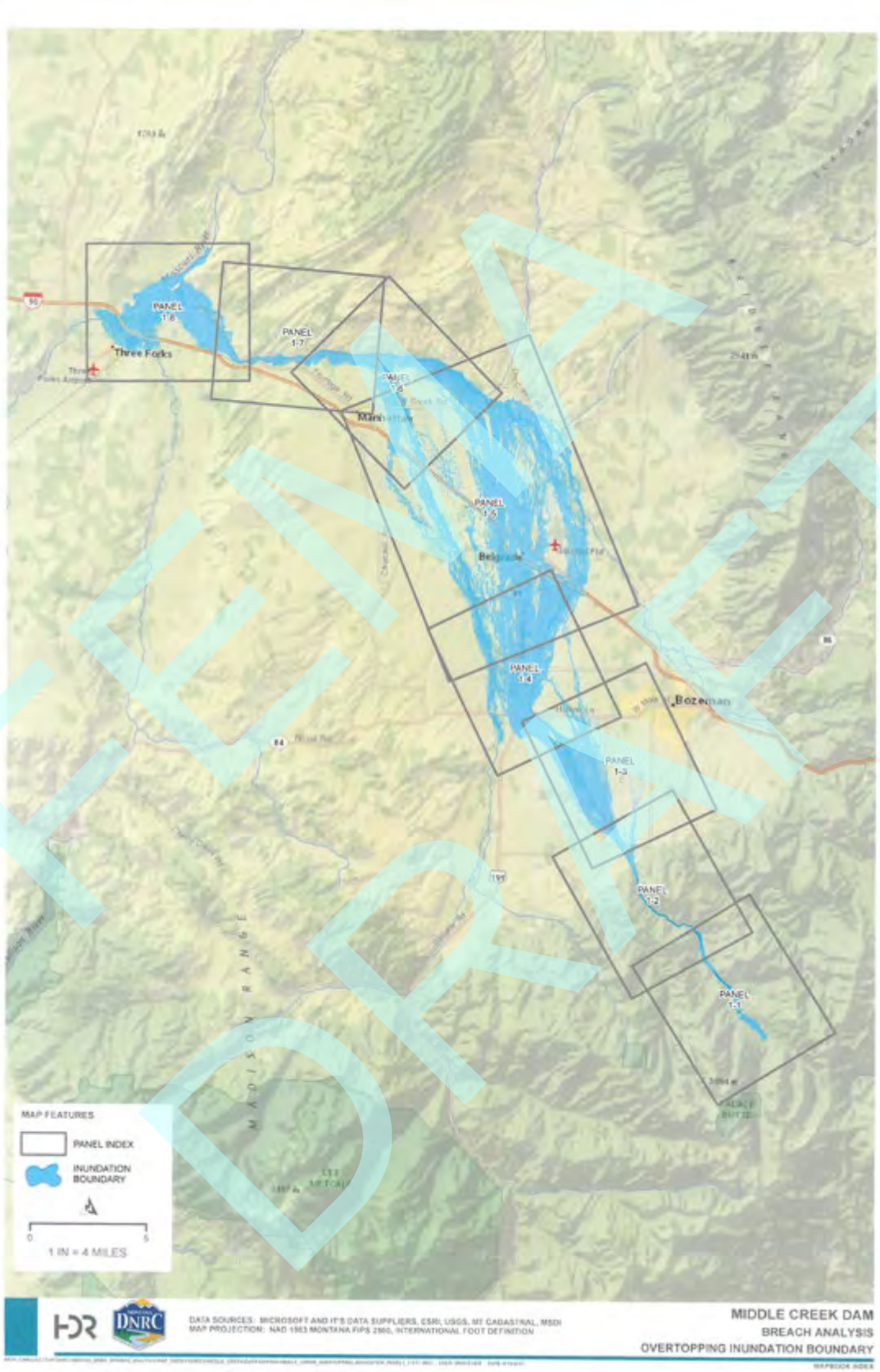
Failure of the Middle Creek Dam would have sig f t catastrophic effects on many residential structures within the Service Area. Just over one hou after to ilure a 35-foot-high wave of water and debris is forecasted to reach the mouth of Hyalite Canyon fty tes later the water reaches Four Corners at depths ranging from 2.5 ver 8 feet[11]

[11] Middle Creek (Hyalite) Dam, HDR, 2017

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Map of breach inundation areas for High-Hazard Dams in, or affecting, the Service Area.



Middle Creek Dam Inundation Area – Overtopping Breach Analysis (HDR, DNRC, 2018)

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Potential failures of the Hebgen or Madison Dams in Madison County, or the Willow Creek Dam in Gallatin County, would have a significant impact on the Three Forks area, with impacts potentially propagating further downstream into Broadwater County. These impacts could include disruption of highway traffic on I-90, and rail traffic in the Missouri Headwaters area north of I-90. The City of Three Forks could be entirely flooded and cutoff from access via surface roads and rail. Significant industries that could be affected include the Imerys talc plant in Three Forks and the GCC cement plant in Trident.

4.6.6.2 POPULATION

With any flooding or dam failure event, the loss of e i lways possible. As with flash flooding, the warning time for a dam failure can be short, but some rning do xist. The Middle Creek Dam poses the greatest risk to lives in The Service Area. This am cur ntly h n early warning system. Populations in Bozeman and West Yello ne are less ln able than other jurisdictions due to lack of nearby dams.

4.6.6.3 ECONOMY

Significant economic impa ld be felt in he after th of a large dam failure, w le a all dam failure would be expected to h e only minim localized impact. Business losses may occur e to damage to structure property, an infrastru r Additional losses could be curred in the form f damaged agricul al land and reduc tourism and recreation. A dam fail e would cause significant ecologic disr tion in areas ffected by e dam breach, which may i lude loss of habitat in some cases. Histo structures nd contents may be damaged if located in th undation rea.

4.6.6.4 UTURE DEVEL PMENT

F ture development c ld pla esidences and businesse he inundation area This is particularly true for dev opment in grade and Manhattan, as wel as the r Corners ar where land is rrentl argely rural and agricultural and is experiencing si ificant g w d development.

4.6.7 DATA LIMITATIONS

The data l itations related to dam failur include:

- Lack of a loss ratio specific dam failure s many structu es in the inundation area may experience little damage whil thers m y be comp osses

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4.6.8 Hazard Profile

Jurisdiction	Probability of Occurrence	Property Impact	Population Impact	Economic Impact	Overall Risk [1] (Relative Score)
Service Area	1.33	1.67	1.50	1.50	12.67
Belgrade	1.00	3.00	3.00	3.00	18.00
Big Sky	1.00	1.00	1.00	1.00	6.00
Bozeman	2.00	1.00	1 0	1.00	12.00
Manhattan	1.00	2.00	1.0	1 00	9.00
Three Forks	2.00	2.00	2.00	2.00	24.00
West Yellowstone	1.00	1.00	1.00	1.00	6.00

[1] Each jurisdiction determined the hazard's overall risk score b ssig values to ran g metrics that included: 1) probability that the h d occurs, and 2) potential impacts to property, population and the econ y.

The hazard risk scores for each jurisdiction were consolidat and th veraged etermine an overall risk score at th unty level. The countywide risk scores were assigned k descriptor (Low, derate, H based on their composite score ranking ng 30 identified hazards and by applying judgment to n ard rankings.

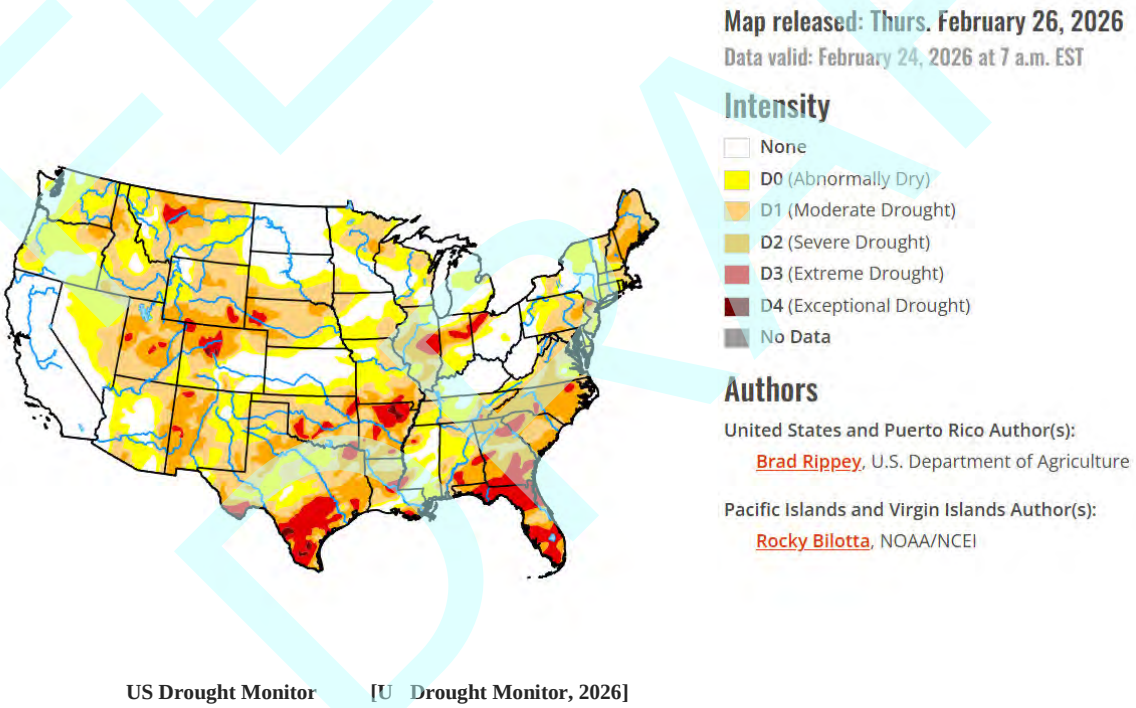
FEMA DRAFT

4.7 DROUGHT & WATER SUPPLY

"Drought is an insidious hazard of nature. Although it has scores of definitions, it originates from a deficiency of precipitation over an extended period, usually a season or more. This deficiency results in a water shortage for some activity, group, or environmental sector. Drought should be considered relative to long-term conditions that reflect a balance of precipitation and evapotranspiration in a particular area, a condition often perceived as 'normal' [12]".

Droughts can range from minor to severe, short-term to long-term with a variety of determining factors such as precipitation, soil moisture, and tree moi ure minor, short-term drought can slip by unnoticed while a long -term severe drought can imp ct the ag ltural economy, natural resources such as fish populations, and even public water suppl s. In M ntana, ught conditions have also been associated with grasshopper infesta s and blight

Montana is known for its arid climate, and he rvice Ar is no exception. The region h been in and out of droughts throughout history based n clim inform tion, drought indices such he Palmer Index, and drought monito g t the nationa level. A of 2026, the Service Area s in oderate drought. Below shows the d ght tus of th United States on February 26, 2 26. The S te of Montana has a Drou Advisory Committ nd State Drought Plan in plac o address this haz d Historical weathe ecords show tha Bozeman temperatures can get as hig as 106ºF in the summe with extremely ow humidity and high inds. Such dry, hot condition exacerbate droughts during periods of l precipitati



US Drought Monitor [U Drought Monitor, 2026]

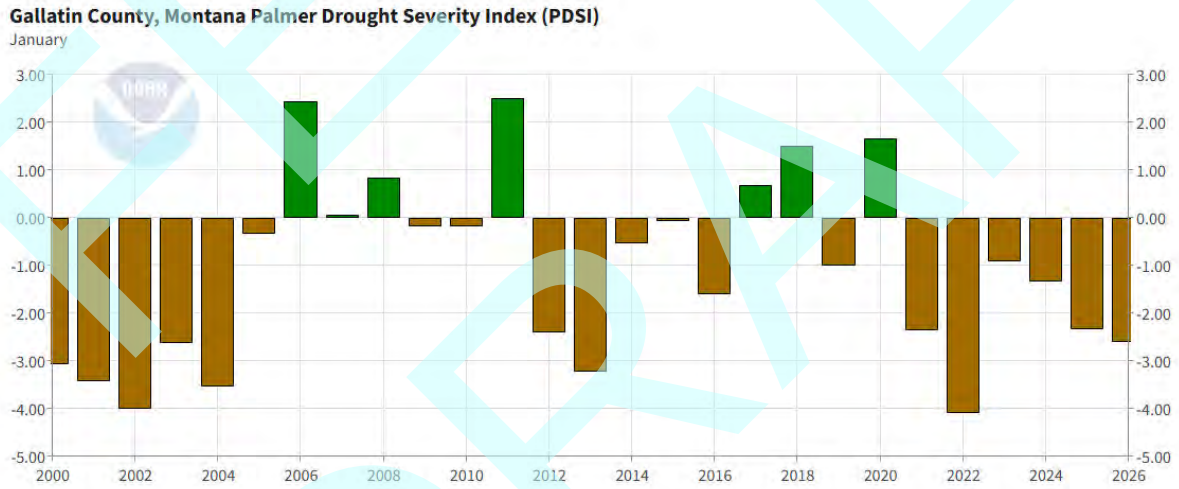
[12] Sivakumar and Wilhite, 2002

4.7.1 HISTORY

Drought has a long history in The Service Area and all of Montana. Paleoclimate studies show extreme periods of drought hundreds of years ago. The periods of 200-370 A.D., 700-850 A.D., and 1000-1200 A.D. are identified as long-term periods of drought in the Northern Great Plains. With the development of a more detailed weather monitoring network, climate records generally date back 100 years in Montana. Based on data from USDA and NOAA, The Service Area has been in drought several times over the past decade and is outlined below. Also shown is the Palmer Drought Severity Index for the Gallatin County between 2000-2026.

Gallatin County Drought Periods since 1900 [National Oceanic & A osp Administration (NOAA), 2018]

Time Period	Description
1930's	The Dust Bowl created erosion prob ms and du storm ghout the state.
Mid 1950's	Extended period of uced rainfall in ste and Central Montana.
1960's	Entire state affected l gh the impa this drought was lessened through better conservation practice suc strip cropp g.
1970's	By May 1977, over 25 000 s of Mon a farmland was damaged by wind. T State of Montana began taking p tectiv asures to critically low hydroelectric wer supplies.
1985	USD d ought disaster d laration typical 2,500-acre farm lost more th $1 000 in equ Th te agricultur industry l nearly $3 billion in equity.
2000's	Statew droug i aster d ignations in 2000, 2001, and 2002. In 2004, Gallatin Co y was given USDA Se ria Disaster Designation. Most protec measures were conducted a county lev
2010's	Gallatin County eived a USDA Secretarial Disaster Desi tion for drought in 2012 thro h 2017.



Palmer Drought Severity Inde 000-2026) Na l Centers Environmental Information, 2026]

4.7.2 PROBABILITY

The National Oceanic and mospheric dministration Paleoclimatology Program studies drought by analyzing records from tree ngs ake and dune sediments, archaeological remains, historical documents, and other environmen indicators to obtain a broader picture of the frequency of droughts in the United States. According to their research, "…paleoclimatic data suggest that droughts as severe as the 1950's drought have occurred in central North America several times a century over the past 300-400 years, and thus we should expect (and plan for) similar droughts in the future. The paleoclimatic record also indicates that droughts of a much greater duration than any in the 20th century have occurred in parts of North America as recently as 500 years ago." (National Climatic Data Center,

Paleoclimatology Branch, http://www.ngdc.noaa.gov/paleo/paleo.html). Based on this research, the 1950s drought situation could be expected approximately once every 50 years, or a 20% chance, every 10 years. An extreme drought, worse than the 1930s Dust Bowl, has an approximate probability of occurring once every 500 years or a 2% chance of occurring each decade. It should be noted that the probability of a major disaster in Big Sky and West Yellowstone is somewhat reduced, as the communities have little to no agriculture and thus significantly reduced water needs.

4.7.3 MAPPING

Drought is regional hazard, and therefore, mapping a he ty level is not appropriate here. The risk is assumed to be the same countywide. Mapping of urrent dr t status is published by the US Drought Monitor weekly and the Montana Drought Ad ory C mmittee nthly from March through October.

4.7.4 ASSOCIATED HAZARDS AND OTHER F CTORS

Drought is most associated with wildfire in the S vice A a. Dry conditions contri e to lower moisture content in the tree d l nts that pro ide fuel r wildfires. An initial look the d st years show that they do not directly incid ith se re wildfire seasons, however, the effects of d ught can carry into the lo term. One ason of s r y low precipitation may no e enough for extr fire behavior; how ver, followed by veral seasons of below normal preci tation, the conditions can contribute to increased pr bability fo ignificant wildfires. Drought ten kills trees and plants that then becom ery dry fu for wildfires years later. Short-term drough onditions n prime grass on non-irrigated l ds fo grass fires and ong-term drought conditions can ad ion y impact the heavier timb fuels for fo fires.

Counterintui vely, in m t nous areas, such as those found in T Service Area, d ught can quickly e follow by flash flooding. Dry soils are not as permeable water, p larly if the vegetation has b k led, and therefore, heavy rains run off faster than on m ist so with gre n vegetation and can more sily lead to flash flooding.

Impacts to ter supplies for both irri ion of crop and potable omestic use can be severe during periods of drought. In extreme case water may no be available fo agricultural use as determined by water right priority and/or physical ava bility Municipal er local water suppliers may need to ration potable water available for domestic .

Blight and grasshoppe nfestations ve a gre r probability of occurring in drought conditions. Besides the hydrolo and agricultural i acts, dro ght can lead to severe dust storms and soil erosion affecting population n non-agriculture s ings. Other concerns include water temperatures for fish populations, wildlife h h, plant ecolog changes, hydroelectric power supplies, and public water sources.

4.7.5 VULNERABILITY

4.7.5.1 PROPERTY

Generally, critical facilities are not affected directly by drought. Infrastructure relying on the water supply is the primary exception. If the water supply for public drinking water and sewer systems was

threatened, those losses could total millions of dollars should equipment be damaged or outside water need to be shipped into the county. The probability of a drought of that significance is considered low.

The most probable losses from drought are to the economy. Drought significantly impacts the agricultural economy and can additionally impact tourism. Gallatin County totaled over $109.8 million in crop sales in 2022[13]. Crops are directly affected by drought, and this economy could potentially be lost if drought conditions persist for a period of time.

Crops aren't the only aspect of agriculture affected y drought. Livestock can also be impacted. The pasture and food supply available to the animals is rectly l ted to drought conditions. With over $53.3 million in livestock, poultry and related sales in 022, this r nts a substantial portion of the overall agricultural economy that is threat ned by droug [14].

Natural resources, and therefore tourism, a e in uenced by rought as well. As river and strea levels drop, fish populations and other natural re urc are imp ed. With fishing and river reational activities, a very important art of the tour m ind try in the Service Area, those cts of the economy can be threatened ing xtended pe ods of d ught.

4.7.5.1 P ULATION

Since drought ev ves slowly over tim the population has ample time to epare for its effects and is warned accor ngly. The gr test direct eat to the population from ught is through the drinking water supply Should a d ught affect the water available for public wa systems individual wells, the availability cle drinking wate could be compromised. This situati w d require emergency acti s and could ossibly over helm the local government and financi resources. The more anized areas such a Bozem and Belgrade are at incre isk, due to concen ted water demand.

7.5.2 ECONOMY

Ag ture is a significant part of the Service Area economy nd cu ure. Drought severely threatens the ag culture industry when it causes a lo rage, feed, water supplies. These losses often impact o r industries, such as farm s ply and ansportati services, which depend on local agriculture.

The economy can be further impacted b drough hrough red d tourism. As drought reduces natural water supplies, fish populations and other ural resources are impacted, which play a large part in drawing tourists and recre to the are

4.7.5.3 I ACT OF FUTURE D VELOPMENT

Future development reatest impact on th drought hazard would be through possibly limiting ground water resources. Fortun ely, public sys ms, individual wells, and septic systems are carefully monitored and regulated by Montana D artment of Environmental Quality. Therefore, the impact of future development with respe o d ught is considered low.

[13] 2022 USDA Census of Agriculture, USDA NASS, 2024

[14] 2022 USDA Census of Agriculture, USDA NASS, 2024

4.7.6 Data Limitations

The greatest data limitation with drought is the inability to pinpoint the start and end of drought periods and the associated correlation with economic losses. An online database of historical USDA drought declarations and the associated losses would prove beneficial in documenting the effects of drought and directing mitigation activities.

4.7.7 Hazard Profile

District / Jurisdiction	Probability of Occurrence	Property Impact	pul mpact	Economic Impact	Overall Risk [1] (Relative Score)
Service Area	2.67	2.50	1.33	1.50	31.11
Belgrade	3.00	3.00	2.00	1.00	42.00
Big Sky	2.00	3.00	1.00	1.00	24.00
Bozeman	3.00	3.00	00	1.00	36.00
Manhattan	2.00	3.00	1.0	2.00	26 0
Three Forks	3.00	00	1.00	2.00	.00
West Yellowstone	.00	2.00	2.00	2.00	36.00

[1] Each jurisdiction determ d the hazard's overall ris re by assigning values to ranking metrics that includ) probability that the hazard occur and 2) potential im s to property, population and t onomy.

The hazard risk ores for each jur tion were cons ted and then averaged to determine verall risk score he county level. The countywide cores were assi a risk descriptor (L w, Moderate, High) based on their co ite score ranki among all 30 identified hazards and by ving judgm o the final hazard rankings.

4.8 EARTHQUAKE

4.8.1 DESCRIPTION

One of the most frightening and destructive phenomena of nature is a severe earthquake and its terrible aftereffects. An earthquake is a sudden movement of the Earth, caused by the abrupt release of strain that has accumulated over a long time. For hundreds of millions of years, the forces of plate tectonics have shaped the Earth as the huge plates that form the Earth's surface slowly move over, under, and past each other. Sometimes the movement is gradual. At other times, the plates are locked together, unable to release accumulating energy. When the ac lated energy grows strong enough, the plates break free.

Montana is ranked fourth in the United States for sei icity nd has m ny faults, primarily in the mountainous parts of the state. Yellowst National Par thin and to the south of Gallatin County, is an active geothermal area with approximate 2 000 eart uakes each year. The Service Are ies in the middle of the most active areas and has xpe nced sig ficant earthquakes over the l century. Earthquakes can damage property and infrast ucture ry rap ly and significantly with e warning, severely impacting those cl t he epicenter nd bein felt for hundreds of miles.

4.8.2 HISTO Y

Since 1900, 17 ea quakes of magn de 5.5 or greater have occurred withi 100 miles of the Servic Area, as shown elow, although severa f these events can be considere oreshocks or aftershocks to a single ma earthquake g., the Hebge Lake earthquakes that o rred on Au st 18-19, 1959). The closest e hquak to southern Gallatin County were the Hebgen ake a Yellowstone Park earth akes, and rthern Gallati County, the Clarkston and Lombard e quakes.

E hquakes Magnitude 5 greater w n 100 miles of the Service Area tana [US Geological S y (USGS), 2024]

te	Approximate Locati	gnitude
3/31/2020	Stanley, ID	.5
7/06/2017	coln	5.8
7/25/2005	Dill	5.6
12/8/1976	Yellowstone allatin Co.	5.5
6/30/1975	Yellows e, Gallatin	5.9
10/21/1964	Hebgen Lake	5.6
19/1959	H n Lake	6.0
8/18/1959	Hebgen Lake	7.5
8/18/1959	Hebgen Lake	6.5
8 /1959	Hebgen Lake	6.0
8/18/1	Hebgen Lake	5.6
8/18/1959	Hebgen Lake	6.3
11/23/1947	Virginia City	6.1
10/31/1935	Helena	6.0
10/19/1935	Helena	6.3

FINAL DRAFT

Date	Approximate Location	Magnitude
10/12/1935	Helena	5.9
2/16/1929	Lombard	5.6
6/28/1925	Clarkston	6.6

The Clarkston earthquake caused relatively light damage due to the rural nature of the area at that time. Most of the damage was confined to Manhattan, Logan, Three Forks, and Lombard in Gallatin and Broadwater Counties. The earthquake was felt from the North Dakota line to Washington and from the Canadian border to central Wyoming. Un-reinforc d b k structures suffered the greatest damage. Bozeman felt five distinct shocks. Pavement and buil ngs sus d cracks up to an inch wide. Mines in Jardine in neighboring Park County were feared to ave been dam d Bozeman police reported the tower of a high building swaying with any people f ntin and rushing to the streets. A train from Livingston was sent to rescue passenger fr m trains tra ed by landslides near Lombard. In Clyde Park in Park County, the stock of tinware a Jac O'Leary' tore fell off the shelves.



Th rks church, following 6.6 magnitude Clarkston earthquake, June 1 5. Ph o by J.T. Pardee (courtesy USGS).

The in al Hebgen Lake earthquake on Au 1959, is th most significant earthquake to have occurred the region over the past 100 y rs. This m gnitude 7. arthquake occurred about 30 miles from Gardiner and about 70 miles f m Bozeman This surface upturing earthquake changed the geology of the Hebgen Lake area an iggered a dslide (80 million tons of rock). The result was the creation of a new lake, Earthqu e La , on the Madison River and State Highway 287 was buried. Twenty-eight people perished and r way and timber damages totaled over $11 million. The quake was felt in 8 states 3 Ca ian provi s [USGS, 1976]. The North Entrance to Yellowstone National Park did hav ome landslid blocking adways, but all were cleared within 2 days. Also damaged was the G den Gate above Mammoth Hot Springs near the Service Area. Estimated damages in the Park were abo $2 million.

DRAFT

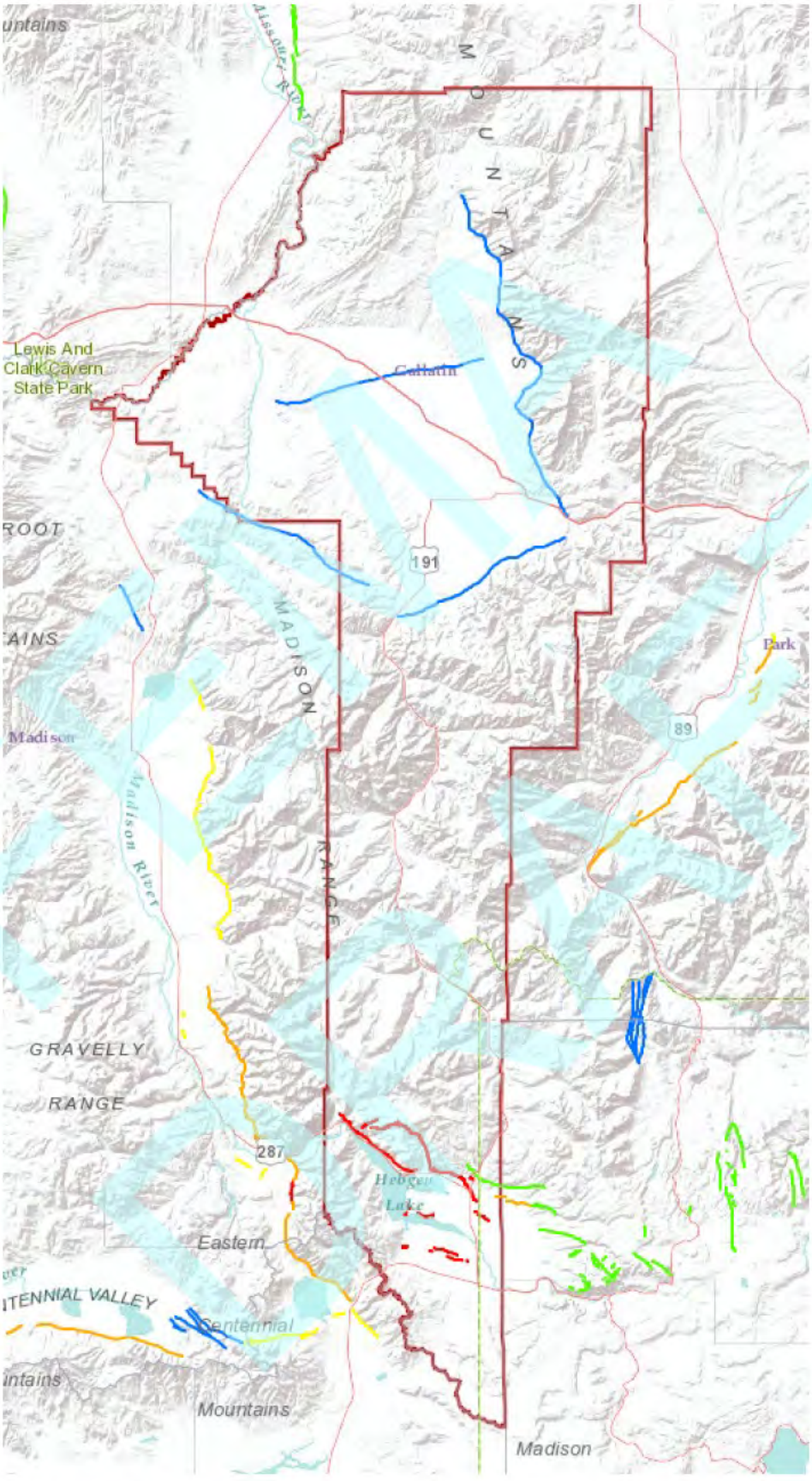


1959 Hebgen Lake earthquake. Photo courtesy USGS, aho (H ley, J.B

4.8.3 PROBABILIT

Large and damaging arthquak are infr uen events. The Service Area ex eriences many s ll earthquakes every month, but they e not dete able by humans and only y instrumentation. Th geography of th Service Area is such t t it lies within several categories seismic source zones. The most active the Northern ntermountain ismic Belt to the north an west. This r on is estimated to have a re rence r of 3.84 years for a magnitude 5 or greater rthqua , 22.6 years for a magn de 6 or g a earthquake d 133 years for a magnitude 7 or gre earthquake [Wong et. al 005].

FINAL DRAFT

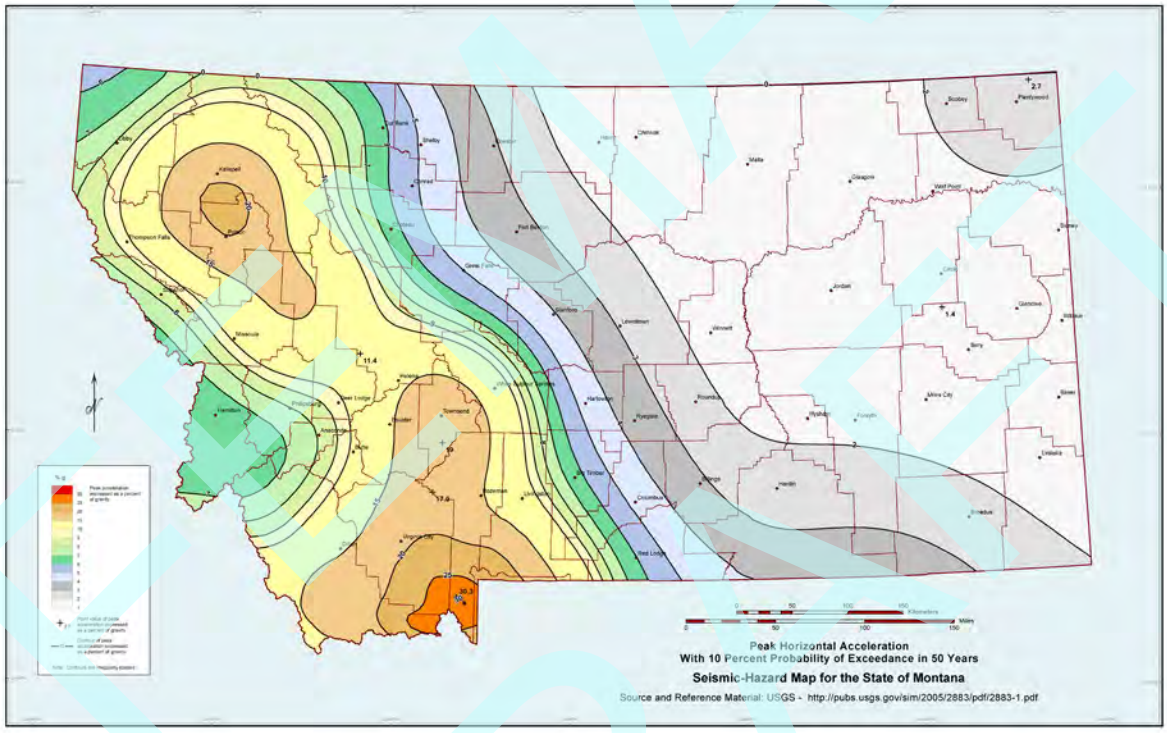


Service Area Fault Lines, Gallatin County EM

4.8.4 MAPPING

A standardized seismic hazard map produced by the U.S. Geological Survey that depicts the level of horizontal ground shaking (expressed as a percentage of gravity, %g) that has a 10% chance of being exceeded at any given location over a 50-year period. This corresponds to a ground motion with an average return interval of approximately 475 years and is commonly used as the design basis for building codes, infrastructure planning, and earthquake risk assessment.

History has shown that significant earthquakes (up to magnitude 6.5) may occur anywhere throughout the Intermountain Seismic Belt, even in areas where young faults are not recognized. Examples of damaging earthquakes for which no known surface aul s recognized include the 1925 Clarkston earthquake (magnitude 6.6) and the 1935 Helena earth uakes (m itude 5.9-6.3).



4.8.5 ASSOCIATED HAZARDS ND O HER FACTORS

The seismic action of earthquakes often trigg s other events. Landslides are quite common in Montana with large earthquakes. D ng the ter, aval ches can also be triggered. Dam breaks and landslides on waterways may c se flooding. T rupture f gas lines can result in large-scale urban fires, particularly if pow outages or broken w er mains disrupt water supplies. Any number of additional incidents may occur d to the failure of in astructure such as hazardous material spills and large-scale transportation accidents. ll these associa d factors contribute to the severity of the earthquake event.

4.8.6 VULNERABILIT

4.8.6.1 PROPERTY

Since the probability and likely strength of an earthquake varies across the county, the threat to critical facilities can be assessed based on their respective geographic locations. Structural assessments of the individual facilities would further determine the seismic stability of that structure. Based on geography, the critical facilities near the fault lines can be considered the most vulnerable. All critical facilities are

at risk from earthquakes in the Service Area. In addition, un-reinforced masonry construction is particularly vulnerable to seismic shaking. Therefore, any critical facilities with, or within close proximity to un-reinforced masonry can be considered at greatest risk.

Building exposure for the planning area was estimated using total market value data for structures located within Gallatin County and the Madison County portion of Big Sky. This approach provides a more representative estimate of the value of assets at risk than generalized national planning assumptions.

Assumptions:

- Population: 130,000
- Average structural value per cap a 769,230
- Estimated total building exposure: 100 llion

A credible earthquake scena w developed sing a m gnitude 6.8 to 7.5 event p ducing dified Mercalli Intensity VII VIII sha g acro signif cant portions of the planning area.

Estimated buildi g damage ratios:

- Mo ate scenario percent
- Seve scenari 10 percent

E imated direct buil g losse

Moderat arthquake Scenario:

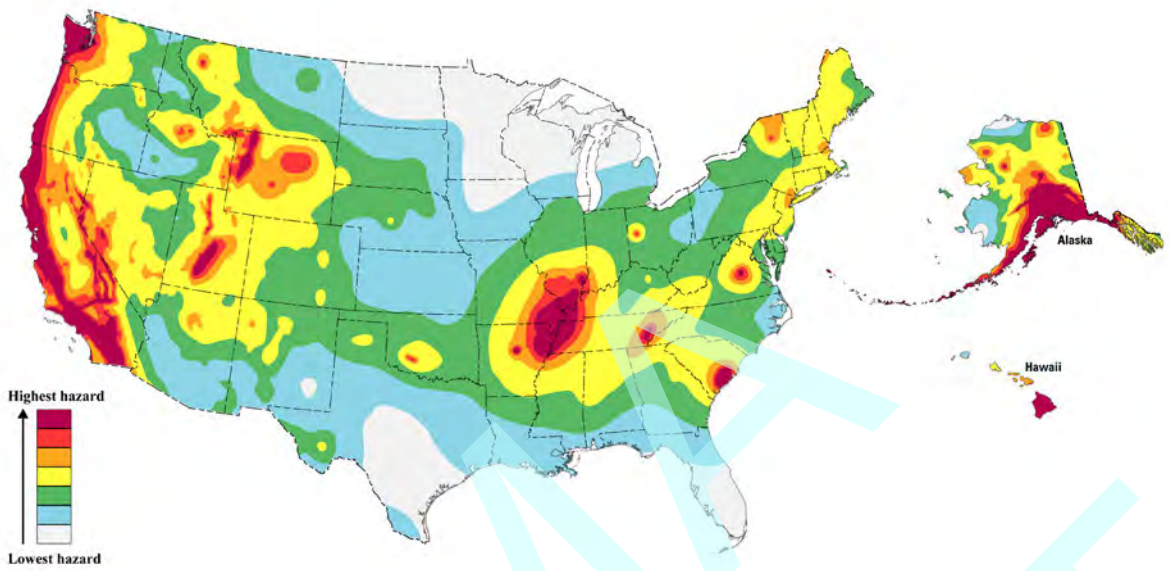
- $5.0 billion

Severe E quake Scenario:

- $10.0 billion

These estimates represent planning-leve ding losses only and do not include debris removal, business interruption, econ disruption, frastructure repair, environmental impacts, emergency response costs, or losse ssociated h tourism nd recreation. Actual losses could be substantially higher when indirect conomic impacts conside d.

FEMA DRAFT



National Seismic Hazard Model, 20 rtesy US Geolog al Survey

These results highlight how rge rthquake (a magni ude 7.5 earthquake is 10 mes larg han a magnitude 6.5 earth ake, *ho ver* it near y 32 times stronger in en gy release, US - https://earthquake gs.gov/learn/top s/how_mu bigger.php) does not n ssarily result in great impacts to criti facilities (structures) ue to the considerable differenc n distance of the two faults from popula on centers in he Service A a. Nonetheless, an earth ke occurrin n the Madison Fault would expect to have substantially greater impacts in the s hern p tion of the county (West ellowst a) versus the ore populated Gallatin Valley simply o its closer proximity to e fault.

The planni g area contain umerous critical facilities inclu ng:

- Hospitals and healthcare facilities
- ire stations
- Law enforcement facilities
- Emergency Operations Cente
- Public works facilities
- Water treatmen acilities
- Wastewate eatment facilities
- Schools
- Telecommunicat s infrastruct e
- Electrical substations

DRAFT

Because replacement values are not available for all critical facilities, a qualitative assessment was conducted.

Critical facility vulnerability is considered moderate to high due to:

- Potential structural damage
- Utility interruption
- Transportation access limitations
- Communications failures
- Increased demand during emergencies

Facilities constructed before adoption of mo n seismic design standards may experienc greater damage than newer structures.

Transportation impacts cou be ere.

Potential consequen s include:

- Dam ge to Intersta 90 corrido
- Clos of U S Highway 191
- Damage ridges and ov passes
- Landslides af ting nyon routes
- R stricted access o Big Sky and West Yellowston
- Airport operational disruptions

Transport on disruption is a particular ncern in G latin Cany n and mountainous portions of Big Sky where alternate routes are limited

4.8.6.2 POPULATION

The population would ha little or, ost likely o warning prior to an earthquake. Most casualties in a large earthquake in e Service Area uld be a cipated with building collapse, roadway failures, falling objects, and ndslides. The numbe f actual casualties will be dependent on a variety of factors including proximity to e epicenter, time day, and magnitude, among others.

4.8.6.3 ECONOM

The impact of a strong earthqua i the Service Area could be far reaching. Economic, physical and functional damages to businesses, particularly downtown businesses in non-reinforced masonry structures, could be substantial. Industries such as construction, however, may see a recovery related boom following an earthquake.

FEMA DRAFT

4.8.6.4 FUTURE DEVELOPMENT

Any future development in the Service Area is at risk for earthquake damage. Fortunately, construction standards for seismic stability have improved over the past 100 years. Bozeman, Belgrade, Manhattan, Three Forks, and West Yellowstone are the only jurisdictions within the Service Area that have a building code and inspection program. Other areas of the county are under the state building code that for most single-family homes is only subject to electrical, plumbing, and septic inspections. Much of the new Service Area construction is taking place in the areas near the identified and active faults. With an estimated current $100 Billion in exposed building assets that are growing daily, considerable exposure exists and will only grow.

4.8.7 DATA LIMITATIONS

Due to the absence of detailed cost and f ility data for itic facilities, a planning-level earthquake loss estimation methodology was used in eu f HAZUS- H modeling. Total building exposure was estimated using population-based structur ma t valuati methods commonly applied hazard mitigation planning. Damage estimates wer deriv d by app ying conservative loss rati consistent with Modified Mercalli Int y VII-VIII shak ng. Cri al facility impacts are descri d qu itatively and through representative r lacem t cost r nges rather than site-specific do lar values This approach provides a asonable an defensibl st mate of potential earthquake mpacts appropriate r mitigation planni g purposes..

4.8 HAZARD P OFILE

Jurisdiction	Probability of curre	Property Impact	Population Impa	Economi Impact	Overall Risk [1] (Relative Score)
Service Ar	2.5	3.00	3.00	2	4 58
Belgr	2.00	3.00	3.00	3.00	36.00
B ky	2.00	3.00	3.00	3 0	36.00
Bozem	2.00	3.00	3	2.00	34.00
Manhattan	3.00	3.00	3.0	00	54.00
Three Forks	3.00	0	3 0	3 00	54.00
West Yellowstone	3.00	3.00	3.00	3.00	54.00

[1] Each jurisdiction determined the hazard' isk score by a ing values to ranking metrics that included: 1) probability that the hazard occurs, and 2) potential impacts to prope opulation he economy

The hazard risk scores for e jurisdiction were lidated and averaged to determine an overall risk score at the county level. The countywide risk scores w ssigned a risk descripto w, Modera High) based on their composite score ranking among all 30 identified hazards and by applying ment to the final hazard ran s.

4.9 Air Quality Hazards

4.9.1 Description

Air quality hazards occur when airborne pollutants reach concentrations that threaten human health, the environment, and economic activity. In Gallatin County, poor air quality is most often driven by wildfire smoke, which can originate locally or drift in from fires across the region. Other contributors include wintertime temperature inversions that trap particulate matter near the valley floor, vehicle and industrial emissions, residential woodburning, dust unpaved roads and agricultural activity, and prescribed or slash-pile burning. Because air is essen al to li irtually the entire population can be affected, with the greatest risk falling on children, th elderly n dividuals with respiratory or cardiovascular conditions.

4.9.2 History

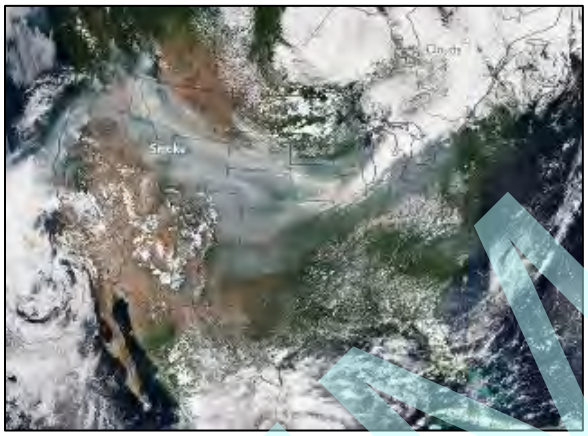
Air quality in Gallatin County is generally go d due its rur character, low populatio ensity, and prevailing mountain-valley nd tterns, but can det orate rapidly during certai condi ns. The most frequent cause of poor ai uality wildfi smoke, which can settle into the valleys duri the summer and early fa months and ginate fro f s both within Montana an om neighboring sta and Canada. Wi rtime temperature ersions also degrade air quality by apping vehicle emissions, wood smoke om residenti heating, an road dust near the valley fl r, particularl in the Gallatin and Bozema alleys. A ditional contributors include agricultural dust, nstructi activity, unpaved roads nd pres be or slash-pile b rning. On rare occasions, volcanic ti ty has also impacted re nal air quality most nota y during the May 18, 1980 eruption of Mount St. Helens in ashington, when ash ll re hed portions of Gallatin C un nd temporarily srupted visibility, transportat n, and outdoo ctivity. While such events are u common, y illustrate hat air quality in t cou y can be influenced by both local emissions and dist t, large cale n al events.

9 3 Probability and Magn tude

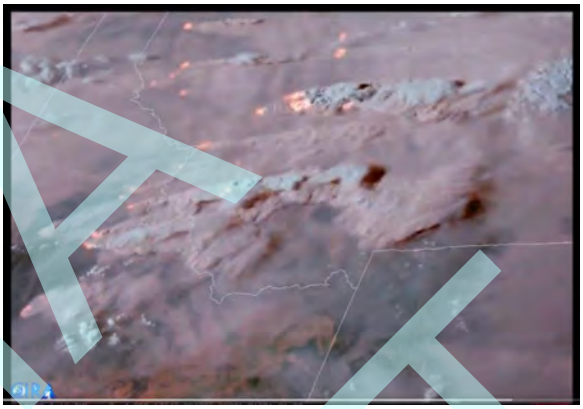
The probab ty of air quality issues oc rring in Ga tin County considered high, with at least one significant degradation event expec d annually ildfi smoke is the most frequent driver, with measurable impacts to air quality occu ing arly every summer and early fall — typically July through October — and moderate to severe oke episodes often lasting several days to several weeks during active fire seasons Wintertim emperat inversions that elevate particulate matter ($PM_{2.5}$ and PM_{10}) levels in the Ga atin and Bozem valleys a also a near-annual occurrence, particularly during prolonged cold-air oling events that tra vehicle emissions, residential wood smoke, and road dust near the valley floor. T magnitude of th e events is typically limited to moderate, with Air Quality Index (AQI) values most mmonly falli in the "Good" to "Moderate" range; Gallatin County's 10-year median AQI of 26 rank e are air quality as better than the national average, and Bozeman averages only a small number of healthy for Sensitive Groups" or worse days per year[15]. However, "Unhealthy," "Very Unhealthy," and occasionally "Hazardous" conditions have been recorded during major regional wildfire seasons — for example, 15 unhealthy-or-worse days in 2021 and a recorded maximum AQI of 479 in 2016 — illustrating that individual smoke episodes can produce severe short-

[15] MT DEQ, https://deq.mt.gov/air/Programs/airquality

term impacts[16]. Impacts are generally short-term and reversible, but extended episodes can disrupt schools, outdoor recreation, tourism, aviation, and healthcare services, and pose serious health risks to sensitive populations including children, the elderly, pregnant women, and individuals with asthma, COPD, or cardiovascular disease. Rare, high-magnitude events — such as volcanic ashfall or a major local wildfire — remain possible and could produce countywide impacts of significantly greater severity, though with very low annual probability.



NASA satellite image fr September 3, 7 showing across western Mont and much of the co y.



Screenshot from NOAA satellite video, Septemb 2017. Smoke affecting air quali cross all of the Service a.

4.9 MAPPING

Unlike many her h ards profiled in this plan, air quality hazards nnot e mapped as fixed geog phic zones ause conditio are highly dynamic and vary by day, r, wind direction, and ev nt type. Instead, quality in allatin County is tracked through real-time m itoring and mapping ools, including the EP AirNow Fire and Smoke Map (f e.air w gov), the Mo na DEQ Today's Air dashb d, and comm nity-based PurpleAir sensor net rks, whi gether display current AQI ues $M_{2.5}$ concentrations, active wildfire locations, and m deled sm ke pl .

9 5 ASSOCIATED HAZARDS A D OTHE FACTOR

Air quality zards in Gallatin County re closely l ked to seve other profiled hazards and often occur as a secondary or cascading im ct. Wildfire the most sign icant associated hazard, as smoke from local and regional fires is the lead caus of poor air q ity during the summer and early fall. Drought and severe weather — including h winds, wildfire-conducive conditions, and prolonged winter inversions — can i y nd exten ir quality events. Volcanic activity, though rare, has historically affected th region (e.g., e 1980 M unt St. Helens eruption) and remains a potential source of regional hfall. Hazardous m erials incidents, including transportation spills, industrial releases, and structu fires, can also pr uce localized air quality emergencies. Because of these interconnections, air q ity monitoring nd public notification are important components of the county's broader hazard res nse framew rk.

[16] https://www.airhistory.org/city/gallatin-mt; https://localairdata.com/mt/bozeman

4.9.6 VULNERABILITY

4.9.6.1 PROPERTY

Air quality events generally do not cause structural damage to buildings, infrastructure, or personal property, and there are no specific structures within the county identified as uniquely vulnerable to poor air quality. However, prolonged smoke or particulate events can result in soiling of building exteriors, infiltration of fine particulate matter into interior spaces, accelerated wear on HVAC systems and filters, and increased maintenance costs for both public and private facilities. Critical facilities such as hospitals, schools, long-term care facilities, and em g ncy operations centers may require enhanced filtration (MERV-13 or HEPA), portable air cleaner or de ated clean-air rooms to maintain safe indoor environments during extended episodes. Rare, gh-magn vents such as volcanic ashfall could cause more tangible property impacts, including oof l ding, con amination of water-supply intakes, damage to vehicle and equipmen ines, and di ion of electrical and mechanical systems.

4.9.6.2 POPULATION

The entire population of Gallatin County — rrently stimat d at over 130,000 residen lus a large seasonal visitor population s osed to air uality h ards, as poor air affects ev yone hin the impacted airshed. Sensitive gr ps fac disprop rtionately high risk, including children, the e rly, pregnant women, i ants, outdo workers, individuals with asthma OPD, cardiovascu disease, diabete or other chronic alth conditions. Wildland firefigh rs, agricultural workers, construction ws, public-s fety perso l, and other outdoor workf e populations face elevated occupation xposure du ng smoke events. Socially vulnerable popul ons — inc ding low-income households, th nhou d, residents of older or poorly sealed housing, an hos without access to air con ioning or H A filtration — e less able to mitigate exposure indoors. ort-term health effects c include eye and piratory ritation, headaches, agg ted asthma, and r uced lung function; prolonged o repeated p ure is associated with mo seri cardiovascul and respiratory utcome ncreased emergency-department visits, and exce mortality most sensitive groups.

4.9.6.3 ECONOMY

Econom vulnerability to air quality hazar in Gal n County significant due to the area's reliance on outdoor ecreation, tourism, agric ure, and a rowing co truction sector. Extended smoke episodes can reduce visitation to Y owstone Na onal Park, Big Sky Resort, the Custer Gallatin National Forest, and the area's rivers d trails irectly i p ng lodging, restaurants, guiding and outfitting businesses, and retail. Outdoor s, festivals, youth sports, and shoulder-season tourism activities are frequently ca r curtaile during poor air quality periods. Agricultural producers may experience reduce rop yields, estock s s, and disrupted field operations. Construction and outdoor labor produ vity declines as rk is pau ed or shifted to protect worker health. Aviation operations at Bozem Yellowstone Inter ional Airport (BZN) and local general-aviation fields can be affected by reduced sibility, leading delays or diversions. Healthcare systems also experience increased demand and co during m r smoke events, including higher emergency-department utilization and pharmaceutica se for spiratory conditions.

4.9.6.4 FUTURE DEVELOPMENT

Gallatin County is one of the fastest-growing counties in Montana, and continued residential, commercial, and infrastructure development will increase overall exposure to air quality hazards in several ways. A larger population means more individuals — including more sensitive residents — exposed to each smoke or inversion event. Expansion of the wildland-urban interface (WUI) increases

both the likelihood of locally ignited wildfires and the number of people and structures affected by smoke. Greater vehicle miles traveled, additional residential wood-burning appliances, and expanded construction activity will contribute to higher baseline emissions and worsen inversion-season particulate levels if not mitigated. To reduce future vulnerability, local jurisdictions should consider integrating air quality considerations into land-use planning, building codes (e.g., enhanced filtration standards for new schools, healthcare, and critical facilities), wood-stove change-out and burn-restriction programs, transportation and transit planning, and continued expansion of the local air quality monitoring network (Montana DEQ, EPA AirNow, and community PurpleAir sensors). Public education, expanded clean-air shelter capacity, an tegration with the Community Notification System will also be important to protect a growing an incre ly diverse population.

4.9.7 Data Limitations

Air quality data for Gallatin County is lim by a sparse ulatory monitoring network concentrated in Bozeman, leaving much of the county — nc ding Big S the Gallatin Canyon, West Yell stone, and rural areas — reliant on a small number f offi l monit s supplemented by lower-co PurpleAir sensors that are not regulator grade. Most m nitoring ocuses on fine particulate matt ($M_{2.5}$), with limited continuous data for o r cr ia polluta ts, air to ics, and indoor air quality and the h orical record is relatively sh rt and in nsistent e to changes in instrumentation, AQI methodology nd the 2024 revision f the $PM_{2.5}$ N AQS. Wil re smoke impacts are h hly variable and carr significant mo ing uncertainty, local d health-outcome data is not r dily tied to specific events, and smaller mission sour s such as resid tial wood-burning, road d and constr tion activity are not precisely ntifie t the county scale — all of which should be con dered hen interpreting the prob ility, magn e, and vulner lity assessments in this profile.

4.9.8 Hazard ro ile

urisdiction	Probability of Occurrence	Property Impact	Population Impact	conomic Impact	Overall Risk [1] (Relative Score)
Service a	3.00	3.00	1.	.00	36.00
Belgrade	3.00	3	1	00	36.00
Big Sky	3.00	3.	00	1.00	36.00
Bozeman	3.00	3.00	1.00	1.00	36.00
Manhattan					0.00
Three Forks					0.00
West Yellowstone	3.00	3.00	1.00	1.00	36.00

[1] Each jurisdiction determined th rd's overall risk score b ssigning values to ranking metrics that included: 1) probability that the hazard occurs, and 2) potential impacts to proper opulation and the e omy.

The hazard risk scores for each jur ion were co idated and then averaged to determine an overall risk score at the county level. The countywide risk scores were assigned a descri (Low, Moderate, High) based on their composite score ranking among all 30 identified hazards and by applying judgment to the fin rankings.

4.10 FLOODING

4.10.1 DESCRIPTION

Flooding is the inundation of a normally dry area with water. Riverine flooding occurs on rivers, creeks, and streams as water levels rise be it from excessive precipitation, rapid snowmelt, dam failure, or ice jams. Unlike riverine flooding, flash flooding can happen anywhere. As the name implies, flash flooding happens quickly after intense rains, dam or ice jam breaks, or rapid runoff in mountainous or recently burned areas. Urban flooding is the result of development and the ground's decreased ability to absorb the rainfall. Flooding from groundwater do s n ypically result in floodwater at the surface, but occasionally basements and crawlspaces can be fl ded by ssive groundwater.

Flooding in the Service Area normally o urs during p od of excessive rainfall or snowmelt. The mountainous terrain in The Service Ar i contribut g factor to rapid flood development and snowmelt problems. The most recent, wid pre flooding vent across the county occurre n 2011. Since then, there has been a steady increas in th mount f development near stream and rivers. Associated with this develo nt are concer s for p lic health and safety when th ne flooding event occurs.

4.10.1.1 LOODPLAIN M AGEMENT

The Montana F odplain and Floodway Management Act [Montana Code Annotated, Title 76, Chapter 5] requires litical subdiv ions to adopt nd use regulations that r late the use nd development of property w in the gulated floodways and floodplains. Gallatin C ty Fl dplain Regulations were st adopte i 1984 and mos ecently updated in May 2023. The reg tions are administered th ugh the Gallatin ounty Pla ng Department[17].

Within the ity of Bozem , FEMA designated floodplains nd flood s are managed by the City's F odpl n Administrator within the Engineering Dept. The C y's Uni d De ment Code (UDO), Cha r 38, Division 38.600, provides guidance on administra on f the Floodplain Regulations and provid land use and permitting requireme .

The City of Three Forks also manage floodplains w thin its jurisd ion[19]. The City's Flood Damage Prevention Ordinance provides direct on flood ment and permitting requirements.
Riverine flooding problems are managed ou h a national insurance system called the National Flood Insurance Program (NFIP) d inistered by FEMA. Gallatin County and the Cities of Bozeman, Belgrade, and Three Fork as well a e Town Manhattan are all NFIP participants. FEMA conducts a Flood Insurance St y (FIS) of a reg n to iden y the community's risk levels. The FIS includes statistical data for ver flow, rainfall, pographic surveys, as well as hydrologic and hydraulic analyses. After examin g the FIS data, FE A creates Flood Insurance Rate Maps (FIRMs) delineating the different areas of floo isk. Land are that are at high risk for flooding are called Special Flood Hazard Areas (SFHAs), or fl dplains hese maps are certainly not all inclusive and other flood prone areas may exist. Current FIRM M are dated 2021 with a couple map updates in progress[20].

[17] https://www.gallatinmt.gov/579/Floodplains

[18] https://www.bozemanmt.gov/departments/transportation-engineering/engineering/floodplain

[19] https://threeforksmontana.us/floodplain

[20] FEMA Map Service Center (authoritative FIRM panel lookup): https://msc.fema.gov and Gallatin County Planning Dept.

Residents of Gallatin County, Bozeman, Belgrade, Three Forks, or Manhattan have the option to purchase flood insurance through the NFIP. As of May 2026, there are 394 policies in force paying premiums of $296,203 annually covering over $119 million in property in Gallatin County. Since 1978 there have been 76 NFIP payouts for $340,000[21]. Any NFIP-insured structure that has had at least two paid flood losses of more than $1,000 each in any 10-year period since 1987 is classified as a repetitive loss structure [FEMA, 2018c]. FEMA currently lists one structure in Gallatin County as being a repetitive loss property for flooding. This is a residential structure located within an unincorporated area of the county.

NFIP Policies in effect [Floodsmart.gov, 2026]

Community Name (Number)	Policies in Force	Tota Covera	Total Written Premium + FPF	Total A nual Pay nt
BELGRADE, CITY OF (300105)	3	959000	1099	571
BOZEMAN, CITY F (300028)	134	44277000	8 85	112741
GALLATIN C UNTY * (300027)	5	47348000	146610	186361
THREE F KS, CITY F (300029)	102	27126000	6400	82396
	394	$119,710,000.00	$296,203 0	$383,069.00

10.2 History

Th rvice Area has not had a large history of significant oodi g. The most recent, widespread floodi event occurred in late-May 2011 as of heavy r all and rapid melting of snowpack. Below li some of the historical floodin events in he county; is data is gathered from the Flood Insurance St dies for the un-incorpora d areas of th Service Area he City of Bozeman, and the City of Three Forks, and media reports for e more re (2011, 2014). Flood flows on the streams studied in detail were caused primarily by now elt or snowmelt and rain during April, May, and June. Flooding can also be caused by ice jams for ng in the winter. This problem is especially prevalent on the lower Gallatin and M ison Ri near Th Forks.

[21] Policy Information by State and Community, 5/31/2026, floodsmart.gov



Figure1. Flooding in Bozeman, Ga in Coun EM

Gallatin County Historical Flood Events.

Date	Location	Cause
April 1893	Bozeman Creek	Rainfall/Warm Temp
April 1937	Bo ma Creek	Rainfall/Warm T mps
April 1947	Bozem Creek	Chinook Wind
April 1948	Bozeman ek	Heavy Sn /Warm Temps
July 1958	Bozeman Cre	Rain E nt
August 19	B eman Creek	Ra Event
March 1960	Bozeman Creek	Warm Winds/ apid Snow Melt
Jun 1969	Bozeman eek	Rain Even
May 1970	Bozem n Creek	Warm Winds apid Snow Melt
January 19 4	B man Creek	m Winds/ Rap d Snow Melt
June 1 5	Bozeman Creek	War W / Rapid Snow Melt
Ap 1977	Bozeman Creek	Warm Winds/ Rapid Snow Melt
Mar- r 1952	West Gallatin Rive	Rapid Snow Melt
June 195	West Gallatin R er	apid Snow Melt
February 1963	West Gallat River	arm Temps/Ice Jams
May – June 1970	West Gallatin ver	High Water
June – July 1971	West Gallatin Riv	High Water
June 1974	W st Gal River	Rapid Snow Melt
1899	Jefferson Rive	Rapid Snow Melt
1908	Jefferson River	Rapid Snow Melt
1927	Jefferson River	Rapid Snow Melt
1948	Je rson River	Rapid Snow Melt
1949	Madi Riv	Ice Jam
January 1997	West Ga in / Bozeman Creek	Rapid Snow Melt / Warm Temps
May 2008	Flooding along Gallatin River tributaries	Rapid Snow Melt with rain
May 2011	Flooding along Bozeman and Bridger Creeks and East Gallatin River	Rapid Snow Melt with rain

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Date	Location	Cause
March 2014	Town of Manhattan	Rapid Snow Melt/Warm Temps
March 2019	Gallatin River	Ice Jams
January 2022	Gallatin River	Ice Jams
June 2022	Gallatin River	Rapid Snow Melt with rain

4.10.3 PROBABILITY

Flooding probabilities are represented spatially via flo dplain m The 100-year floodplain has a 1% probability of being exceeded in any given year. Prob ilities e typi presented as exceedance probabilities using discharges (in cubi et per seco d) various locations. Below shows the discharges for the stream gauges in and ar un he Servic rea.



gur 2008 flooding from E Gall , Gallatin C

P Di arges and Exceedance Probabilities for Streams in Gallatin County

Locati	Probabili o Exceedance		
	1%	2	10%
	00-year eve	50-year vent	10-year event
Bozeman Creek at Nash Rd.	765 cf	642 cfs	405 cfs
Bridger Creek	126 cfs	1090 cfs	725 cfs
East Gallatin River	3 0 cfs	2950 cfs	2190 cfs
West Gallatin River at hed's Bridge	12150 c	11200 cfs	8700 cfs
West Gallatin Rive t Interstate 90	350 cfs	11400 cfs	8850 cfs
Jefferson River at Three F ks	27600 cfs	25000 cfs	18300 cfs
Madison River at Three Forks	12000 cfs	10800 cfs	8000 cfs

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4.10.4 MAPPING

Digital FIRM maps cover many of the larger waterways across the county. Older, paper maps exist showing the 100-year floodplain in other parts of the county. Gallatin County floodplain mapping is available at: https://www.gallatinmt.gov/585/Interactive-Maps. Excessive rainfall and heavy snow associated with flooding can be related to other hazards. Landslides and mudslides are often attributed to saturated soil and flooding. Flood conditions in and around dams can also be a factor in causing dam failures. During the summer, severe thunderstorms can bring heavy rain, especially if they are slow-moving, as well as wind, hail, and tornadoes. The ru off can cause sediment problems in addition to the flooding. These additional hazards can be factors during flooding events.

4.10.5 VULNERABILITY

4.10.5.1 PROPERTY

Between Gallatin County, Bozeman and Thr e Fork 1,368 uctures are in mapped flo plains[22].



Winter fl ng near Gallatin Gateway due to ice j in Gallat River. Phot urtesy Gallatin County Emergency Management.

4.10.5.2 POPULATION

Due to the terrain and identified hazar reas wi in the S Area, the population is considered at moderate risk for riverine flooding. Gallat unty's major rivers — including the Gallatin, Madison, East Gallatin, Jefferson, a ri — alo with their tributaries and smaller drainages such as Bridger Creek, Bozem Creek (Sou ugh), Hy lite Creek, and the West Gallatin's side channels, create extensive flo plains that pass thro gh or near most of the county's population centers, including Bozeman, Belgrade, Manhattan, Three orks, Big Sky, and unincorporated rural subdivisions. Continued population gr th and residen l development within and adjacent to mapped floodplains have steadily increased the mber of r idents, visitors, and seasonal workers potentially exposed to flood events. Sensitive popula ns — including children, the elderly, individuals with mobility or medical needs, residents of manufactured housing or basement-level units, the unhoused, and visitors unfamiliar with local drainage patterns — face elevated risk because they are less able to evacuate quickly, recognize warning signs, or recover from displacement.

[22] Gallatin County GIS, 2026

Advance warning does exist for many flood events, particularly slower-developing riverine flooding driven by spring snowmelt, prolonged rainfall, or rain-on-snow conditions, which is monitored through the National Weather Service (NWS), USGS stream gauges, and SnoTel sites. However, rapidly occurring events — including flash floods in steep mountain drainages, ice-jam flooding on the East Gallatin and Jefferson rivers, levee or dam failures, and intense localized thunderstorms — can leave little or no time for warning, evacuation, or protective action, placing residents and travelers in immediate danger.

4.10.5.3 ECONOMY

Flooding can have a significant and wide-ranging im act on th cal economy of Gallatin County, where agriculture, tourism, recreation, construction, an small b siness ivity are all closely tied to the same river corridors and valley-botto nds most exp se to flood hazards. Agricultural losses are common and may include inundated or e d cropland, maged irrigation infrastructure, s diment and debris deposition, planting or harvesti g de ys, and i ured or displaced livestock, p ticularly along the Gallatin, East Gallatin, Madison Jeffe n, an Missouri rivers. Local inesses in floodplain areas of Bozema Be de, Manha an, Thre Forks, and Big Sky can exp ience uctural damage, inventory loss, utili disrup n an extended closures, while businesses outsi the floodplain may still e affected by mployee cement and supply-chain terruption. Damage closure of roads ridges, and low-wa crossings — including segments I-90, U.S. Highway 191, and Highway 87 — can sl commerce delay deliveries, and isolate ral areas, wh le flood-related closures of llowston National Park, the Custer Gallatin National F st, and e area's rivers and resort an deter u m and reduce dging, guiding, and outfitting reven seen during the 2022 Y owstone-area f ding. Ad onal impacts include increased local go nment response and covery costs, higher ura e premiums, reduced prop ty es in repeatedly looded areas, and lost wages r hourly and s asonal workers, all of which un rscore th portance of continued NFIP p ticip ion, floodplain enforcement, and investment in floo resilien nfras re.

4.10.5.4 FUTURE DEVELOPMENT

Gallatin C nty, Bozeman, Belgrade a Three Fo have strin ent floodplain regulations that are enforced. The floodplain regulations e in place to omote public ealth, safety and general welfare, to minimize flood losses in areas subj to floo hazard promote wise use of the floodplain. These regulations are updated regularly (l tin County Ordinance No. 2017-011 (2017), Bozeman Ordinance 38.600(2020), B City Code 0 Three Forks City Code 12).

4.10.6 DA A LIMITATIONS

The flood risk estim s presented in this ofile are based on regional-scale datasets and generalized loss-estimation method which provid useful planning-level information but carry inherent limitations. Default buildi inventori derived from county assessor records, parcel data, and modeled occupancy classifica s p duce general estimates of exposure and potential loss; a more refined analysis using locally verified building inventories — including structure-specific characteristics such as foundation type, first-floor elevation, construction year, and replacement value — would produce more accurate results. This was partially addressed through the use of a modified dasymetric population and structure dataset, but site-specific data and field-verified information will always yield the most reliable results.

4.10.7 HAZARD PROFILE

Jurisdiction	Probability of Occurrence	Property Impact	Population Impact	Economic Impact	Overall Risk [1] (Relative Score) (Range)
Service Area	2.67	2.33	1.50	1.67	31.11
Belgrade	3.00	3.00	2 0	2.00	45.00
Big Sky	3.00	2.00	1.0	00	27.00
Bozeman	2.00	2.00	2.00	2.00	24.00
Manhattan	3.00	3.00	1.00	2.00	39.00
Three Forks	3.00	3.00	2.00	2.00	45.00
West Yellowstone	2.00	1.00	0	1.00	12.00

[1] Each jurisdiction determined the hazar l risk score by ass ing value nking metrics that included: 1) probabili hat th ard occurs, and 2) potential impacts to property, p tion he economy.

The hazard risk scores for each jurisdic were co dated an hen averaged to determine an overall risk score at the county l The countywide risk scores we signed a risk criptor (L Mod e, High) based on their composite scor nking among all 30 ide d hazards and by applying gment to the final h d rankings.

4.11 Ground Transportation Accident

4.11.1 Description

In the Service Area, a ground transportation accident, for the purposes of this plan, includes any large-scale vehicular accident. The most likely locations for an incident of this magnitude would be on Interstate 90 or on Highway 191. Interstate 90 crosses northern Gallatin County in an east-west direction. This Interstate is widely used by large trucks, area residents, and distance travelers. Highway 191, south of the Interstate, connects Interstate 90 to Yellowstone and Yellowstone National Park and is used by tourists visiting the park, local residen and a hipping route to the park and points south into Wyoming and Idaho.



Interstat at Manhattan, MT

Photo courtesy . Rotar.

4.11.2 History

Many motor vehicle accidents occur each y r in the Service Area and invariably fatalities do occur, however, a major (mass ualty) i dent req ing a significant emergency response only occurs on occasion. Between 20 and 2024, the ontana D t of Transportation (MDT) reported 108 roadway fatalities in Gallati County, or an aver e of 10.8 deaths per year over this period[23]. These have included multiple acc nts on Highway 1 in Gallatin Canyon, and an accident on Amsterdam Road west of Belgrade in 2003 at killed four cupants of a driver's education vehicle (3 students, 1 adult instructor).

4.11.3 Probability

The probability of a major ground transportation accident is considered moderate based on the historical occurrence and recent call increases. Fire departments in the Service Area have seen a significant jump in the number of motor vehicle responses in the 1980's to where we are today. Therefore, despite a

[23] Fatality and Injury Reporting System Tool (FIRST), 2026

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relatively low history of major ground transportation accidents, the increase in motor vehicle accident responses by the local fire departments leads to the assumption that the probability of a major ground transportation accident is increasing. The probability of a significant accident is further increased during frequent snowstorms, periods of poor visibility with blowing snow or smoke, or during times of heavy tourist traffic.

4.11.4 Associated Hazards and Other Factors

The most significant hazards associated with a ground transportation accident are the potential for hazardous materials releases, as any crash involving th transport of fuels, chemicals, or other regulated commodities can substantially increase the complex y, re se demands, and overall impact of the incident. Many natural hazards can also contribute o or dire cause transportation accidents, including winter storms, ice and fog, wildfires and h vy sm ke, high inds, flooding, landslides, debris flows, and earthquakes. In addit secondary i pa s such as power outages, traffic signal failures, and damage to roads, bridges, o c erts can f ther elevate crash risk. Because these interconnections, nearly any hazard profi d in his plan as the potential to cause, in nsify, or compound a ground transportation mass-casu lty in dent in e Service Area. Vulnerabi y

4.11.4.1 Property

The critical facilities e not anti ated to imp cted by a ground transporta n accident. A cri al facility could be maged or made ccessible f om the impact of an acci nt, but the likelihood i considered low and uniform througho the county. Potential losses f m a ground transportation accident in de vehicula osses, proper damage, and roadway d age. Should ehicle fluids or hazardous ma ials see into a water supply, that water body would also threat ed. Typically, most losse om a gro ansportation cident are covered by insurance. For a e incident, the greatest ex nditure would l ly be in r onding to agency costs.

4 1.4.2 Popul ion

pulat n losses are highly likely in ground transportation ac dents. A grou nsportation accident has potential to kill and injure large numbers of people. y cident involving a bus, or many vehicl has the potential for casualties num ring om 10 to 0. Therefore, the potential for large populatio osses is considered moderate ndirect po ulation imp cts could occur in the Big Sky area due to limited accessibility or inability rapidly eva ate the area a result of a ground transportation accident.

4.11.4.3 Economy

The local economy in c in po ns of th ounty could be significantly impacted by a ground transportation acciden The Big Sky ar would ex rience more economic disruption than other areas, as the community accessible only v US Highway 191 and State Highway 64. Any ground transportation accide on either of thes highways can temporarily isolate Big Sky from regular vehicular access. Groun ansportation a dents frequently occur in the section of highway (US 191) extending from Gallatin Ga way to We Yellowstone. A minor accident in this stretch can cause road closures for up to several hou whi a major accident could potentially cause a closure for several days. Any closure has the poten l to reduce traffic to and through Big Sky, which could reduce commerce activity.

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4.11.4.4 Future Development

Future development, except for the associated increase in vehicles in the area, will not impact or will just slightly increase the probability of a large ground transportation accident. Otherwise, the specific locations where development occurs should not significantly affect the vulnerabilities from this hazard.

4.11.5 Data Limitations

Without much history of ground transportation accidents with mass casualties in The Service Area, the ability to assign a probability and possible losses to this hazard is difficult. This hazard profile will always remain somewhat general unless a detailed tr sportation study is conducted countywide.

4.11.6 Hazard Profile

Jurisdiction	Probability of Occurrence	Pr y Im c	Popu i Imp	Economic Impact	Overall Risk [1] (Relative S ore)
Service Area	2.80	1.40	00	1.00	20.16
Belgrade	3.00	2.00	1.	1.00	27.00
Big Sky	3.00	1 00	1.00	1.00	1 00
Bozeman	3.00	1.00	1.00	1.00	18.00
Manhattan	3.00	00	00	1.00	27.00
Three Forks	2.00	1.0	1.00	1.00	12.00
West Yell one					0

[1] Each jurisdiction mined th zard's overall risk score by assigning values to ranking metrics that in d: 1) p bility that the hazard occurs, and 2) tential imp to erty, population an e economy.

Th azard risk score each jurisdiction w consolidated and then averaged to determine an overal score at the county level. The ntywide risk scores w ssigned a risk criptor (Low, Moderate, High) based on their composite scor king among all 30 identified azards and by applying jud nt to the fi hazard rankings.

4.12 HAZARDOUS MATERIALS RELEASE

4.12.1 DESCRIPTION

A hazardous material release is the contamination of the environment (i.e. air, water, soil) by any material that because of its quantity, concentration, or physical or chemical characteristics threatens human health, the environment, or property. An accidental or intentional release of materials could produce a health hazard to those in the immediate area, downwind, and/or downstream. A hazardous material release can come from a fixed facility or via transportation through the area.

A major fuel pipeline, the Yellowstone Pipeline, runs rough no n Gallatin County, just north of Bozeman and Interstate 90. This pipeline transports ref ed pet leum pr ucts between Billings, MT and Spokane, WA. Should an explosion o k occur on th peline, a large hazardous material release of the fuel and/or fumes could result and t ea the popu ion and property.



P eline demar warning sign.

he most likely locat s for ansportation-related haza o materials release e on Interstate 90, Highway 1 , or the acti ailways. Interstate 90 crosses orthern llatin Coun in an east-west ectio This Interstate is widely used by vehicles transpo ng haza ou terials. Highway 191, sou of the Interstate, connects Interstate 90 to Yellowstone tio al Park and is used as a shipping route t he park and points south into Wyo ng a Idaho. In S ptember 2006 a semi-tanker hauling propane o turned near the Lava Lake t lhead on H hway 191, rcing closure of the road for nearly 8 hours.

For the most part, the railroad parallels te ate 90, except for short segments through Bozeman, Belgrade and Manhattan. In estern par f the county the railroad bifurcates at Logan; one line continues to the northw t past Trid and Cl ston, along the Missouri River, before exiting into Broadwater County e other line goes ough Thr e Forks and continues southwest to Willow Creek and Sappington Jun n. The railroad is o ed and operated by Montana Rail Link. If a transportation-related release occurred ar populated ar s or water supplies, serious human impacts could result.

4.12.2 PROBABILITY

The probability of a hazardous materials release can only be realistically assessed qualitatively. The history of events in The Service Area is moderate with sporadic events over the past 20 years, none of which have resulted in a disaster declaration. The exposure, however, is high with Interstate 90 and an active railroad passing within close proximity to critical facilities and concentrated population in Bozeman, Belgrade, Manhattan and Three Forks.

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4.12.3 MAPPING

As with many hazards, the degree of risk to a specific area is difficult to quantify precisely; however, several data sources are used to visually identify locations with concentrations of hazardous materials and the areas most likely to be affected by a release. Facility-level data reported under the Emergency Planning and Community Right-to-Know Act (EPCRA), including annual Tier II chemical inventory reports submitted to the Gallatin County Local Emergency Planning Committee (LEPC), the Montana Department of Environmental Quality, and the local fire jurisdiction, identify fixed facilities that store, use, or manufacture reportable quantities of hazardou substances. These datasets are supplemented by local incident reporting from Gallatin County Emer ency nagement, fire and EMS agencies, the Montana Highway Patrol, and the National Response enter, wh gether document the locations, frequency, and types of hazardous materials incidents th have curred a ng transportation corridors and at fixed sites. Together, these source visualize r ve risk across the Service Area, though it should be recognized that the entire coun y r ains at so e level of risk for a hazardous m terials release due to the volume of hazardous commodi s transp ed on I-90, U.S. Highway 1 1, the rail corridor, and other major rou s

4.12.4 ASS IATED H ZARDS D OTHER FACTORS

Hazardous materi eleases can be idental or intentional. Accidental cau s can be due to a ground air, or railroad cidents. Almost any o r hazard event may also lead hazardous material release. Destruction f a facility transportatio infrastructure may lead hazardous material release. Examples in de e hquake, flooding, wildfire, avalanche, land de, m failure, severe thun storm, tor o, wind, struc e fire, or even a volcano. Intentional r ases may be related to te orism or domesti disturban A hazardous material rel ase, if severe enou could lead to civil unrest, a fiery explosion r lity failure. Hazardous mat ial r ses could like ggravate almost ny other zard.



Hazardous Materials inc t training.



Semi-truck rollover and fuel spill.

P os courtesy Gall n County Emergency Management

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4.12.5 VULNERABILITY

4.12.5.1 PROPERTY

Like many of the other hazards, the hazard area in an actual event will not involve the entire area at risk, but more likely only a small section of the identified area, and therefore, a small percentage of the critical facilities. Based on these buffer zones, it was determined that a good portion of the Service Area critical infrastructure is at greatest risk.

Since Interstate 90 and the Montana Rail Link corridor hauls more hazardous materials than the other transportation routes, the highest risk can be assum be in that area. Generally, the only structures affected by a hazardous materials release are the str ctures house the material on a daily basis. Fortunately, unless an explosion is present with the re ase, struc re typically not damaged in a hazardous materials release. A large-scal release in an rea w th numerous structures will put those structures and contents at risk, however th ucture itself generally withstand the event unharmed.

4.12.5.2 POPULATION

The population impacts from a hazardous m terial elease are more significant tha potential structure losses. Depending th aterial, the ealth im cts to the public can be lo g and sh t term. Should a release occur in Boze n, the p ulati impact would be much greater than if one oc red in a more rural area n a hazardou materials e, those in the immediate ea would have little no warning, whe as, the population i he dispersion path may have some me to evacuate, depending on the weath conditions a material r sed.

Many ctors w de mine the true zard area in a transportation related z dous material release. Th worst-case sce rio would b a release along the railroad near any of the pulated areas. Given is scenario a conser ive imate of 1,000 structures u e directly affect and/or evacuated. With an e mated 2.5 pe e per structure (and possibly gher for ntown Boz man, Belgrade, nhat n or Three Forks), up to 2,500 people could be at ris in such n ev

4.12.5.3 ECONOMY

Temporary usiness closures may occur ith hazard us material eleases. In cases where the release causes an explosion or fire, the closu period may e considerabl Any hazardous materials release which impacts surface water has the p ntial to i pact i m economy.

4.12.5.4 FUTURE D LOPMENT

Much of the future devel pment exp d to occ is off the major road and rail networks in the county. The potential, howev , does exist for d elopmen of agricultural lands bordering the highways and railroad, particularly the unincorporate arts of Gallatin County. Very few restrictions are in place to prevent developmen these areas.

4.12.6 DATA LIMITA ION

Understanding when, where, and what substances are most likely to be released in a hazardous materials incident is the greatest limitation in analyzing this hazard. Hazardous substances pass through the Service Area with such regularity and without incident that fully describing how a release may occur and what population and structures may be affected is not possible. A study of the number and types of hazardous materials passing through the Service Area would help better frame this profile. A complete

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database of hazardous materials sites would also allow for more accurate estimates of potential losses and population impacts. Digital mapping of the fixed facilities would allow for a more detailed analysis of vulnerabilities from a release at those facilities.

4.12.7 Hazard Profile

Jurisdiction	Probability of Occurrence	Property Impact	Population Impact	Economic Impact	Overall Risk [1] (Relative Score)
Service Area	2.17	2.00	1 3	1.33	21.67
Belgrade	2.00	2.00	1.	1.00	18.00
Big Sky	3.00	2.00	1.00		27.00
Bozeman	3.00	2.00	1.00	1.00	27.00
Manhattan	2.00	3.00	2.00	2.00	30.00
Three Forks	2.00	2.00	00	2.00	24.00
West Yellowstone	1.00	1.00	1.	1.00	6.00

[1] Each jurisdiction (district) determined aza erall risk sc by assign values to ranking metrics that incl . 1) proba that the hazard occurs, and 2) potential impacts to erty, p ion and economy.

The hazard risk scores fo h jurisdiction e consolid d en averaged to determine an overall r score at the county leve e countywide risk scores e assigned a risk de tor (Low, Mo , High) based on their composite ranking among all 30 identif hazards and by applyi udgment to the final haza nkings.

4.13 Railroad Accident

4.13.1 Description

Burlington Northern Santa Fe (BNSF) operates on a railroad that crosses Gallatin County in an east-west direction, roughly parallel to Interstate 90, and passes through the Cities of Bozeman, Belgrade, and Three Forks and the Town of Manhattan. BNSF is a Federal Railroad Administration (FRA) Class 1 railroad with 2565 route miles in Montana and employs nearly 2,247 people[24].



2011 train de ment in Bozem n (photo courte f Travis Munter)

Bel w provides a l of documen d rail accidents in the Service Area since 1 1.

R ad Acciden latin County, Montana [Federal Rail d Adm tion, 2026[25]]

te	Track Type	Accident Type	Pri Cause	Cont Cause	Equip Damag	Track Dam e	Dea	Inj	Equipment Type
03/30/25	Yard	Other (describe in narrative)	H70		0	49911	0	0	Freight Train
06/03/20	Main	Derailment	997		35000	0	0	0	Spec. MoW Equip.
01/29/19	Main	Derailment	H		210000	275000	0	0	Freight Train
09/20/16	Yard	Other impacts	H318		16700	0	0	0	Yard/switching
02/20/13	Industry	Othe (d ribe in arrative)	H3		15000	0	0	0	Freight Train
05/08/12	Siding	Other scribe in na tive)	H60		0	10500	0	0	Freight Train
02/20/11	Main	Derail nt	E6		750000	100000	0	0	Freight Train
03/15/08	Main	Derailmen	207		1728552	110000	0	0	Freight Train
11/22/06	Main	Hwy-rail crossing	M302		25000	0	0	1	Freight Train

[24] https://bnsfmountainwest.com/montana/, 2026

[25] https://data.transportation.gov/stories/s/wjun-6kqb

09/26/06	Main	Other (describe in narrative)	H702		0	20000	0	0	Light loco(s)
06/02/05	Main	Hwy-rail crossing	M302		35000	0	0	1	Spec. MoW Equip.
02/13/05	Main	Rear end collision	H605		49000	50000	0	0	Freight Train
02/13/05	Main	Rear end collision	H605		54000	0	0	0	Freight Train
10/12/04	Yard	Derailment	H704		10000	5000	0	0	Freight Train
11/08/02	Main	Other impacts	H605	H017	260660	747	0	2	Light loco(s)
08/15/02	Main	Derailment	T101		3 00	150000	0	0	Freight Train
10/25/01	Siding	Derailment	M501		12277	2000	0	0	Freight Train
03/31/01	Main	Derailment	E54C		3000	1000	0	0	Freight Train
02/27/01	Main	Derailment	E3		00	3000	0	0	Freight Train
07/09/98	Main	Hwy-rail crossing	M303		30 0	0	0	1	Frei Train
12/05/97	Main	Derailment	E6AC		2500	500	0	0	F ght Train
10/29/96	Main	Derail	H526	508	7000	35000	0	0	Fre t Train
09/04/96	Industry	Derailm	07		11500	100	0	0	Freight ain
06/28/93	Industry	erailment	T001		20000	2500		0	Freight Tra
02/08/93	Main	Derailment	405		159000	11000	0	0	Freight Train
10/08/92	M	Derailm nt	E5		15000		0	0	Light loco(s)
12/29/91	in	De ment	E99C		7000	3	0		Work train
07/05 91	Ma	erailment	008	M401	120000	35000		0	Freight Train
03 6/91	Main	Derailment	E46C		233000	55000		0	Freight Train
1/09/91	Main	D ailm	E62C		0	20000	0	0	Freight Train
11/08/89	Main	Der ent	H503		1500 0	7	0		Freight Train
5/26/	Main	Derailment	H099		600	120		0	Freight Train
03 89	Siding	Derailment	T001		44000	500	0	0	Freight Train
01/26/	Main	Derailment	E09C		6500	1500	0	0	Freight Train
12/19/88	Main	Derailment	H0		223700	9000	0	0	Freight Train
10/05/88	Siding	Derailment	213		16500	000	0	0	Freight Train
07/19/88	Main	Derailment	H 2		7	3500	0	0	Freight Train
05/25/88	Main	Derailment	H215		55000	1000	0	0	Freight Train
05/22/88	Main	Dera nt	T101		10000	2500	0	0	Freight Train
09/01/87	Main	D ailment	T 8	T19	621470	122500	0	2	Freight Train
05/09/86	Main	Other impacts	H60		0	0	0	0	Light loco(s)
05/09/86	Main	er impacts	H601		70000	0	0	0	Freight Train
12/14/85	Main	Der ment	T20		169300	22500	0	0	Freight Train
11/30/85	Main	Derailm t	M 05		1000	161000	0	0	Freight Train
11/24/85	Main	Derailment	M405		16500	9000	0	0	Freight Train
04/13/85	Main	Derailment	H503		38200	20300	0	0	Freight Train
12/04/84	Main	Obstruction	S013		300	25000	0	0	Freight Train
10/24/84	Main	Raking collision	M201		0	30000	0	0	Freight Train
10/24/84	Main	Raking collision	M201		4000	0	0	0	Light loco(s)

08/05/84	Main	Derailment	E30C		97200	0	0	0	Freight Train
06/10/84	Yard	Derailment	H503		4900	500	0	0	Freight Train
11/02/83	Main	Derailment	M405		7200	6000	0	0	Freight Train
09/01/82	Main	Derailment	T102		39000	33000	0	0	Freight Train
01/28/81	Main	Derailment	E00L		3720	2000	0	0	Freight Train
09/10/79	Main	Derailment	E99C		0	10558	0	0	Freight Train
05/14/79	Main	Derailment	E52C		25350	20000	0	0	Freight Train
12/07/78	Siding	Derailment	H503		2500	350	0	0	Freight Train
07/15/78	Main	Head on collision	H402		0	0	0	0	Freight Train
07/15/78	Main	Head on collision	H402		3800	0	0	0	Maint./inspect Car
04/20/78	Main	Derailment	E40C		240	21100	0	0	Freight Train
02/26/78	Main	Derailment	E4		2	12500	0	0	Freight Train
02/18/78	Main	Rear end collision	M503			0	0	0	Frei Train
02/18/78	Main	Rear end collisio	M503		4000	0	0	0	i Car
07/05/77	Main	Derailm t	M201		240	3900	0		Freigh rain
05/18/77	Main	erailment	H503		1898	22760		0	Freight Tr
03/28/77	Main	Derailment	E40C		240	3400	0	0	Freight Train
03/10/77	Ma	Derailment	T		885	8140	0	0	Freight Train
12/27/76	ain	Der ment	T101	H503	17520		0		Freight Train
10/22 6	Yard	R ing ollision	H301		1250	0		0	Cut of cars
0/22/76	Yard	Raking llision	H301			0	0	0	Light loco(s)
09/25/76	ain	Der nt	E40C		0	74	0		Freight Train
6/06/7	Main	Derailment	E00C	H503	2500		0	0	Freight Train
0 76	Main	Derailment	H699	H503	13500	25	0	0	Freight Train
10/31	Main	Derailment	T101		345	7755	0	0	Freight Train
10/09/75	Main	Derailment	H5	T106	95	23960	0	0	Freight Train
07/01/75	Main	Derailment	106		250	300	0	0	Freight Train
06/13/75	Main	Derailment	E C			16984	0	0	Freight Train
06/07/75	Main	Derailment	E40	106	250	52265	0	0	Freight Train
02/22/75	Main	Derail	T106	503	54622	13500	0	0	Freight Train

4.13.2 HI ORY

The railroads in Gallat County were op ated by Burlington Northern Railroad from 1970 to 1987 until Montana Rail Link as med control f the route through southern Montana. Burlington Northern Santa Fe re-assumed control f the uthern railway through Gallatin County at the beginning of 2024[26].

[26] https://www.bnsf.com/news-media/railtalk/service/Montana-Rail-Link.html, 2026

4.13.3 PROBABILITY

Since 1981, 79 railroad accidents have occurred resulting in $9,604,908 in track and equipment damages and 7 injuries. Using this historical record, on average, a railroad accident occurs 1.76 times per year (79 accidents / 45 years) in Gallatin County[27]. The average accident causes $121,581 ($9,604,908 / 79 accidents) in damage. Obviously, incidents do not follow averages, and therefore, the maximum and minimum damages over the past 45 years should be noted. Another important consideration in a railroad accident is the release of hazardous materials.

4.13.4 MAPPING

The locations and routes of active rail lines in Service Area are well known and mapped appropriately.

4.13.5 ASSOCIATED HAZARDS AND OTHER FACT RS

A railroad accident is hazardous to those se proximi o, and operating, the train due to physical impacts, but others may be threatened by a soc ed hazard A hazardous material release is e most probable associated hazard. Those effects a e des ibed in etail in the hazardous mat als hazard profile. Almost any other ha d could also ca se a ra ad accident. Weather conditi s damage tracks or affect the locomoti s an rs. For ample, strong winds can blow c from th acks; winter storms, cold w ther, and t weath an arp tracks; avalanches, land des, and flooding n cover rail routes; ail and tornado can damag cars; and fog and smok can limit visibility. A earthquake or v cano could lso damag racks or equipment. The possib ity that a train could be used in a terrori ttack canno be ruled out. A l associated hazards incre the probab ity of a railroad accident occur g.

4.13.6 VUL RABIL Y

13.6.1 PROPERTY

T S vice Area critical facilities are not considered at i rease isk from a railroad accident. Asso ted hazards may threaten facilities, but ccident itse sh uld not directly impact the critical facilities

Most of the losses from a railroa ccident are aid for by B SF or their insurance. Potential community losses are most probable to frastru ure such as dways. Should a derailment occur on a state, county, or city road, that road co be unusable for several days or weeks. Staff time in coordinating the clean up respo could be nsidered additional railroad accident losses. In terms of structures that coul e impacted by derailm a limited number are located within 250 feet of the railroad. Most idents would proba y only impact one or two structures. Damages could vary in the hundreds of thous ds of dollars depen ng on the structure or structures impacted.

4.13.6.2 POPULA N

Since the active railroad in th S ice Area no longer serves passengers, the potential for high casualties from the impact of a rai road accident is low. There is a movement to reactivate passenger rail service through the County, but implementation of it would be many years out. The potential certainly exists, however, for casualties to railroad workers and those in the general vicinity, especially since the trains pass through the center of three towns. The potential for large population impacts is

[27] Federal Railroad Administration, 2026

considered low, however, particularly when considering the historical record of only 7 injuries over the past 45 years and 79 accidents.

4.13.6.3 Economy

Economic losses due to a train derailment are possible, though likely limited.

4.13.6.4 Future Development

Future development should have little impact on railroad accident hazard. Most development is occurring away from the railroad's immediate impact area, but few restrictions exist to prevent such development.

4.13.7 Data Limitations

The data on the railroad hazard in the Ser ice Area is b ed o RA records. This data is sufficient to calculate the occurrence likelihood over t p t 30 years. ere the data is not useful is in determining the probability of a large-scale accident vol g hazard us materials. An analysis of th current railroads, numbers/types of materials transp rted, d areas ith the greatest potential f derailment would enhance this profile S information ould n necessarily be included in a p lic an.

4.13.8 Haz rd Prof e

Jurisd on	Probability O urrence	Pro ty Impact	Population Impact	E nomic act	O erall Risk [1] Relative Score)
Serv Area	2.75	2 5	2.50	2.25	42.63
lgrade	3.00	3.00	3.00	2.00	51.00
Big Sky [2]					00
Bozema	3.00	2.00	2.00	1.00	33.00
ttan	3.00	3.00	2.00	3 0	48.00
Thr Forks	2.00	3.00	00	.00	36.00
West Ye wstone [2]					0.00

[1] Each jurisdiction determined the hazard's overall ri ore by assigning v es to ranking metric at included: 1) probability that the hazard occurs, and 2) potential impacts to property, population and economy.

The hazard risk scores for each jurisdiction were con dated then averaged to d ermine an overall risk score at the county level. The countywide risk scores were assigned a risk descriptor (derate, High) based on their composite score ranking among all 30 identified hazards and by applying judgment to th fi l hazard ranking

[2] There are no active railroads in th istrict.

4.14 SEVERE WEATHER

4.14.1 DESCRIPTION

Thunderstorms in Montana develop when moisture in the air rises, often from daytime ground heating, an unstable atmospheric condition, synoptic front, or by terrain uplift, and cools higher in the atmosphere, condensing into rain droplets or ice crystals. The cloud grows as these conditions continue and the atmospheric instability allows. Lightning can be produced, with or without rain, as a charge builds up in the cloud. With the right atmospheric conditions, updrafts and downdrafts form in the thunderstorm structure. These strong updrafts and downdrafts can produce hail, strong straight-line winds, and even tornadoes.

Hail is produced when a super cooled droplet collects layer o ce an ntinues to grow, sustained by the updraft. Once the hail stone cann held up an lo ger by the updraft, it falls to the ground. The Service Area regularly has small, pea siz d hail, but ger stones to the size of quarters o larger are possible.

Strong straight-line winds times strong than nadoes at over 100 mph, o ur w n air is carried into a storm updraft, ls rap dly, and omes rushing to the ground. Cold air is dens than warm air, and theref , wants to ll to the fa . On warm summer days, w n the cold air ca o longer be support up by the storm pdraft, the air crashes to the ground i he form of strong winds These winds a forced horizontally wh they reach the ground and can ause significant damage.

Tornadoes for when t right amount of shear is present in the atmosph and ses the updraft and down aft to rota A funnel cloud the rotating column of air extending o f a cloud base, but not y ouching the gro d The fun el cloud does not become tornado until it tou es the ground. Once n contact wi h the surf i an create great damage ove a sm area. Although re, they can and do occur i south central Montana.

A s re thunderstorm is defined by the National Weather rvi e (NWS) as a thunderstorm that produc wind gusts at or greater than 58 m (50 k s), hail ¾ r larger, and/or tornadoes. Although not consid d severe by definition, ligh ing and he y rain can so accompany thunderstorms. The severe conditions are often events th can directly use widespre damage. Strong winds, hail, and tornadoes have capability to damage s ctures, i astru ps, livestock, and vehicles.



Summer thunderstorm over Bozeman. **Photo courtesy Jason Shrauger**

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2008 Summer hailstorm at Montana State Uni y **Photo courtesy Patrick Lonergan**

4.14.2 History

Hail and strong winds frequently occur in thu dersto s in th Service Area as docume below.

Severe Weather Events in Gallatin Co since 5 [NOAA CEI Storm Events Database, 2026]

Date	Loca n	E t Typ	So	Narrative
2/13/2025		Extrem Cold/Win Chill	Mesonet	Mesonet stati 8771D 2 WNW Three Forks meas d a -37F wi chill.
2/ 2025		Extre e Col Wind ill	RAWS	RAWS sensor Y WM Yellow Mule RAWS measured nd chill of -35F near the Big Sky area.
2/12/2025		Extreme Cold/Wind Chill	ASOS	SOS ion KBZN Boz n Airport m asured a hill of -39 .
2/ 2025		Extreme Cold/Wind Chill	M net	Me net tion CW7710 Logan measured a -37 nd chill.
2/11/2025		Extreme Cold/W d Chil	Mesonet	Meson station 8771D 2 WNW Three Forks m sured a -37F wind chill.
1/20/2025		Extrem Cold/Win Chill	OS	ASO station KBZN Bozeman Airport measured wind chill down to -41F.
8/19/2024	MANHA AN	Hail	Publ	Public report of quarter sized hail 2 ENE of Manhattan. Wheat fields were damaged by the hail. Time and location was estimated.
8/6/2024	BOZE AN HOT SP	Hail	Trained Spotter	Trained spotter reported 1 inch diameter hail.
8/6/2024	BOZEMAN	Hail	Public	Social media post, which included a photo, from the Cooper Park area in Bozeman showed 1 inch diameter hail.
7/25/2024	BOZEMAN	Hail	Trained Spotter	Trained spotter reports a few 1 inch hail stone mixed in with primarily one-half to three-quarters of an inch hail stones.
7/25/2024	BOZEMAN HOT SPGS	Hail	Public	Public report of 1 inch hail from MPing.
6/30/2024	MATTHEWS	Hail	Trained Spotter	Mostly dime sized hail was observed, with a few quarter sized hail stones mixed in. Hail

				was beginning to accumulate at the time of the report.
6/30/2024	BOZEMAN	Hail	Public	The public estimated quarter sized hail in central Bozeman.
1/13/2024		Extreme Cold/Wind Chill	Mesonet	Mesonet station GNFHY 10.7 W Emigrant. Wind chill of -59F.
1/13/2024		Extreme Cold/Wind Chill	Public	Time and ambient air temperature were estimated from a photo submitted on social media. Photo shows a degree of sunlight on the horizon for a time estimate around sunrise. Photo also showed the dial ometer between -57 to -59.
1/12/2024		Extreme Cold/Wind Chill	Mesonet	Meson s at Red Rock RAWS. Wind chil f -48 F.
7/28/2023	SEDAN	Hail	So l Media	everal reports of hail ranging from dime ze to golf ball. Hail accumulated on T ghway 86, resulting in some imp ts to d ers.
7/28/2023	SEDAN	Ha	T ined Spo er	Spotter northwest of Wilsall or golf ball size hail and estimate ind gust f 70 mph.
5/25/2023	B EMAN OT SPGS	Hail	Public	Social media video photos submitted o hail along the Gal in River. Hail lasted several minute Minor defoliation of vegetation ed in video au o. Time of event estima from rad
5/2 023	B ZEM N HO GS	Hail	Trained Spotter	Spotter reported g f ll size hail.
2/23/2023		xtreme Cold/Wind Chill	Mesonet	Multiple sensors mea d wind chills of -40 less, including m net station m17 V ia City which easured a m imum win f -47 F.
2/2 023		Extreme Cold/Wind Chill	M	M iple s ors in thi zone, including mtm 7 rginia City, and MTRAY Rayn ds Pass measured wind chills of -40F or less r a brief period.
1/30/2023		Extrem Cold ind Chill	Meson	A minim m air temperature of -40 F was measured by an official sensor about 8 orth of West Yellowstone.
1/29/2023		Extrem Cold/Win Chill	Mesone	Minimum wind chill values measured by various official equipment included: -48 F about 1 mile north of Raynolds Pass, -42 F about 6 miles NNW of Lakeview, -46 F about 7 miles SSW of Big Sky, -40 F about 4 miles west of Big Sky, -44 F about 6 miles WSW of Big Sky, -41 F about 4 miles southeast of Virginia City, and -42 F about 16 miles southeast of Gallatin Gateway.
12/21/2022		Extreme Cold/Wind Chill	ASOS	Multiple sensors measured wind chills of less than -40 F, including ASOS station KBZN which measured a minimum wind chill of -53 F. KBZN ASOS also had a peak minimum air temperature of -45 F the morning of December 22nd, which was one degree shy of tying the all time record low for the airport. The high temperature for December 22nd at KBZN was only -24 F.

				Approximately 75 reports of broken water pipes were noted across the Gallatin Valley area due to the extreme cold.
12/21/2022		Extreme Cold/Wind Chill	Mesonet	Multiple sensors measured wind chills of less than -40 F, including mesonet station 1653 D near Logan which measured a minimum wind chill of -49 F.
12/21/2022		Extreme Cold/Wind Chill	Mesonet	Multiple sensors measured wind chills of less than -40 F, including mesonet station MTM17 BLM - Virginia City which easured a minimum wind chill of -57 F.
7/4/2021	BELGRADE	Hail	Trained Spotter	Tra potter at 5 SE Belgrade reported 3/4 in d r hail.
8/3/2020	(WYS)WEST YELLOWSTON	Hail	Public	Via cial media Time and exact location imated by radar and social media report.
8/3/2020	MATTHEWS	Hail	ined Sp r	ail report from 5 S Bozeman.
8/3/2020	BOZEMAN HOT SPGS	Hail	Broad t Media	R orted hail.
7/7/2020	BOZEMAN HOT SPGS	Hai	Tr ned Spo er	Trained spotter called in an weete age of quarter size hail.
7/7/2020	GALL IN GAT WAY	H	P l	Member of public rel ed report of quarte size hail via mPin
7/7/2020	B ZEMAN	Hail	Public	Member of pub reported quarter size hail.
7/7/202	BOZEMAN	Hail	Trained Spotter	Trained sp reported gol all size (1.75 inch diamete ail.
7/7 020	B ZEM N	Hail	Public	Member of publ p s quarter size hail.
7/2020	BOZ MAN	H	CoCoRaHS	COCRAHS reported arter size hail.
7/7/2020	BOZEMA	Hail	Public	M ber of public repor half dollar size 25 in i meter) hail v mPing.
7/7/2 0	GALLATIN GATEWAY	Hail	Public	Q rter size h il d via twitter.
7 2020	GALLATIN GATEWAY	Hail	P	Me er public reported quarter size hail via t er.
7/7/20	BOZEMAN	Hail	Public	Memb of public reported quarter size hail.
8/11/2019	BOZEMAN	Hail	Publi	A mem of the public estimated hail size of 1.25 inches in diameter. Time was ed by radar. Report was posted to NBC Montana's Facebook page.
8/11/2019	BELGRAD	Hail	Pub	A member of the public posted images of quarter to golf ball sized hail (1 to 1.5 inches in diameter) on the KBZK Facebook page. The time was estimated by radar.
12/17/2016		Extreme Cold/Wind Chill	Mesonet	Wind chill of -50 degrees F reported at Bridger Bowl due to temperature of -19 degrees and 27 mph wind.
6/1/2015	CHURCH HILL	Hail	Broadcast Media	Estimated quarter size hail near Church Hill.
3/1/2014		E me Cold/Wind Chill	Department of Highways	Extreme wind chill of -46 degrees Fahrenheit reported 11 mi E of Bozeman, MT at the Bozeman Pass DOT sensor.
8/1/2013	MANHATTAN	Hail	Trained Spotter	Hail measuring 1.50 inches (ping pong ball sized) was reported 8 mi S of Manhattan, MT.
8/1/2013	BELGRADE	Hail	Trained Spotter	Hail measuring 1.75 inches (golf ball sized) was reported 4 miles ESE of Belgrade, MT.

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8/1/2013	BOZEMAN	Hail	Public	Hail measuring 1.50 inches (ping pong ball sized) was reported near the MSU campus in Bozeman, MT.
6/12/2011	BOZEMAN	Hail	Trained Spotter	A thunderstorm dropped 1 inch diameter hail at Bozeman 3S.
6/6/2011	LOGAN	Hail	Trained Spotter	A thunderstorm dropped 1.5 inch diameter hail at Logan 2WNW.
7/31/2010	GALLATIN GATEWAY	Hail	Trained Spotter	A thunderstorm dropped 1.5 inch diameter hail at Gallatin Gateway 10S.
7/27/2010	THREE FORKS	Hail	Trained Spotter	A thunderstorm dropped 1 inch diameter hail at Three Forks 5NE.
6/30/2010	BOZEMAN	Hail	Trained Spotter	A thunderstorm dropped 1 inch diameter ail at Bozeman 7W.
6/30/2010	BOZEMAN	Hail	Trained Spotter	A t d rstorm dropped 1.75 inch diameter hail at 6W.
6/30/2010	BELGRADE	Hail	ained Sp tter	A th nderstorm ropped 2.75 inch diameter h l at Belgrade 4ESE. Hail damage was articularly severe in Bozeman. Monta a ate University reported up to 1000 w dows damaged on campus wi a repair es mate in excess of $100,000 city of Bozeman also reported clea g up rly 5 tons of debris consisting o tress and tr limbs. State Farm rep sentatives estimat that Gallatin Valley sidents will submit a total of $60 mill in claims resulting from the storm.
6/30/2010	GALLATIN ATEW	Hail	Trained Spotter	A thunders m dropped 1 inch diameter hail at Gallatin ateway E.
6 0/2010	BOZ MAN	H	Public	A thunderstorm d d 2 inch diameter hail at Bozeman 5W hattered home dows were reporte
6/30/2010	BOZEMAN	Hail	Public	thu torm dropped 1 inch diameter h l at Bozem 3S
/30 010	BOZEMAN	Hail	Broadcast Media	A underst m dr p d 1 inch diameter hai t Bo man.
6/30 10	BOZEMAN	Hail	ublic	A th rstorm dropped 1.75 inch diameter hail a ozeman 1E.
8/9/2008	BIG SKY	Hail	Trained Spotter	A seve hunderstorm dropped 1 inch diamete ail at Big Sky 2E.
7/22/2008	BOZEMAN	Hail	Pub	vere thunderstorm dropped .75 inch diam ter hail at Bozeman 1E.
7/22/2008	BOZEMAN	Hail	ained S tter	A severe thunderstorm dropped 1 inch diameter hail at Bozeman 6S.
7/22/2008	BOZEM	Hail	Tra d Spotte	A severe thunderstorm dropped 1 inch diameter hail at Bozeman 5W.
7/22/2008	BOZEM N	Hail	Trained Spotter	A severe thunderstorm dropped 1.75 inch diameter hail at Bozeman, just south of the Montana state University campus.
7/22/2008	BOZEMAN	Hail	Trained Spotter	A severe thunderstorm dropped .75 inch diameter hail at Bozeman.
7/22/2008	BOZEMAN	Hail	NWS Employee	A severe thunderstorm dropped .75 inch diameter hail at Bozeman, near the downtown area. Power was reported out throughout the city.
7/22/2008	BOZEMAN	Hail	Trained Spotter	A severe thunderstorm dropped 1.75 inch diameter hail at Bozeman. Numerous homes on the south side of the city had broken windows.

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7/18/2008	BOZEMAN	Hail	Public	A severe thunderstorm dropped .75 inch diameter hail in the city of Bozeman.
6/22/2008	CLARKSTON	Hail	Public	A severe thunderstorm dropped .75 inch diameter hail at Clarkson 50W.
6/10/2008	BOZEMAN	Hail	Trained Spotter	A severe thunderstorm dropped .88 inch diameter hail at Bozeman 6S.
5/13/2007	BOZEMAN	Hail	Trained Spotter	A severe thunderstorm dropped 1.25 inch diameter hail at Bozeman 5S.
5/13/2007	BOZEMAN	Hail	Trained Spotter	A severe thunderstorm dropped 1.25 inch diameter hail at Bozeman 6SW.
5/13/2007	BOZEMAN	Hail	Fire Departm t/ Rescue	A severe thunderstorm dropped 1.5 inch diameter hail at Bozeman 3NW.
5/10/2007	BOZEMAN	Hail	Trained Spotter	A s thunderstorm dropped .88 inch diamet t Bozeman 5S.
5/10/2007	MATTHEWS	Hail	Trained Spotter	
8/16/2006	BOZEMAN	Hail	AINED SP TER	

Despite a lack of significan does in The ervice ea's weather records, in nea y Y owstone National Park just to the sou an F rnado 207-260 mph) formed on July 21, 1987. The ton-Yellowstone Tornad as it was n med, was 5 iles (2.5 km) wide and trav ed for 24 miles (3 2 km)[28]. The torna crossed the Cont ntal Divide at an elevation of 10,072 eet (3.070 m). Tornadoes like the Teton Yellowstone Tornado ar are but possible in places lik the Service Area, Montana. More likely the Servic Area are smaller, shorter lived, yet damaging ornadoes

4.14.3 Pr ability

he history of hail and ron hunderstorm winds in The er Area shows th oth are frequent. The data p sented in the story is based on reports receiv by the N S in Great Falls, MT. Often, u ess e event is noticed by a trained spotter or emergenc officia the e will go unreported. The ore, many events may not have been rep ted or noted b ob ervers and the statistics represent only th events that have been document .

4.14.4 Mapping

Severe thunderstorms can occur anywhe in th Service Area. Due to the sporadic population centers in the Service Area, mapping the locations historical events would show where events have been spotted and reported from ut woul ot necess ly depict the hazard level from severe thunderstorms. Infrequently traveled eas may have a ger conc ration of severe thunderstorm events, but because of the low populat events have gone nreported. Therefore, the risk is assumed to be the same countywide.

4.14.5 Associated Haz ds and Other Factors

Severe thunderstorms and tornado can be associated with other hazards. Lightning can spark wildfire or urban fires, especially when coupled with strong winds, and heavy rains can cause flash flooding. These hazards can also contribute to ground or aircraft accidents if they interfere with travel. Fortunately, most pilots are trained to recognize hazardous weather conditions such as severe

[28] The Teton–Yellowstone Tornado of 21 July 1987, Fujita, 1989

thunderstorms. Particularly severe thunderstorms can also lead to widespread power and communications failures.

4.14.6 VULNERABILITY

4.14.6.1 PROPERTY

All critical facilities and vulnerable populations are considered to have the same vulnerability to severe thunderstorms, unless specific reinforcements have been made to protect them from strong winds. Infrastructure, namely power lines, are primarily vulnerable to high winds and falling trees. Power systems are the most likely infrastructure to fail duri vere thunderstorm. Communications towers may also topple under strong winds or large hail Infrast ure at a reduced risk from severe thunderstorms and tornadoes include those utilities loca d underg un within reinforced structures.

With the entire county at risk from severe h derstorms a tornadoes, estimates of damages are hard to determine. Realistically, an event invol ing tornado severe thunderstorm would m t likely significantly affect only a small area. If that ea, h ever, w s in a developed part of th ounty, 10-20 homes could be damage hicles damag d by ha or falling debris would be ditio l losses. Potential losses could also in ude es to a riculture. Livestock and crops can be signi ntly damaged by large ha and strong inds, and r ore, result in diminished pr ts.

4.14 2 POPULATION

NWS in G Falls, MT arns for severe hunderstorms and tornado when reco ized on Doppler radar or by oth mean The warnings are broadcast over NOAA weather dio a may be transmitted ove elevision sc s and cable tworks such as the Weather Channel. me events have 15-20 m nutes warning tim nd oth s have little to no warni g Depending on th ffectiveness of the warning rea ing the pop l on, those at greatest risk ma or may t receive the arning and take ecauti ary measures. A NOAA weather radio transmitte is locate zeman, and those with sp y built receivers can be alerted to weather hazards rap ly. T e numerous campgrounds in the Nation Forests become particularly vuln population f the warnings are not received. Dependin n the significance of the sto m, much o he popula n can be at risk if they do not take appropriate action.

4.14.6.3 ECONOMY

Severe thunderstorms and tornadoes can da ge businesses and cause temporary closures. Often the largest losses are seen in e agricul industry when weather events damage crops or livestock.

4.14.6.4 TURE DEVELOPMEN

Future development l likely have litt effect on the vulnerability to severe thunderstorms and tornadoes. The risk is ass ed to be unif m countywide, and therefore, the location of development does not increase or reduce e risk cessarily. Development and population growth may in fact improve the television and radio nology available to residents, and therefore, improve the warning capabilities.

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4.14.7 Data Limitations

Severe thunderstorms and tornadoes can be such isolated events that the vulnerability to a specific area can be hard to determine. Weather data is often limited by the observations taken, and severe thunderstorm and tornado events are only recorded if reported to the NWS. An in-depth study specific to the Service Area would need to be conducted to further develop this hazard profile. Historic lightning data may also pinpoint the areas that receive the most thunderstorms.

4.14.8 Hazard Profile

Jurisdiction	Probability of Occurrence	Property Impact	P pulati pact	Economic Impact	Overall Risk [1] (Relative Score)
Service Area	2.83	2.67	2.50	2.00	42.50
Belgrade	3.00	3.00	2.00	1.00	42.00
Big Sky	2.00	2.00	2.00	2.00	24.00
Bozeman	3.00	3.00	3	2.00	51.00
Manhattan	3.00	3.00	3.00	3.00	5 0
Three Forks	3.00	2.0	2.00	2.00	36.00
West Yellowstone	3.00	00	00	2.00	51.00

[1] Each jurisdiction (ct) determined the hazard's ov risk score by assigning values to ranking m cs that included: 1) probability that the hazard occurs 2) potential impa o property, popu and the economy.

The hazard ri ores for each isdiction were consolidated and then averaged to determine a erall risk sc at the county level. The countywide risk s were gned a risk descriptor (Low, Moderate, High) based on their compo score ng among all 30 identified hazar nd by apply ju ent to the final haz ankings.

4.15 TERRORISM

4.15.1 DESCRIPTION

Terrorism is defined in the Code of Federal Regulations (28 CFR, Section 0.85) as "the unlawful use of force and violence against persons or property to intimidate or coerce a government, the civilian population, or any segment thereof, in furtherance of political or social objectives". Terrorists look for visible targets where they can avoid detection before or after an attack such as international airports, large cities, major international events, resorts, and high-profile landmarks. Bombings involving detonated and undetonated explosive devices, tear gas, and pipe and fire-bombs have been the most frequently used terrorist method in the United Stat s Other possible methods include attacks on transportation routes, utilities, or other public servi s, o idents involving chemical or biological agents.

Lone gunman shootings (active shooter idents) are m mes described as a form of terrorism. However, without a nexus to a declared t ro t organiza n, an extremist ideology or belief system, or specific political objective, these attacks re r ely class ed officially as terrorism. In th U.S., an individual that instigates or imposes violenc towa s a gro of people is often said t e a "lone-actor" or "lone-wolf" if th re believed opera independently, and not as rt a larger organization. These violent s of involve irearms but can also involve che ical or ex osive devices. Most of thes incidents cur at l tion deliberately selected for an ack and not simp a random site of op rtunity. Schoo movie the ers, and stadiums and oth r large venues used f sports events o oncerts are common ations chosen to conduct these nlawful acts. Mass-casualty shootings h e sparked a litical debate the U.S. over gun viole whether fi arms should be allowed in th lassroo and whether there should be more restrictive g contro aws.



Active shooter ning in Bozeman. Photo urtesy Gallatin County Emergency Management.

Chemical terrorism is e use of chemi agents to poison, kill, or incapacitate the population. Chemical agents can be oken into f e different categories: nerve agents, vesicants, cyanide, pulmonary agents, and incapa ating ents. Known nerve agents include tabun, sarin, soman, GF, and VX, and can cause a variety of c tions affecting the central nervous system either through vapor or liquid form. Vesicants cause blisters on the skin and can damage eyes, airways, and other tissues and organs. Vesicant agents include sulfur mustard, Lewisite, and phosgene oxime. Cyanides can be in solid salt or volatile liquid format, or when combined with acid, a vapor or gas. Their absorption can cause everything from nausea to death, depending on the amount absorbed. Pulmonary agents such as phosgene and perfluoroisobutylene cause pulmonary edema usually hours after exposure.

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Incapacitating agents, such as BZ, produce reversible disturbances with the central nervous system and cognitive abilities.

Terrorism using explosive and incendiary devices includes bombs and any other technique that creates an explosive, destructive effect. Bombs can take many forms from a car bomb to a mail bomb to any suspicious package. They can be remotely detonated using a variety of devices or directly detonated in the case of a suicide bomb.

Bioterrorism is the use of biological agents to infect the population or animals with disease. The agents/diseases that the CDCP consider the highest priority due to their threat to the population and national security include anthrax, botulism, plague, mallp tularemia, and viral hemorrhagic fevers. Bioterrorism could also be used against livestock pop ation and icultural plants. The following are select animal diseases identified by the USDA as a sev e threat lives and human health: Avian Influenza, Exotic Newcastle Disease, Ni Hendra, Eas rn quine Encephalitis, Venezuelan Equine Encephalomyelitis, Foot and Mouth Dise e, ift Valley F ver, Rinderpest, African Swine Fev r, and Classical Swine Fever. Those plant diseas ide fied by USDA as a severe threat to ants are: Soybean Rust, Southern Bacteria Wilt, Plum Pox, owny ldew of Corn, Brown S e Downey Mildew of Maize, Potato W cterial Leaf treak o ice, Citrus Greening, and P ce s isease.

Radiological terroris involves use of r diol ical dispersal devices or nu ar facilities to a k the population. Ex osure to radiatio an cause radiation sickness, long-te illness, and even death Terrorism exp s fear the use of explo e and radiological devices in form of a “dirty bomb” to attack the opulation. A with chemic and biological events, diological cidents present contamination allen s for first responders.

C er terrorism is th ttack or h ack of the information technology infrastruct that is critical to the U.S. economy through an al networks, government sy tem ass media, or er systems. Any cyber-atta that creates na ional unrest or instability would e conside yber terrorism.

Mo na has traditionally attracted activist/extremist indivi al and groups because of its low popula n and large geographic area. Group active Montana y from white supremacists to single issue group such as environmental ex mists. Th groups ar attracted to the state and many of them view Montana as their “home" r safe-haven ecause of the views, they commit their illegal activities outside of the state. An examp of this uld bomber, Ted Kaczynski. Kaczynski advocated the destruction of technology d e protection of the environment. The Unabomber was responsible for sixteen bomb d three d hs around the United States.

Another example, Th World Church of e Creator hich is a white supremacist group with a national following, advocate “Racial Holy War gainst minorities. This group has their national meeting in Superior, Montana onc year. Members this group have been responsible for numerous homicides in the United States.

Groups such as the Phineas Pries d of Spokane, WA have used western Montana as a place to hide. The anti-government group, the Freemen, conducted an 81-day standoff with law enforcement in eastern Montana. At the conclusion it was determined they were a “refuge” for individuals around the country involved in criminal anti-government activity. Several of these individuals had spoken about military type action against the current government. Many other organizations besides these that have the potential to use violence exist in parts of Montana and across the country.

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Recently, the National Alliance, the largest neo-Nazi organization in the United States, has conducted leafleting campaigns in Southwest Montana and is trying to establish a presence in our communities. This organization has been tied to violent acts throughout the country.

Eco-terrorism is a growing domestic terrorism concern that has been noted in the western United States. The FBI defines eco-terrorism as the use or threatened use of violence of a criminal nature against innocent victims or property by an environmentally oriented, sub national group for environmental-political reasons, or aimed at an audience beyond the target, often of a symbolic nature. Organizations identified by the FBI as having terrorist cells include the Animal Liberation Front (ALF) and the Earth Liberation Front (ELF). Although supporting org izations generally advocate peaceful demonstrations, the FBI estimates that the ALF/ELF ave comm d more than 600 criminal acts in the United States from 1996-2001, resulting in damages n exce of $43 lion. The most destructive acts committed by the ALF/ELF involv on. Many o h attacks have occurred in nearby states such as Washington, Oregon, Utah, Idaho an Colorado5 One of the goals of these organiza ions is to preserve undeveloped lands. With the atur resource that exist in The Service Ar and the potential for future development, this type f terro m is c sidered the most likely i he Service Area.

4.15.2 HI ORY

Fortunately, the ervice Area has not en the target of any major terrori attacks. Some small, local level events h ve required minimal loca overnment response.

4.15.3 P BABILITY

W h very little expe nce and ta locally on this hazard pecific probability r future terrorism is hard to dete mine. Bas o the historical record and th terro threat presen for the area, the robabili of a large-scale terrorism event is considered low

4 15.4 MAPPING

The City Bozeman is the most popu us part of he Service rea. This area, with proximity to hazardous material facilities and gove ment buildin s, could be co idered the area at greatest risk for terrorism. Domestic and international rrorism redict, and therefore, specific targets are not easily identified.

National parks are also nsidered p ntial terr st targets and, therefore, Yellowstone National Park to the south puts G atin County com unities, p ticularly West Yellowstone, susceptible to this potential hazard.

4.15.5 ASSOCIAT HAZARD AND OTHER FACTORS

Any hazard that can be “create ca be the result of terrorism. For example, dam failure can be the result of a terrorist act of compr mising the dam. Other examples include communicable disease, aviation, ground, and railroad accidents, hazardous materials release, utility failure, wildfire, and urban fire. All these hazards could be the result of a terrorist act if intentionally triggered.

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4.15.6 Vulnerability

It is impossible to assess the county's vulnerability to international terrorism. Although extremist groups exist within Montana, it is unlikely that any terrorist act perpetrated by these groups would be of disastrous proportions. Authorities on terrorism generally agree that terrorism cannot be wiped out entirely. For the present, they see it as a problem to be managed, not solved.

4.15.6.1 Property

Critical facilities in the Service Area are considered to be at greatest risk from terrorism. Often, terrorists target facilities that are highly important for government services and community stability or are particularly vulnerable. Threat data is not spe f nough to identify what facilities are most vulnerable, and therefore, all critical facilities are con dered ve the same risk countywide. Those facilities with barriers, security, and other forms of pr ction ar at l risk. Most facilities in The Service Area, however, do not have those rotections.

Residential structure losses are possible fr m t orism, ci l unrest, and violence but are t likely. Often the losses are at critical facilities or to t e pop tion. L ting, however, can be com only found in association with these typ vents. There ore, this zard places both the popula n an roperty at risk. Urban areas, places o publi athering and important government or economic ass are generally going to b the areas greatest k Should an event occur, the sses would likely e moderate.

4 6.2 Popul tion

The effects of roris civil unrest, nd violence are usually felt by the p pula n. The greatest risk is to uman lives ing times of nrest. Terrorists typically try to make a matic impact that will nerate media inter Attack ng the population throug large loss of life a common tactic. Therefore, th greatest v ability from terrorism is to hu an lif d the economy

4.15.6.3 Economy

Econ ic losses will vary dramatically dep upon the dent. Small, isolated incidents are unlikely have a major impact on the lo econom Large, na nally publicized incidents have the potential to eter tourism.

4.15.6.4 Future Develop m t

Development should have little to no imp t on terrorism, civil unrest, and violence threat. The exception would be the in ease in p ulation a d the associated increase of potential losses to life and property within the co nty. With larger mmunit around, however, development should have little effect in this regar Given the goals of e terrorists, however, future development could serve as the basis for an event over ntroversial deve ment.

4.15.7 Data Limit tion

Since terrorism, civil unrest, and v ence are such isolated events and little history exists in The Service Area, the probability and potential losses are difficult to quantify. Therefore, generalities have been made to estimate where potential losses could be. Site specific surveys would allow for an analysis of weaknesses of critical facilities, infrastructure, and vulnerable populations to terrorism, civil unrest, and violent incidents.

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4.15.8 Hazard Profile

Jurisdiction	Probability of Occurrence	Property Impact	Population Impact	Economic Impact	Overall Risk [1] (Relative Score)
Service Area	1.75	2.00	1.25	1.25	17.06
Belgrade					0.00
Big Sky					0.00
Bozeman	3.00	1.00	1.00	1.00	18.00
Manhattan	1.00	2.00	1	2.00	10.00
Three Forks	2.00	2.00	2.0	1 00	22.00
West Yellowstone	1.00	3.00	1.00	1.0	12.00

[1] Each jurisdiction determined the hazard's overall risk sco signing values to ki metrics that included: 1) probability that the hazard occurs, and 2) potential impacts to property, population and the n

The hazard risk scores for each jurisdiction were conso ted d then averag o determine an overall risk score at the count el. The countywide risk scores were assigned a risk descriptor (L Mo te, High) ba on their composite score ranking among al identified hazards and by applying judgment to the final hazard ranking

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4.16 URBAN CONFLAGRATION

4.16.1 DESCRIPTION

From earliest colonial times until the early part of the twentieth century, American cities suffered devastating fires known as conflagrations. These fires grew in destructive power in parallel with the coming of the Industrial Revolution in the early 19th century. By the mid-1920s, however, these city-consuming fires had abated. While large, multi-building fires continued to cause significant damage on occasion, large-scale fires leveling hundreds, or thousands of structures did not recur. Whether or not an urban fire spreads out of control and envelops lar e s i ns of a city is dependent on many factors including construction techniques, building materials, ater ava ility, and local climatology. Recent changes in climate and weather are largely responsible r trigge g a n ype of urban conflagration that results when extreme wildfire behav in the wildl d- ban interface engulfs communities and causes rapid structure-to-structure ignitio

4.16.2 HISTORY

Within the Service Area th is ited recor of past, rge-scale urban fires. In cent h ory, an urban conflagration-like event at had lasting impact on the City of Bozeman, was a natur gas explosion and subs uent fire that nsumed m of a city block downtown n March 5, 2009. T incident resulte in one fatality and he complete destruction of four owntown businesses and moderate to vere structur damage to n merous buildings. It stands the largest ban emergency response (fir aw enfo ement, medical) in the Service Area's history.

Downtown Bozem xplosion, March 5, 2009.
Photo rtesy unknown source.



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4.16.3 Probability and Magnitude

The probability of a large, urban fire is dependent upon numerous conditions being present to support its initial ignition and continued advancement of the fire. Modern building construction and built-in fire suppression (e.g., sprinklers) greatly reduce the probability of rapid-fire expansion in today's urban environment. Of greater concern and probability is the likelihood of a large wildfire overtaking residential areas within the wildland-urban interface (WUI), in a manner similar to recent fire events in northern California. Specific areas of concern for this type of event in the Service Area include West Yellowstone, Big Sky, and WUI areas along the perimeter of the Gallatin Valley.

4.16.4 Mapping

Updated WUI mapping is provided within the Commu y Wildfir tection Plan portion of this plan.

4.16.5 Vulnerability

4.16.5.1 Property

Property that is most at-risk from an urban nflag ion in e Service Area are reside l and, to a lesser degree, commercial r te located w hin the WUI.



Downtown Bozeman explosion, March 5, 2009
Photo courtesy Larry Mayer, Billings Gazette

4.16.5.2 Popu ation

The population expo re to an urban c flagration vent is significant, although limited primarily to people that live and work within areas high wildfire risk.

4.16.5.3 Econ y

As with any large-scale fire e nt, the incidents have the potential to impact not only the immediate area that burns, but also have gre economic impacts via disruption in travel and negative effects on tourism due to smoke and poor air quality.

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4.16.5.4 Future Development

Planning and zoning regulations at the county level can have a significant effect on development, particularly in WUI areas, and can help to reduce the risk of a wildfire having a major impact within residential subdivisions.

Wildfire near Clarkston, MT
Photo courtesy Montana DNRC.



4.16. Haza d Profile

Jurisdi ion	Probabili of Oc ence	Property Impact	Popul on Impa	Economic Impact	Overall Risk [1] (lative Score)
Servi Area	2.33	1.67	1.33	1.67	21.78
B ade					0.00
Big Sk					0.00
Bozeman					0.00
Manhattan	1.00	0	1 0	2 00	10.00
Three Forks	3.00	2.00	2.00	2.00	36.00
West Yellowstone	3.00	1.00	1.00	1.00	18.00

[1] Each jurisdiction determined the rd's overall ris e by assign alues to ranking metrics that included: 1) probability that the hazard occurs, and 2) potential impacts to p rty, population and th onomy.
The hazard risk scores f ach jurisdiction were con ated and then averaged to determine an overall risk score at the county level. The countywide risk scores assigned a risk descriptor w, Moderate, High) based on their composite score ranking among all 30 identified hazards and by applying ju nt to the final hazard rank

4.17 VIOLENCE (VIOLENT ACT / ATTACK)

4.17.1 DESCRIPTION

Violence in the context of an anthropogenic hazard is defined as:

"The intentional use of physical force or power, threatened or actual, against oneself, another person, or against a group or community, that either results in or has a high likelihood of resulting in injury, death, psychological harm, maldevelopment, or deprivation[29]*"*

Violence can also stem from group forms of disorderly conduct such as civil disobedience or unrest and organized protest, all of which generally refer o g ps of people purposely choosing not to observe a law, regulation, or rule, usually to bring att tion to th ause, concern, or agenda. It may also be defined as acts of violence by assemblages of th e or m pers which cause an immediate danger, or results in damage or injury to property or p rs of any other individual.

In recent years, an increase in hate crimes h ve curred. H e crimes occur when a perpetrat targets a victim because of his or her perceived mem ership n a cert social group. Examples of uch groups include but are not limited t cial groups, r ligion, xual orientation, ethnicity or nd identity. Incidents may involve phys l as lt damag to property, bullying, harassme verbal a se or insults, or offensive g ffiti or le rs (hate il).

Human traffickin is a public health c cern that impacts individuals, famil s, and entire communities across genera ns. This typ of violen is a form of modern slaver It occurs when a trafficker exploits an dividual w h force, fraud, or coercion to perform com rcial sex work activities. Target d indiv als not limited t any class, religious, cultural, or ethn gr p. Traffickers can be any ender or ag ome are stra gers, while others are peers, friends, rom tic partners or family mbers.



From Gallatin County Sheriff's Office

[29] World Report on Violence and Health, 2002

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4.17.2 History

The record of violence and violent acts in the Service Area is largely limited to statistics of serious felony crimes, or capital crimes, such as murder, kidnapping, and drug trafficking, and rape or sexual assault. The City of Bozeman police department publishes an annual report documenting crimes within city limits. Montana State University (MSU) is required to report annual crime statistics under the Clery Act.

4.17.3 Probability

The probability of violence targeted against an individual or group of people is difficult to predict and is typically based on previous occurrence of crim (crime type and location). Training in threat assessment and situational awareness, along with de ction ocial behavioral queues, can be used to identify circumstances and environments where an inc ased prob ity of violent acts may occur.

The Montana All Threat Intelligence r's (MATI rpose is to collect, store, analyze and disseminate information on public safety su including uspected offenses, to the law enfo ment community and government officials regard ng d erous d gs, fraud, organized crime, te rism and other criminal activity for the purposes of ecision making and proactive law enfo ent while ensuring the rights and priv o itizens.

4.17.4 Ma ing

Both the City of ozeman and MSU riodically publish maps and/or lo ion descriptions of where violent crime have occurre

4.17.5 sso iated Haz ds and Other Factors

Bot civil unrest a terrorism a hazards that often include violent eleme and therefore can be nsidered associated zards iolence can also occur in h ftermath of catast hic events such as earthquake ires, floods, ther critical infrastructure disr tions t ause acute r urce shortages.

4.17.6 Vulnerability

7.6.1 Property

Residential structures are sometimes e target of v lent acts, eit r through burglary or vandalism. Personal property (vehicles, equipme are als ets for violent criminal acts or theft. Commercial property can be targeted fo va dalism or theft, occurring both as a principal violent activity, or as a secondary r to anoth vent, such as looting that may follow in the aftermath of a natural disaster. Ur n areas, pl s of pub gathering, and important government or economic assets are generally ing to be the areas f greatest isk.

4.17.6.2 Pop ation

The effects of violence ar ften directe at an individual or group of people. The greatest risk is to human lives during times of un st. T orists typically try to make a dramatic impact that will generate media interest. Attacking the pop tion through a large loss of life is a common tactic. Therefore, the greatest vulnerability from terrorism is to human life and the economy.

4.17.6.3 Economy

Measuring the social and economic costs of violence can be difficult, and most estimates only consider the direct economic effects, such as productivity loss or the use of health care services. Communities

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and societies feel the effects of violence through loss of social cohesion, financial divestment, and the increased burden of the health care and justice systems. Major economic drivers in The Service Area include MSU and the tourism industry, which both could be negatively impacted by the effects of violence.

4.17.6.4 Future Development

As communities in the county continue to grow and develop, population will increase and likely become more diverse. An increase in urban-type environments often presents significant risk factors that encourage violence. These risk factors can include gang violence, organized crime, limited government capacity and rising inequality.

4.17.7 Hazard Profile

Jurisdiction	Probability of Occurrence	Prop ty Impa	Popula n Impac	Economic Impact	Overall R k [1] (Relativ Score)
Service Area	2.00	2.00	1.3	1.33	20.0
Belgrade					0 0
Big Sky					0.00
Bozeman	3.00	0	1.00	1.00	18.00
Manhattan	1.00	3.0	2.00	2.00	15 00
Three Fork	2 0	2.00	1.00	1.00	.00
Wes Yellowsto					0.00

[1] E jurisdiction determine hazard's ove isk score by assigning values to ranking metrics that included: 1) ability that the hazard occurs, and 2) potential impacts to pr y, pop on and the economy.

The hazard ri cores for each tion were consolidated and then average o deter overall risk scor the county level. The countywid k scores were assign a risk descriptor (Low, Moderate, High) ba on their com core ranking among all 30 identified azards by applying judgment to the final hazard rankings.

4.18 VOLCANO

4.18.1 DESCRIPTION

Active volcanoes are not known to be present in the Service Area, but past eruptions have affected the county and possibility of an eruption in nearby Yellowstone National Park is always present. The active volcanic areas in the Cascade Range such as Mount St. Helens, Mount Rainer, and Mount Hood are to the west of the Service Area and are within the reasonable range of ash fall with the usual upper atmospheric wind patterns. Theoretically, these volc no uld deposit ash several inches thick over the Service Area and any large eruption could change e weath tterns experienced globally.

The Yellowstone Caldera, one of the w 's largest a v olcanic systems, has produced several giant volcanic eruptions in the past few mill years, as ell as many smaller eruptions an steam explosions. Although no eruptions of lava o vol ic ash h e occurred for many thousan of years, future eruptions are likely. Over the next fe hund d year hazards will most likely limited to ongoing geyser and hot- ng ctivity, oc asional eam explosions, and m derate large earthquakes. To better underst d Yell tone volcano and earthquake hazards and to help p ect the public, the USG the Univers of Utah, Yellowstone National Park rmed the Yellowsto Volcano Observ ory (YVO), which c tinuously monitors activity in the gion.

If a large cal a-formin eruption were to occur at Yellowstone, its effe would b worldwide. Thick ash d osits wo d b ry vast areas the United States, and injection of volumes of volcanic ga s into the atmosp ere could stically affect global climate. Fortunately, th Yellowstone volcanic ystem shows no signs at i s headed toward such an e pti The probability f a large caldera-forming e ption within th next few thousand years is excee ngly low y renewed volcanic activity a Yell stone would most likely take the form of non-expl ve lav erupti An eruption of lava coul cause widespread havoc in Yellowstone including fir a the loss of roads and facilities, howeve ore distant areas such as Bozem would obably rem n largely unaffected [USGS, 2005].



Bunsen Peak, Yellowstone Volcano Remnant **Photo courtesy of USGS.**

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4.18.2 History

In May 1980, the eruption of Mount St. Helens sent ash high into the atmosphere. Approximately a half an inch of ash fell across the Service Area. Historical studies have shown that ash from Glacier Peak 11,200 years ago and Mount Mazama 6,600 years ago also fell in The Service Area.

The Yellowstone region has produced three exceedingly large volcanic eruptions in the past 2.1 million years. In each of these cataclysmic events, enormous volumes of magma erupted at the surface and into the atmosphere as mixtures of red-hot pumice, volcanic ash (small, jagged fragments of volcanic glass and rock), and gas that spread as pyroclastic ("fire-broken") flows in all directions. Rapid withdrawal of large volumes of magma from the subsurface caused the ground to collapse, swallowing overlying mountains and creating broad cauldron- aped nic depressions called "calderas." [USGS, 2005].

4.18.3 Probability

Volcanic eruptions are rare events when c nsid ed in com arison to other hazards measur on the 100-year scale. Scientists evaluate natural-ha rd le ls by co bining their knowledge of t frequency and the severity of hazardo ents. In the llowst region, damaging hydroth mal plosions and earthquakes can occur se al tim a centu Lava flows and small volcanic er ptions oc only rarely - none in the p t 70,000 y rs. Mass ca dera-forming eruptions, thou h the most potent y devastating of Ye wstone's hazard re extremely rare - only three have curred in the past severa million years SGS, Unive sity of Uta and National Park Service s ntists with the YVO see no evidence th another c aclysmic eruption will occur at Yellows e in the eseeable future. Recurrence int als these events re neither regular nor predictable. B ow hows the probability of th various even hat can occu n Yellowstone National Park.

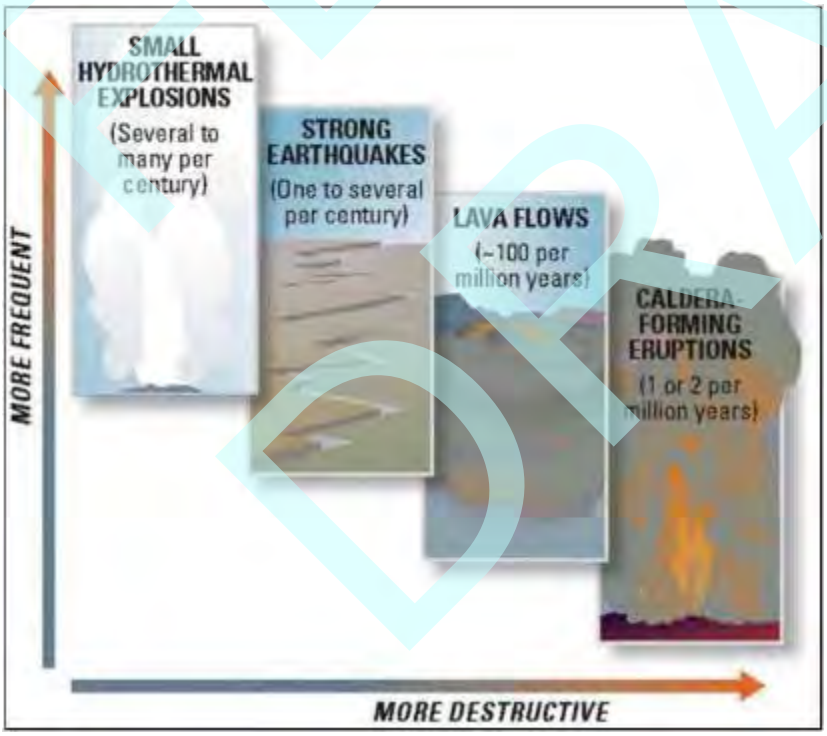


Figure 4-3. USGS Graphic Depicting Recurrence Intervals for Geological Events in Yellowstone National Park

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4.18.4 Mapping

The areas affected by volcanic eruptions depend on the type of eruption and the prevailing wind direction. In an actual event, models would be used to predict the areas that would receive ash and other effects from the volcano. Therefore, mapping hazard areas would be broad generalizations and will not be completed here. The county is assumed to have the same risk countywide for a Cascade Range eruption and decreasing risk from south to north for a Yellowstone eruption.

4.18.5 Associated Hazards and Other Factors

Volcanoes, a geological feature, are closely related to earthquake activity. Often eruptions are preceded by earthquake activity as magma moves below the rf The two events are usually closely linked and monitored. Other factors that become important uring a anic eruption include wind speed, direction, and rainfall. The wind speed and direction w dictate hen where ash falls. Dry ash is manageable, but when combined with ra all, the ash b com s glue-like and much more difficult to control.

4.18.6 Vulnerability

4.18.6.1 Propert

All critical facilities a at risk fr volcan rup ions. The impact on the facili es will depend on e amount of ash tha alls and the abi y to remove it. Significant amounts o ash have the potential t clog air system and shut down faciliti Given enough wet, heavy ash he potential exists for roofs to fail. Infr ucture expo d to the ash fal such as power systems, c d be brough down by the ash as well The r oval ash from government facilities and infrastructur an p entially create costs bey d the comm y's capabiliti Thus, all critical facilities and vulnerabl opulations are exposed t ash fall.

During M unt St. Helens' 1980 eruption, the greatest costs me from difficult task of removing v a ash. The greatest threat is not necessarily to peopl or re dences bu to property such as vehic and equipment. The volcanic dust i osive to m and without proper removal can certainly use damage to public and pri ate prope y. In a Ye wstone eruption, the potential for heavy, wet sh could threaten struct es by collap ng roofs. T probability of an event of this magnitude is very low. The economy, d particul i m could be severely affected if an eruption occurs or is imminent.

4.18.6.2 Popul ion

Light ash fall does no gnificantly imp t the pop ation if those with respiratory sensitivities remain indoors. Ash fall nditions that exist f several days, however, could lead to significant health problems for many in e Service Area. T extremely rare major Yellowstone eruption could lead to deaths to those close to th ark from pyr lastic flows and extreme amounts of falling ash. The degree of population impacts will gr ly vary epending on the type of event.

4.18.6.3 Economy

The tourist economy could be severely impacted should a volcanic eruption occur or become imminent. Ashfall may cause plane transportation services to be delayed or cancelled, further reducing tourism to the area. Significant ashfall cam harm crops and livestock and impact the local agricultural economy.

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4.18.6.4 Future Development

Future development will have little to no effect on the volcano hazard. New development will be exposed to the volcano hazards of the Service Area and increase the population and property values at risk.

4.18.7 Data Limitations

Volcanic eruptions that affect the Service Area are so extremely rare that documenting the potential impacts and probability is very limited. Continued study of the Yellowstone caldera and other volcanic areas will hopefully allow scientists, and therefore emergency managers, to better understand this hazard.

4.18.8 Hazard Profile

Jurisdiction	Probability of Occurrence	Prope y Impac	Populat Impact	Economic Impact	Overall isk [1] (Rela e Score)
Service Area	1.00	2.80	2.80	2.80	16
Belgrade	1.00	3	3.00	3.00	18.00
Big Sky	1.00	3 00	00	3.00	18.00
Bozeman					0.00
Manhattan	1.00	3.00	3.00	3.00	18 0
Three Forks	1 0	2.00	2.00	2.00	12.00
W Yellowston	1.00	00	3.00	3.00	18.00

[1] ch jurisdiction determined zard's o ll risk score by assigning values to r trics that included: 1) pr ility that the hazard occurs, and 2) potential mpacts to prop p ation and the economy.

The hazard scores for each ju diction were consolidated and then averaged determine ll risk score the county level. The ountywi isk scores were assigned a risk descriptor (Low, Moderate, High) bas n their com anking among all 30 identified ar nd by applying judgment to the final hazard rankings.

4.19 WILDFIRE (CWPP)

4.19.1 EXECUTIVE SUMMARY

Community Wildfire Protection Plans (CWPPs) are documents that are designed by a local group of stakeholders who are invested in the wildland fire threat to their area. The group of stakeholders typically consists of representatives from local fire districts; local, state, and federal land management agencies (e.g., U.S. Forest Service, National Park Service, Montana DNRC); and private property owners and managers. Each of these representatives brings different perspectives regarding strategies to manage and mitigate risks associated with wildland fire.

Community Wildfire Protection Plans have a lot of cro over with rd Mitigation Plans, but extend further into the wildfire hazard. Community Wildfire Pr ection lans also o not contain an expiration time frame, unlike the 5 years for a Haz Mitigation Pl Gallatin County has decided to combine our Community Wildfire Protection Plan to expanded Wildfire section of our Hazard M gation Plan. This consolidates planning activities d tim commi ents of our partners as well locks the update interval to 5 years.

This Plan covers the ci ies and t ns of B rade Bozeman, Manhattan, Three Forks, West Yello tone, as well unincorpor d Gallatin County and th Big Sky portion f Madison County. G atin County Emergency Manage ent provides se ces to these eas, referred in the document as the allatin County Emerg cy Ma agement Service Area (Service Area).



Th Healthy Forests estoration Act (HFRA) of 2003 provides incentives for ederal agencies charge with orest and land managemen o c borate with local com unities as they develop hazardous fuel reduction projects. I rn th HF A provides communities an opportunity to influence where d how fede agencies implement fuel reduction proj s on federal n and how and wh federal funds can be leveraged f projec on non-fe al and private lands. The minimum requiremen for a CWPP as described the HFRA e:

- A CWPP must be collaborativ deve ped by local d state government representatives, in consultation with federal agenc and other interested parties.
- A CWPP must entify and ioritize a s for hazardous fuel reduction treatments and recommend e types and meth ds of trea ent that will protect one or more at risk communiti and essential infras cture.
- A CWPP must ommend meas es that homeowners and communities can take to reduce the ignitability of s ctures th ughout the area.

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The HFRA also requires that three governing entities must mutually agree to the final contents of a CWPP:

- Applicable local governments (i.e., Gallatin and Madison Counties, incorporated cities/towns);
- Local fire departments, districts or fire service areas; and
- The state agency responsible for forest management (i.e., Montana Dept. of Natural Resources and Conservation - DNRC).

The initial CWPP for Gallatin County was completed n 200 ith an update in 2020. The goals of the 2020 CWPP were to:

- Protect lives and property from w ldl d fires
- Foster personal responsibility for ta ing p ventive tions regarding wildland fi
- Improve public un nding of the sks ass ated with living in a fire-ad ed system
- Increase the communi 's abil to prep re for, respond to, and recover from wildland es
- Restore fi adapted ecosy ms
- Creat and maintain fire-adapt communities
- Imp ve fire re ience of the landscape while protecting other cial, eco mic, and ecolog l v ues

S nificant informati l produ s and recommendations i ded in the 2020 C PP included:

- Definition and delineation (mapping) of the Wildlan Urban terfac WUI)
- Ongoing review and update of subdi regulations licable to WUI areas and risks
- I reased public education and treach reg ding the C PP and WUI planning
- Identification, planning and evelopment mitigation pro cts on private property

In the twenty years since completion of the tial 2006 CWPP, the population in the service area has continued to grow at a r d rate. nstructio of new homes and housing subdivisions, roads, and other infrastructure, me of which h occurre in WUI areas, plays a significant role in how communities plan wildland fire inclu g prioritization of actions to mitigate risk. This update to the Gallatin County C PP expands on th information and mapping contained in the 2020 plan and provides more detailed sp al analyses o elative wildfire probability, intensity and overall hazard or risk across the county. Specif items note within this 2026 CWPP update include:

- Refined def ion of the wildland-urban interface (WUI) for the service area;
- An updated risk and hazard assessment;
- Development of ember, egress and structure risk modeling.
- New action table and maintenance plan;
- Refreshed content to align with national policy and strategies.

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This update was collaboratively developed by many stakeholders representing different areas of expertise and perspectives. Upon adoption of this CWPP update, stakeholders — including the public — are ready to launch into the critical phase of implementation to ensure that the service area increases its capacity for resilient landscapes, fire adapted communities, and efficient response capabilities.

4.19.2 INTRODUCTION

The concept of community-based forest planning and management is neither novel nor new. The Service Area communities and residents have been reminded by several recent wildfires of the need to engage in comprehensive forest planning and prioritization. These fires have included the Bridger Foothills Fire (2020), the Flaming A w fire (2009) in Bridger Canyon, th Bear Trap fire (2012) al g the Madi River, the Bean anyon Fire (2012) west of Ma low, the M lie fire (2012) in t Storm C stle Creek draina southw t Bozeman, th Co nwood Gul (2015) nd orseshoe (2018) fires the larkston-Horseshoe Hills ea, Maple fire (20) in the northwest corner of ellowstone N onal Park, and the Bacon Rin fire (2 within th Custer-Gallatin tion Forest and Yellowstone National Park, along Highw y 191 s th of Sky. This document incl s a review of the service area's past fire history and de rib s current conditions and status of human velopment that affect fire probabi y, sev ty, and ris This plan addresses risks to health, safety and p perty, and provides a com ehensive s tegy to imp ve resiliency to wildfire.



Photo Credit: Unknown
B ger Foothills Fire, 2020.

4.19.3 PURPOSE

The purpose of the Gallatin County CWPP o accomplish the following goals:

- Protect lives nd property from wildland s
- Foster pers al responsibility for king preventive actions regarding wildland fire
- Improve public derstanding of e risks associated with living in a fire-adapted ecosystem
- Increase the commu y's abi y to prepare for, respond to, and recover from wildland fires
- Restore fire-adapted eco tems
- Create and maintain fire-adapted communities
- Improve fire resilience of the landscape while protection other social, economic, and ecological values

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4.19.4 MISSION

THE MISSION OF THE GALLATIN COUNTY CWPP IS TO COLLABORATIVELY REDUCE WILDFIRE RISK AND PROTECT LIFE, PROPERTY, AND NATURAL RESOURCES THROUGH COORDINATED PLANNING, SHARED PRIORITIES, AND INTERAGENCY COOPERATION.

Wildland fire is a natural and necessary component of forest ecosystems across the country. Southwest Montana is no exception. Historically, wildland fire ha haped the forests valued by residents and visitors. Forests and other wildlands in the Service Ar howev e now significantly altered due to past forest management practices, fire prevention effort modern ire sup sion activities, residential development, and a general lack of la cale fires. e activities have resulted in overgrown forests—some with closed canopies and l w h abundan adder fuels that dramatically incr se the chances of large wildland fires that burn int nsely nd caus atastrophic losses.

the Service Area has experi high rates of opulati growth and home building thin last 20 years, which has led to incre d res ntial d velopment into forested areas and other wil nds, creating more wildl d-urban int face/inter WUI) areas. A resulting in ase in risk to life d property present challenge for fire otection, fire prevention, and law e orcement agencies.

While redu g and ma ging risk of high-intensity wildfire is a imary pur se of this plan, prescribed fore nd w ldland manag ment for hazardous fuels reduction a d fir esilience is only one obj ive. Residen nd visitors d re healthy, fire-resilient forests and wildl ds that provide habitats wildlife, recreat al op rtunities, and scenic b By establishing more fire-adapted communiti that integra fforts on both public and pri e prop overall fir siliency of the ndscap improves, along with fire response outcomes that more p di l and successful.

This WPP update outlines the revised p strategies nd action plan for fuels reduction treatmen n the WUI and post-fire reco ry. Recommendations re provided for reducing structural vulnerability and creating defensible aces in comm nities and ot r areas at risk. With this revision, the Gallatin County CWPP deliver urrent in nd methodologies for fuels reduction, education, and other projects to decrease e erall risk of loss from wildland fire. This is a "living" document, to be updated peri di lly to refle new data, proposed projects and landscape management techniques.

4.19.5 FED RAL INITIATIV S AND LEGISLATION

The Healthy Forests Ini tive (HFI) was stablished by the federal government in 2002 to improve regulatory processes and en e more tim ly decisions, greater efficiency, and better results in reducing the risk of high-intensity wildfir Th initiative allowed forest management agencies, for the first time, to expedite the documentation pro ess for reducing hazardous fuels on public lands.

The U.S. Congress passed historical, bi-partisan legislation, The Healthy Forests Restoration Act (HFRA), in 2003. This legislation expands the initial effort under the HFI and directs federal agencies to collaborate with communities in developing CWPPs which include the identification and prioritization of areas needing hazardous fuels treatment. It further provides opportunities and authority

for federal agencies to expedite the National Environmental Policy Act (NEPA) process for fuels reduction projects on federal lands. The act also requires that 50% of funding allocated to fuels projects be used in the WUI.

The development and implementation of this CWPP gives the communities in the service area the opportunity to participate in determining where federal agencies place their fuels reduction efforts. With a CWPP in place, Gallatin and Madison Counties, community groups, and other stakeholders can apply for federal grants to treat hazardous fuels and address special concerns to reduce the risk of catastrophic loss as a result of wildland fire.

Congress passed the Federal Land Assistance, Manag ment, d Enhancement (FLAME) Act in 2009 and called for a National Cohesive Wildland Fire Man ement Str (Cohesive Strategy) to address wildland fire-related issues across the n tion in a co abor ve, cohesive manner. The Cohesive Strategy was finalized in 2014 and repre n he evolutio f a national fire policy:

- To safely and effectively extinguish fire, en need d; use fire where allowable manage our natural resourc nd, as a Natio live w wildland fire
- The primary, nationa oals i tified a necessary to achieving the vision are:
  - **Resilie Landscapes** Landscape oss all jurisdictions are r ient to fire-related dist bances in accordanc with management objectives.
  - **re-Adapted Communities**: Human populations and in structure ca withstand a w fire w hout loss of life and property.
  - **Wildf Response**: l jurisdictions participate in making and i lementing safe, effective, ficient isk-based wildfire manag m decisions.



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4.19.6 RELATIONSHIPS TO OTHER PLANS, POLICIES, AND REGULATIONS

This CWPP includes compatibility with Federal Emergency Management Agency (FEMA) requirements for a Hazard Mitigation Plan (HMP), while also adhering to the guidelines proposed in the National Fire Plan, and HFRA. This CWPP has been prepared in compliance with:

- The National Fire Plan: A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment, 10-Year Comprehensive Strategy Implementation Plan (USDA 2006)
- HFRA The Healthy Forests Restoration Ac s a ral law that expedites hazardous fuel reduction and forest restoration projects on p lic lands duce wildfire risk and improve forest health.
- FEMA guidelines for a Local H a Mitigation n as defined in 44 Code of Federal Regulations (CFR) Parts 201 and 06, d as rela d to a fire mitigation plan chapte f a Multi-Hazard Mitigation Plan
- National Associati State Foreste : Guida e on identification and prio zing f treatments between c mun s (2003 The objective of combining these compleme ry guidelines i o facilitate integrat w dland fire risk assessment, i ntify pre-hazard mitigati activities, and pri itize activities and efforts to achiev he protection of people, struc res, the envi nment, an ignificant infrastructure in th Service Area while fac ating new pportunities for pre-disaster mitigation fundi and coop ation.
- Comm ty Wildfire Prote on Plan Guidebook (DNRC, 2022)

B ilding a collabora and c perative environment wit he local fire distri community-based organization local gov nts, and the public land man emen encies has be the first step in ducing e risk of loss from wildland fire. The importance collabora ith neighboring counties an j isdictions and understanding goals of their CWPPs i reco nized by Gallatin and Madison Coun and is referenced throughout thi P as docu ntation of collaborative efforts to maximiz azardous fuels reduction effo in the ar

Several local plans, policies and regu ons are ref d ithin this CWPP update. This locally based guidance and information was used in de lopm nt of the CWPP to ensure that consistent and cohesive wildfire management and mitigation strateg are presented. The most frequently referenced plans and policy documents includ

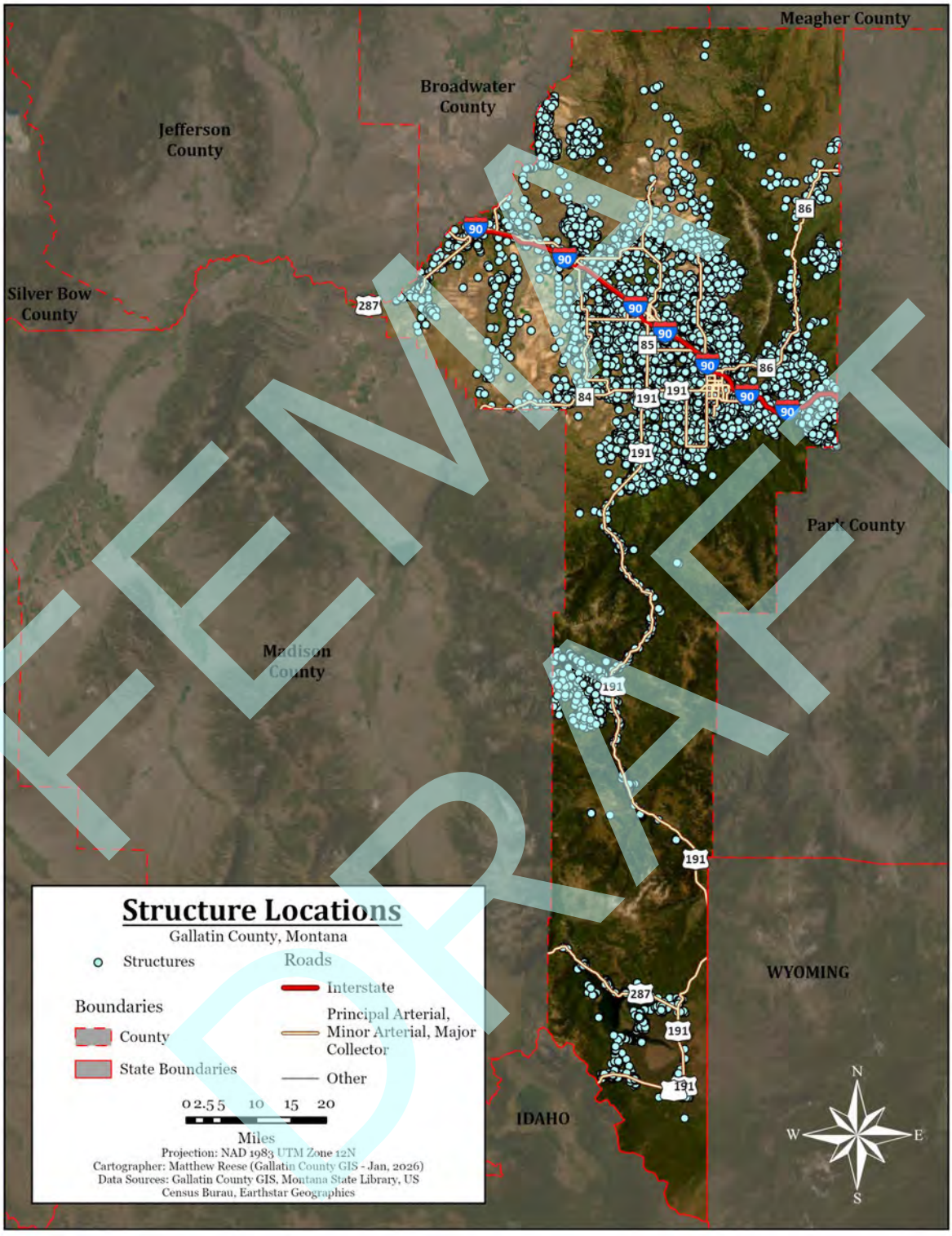
4.19.7 CWPP UPDATE PRO ESS

The current Gallatin Coun CWPP was c mpleted in 2026. Continued efforts have been made by local, state, and federal agencies t educe he threat of high-intensity wildland fires through landowner education as well as fuels reduc activities on both public and private lands. In addition, private landowners have responded enthusiastically to community defensible space initiatives and recommendations to reduce hazardous fuels on their own properties.

Preparation of a CWPP follows a three-step process of development, adoption, and implementation:

- During development, communication is initiated between resource agencies, local community representatives, private organizations and other stakeholders to discuss and mutually agree on wildfire risk reduction goals and strategies.
- The adopted plan provides an informative and action-oriented framework to guide implementation of mitigation actions and projects.
- Through ongoing and long-term actions, stakeholders work to achieve the goals set forth in the CWPP and suggest adjustments to improve actions, when necessary.

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Gallatin County Structure Density.

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4.19.8 High Value Resources and Assets

4.19.8.1 Response to Wildfire

High Value Resources and Assets (HVRAs) are important sites or features on the landscape that can be positively or negatively influenced by wildfire. The response to wildfire for each HVRA is estimated by linking a nge in value to different levels of fire intensity.

Response to wildfire depends on how each HVRA is impacted by different levels of fire intensity (measured by six flame length classes as shown in the adjacent table). Response functions are used to represent this change in value following a wildfire disturbance. Response functions range in value from -100 (representing 100% potential of value) to 100 (representing a 100% potential incr se of value). Each HVRA is assigned a response to each f me-length class and responses vary depending on each HVR 's susceptibility to fire; responses for some V As are divid by dominant vegetation type, where the s rro ding vege tion impacts the response. For ample, structures in treed areas have a more negati resp se to h h flame lengths than the sa e structure would in a grassy area. The etation-based espons functions reflect higher losses so ted with increasing fire intensity, lo er r dence ti es, greater potential for ember ast, and eater suppression difficulty s you mo from gr /sh b/tree fuel types.

A common pa rn for some HVRAs re cts increasing loss with increa ng fire intensity, while other HVRA sho neutral or b eficial effects t all but the highest flame ngth classe For example, an HVRA with a 5 for ame lengths between 8 and 12 feet indicates a p nti y significant loss of valu

Combining probabili fire at each flame length class with th signed respon value produces estim d change in value for each HVRA. This calculatio is perform ach flame length class, th mmed over all six classes to produce a measure c led Net Value Change. Readers are encou ed to reference the National All-La dfire Risk essment Methods Report (NaWRA 2025) for dditional methodology inform ion. HVR data was llated by Vibrant Planet/Pyrologix and supplemented by county provided ata.

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HVRA Name	> 0 - 2 ft Flame Lengths	2 - 4 ft Flame Lengths	4 - 6 ft Flame Lengths	6 - 8 ft Flame Lengths	8 - 12 ft Flame Lengths	> 12 FT Flame Lengths
People & Property - Structure Importance - Tree	-25	-40	-55	-70	-85	-100
People & Property - Structure Importance - Shrub	-20	-35	-50	-65	-80	-95
People & Property - Structure Importance - Grass	-10	-25	-40	-55	-70	-85
People & Property - Hospitals, Emergency Services - Tree	-25	-40	-55	-70	-85	-100
People & Property - Hospitals, Emergency Services - Shrub	-20	-35	-50	-65	-80	-95
People & Property - Hospitals, Emergency Services - Grass	-10	-25	-40	-55	-70	-85
Infrastructure - Communication Sites - Tree	0	-10	-20	-30	-40	-50
Infrastructure - Communication Sites - Shrub	0	-5	-15	-20	-40	-50
Infrastructure - Communication Sites - Grass	0	0	-10	-10	-20	-30
Infrastructure - High Voltage Transmission Lines	0	0	-20	-30	-50	-60
Infrastructure - Low Voltage Transmission Lines	-40	-50	-70	-90	-100	-100
Infrastructure - Power Plants	0	0	0	-10	-20	-30
Infrastructure - Substations	0	0	-10	-20	-30	-40
Infrastructure - Oil & Gas Wells	0	0	0	-10	-10	-20
Infrastructure - Nautral Gas Pipelines	0	0	0	-10	-10	-20
Infrastructure - Ski Areas	0	-10	-20	-40	-60	-80
Timber - Suitable and Potential Timber Values	0	-10	-30	-50	-70	-100
Water - Sediment Catchment Areas	0	-5	-20	-50	-70	-100

HVRA Distrib n, Vibrant Plant, 2026

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4.19.8.2 Relative Importance Scoring

The relative importance assigned to HVRAs within the Trans-County landscape was derived directly from the nationwide importance assignments established in the National All-Lands Wildfire Risk Assessment (NaWRA). This methodology ensures alignment with the national assessment methods while tailoring the analysis to local datasets. Relative importance was only considered at the Trans-County scale, not at the individual county level.

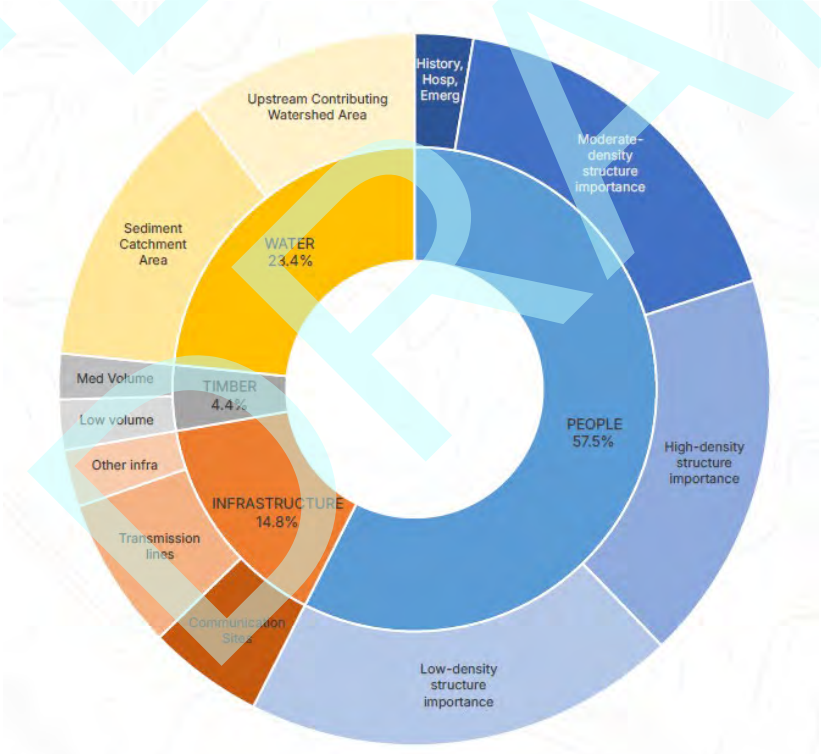
Relative Importance rankings define the contribution of each HVRA toward the total risk results. These rankings, applied at both the HVRA and sub-HVRA levels, were converted into weighting factors that account for the spatial extent of the mapped data. By distributing the assigned importance across e total area of each layer, the methodology ensu hat, if appropriate, HVRA with a limit geogr ic footprint receive a higher e unit-area importance than those covering larger landscapes.

To determine the relative importance share for the Trans-County landscape, the national HVRA were clipped to the AOI extent. This resulted in he following distribution: People and Prope 7%), Water (23%), Infrastructure (15%), and Ti be 4%, after excluding non-suitable USFS timber la ds).

These same proportional im ce amounts ere app d to the customized data lay s sp fic to Trans-County HVRA. It is im rtant note tha maintaining these fixed overall importance percentages means th per-area i ortance mpo ance per pixel) may have ch ged compared t e National Assessm due to differin total pixel unts in the new local HVRAs.

For detailed i ormation on e national r tive importance assignmen , readers sho d consult the National Al ands Wild e Risk Assessment Methods Report (NaWR 2025).

Det ed HVRA/s HVRA break wns on the Trans-County Landscape are ovided in the a ompanying chart



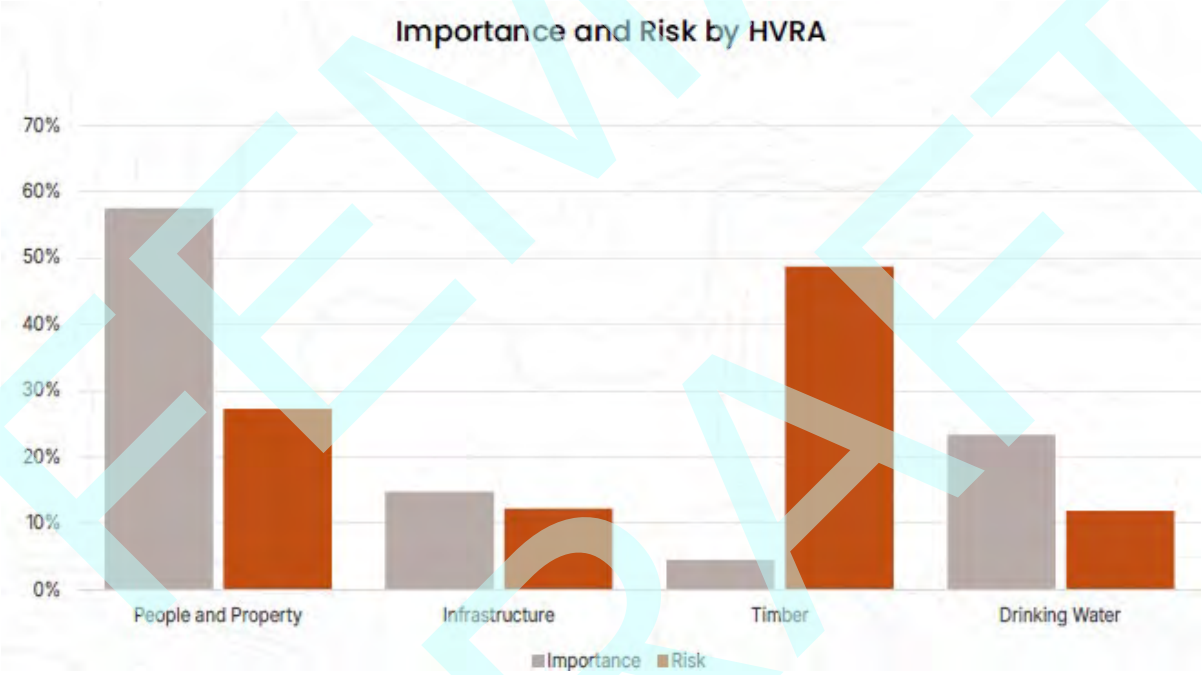
Relative Importance Scoring from Quantitative Wildfire Risk Assessment, Vibrant Planet 2026

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4.19.8.3 Total HVRA Expected Net Value Change (eNVC)

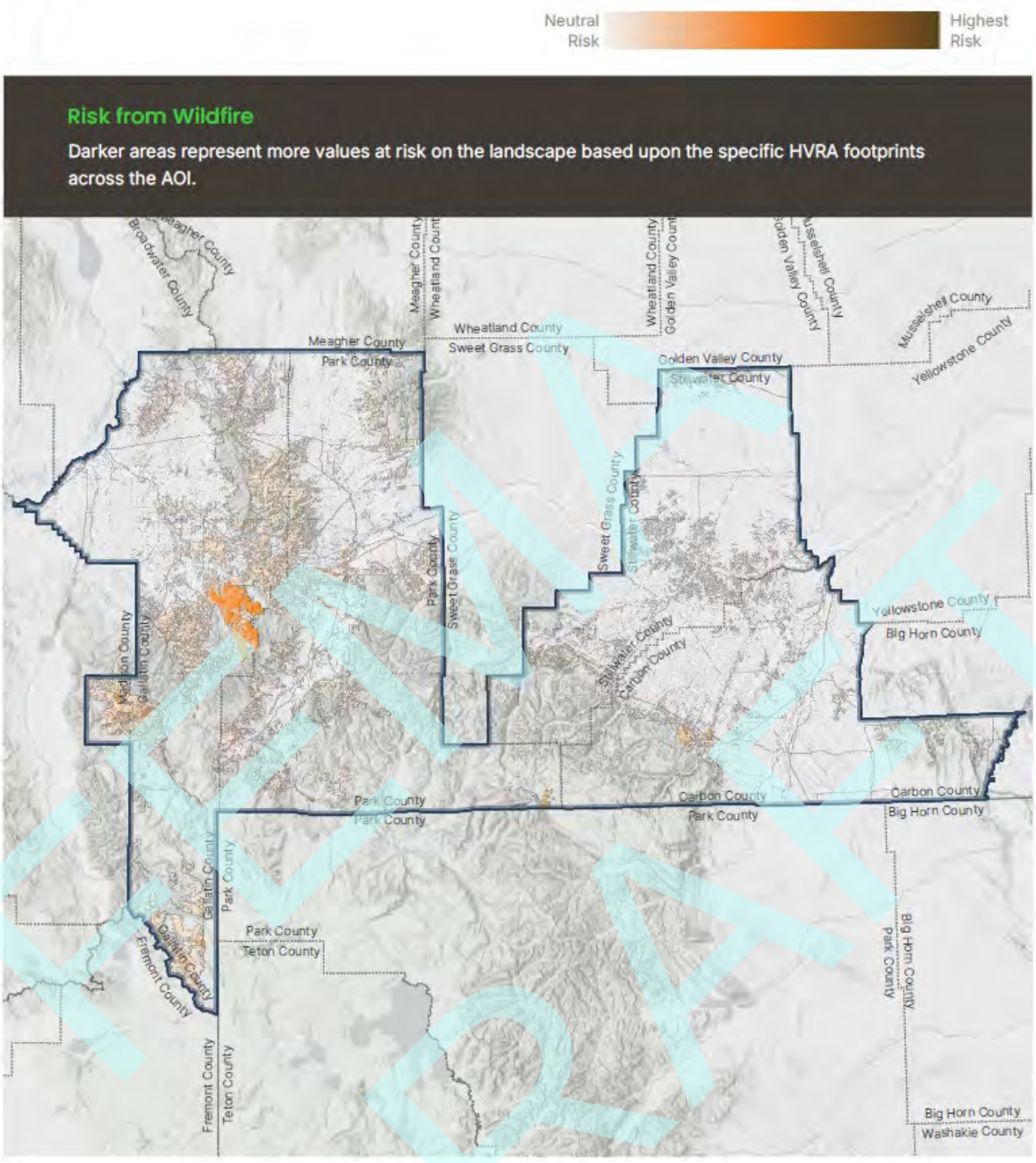
Total Expected Net Value Change (eNVC) for all Highly Valued Resources and Assets (HVRAs). Expected Net Value Change (eNVC) represents the total wildfire risk to an HVRA. It is calculated by combining wildfire hazard (likelihood and wildfire intensity) with how a specific esource responds to fire and its assigned importance.

The total eNVC is the sum of these values across all categories of HVRAs: People & Property, Infrastructure, Timber and Water across the Trans-County area of interest. The chart demonstrates the relationship between HVRA importance and final HVRA risk. For example, People and Property received the greatest share of total importance (57%), but only 27% of the risk was attributed to People and Property. This is because a large proportion f People and Property pixels coincide with relatively low wildfire hazard areas. Conversely, the Timber HV A received only 4% of the total importance has 49% of e o rall risk due to this HVRAs location in high wildfire hazard areas.



HVRA Importance and Risk, Vibrant Planet, 2026

FEMA DRAFT



eNVC, Vibrant Planet, 2026

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4.19.9 VEGETATION

4.19.9.1 FIRE ADAPTED LANDSCAPE

The forested areas in the Service Area exhibit a variety of fire regimes, depending on forest type and elevation. Cycles of frequent, low-intensity fire could be found at the lowest elevations, while mid to high elevations exhibited less frequent fire at moderate to high intensity. Over a century of successful fire suppression activities and excessive fuels build-up has altered the historical fire regime intensity and severity, primarily in the lower to mid elevation forest types. The most recent forest assessment for the CGNF indicates a trend of more extreme disturbance events (large-scale fires) with longer durations due to anticipated warmer and drier climatic chan es and increased horizontal and vertical fuel accumulations (USFS 2017).

4.19.9.2 FOREST VEGETATION

USFS Region 1 classification for existing etation inclu es ominance types, which represents broad species groups of dominant vegetation (Milb n et al. 20 Reid et al. 2016). Dominance ty es are classified by broad groups of existing v geta n called egion 1 cover types. Unlik potential vegetation, which is relatively static, cover ty e cha s thro gh time based on successi pathways and disturbances. Presence d istribution o cover ty es is important to understa ding system diversity and function across e CG F The egetation cover types that occur on the CGN and representation withi each analy landscap ar described in **Table 3-3** (f m CGNF Forest P n Revision, USFS 2 17).

Forested ar tend to be o steeper terrain ntermingled with grass an hrubs provi g an abundance of ladder fuel which l ds to horizontal and vertical fuel continuity. T se fac s, when combined with d and win onditions cha cteristic of the region, can result in hig tensity fires with large fl me length and fir rands tha may spot long distances Rates of fire spread nd to be lower than hose in the rasslands; ow er, intensities can escalate ram lly, especially der the effect of slope and nd. Such fires present significant control issues r suppres resources and can result in l e w dland fires.

Table Forested and non-forested vegetation cover ty

Cov Type	Descripti
Non-Forested	Includes non-f est dominate cover types: g ss, dry shrub, riparian grass/shrub. Th are furth d discussed in the non-forested assessment (Reid 16)
Ponderosa Pine	This cover type inclu sites dominated by ponderosa pine, juniper, or limber pin A min ompone of Douglas-fir can be present. Ponderosa pine is an ly seral, shad ntoleran fire resistant species that is found on a narrow elevation band be een non-forested ecotones and Douglas-fir. This type usually grows on th warm dry forested habitat type group, but also on hot dry d moderately war and dry.
Dry Douglas-fir	Dry tes dominate by Douglas-fir, with potential components of ponderosa pine, l ber, or j niper. Douglas-fir is one of the most common species on the montane d apes of the Service Area. It is moderately shade and drought-tolerant, wh ch enables it to function as both an early and late seral species. This type occurs commonly on warm dry, moderately warm dry, and moderately warm moderately dry habitat type group.
Mixed Mesic Conifer	Sites dominated by Douglas-fir which can be mixed with lodgepole pine, and/or subalpine fir/spruce. This type is found on more moist and productive sites than the dry Douglas-fir

	type. This cover type is found most commonly on cool moderately dry to moist habitat type groups but can also occur on cool moist types or moderately warm moderately dry.
Lodgepole Pine	Sites dominated by lodgepole pine with minor components of other species. Lodgepole pine is a very abundant species on the montane landscapes of the Service Area, growing under a wide range of conditions. Where dominant it is often single-storied. Without disturbance it succeeds to Douglas fir, spruce, and/or subalpine fir. This cover type can occur on multiple habitat type groups, most commonly cool moderately dry to moist.
Aspen/Hardwood	Areas dominated by aspen, cottonwood, and birch, often with shrubs such as willow and alder. This type oft n occurs in association with riparian and moist upland areas. Without disturb ce, ifers will eventually dominate. This cover type can be found in alm t all ha type groups.
Spruce/fir	Subalpine fir and/or Engelmann ruce do na ith minor components of other species. Thes are often clim x fo sts. Where these shade-tolerant climax species ha ome domin stands are usually multilayered and dense. This cover ty e c occur on y of the habitat types in the broa ool moist or cold potenti veg tion gro s
Whitebark pine	The whitebark pine co er typ ccurs the high elevations, com ly on the cold h type group where it perpetuated by disturbance) r tim rline habitat pe gr (where t is the most dominant). Alpine la h is a pot ial omponen ut is no now to occur in the Service Area Minor componen of subalpine spruce, D glas-fir, limber pine, or lo gepole pine may occur Whitebark is a s de intolerant, moderately fire-res ant species. Ongoing mort ty due to th xotic blister rust fungus ha educed its ex nt.

USFS 2017, Custer llatin Nati l Forest, Forest Plan Revision Assessment, Final Fire Repo repared b . Shea, February 2017.

Milburn et , 2015, U S R on 1, Existing an otential Vegetation Groupings used for Broad l nalysis and Monitoring, Nov. 2015.

Rei . al., 2016, Vegetation ping for CGNF Plan Revision and Meta f r Adjustments made t Map, 2016.

9.9.3 RANGELAND VEGETATION

NF F st Plan Revision, Non-forested Terrestrial Ecosystems Report, USF 2017).

A ety of grasslands are associated moist (mesic) and drie (xe) shrublands in varying patterns across landscape. Mesic shrublands are en a ciated wit oniferous forests and occur as large landscape tches on moister sites (e.g ortheast f ng slopes) r in smaller patches in grasslands. Because of the moisture regime, the shrublands n be very p ductive and therefore favored by wildlife. Grasslands occur mostly on as too dr t trees, although a few are found on soils at mid to high elevations that are too we rin the growing season for tree growth. In the forest zone between the upper and lower timberline, are dominated by shrubs, forbs and grasses typically include one or more of the foll wing ch cteristic convex or well-drained landforms, thin or poorly developed soils that u ally are quite and hig winds. Fires or landslides open-up the forests in some areas, allowi early successional rbaceous and shrubby stages to flourish for a time. Above treeline in the alpine e, the climate is t severe for trees. Grass cover type is estimated to be about 11 to 32 percent of the ntane units us g Region 1 existing vegetation database data. Shrublands have deeper, more develop soils and ore available moisture. In the montane units, shrublands are mostly dominated by mounta bi sagebrush (*Artemisia tridentata vaseyana*) with some lower elevations dominated by Wyoming big sagebrush (*Artemisia tridentata wyomingensis*). Bitterbrush (*Purshia tridentata*) is found on the Hebgen Lake unit on mid to lower slope positions of south and west-facing exposures. Shrubby cinquefoil is found in moist sagebrush communities and occasionally on the fringes of wet or moist meadows at higher elevations. Willow-dominated shrublands (*Salix* spp.) are common in riparian areas and wet meadows.

Mountain big sagebrush generally occupies open dry sites at elevations below montane forests where winters are cold and dry, spring and early summer months receive most precipitation, and drier conditions are expected from mid-summer through the fall (Welch 2005). Sagebrush steppe vegetation, dominated by mountain big sagebrush, is also characterized by the presence of native forbs and cool season perennial bunch grasses (for example, *Agropyron, Festuca, Koeleria, Poa, Stipa*). Without periodic fire, sagebrush reaches an uncharacteristic old-growth form with increased height, woody stems, and thick accumulations of leaves – all highly flammable with fire behavior that is very similar to crown fires in larger conifers. Introduction of annuals, especially cheat grass, has increased fuel loads so that fire carries easily, increasing the potential for significant and dangerous fire behavior.

4.19.9.4 NOXIOUS WEEDS

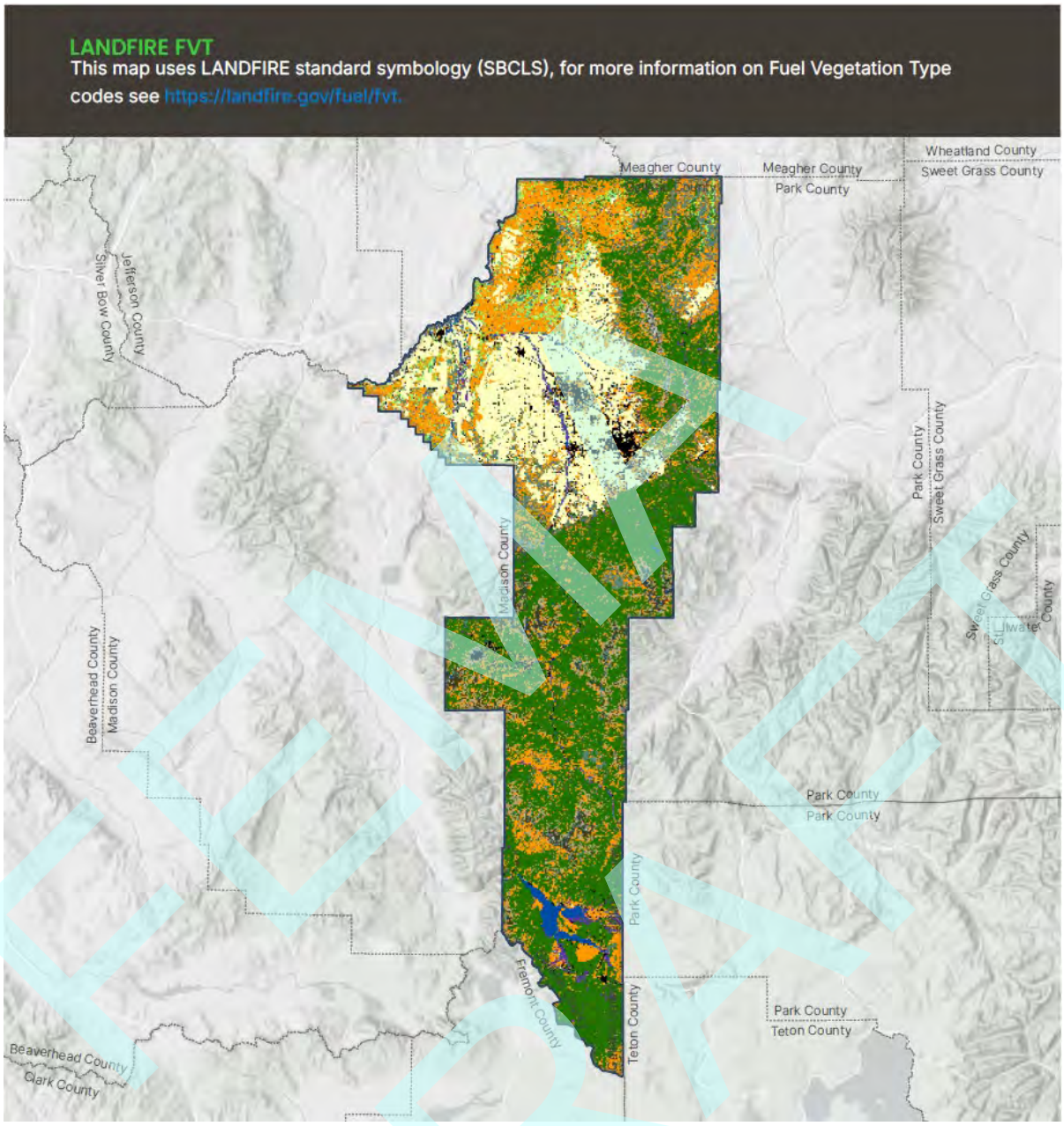
Noxious weeds and cheat grass are found across the ervice and present yearly challenges for residents, agricultural users, and fire suppression agen es. Che gr introduced invasive annuals and other noxious weeds typically occur w ere the groun ha een disturbed to create roads, paths, or other plantings. Once established, they r ur perennially d can reach heights of three feet or more creating an easily ignitable fuel bed once t ey out duri summer months. Fires that occ in this type of fuel spread quickly and can direct fir to ot r fuels s ch as trees or structures.

Cheatgrass provides a flam bl ink in the br h and f sts vegetation types. It cur early the fire season and ignites readily duri dry p iods be use of its very fine structure that responds rea ly to changes in the atmo heric mois e, tende t accumulate litter, and inva ve nature. Cheatg s promotes more f quent fires by in asing the biomass and horizontal c tinuity of fine fuels tha persist during e summer li htning sea n. Its expansion has dramatic y changed fire regimes and plant comm ities over v t areas of west rn rangelands by creating environm where fires are easily ignited, read idly, cover large areas, and occur frequently. F in th e habitats can have seve effects on e species of p nts and animals.

USFS 17, Custer Gallatin ional Forest rest Plan Revision Assessment Final Non-forested Terre l Ecosystems Report, pared by Kim Reid, Febr 2017

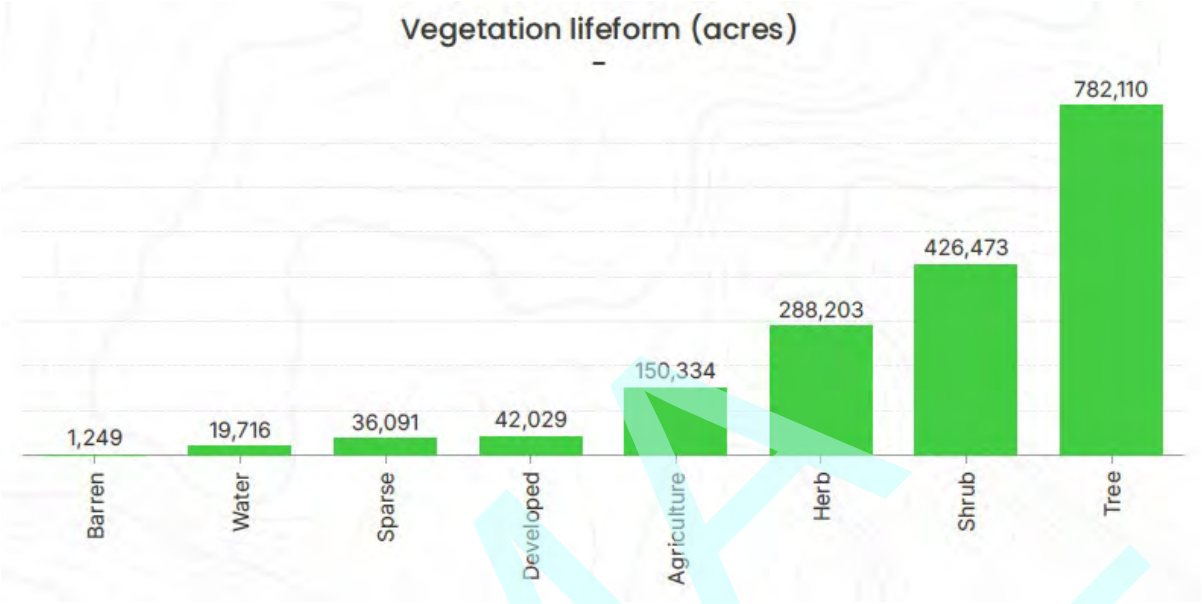
lch, 2005, Getti Acquainted g Sagebrush, In: Big Sagebrush: A se fragm into lakes, ponds, puddles. Gen. Tech. Report MRS-GTR-144. F Collins, CO: USDA-USFS Rocky Mou in Resear ion: 1-46.

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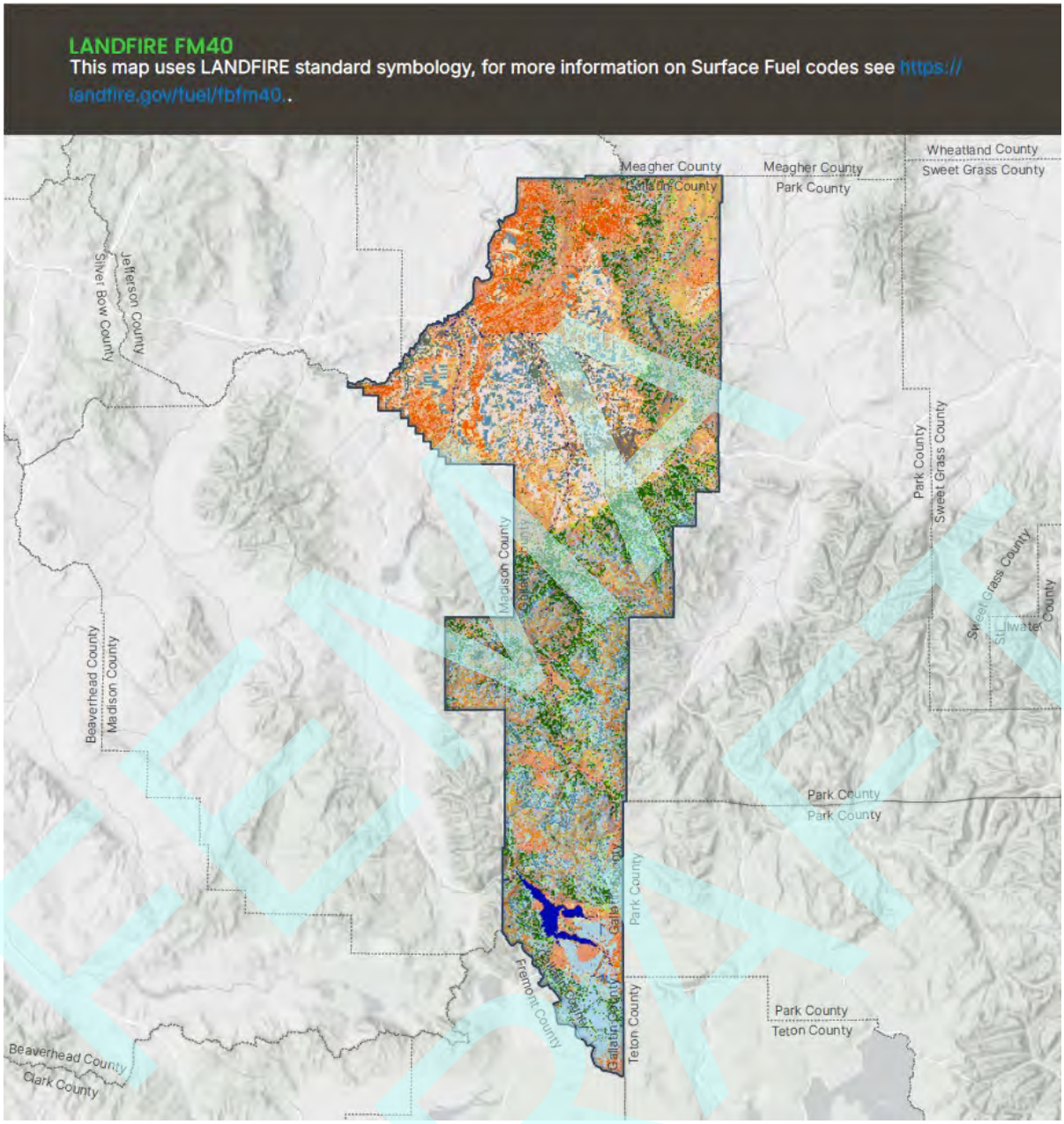
LANDFIRE Fuel Vegetation Types, Vibrant Plane 6

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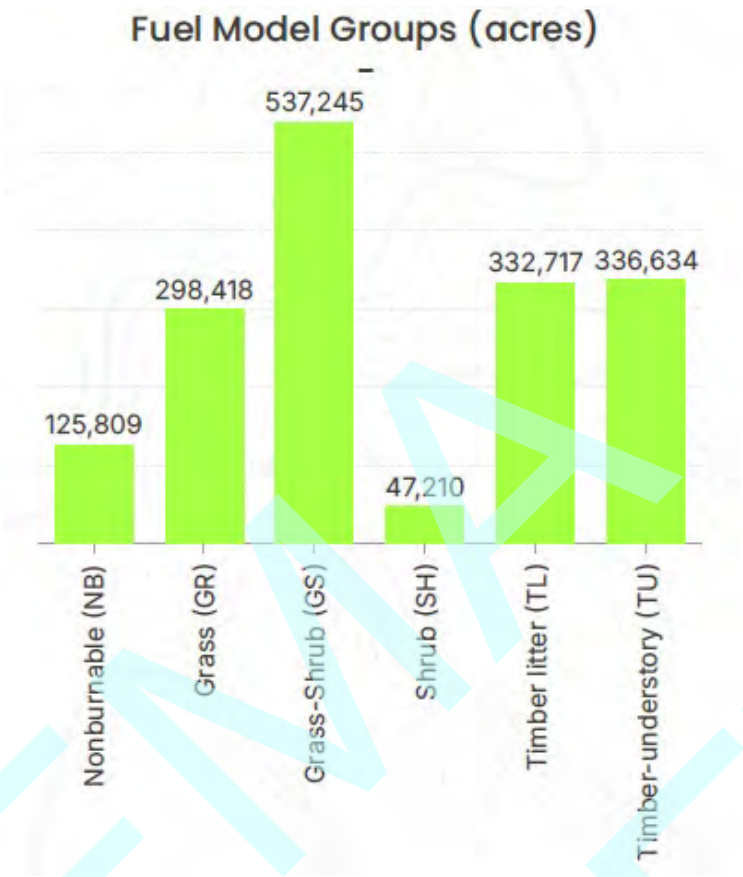
Vegetation Lifeforms, Vibrant Plan 6

FEMA DRAFT



LANDFIRE Surface Fuel Type, Vibrant Planet 20

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Fuel M l Groups, Planet 202

FEMA DRAFT

4.19.10 WILDLAND-URBAN INTERFACE

This 2026 Gallatin County CWPP defines the concept of Wildland-Urban Interface (WUI) as:

> ***"Any area where the combination of human development and vegetation have a potential to result in negative impacts from wildfire on the community."***

As a means of comparison, the 2017 Montana Code Annotated (MCA), Title 76. Land Resources and Use,
Chapter 13. Timber Resources, Part 1. Protection of Forest Resources, has the following definition:

> (16) "*The line, area, or zone where structures and other human development meet or intermingle with undeveloped ldland or vegetative fuels.*"

The formal definition of WUI is found in the Code f Fed al Regula ions (CFR) and describes conditions under which vegetation and tures meet intermix. This definition uses levels of structure density or population density t su ivide WU into Interface and Intermix ca gories. Interface refers to areas where structures d ectly order w dland fuels, but there is a ar line of demarcation between devel d and wildland areas ntermix refers to areas wher str tures are scattered throughout a wildl d are While th CFR gu delines for structure den y are help l the definitions are still va ue in term of geog hica y defining WUI with a set of mappable criteria

The 2020 Com unity Wildfire Protec n Plan Gallatin County defined t Wildland Urban Interface categorized to Interface d Intermix. is caused confusion with h the comm nity and partner agencies. Co usion c me with the reality that a hard edge had to be dr n betw en the two, but the diffe nce betwe operty owne was frequently not visible on-the-gro . Additionally, when tr ng to define pro ct bound es, the modeling often laced the boundary between the two in ocations that didn't mak se for implementing projects. More ortantly, resid s often struggled with the ference and unfortunately frequently defaulted to if they we st in a Interface area, they d 't ally have a risk. We also had a couple challenges with artne whose p nning documents did not d neate by Interface and Intermix with on rpretation r ng in an agency stating they didn't recogniz he defined Intermix area overla ing thei nd. For 2 26 the plan review participants have decided to o y delineate a Wildland U an Interface ea with no d ineation of Interface and Intermix. We will utilize other data products to ustrate diff n in structures related to their fuels and overall variability of risk across the WUI.

4.19.10.1 WILDFIRE RISK

Wildfire hazard is th combination of th robability of wildfire occurrence (its likelihood) and the intensity of a wildfire f one were to o ur. Vulnerability is the combination of exposure and susceptibility of assets and atural resou es. Exposure occurs where assets and natural resources are located in a hazardous enviro ent. S sceptibility refers to how easily an asset or natural resource is damaged by wildfire when face i a wildfire of a given intensity. These four factors make up what is called the "four-box model" of wildfire risk. The figure depicts the four factors of wildfire risk.

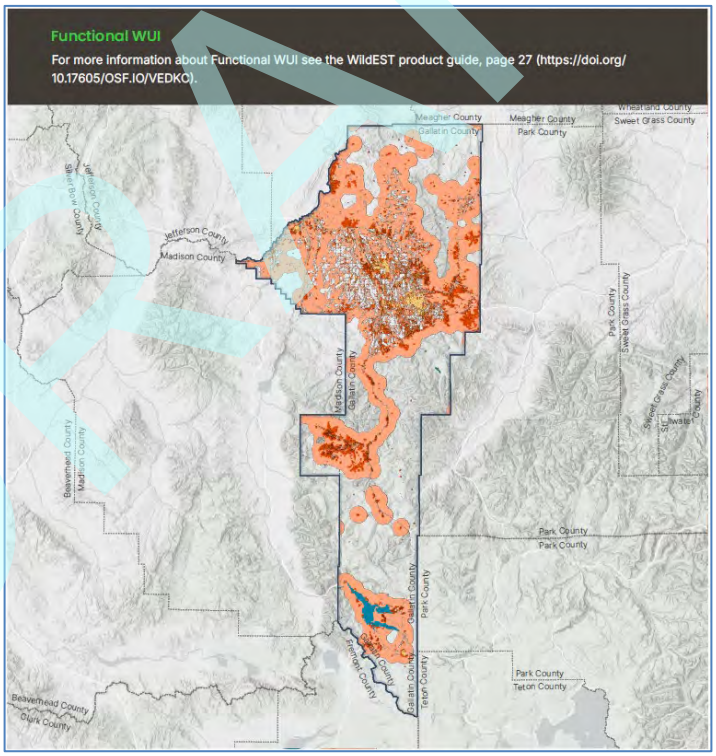
Another common way to think about wildfire risk is the combination of probability and consequence. That is a different way of grouping the four main boxes in the figure. With this alternative way of thinking about wildfire risk, probability is separated, and the remaining three boxes (intensity,

exposure, and susceptibility) are combined to estimate the consequence of a wildfire if one were to occur. This way of thinking about wildfire risk is important for distinguishing

It is important to highlight that the term "risk" is typically conceptualized in terms of a negative impact such as loss of value or degradation of condition. Within this framework, a net value change terminology and framework is used instead, in order to be agnostic to loss of value or gain of value. The term "net value change" is used more broadly to describe the effects of wildfire, which may be positive ("benefit") or negative ("risk") depending on the asset or resource, intensity of wildfire, and how it responds to the wildfire intensity. The terms value change, response, and net response are functional synonyms for net value change; all refer to the net effects of change, positive or negative, on the value of a resource or asset.



4.19 2WU METHODOLOGY



G latin County's 2 6 Wildla d Urban nterface ar a was de op with the support o Vibrant Planet Pyrologix in velo ent of a Quantitative Wildfire Ris Assessment (QWRA) collab tively across a four county area adjacent the Custer Gallatin National Forest follo ing the General Techni l Report (GTR) 315 (Scott et al., 3) methology. Participating count included Gallatin, Park, Stillwater and Cabon Counties. The QWR duced what Vibrant Planet fers to a Functional Wildland Urban Interfa This model illustr s other factors tha inform relative ris on top of just identifying a WUI area.

Planning partners felt utilizing he Di ct Exposure and Structure Tran sion Zone from the Functional WUI product provided a good base when combined with municipal watersheds and major evacuation routes. With the more granular data sets and the approach to areas where a fire would present an immediate threat to a structure, the partners felt while fairly similar to the 2026, it was more accurate and addressed some areas of improvement.

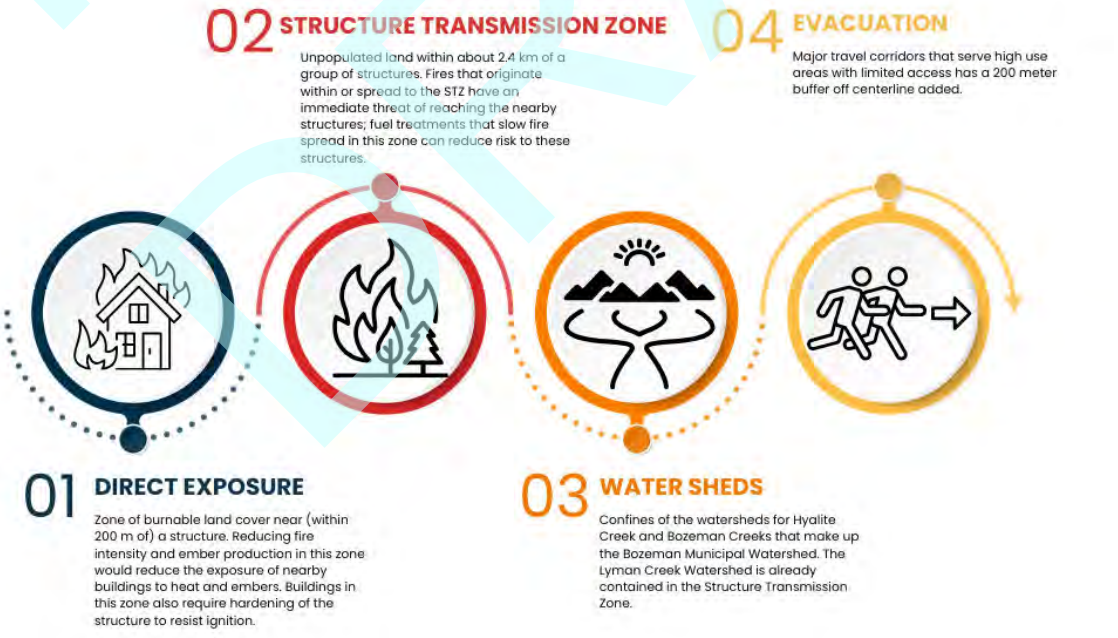
Some specific areas of improvement include how the Gallatin valley floor is depicted. The 2020 mapping showed much of the valley floor being in WUI Interface. In reality we know there are many pockets of risk that meet the definition across the valley floor, but it is not a solid contiguous area. The 2020 mapping was based on set distances which often placed the edge of the WUI mid slope. We know that in reality a fire anyplace on the same slope is likely to have a similar outcome and that the more effective fuel treatments are on the top of slopes. With the 2026 Structure Transmission zone looking within 2.4 km of structure groups for fires that would pose imminent risk to the structures, most of these initial slopes are now included in the defined WUI.

The Wildland Urban Interface for the Service Area is defined as the Direct Exposure areas where development is directly exposed combined with the tr re Transmission Zone where a fire would pose a direct threat, then the two municipal watersh ds adde d finally any areas of major travel corridors serving as evacuation routes not already fallin in the cr r ve had a buffer added along them.

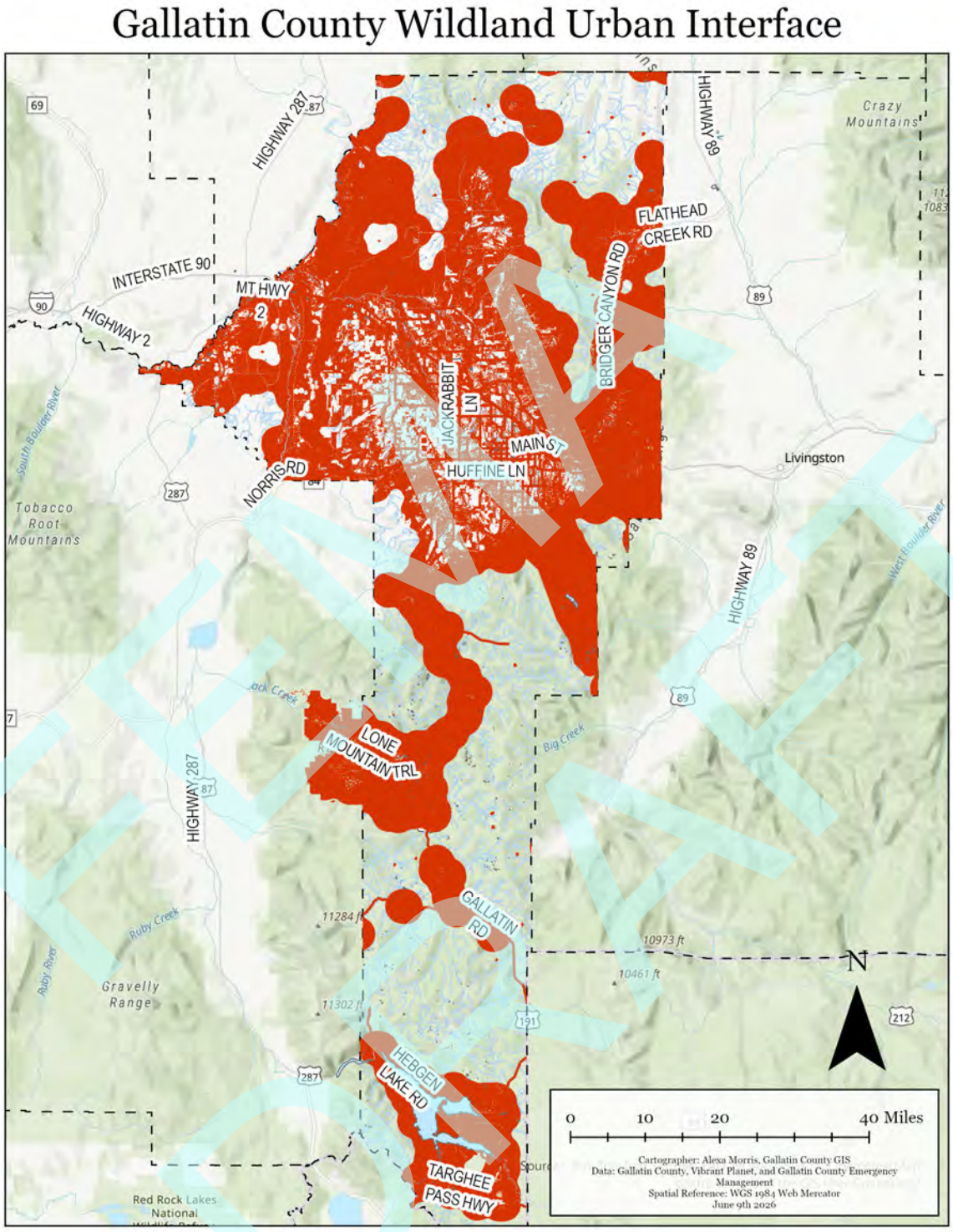
The spatial criteria for mapping WUI in th s G latin Coun CWPP are:

- **Direct Exposure** - Z ne of burnable and c r nea (within 75 m of) a struc Reducing fire intensity and em r p duction in t s zone uld reduce the exposure o nearby ildings to heat and embers. B dings i his z ne also require hardening of the structure to ist ignition.
- **Structu e Transmission Zo** – Unpopulated land within ab ut 2.4 km of a group of stru ures. Fires th originate with or spread to the STZ hav n immediate eat of reaching the n by stru ures; fuel treatments that slow fire spread in this ne ca educe risk to these structure
- **Municipal ter Shed** – Confines of the watersh ds for Hyalite Cree nd Bozeman Creeks that make up th B eman Municipal Watershed The man Creek W rshed is already c tained in the Structure Transmission Zone.

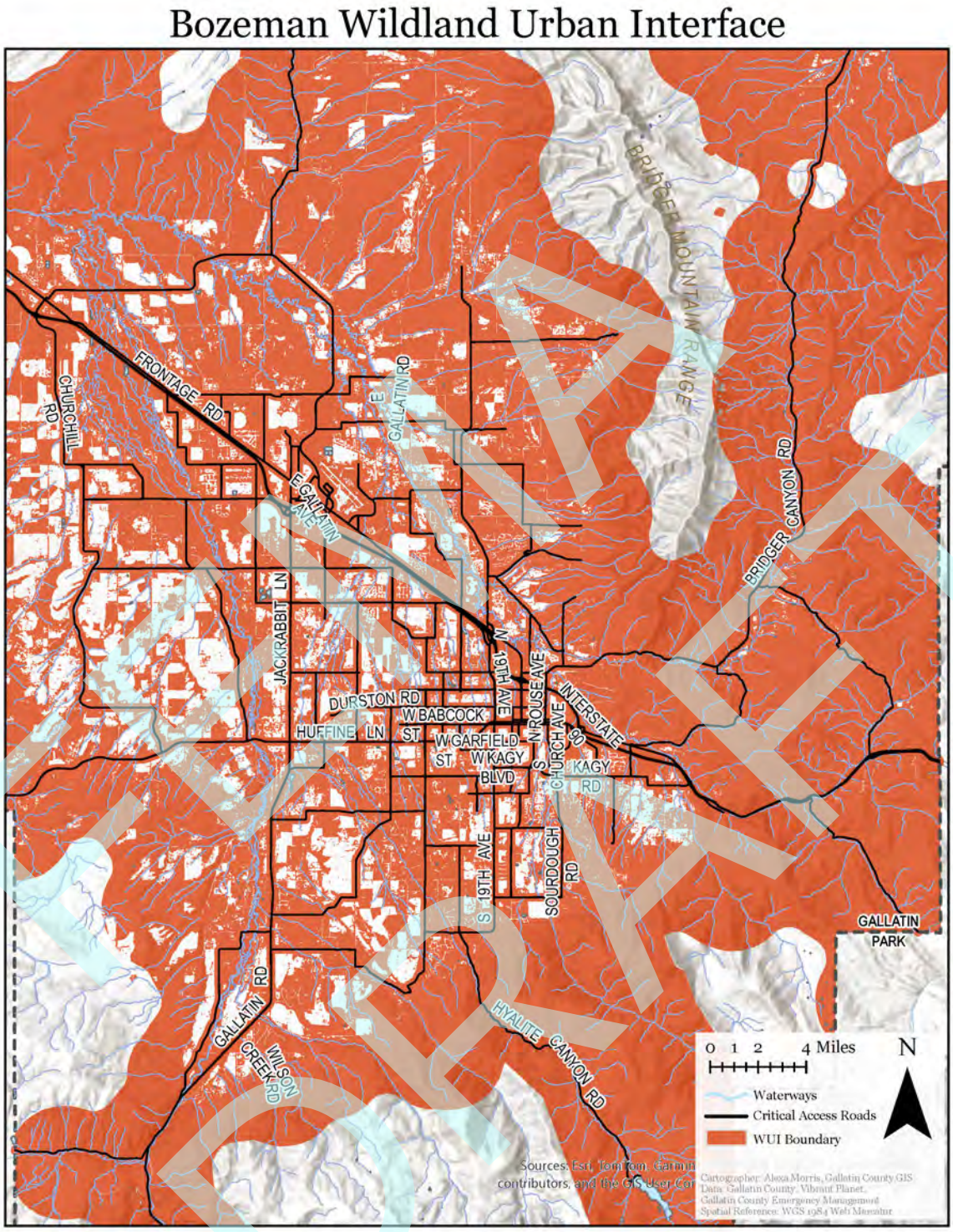
  Evacuation Routes – Major travel corridors that ser high e areas w th limited access has a 200 meter buffer off centerline add



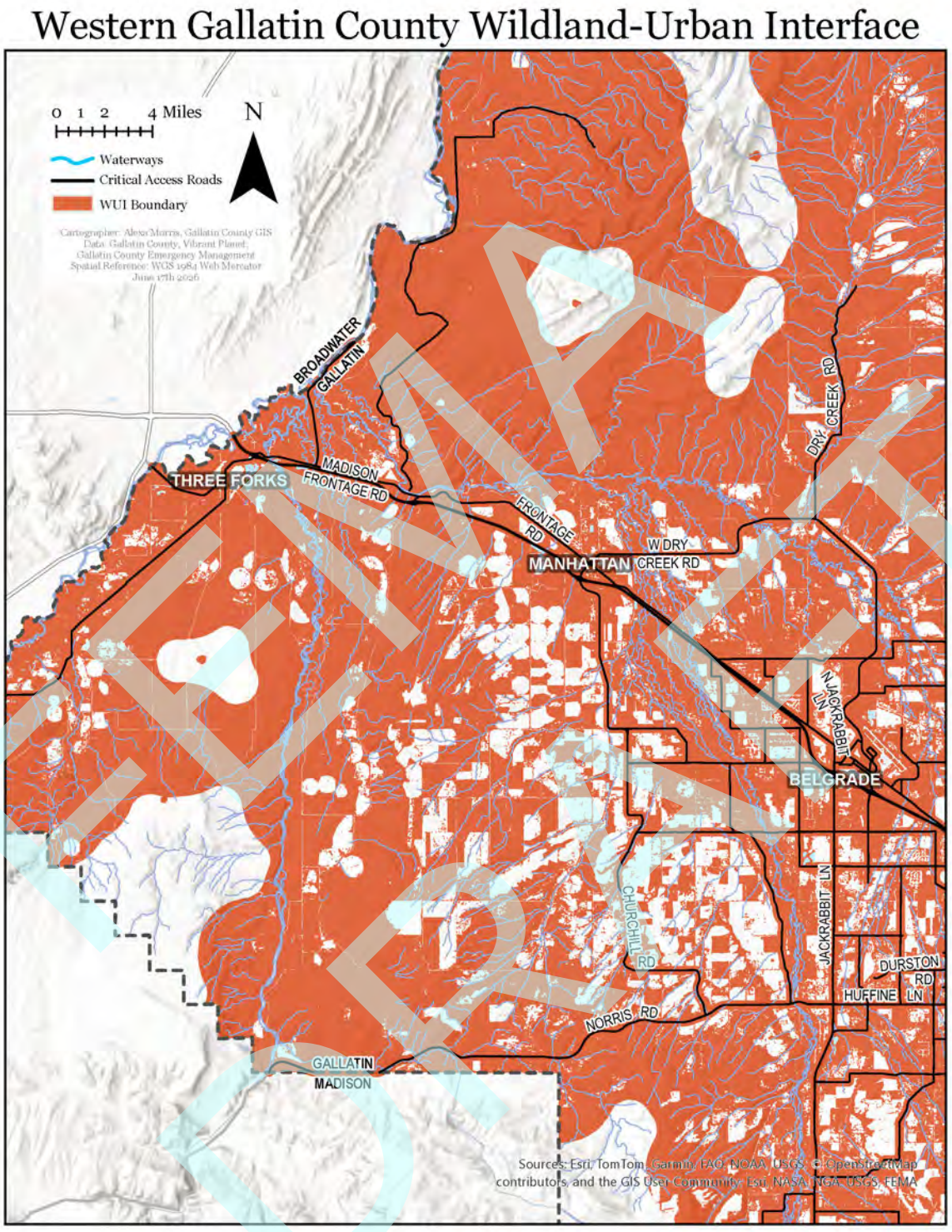
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Gallatin County Defined Wildland U Interfa 026, https://ReadyGallatin.com/WUIMapper

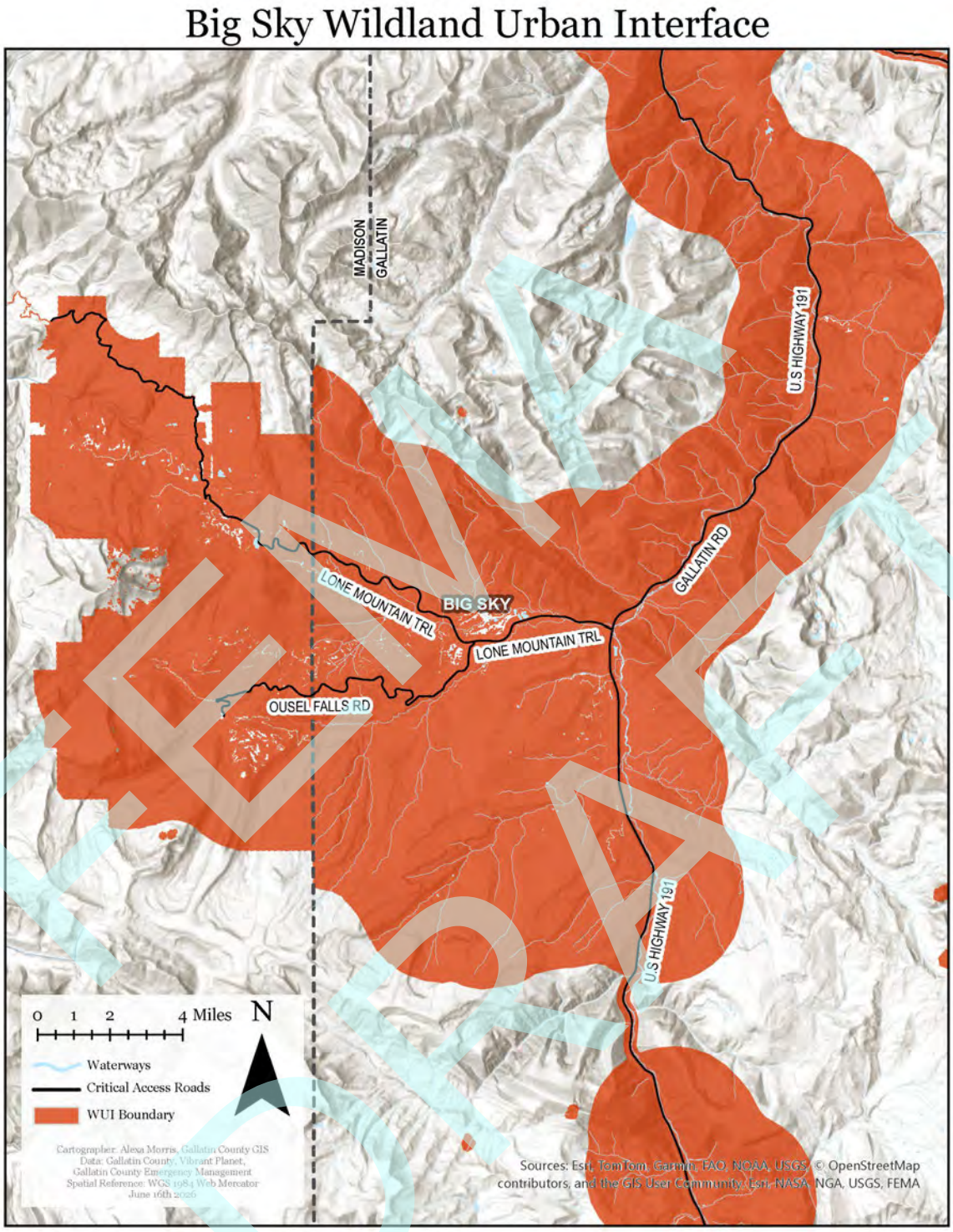


Gallatin County Defined Wildland U Interfa 026, https://ReadyGallatin.com/WUIMapper



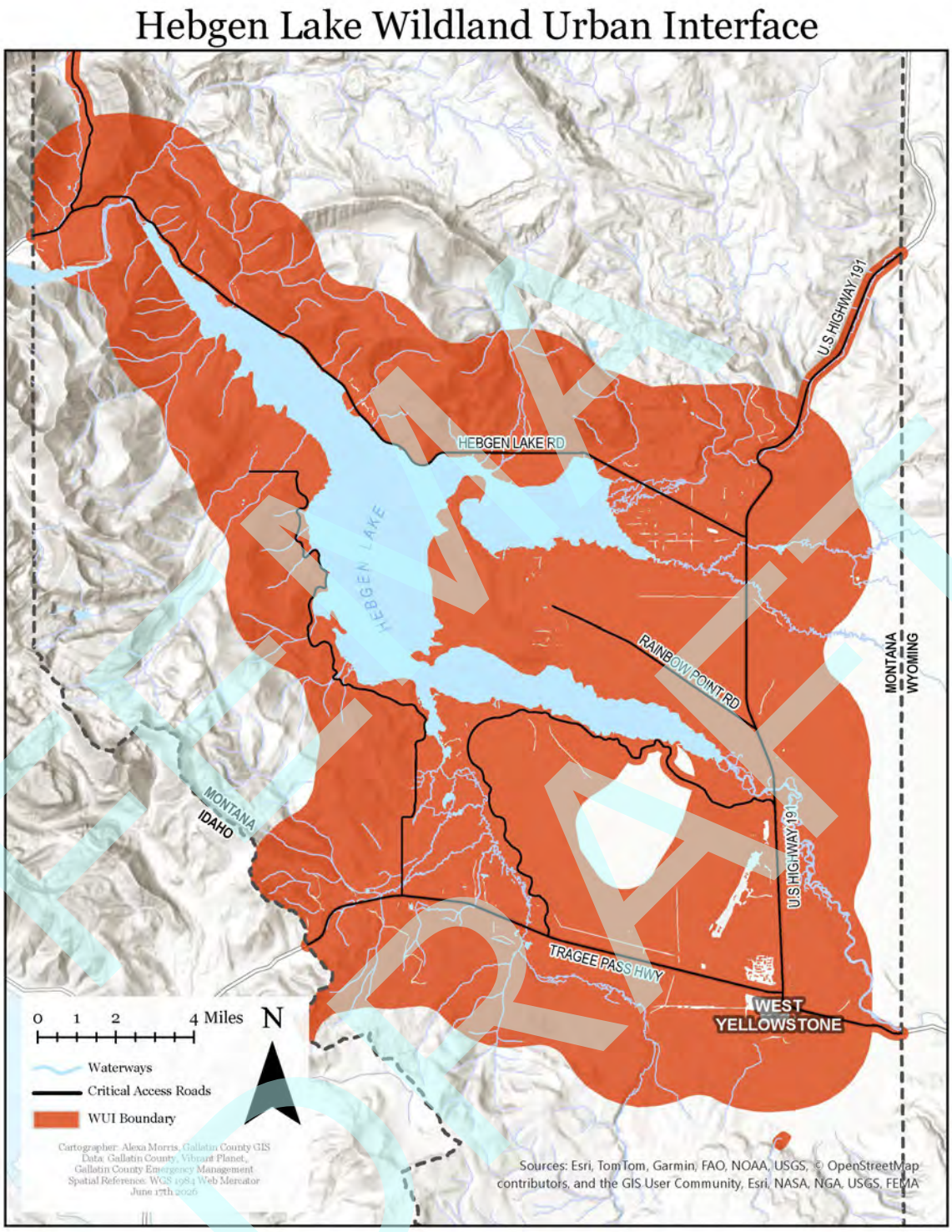
Gallatin County Defined Wildland Urban ace, 2026, https://ReadyGallatin.com/WUIMapper

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Gallatin County Defined Wildland U Interfa 026, https://ReadyGallatin.com/WUIMapper

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Gallatin County Defined Wildland U Interfa 026, https://ReadyGallatin.com/WUIMapper

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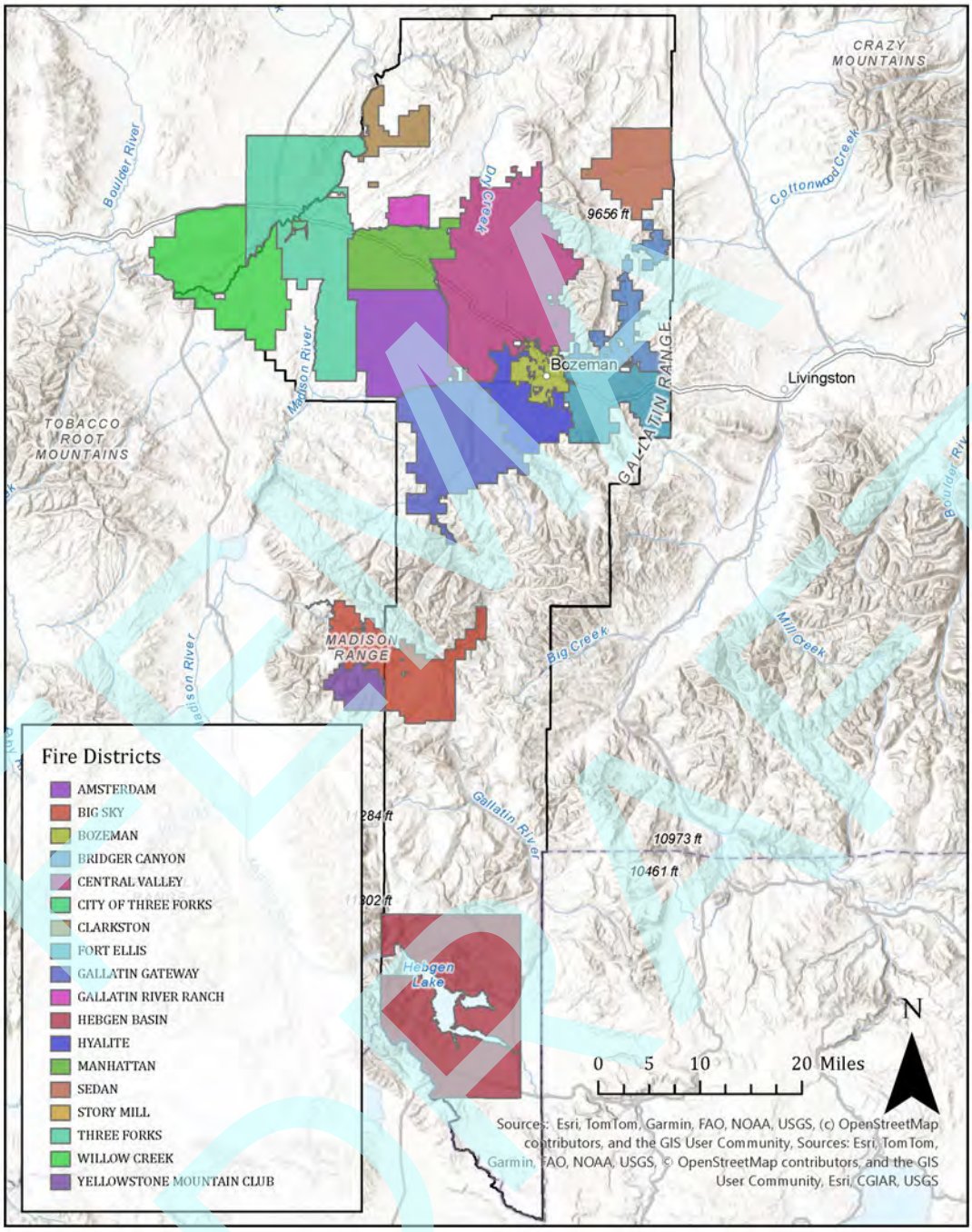
4.19.10.3 WILDLAND URBAN INTERFACE PLANNING AREAS

The Gallatin County Hazard Mitigation and Community Wildfire Protection Plan is multi-jurisdictional and addresses all lands and ownership within the boundaries of the Service Area. Primary fire protection and suppression on the majority of private lands across the county are provided by local fire districts/service areas or Gallatin County Rural Fire ("County Fire"), which provides fire protection and suppression on most private lands outside of organized fire protection agencies, under a Cooperative Fire Control Agreement with the State of Montana (["DNRC Co-op Plan"], Gallatin County, 2024) All federal lands (USFS-CGNF and Yellowstone National Park) are under wildfire protection from their respective agencies. In addition US S provides wildland fire protection on BLM lands (Montana Cooperative Fire Management and S fford A esponse Agreement, 2023); USFS also provides primary response/protection on some p vately-owned t parcels that are within a designated wildland fire protection distr s (pursuant Ti 76, Chapter 13, Part 2, MCA), and "Affidavit Land", where wildland fire pr e n is reques d by the landowner via assessment As the designated protecting agency, the USFS h pr ary wildl d suppression responsibility on fidavit lands; however, structure fire suppression emai the so responsibility of local fir protection agencies.

Gallatin County, 2026, Fire Protection Op ing Pl

FEMA DRAFT

Gallatin County Fire District Map



Gallatin County Defined Wildland U Interfa 2026, https://ReadyGallatin.com/WUIMapper

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Designated WUI Area by Fire District/Service Area and Gallatin County Rural Fire (County Fire)

Fire District or Service Area	2020 WUI Area (Acres / % of total)	Description	2026 WUI Acres (Acres / % of total)	Total WUI Acres	Total Acres
Amsterdam	44,604 / 79%	primarily cropland, bench/draw terrain (Camp Ck. Hills, Madison Plateau)	34,131 / 60%	34131	56825
Big Sky	32,751 / 88%	mid-ele meadows, ste forest untain terrai Gallatin R. yon	49,564 / 96%	49564	51437
Bozeman	12,1 95%	urban Gallat Valley, B dger/Bang il foothill , Bozem Ck./E Gallatin R.	10,976 / 78%	1 76	1 4
Bridger Can n	25 5 / %	E. flan f Bridger range, Bridger canyon (broad valley), W flank of Bangtails	25, / 98%	2 53	26030
Central V ey	11 9 / 99%	rural/urban Gallatin Valley cropland, W. flank Bridger range, Dry Creek hills	9 / 79%	97437	123761
Clarkst	15,333 / 100%	Missouri R er v y, Horsesh e Hills	14,979 / 7%	14979	15353
Fort Ellis	37,244 / 96%	so east Gallati all Mt Ellis, ar Ca on, Bozem Pass, Tr eek	36,372 / 93%	36372	38901
Gallatin Gateway	58,300 / 86%	Galla R./Canyo (Lava Lake to mou S. Cottonwood canyon, gh Flat	48275 / 71%	48275	67921
Gallatin River Ranch	7,475 / 100%	G atin River, Horseshoe Hills	7428 / 99%	7428	7496
Hebgen Basin	64,572 / 51%	southern Madison range, Hebgen Lake, Quake Lake	69,645 / 54%	69645	127062

FEMA DRAFT

Hyalite	29,366 / 100%	Middle Ck., mouths of Hyalite, Leverich & Sourdough canyons, Triple Tree bench	21,113 / 74%	21113	28648
Manhattan	33,032 / 88%	primarily cropland, Gallatin/E. Gallatin Rivers, Camp Creek	28,353 / 75%	28352	37607
Sedan	29,701 / 92%	northeast flank of B idger range, north Bangt Mountains	29,206 / 90%	29206	32299
Story Mill	NA		147 /	145	182
Three Forks	85,097 / 79%	croplan Gallatin/Madi /Jefferson ., Madison R vall luffs, Camp Ck. H lls	84,249 / 78%	84249	687
Willow Creek	50,847 / 67%	Jefferso iver alley, dison plate	52,396 / 69%	52396	75797
Yellowstone b Mountain F District	NA		118 89%	11 3	13274
ounty ire	141,033 / 53%	mainly northern extent of County (Clarkston, Horse oe Hills, N. Dry Creek, Maudl w, N. Bridgers, Norris Rd., Madison R. valley, and isolat land parcels E of Bozema	205,0 46%	205,505	440,004

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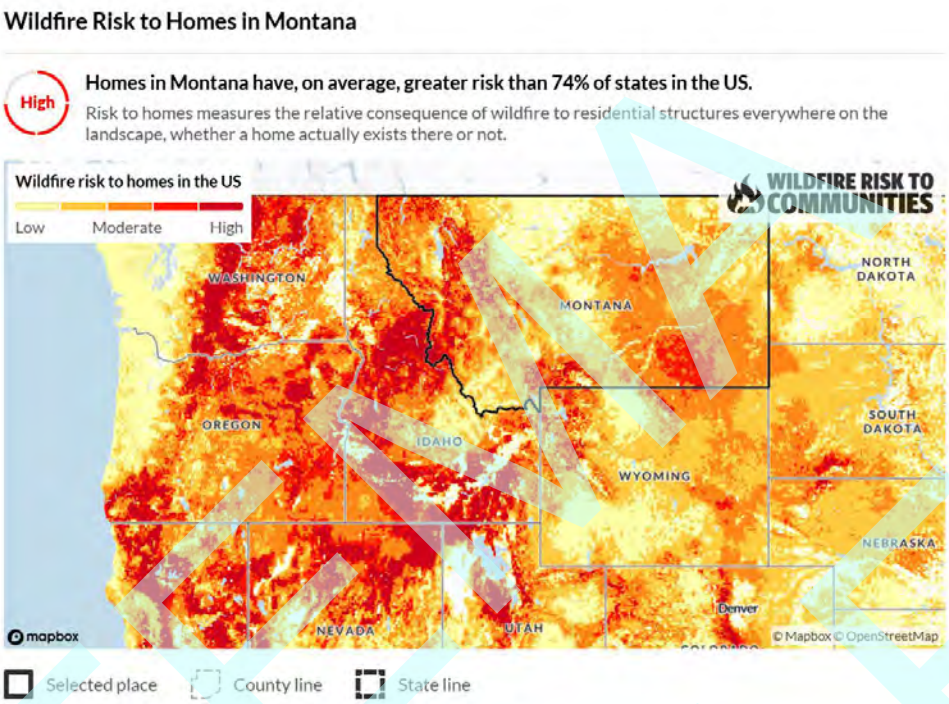
Designated WUI Area on Federal, State, and Municipal Property

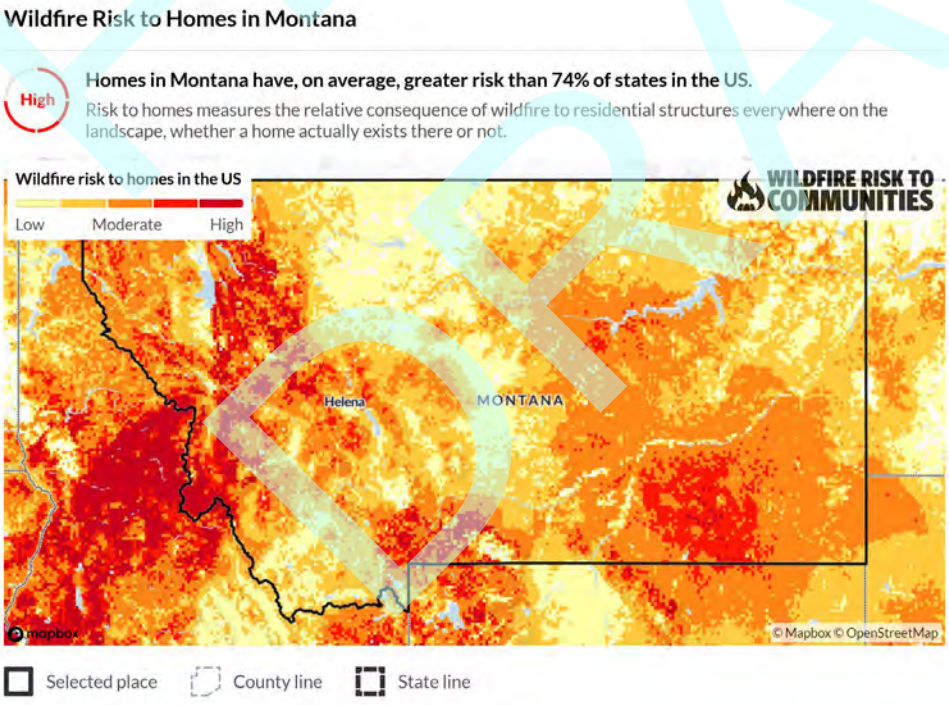
Agency or Department	2020 WUI Area (Acres)	Description	2026 WUI Acres (Acres / % of total)	Total Acres
U.S. Forest Service, CGNF	255,124	Bridger and Bangtail ranges, Gallatin, Hyalite & Madison ranges	233,417 / 24%	979288
U.S. Bureau of Land Management	3,549	Dry Creek Hill Horseshoe Hills, Madison Plat u, r	2,059 / 19%	10903
U.S. Fish and Wildlife Service	174	Bozeman Fish chnology r other	174 / 100%	174
National Park Service	13,227	Y wstone Natio l P k	14,002 / 9%	158875
FEDERAL LAND TOTAL	**272,075**		**249,652**	**49240**

State of Montana	149	variou property ithin county	614 / 70%	871
Montana State Trust Lands	041	tribute throughout county	40 139 / 76%	5 85
Montana Fish, Wi ife & Parks	4,385	Region 3 h adquarters, various fishing cess sites	4,734 / 41%	11518
Montana U ersity System	2,062	MS -Bozeman, Post agronomy m, Ft. Ellis research farm	1,880 9%	2380
Mo na Dept. of T nsportation	6	Nelson Rd. maintenance facility, various sand storage reas	6 / 99%	267
MT-DNRC State Water Projects	73	Hyalite Reservoir	71 / 10	71
G n County	1,144	various county infrastru ure, road/bridge dept., Logan nd l	2846 / 72%	3909
Municip (incorporated cities/tow	4,197	Be ade, Bo man, Manh an, Three rks, W. Ye wstone	3733 / 75%	4957
STATE/MUNICIPAL TOTAL	**44,207**		**54,283**	**76,658**

4.19.10.4 Wildland Urban Interface Risk in the West

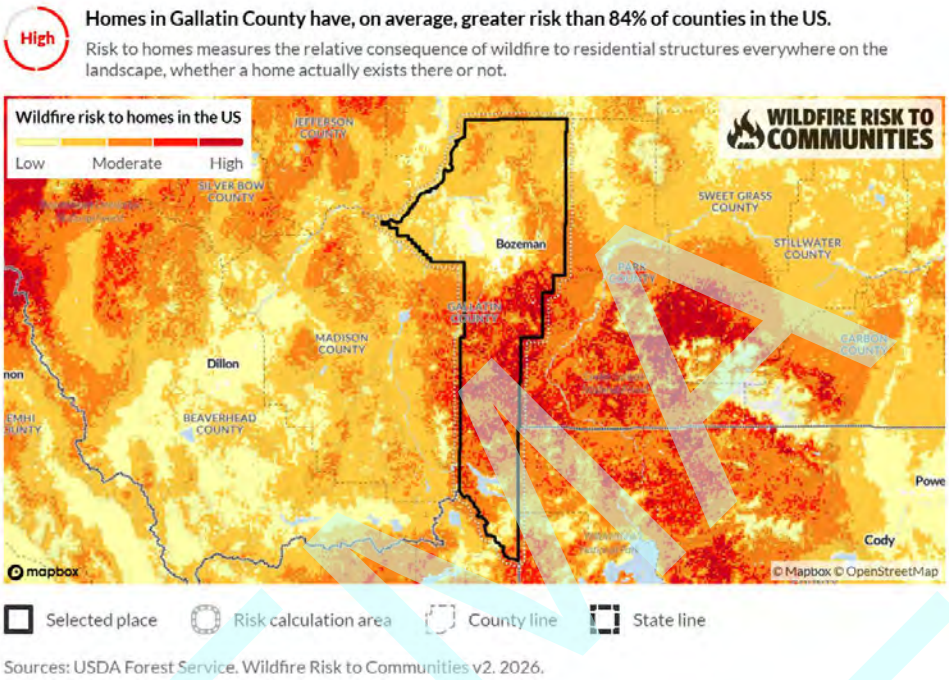
According to wildfirerisk.org, Montana overall is in the 74th percentile with Gallatin County ranks in the 84 percentile and Madison County in the 77th percentile for wildfire risk with several communities ranking higher. For example, the Big Sky community is in the 96th percentile.





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Wildfire Risk to Homes in Gallatin County, MT



Sources: USDA Forest Service. Wildfire Risk to Communities v2. 2026.

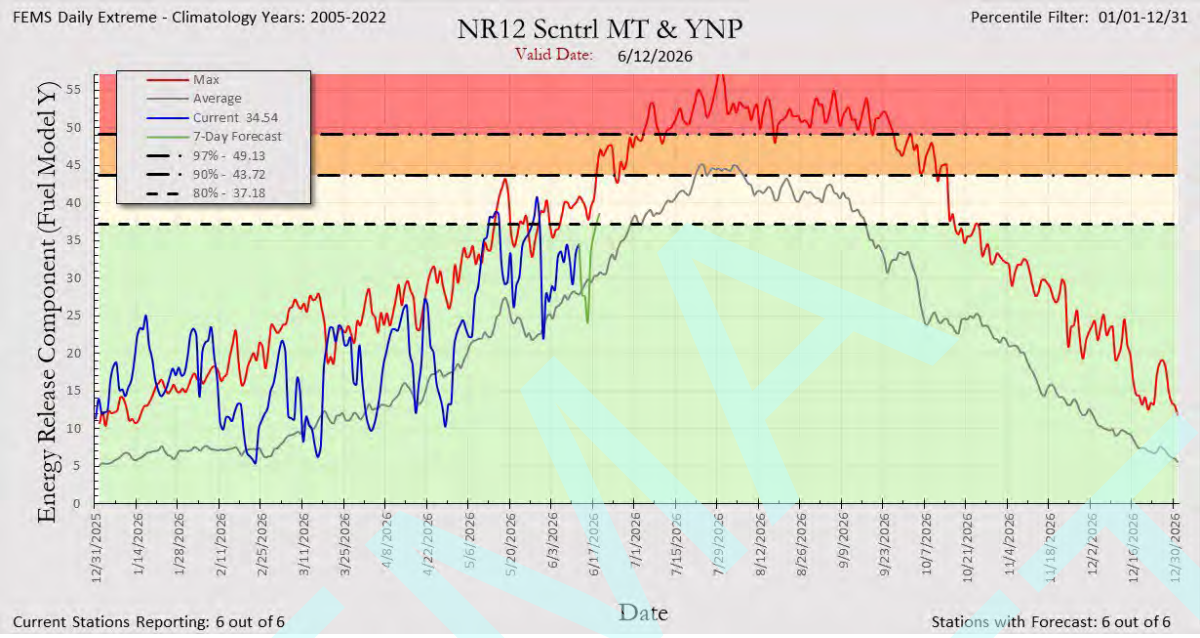
4.19.1 FIRE WEATHER

Fire eather is a mbination of nditions that set the stage for the rapid read of wildfires. The c ical weather metr that d rmine fire weather seve include temperatu relative humidity, winds, and mospheric bility. Fire behavior specia sts u specific ind s that combine multiple ather parameters to predict the potential for fire nition, spr te and heat release. The E g Release Component (ERC) is a number related to th avail le energy (BTU) per unit area (squ foot) within the flaming front at the he f a fire. Dail iations in ERC are due to changes in moist content of the various fuels pr nt, both ve and de The ERC for fuel model G (short-needle, hea dead) is often used in pr ictions of f danger an arge fire activity. The ERC-G has been shown to be strongly correlate ith area burn d in the wester United States (Riley et al. 2013). Predictive Service Areas (PSAs) wh integ e weath a from several Remote Automated Weather Stations (RAWS) are delineated t dict fuels and fire danger for given regions. The CGNF-Bozeman/Hebgen Lake Ra tricts are thin PSA-NR12, covering forested areas south of the Gallatin Valley to the s thern extent the coun

Energy Release C ponent values for S h Central Montana over 17 years (2005 – 2022) showing greater than 97th perc ile indicate potent for large fire growth. The average (blue line) plot shows a typical pattern of low E C values in th pring, rising steadily through initial snow melt and green-up in April and May, then f ing in la May into June due to higher precipitation amounts that are common during that period. D s mmer conditions begin to prevail in late-June and ERC values increase rapidly. Periodic fall moisture, coupled with steadily decreasing solar insolation, results in rapidly decreasing ERC values in late-September through early November, and diminished potential for wildfire.

EPS Data Sources: Gude, P.H., Rasker, R. and van den Noort, J. 2008. Potential for Future Development on Fire-prone Lands. Journal of Forestry 106(4):198-205; U.S. Department of Commerce, 2011. TIGER/Line 2010 Census Blocks and 2010 Summary File 1, Washington, D.C.

Riley, K., et al., 2013, The relationship of large fire occurrence with drought and fire danger indices in the western USA, 1984-2008: the role of temporal scale.



Graphs of Energy Relea omponent (ERC) for North Rockies Zone 12 [USFS, National Wildf Coordinating Group, Fire Danger Workin eam]

FEMA DRAFT

4.19.12 WILDFIRE HISTORY

the Service Area has a long history of wildfires from small to large. The extent of damage often depends on the proximity to the WUI, fire spread rates, and the effectiveness of suppression and mitigation measures. The history of wildfires can be difficult to compile because of the various firefighting entities involved and a variety of recordkeeping measures over the years. The following list chronicles several of the critical / severe wildfire events that have occurred in the county over the last 30 years.

June – November 1988 - Greater Yellowstone Fires. Numerous fires throughout Yellowstone National Park raged through the entire summer an w l into the fall of 1988. Some of these fires extended into portions of Gallatin County. The fires c vered 2. illion acres, employed an estimated 25,000 firefighters, and cost nearly $120 million for f e suppr ion firefighter, and one pilot, were killed and structure losses were estim ed at $3 mill n, m stly within Yellowstone National Park.

August 2001 – Fridley Fire. Lightning ign ted e Fridley re on August 19 near Fridley Cr k in the Custer-Gallatin National Forest. The fire uble in size n August 22 and displaye extreme" behavior on August 23, whe igh winds cau d it to uble in size again. Montana E ec ve Order 20-01, issued on August 25, 2 1, d l red a sta e of emergency in Gallatin County nd other l tions across the state and m bilized st resour and he National Guard to fight th wildfires. On Au st 31, three member f a firefighting licopter cre were killed on a mainten nce flight when a buck line tangled wi a rotor, causing the he opter to crash three miles south f Emigrant in Park County. The Fridley re was cont ned on Septem er 13, 2001. In all, 26,373 cres burned om this fire and firefighting co total over $11 million with 1,261 personnel, 50 piece f hea equipment, and 14 heli pters used. tunately, no s uctures were lost. This was a significan e for Gallatin County b ause the City of B zeman w ershed, which is the prim y the drinking wa supply for the city, was threaten d.

S tem er 2001 - Purdy Fire. Following the Fridley Fire by ust a fe week e Purdy Fire ignited on S tember 26th in the upper Wilson Creek d inage southe Gallatin Gateway. By September 28, the had burned over 4,000 acres an caused evacuati of over 50 homes.

September 2009 - Flaming Arrow F re. Winds r ignited the r nants of a controlled burn into a fast-moving grass fire in the Flaming row sub uth of Bridger Bowl. The fire burned mostly on private land and threatened abo 25 omes. The fire was 100 percent contained after burning approximately 250 acres ove f ur-day per d

June 2012 - Bear Tra Fire. A human used fire at was later determined to be arson, burned 15,500 acres in the Bear T Canyon area along e Madison River west of Bozeman. The estimated value of property lost in the including one h me, crops, pastures, fences, a vehicle, eight horses and electrical transmission lin totaled more an $3.8 million. Approximately $1.25 million was spent in suppression costs and involv over 20 firefighters.

August – September 2012 – Mi Fire. Burned 10,515 acres in the Storm Castle Creek drainage, approximately 20 miles southwest of Bozeman. The fire was not fully contained for nearly one month and initially threatened to cross over into the Hyalite Creek drainage where it could potentially have affected a drinking water source for the City of Bozeman as well as other impacts to the heavily used

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Hyalite Reservoir recreation area. The fire caused closures of Hyalite Canyon, Leverich Canyon, and Sourdough Canyon (Bozeman Creek) for much of its duration.

October 2015 - Cottonwood Gulch Fire. This fire was accidentally started by a landowner's vehicle in the Cottonwood Gulch area north of Manhattan. The fire burned approximately 8,300 acres and one outbuilding before being fully contained.

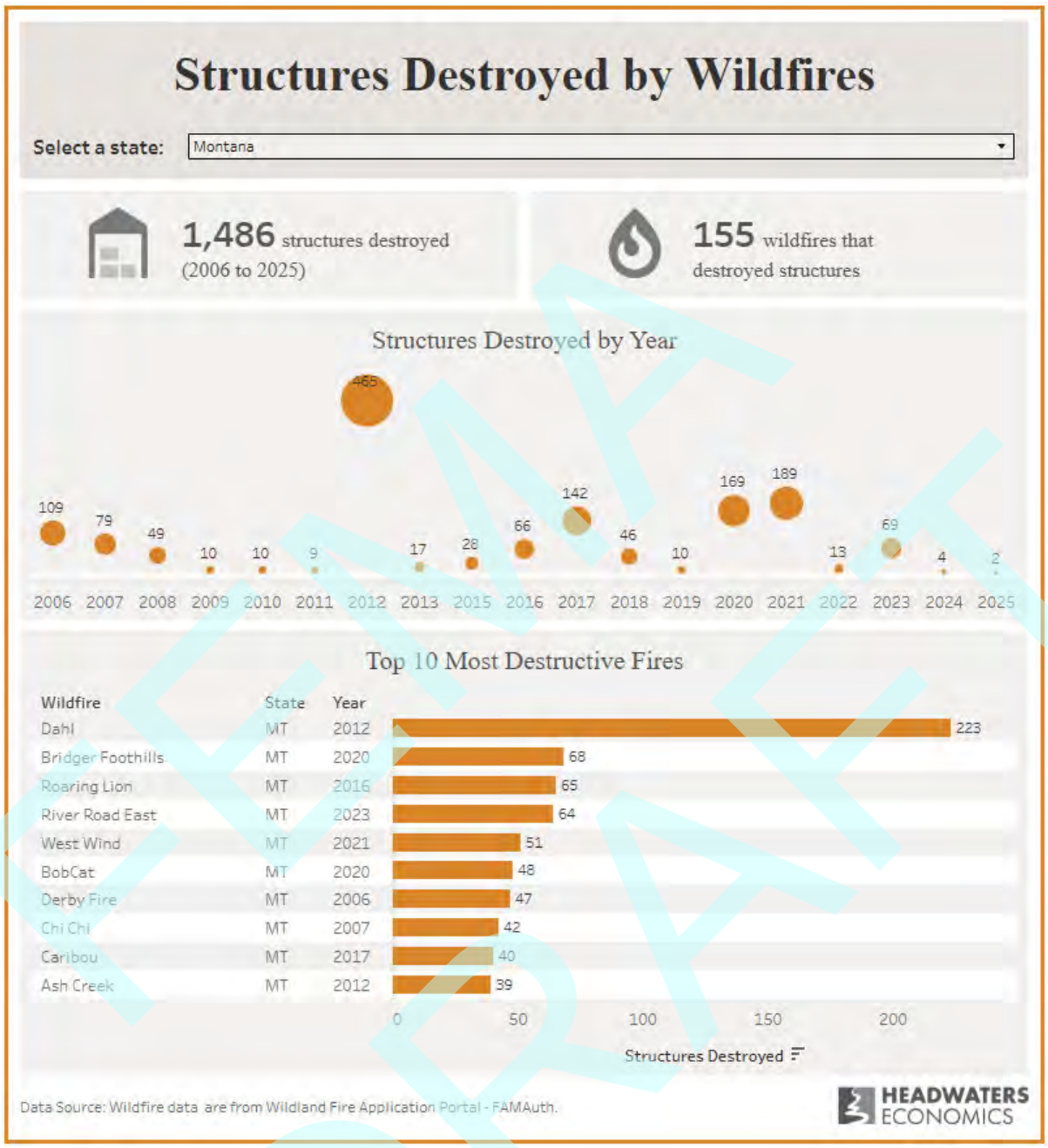
August 2016 -Maple Fire. The Maple Fire was detected on the evening of August 8, 2016 by smoke jumper aircraft flying over Yellowstone. The cause was determined to be lightning. The southwest perimeter of the fire burned within 3.5 miles of Wes Yell tone. Over 230 personnel were assigned to the fire at its peak. The fire burned over 45,000 acre f timber hort grass. While the Maple Fire threatened a small portion of Gallatin County, including West Y llowsto and areas immediate north along Highway 191, it did not burn any within the c n .

July – October 2018 – Bacon Rind Fire. T e B n Rind F was detected on July 20th and ntinued to burn for over two months at varied intensit The 232-acr fire was located approxim y 20 miles south of Big Sky along th side of Hig way 19 within both Yellowstone N ona ark and CGNF-Lee Metcalf Wilderne in an a that h d not burned in the last 150 years. There are nu rous meadows and forest b aks in the e area, w h long with favorable weather d climatic condit s and lack of drough reduced the pot ial of strong fire behavior and spread he incident managemen approach allow d the fire to potentially lean out dead and downed tr and help restore a healthy ecosystem st-fire cond ons will be conducive to new growth and ate great h itat for wildlife, while reducing e pot tial for a future large fire.

Se ember 2018 - orseshoe re. This fire burned 1 223 acres in the H seshoe Hills east of larkston. The fire b n Monday afternoon, Sept. 0 d was declared 0% contained on Saturday pt. 15th. Seve l structures were lost to this fir including ee primary residences, two s ond y residences, and several outbuildings [GCEM we ite, Ho eshoe Update, 9/14/18 – 9:30].

Septemb 2020 – Bridger Foothills. his fire b ned 8,224 cres in Bridger Canyon North of Bozeman. The fire began on Septem er 4th and w declared 10 % contained on October 12th. 30 primary residences, one commercial b lding and ly 30 outbuildings were destroyed. This incident destroyed the most structures in llat County's history, and was the second most destructive in Montana's history.

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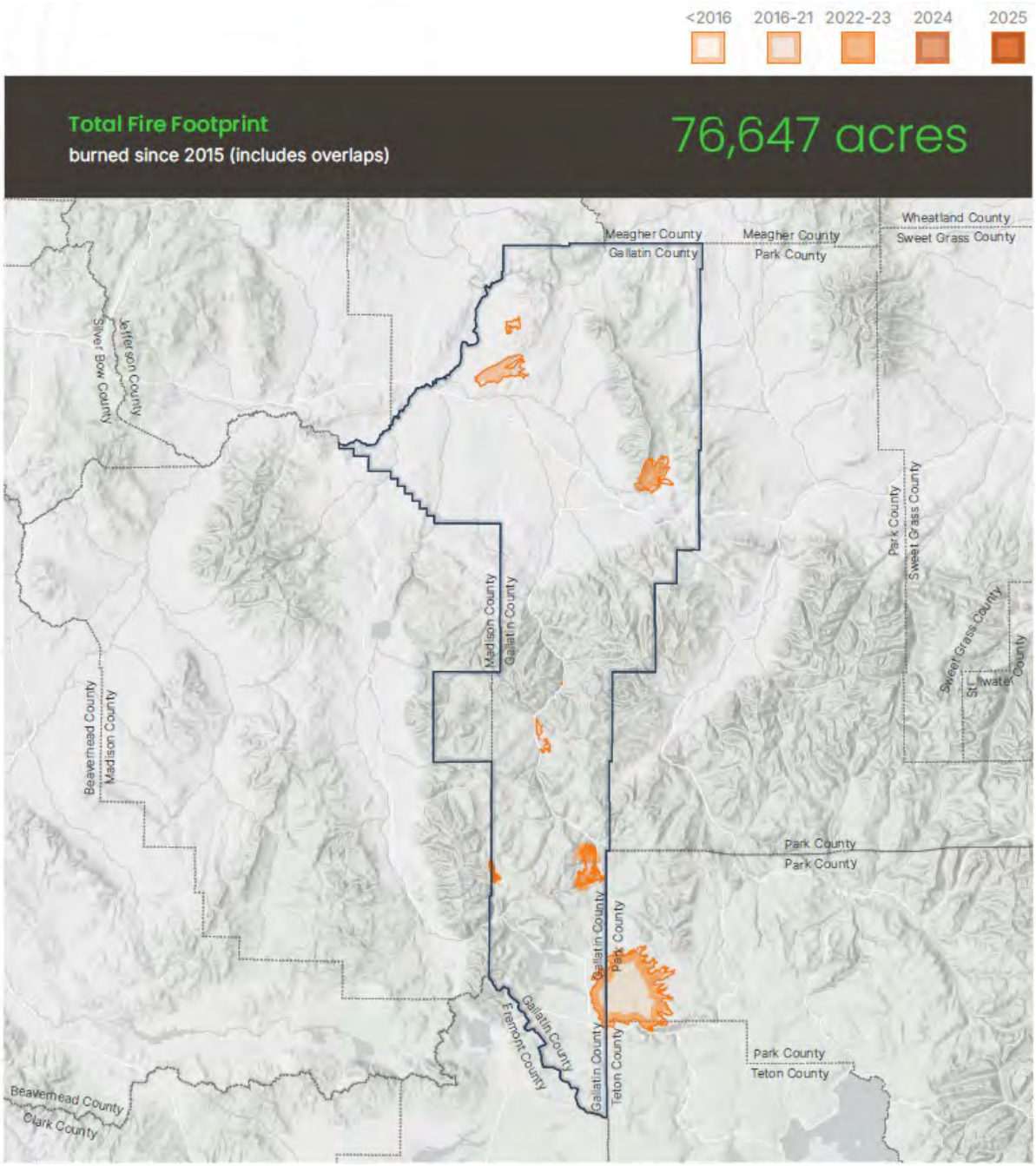


Within the last deca (2008-2018), the st major y of wildfires in the Service Area were less than 10 acres in size (Cla C and smaller, NW G). In fact, there were only six fires larger than 1,000 acres (Class F, NWCG) in t county during s period: Millie Fire (2012), Bean Canyon Fire (2012), Cottonwood Gulch Fire (2 5), Bacon R d Fire (2018), Horseshoe Fire (2018) and Bridger Foothills (2020). There were, however, ve a tional fires that exceeded 1,000 acres in size just outside the county boundary: Bear Trap 2 Fir Madison County, 2012; the east boundary of this fire extended into Gallatin County), Copper City Fire (Broadwater County, 2013), Eustis Fire (Broadwater County, 2015), Fawn Fire (Yellowstone National Park, 2016), and Maple Fire (Yellowstone National Park, 2016).

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Wildfire history in the Service Area for the period 2008-2018 is depicted below. Some of these mapped events are not actually wildfires but rather local incidents that became extended fire events (e.g., Bear Trap Fire, 2012). Generally, across the CGNF land base, which includes Gallatin County, less than five percent of unplanned ignitions grow into larger fires (Class F: 1,000 acres or more, but less than 5,000 acres; and Class G: 5,000 acres or more), primarily due to extreme weather and wind conditions driving fire growth. Many occurrences of the smaller fire sizes (0.1 acre – 10 acres) shown on Figure 3-10 were not actual wildfires but rather unplanned ignitions that were reported by USFS and/or contained by initial attack resources, as documented by USFS-CGNF in the Wildland Fire Decision Support System (WFDSS).

The National Wildfire Coordinating Group (NWCG), Glossary of Terms, Accessed from website April, 2019: https://www.nwcg.gov/term/glossary/size-class-of-fire

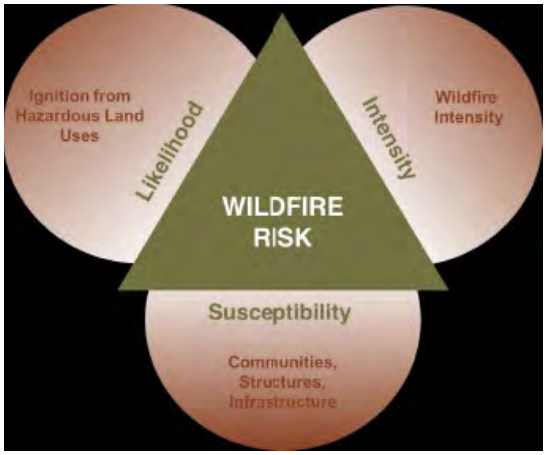


Large fire history since 2015, Vibrant Planet, 2026

4.19.13 WILDFIRE RISK ASSESSMENT

4.19.13.1OVERVIEW

Wildfire risk is a measure of both the probability and consequences of uncertain future wildfire events (Thompson et al., 2016). For any location within the Service Area, wildfire risk depends on the likelihood of a fire occurring there, the expected intensity of the fire, and the vulnerability of resources or assets of value at that location. Fire scientists describe these three components of risk using a triangle where the sides are likelihood, intensity, and susceptibility. These three factors, and the resultant wildfire risk, vary across the county. This section of the CWPP describes tools currently used to assess wildfire risk in the Service Area. The results of the risk assessment provide spatial context and inform where different wildfire management and mitigation strategies are most effective.



Components of the wildfire risk triangle (from Scott et al., 2013

With an understanding of the components that contribute to wildfire risk and application of a coordinated and collaborative planning effort, Gallatin County and other stakeholders can take steps to influence each side of the risk triangle in different ways. For example, prevention measures that reduce human-caused fires can reduce the likelihood of fire occurrence, particularly in areas of human activity. Vegetation treatments focused on reducing fuel loads can reduce the intensity of fires that do occur, and efforts to reduce the flammability of building materials and increase defensible space around structures and communities can reduce susceptibility of homes and other structures to wildfire.

4.19.13.2LANDSCAPE LEVEL RISK ASSESSMENT

The methodology used for wildfire risk analysis utilizes data that is representative of landscape-scale processes. Maps of fire *likelihood* and *intensity* can be used together to represent relative wildfire *hazard* for a given location. Computer simulation modeling of hypothetical wildfires provides a sound and scientifically defensible means of mapping wildfire likelihood and potential intensity. Fire models use weather data from long-term stations in the county, along with detailed spatial data depicting topography and aspects of vegetation that characterize wildland fuels to simulate fire spread across the landscape from semi-random ignition points. Simulations can be run for a plethora of statistically possible weather scenarios and thousands of iterations of a whole fire season using a model called FSim (Finney et al., 2011).

Thompson, M.P., T. Zimmerman, D. Mindar, and M. Taber. 2016. Risk Terminology Primer: Basic Principles and a Glossary for the Wildland Fire Management Community. Fort Collins, CO: USDA Forest Service Rocky Mountain Research Station. Gen. Tech. Rep. RMRS-GTR-349. https://www.fs.usda.gov/treesearch/pubs/50912

Scott, J.H., M.P. Thompson, and D.E. Calkin. 2013. A wildfire risk assessment framework for land and resource management. Fort Collins, CO: USDA Forest Service Rocky Mountain Research Station. Gen. Tech. Rep. RMRS-GTR-315. https://www.fs.fed.us/rmrs/publications/wildfire-risk-assessment-framework-land-and-resource-management

Finney, Mark A.; McHugh, Charles W.; Grenfell, Isaac C.; Riley, Karin L.; Short, Karen C. 2011. A simulation of probabilistic wildfire risk components for the continental United States. Stochastic Environmental Research and Risk Assessment. 25: 973-1000. https://www.fs.fed.us/rmrs/publications/simulation-probabilistic-wildfire-risk-components-continental-united-states

The outputs from FSim include maps of the annual probability of fire occurrence and the most likely intensity at a very fine scale. This information can be used to support decisions related to wildfire suppression, fuel management planning, and resource allocation decisions. It is also critical for developing land and resource management plans.

4.19.14 Wildfire Simulation and Mapping

A regional, landscape-level risk analysis, completed by Pyrologix LLC (Gilbertson-Day, J., et al., 2017) using the Fsim model, was utilized to evaluate wildfire likelihood and intensity. Specific results of this modeling work for Gallatin County were made available for use in this CWPP by USFS Region 1 (Jessica Haas, personal comm.). The raw outputs from the model are raster, or pixel-based, datasets that divide the landscape into evenly sized square cells, each 180 meters (583 ft) on a side.

To summarize the raster FSim results and the corresponding fire hazard indices to a common mapping unit, fine-scale watershed polygons, referred to as catchments, were utilized from the US Environmental Protection Agency (USEPA) and US Geological Survey (USGS) National Hydrography Dataset Plus, version 2 (https://www.epa.gov/waterdata/nhdplus-national-hydrography-dataset-plus). Displaying the results by summary polygons improves data understanding and allows for broad-scale patterns to emerge that may otherwise be missed in raw pixel datasets. There are 4,864 catchments that intersect the Gallatin County boundary plus the extra-county areas included to capture the Big Sky, Yellowstone Club, Three Forks and Willow Creek fire jurisdictions. The resulting catchment and partial catchment summary unit polygons range in size from 0.0009 to 96.39 km^2, and average 1.67 km^2.

4.19.14.1 Burn Probability

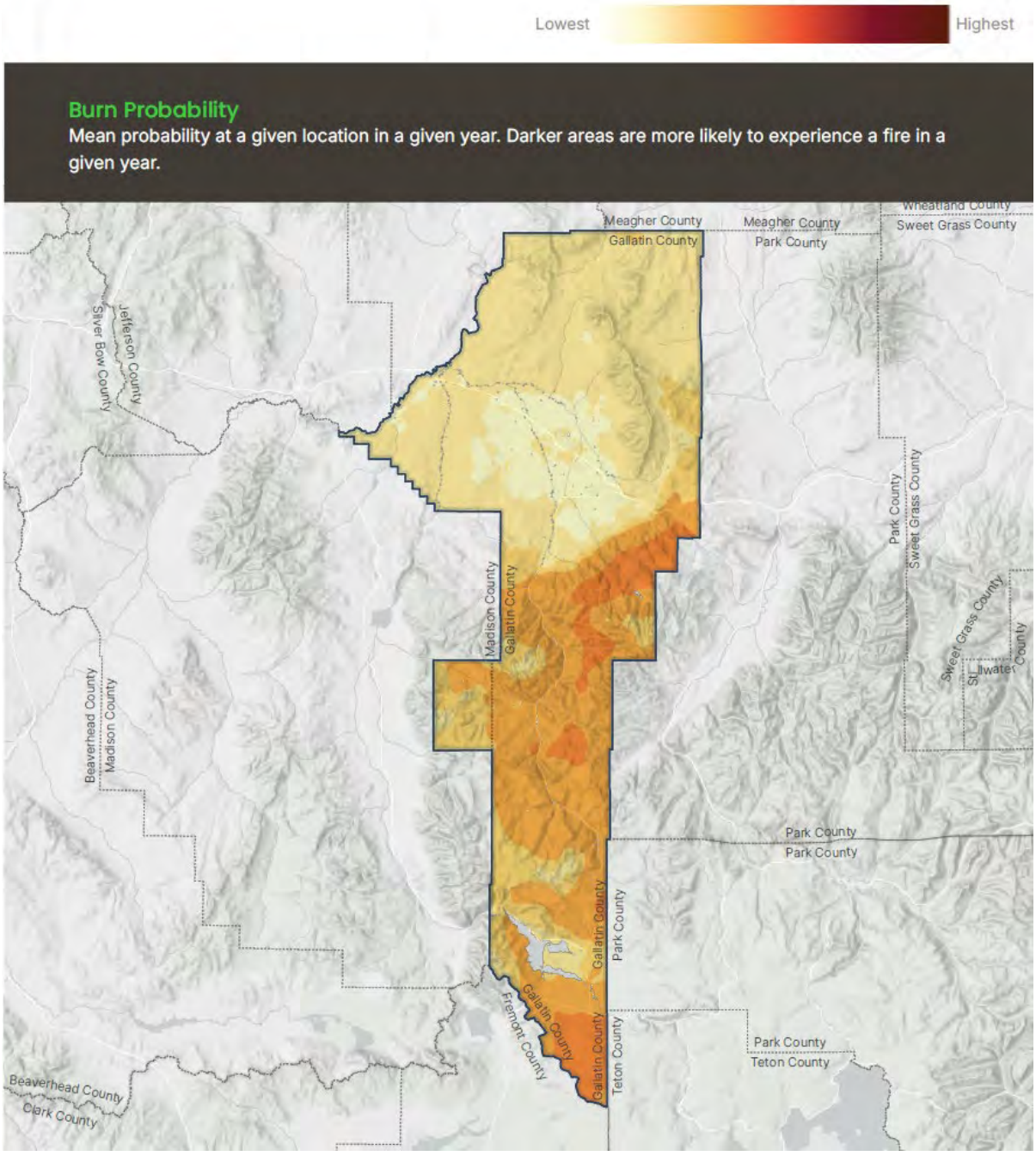
The FSim large-fire simulator is used to quantify wildfire likelihood. FSim is a comprehensive fire occurrence, growth, behavior, and suppression simulation system that uses locally relevant fuel, weather, topography, and historical fire occurrence information to make a spatially resolved estimate of the contemporary likelihood and intensity of wildfire across the landscape (Finney et al. 2011).

Burn probability (BP) shows the probability of an area burning at any time during a single calendar year. A higher BP means wildfire is more likely to occur in an area.

FSim focuses on the relatively small fraction of wildfires that escape initial attack and become "large" (greater than 247 acres). Since the occurrence of large fires is relatively rare, FSim generates many thousands of simulated iterations to capture a sample size large enough to generate burn probabilities for the entire landscape.

A given FSim iteration spans one entire year. There is no temporal component to FSim beyond a single wildfire season consisting of up to 365 days. FSim performs independent (and varying) iterations of one year, defined by the fuel, weather, topography, and wildfire occurrence inputs provided. FSim does

not account for a simulated wildfire's potential influence on the likelihood or intensity of future wildfires (even within the same simulation year). FSim integrates all simulated iterations into a probabilistic representation of wildfire likelihood. Each year represents an independent realization of how fires might burn given the current fuelscape and historical weather conditions.



Annual Burn Probability, Vibrant Plant, 2026

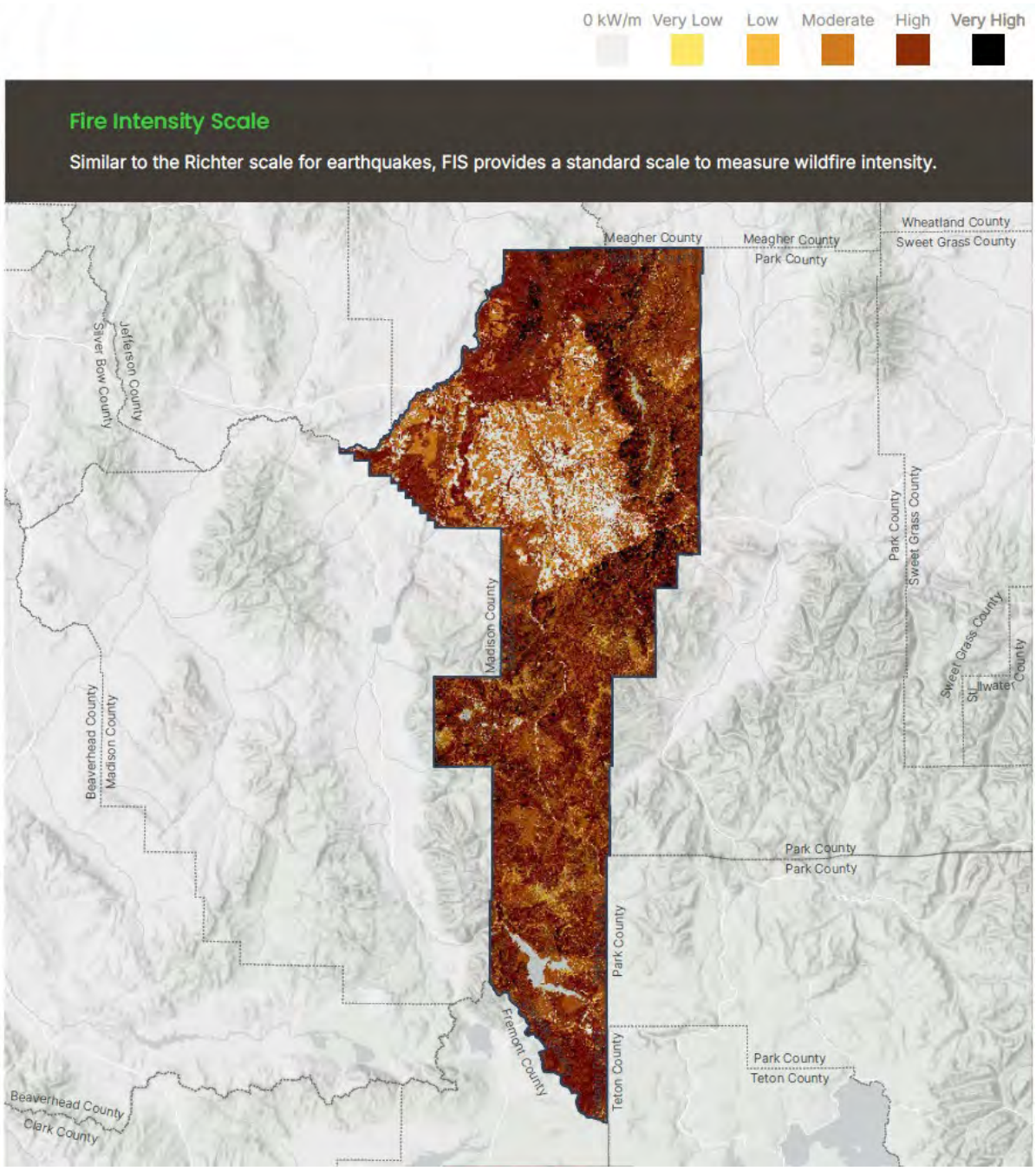
4.19.14.2 Fire Intensity

Fire Intensity Scale is produced using a log10 transformation (Scott 2006) on the 95th percentile fireline intensity (kW/m) produced by WildEST. WildEST computes the 95th percentile fireline intensity value for a pixel as the WTP-weighted average of the fireline intensity values that comprise the highest 5% of modeled results. This metric can inform fire behavior potential for the near-worst weather conditions.

Fire Intensity Scale (FIS) provides a standard scale to measure the 95th percentile fireline intensity. FIS consists of five classes where the order of magnitude between classes is ten-fold. Half classes are shown here to improve map display.

Descriptions of FIS relate to flame length and suppression difficulty:

- Class 1 (Very Low) <10 kW/m: Characterized by small, discontinuous flames, usually less than 1 foot long. These fires spread slowly and are typically easy to control with basic equipment.
- Class 2 (Low) <100 kW/m: Flames are generally less than 2 feet long. Short-range spotting may occur, but fires are manageable by trained crews using specialized hand tools.
- Class 3 (Moderate) <1,000 kW/m: Flames reach up to 9 feet in length. At this level, direct attack by ground crews becomes difficult without support from engines, dozers, or aircraft.
- Class 4 (High) <10,000 kW/m: Large flames can reach up to 40 feet, and spotting is common. Direct attack is often ineffective, and the fire presents a significant threat to life and property.
- Class 5 (Very High) <100,000 kW/m: This level involves very large flames (100-200 feet or higher), frequent long-range spotting, and fire-induced winds. Control efforts at the head of the fire are usually ineffective.

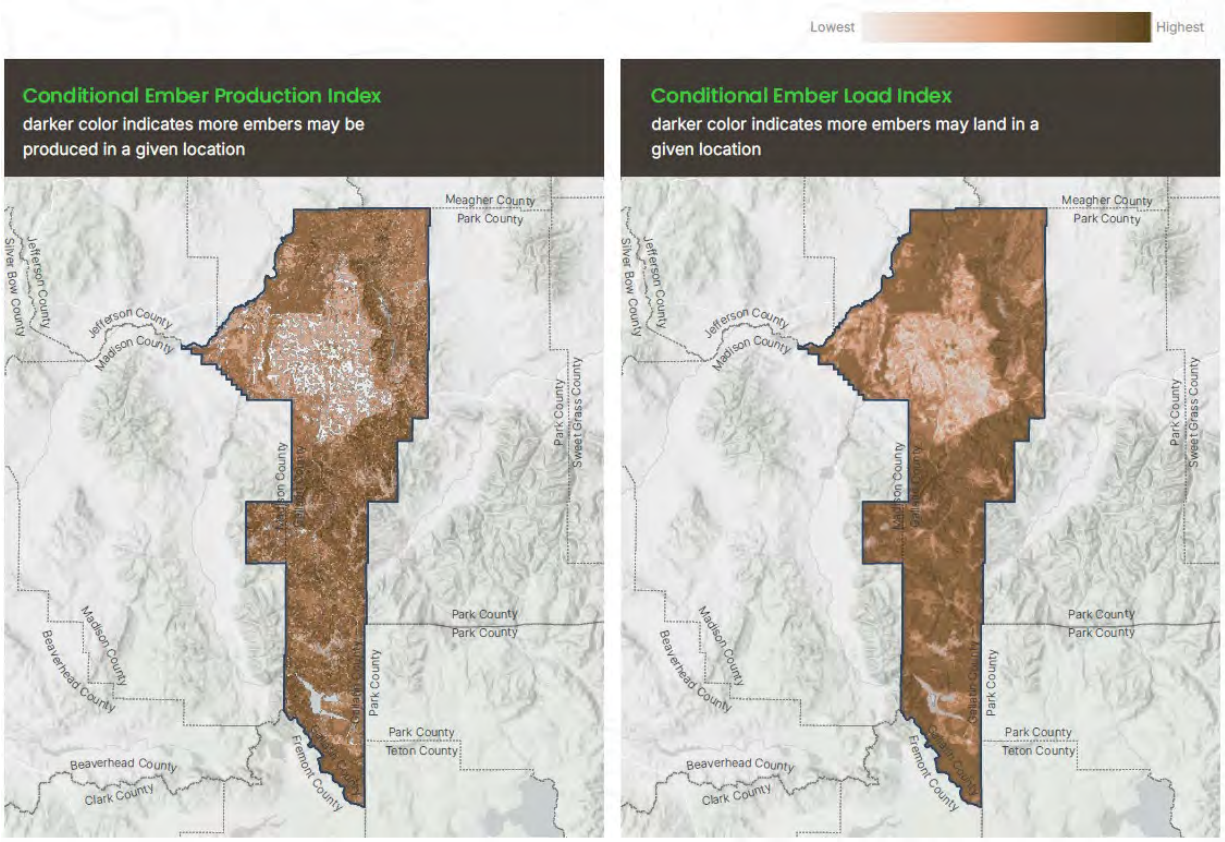


Fire Intensity Scale. Vibrant Planet, 2026.

4.19.14.3 Ember Load and Production Indexes

The Conditional Ember Load Index is an index of the relative number of embers that land at a given landscape location, including embers that land on non-burnable pixels that do not produce embers. The cELI does not account for burn probability and can be used to identify where on the landscape hardening buildings to resist ember ignition may be needed. The Conditional Ember Production Index is an index of the relative number of embers lofted at a given landscape pixel if a fire were to occur. The cEPI represents the relative number of embers produced at a pixel as a function of the fire environment. Being "conditional," cEPI does not account for variation in burn probability across the landscape.

The Conditional Ember Load Index (cELI) shows where embers may land on a landscape, which is helpful for identifying where to harden buildings against ember ignition. The Conditional Ember Production index (cEPI) rates the potential for ember production if a fire were to occur. Ember characteristics are useful for proactive fuels management, response planning, and structural hardening.

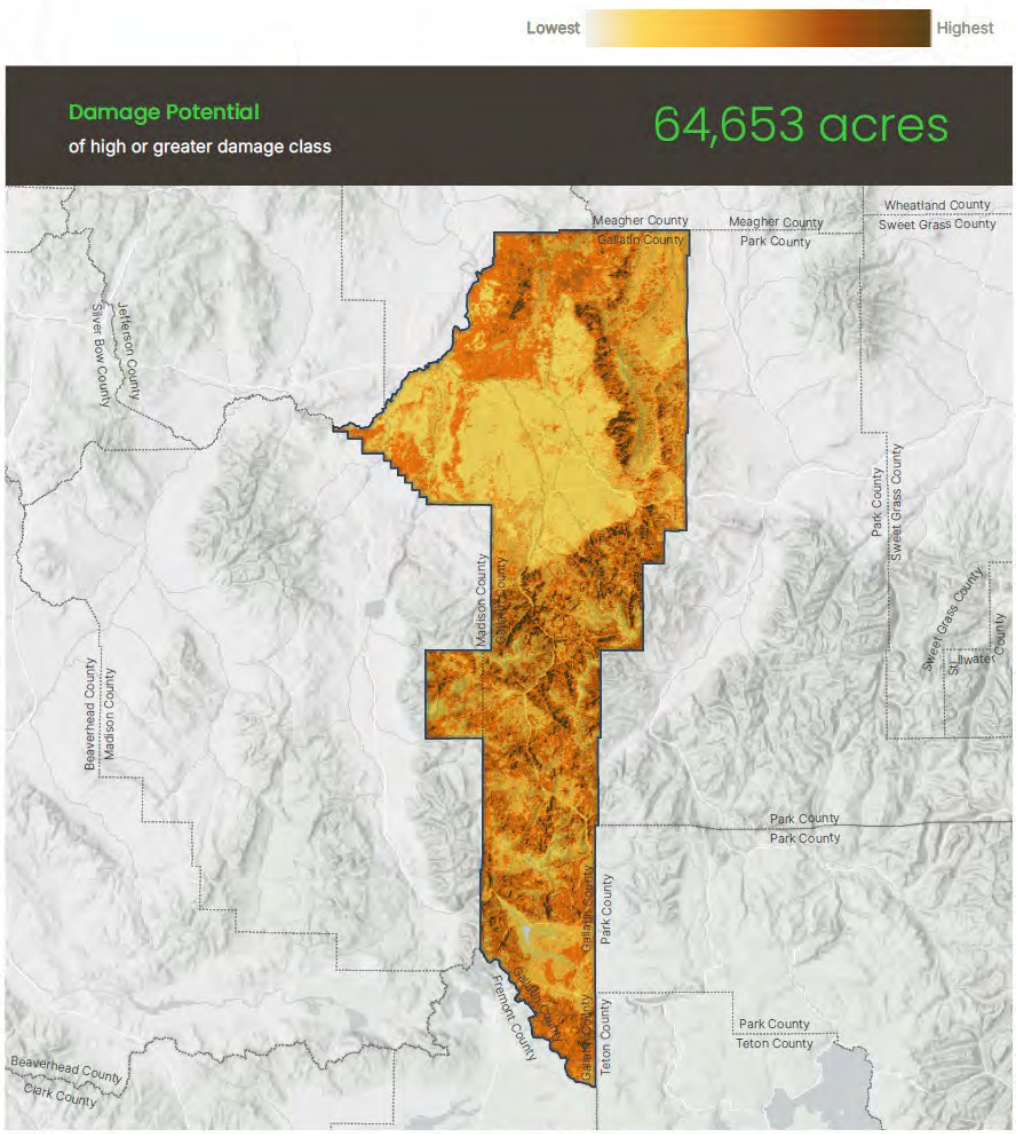


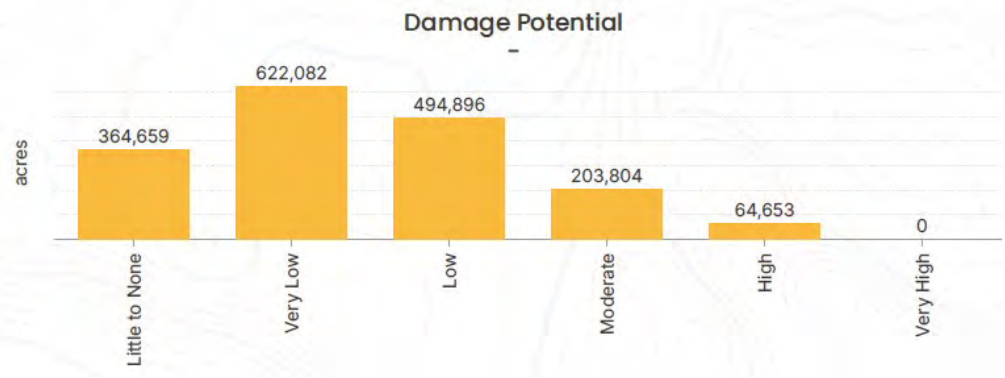
Gallatin County Defined Wildland Urban Interface, 2026, https://ReadyGallatin.com/WUIMapper

4.19.14.4 RELATIVE WILDFIRE HAZARD

The likelihood and intensity sides of the wildfire risk triangle can be integrated to represent wildfire hazard. Thus, relative wildfire hazard is calculated by multiplying burn probability by the conditional flame length. Hazard values were determined at the pixel scale and then summarized by determining an average hazard value for each catchment. Following a similar approach as fire likelihood, the average hazard values for catchments were grouped into four classes based on quartiles of the hazard distribution across the county. The actual numeric values of hazard are less directly interpretable than BP or CFL, however they do provide a relative measure of fire hazard at a landscape scale.

When comparing all three wildfire risk mapping products, the influence of both fire likelihood and fire intensity are evident in the relative wildfire hazard map. Similar to the likelihood mapping, the greatest wildfire hazard is found in the mid- to upper-elevation, forested areas of the county including: Horseshoe Hills; nearly the entire Bridger Mountain range, Bridger Canyon, and Bangtail Mountains; the Gallatin Front and Trail Ck. area south/southeast of Bozeman; and most of the county from the Big Sky area south, with the exception of some areas immediately surrounding Hebgen Lake.





Gallatin County Defined Wildland Urban Interface, 2026, https://ReadyGallatin.com/WUIMapper

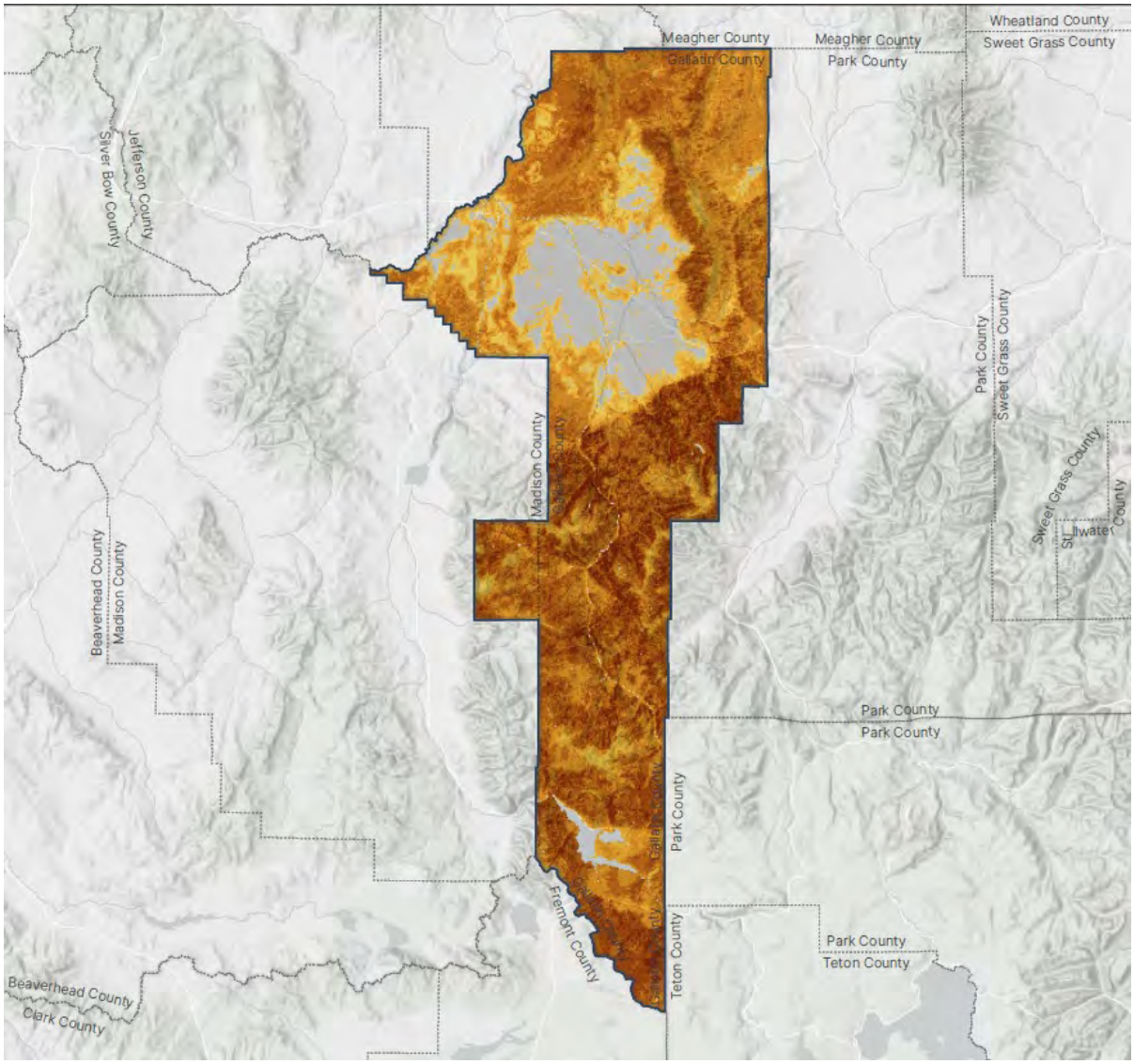
4.19.14.5 Wildfire Exposure Score

Wildfire Exposure Score (WES) is an integrated measure combining the likelihood of wildfire (Burn Probability) with potential consequences of wildfire to resources or asset at a given location (Damage Potential). In this dataset, consequence is modeled using a response function that accounts for potential loss to structures as a function of flame length, along with ember exposure from nearby vegetation. Together, these factors provide a general estimate of potential wildfire damage to homes.

The Wildfire Exposure Score (WES) dataset provides an index of wildfire exposure to structures. It combines wildfire likelihood with potential damage to homes— including ember exposure from nearby fuel—and is calculated for all parts of the landscape.

WES calculations are applied broadly across the landscape regardless of whether a structure is present. It serves as a relative index of wildfire impacts based on landscape characteristics and does not incorporate the specific building materials of individual structures. Although WES offers an estimate of exposure relevant to homes, it does not include data on the actual presence or locations of structures. WES maps can be paired with additional data on structure locations and assets of interest.

WES uses a geometric-interval classification to define ten exposure classes where each class break is 1.5 times larger than the previous break. A location in Class 7 is 1.5 times more exposed than one in Class 6, and so on. This classification supports meaningful grouping of structures by exposure class to inform inspection, risk assessment, and hardening strategies.



Wildfire Exposure Score for the Service Area. Vibrant Planet, 2026.

4.19.14.6 IMPROVE RISK ASSESSMENT INFORMATION

The importance of high quality, current risk assessment information is critical to the success of this planning effort. Data used in the risk assessment must have adequate quality and resolution to facilitate accurate modeling of the risks. Assessment of wildfire risk also requires detailed, accurate information on development patterns in the WUI, changes in fire suppression resources and methods, and the effects of recent fires. The following steps were taken to improve the risk assessment analysis and information:

- 1. Resulting landscape changes from the recent wildfire seasons were incorporated into an updated wildfire risk assessment. This required extensive locally focused data analysis from Vibrant Planet.
- 2. Locally compiled data and priorities were utilized to develop locally calibrated data from Vibrant Planet compared to using national data sets.

4.19.14.7 Wildfire Risk Assessment Summary

Wildfire risk in Gallatin County is defined by the interaction of fire occurrence probability, expected fire behavior, and the vulnerability of people, infrastructure, and natural resources. This relationship, commonly described as the wildfire risk triangle, varies significantly across the county due to topography, vegetation, and expanding development within the wildland urban interface (WUI).

Recent fire history underscores both the persistent nature of wildfire in the region and the evolving conditions that influence its behavior. While Gallatin County has experienced numerous fires over the past several decades, including events across the Bridger, Gallatin, and Madison ranges, the 2020 Bridger Foothills Fire stands out as a defining event in the community's memory.

The Bridger Foothills Fire demonstrated fire behavior and impacts that diverged from historical patterns in the area that has created the common feeling that "it doesn't happen here." Occurring under extreme weather conditions and exhibiting rapid spread toward densely developed areas along the WUI, the fire highlighted vulnerabilities that were not fully captured in earlier risk assessments. Unlike many previous fires that primarily affected more remote or less-developed landscapes, this event directly threatened subdivisions, critical infrastructure, and key evacuation corridors.

This fire exposed the limitations of earlier mapping and planning approaches that relied heavily on national level data sources that and a less granular scale. It reinforced the need for more dynamic, spatially explicit modeling capable of accounting for ember transport, structure-to-structure ignition, and evacuation constraints under real-world conditions.

To address these gaps, Gallatin County partnered in a multi-county effort to develop a Quantitative Wildfire Risk Assessment (QWRA) using tools developed by Vibrant Planet. This effort represents a significant advancement in wildfire planning by integrating high-resolution spatial data and multiple risk components into a unified analytical framework.

The Vibrant Planet modeling builds upon traditional fire simulation outputs and incorporates additional layers of analysis that provide new insights into wildfire risk, including:

- Functional Wildland-Urban Interface (WUI):
  - Rather than relying solely on distance-based WUI definitions, the Functional WUI incorporates direct exposure, structure transmission potential, and landscape connectivity. This approach more accurately reflects how fires spread across terrain and how they threaten structures, particularly in areas like the Gallatin Valley where risk is distributed in pockets rather than continuous zones.

- Egress and Evacuation Modeling:
  - The QWRA identifies specific segments of road networks that present constraints or vulnerabilities during evacuation. These analyses highlight where limited access, choke points, or inadequate road capacity could impede evacuation during a wildfire event. This

information supports prioritization of infrastructure improvements and evacuation planning.

- Ember Production and Transport Modeling:
  - One of the most significant enhancements is the inclusion of ember modeling, which identifies:
    - Areas that are likely to generate embers (source areas of concern), and
    - Locations where those embers are most likely to land and ignite structures
  - This allows mitigation strategies to move beyond traditional defensible space concepts and address ignition risk at a broader, landscape scale, including targeted fuel treatments in ember-generating areas.

A key output of the updated risk assessment is the Wildfire Exposure Score (WES), which provides a spatially continuous index of potential wildfire impacts to structures across the county.

The WES integrates:

- Burn probability (likelihood of wildfire occurrence)
- Fire intensity (e.g., flame length)
- Damage potential to structures, including ember exposure

Importantly, the WES is applied across the entire landscape, regardless of whether structures are currently present. This makes it a powerful planning tool for evaluating future development risk. The model estimates the relative exposure a home would face if constructed at a given location, allowing planners, developers, and homeowners to better understand wildfire risk before development occurs.

The classification system groups locations into exposure classes, enabling prioritization of:

- Structure hardening efforts
- Defensible space inspections
- Land use and development decisions
- Community-level mitigation investments

Together, these updated modeling tools represent a shift from generalized hazard mapping to data-driven, location-specific risk understanding. They allow Gallatin County to:

- Identify high-risk areas not previously recognized under older WUI definitions
- Prioritize mitigation where it will most effectively reduce structure loss

- Address evacuation challenges through targeted infrastructure improvements
- Incorporate wildfire risk directly into land use planning and future development decisions

The lessons learned from the Bridger Foothills Fire, combined with the enhanced analytical capabilities of the Vibrant Planet QWRA, position Gallatin County to move toward a more proactive and precise approach to wildfire risk reduction—one that accounts for how fires actually behave on the landscape and how communities are increasingly exposed.

4.19.15 A COHESIVE STRATEGY APPROACH IN GALLATIN COUNTY

4.19.15.1 OVERVIEW

The National Cohesive Wildland Fire Management Strategy "Cohesive Strategy" (USDA, USDOI, 2014) is a strategic push to work collaboratively among all stakeholders and across all landscapes, using best science, to make meaningful progress towards the three goals:

- Resilient Landscapes
- Fire-Adapted Communities
- Safe and Effective Wildfire Response

The Cohesive Strategy's **Vision** for the next century is:
To safely and effectively extinguish fire when needed; use fire where allowable; manage our natural resources; and as a nation, to live with wildland fire.

The planning process for this CWPP includes integration with the National Fire Plan, HFRA, Disaster Mitigation Act, and Cohesive Strategy, all of which promote local collaborative processes. Goals for restoring resilient landscapes, improving wildland fire response, and creating fire-adapted communities must work within the bounds of local budgets, personnel, and equipment. The efforts and success of the Gallatin County CWPP hinge on the funding and expertise of the local fire management districts and agencies as well as the cooperative efforts of landowners to empower local communities and citizens to pursue and implement projects that protect people, property, and infrastructure from wildland fire without diminishing the private property rights of land/asset owners within the Service Area.

The guiding principle for this strategy is: to engage the Service Area residents, communities, businesses, non-profits, and local, state, and federal governments to empower each other to prepare for wildfire through:

- Community engagement and develop awareness of community roles in preparing for wildfire;
- Effective administration of wildfire hazard mitigation grant programs that leverage additional resources for implementation;
- Hazard risk assessments; and,
- Strategic, efficient, and effective fuels treatments.

4.19.15.2 OBJECTIVES

The following objectives are presented to define the Cohesive Strategy in the Service Area and provide a roadmap for implementation.

- Engage citizens in the challenges of wildfire preparedness in the Service Area using the tools and guiding principles set forth by the Fire Adapted Communities Learning Network (FACLN).

- Seek out, encourage, and empower local community leaders in the wildfire preparedness roles of business, fire response, homeowners, land managers, and local government at multiple scales across the Service Area.
- Determine areas at risk to wildfire and establish/prioritize mitigation projects that utilize both conventional and alternative treatment methods to protect people, homes, infrastructure, state and federal listed species, and natural resources throughout the Service Area.
- Improve the ability of fire departments/districts/service areas to provide emergency fire response for the residents of the Service Area through improved resources, training, and equipment.
- Through strategic planning, develop and implement policies or protection measures that discourage further unmitigated development in high fire risk areas.
- Implement vegetation management and other types of projects that promote the natural fire regime appropriate to the location for the benefit of the ecosystem and to lessen the risk of uncharacteristic wildland fire occurrences.
- Promote recognition and utilization of the Gallatin County CWPP, empower local leadership and help leverage resources and opportunities to achieve shared goals without reducing the autonomy of individual communities and residents.
- Provide direction through specific wildland fire prevention or protection action items to all members of the community to encourage individual responsibility including residents and homeowners, fire and emergency responders, forest and land managers, civic and community leaders, and designers and developers.

Each of the following sections provides an overview of the topic, local information, and strategies and resources to address the goal. Specific actions are provided in the Action Table (Section 6.3).

4.19.16 RESTORING AND MAINTAINING RESILIENT LANDSCAPES IN GALLATIN COUNTY

Through fire suppression and human development, coupled with a changing climate, the interaction of terrestrial ecosystems and wildland fire has been significantly altered over time. Restoring landscapes to a resilient state and promoting fire's natural role in ecosystems where appropriate must be an integral part of increasing the county's resilience to wildfire and becoming fire-adapted. An ecosystem-based approach to fire management that incorporates prescribed fire, mechanical thinning, and other vegetation management practices in overall land management planning objectives is important to both achieve desired fire effects and mitigate undesirable fire effects on the ecosystem and the built environment. Post-wildfire recovery is an important component in resiliency to ensure that any negative fire effects that impact the ecosystem and community can be minimized. With a diverse land ownership across the county, restorative land management will require a collaborative effort among multiple stakeholders.

4.19.16.1 Ecology/Ecosystem-Based Fire Management

Restoration and maintenance strategies should align with the Cohesive Strategy, as outlined below, and integrate the following goals:

- Where allowed and feasible, manage wildfire for resource objectives and ecological purposes to restore and maintain fire-adapted ecosystems and achieve fire-resilient landscapes, including the importance of the high-intensity fire regime component.
- Restore forest processes that are currently under-represented in the landscape, compared to historical conditions, including low- and mixed-severity fire regimes.
- Maintain and promote the growth of specific large tree species, which are also under-represented, across the landscape.
- Control and eradicate invasive and noxious weeds.

4.19.16.2 Fuel Treatments for Landscapes (Public and Private)

Healthy, thriving ecosystems are less vulnerable to extreme wildfires that can devastate watersheds, destroy wildlife habitat, and risk lives. Healthy ecosystems can adapt to climate change, invasive species, and insect infestations. In many areas, aggressive fire suppression has limited the extent wildland fires leaving forests and grasslands crowded with flammable vegetation. Climate change has made fire seasons longer and droughts and insect infestations worse. Entire landscapes are now vulnerable to devastating, extreme wildfires. Thinning, prescribed fires, and managing naturally caused wildfires to achieve natural resource management objectives can help prevent extreme wildfires with minimal impacts to air quality while smoke from extreme wildfires may pose significant risks to public health and safety.

The USFS is working with partners to restore healthy, resilient, fire-adapted ecosystems. Restoring ecosystems includes thinning crowded forests and using prescribed fire to prevent the buildup of flammable vegetation that feeds extreme wildfires. Assessments of more than 1,400 fuel treatments since 2006 have shown that they are effective in reducing both the cost and damage from wildfires. In certain locations, when and where conditions are right, naturally caused wildfires can be managed to perform their natural role in controlling fuel buildup, rejuvenating vegetation, and restoring ecosystems that benefit from fire. Below is a list of proposed and recently completed USFS fuels reduction projects in the Service Area. The USFS will continue to work with partners to identify additional areas for fuels treatment that meet the goals of this CWPP.

Proposed and Recently Completed USFS Fuels Reduction Projects (USFS, Custer-Gallatin N.F. [1])

Project Name	Proposed Areas (Acres)	Legal Location	Burn (Y/N)	Implementation Date
Storm Moose	TBD			2027
Goose Creek Fuel Breaks	1,492	T2S, R7E T3S, R7E	1,492 ac	2026
Hyalite Cottonwood Hazardous Fuels Reduction Project	7,905	T3S, R5E T4S, R6E	Y 2,094 ac	2026
South Plateau				2021
North Bridgers Forest Health Project	2,560	T1N, R6E & R7E; T1S, R6E & R7E	Y	July 2019
Bozeman Municipal Watershed Project	4,700	T3S, R5E & R6E	Y	late-2019 (tentative), continue 5 – 12 yrs.
North Hebgen Multiple Resource Project	5,900	T11S, R4E & R5E; T12S, R4E & R5E; T13S, R5E	N	begin 2019, continue for 8 – 12 years
Lonesome Wood Vegetation Mgmt. 2 Project	2,575	T11S, R3E; T12S, R3E; T12S, R4E; T13S, R4E	Y (potential on 325 ac.)	began 2017, to continue for 6 - 8 years
Rendezvous Ski Trails Forest Thinning Project	250	T13S, R5E; T14S, R5E	N	2015 (fall) – 2018 (fall)
South Bridger Interface Project	250	T1N, R7E; T1S, R7E	N	2015 (completed)
Hebgen Basin Fuels Reduction Project	1,610	T12S, R5E; T13S, R5E	Y	2011 (completed)

[1] Accessed from Custer-Gallatin National Forest list, June 2026.

Lands owned and managed by state (DNRC) and municipal (City of Bozeman) entities have also been proposed for forest health and fuels reduction projects. Below provides a list of proposed and recently completed projects on state and municipal land.

Proposed and Recently Completed Fuels Reduction Projects on State and Municipal Land

Project Name	Proposed Areas (Acres)	Legal Location	Burn (Y/N)	Implementation Date
Limestone West Timber Sale Project (DNRC-Bozeman Unit)	448 (proposed in Final EIS, modified Alternative A)	T2S, R6E; T3S, R6E	N	*Conservation license and 25-year logging deferral issued by DNRC in April 2019, effectively cancelling the project*
Bear Canyon Timber Sale Project (DNRC-Bozeman Unit)	674	T2S, R6E; T3S, R6E	N	2011
Sourdough Creek Municipal Watershed Fuels Management Project (City of Bozeman)	400	T3S, R6E	N	2019

4.19.16.3 Prescribed Fire

Prescribed fire is a planned fire used to meet management objectives. Following many years of fire exclusion, an ecosystem that needs periodic fire becomes unhealthy. Trees are stressed by overcrowding; fire-dependent species disappear; and flammable fuels build up and become hazardous. The right fire at the right place at the right time:

- Reduces hazardous fuels, protecting human communities from extreme fires;
- Minimizes the spread of pest insects and disease;
- Removes unwanted species that threaten species native to an ecosystem;
- Provides forage for game;
- Improves habitat for threatened and endangered species;
- Recycles nutrients back to the soil; and
- Promotes the growth of trees, wildflowers, and other plants.

The USFS manages prescribed fires and even some wildfires to benefit natural resources and reduce the risk of unwanted wildfires in the future. The agency also uses hand tools and machines to thin overgrown sites in preparation for the eventual return of fire.

4.19.16.4 Post-Fire Effects and Recovery

Several post-fire outcomes can result from either wildfire or prescribed burn events. Prescribed fire planning goals and objectives are typically defined by desired ecosystem or hazard reduction results. These goals and objectives should be clearly stated in the prescribed fire plan and a monitoring program should be in place to measure the post-fire conditions.

Wildfire events can result in significant post-fire impacts – both positive and negative. Risk assessments can provide guidance in anticipating post-wildfire impacts, mitigating these impacts before a fire occurs and reducing recovery efforts. The development of a post-wildfire recovery plan, based on the anticipated impacts, can help the communities affected become more resilient to wildfire.

4.19.17 PROMOTING A FIRE-ADAPTED GALLATIN COUNTY



Promoting fire-adapted communities focuses on preventing, preparing for, and protecting lives and property during wildfire events, while supporting long-term recovery. The National Wildfire Coordinating Group defines a fire-adapted community as "a human community consisting of informed and prepared citizens collaboratively planning and taking action to safely coexist with wildland fire." Building on this definition, a fire-adapted community in Gallatin County is one that is knowledgeable, engaged, and proactive, where coordinated actions related to infrastructure, building design, landscaping, and ecosystem management reduce wildfire impacts and lessen reliance on emergency response. These communities recognize wildfire as an inherent part of the landscape and take deliberate steps to live with fire safely.

There are multiple pathways to achieving fire adaptation, including public education, vegetation management, land use planning, and adoption of policies and regulations. At the national level, widely recognized programs provide a foundation for local implementation. Firewise USA, administered by the National Fire Protection Association (NFPA), supports neighborhoods in organizing and taking action to reduce wildfire risk through defensible space, structure hardening, and community engagement. The Ready, Set, Go! Program, coordinated by the International Association of Fire Chiefs, emphasizes personal preparedness and evacuation readiness, encouraging residents to take early action when wildfire threatens. Additional national strategies, such as the National Cohesive Wildland Fire Management Strategy, reinforce the interconnected goals of resilient landscapes, fire-adapted communities, and effective wildfire response.

At the state level, Montana supports fire adaptation through programs led by the Montana Department of Natural Resources and Conservation (DNRC) and partner agencies. DNRC provides technical

assistance, cost-share opportunities for hazardous fuel reduction, and forestry assistance programs that promote stewardship on private lands. The Fire Safe Montana builds on Firewise principles by offering recognition and resources tailored to Montana communities. State-level wildfire protection plans, Community Wildfire Protection Planning support, and conservation district partnerships further enhance local capacity to address wildfire risk.

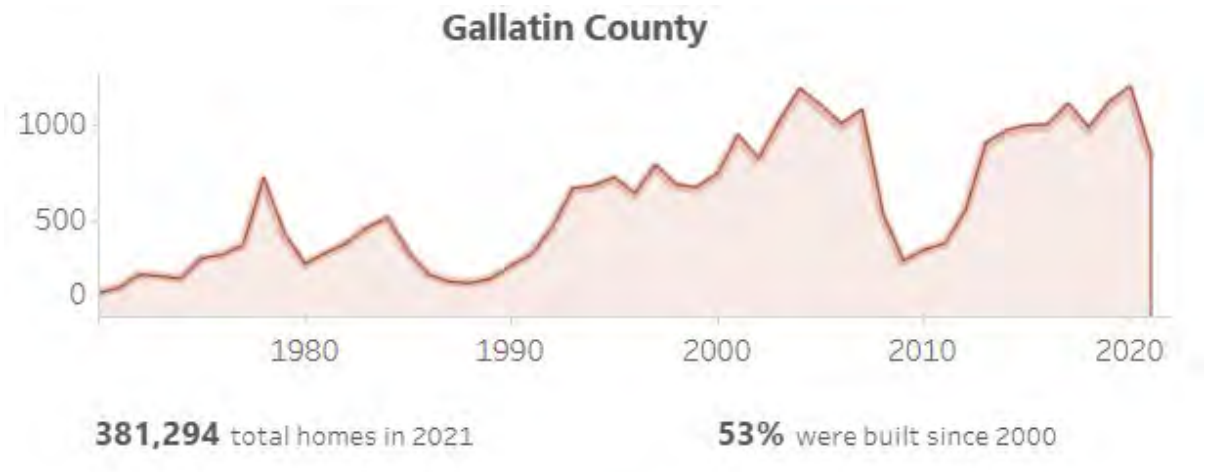
Locally, Gallatin County has developed and implemented a range of initiatives to advance fire adaptation. The Community Wildfire Protection Plan (CWPP) serves as the central framework guiding risk reduction, mitigation, and public engagement efforts. Through Fire Adapted Gallatin, the County coordinates with fire agencies, land managers, and community partners to identify high-priority areas and implement targeted actions. Gallatin County Emergency Management and partner organizations provide education, outreach materials, and short courses focused on defensible space, home hardening, and wildfire preparedness. The County also administers programs such as home risk assessments and Home Ignition Zone mitigation work, which provide residents, landowners, and agricultural producers with practical tools and information to prepare for, respond to, and recover from wildfire events.

While the benefits of fire adaptation increase as more actions are implemented, communities face constraints in resources and capacity. As a result, strategic prioritization is essential. The updated CWPP and associated risk assessment tools help identify where investments will have the greatest impact. Promoting a fire-adapted Gallatin County requires alignment with broader efforts to restore resilient landscapes and improve wildfire response, ensuring that all three components of the National Cohesive Strategy are addressed in a coordinated and effective manner.

4.19.17.1 Community Development and Growth Trends

Over the past twenty years, the Service Area has experienced unprecedented growth, resulting in rapid changes in land use, ownership, and development patterns. The county's population has increased 57% between 2005 and 2024 (U.S. Census, 2023). To address current and anticipated changes, the county must consider how wildfire can be further integrated into planning and development decisions. The following examples of growth trends and patterns highlight these issues:

- Transition of agricultural, forest and riparian lands to developed land is expanding the WUI. Development that is proposed in hazardous areas (as shown on the wildfire hazard maps) should incorporate strategies that reduce risk to structures and life safety.
- Continued growth in seasonal and second-home markets, particularly in amenity and/or vacation-driven areas, including Big Sky, Bridger Canyon/Brackett Creek, Jackson Creek, Hebgen Basin, and edges of the Gallatin Valley (Gateway, Hyalite/Sourdough Canyon areas, Bear Canyon and Springhill area), can affect how stakeholders plan for local response needs and resources. Community outreach and engagement with part-time residents and visitors must accommodate unique considerations such as seasonal schedules, population changes, or varying levels of awareness regarding wildfire concerns.



https://headwaterseconomics.org/economic-development/montana-home-construction/

4.19.18 Increasing Community Fire Adaptation and Reducing Structural Ignitability

Recent and future development changes, combined with an increase in wildfire risk, highlight the need for the Service Area to develop strategies to plan for and adapt to wildfire. Strategies must consider a range of current and future community values, including existing and new homes, vulnerable populations, critical facilities and infrastructure, recreational amenities, and businesses. Strategies can take the form of new policies and regulations, education and outreach activities, or other actions that encourage community members to prepare for, and adapt to, future wildfire events.

The following strategies are focused on leveraging existing county documents and programs to increase their visibility across the county. The actions listed are also captured in the Action Table.

4.19.18.1 Promote Implementation of WUI Policies and Regulations

Important county and city planning documents already incorporate wildfire topics into their goals and actions, including the Gallatin County Growth Policy, City of Bozeman Community Plan, Belgrade Growth Policy, Gallatin Triangle Planning Study, and the 2026 update to the Gallatin County HM-CWPP. For example:

- The Gallatin County Growth Policy, Chapter 3.14, **Goal #1: Protect Human Life and Property from Natural Hazards**, includes a policy to, "*Consider the adopted Gallatin County Community Wildfire Protection Plan when reviewing development proposals*." Development is discouraged in areas prone to wildland fire, and mitigation of fire hazards such as creation of defensible space for each structure is encouraged prior to final plat approval. Section 5.2 of the Growth Policy also provides guidelines for the **Evaluation of Subdivisions According to Primary Criteria**, one of which includes the proposed subdivision's susceptibility to wildfire.
- The Bozeman Community Plan (2025) mentions the potential for increased risk of wildfire due to climate change. **Appendix G: Environmental Quality and Critical Lands** includes a section that discusses the WUI (**Section G.1.8**). It promotes an understanding of fire

behavior, including fire intensity, vegetation characteristics, and building materials, and the need to keep these factors in mind when building structures in wildfire-prone areas. References are provided for preparing a CWPP. The Bozeman Fire Department coordinates with other fire departments in the valley through mutual aid agreements to address issues of regional concern such as the WUI. The City of Bozeman has been a participating jurisdiction in hazard mitigation planning and preparation of a countywide HMP since the initial plan was completed in 2006. The City was also a key participant in development of the initial Gallatin County CWPP in 2006. The Community Plan describes how planning mechanisms, such as subdivision regulations, can address future development parameters including defensible space, access, and water supply. Local codes also provide improved opportunities for public health, first-responder and community safety, and welfare.

- The 2026 HM-CWPP update contains a goal to **Reduce Impacts from Wildfire** (**Goal 1**). The objectives under Goal 1 focus on: 1) reducing private losses in the WUI, 2) increasing the understanding of wildfire hazard areas, and 3) assisting property owners in completing mitigation measures. Specific projects identified include: 1) fuels mapping and reduction, 2) conducting individual WUI assessments, 3) developing defensible space requirements and subdivision regulations for wildfire/WUI areas, and 4) creating fire-adapted communities through implementation of programs such as Firewise.

This CWPP leverages existing HMP goals to advance risk reduction by providing more detailed implementation guidance. CWPP actions are designed to build on current WUI community actions in the Growth Policies/Plans and 2026 HM-CWPP update.

Specific CWPP actions to address development include:

1. Update the Gallatin County Growth Policy land use maps and local area plans, as needed and appropriate, using wildfire hazard area information to steer growth away from more hazardous areas.
    - Incorporating tools such as the updated WUI map and wildfire hazard assessment maps during growth policy updates and implementation ensures consistency of information among plans and informs future policy decisions.
2. Utilize zoning and zoning districts to implement land use map updates and guide growth to more appropriate areas and away from more hazardous areas.
    - Using proactive strategies to guiding growth to appropriate locations helps reduce risk to future neighborhoods and homes.
3. Utilize land conservation tools such as the open space bond to buffer developed areas from wildfire.
    - Creating land buffers between development and the natural environment makes it easier to manage vegetation near homes and neighborhoods and protect these homes during future wildfire events.
4. Adopt development/subdivision regulations that require best possible hazard mitigation to protect communities, neighborhoods, fire professionals, and properties/structures in the event of a wildfire. Propose updated development regulations that incorporate best practices, including changes to building code, zoning code, and subdivision regulations.

- Evaluating the effectiveness of regulatory tools, such as the building code, subdivision regulations, and zoning regulations, helps determine whether additional fire protection measures are necessary at each applicable scale. This could include exploring the adoption of a wildland-urban interface code. The county risk assessment can be used to further inform this action.

4.19.18.2 Promote Wildfire Mitigation Strategy Education and Outreach

Mitigation strategies are often most accepted when the public and stakeholders understand their effectiveness. For example, scientific tests on building construction identify which types of materials are most effective during ember storms. When the public understands this information, they are more likely to see the value in supporting building codes that include ignition-resistant construction requirements.

Mitigation strategies are also effective in addressing existing development through education and outreach activities to help increase awareness and motivate voluntary actions. Activities can target residents and landowners, youth, industry professionals, and elected officials.

Many education and outreach efforts are already underway by local, state, and federal stakeholders. For example, many of the local fire departments/districts host a variety of community outreach functions during the year (e.g., barbeques, pancake breakfasts) where a wide range of educational materials regarding wildfire preparation and safety are often available. Outside experts from various local (Gallatin County Extension), state (DNRC), and federal (USFS) agencies are often available at these functions to provide additional outreach to the public. These activities and types of information available can include:

- Conducting free property assessments to help residents identify hazards;
- Displaying up-to-date maps that show wildfire hazard areas and the WUI;
- Providing current fire season forecasts or updates on any active wildfire events;
- Promoting participation in Fire-Adapted Community programs to encourage neighborhood activities and local recognition;
- Delivering Ready, Set, Go! program messages to residents to help them prepare for wildfires and evacuations; and,
- Working with local schools on youth education programs.

Both the HMP update and various Growth Policy/Planning documents can also be used to message and promote the use of educational materials to residents and landowners in hazardous areas.

Specific CWPP actions to enhance outreach and education include:

1. Engage with industry professionals on mitigation programs, activities, and opportunities to improve public education and outreach across neighborhoods and communities.

- Many industry professionals, including insurance agents, realtors, developers, and builders, can play a critical part in understanding their role in educating other audiences in community fire adaptations. Working with these groups by providing specific resources and messaging materials can accelerate local efforts to reduce wildfire risk.

2. Update County Extension and Emergency Management websites with best practice wildfire education resources and materials.

    - Gallatin County Extension and Emergency Management can post the latest wildfire planning, protection and mitigation resources in the form of informational brochures, interactive maps that highlight local risk, educational videos, or other guides to help the public learn more about wildfire. Topics may include home construction and landscaping techniques, evacuation planning and preparedness, and parcel-level risk assessments.

3. Promote having neighborhoods and communities develop mitigation activities and evacuation plans through programs such as Firewise USA and Ready, Set, Go!

    - Risk reduction happens at multiple scales. Neighborhoods are encouraged to engage in mitigation planning. This can be through participation in national programs, such as Firewise USA or Ready, Set, Go! (supported through local agencies), and the development of local CWPPs or similar fire plans.

4.19.19 INCREASING WILDFIRE RESPONSE THROUGHOUT GALLATIN COUNTY

The multiple agencies responsible for fire suppression have developed an excellent network of interagency support and cooperation. Generally, suppression resources have been able to respond to wildland fire occurrences with adequate resources using this system. However, some concern is expressed over the ability of this system to sustain itself in the face of climate change and the current trend of decreasing volunteer capacity, aging firefighters, and decreasing budgets.

In addition to fire suppression resources available within the fire protection districts, seasonal wildland firefighters are available through USFS, DNRC, and the National Park Service (NPS). These resources are trained and equipped to fight wildland fire only; unlike the fire protection district resources, they are not trained or equipped to fight a structure fire.

4.19.19.1 Emergency Preparedness/ Evacuation

Emergency evacuation procedures are the responsibility of local law enforcement agencies. During a wildfire, the Incident Commander (in coordination and with the approval of the agencies having jurisdiction) will recommend evacuation. Routes and locations of shelters/centers depend on fire location and numbers of affected individuals, and so must be made on a case-by-case basis at the time of the incident.

4.19.19.2 Ready, Set, Go! Program

The Ready, Set, Go! Program seeks to develop and improve the dialogue between fire departments and the residents they serve. The program helps the fire service teach individuals who live in high-risk wildland fire areas—and the WUI—how to best prepare themselves and their properties against

wildland fire threats. The program's tenets help residents be Ready with preparedness understanding, be Set with situational awareness when fire season begins, and to Go early, when necessary, as fire threatens. The Ready, Set, Go! Program works in complementary and collaborative fashion with the Fire Adapted Communities Coalition and existing wildland fire public education efforts and amplifies their message to individuals about emergency preparedness and evacuation. Ready, Set, Go! provides educational and outreach materials to limited English speakers, standardizing the message and ensuring that information is accurate across languages.



Ready, Set, Go! Infographic.

4.19.20 Primary Stakeholders and Response Areas

4.19.20.1 Fire Departments, Districts and Service Areas

Most communities within Gallatin County are within the jurisdiction of one of the legally recognized, community-based rural fire districts, fire service areas, or a municipal fire department. Within the WUI Intermix areas there is often concurrent fire protection, with a local fire agency and the USFS both

having jurisdiction. Of the 15 fire protection agencies across the Service Area, only the Bozeman and Big Sky Fire Departments have an all-paid staff. Central Valley, Hebgen Basin and Hyalite fire districts have a mix of paid and volunteer firefighters. The other districts rely completely on citizen volunteers to respond to structure fires, wildland fires, and other emergencies such as medical calls and vehicle accidents on the interstate or secondary roads within each jurisdiction.

List of fire departments, districts, and service areas in the Service Area.

Fire Dept., District or Service Area	Communities Served	Response Area (acres)
Amsterdam	Amsterdam, Churchill, Camp Ck. Road, area north of Hwy. 84 (MM 17-26)	56,795
Big Sky	Big Sky Meadow/Mtn. Village, Moonlight/Spanish Peaks Clubs, Hwy. 191 (MM 43-61)	37,293 (incl. area in Madison Co.)
Bozeman	within city limits of Bozeman, I-90 (MM 304-309), Montana State University	12,873
Bridger Canyon	Bridger Canyon (Hwy. 86 MM 4-17), Bridger Bowl, parts of Jackson Ck/Brackett Ck Rds.	26,071
Central Valley	City of Belgrade, Hwy. 85 (Jackrabbit Ln.), I-90 (MM 292-304), Springhill/Rocky Mt. Rd., Gallatin R. (4 Corners-Central Park), E. Gallatin R. (Riverside-Dry Ck.), Dry Creek Rd., Bozeman-Yellowstone International Airport	117,718
Clarkston	Clarkston, E. side of Missouri R. (Eustis north to Lombard), west side of Horseshoe Hills	15,333
Fort Ellis	I-90 E. of Bozeman (MM 309-322), Bozeman Trail Rd., Bear & Kelly Canyon, Trail Ck Rd.	38,810
Gallatin Gateway	Gallatin Gateway, Hwy. 191 (MM 61-Four Corners), area south of Hwy. 84 (MM 20-29), Cottonwood Rd. east from Hwy. 191 to Cottonwood Canyon, portions of Gooch Hill Rd.	67,917
Gallatin River Ranch	residential ranch community in Horseshoe Hills, north side of Gallatin/E. Gallatin Rivers	7,475
Hebgen Basin	W. Yellowstone, Hebgen & Quake Lakes basin with approx. borders of Hwy. 20 (south), Hwy 191 (east), Township 10-11S line (north), Madison Co. (west), & Idaho (southwest)	126,666
Hyalite	areas south/west of Bozeman, from Triple Tree to Four Corners; also responds into Sourdough/Leverich/Hyalite Canyons and numerous county “islands” within Bozeman	29,431
Manhattan	Town of Manhattan, I-90 (MM 283-292), Gallatin R./E. Gallatin R. north of T1N/T1S line	37,597
Sedan	Sedan, Hwy. 86 (MM 22-31[Park County line]), east side of Flathead Pass	32,248
Three Forks	City of Three Forks, Madison R. valley south to Black’s Ford, Headwaters St. Park, I-90 (MM 272-283), Note: district extends NW into Broadwater County from T3N to south	108,403 (incl. area in Broadwater Co.)
Willow Creek	Willow Creek, south/east side of Jefferson R., Sappington Jct., Note: district extends NW into Jefferson County	75,510 (incl. area in Jefferson Co.)
County Fire	All lands (private and state) outside of local fire districts/service areas or a municipal department, and which is not protected by the federal government (USFS or NPS)	268,344

4.19.20.2 Additional Stakeholders

In addition to fire suppression resources available within the fire protection districts, wildland firefighters are available through the USFS and NPS. These resources are trained and equipped to fight wildland fire only; unlike the fire protection district resources, they are not trained or equipped to fight a structure fire.

4.19.20.3 Suppression Responsibilities

When an unplanned wildland fire (wildfire) is discovered in the Service Area, a fire response crew from a local fire response jurisdiction or a USFS ranger district may respond, depending on its location. The Gallatin County 911 Communications Center is the Public Safety Answering Point (PSAP) for the county. For wildfire incidents occurring on federal lands, the Bozeman Interagency Dispatch Center

(BZC) leads communication with response resources. Each dispatch center utilizes the "closest forces" concept in wildland fire dispatch.

This allows for the closest suppression resource to be sent, regardless of boundaries or jurisdictional responsibilities. This arrangement is particularly helpful at either end of the federally recognized fire season (typically mid-June through mid-September). When wildfires start early, as they did in 2000 (the first wildfire occurred on March 15), federal fire crews are not yet employed so it is the community-based firefighter who is often first on scene.

4.19.20.4 Interagency Agreements

Through pre-established mutual aid agreements, all fire suppression resources in the Service Area are authorized to leave their jurisdictional boundaries to aid a requesting agency partner. In addition, Montana statute allows these resources to assist throughout the state when needed/possible. This is primarily accomplished through the South Central Montana Zone Multi-Agency Coordinating Group (MAC), within the Northern Rockies Coordinating Group (NRCG), which allows all responsible jurisdictional agencies to coordinate resources and priorities throughout the South-Central Montana Zone during fire season. The South Central Zone MAC Group consists of representatives from:

- CGNF;
- National Park Service;
- Gallatin County Fire Warden;
- Montana DNRC; and,
- Park County (MT).

Automatic mutual aid agreements are also utilized between most the Service Area agencies sharing boundaries. These agreements are triggered by verbal request, typically at the time of first dispatch.

4.19.21 Current Suppression Challenges and Limitations

4.19.21.1 Areas without Organized Fire Response

Approximately 268,300 acres of private land in the Service Area are located outside of an organized fire protection agency (i.e., local fire district or service area), a DNRC-mandated wildland fire protection district, or Affidavit lands. Under the terms of a cooperative agreement between the county commissioners and the State of Montana, the county has assumed fire suppression responsibility in these areas from the State. The County Fire Warden and Rural Fire Chief (one-and-the-same for purposes of this CWPP) is responsible for coordinating response to wildland fires that occur within these areas and has historically relied on mutual aid from adjacent fire districts and/or MT DNRC, through the Cooperative Fire Control Program (Co-op Program). Lands without fire protection are located throughout Gallatin County (Rural Fire Protection Operating Plan, 2015). Some of the larger examples include the following areas, where specific Response Plans have been developed: Spanish Creek, Norris, Horseshoe, Maudlow, Sedan, and islands of unprotected land surrounded by, or adjacent to, Bozeman city limits (primarily off Griffin and Bridger Drives).

4.19.21.2 Volunteer Firefighter Capacity

The current national trend of a decreasing and aging pool of volunteer firefighters has been expressed as an increasing local concern for most department that rely on volunteer responders. Most departments

can currently function adequately when faced with in-district emergencies. However, as county and regional wildland fires grow in frequency and size—increasing the need for solid mutual and automatic aid support—and compounded with the demand of other year-round response commitments (medical calls, structure fires, rescues, motor vehicle accidents)—the majority of these departments are unable to provide support to the desired level.

4.19.21.3 Response Area Commitment

Many of the local fire jurisdictions are responsible for significant response areas, some extending into neighboring counties and many with multiple communities or values at risk. There is some concern regarding the capacity during heavy, multiple fire load scenarios that these resources are relied upon for mutual aid will be over-committed.

4.19.22 Improving Response

Specific CWPP actions to improve wildfire response capabilities are:

1. Promote and support fire departments/districts to increase capacity and funding. Stakeholders and all levels of government should work together in developing a coordinated approach to increasing capacity and funding with respect to wildfire response.

2. Develop local Pre-Suppression Plans ("Pre-Plans") to improve wildfire response effectiveness and strategy. A Pre-Plan is an intelligence packet that assists incident commanders, operations section chiefs, structural protection specialists, division supervisors, group supervisors, taskforce leaders, and strike team leaders in formulating a plan based on current conditions, forecast weather conditions, locations and maps of fixed resources (e.g., water supply, safety zones), and listings of additional resources and contact information. The main objective of the plans is to have a well-thought out strategy based on the conditions and deployment of resources before the fire occurs. Wildland firefighting and structural protection/defense requires judgment based on many years of actual firefighting experience, and must be responsive to actual, on the ground conditions. No amount of classroom training or simulations can prepare an individual for the leadership required during large, fast-moving fires, but preparing the available information in ways that can facilitate that leadership is key to effective wildfire response.

4.19.23 CWPP ACTION PLAN

4.19.23.1 OVERVIEW

This chapter of the document focuses on putting the CWPP into action. The first section provides an overview of stakeholders associated with this CWPP to promote an understanding of the roles and responsibilities for each entity. The second section provides an action plan to guide stakeholder implementation activities. This ensures the CWPP process continues to move forward in a meaningful way. Finally, additional guidance on plan maintenance outlines key considerations to ensure the plan stays current and is updated regularly, so that it remains relevant into the future.

4.19.23.2 STAKEHOLDER ENGAGEMENT

Each stakeholder in the CWPP shares a role, whether it be agency-, landowner-, or non-governmental organization-affiliated. The success of this CWPP requires the participation of all stakeholders to engage in understanding of their role and taking appropriate actions.

4.19.23.3 RESIDENTS AND HOMEOWNERS

the Service Area's local fire protection agencies cannot always protect everyone from wildfire, especially if homeowners haven't taken responsibility for ensuring firefighters can safely work in the area. By creating a defensible space around individual homes and communities, reducing hazardous fuels in the surrounding area, and ensuring that access routes will support fire apparatus, homeowners can greatly increase the likelihood that their property will survive a wildland fire event. It is imperative that homeowners work with their neighbors and communities to increase safety and reduce risk for the greater protection of all.

4.19.23.4 FIRE AND EMERGENCY RESPONDERS

There are several resource and capability enhancements identified by the fire and emergency responders in the Service Area that are related to response and treatment of defensible space, egress/ingress, capacity, equipment, and planning efforts. Implementation of response action items will rely on either the isolated efforts of the rural fire districts or a concerted effort by Gallatin County to achieve equitable enhancements across all districts.

4.19.23.5 CIVIC AND COMMUNITY LEADERS

Wildfire mitigation efforts must be supported by a set of policies and regulations, where appropriate, as well as guidelines at the county and community levels that maintain a solid foundation for safety and consistency. They must also be supported by the public infrastructure, economy, and value system. Critical infrastructure refers to the communications, transportation, power lines, and water supply that service a region or a surrounding area. All these components are important to southwest Montana and to Gallatin County specifically. These critical networks are, by definition, a part of the WUI in the protection of people, structures, infrastructure, and unique ecosystems. Without supporting infrastructure, a community's structures may be protected, but the economy and way of life lost.

4.19.23.6 FOREST AND LAND MANAGERS

There are many land management issues associated with wildfire that can have lasting effects on natural resources as well as communities and local economy. In addition to the immediate responsibility of wildfire suppression, land managers at all levels; local, state, and Federal, must also be aware of and plan for the long-term impacts and implications of wildland fire on the landscape. Undeveloped private and public lands serve many purposes and are highly valued for their ability to provide habitat for animals, recreational and hunting opportunities, timber resources, etc. Wildfire affects each of these values in different ways some of which are very direct such as loss of timber assets, but some are subtle and take place over long periods of time such as the loss of native seed sources due to repeated burning. Increasing cohesiveness of land management across boundary jurisdictions will reduce risk and increase efficiency.

Overview of CWPP Stakeholder Roles

Stakeholder Group	Overview of Roles
City, County, and Local Partners	
Elected Officials	/ Gallatin and Madison County Commissions have jurisdiction and power to represent the county and has care of county property, management, and business concerns. / Gallatin County Sheriff is an elected position that has responsibility to enforce state and county laws and statutes. / The city and town councils have jurisdiction and power to represent their political subdivisions and has care of municipal property, management, and business concerns.
Planning Departments	/ County and municipal planning and community development organizations are responsible for long-range planning, administration of subdivision, zoning, and floodplain regulations, and coordination of community and economic development efforts.
Local Fire Depts. and Fire Districts/Service Areas	/ Responsible for community fire response and protection services for local jurisdictions across the service area.
Gallatin County Emergency Management	/ Responsible for fire response and protection services on county lands that are outside of local fire agency (local fire dept./district/service area) or federal jurisdiction. / Responsible for cooperative fire protection agreement with Montana DNRC and filling the duties of County Fire Warden. / Coordinates interagency emergency response within the Service Area and provides outreach, planning, and training for "all hazards" and all phases of emergency management – mitigation, preparedness, response, and recovery.
Gallatin City-County Health Department	/ Protects and promotes the health of county citizens and the environment, including air quality.
the Service Area residents, landowners, and community organizations	/ Responsible for personal property and engaging in community projects. / Community councils participate in planning process by facilitating communication between communities and local government. / Includes private landowners; and citizens/entities with large land holdings (e.g., Turner, Yellowstone Club)
Non-governmental stakeholders	/ Includes stakeholders from Southwest Montana Building Industry Association, Gallatin Association of Realtors, and other industry professionals. / Volunteer organizations, resource conservation groups (e.g., Gallatin Conservation District, Greater Gallatin Watershed Council, Gallatin River Task Force), community development groups (e.g., HRDC, Big

	Sky Community Organization), Chambers of Commerce, utilities (Northwestern Energy), Gallatin Valley Land Trust, university partners, and other business entities.
Gallatin Emergency Planning Committee	/ Collaborative of interested parties who work to align emergency planning activities. Formerly referred to as All Hazard All Discipline (AHAD).
Fire Adapted Gallatin Working Group	/ Collaborative consisting of entities working on wildfire mitigation activities in the Service Area. Group focuses on coordinating efforts and projects among partners.
Fire Adapted Big Sky	/ Collaborative consisting of entities working on wildfire mitigation activities in Big Sky. Group focuses on coordinating efforts and projects among partners.
MSU Extension – Gallatin County	/ MSU Extension – Forestry, Natural Resources
State Partners	
Montana Dept. of Natural Resources & Conservation	/ Protects lives, property, and natural resources from wildfire by providing safe and effective services to Montana's citizens as well as leadership, coordination, and resources to the state's wildfire organizations.
Fire Adapted Montana Learning Network	/ Fire Adapted Montana works with communities, fire managers, and residents across the state to create wildfire-resilient communities.
FireSafe Montana	/ Private, non-profit organization coordinates and supports a statewide coalition of diverse interests working together to help Montanans make their homes, neighborhoods, and communities fire safe.
Federal Partners	
U.S. Forest Service (USFS)	/ Manages land in Gallatin County within Custer-Gallatin National Forest (CGNF), Bozeman and Hebgen Ranger Districts. Also manages USFS lands bordering Gallatin County: in Park County (Gardiner and Yellowstone Ranger Districts); in Broadwater County (HNF, Townsend Ranger District); in Madison County (Beaverhead-Deer Lodge National Forest, Madison Ranger District), and in Idaho (Caribou-Targhee National Forest, Ashton/Island Park Ranger District).
Bureau of Land Management	/ Manages public lands out of the Butte Field Office.
U.S. Fish and Wildlife Service	/ Administers environmental stewardship programs and services to guide conservation, development and management of national fish and wildlife resources.
National Park Service, Yellowstone National Park	/ Manages land within Yellowstone National Park, a portion of which is located in southern Gallatin County.

4.19.24 ACTION PLAN

The proposed action plan consists of categories that correspond to the three emphasis areas of the Cohesive Strategy, including 1) fire adapted communities; 2) fire resilient landscapes; and 3) response. Natural vegetation and habitat restoration activities are incorporated into fuels reduction projects. As part of the Cohesive Strategy and intent of the CWPP, an additional category was added, 4) Risk Assessment.

Recommendations are organized into categories and listed in order of priority. Projects that address human safety issues will be of a higher priority than projects that benefit homes. No home is worth a life.

Creation of a proactive, knowledgeable community through education and outreach was identified as one of the most important tools to be included in the plan. The objective of this portion of the plan is to provide information to landowners and visitors to increase knowledge and understanding of fire related issues. The creation and maintenance of fire resilient landscapes, both around homes and across the landscape, is also a priority. Implementing defensible space around homes is a priority for fuels reduction, as well as fuels reduction across the general landscape.

The following Action Plan captures actions listed throughout this CWPP. Each action has a proposed lead(s) responsible for advancing the action, a priority level for implementation, a desired timeframe for completion, and any additional notes relevant to support the action. Many actions may relate to one another.

Action Plan

Action	Lead(s)	Priority	Timeframe	Notes
Risk Assessment				
1. Educate community the Quantitative Wildfire Risk Assessment, including WUI mapping and make analysis readily accessible and viewable to the public.	County, Local Fire Agencies	High	2026-2028	/ Storymap / Targeted Outreach
2. Continue Home Risk Assessment program.	Local Fire Agencies, County	High	2026-2031	/ Develop a county platform
3. Sustainment of Fire Adapted Gallatin Working Group	USFS, DNRC, NRCS, Fire Departments	High	2026-2031	/ Alignment with Storm Moose
Resilient Landscapes				
4. Review and identify priority landscapes, and design and prioritize potential treatment options, to reduce fire intensity, structure ignition, and negative wildfire impacts to identified assets.	FAGWG	High	2026-2031	/ Alignment of proposed projects
5. Advance prescribed fire activities.	FAGWG, Local Fire Agencies	Medium	2027-2029	/ MT certified burner program

Action	Lead(s)	Priority	Timeframe	Notes
				/ Pile Burning
6. Utilize WildEST Egress Route modeling to identify shaded fuel break projects that strengthen egress routes.	FAGWG, County	High	2027-2028	
7. Utilize WildEST Ember Production Modeling to identify high priority areas for fuels treatments to reduce ember cast.	FAGWG, County	High	2027-2028	
8. Continue Wildfire Mitigation Program.	County	High	2026-2031	/ Cost Share Grants
9. Develop approaches for government owned and operated equipment to increase production and lower project costs.	FAGWG	Medium	2028-2030	
Fire Adapted Communities				
10. Implementation of newer modeling such as Wildfire Exposure Score to help guide suitable building locations.	County Planning	High	2026	/ Currently being implemented in 2026 update.
11. Utilize WildEST Ember Load Modeling to identify communities at risk from ember cast to encourage home hardening activites.	FAGWG, County	High	2028-2030	/ Targeted Outreach
12. Sustainment of Home Ignition Zone work at no cost.	County	High	2026-2031	
13. Expand use of local funding for mitigation projects to support consistent implementation and sustainment of completed projects.	FAGWG, County	Med	2028-2031	/ Utilization of consistent local funding for core costs.
14. Utilize the WildEST Functional WUI data to help illustrate risk to the built environment.	FAGWG	High	2026-2031	/ Webmap
15. Promote neighborhood and community development activities focus on evacuation planning through programs such as Fire Adapted Communities, Firewise and Ready, Set, Go!	County, Sheriff	High	2026-2031	
16. Use land conservation tools such as the open space bond to buffer developed areas from wildfire and investigate concepts for maintenance.	County Planning	Medium	2028-2031	/ Open Space Maintenance
17. Encourage adoption of development regulations that require hazard mitigation to protect communities, neighborhoods, and emergency services, in the event of wildfire. Propose development regulations that	County Planning, Local Fire Agencies	Medium	2026-2031	/ Consider inclusion of structural building or WUI codes in the

Action	Lead(s)	Priority	Timeframe	Notes
incorporate best practices, including changes to building code, zoning code, or subdivision regulations.				County Growth Policy
18. Engage with industry professionals on mitigation programs, activities, and opportunities to improve public education and outreach across neighborhoods and communities.	County, FAGWG	Medium	2026-2031	/ Engage realtors, insurers, developers, and builders, etc
19. Continue updating GCEM website with wildfire education, resources and material.	County	Medium	2027	/ Web Update Underway
Improved Response				
20. Promote and support local fire districts to increase capacity, funding opportunities, and volunteer firefighter recruitment and retention.	County, Local Fire Agencies	High	2026-2031	/ Provide support through County Fire Program with VFA, CFPC and other financial programs
21. Continue implementation and sustainment of government based fuels modules to implement lower cost mitigation work and support local fire response.	County, Local Fire Agencies	High	2026-2031	/ Saddle Peak Fuels Module and Big Sky Fuels Crew in place
22. Support deployment of local government resources to build wildfire experience and qualifications.	GCEM, Local Fire Agencies	Medium	2026-2031	
23. Develop pre-suppression action plans – Improve response by planning wildfire suppression tactics, first responder and community safety and preparedness.	Local Fire Agencies, USFS	High	2026-2031	/ Develop fire district-level wildfire pre-plans for Incident Management teams and local fire response
24. Invest in technology, such as cameras, which enhances wildfire identification and situational awareness.	FAGWG	Medium	2026-2031	/ 8 cameras currently covering service area.
25. Implement collaborative program for Search and Recuse helicopter to support wildfire response.	GCEM, Sheriff, DNRC, USFS	Medium	2027-2031	
26. Improve response by widening and/or resurfacing roads or adding second	Local RIDs, HOAs/subdivisions, County	High	2026-2031	/ Identify communities' egress/ingress on a case by

Action	Lead(s)	Priority	Timeframe	Notes
egress to communities that have only one egress/ingress route.				case basis and recommend actions to improve road access and provide safer response
27. Establish, maintain, and update wildland fire response agreements (mutual aid) between the county, local fire districts, and state and federal agencies.	County, local fire districts	Medium	2026-2031	/ Mutual Aid / Sub Geo

4.19.25 Hazard Profile

Jurisdiction	Probability of Occurrence	Property Impact	Population Impact	Economic Impact	Overall Risk [1] (Relative Score)
Gallatin County	2.83	2.33	2.33	2.17	39.19
Belgrade	3.00	2.00	2.00	2.00	36.00
Big Sky	3.00	3.00	3.00	3.00	54.00
Bozeman	3.00	3.00	2.00	3.00	48.00
Manhattan	3.00	1.00	3.00	1.00	30.00
Three Forks	2.00	2.00	1.00	1.00	18.00
West Yellowstone	3.00	3.00	3.00	3.00	54.00

[1] Each jurisdiction determined the hazard's overall risk score by assigning values to ranking metrics that included: 1) probability that the hazard occurs, and 2) potential impacts to property, population and the economy.

The hazard risk scores for each jurisdiction were consolidated and then averaged to determine an overall risk score at the county level. The countywide risk scores were assigned a risk descriptor (Low, Moderate, High) based on their composite score ranking among all 30 identified hazards and by applying judgment to the final hazard rankings.

4.20 Risk Assessment Summary

This risk assessment represents an approximate history of estimated vulnerabilities to the communities from the hazards identified. As with any assessment involving natural or human-caused hazards, all potential events may not be represented herein, and an actual incident may occur in a vastly different way than described. This assessment, however, will be used where possible to minimize damages from these events in the future.

Every type of event is different, with impacts ranging in severity to population, property or the economy. Incidents have different probabilities and magnitudes even within hazards. For example, a small earthquake will be different than a large earthquake and a moderate flood will be different from both of those. Furthermore, each participating district/jurisdiction has differing degrees of risk exposure and vulnerability to a given hazard compared to the overall county. Therefore, each district conducted a hazard ranking exercise for their community using the same methods which ensures consistency in the overall risk assessment process.

4.20.1 Hazard Ranking Methodology

The methodology used to rank the identified hazards for each district/jurisdiction is described below. Estimates of risk for the Service Area were developed using methodologies promoted by FEMA's hazard mitigation planning guidance and supported with the Quantitative Wildfire Risk Assessment by Vibrant Planet.

4.20.1.1 Probability of Occurrence

The probability of occurrence is an estimate of how often a hazard event occurs. A review of historic events assists with this determination. Each hazard of concern is rated in accordance with the numerical ratings and definitions in below.

Probability of Hazard Occurrence - Ranking Factors

Rating (Value)	Probability	Definition
0	None	Hazard event is not likely to ever occur
1	Rare	Hazard event is not likely to occur within 100 years
2	Occasional	Hazard event is likely to occur within 100 years
3	Frequent	Hazard event is likely to occur within 25 years

4.20.1.2 Impact

The impact of each hazard is considered in three categories: impact on population, impact on property, and impact on the economy. Based on documented historic losses and a subjective assessment by persons attending the district ranking meetings, an impact rating of high, moderate, or low is assigned with a corresponding numeric value for each hazard of concern. In addition, a weighting factor is assigned to each impact category: three (3) for population, two (2) for property, and one (1) for economy. This gives the impact on population the greatest weight in evaluating the impact of a hazard.

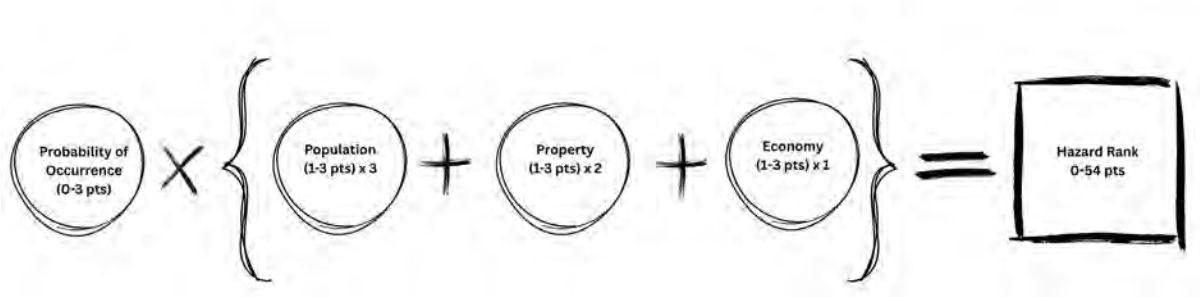
Below presents the numerical rating, weighted factor and description for each impact category. The impact rating definitions for population and property are consistent with the FEMA hazard mitigation methodology. Impact to the economy is also evaluated.

Numerical Values and Definitions for Impacts on Population, Property, and Economy

Category	Weighting Factor	Low Impact (1)	Moderate Impact (2)	High Impact (3)
Population	3	14% or less of population is exposed to a hazard due to its extent and location	15% - 29% of population is exposed to a hazard due to its extent and location	30% or more of population is exposed to a hazard due to its extent and location
Property	2	Property exposure is 14% or less of the total replacement cost for your community	Property exposure is 15% - 29% less of the total replacement cost for your community	Property exposure is 30% or more of the total replacement cost for your community
Economy	1	Loss estimate is 9% or less of the total replacement cost for your community	Loss estimate is 10% - 19% of the total replacement cost for your community	Loss estimate is 20% or more of the total replacement cost for your community

4.20.1.3 Risk Ranking Value

The risk ranking for each hazard is then calculated by multiplying the numerical value for probability of occurrence by the sum of the weighted numerical values for impact. Possible points range from 0 to 54 points. The equation is as follows:

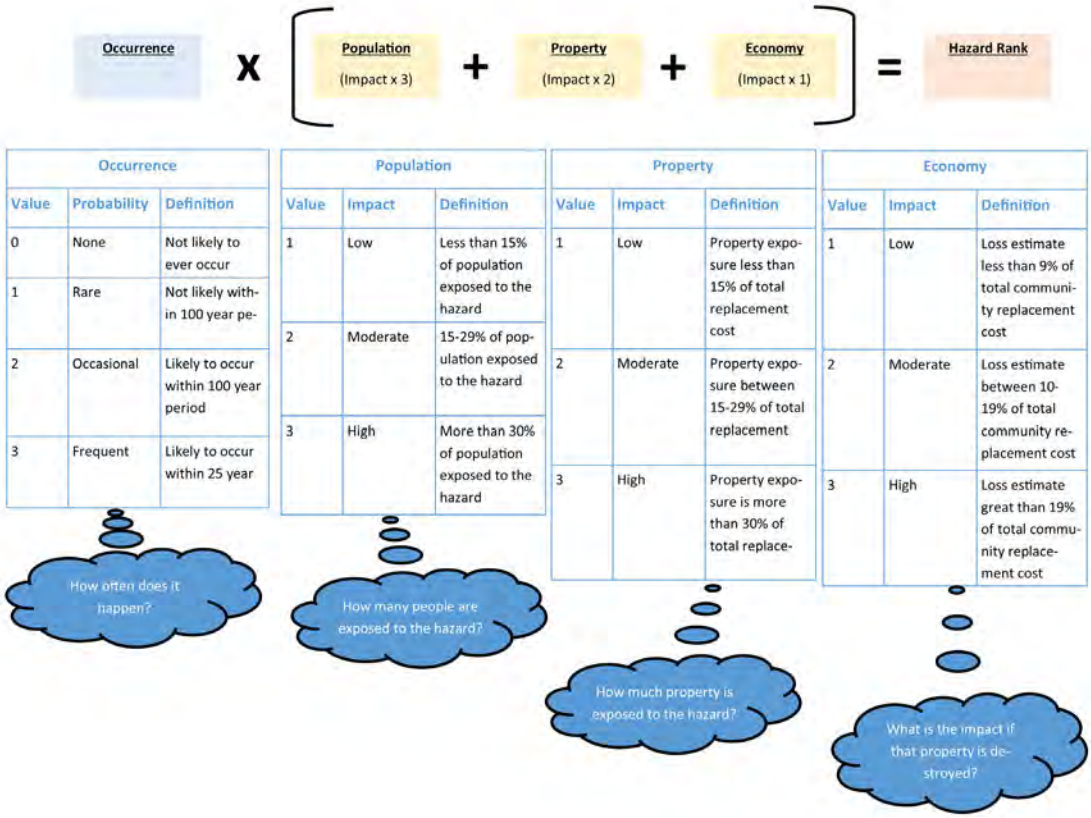


The Relative Overall Risk scores for identified hazards were determined within each district. Based on the numeric range of calculated risk scores (high to low), the hazards were initially grouped into categories of High, Moderate, and Low according to the following:

Risk Score (0 – 19 pts): **Low**
Risk Score (20 – 39 pts): **Moderate**
Risk Score (40 & over pts): **High**

The preliminary ranking categories were reviewed by meeting attendees and suggestions for category adjustments to individual hazard rankings were considered, as appropriate.

Hazard rankings were carried forward from each of the six communities to develop a countywide ranking of hazards. Risk scores for a given hazard were averaged within each criteria, then the averaged scored applied to the algorithm for determination of a countywide risk score calculated from the communities identifying that hazard (i.e. if 4 communities identified a hazard, it was averaged on those 4 communities' scores). We recognize this could give some hazards an artificially high ranking if rated high by just a couple communities, however we feel this is offset by each community having their own priorities identified in the plan. Some community hazards were combined with similar hazards in other communities for the county wide hazard list. Hazards with few communities identifying them, especially if low scoring, did not have hazard profiles developed.



Occurrence		
Value	Probability	Definition
0	None	Not likely to ever occur
1	Rare	Not likely within 100 year pe-
2	Occasional	Likely to occur within 100 year period
3	Frequent	Likely to occur within 25 year

How often does it happen?

Population		
Value	Impact	Definition
1	Low	Less than 15% of population exposed to the hazard
2	Moderate	15-29% of population exposed to the hazard
3	High	More than 30% of population exposed to the hazard

How many people are exposed to the hazard?

Property		
Value	Impact	Definition
1	Low	Property exposure less than 15% of total replacement cost
2	Moderate	Property exposure between 15-29% of total replacement
3	High	Property exposure is more than 30% of total replace-

How much property is exposed to the hazard?

Economy		
Value	Impact	Definition
1	Low	Loss estimate less than 9% of total community replacement cost
2	Moderate	Loss estimate between 10-19% of total community replacement cost
3	High	Loss estimate great than 19% of total community replacement cost

What is the impact if that property is destroyed?

Final hazard rankings for Gallatin County were presented at the All Hazards All Discipline meeting on June 19, 2025. Hazard rankings and the corresponding risk score values are presented below.

Gallatin County Countywide Hazard Summary

	Probability of Occurrence	Population Impact	Property Impact	Economic Impact	Relative Overall Risk
	(0-3)	(1-3) raw	(1-3) raw	(1-3) raw	(0-54)
Wind Events	3.0	3.0	3.0	2.0	51.0
Earthquake	2.5	3.0	3.0	2.8	44.6
Railway Incidents	2.8	2.8	2.5	2.3	42.6
Severe Weather	2.8	2.7	2.5	2.0	42.5
Electrical Outage	3.0	3.0	1.5	1.5	40.5
Wildfire - WUI	2.8	2.3	2.3	2.2	39.2
Community Access	3.0	3.0	1.0	2.0	39.0
Air Quality	3.0	3.0	1.0	1.0	36.0
Critical Infrastructure Failure	3.0	2.7	1.3	1.3	36.0
Public Notification Limitations	3.0	3.0	1.0	1.0	36.0
Utility Outage - Water & Gas	2.8	2.5	1.8	1.0	33.0
Communicable Disease	2.8	2.7	1.2	1.2	32.6
Flooding	2.7	2.3	1.5	1.7	31.1
Water Supply/ Drought & Quality	2.7	2.5	1.3	1.5	31.1
Wildland Fire - Forest	3.0	2.0	1.0	2.0	30.0
Cybersecurity	2.5	2.3	1.3	1.0	25.6
Urban Conflagration	2.3	1.7	1.3	1.7	21.8
Hazardous Materials Incident	2.2	2.0	1.3	1.3	21.7
Transportation Accidents	2.8	1.4	1.0	1.0	20.2
Active Killer	2.0	2.0	1.3	1.3	20.0
Mental Health	2.5	1.5	1.0	1.0	18.8
Aviation Incidents	2.7	1.0	1.5	1.0	18.7
Community Resilience	2.0	2.0	1.0	1.0	18.0
Mass Casualty Incident	3.0	1.0	1.0	1.0	18.0
Illegal Drugs	2.5	1.0	1.5	1.0	17.5
Terrorism	1.8	2.0	1.3	1.3	17.1
Volcano Eruption	1.0	2.8	2.8	2.8	16.8
Dam Failures	1.3	1.7	1.5	1.5	12.7
Landslide & Avalanche	1.8	1.0	1.0	1.3	10.9
Violence and Civil Unrest	1.8	1.0	1.0	1.0	10.8

Belgrade Hazard Summary

Belgrade					
Hazard	Probability of Occurrence	Population Impact	Property Impact	Economic Impact	Relative Overall Risk
	(0-3)	(1-3) raw	(1-3) raw	(1-3) raw	(0-54)
Trains	3	3	3	2	51
Wind Event	3	3	3	2	51
Flooding	3	3	2	2	45
Water Supply	3	3	2	1	42
Severe Weather	3	3	2	1	42
Earthquake	2	3	3	3	36
Electrical Outage	3	3	1	1	36
Wildfire	3	2	2	2	36
Air Quality	3	3	1	1	36
Communicable Disease	3	3	1	1	36
Communications Outage	3	3	1	1	36
Municipal Utilities	3	2	2	1	33
Cybersecurity	3	2	2	1	33
Transportation Accidents	3	2	1	1	27
Aviation	3	1	2	1	24
Dam Failure	1	3	3	3	18
Hazardous Materials	2	2	1	1	18
Community Resilience	2	2	1	1	18
Volcano	1	3	3	3	18
Violence & Civil Unrest	2	1	1	1	12

Big Sky Hazard Summary

Hazard	Big Sky Probability of Occurrence (0-3)	Population Impact (1-3) raw	Property Impact (1-3) raw	Economic Impact (1-3) raw	Relative Overall Risk (0-54)
Wildland Fire - WUI	3	3	3	3	54
Limited Access	3	3	1	2	39
Air Quality	3	3	1	1	36
Public Notification	3	3	1	1	36
Telecommunications Infrastructure	3	3	1	1	36
Transportation Infrastructure	3	3	1	1	36
Earthquake	2	3	3	3	36
Utility Infrastructure	2	3	3	1	32
Wildland Fire - Forest	3	2	1	2	30
Flooding	3	2	1	1	27
Communicable Disease & Bio Terrorism	3	2	1	1	27
Hazardous Materials Release	3	2	1	1	27
Severe Drought	2	3	1	1	24
Severe Weather	2	2	2	2	24
Volcano	1	3	3	3	18
Ground Transportation Accident	3	1	1	1	18
Mass Casualty Incident	3	1	1	1	18
Land Slide & Avalanche	2	1	1	1	12
Violence, Terrorism & Civil Unrest	2	1	1	1	12
Aviation	2	1	1	1	12
Dam Failure	1	1	1	1	6

Bozeman Hazard Summary

Bozeman					
Hazard	Probability of Occurrence	Population Impact	Property Impact	Economic Impact	Relative Overall Risk
	(0-3)	(1-3) raw	(1-3) raw	(1-3) raw	(0-54)
Extreme Weather Event	3	3	3	2	51
Wildfire	3	3	2	3	48
Air Quality	3	3	1	1	36
Drought	3	3	1	1	36
Communicable Disease	3	3	1	1	36
Critical Infrastructure Failure	3	3	1	1	36
Earthquake	2	3	3	2	34
Railroad	3	2	2	1	33
Hazardous Materials	3	2	1	1	27
Cybersecurity	2	3	1	2	26
Flooding	2	2	2	2	24
Bio Terrorism	2	3	1	1	24
Ground Transportation Accident	3	1	1	1	18
Dam Failure	1	3	2	2	15
Civil Unrest	2	1	1	1	12
Active Killer	2	1	1	1	12
Aviation Accident	2	1	1	1	12
Landslides and Avalanches	2	1	1	1	12

Manhattan Hazard Summary

Manhattan					
Hazard	Probability of Occurrence	Population Impact	Property Impact	Economic Impact	Relative Overall Risk
	(0-3)	(1-3) raw	(1-3) raw	(1-3) raw	(0-54)
Earthquake	3	3	3	3	54
Severe Weather	3	3	3	3	54
Train	3	3	2	3	48
Flooding	3	3	1	2	39
Wildfire	3	1	3	1	30
Hazardous Materials	2	3	2	2	30
Aviation Accident	3	1	3	1	30
Utility Outage	3	2	1	1	27
Ground Transportation	3	2	1	1	27
Water Quality	2	3	1	2	26
Communicable Disease & Bioterrorism	2	3	1	1	24
Cybersecurity	2	3	1	1	24
Mental Health	2	2	1	1	18
Volcano	1	3	3	3	18
Active Shooter	1	3	2	2	15
Drug Issues	2	1	1	1	12
Terrorism	1	2	1	2	10
Urban Conflagration	1	2	1	2	10
Dam Failure	1	2	1	1	9
Violence	1	1	1	1	6
Civil Unrest	1	1	1	1	6

Three Forks Hazard Summary)

Three Forks					
Hazard	Probability of Occurrence	Population Impact	Property Impact	Economic Impact	Relative Overall Risk
	(0-3)	(1-3) raw	(1-3) raw	(1-3) raw	(0-54)
Earthquake	3	3	3	3	54
Flooding	3	3	2	2	45
Severe Weather	3	2	2	2	36
Environmental Hazards	3	2	2	2	36
Critical Infrastructure Disruption	3	2	2	2	36
Communicable Disease and Bioterrorism	3	2	2	2	36
Urban Conflagration	3	2	2	2	36
Railroad Accident	2	3	3	3	36
Substance Addiction	3	1	2	1	24
Hazardous Materials Release	2	2	2	2	24
Dam Failure	2	2	2	2	24
Terrorism	2	2	2	1	22
Drought	3	1	1	2	21
Wildfire	2	2	1	1	18
Mental Health	3	1	1	1	18
Aviation Accident	3	1	1	1	18
Active Shooter	2	2	1	1	18
Ground Transportation Accident	2	1	1	1	12
Volcano	1	2	2	2	12
Civil Unrest	2	1	1	1	12
Violence	1	1	1	1	6
Skydiving Accident	1	1	1	1	6
Avalanche and Landslide	0	1	1	1	0

West Yellowstone Hazard Summary (District 1)

West Yellowstone					
Hazard	Probability of Occurrence	Population Impact	Property Impact	Economic Impact	Relative Overall Risk
	(0-3)	(1-3) raw	(1-3) raw	(1-3) raw	(0-54)
Wildfire	3	3	3	3	54
Earthquake	3	3	3	3	54
Severe Weather	3	3	3	2	51
Critical Infrastructure - Electric	3	3	2	2	45
Air Quality	3	3	1	1	36
Critical Infrastructure - Water	3	3	1	1	36
Critical Infrastructure - Telecommunications	3	3	1	1	36
Communicable Disease	3	3	1	1	36
Drought	3	2	2	2	36
Critical Infrastructure - Natural Gas	2	3	2	2	30
Cyber Security	3	2	1	1	27
Ground Transportation	3	1	1	1	18
Volcano	1	3	3	3	18
Urban Conflagration	3	1	1	1	18
Landslides	2	1	1	2	14
Violent Attack	2	1	1	1	12
Terrorism & Bioterrorism	1	3	1	1	12
Aviation Accident	2	1	1	1	12
Avalanche	2	1	1	1	12
Flooding	2	1	1	1	12
Dam Failure	1	1	1	1	6
Hazardous Materials	1	1	1	1	6

Mitigation Strategy



5.0 MITIGATION STRATEGY

Hazard mitigation, as defined by the Disaster Mitigation Act of 2000, is any sustained action taken to reduce or eliminate the long-term risk to human life and property from hazards. The development of a mitigation strategy allows the community to create a vision for preventing future disasters, establish a common set of mitigation goals, prioritize actions, and evaluate the success of such actions.

The Service Area Mitigation Strategy is based on the results of the risk assessment and recommendations by knowledgeable community members through the Emergency Planning Committee (EPC) and public meetings. The overarching mission of this mitigation strategy is to:

- ***Reduce or prevent losses from disasters*.**

Rather than wait until a disaster occurs, Gallatin and Madison Counties, the City of Bozeman, the City of Belgrade, the City of Three Forks, the Town of West Yellowstone, and the Town of Manhattan, have developed this strategy to move in a proactive direction in disaster prevention. All losses cannot be entirely mitigated, however, some actions can be taken, as funding and opportunities arise, that may reduce the impacts of disasters and eventually save taxpayers' money. The mitigation actions were developed based on direct input from the community and prioritized through a multi-step process.

The Gallatin County Emergency Planning Committee is the lead collaborative group for review, coordination and implementation of mitigation strategies in the GCEM Service Area. Gallatin County Emergency Management provides the staff support and leadership for these activities.

5.1 GOALS AND OBJECTIVES

Goals were defined for the purpose of this HMP update as broad-based, public policy statements that:

- Represent basic needs of the community;
- Encompass all aspects of community, public and private;
- Are non-specific, referring to the quality (not the quantity) of the outcome;
- Are future-oriented, and thus achievable in the future; and
- Are time-independent, meaning they are not scheduled events.

Goals are stated without regard for implementation; that is, implementation cost, schedule, and means are not considered. Goals are defined before considering how to accomplish them so that the goals are not dependent on the means of achievement. Goal statements form the basis for objectives and actions that will be used as conduits to achieve the goals. Objectives define strategies to attain the goals and are more specific and measurable. Mitigation actions are specific actions that help achieve the goals and objectives of the plan.

To facilitate the update of this plan, stakeholders reviewed the list of goals from the 2020 Gallatin County HMP. This review was completed to ensure that the updated mitigation strategy represented a logical progression of the mitigation strategies and implementation plans developed in previous versions of the HMP (2006, 2012, 2020). Stakeholders could use, combine, or revise the goal statements provided or develop new ones, keeping the risk assessment in mind.

All six of the goal statements from the 2012 HMP were retained, with minor revisions to the exact wording for some of the goal statements. Two additional goal statements were added to address potential impacts from *Severe Weather and Drought*, and *Critical Infrastructure Disruption*.

The following list of goals and objectives developed from October 2025 through February 2026 through virtual solicitation.

Goal 1: Reduce Impacts from Wildfire

- Objective 1.1: Reduce private losses in the Wildland-Urban Interface (WUI).
- Objective 1.2: Increase understanding of the wildfire hazard areas.
- Objective 1.3: Assist property owners in completing mitigation measures.

Goal 2: Reduce Impacts from Severe Weather and Drought

- Objective 2.1: Improve weather forecasting capabilities and information distribution.
- Objective 2.2: Support coordination with state and local drought management initiatives.

Goal 3: Reduce Impacts from Earthquakes

- Objective 3.1: Implement property protection projects to reduce impacts from earthquakes.
- Objective 3.2: Conduct mapping, analysis, and planning projects to reduce impacts from earthquakes.

Goal 4: Reduce Impacts from Critical Infrastructure Disruption

- Objective 4.1: Implement projects to reduce impacts from critical infrastructure disruption.
- Objective 4.2: Improve emergency services communication and resiliency.
- Objective 4.3: Provide measures that enhance the confidentiality, integrity and availability of Cyber-data and information.

Goal 5: Reduce Impacts from Flooding

- Objective 5.1: Implement property protection projects to reduce impacts from flooding.
- Objective 5.2: Conduct planning. analysis, and mapping projects to reduce impacts from flooding.
- Objective 5.3: Implement prevention projects to reduce impacts from flooding.
- Objective 5.4: Provide public education and awareness to reduce impacts from flooding.

Goal 6: Reduce Losses from a Transportation or Hazardous Materials Accident

- Objective 6.1: Enhance emergency services to mitigate impacts from transportation or HAZMAT accident.

Goal 7: Prevent Significant Loss of Life from Communicable Disease and Bioterrorism

- Objective 7.1: Provide public education and awareness to reduce impacts from communicable disease.
- Objective 7.2: Provide state and local governments with antidote supplies.

Goal 8: Promote All-Hazard Mitigation Measures

Objective 8.1: Provide public education, awareness, and treatment to reduce impacts from all hazards.

Objective 8.2: Enhance inter-jurisdictional coordination.

Objective 8.3: Increase and enhance mental health system.

Objective 8.4: Conduct training to address violence and public attacks.

5.2 Action Identification and Prioritization

For each objective in the county's risk mitigation strategy, one or more projects are proposed as a means of achieving the objective. In general, the types of mitigation actions can be placed in one of the following categories, which originate from the National Flood Insurance Program's Community Rating System:

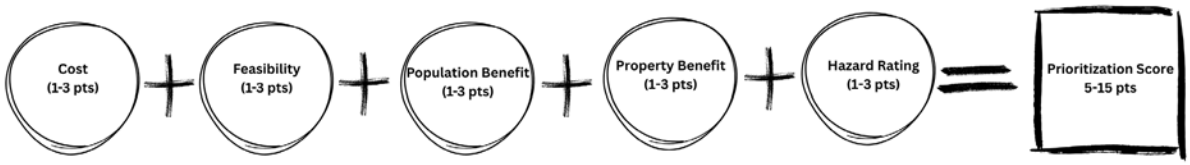
- **Prevention:** Administrative or regulatory actions or processes that influence the way land and buildings are developed and built.
- **Property protection:** Actions that involve the modification of existing buildings or structures to protect them from a hazard or remove them from the hazard area.
- **Structural:** Actions that involve the construction of structures to reduce the impact of a hazard.
- **Natural resource protection:** Actions that, in addition to minimizing hazard losses, also preserve or restore the functions of natural systems.
- **Emergency services:** Actions that protect people and property during and immediately after a disaster or hazard event.
- **Public information/education and awareness:** Actions to inform and educate citizens, elected officials, and property owners about the hazards and potential ways to mitigate them.

Each of the proposed projects has value, however, time and financial constraints do not permit all the proposed actions to be implemented immediately. By prioritizing the actions, the most critical and cost-effective projects can be achieved in the short term. The prioritization of the projects serves as a guide for choosing and funding projects; however, depending on the funding sources, some actions may be best accomplished outside the priorities established in this HM-CWPP.

To ensure that community goals and other factors are considered when prioritizing projects, a prioritization model that uses the following factors has been developed: cost (including management costs), feasibility (politically, socially, and environmentally), population benefit, property benefit, and hazard rating.

Each of the factors was ranked low, moderate, or high for each of the projects. The methods used to assign a category and the associated score can be generally defined as follows:

Cost:	3 Score:	Low: < $10,000
(including management)	2 Score:	Moderate: $10,000 to $50,000
	1 Score:	High: > $50,000
Feasibility:	3 Score:	High – high community support
(politically, socially, environmentally)	2 Score:	Moderate – mixed community support
	1 Score:	Low – minimal community support
Population Benefit:	3 Score:	High: > 50% of population benefits
(existing or future)	2 Score:	Moderate: 5 to 50% of population benefits
	1 Score:	Low: < 5% of population benefits
Property Benefit:	3 Score:	High: > 50% of property benefits
(existing or future)	2 Score:	Moderate: 5 to 50% of property benefits
	1 Score:	Low: < 5% of property benefits
Hazard Rating:	3 Score:	High
(from risk assessment summary)	2 Score:	Moderate
	1 Score:	Low



5.2.1 Capability Improvement Strategy

Each participating jurisdiction recognizes that its existing planning, regulatory, administrative, technical, financial, and outreach capabilities provide a foundation for implementing this plan's mitigation strategy. The participants will build on those capabilities over the five-year plan cycle by pursuing the capability-improvement actions identified below. Improvements will be coordinated through the Gallatin Emergency Planning Committee, with each jurisdiction responsible for advancing actions within its authority, available resources, and budget.

Participating agencies will review applicable local planning mechanisms during routine update cycles to identify opportunities for incorporating hazard mitigation principles, risk assessment information, and mitigation actions. This includes integrating hazard-related considerations into comprehensive and growth policies, capital improvement programming, subdivision and zoning review processes, infrastructure planning, emergency management programs, wildfire planning efforts, floodplain management activities, and other local decision-making processes. Agencies will coordinate through the Gallatin Emergency Planning Committee to share information, identify best practices, and support consistent implementation of mitigation measures across jurisdictions.

5.2.2 Participating Agency capability improvements

Participating agencies will expand their mitigation capability by strengthening coordination among members of the Gallatin Emergency Planning Committee and by integrating hazard mitigation considerations into local plans, policies, regulations, capital investments, and day-to-day planning and development decisions throughout the planning period.

Over the Plan period, participating agencies will improve their ability to achieve mitigation by pursuing the following actions:

- Identify primary agency representatives with responsibility for plan maintenance and participation in the Gallatin Emergency Planning Committee.
- Seek training for staff, elected officials, board members, and volunteers on hazard mitigation planning, grant management, floodplain management, building codes, earthquake mitigation, wildfire mitigation, and other locally relevant hazards.
- Maintain and, where appropriate, update local floodplain, building, land-use, subdivision, and development regulations to reflect current hazard information, applicable state and federal requirements, and locally adopted standards.
- Improve coordination between city, county, state, federal, utility, nonprofit, and private-sector partners to share hazard information, identify projects, and pursue joint mitigation opportunities.
- Identify and pursue grant opportunities, local appropriations, capital-improvement funding, in-kind resources, and other allowable match sources to support mitigation projects.

- Improve public outreach by using community meetings, websites, social media, mailings, local media, school outreach, and other communication methods to provide residents and businesses with hazard-preparedness and mitigation information.
- Incorporate updated hazard data, post-disaster information, flood studies, wildfire-risk information, infrastructure assessments, and future-development information into local planning and project-prioritization decisions.
- Maintain or improve inventories of critical facilities, infrastructure, vulnerable populations, repetitive-loss areas, drainage concerns, wildfire-risk areas, and other assets or conditions relevant to the mitigation strategy in a geospatial data set.
- Evaluate progress annually in the Emergency Planning Committee and revise implementation priorities when new hazards, development patterns, funding opportunities, disaster impacts, or capacity limitations are identified.

Below are the identified projects for the 2026 plan update, and prioritization scoring for each project. Documentation of changes in the list of projects, from the 2020 HMP to this 2026 HMP update, is provided after each goal, and summarized.

Goal 1: Reduce Impacts from Wildfire

Objective	Projects	Cost	Feasibility	Population	Property	Rating	Score
1.1 Reduce private losses in the Wildland-Urban Interface (WUI).							
	Encourage cross jurisdiction projects and coordination through the Fire Adapted Gallatin Working Group.	3	2	3	3	2	**13**
	Expansion of early detection tools such as cameras, satellite, etc…	2	3	3	3	2	**13**
	Expand implementation of Fire Adapted Community Programs for communities in WUI interface and intermix areas with risk of high wildfire impact such as Bridger Canyon, Bozeman Pass, Northern Gallatin Front, Beckman Flats, Clarkston, Big Sky and West Yellowstone.	3	2	3	2	2	**12**
	Continue wildfire risk assessments that support property owners understanding of risk reduction through landscape, home ignition zone, and home hardening best practices.	1	3	3	2	2	**11**
	Research and implement sustainable approaches for wildfire mitigation programs to support the communities in intermix areas across the service area.	3	2	2	2	2	**11**
	Increase wildfire response capacity to reduce impacts through innovative approaches to expand wildland urban interface firefighting skills, available resources and specialized firefighting tools.	1	2	3	3	2	**11**
	Continue building wildfire mitigation skills and capacity among local partners through collaborative activities, training and project implementation.	3	1	2	2	2	**10**

	Review and update Subdivision Regulations for wildfire risk in all communities.	2	1	2	2	2	**9**
	Opportunities to integrate standards and mitigation best practices into zoning.	2	1	2	2	2	**9**
	Explore implementation of the International Wildland Urban Interface Code.	2	1	2	2	2	**9**
1.2	**Increase understanding of the wildfire hazard risk, resulting fire behavior and the effect of mitigation.**						
	Provide wildland fire incident reports to DNRC to maintain accurate wildfire history database for Gallatin County.	3	3	3	3	2	**14**
	Implement a online storyboard tool that graphically explains wildfire risk and opportunities.	3	3	3	3	2	**14**
	Expand community understanding of fuels and fire weather conditions and the associated metrics.	3	3	3	3	2	**14**
	Enhance smoke education and mitigation measures.	3	3	3	3	2	**14**
	Maintain current data analysis of wildfire risk conditions locally with integration of CWPP with Hazard Mitigation Plan to ensure a 5-year update cycle.	2	3	3	3	2	**13**
	Ensure collaborative planning for Potential Operational Delineations.	3	2	2	2	2	**11**
1.3	**Increase implementation of wildfire mitigation on private lands.**						
	Maintain active list of high impact wildfire mitigation project areas within Community Wildfire Protection planning process.	3	3	3	2	2	**13**
	Participate in and support rollout of the new State of Montana Certified Burner program.	3	2	2	1	2	**10**
	Maintain wildfire mitigation program to continue wildfire risk assessments across the service area.	1	2	2	2	2	**9**

	Research and implement opportunities to expand support for private landowner wildfire mitigation work by lowering the cost barrier.	1	2	2	1	2	**8**
	Grow capacity in fuels modules to expand available work season.	1	2	2	1	2	**8**
	Grow capacity in fuels modules to better support implementation of prescribed fire.	1	2	2	1	2	**8**
	Continue varying approaches to market available support programs.	2	2	1	1	2	**8**
1.4	**Increase fuel management projects on publicly owned lands.**						
	Maintain Fire Adapted Gallatin Working Group to support planning and coordination of cross boundary collaborative fuels projects.	3	3	3	1	2	**12**
	Continue and expand opportunities for Supplemental Fire Project Agreement activities to support reduction on fuel on public lands.	3	2	2	1	2	**10**
	Identify projects that increase resilience of watersheds to wildfire.	3	1	2	2	2	**10**
	Investigate opportunities for projects through Good Neighbor Authority.	3	1	2	1	2	**9**
	Identify and prioritize projects along adjacent public and private lands.	2	1	2	1	2	**8**

The intent of Goal 1 stayed the same in this plan update; however the group added more specification to the objectives. Objective 1.4 was added to identify approaches to better combine work being conducted by local government-based wildfire mitigation programs and federal land management agencies.

Goal 2: Reduce Impacts from Severe Weather and Drought							
Objective	**Projects**	**Cost**	**Feasibility**	**Population**	**Property**	**Rating**	**Score**
2.1	**Improve weather forecasting capabilities and information distribution.**						
	Develop tools to support better real time situational awareness through technology such as remote weather stations and cameras.	2	2	3	3	3	**13**
	Support opportunities to establish local radar to support enhanced weather forecasts in the Gallatin Valley and Gallatin Canyon.	1	2	3	3	3	**12**
	Sustainment and expansion of local gauging and weather stations such as snotel, RAWS, AgroMet, AWOS and other local data sources.	2	3	2	2	2	**11**
	Continue supporting annual severe weather education and preparedness program rotating among all communities.	3	1	1	1	3	**9**
2.2	**Support coordination with state and local drought management initiatives.**						
	Planning for future water needs and future approaches to close the gap.	3	2	3	3	2	**13**
	Continue expansion of drought Communication and Outreach Program.	3	2	3	2	2	**12**
	Continuing expansion of Water Use Education.	3	2	3	2	2	**12**
	Support development of Drought and Deluge Adaptive Management Plan.	2	2	2	2	2	**10**
	Continue research and implementation of aquifer Storage and Recovery project.	1	1	3	2	2	**9**
2.3	**Develop debris management plan for expedited recovery.**						
	Develop and implement a debris management plan.	3	3	3	3	3	**15**
	Expand internal knowledge with government agencies to support debris management.	3	3	3	3	3	**15**

2.4 Increase community recognition of disaster resilient building construction.							
	Develop and/ or amplify toolkits for low water usage construction and landscaping.	3	3	3	2	2	**13**
	Develop local toolkits to support options for wind resistant construction approaches.	3	3	2	2	3	**13**
	Develop toolkit that consolidates resources on construction for heavy snow load areas.	3	3	1	1	3	**11**
	Investigate opportunities to include resilient building approaches into subdivision regulations and zoning.	2	2	2	1	2	**9**

This Goal was new in 2020 and expanded in 2026 in recognition of increased long term weather changes with increased frequency of impactful short term weather events. The community continues to see seasonal weather patterns considered "not normal" in modern history. Additionally, we have seen a noticeable increase in localized winds.

Goal 3: Reduce Impacts from Seismic Events							
Objective	**Projects**	**Cost**	**Feasibility**	**Population**	**Property**	**Rating**	**Score**
3.1	**Increase education on mitigation opportunities to reduce impacts from earthquakes.**						
	Seek opportunities to implement seismic retrofits in older facilities not meeting current standards.	1	1	2	1	3	**8**
	Seek opportunities to implement retrofit projects anchoring transformers and generators at critical facilities.	1	1	2	1	3	**8**
	Explore opportunities to implement expansion joints for utilities	1	1	2	1	3	**8**
3.2	**Conduct mapping, analysis, and planning projects to reduce impacts from earthquakes.**						
	Continuing Earthquake retrofit education and expansion of online community resources.	3	3	3	3	3	**15**
	Research earthquake retrofit financial incentives to offset local match requirements.	1	2	3	3	3	**12**
	Support commercial structures seismic surveys.	2	2	2	1	3	**10**
	Conduct seismic bridge inspections.	1	2	2	1	3	**9**
3.3	**Increase community knowledge of local earthquake risk.**						
	Develop educational campaign covering the region's earthquake history and risk.	3	3	3	3	3	**15**
	Update website earthquake preparedness page with more recent materials.	3	3	3	3	3	**15**

Updates to Goal 3 are mostly semantical. However, Objective 3.3 was added in recognition that this is a low frequency, high impact hazard that many residents likely to not fully recognize their exposure to.

Goal 4: Reduce Impacts from Critical Infrastructure Disruption							
Objective	**Projects**	**Cost**	**Feasibility**	**Population**	**Property**	**Rating**	**Score**
4.1	**Implement projects to reduce impact and recover rapidly from critical infrastructure disruption.**						
	Develop tools to support prioritization and hardening of critical infrastructure to support continuity of operations for critical operations.	1	2	2	2	2	**9**
	Reduce reliance on individual water and waste water systems through development of wide area district or municipal systems.	1	2	2	2	2	**9**
4.2	**Improve emergency services communication and resiliency.**						
	Expand education on vulnerability and importance of Critical Infrastructure Backup Systems (Facilities and Communication) to ensure all agencies continuity of operation.	1	3	3	3	2	**12**
	Support implementation and expansion of redundant data systems for critical facilities and systems.	1	3	3	3	2	**12**
	Seek opportunities for backup generator retrofit projects for critical facilities.	1	2	2	2	2	**9**
4.3	**Provide measures that enhance confidentiality, integrity, and availability of cyber data.**						
	Improve the awareness and understanding of cybersecurity risk to all jurisdictions.	3	3	3	3	2	**14**
4.4	**Increase understanding of Public Safety Power Shutoff impacts.**						
	Enhance community understanding of Public Safety Power Shutoffs.	3	3	2	1	3	**12**
	Begin integration of Public Safety Power Shutoffs into planning and coordination activities.	3	3	2	1	3	**12**

4.5 Enhance understanding of utility services and outage impact reduction opportunities.						
Develop understanding of critical systems, their effects and approaches to reduce impacts.	3	3	3	2	3	**14**
Enhance relationship and coordination with utility providers.	3	3	3	2	3	**14**

Goal 4 was expanded with new components to the first three objectives and the addition of two more. Much of the new objectives relate to how reliant our community is on power and communications with the high tourist population. The objectives address awareness and redundancy approaches to continue business operations. Some of this emphasis is specifically derived from Objective 4.4 with the introduction of Public Safety Power Shutoffs to Montana in 2025.

Goal 5: Reduce Impacts from Flooding							
Objective	**Projects**	**Cost**	**Feasibility**	**Population**	**Property**	**Rating**	**Score**
5.1 Implement property protection projects to reduce impacts from flooding.							
	Expand knowledge of proper permitting for debris removal process from waterways.	3	2	1	1	2	**9**
	Sustainment of the Three Forks Flood Mitigation Project.	2	3	1	1	2	**9**
	Development and implementation of bank stabilization and stream restoration projects in waterways.	2	2	1	1	2	**8**
	Continued support for Stormwater Management projects in Bozeman, Belgrade and Manhattan.	1	2	2	1	2	**8**
	Continue community planning process to limit development within the mapped floodplains.	1	3	1	1	2	**8**
	Work to maintain, or renew, certification for flood control measures such as dikes and levees along the Jefferson, Madison, Gallatin and Missouri Rivers along with their tributaries.	1	2	1	1	2	**7**
	Promote implementation of flood diversion projects to reduce identified flood zones in areas along the Jefferson, Madison, Gallatin and Missouri Rivers.	1	2	1	1	2	**7**
	Research and implementation of open space, or park, designs that divert/ hold flood water away from development in urban areas.	1	2	1	1	2	**7**
	Research and implement projects to mitigate exposure to Critical Facilities located in a floodplain.	1	1	1	1	2	**6**

5.2	**Conduct planning, analysis, and mapping projects to reduce impacts from flooding.**						
	Support channel Migration Zone (CMZ) Mapping projects on the Gallatin, Madison and Jefferson Rivers and their tributaries.	1	3	1	1	2	**8**
	Review and update dam failure mapping with modern models for high hazards dams with inundation areas affected the service area.	1	2	2	1	1	**7**
5.3	**Implement prevention projects to reduce impacts from flooding.**						
	Develop and maintain Floodplain Regulations for mapped floodplains in Gallatin County, Bozeman, Belgrade and Three Forks.	2	3	1	1	2	**9**
	Continued sustainment of Middle Creek Early Warning System.	2	3	1	1	1	**8**
	Reduce flood hazards associated with Bozeman Creek by implementing flood hazard mitigation projects or programs adopted by the Bozeman City Commission contained in the Bozeman Creek Vision Plan once completed.	1	3	1	1	2	**8**
	Reduce flood hazards associated with Bozeman Creek in the Bozeman downtown core by investigating structural stability and implementing necessary structural modifications to the historic tunnel structure conveying Bozeman Creek under Main Street and the privately owned buildings on either side.	1	2	1	1	2	**7**
	Reduce overbank flooding of Bozeman Creek within the City of Bozeman by implementing channel modifications in key locations.	1	2	1	1	2	**7**
	Reduce flood hazards associated with Bozeman Creek to the historic core of the City of Bozeman by constructing a flood bypass channel to convey excess Bozeman Creek floodwaters around the historic core of the City of Bozeman.	1	2	1	1	2	**7**
	Research Buy-out/Relocation Feasibility options for any repetitive loss properties.	1	1	1	1	2	**6**

5.4 Provide public education and awareness to reduce impacts from flooding.						
Continue annual education campaign on National Flood Insurance Program and privately backed options.	3	2	1	1	2	**9**
Implement reoccurring educational campaign highlighting the high hazard dams in the community and their inundation areas.	3	2	1	1	1	**8**
Community education on flood fighting approaches and safe movement around flood waters.	3	2	1	1	2	**9**

Goal 5 remained fairly static with semantical updates and some specific projects added into existing objectives.

Goal 6: Reduce Losses from Transportation or Hazardous Materials Accident							
Objective	**Projects**	**Cost**	**Feasibility**	**Population**	**Property**	**Rating**	**Score**
6.1	**Enhance emergency services to mitigate impacts from transportation or HAZMAT accidents.**						
	Continue use and support of E-Plan for Fixed Site Mapping (TIER) for all communities in the service area.	3	3	3	3	2	**14**
	Develop, train and equip. emergency responders for dealing with Mass Casualty Incidents (MCIs) with buildout of regional response plan and equipment.	3	3	3	3	1	**13**
	Continued support for the Bozeman-Gallatin County Hazardous Materials Response Team.	2	3	3	3	2	**13**
	Ensure sustainment of the regional mass casualty incident response trailers.	2	3	3	3	1	**12**
	Develop Emergency/Evacuation Transportation Plan for communities.	3	2	2	1	2	**10**
6.2	**Identify opportunities to minimize railway traffic conflicts.**						
	Investigate and implement options for railway overpass, or underpass, projects on major community corridors such as Rouse, Griffin, Valley Spur, South Broadway (Belgrade), Jackrabbit, North Broadway (Manhattan).	1	2	2	1	3	**9**
6.3	**Increase community understanding of commodity transport in the area.**						
	Continued period review of commodity flow reports/ studies.	2	2	2	1	2	**9**

While the approach hasn't changed, significant details were added to Goal 6. Objective 6.1 was specifically broken out into ranked activities. Objective 6.2 was added to identify rail and vehicle conflicts at crossings in busy areas. Objective 6.3 recognizes that we have many blind areas of transported materials in our community due to limited data or shipping methods.

Goal 7: Prevent Significant Loss of Life from Communicable Disease and Bioterrorism							
Objective	**Projects**	**Cost**	**Feasibility**	**Population**	**Property**	**Rating**	**Score**
7.1 Provide public education and awareness to reduce impacts from communicable disease.							
	Promote public education on preventing communicable disease	3	3	3	1	2	**12**
	Continue providing training for the Health Dept. on incident response.	3	3	3	1	2	**12**
	Development and sustainment of Medical Surveillance System.	2	2	3	1	2	**10**
	Coordination with state agencies on animal borne disease.	3	2	2	1	2	**10**
7.2 Provide state and local governments with antidote supplies.							
	Continue review and sustainment of Chempack program for the region.	3	3	3	1	1	**11**

Goal 7 did not have any changes in this update.

Goal 8: Promote All-Hazard Mitigation Measures							
Objective	**Projects**	**Cost**	**Feasibility**	**Population**	**Property**	**Rating**	**Score**
8.1	**Continue programs to prepare and communicate with the community.**						
	Continuing sustainment and expansion of Community Notification System with residents and for internal use by organizations.	2	3	3	3	2	**13**
	Continue promotion of overall Community Preparedness Program in the both counties and all 5 cities and towns.	3	3	3	3	1	**13**
	Continue community outreach on individual preparedness to reduce community impacts in a disaster.	3	3	3	3	1	**13**
8.2	**Enhance inter-jurisdictional coordination.**						
	Continuing expansion of coordination activities among partner agencies.	3	3	3	3	1	**13**
	Improve health care system communication in the service area.	3	2	3	1	1	**10**
	Improve emergency response coordination between Gallatin/Madison Counties in Big Sky Area	3	3	1	1	1	**9**
8.3	**Increase and enhance mental health systems.**						
	Expand and sustain mental health treatment facilities throughout the county.	1	1	3	1	1	**7**
8.4	**Conduct training to address violence and public attacks.**						
	Provide training and programs to support response to Active Killer / Shooter events.	2	3	3	1	2	**11**
	Continue development and training of Rescue Task Forces.	2	3	3	1	2	**11**
8.5	**Increase mitigation knowledge and access to opportunities.**						
	Work on approaches to reduce mitigation application complexity for proposed projects.	2	2	2	2	2	**10**

	Seek opportunities to offset upfront costs (hard and personnel time) for completing mitigation project applications.	2	2	2	2	2	**10**
	Support approaches to lower the cost barrier for high priority mitigation projects.	2	2	2	2	2	**10**

Much of Goal 8 remained constant. Objective 8.2 had language added about our cross-county program. Objective 8.5 was added to identify approaches to better educate and prepare out community to conduct mitigation projects.

5.2.3 Summary of Changes to Mitigation Actions

Goal 1 - The intent of Goal 1 stayed the same in this plan update; however the group added more specification to the objectives. Objective 1.4 was added to identify approaches to better combine work being conducted by local government-based wildfire mitigation programs and federal land management agencies.

Goal 2 - This Goal was new in 2020 and expanded in 2026 in recognition of increased long term weather changes with increased frequency of impactful short term weather events. The community continues to see seasonal weather patterns considered "not normal" in modern history. Additionally, we have seen a noticeable increase in localized winds.

Goal 3 – Updates to Goal 3 are mostly semantical. However, Objective 3.3 was added in recognition that this is a low frequency, high impact hazard that many residents likely to not fully recognize their exposure to.

Goal 4 – Goal 4 was expanded with new components to the first three objectives and the addition of two more. Much of the new objectives relate to how reliant our community is on power and communications with the high tourist population. The objectives address awareness and redundancy approaches to continue business operations. Some of this emphasis is specifically derived from Objective 4.4 with the introduction of Public Safety Power Shutoffs to Montana in 2025.

Goal 5 - Goal 5 remained fairly static with semantical updates and some specific projects added into existing objectives.

Goal 6 – While the approach hasn't changed, significant details were added to Goal 6. Objective 6.1 was specifically broken out into ranked activities. Objective 6.2 was added to identify rail and vehicle conflicts at crossings in busy areas. Objective 6.3 recognizes that we have many blind areas of transported materials in our community due to limited data or shipping methods.

Goal 7 - Goal 7 did not have any changes in this update.

Goal 8 – Much of Goal 8 remained constant. Objective 8.2 had language added about our cross-county program. Objective 8.5 was added to identify approaches to better educate and prepare out community to conduct mitigation projects.

5.3 IMPLEMENTATION PLAN

This section outlines development of the final mitigation implementation plan. The implementation plan consists of the specific projects, or actions, designed to meet the plan's goals. Over time the implementation of these projects will be tracked as a measure of demonstrated progress on meeting the plan's goals.

5.3.1 PROGRESS ON PREVIOUS MITIGATION ACTIONS

Gallatin County and the six communities have continued implementing actions identified in the 2020 HMP Mitigation Strategy, thus working steadily towards plan goals.

The 2020 HMP mitigation strategy contained 49 separate mitigation actions for Gallatin County and/or the incorporated cities and towns within the county. Some highlights of project implementation for each goal in the 2020 HMP include:

Reduce Impacts from Wildfire (Goal 1, 2020 HMP):

- Fire Adapted Gallatin Working Group was established to bring entities conducting wildfire mitigation together with the primary intent of planning and coordinating projects so they compliment each other.
- Gallatin Wildfire Mitigation program was started to implement wildfire mitigation projects on private property. Over $3 million in funding was brought in by the program between 2020 and 2025 for project implementation.
- Full time Preparedness and Mitigation Manager was hired in 2023 to implement wildfire mitigation program.
- Saddle Peak Fuels Module was established in 2024 to implement low cost wildfire mitigation work, develop skills in local student firefighters and provide increased wildfire response capability.

Reduce Impacts from Severe Weather and Drought (Goal 2, 2020 HMP):

- Bozeman Yellowstone International Airport began exploration of collaborative approaches to get radar station in Gallatin Valley.

Reduce Impacts from Critical Infrastructure Disruption (Goal 4, 2020 HMP):

- Continuity of Operations Plans implemented for several entities.
- Redundant connectivity for county facilities implemented.
- Cybersecurity workshop hosted.

Reduce Impacts from Flooding (Goal 5, 2020 HMP):

- Channel Migration Zone mapping completed on Gallatin, Madison and Jefferson Rivers.
- Flood diversion and floodplain re-mapping completed in Three Forks.

Reduce Losses from a Transportation or Hazardous Materials Accident (Goal 6, 2012 HMP):

- Continued use of ER-Plan for Tier 2 central collection. Expanded access to Madison County.
- Continued MCI training with cache and MCI Bus.

Promote All-hazards Mitigation Measures (Goal 8, 2020 HMP):

- Numerous Community Notification System education campaigns implemented. Expansion to enable employee alerting.
- Consolidation of Emergency Management program in Big Sky implemented.
- Ongoing Active Killer training program implemented to support Rescue Task Force concept.

5.3.2 Mitigation Implementation Plan

The results of the 2026 project identification and prioritization meetings are summarized below. Forty projects that scored 13 or higher are shown in the table and ranked by priority score. Where applicable, notes regarding status of project implementation are provided.

Implementation Plan for Mitigation Actions in Gallatin County and Incorporated Cities/Towns

Project Description	Jurisdiction	Responsible Department/Partner	Potential Funding	Priority Score
Debris Management Plan	County, Municipalities	GCEM, Public Works	FEMA	15
Debris Management Knowledge Expansion	County, Municipalities	GCEM, Public Works	FEMA	15
Earthquake retrofit education	All	GCEM	FEMA	15
Earthquake education campaign	All	GCEM	FEMA	15

Project Description	Jurisdiction	Responsible Department/Partner	Potential Funding	Priority Score
Earthquake website update	All	GCEM	Budget	15
Provide incident reports to DNRC	Local Fire Agencies	Local Fire Agencies	N/A	14
Wildfire risk Online Storymap	All	County	Regular Budget	14
Expand community understanding of fuels and weather	All	County, Local Fire Agencies, DNRC, USFS	Regular Budget	14
Enhance smoke education and mitigation	All	County, Health	DEQ, EPA, FEMA	14
Enhanced understanding of cybersecurity risk	All	GCEM, IT	CISA	14
Impact reduction to critical systems	All	GCEM	FEMA, CISA	14
Enhance interaction with utilities	All	GCEM	Budget	14
Continue use of ERPlan	All	EPC, Local Fire	DEQ	14
Sustainment of FAGWG	All	County, State, USFS	FEMA, USDA, DOI	13
Early fire detection	County	GCEM, Local Fire, USFS, DNRC, Utilities, Business	USDA, FEMA, Industry	13
Continued use of hazard analysis	All	All	FEMA, USDA, State	13
Wildfire Mitigation Project Coordination	County	County, State, USFS, NRCS	FEMA, USDA, State	13
Tools for real time situational awareness	All	All	Varied	13
Water need planning	All	Public Works, Utilities	Varied	13
Toolkits for low water use	All	Public Works, Utilities, GCEM	FEMA, DEQ	13
Toolkits for wind resistant construction	All	Building, GCEM	FEMA	13
Support of MCI System	All	Local Fire, EMS, Healthcare, Law	FEMA, DPHHS	13
Support for HazMat Team	All	Local Fire, GCEM	FEMA, State	13
Expansion of Community Notification System	All	GCEM	Local, FEMA	13
Enhancement of community preparedness education	All	All	Local, FEMA	13
Education on individual preparedness	All	GCEM	Local, FEMA	13
Sustainment of interagency coordination	All	All	Local	13

5.4 EXISTING PROGRAMS

The approval of this plan recognizes the role of mitigation in the Service Area, Bozeman, Belgrade, Manhattan, Three Forks and West Yellowstone. Through adoption of this plan by the political subdivisions, the hazard information and recommendations presented in this plan will be available for incorporation into current and future planning initiatives by each jurisdiction, particularly growth policies, capital improvement plans, zoning regulations, and subdivision regulations. It is recognized that this document is not a regulating plan, but rather a consolidated look at hazards present in communities that each community can utilize to further prepare themselves with.

All planning departments participated in the development of this plan. Several jurisdictions had planning documents under development concurrently with this plan and worked to ensure the plans were aligned. Ongoing alignment occurs through participation from planning and community development agencies in the Emergency Planning Committee. Additionally, emergency management staff routinely directly interact with these partners' agencies. They routinely contact Emergency Management conducting planning and regulation updates to ensure they are referencing current emergency management plans, such as the Hazard Mitigation and Community Wildfire Protection Plan.

It is not perceived by stakeholders that development since the 2020 plan has altered the overall risk present anyplace in the County. All areas of the County face multiple hazards, many of which require significant work to mitigate to any measurable degree.

5.4.1 GROWTH POLICIES

Agencies within the Service Area recognize the substantial growth within the County and the associated challenges that come with that. It is understood that the political subdivisions adopting this plan will utilize this plan as a reference when developing, updating and implementing their growth policies. The Hazard Mitigation and Community Wildfire Protection Plan provides a community ranking of hazards present in the communities for the political subdivisions to utilize in growth related decisions.

Gallatin County amended their Envision Gallatin growth policy in 2024. The Open Space Theme, Topic 4 speaks to identifying and mapping hazards to implement policy towards reducing impacts to the community. The plan ties back to the Gallatin County Hazard Mitigation and Community Wildfire Protection Plan on these topics.

The City of Bozeman adopted the 2025 Bozeman Community Plan to guide the future of the City. The plan outlines strategic across seven themes to include Theme 1; A Resilient City and Theme 2; A City Engaged in Regional Coordination. These themes include goals and strategies tied back to the Gallatin County Hazard Mitigation and Community Wildfire Protection Plan on incorporating the communities risks in future growth decisions as well as avenues for reducing current risk.

The City of Belgrade adopted the Belgrade Growth Policy in 2020 as a planning tool used to communicate the future vision for the community. Natural Resources objectives speak to groundwater quality and availability, public water systems and mitigating flood damage.

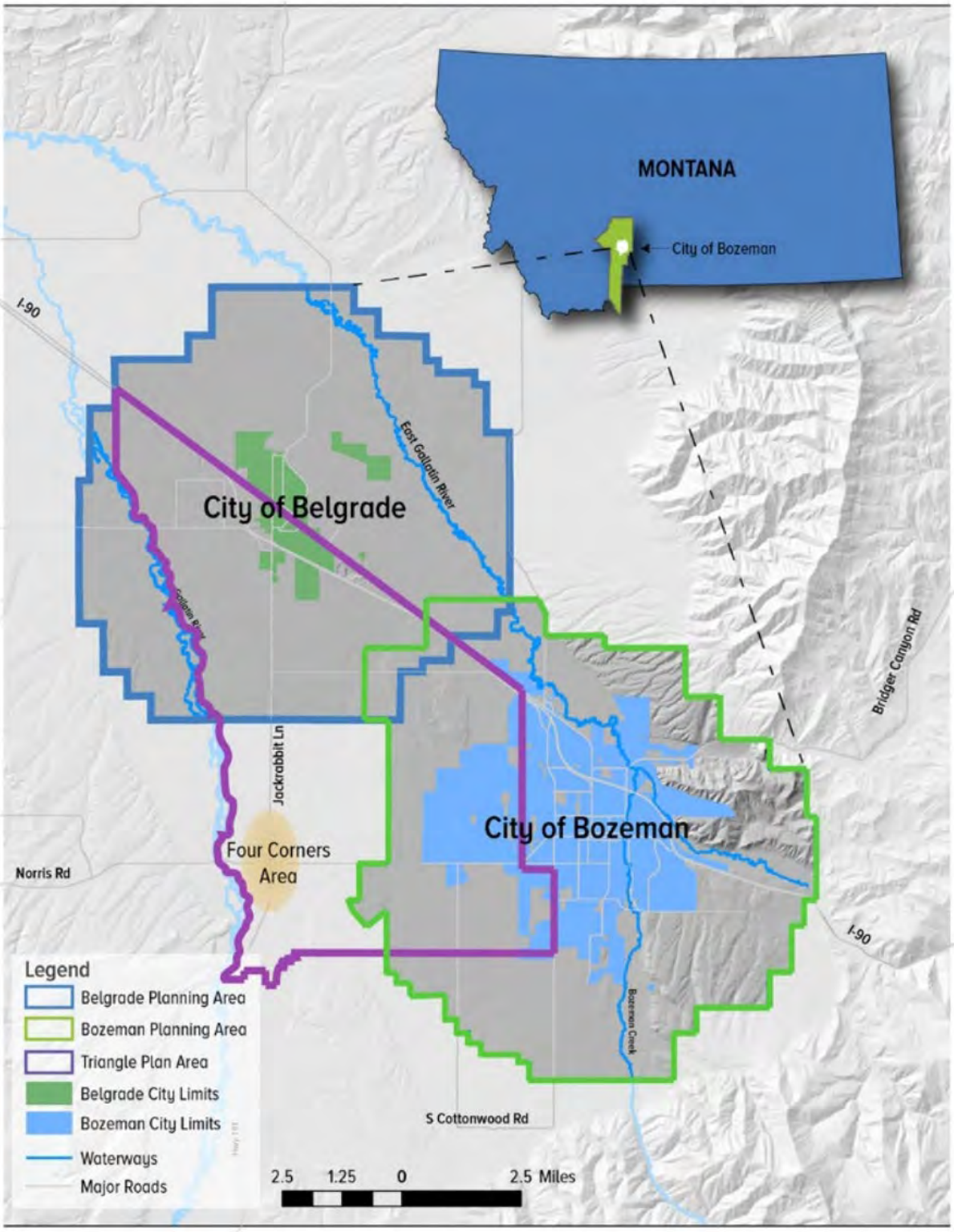
In 2020 Gallatin County, Belgrade and Bozeman adopted the Triangle Community Plan to establish shared growth policies that are common across the three jurisdictions. The plan aims to maintain consistency in growth and the two cities grow into current unincorporated areas between them.

The Manhattan City-County Growth Policy was adopted in 2024. Topic 4 speaks preservation of water, Topic 7 speaks to focusing on resiliency to reduce impacts from natural hazards.

Envision Three Forks was adopted in 2022 with a significant focus on mitigation of mapped flood impact areas.

The Town of West Yellowstone's Growth Policy was updated in 2017 with a focus in water supply.





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5.4.2 Drought Management

Several communities in the Service Area recognize the persistent drought in the region and the associated effects on water supply for both agricultural and domestic uses. Additionally, the community realizes the growth in the service area is resulting demand that may exceed the current supply at some point.

The City of Bozeman Drought Management Plan is a proactive planning framework designed to protect public health, safety, and water supply reliability during periods of water shortage in this semi-arid, drought-prone community. Originally adopted in 2017 and updated in 2022, the plan establishes a comprehensive system for monitoring drought conditions, evaluating indicators such as snowpack, streamflow, and reservoir levels, and implementing staged response measures that increase in severity as drought conditions worsen. These stages range from voluntary conservation efforts in early conditions to mandatory restrictions, including watering limitations, bans, and potential rationing during severe drought. The plan also outlines coordinated communication strategies, enforcement tools, and administrative roles to ensure a timely and effective community response, with an overall goal of maximizing available water supplies, reducing demand, and maintaining essential services during drought events.

The Gallatin County Drought and Deluge Adaptive Management Plan (DDAMP) is a watershed-scale, multi-agency planning effort designed to improve coordination, communication, and resilience related to extreme water conditions, including both drought and flooding. The plan focuses on aligning stakeholders across the Gallatin Watershed to support voluntary conservation efforts, enhance data sharing and monitoring, and identify long-term mitigation and adaptation strategies that reduce risk and improve response capabilities. Developed through a collaborative stakeholder process facilitated by the Gallatin Water Collaborative and supported by a DNRC grant, the DDAMP emphasizes an adaptive management framework that incorporates evolving data, stakeholder input, and changing environmental conditions. Key elements of the plan include strengthening interagency coordination, improving public communication and preparedness, identifying priority mitigation projects, and integrating emergency management capabilities to better address water-related hazards and support long-term community resilience in Gallatin County.

5.4.3 Capital Improvement Plans

Agencies within the Service Area that utilize a capital improvement plan are encouraged to compare their capital assets against the hazards identified in this plan. Ideally, capital infrastructure with significant exposure to an identified hazard will be identified as such. High exposure infrastructure should then be evaluated for mitigations to reduce that exposure, methods to fund the mitigation and scheduled for implementation.

5.4.4 Zoning Regulations

Zoning in Gallatin County is not applied uniformly across the entire county, but instead is established in specific geographic districts that have been formally adopted by the County Commission, while other areas remain unzoned. Within zoned areas—such as Bridger Canyon, Big Sky, Four Corners, and various canyon and rural districts—zoning regulations define allowable land uses, development density, setbacks, and other standards through district-specific regulations and sub-district requirements. Outside of these designated zoning districts, land is considered unzoned, meaning traditional zoning regulations do not apply; however, development in these areas is still subject to other requirements such as subdivision review, floodplain regulations, sanitation standards, and state laws. This dual system reflects Gallatin County's historically incremental approach to land use regulation, where zoning is typically implemented in areas where residents have petitioned for it or where growth pressures warrant more structured land use controls, resulting in a mix of regulated and less regulated development patterns across the county.

5.4.5 Subdivision Regulations

Subdivision regulations in Gallatin County provide a comprehensive framework for reviewing and approving the division of land to ensure that new development is safe, well-planned, and consistent with state law and local growth objectives. The regulations apply to all proposals to divide land into parcels and establish formal procedures, including pre-application meetings, preliminary plat review, and final plat approval by the County Commission, often with public hearings and conditions of approval. The process distinguishes between major subdivisions and different types of minor subdivisions, with varying levels of review depending on the scale and history of land division. In addition to procedural requirements, the regulations require evaluation of impacts to public health, safety, infrastructure, environmental resources, and hazards, including considerations such as road access, water supply, wastewater systems, drainage, and suitability of land for development. Overall, the subdivision regulations are intended to guide orderly growth, ensure adequate services and infrastructure, and reduce risks associated with development while protecting community and environmental resources in Gallatin County

The Future Land Use Map (FLUM) functions as a key policy-guidance tool that informs how subdivision regulations are applied in Gallatin County by providing a spatial framework for where and how growth should occur. Developed as part of the County's Growth Policy, the FLUM identifies areas that are most suitable or least suitable for development based on factors such as proximity to infrastructure, environmental constraints, identified hazards and community priorities. While the FLUM is not a regulatory document itself, it is used by staff and decision-makers during the subdivision review process to help evaluate proposals against the County's long-term vision and the required "primary criteria" considerations (e.g., impacts to agriculture, natural resources, and public services). In practice, this means that subdivision applications are reviewed not only for compliance with technical standards in the subdivision regulations, but also for their consistency with the growth

patterns, land use categories, and policy direction shown in the FLUM, making it an important bridge between long-range planning and day-to-day development decisions in Gallatin County.

5.4.6 Additional Support

The Gallatin County Emergency Planning Committee is a standing group with regular meetings open to anyone with the primary mission of preparing our communities for disasters.

Additional support for mitigation will be encouraged by the participating jurisdictions planning departments through building codes, subdivision review, and land use permits. The many organizations devoted to sustainable communities and the protection of natural resources will be encouraged to use this plan and support its goals.

Hazard specific resources are available through many organizations. Gallatin County Emergency Management (readygallatin.com) serves as a clearing house for connecting requests for assistance with the correct technical resource.

5.4.7 Technical Resources

5.4.7.1 Map Resources

Map products change weekly in many cases. Real time online maps are available below.

Gallatin County Mapper	https://experience.arcgis.com/experience/6c5d3097540f4895be52c11b0bda0731/page/Clerk-%26-Recorder-Map/
Bozeman Community Development Map	https://gisweb.bozeman.net/Html5Viewer/?viewer=planning
Bozeman Floodplain Map	https://gisweb.bozeman.net/Html5Viewer/?viewer=floodplain
Gallatin County Floodplain Map	http://gis.gallatin.mt.gov/floodplainmap/viewer/
Belgrade Zoning Map	https://cwgis01.belgrademt.gov/portal/apps/sites/#/city-of-belgrade-gis
Manhattan Zoning Map	https://static1.squarespace.com/static/57fd10961b631b05cf5bee3e/t/58f68567d1758e4e9eb05571/1492551021221/4.12.17+Manhattan+Zone+Map.png
Three Forks Floodplain	https://msc.fema.gov/portal/search?AddressQuery=three%20forks%2C%20mt#searchresultsanchor

5.4.7.2 Planning & Development Resources

Organization	Phone	Web
Gallatin County Planning Department	(406) 582-3130	https://www.gallatinmt.gov/563/Planning
Belgrade Planning Department	(406) 388-3783	https://www.belgrademt.gov/322/Community-Economic-Development
Bozeman Planning Department	(406) 582-2260	https://www.bozemanmt.gov/departments/community-development
Manhattan Building Department	(406) 284-3235	http://www.townofmanhattan.com/building-zoning
Three Forks Zoning & Planning	(406) 285-3431	https://www.threeforksmontana.us/zoning-planning
Town of West Yellowstone	(406) 646-7795	https://www.townofwestyellowstone.com/government/departments/administration-finance/

5.4.7.3 Mitigation Resources

Floodplains	/ http://dnrc.mt.gov/divisions/water/operations/floodplain-management / https://www.fema.gov/floodplain-management / https://www.readygallatin.com/community-resources/preparedness-information/flooding-in-gallatin-county/
Wildfire	/ http://dnrc.mt.gov/divisions/forestry/fire-and-aviation/fire-prevention-and-preparedness/home-fire-risk / https://www.readygallatin.com/community-resources/preparedness-information/wildfire-in-gallatin-county/
Earthquakes	/ https://www.readygallatin.com/community-resources/preparedness-information/montana-is-earthquake-country/
Hazardous Materials	/ https://www.readygallatin.com/community-resources/preparedness-information/hazardous-materials/
Violent Attacks	/ https://www.readygallatin.com/community-resources/preparedness-information/active-shooter-response/

Plan Maintenance



6.0 Plan Maintenance Procedures

As with all plans, periodic plan updates are required to maintain relevance. The Gallatin County Emergency Planning Committee (EPC) is ultimately responsible for ensuring this plan is kept up to date. The EPC meets quarterly and is responsible for coordinating emergency planning issues for the Service Area. Given the broad representation of agencies and jurisdictions, this committee is a good fit for providing oversight with broad engagement. All Emergency Planning Committee meetings are open to the public and noticed.

6.1 Plan Monitoring, Evaluation, and Updates

This plan is maintained by Gallatin County Emergency Management through the Gallatin County Emergency Planning Committee. This group has representatives from all levels of government and private entities, all of whom were active in the development of this plan. The HM-CWPP will be reviewed annually by the EPC at the first meeting of the calendar year. During this meeting, the EPC will review the goals, objectives, and projects, as needed to ensure the plan remains effective in reducing risk, supporting mitigation priorities and guiding local decision making. During the annual review, the Emergency Planning Committee will assess:

- Progress toward completing or advancing mitigation actions identified in the plan.
- Whether completed actions have reduced risk to people, property, critical facilities, infrastructure, and community lifelines.
- Whether mitigation actions remain feasible, cost-effective, and consistent with current community priorities.
- Changes in hazard conditions, including the frequency, location, severity, or consequences of natural hazards.
- New disaster events, losses, damage assessments, hazard data, mapping, studies, or other information that may affect the risk assessment.
- Changes in population, development patterns, land use, critical facilities, infrastructure, environmental conditions, or vulnerable populations that may create new or increased risk.
- Availability of new mitigation funding opportunities, regulations, building codes, planning tools, or technical resources.
- Whether the plan's goals, objectives, and mitigation strategy continue to address the jurisdiction's current and anticipated hazard risks.
- Feedback received from residents, businesses, partner agencies, neighboring jurisdictions, tribal governments, and other stakeholders.

Annual updates will be made at the first meeting for each calendar year, and the EPC approval may then take place at a subsequent meeting. As hazard information is added or updated, events occur, and projects are completed, the plan will be updated. Each year, a notice of approval will be sent to Montana Disaster & Emergency Services by Gallatin County Emergency Management, and if major changes take place, an update or amendment of the plan will also be submitted. Every five years, an full revision to the plan will be submitted to Montana Disaster & Emergency Services (MT DES) and the Federal

Emergency Management Agency (FEMA) Regional Office for their approval. Gallatin County Emergency Management will maintain records of annual plan evaluations, including meeting notes, attendance records, action-status updates, identified changes in risk or community conditions, public and stakeholder input, and recommended revisions. Significant findings will be incorporated into ongoing mitigation activities as appropriate and will inform the required five-year plan update.

The next formal submission is projected to occur in 2031. To provide enough time for a full update before this plan expires, the following schedule is recommended:

- Hazard Mitigation Planning Grant Application Preparations: late-2029
- Hazard Mitigation Planning Grant Application: 2029
- Contracting for Professional or Technical Services (if needed): early 2030
- Plan Reviews and Modifications: late 2030
- Montana DES and FEMA Reviews: early 2031
- Final Revisions and Adoption: mid 2031
- Final Plan Approval: mid 2031

To facilitate the update process, annual updates to the plan are recommended. All jurisdictions must participate in the plan update process for the plan to remain approvable for each jurisdiction.

Schedule of Plan Updates

Plan Section	Post-Disaster	Annually	Every 5 Years
Annual Report to Montana DES		X	X
Adoption Documentation			X
Introduction			X
Planning Process	X	X	X
Hazard Identification		X	X
Critical Facilities			X
Buildings			X
Infrastructure			X
Economy			X
Land Use and Future Development			X
Vulnerability Assessment Methodology			X
Hazard Profiles	X	X	X
Risk Assessment Summary			X
Goals, Objectives, and Proposed Actions	X	X	X
Action Prioritization	X	X	X
Implementation Plan	X	X	X
Plan Maintenance Procedures			X

6.1.1 Unplanned Updates

It is possible that unplanned events may trigger the need to update or re-write the Hazard Mitigation and Community Wildfire Protection Plan sooner than the typical five year cycle. Examples of this may include:

- Large scale disaster creating significant changes to the community, to include new community risks created by the disaster.
- Legislative changes that must be reflected in the plan before the standard revision.

6.2 PUBLIC INVOLVEMENT

Public involvement is an integral component of this plan. To encourage continued participation, comments can be directed to the Gallatin County Emergency Planning Committee. This committee can be reached through Gallatin County Emergency Management at:

Gallatin County Emergency Management
219 E Tamarack
Bozeman, MT 59715
406-548-0111
ReadyGallatin.com

Comments will be considered during the annual review of this plan. The public is also encouraged to attend the annual plan review meeting. If needed, a special EPC subcommittee will be developed to hold public meetings and coordinate plan changes and comments.

Stakeholders

Appendix A



LIST OF PROJECT STAKEHOLDERS

Formal Invitation Letter Invite List				
Role	**First Name**	**Last Name**	**Agency**	**E-Mail**
Bozeman Flood Plain	Nicholas	Ross	Bozeman Engineering and Transportation	[redacted]
Gallatin County flood Plain	Sean	O'Callaghan	Gallatin County Planning	[redacted]
Belgrade Flood Plan	Jason	Karp	Belgrade Community Development	[redacted]
Three Forks Flood Plain	Kelly	Smith	Three Forks Floodplain Program	[redacted]
Gallatin County Commission	Jennifer	Boyer	Gallatin County Commission	[redacted]
Gallatin County Commission	Zach	Brown	Gallatin County Commission	[redacted]
Gallatin County Commission	Scott	MacFarlane	Gallatin County Commission	[redacted]
Madison Commission	Dan	Allhands	Madison County Commission	[redacted]
Madison Commission	Ron	Nye	Madison County Commission	[redacted]
Madison Commission	Bill	Todd	Madison County Commission	[redacted]
County Manager	Jim	Doar	Gallatin County	[redacted]
County Manager	Cola	Rowley	Gallatin County	[redacted]
Bozeman CM	Chuck	Winn	City of Bozeman	[redacted]
Bozeman Mayor	Terry	Cunningham	City of Bozeman	[redacted]
Belgrade CM	Neil	Cardwell	City of Belgrade	[redacted]
	Greg	Tryon	City of Belgrade	[redacted]
Belgrade Mayor	Russ	Nelson	City of Belgrade	[redacted]
Manhattan Mayor	Traig	Howells	Town of Manhattan	[redacted]
Three Forks Mayor	Randy	Johnston	City of Three Forks	[redacted]
West Yellowstonne CM	Dan	Walker	Town of West Yellowstone	[redacted]
West Yellowstone Mayor	Travis	Watt	Town of West Yellowstone	[redacted]
Gallatin County Road and Bridge	Levi	Ewan	Gallatin County Road and Bridge	[redacted]

MDT	Ted	Jones	Montana Department of Transportation	[redacted]
Belgrade Public Works	Camaree	Uljua	Belgrade Public Works	[redacted]
Big Sky Water	Johnny	O'Connor	Big Sky Water and Sewer District	[redacted]
Four Corners Water	Phil	George	Four Corners Water and Sewer District	[redacted]
Rae Water	Ken	Ridgway	Rae Water & Sewer District	[redacted]
MSU EM	Scott	Sanders	Montana State University	[redacted]
Madison County EM	Joe	Brummel	Madison County Emergency Management	[redacted]
West Yellowstone Public Services	Jon	Simms	West Yellowstone Public Services	[redacted]
Madison County Planning	Cody	Marxer	Madison County Planning Department	[redacted]
Bozeman Chamber	Daryl	Schliem	Bozeman Chamber of Commerce	[redacted]
Belgrade Chamber	Megan	Elliott	Belgrade Chamber of Commerce	[redacted]
Big Sky Chamber	Brad	Niva	Big Sky Chamber of Commerce	[redacted]
West Yellowstone Chamber	Katrina	Wiese	West Yellowstone Chamber of Commerce	[redacted]
NWE	Shane	Colman	Northwestern Energy	[redacted]
NWE	Charles	Tuss	Northwestern Energy	[redacted]
Health Dept	Lori	Christenson	Gallatin City-County Health Department	[redacted]
HRDC	Heather	Grenier	HRDC	[redacted]
Lone Mountain Land	Kevin	Germain	Lone Mountain Land Company	[redacted]
Resort Tax	Daniel	Bierschwale	Big Sky Resort Area District	[redacted]
Boyne	Troy	Nedved	Big Sky Resort	[redacted]
YC	Tom	Butler	Yellowstone Club	[redacted]
Bozeman Health	Chris	Grimes	Bozeman Health	[redacted]
Bozeman Health	Kiera	Pattison	Bozeman Health	[redacted]
Bozeman Health	Kallie	Kujawa	Bozeman Health	[redacted]

Billings Clinic	Joe	Marcotte	Billings Clinic	[redacted]
Bozeman Airport	Jake	Simpson	Bozeman Yellowstone International Airport	[redacted]
DNRC	Kara	Huyser	Montana DNRC	[redacted]
DNRC	Bob	Culbreth	Montana DNRC	[redacted]
Forest Service	Corey	Lewellen	Bozeman Ranger District	[redacted]
Forest Service	Wendi	Urie	Hebgen Lake Ranger Districtg	[redacted]
Forest Service	Tanner	Eccles	Custer Gallatin National Forest	[redacted]
YNP	Jim	Warren	Yellowstone National Park	[redacted]
YNP	John	Cataldo	Yellowstone National Park	[redacted]
Bozeman Schools	Marilyn	King	Bozeman School District	[redacted]
Belgrade Schools	Lynn	Brown	Belgrade School District	[redacted]
Manhattan Schools	Brian	Ayers	Manhattan School District	[redacted]
Big Sky Schools	Dustin	Shipman	Big Sky School District	[redacted]
WY Schools	Kevin	Flanagan	West Yellowstone School District	[redacted]mt.us
County Schools	John	Nielson	Gallatin County School Superintendent	[redacted]
Montana DES	Kyrsten	Brinkley	MT DES	[redacted]

Fire Service Invite List

displayName	Agency	mail
[redacted]	Big Sky Fire	[redacted]
Anthony Stratman	Central Valley Fire	[redacted]
[redacted]	Fort Ellis Fire	[redacted]
[redacted]	Hyaltie Fire	[redacted]
[redacted]		[redacted]
[redacted]	Hyalite Fire	[redacted]
[redacted]	Clarkston Fire	[redacted]
Culbreth, Bob	DNRC	[redacted]
[redacted]	Big Sky Fire	[redacted]
[redacted]	Yellowstone Club	[redacted]
[redacted]	Amsterdam Fire	[redacted]
[redacted]	Yellowstone Club	[redacted]

[redacted]	Fort Ellis Fire	[redacted]
[redacted]	Big Sky Fire	[redacted]
[redacted]	Big Sky Fire	[redacted]
[redacted]	Big Sky Fire	[redacted]
[redacted]	Central Valley Fire	[redacted]
Eccles, Tanner - FS, MT	USFS	[redacted]
[redacted]	USFS	[redacted]
[redacted]	Bozeman Fire	[redacted]
[redacted]	Gallatin River Ranch Fire	[redacted]
[redacted]	Gallatin Gateway Fire	[redacted]
Huston, John	DNRC	[redacted]
Jake Zlomie	Central Valley Fire	[redacted]
Jason Manley	Yellowstone Club	[redacted]
Jason Wheeler	Gallatin County EM	[redacted]
Jay Pape	Gallatin County EM	[redacted]
Jay Wittwer	Central Valley Fire	[redacted]
[redacted]	Big Sky Fire	[redacted]
[redacted]	Bozeman Fire	[redacted]
[redacted]	Clarkston Fire	[redacted]
Jeff Hurley	Central Valley Fire	[redacted]
[redacted]	Bozeman Fire	[redacted]
[redacted]	Amsterdam Fire	[redacted]
[redacted]	Central Valley Fire	[redacted]
John Vonk	Gallatin County EM	[redacted]
[redacted]	Three Forks Fire	[redacted]
[redacted]	Bridger Canyon Fire	[redacted]
[redacted]	Gallatin Gateway Fire	[redacted]
[redacted]	Bozeman Fire	[redacted]
[redacted]	Bozeman Fire	[redacted]
jtrapp	Big Sky Fire	[redacted]
[redacted]	Bozeman Fire	[redacted]
[redacted]	Three Forks Fire	[redacted]
[redacted]	Amsterdam Fire	[redacted]
[redacted]	Yellowstone Club	[redacted]
Kevin Larsen	Gallatin County EM	[redacted]
[redacted]	Fort Ellis Fire	[redacted]
[redacted]	Gallatin River Ranch Fire	[redacted]
[redacted]	Manhattan Fire	[redacted]
Murphy, Joseph	DNRC	[redacted]
Nelson, Nicholas - FS, BOZEMAN, MT	USFS	[redacted]

Pat Songer	Central Valley Fire	[redacted]
Patrick Lonergan	Gallatin County EM	[redacted]
[redacted]	Gallatin Gateway Fire	[redacted]
[redacted]	Amsterdam Fire	[redacted]
[redacted]	Bozeman Fire	[redacted]
[redacted]	Bozeman Fire	[redacted]
[redacted]	Yellowstone Club	[redacted]
[redacted]	Sedan Fire	[redacted]
[redacted]	Fort Ellis Fire	[redacted]
[redacted]	Big Sky Fire	[redacted]
[redacted]	Hebgen Basin Fire	[redacted]
[redacted]	Hebgen Basin Fire	[redacted]
[redacted]	Central Valley Fire	[redacted]
[redacted]	Big Sky Fire	[redacted]
[redacted]	Yellowstone Club	[redacted]
[redacted]	Willow Creek Fire	[redacted]
[redacted]	Willow Creek Fire	[redacted]

Law Enforcement Invite List

displayName	Agency	mail
[redacted]	MSU Police	[redacted]
[redacted]	Bozeman Police	[redacted]
Boxmeyer, Matt	Gallatin County Sheriff	[redacted]
[redacted]	Montana Highway Patrol	[redacted]
[redacted]	West Yellowstone Police	[redacted]
[redacted]	Montana Highway Patrol	[redacted]
[redacted]	Gallatin County Sheriff	[redacted]
[redacted]	MSU Police	[redacted]
[redacted]	Manhattan Police	[redacted]
[redacted]	Airport Police	[redacted]
Dustin Lensing, Chief of Police - 201	Belgrade Police	[redacted]
[redacted]	Gallatin County Sheriff	[redacted]
Hal Richardson	Bozeman Police	[redacted]
Harper, Clint	Gallatin County Sheriff	[redacted]
[redacted]	Bozeman Police	[redacted]
[redacted]	Belgrade Police	[redacted]
[redacted]	Bozeman Police	[redacted]
Kamerman, Nathan	Gallatin County Sheriff	[redacted]
[redacted]	MSU Police	[redacted]
Luhrsen, Thomas	MSU Police	[redacted]
[redacted]	National Park Service	[redacted]

[redacted]	Gallatin County Sheriff	[redacted]
[redacted]	Bozeman Police	[redacted]
[redacted]	MSU Police	[redacted]
[redacted]	Airport Police	[redacted]
Samuelson, Douglas	Montana Highway Patrol	[redacted]
Sprinkle, Kelly	Gallatin County Sheriff	[redacted]
Stanley, Michael	MSU Police	[redacted]
Taylor, Brian	Gallatin County Sheriff	[redacted]

Gallatin County 911 Invite List

displayName	Agency	mail
[redacted]	Gallatin 911	[redacted]
[redacted]	Gallatin 911	[redacted]
[redacted]	Gallatin 911	[redacted]
[redacted]	Gallatin 911	[redacted]
John Vonk	Gallatin 911	[redacted]
[redacted]	Gallatin 911	[redacted]
Pratt, Amanda	Gallatin 911	[redacted]
[redacted]	Gallatin 911	[redacted]
Steingruber, Delaware	Gallatin 911	[redacted]
[redacted]	Gallatin 911	[redacted]
[redacted]	Gallatin 911	[redacted]

Emergency Medical Services Invite List

displayName	Agency	mail
[redacted]	Three Forks Ambulance	[redacted]
[redacted]	Medical Program Director	[redacted]
[redacted]	Lifeflight Network	[redacted]
[redacted]	Medical Program Director	[redacted]
Grimes,Christopher	Bozeman Health	[redacted]
[redacted]	Boyne	[redacted]
[redacted]	Bozeman Health	[redacted]
Pat Songer	Central Valley Fire	[redacted]
[redacted]	Gallatin Gateway Fire	[redacted]
[redacted]	Yellowstone Club Fire	[redacted]
[redacted]	Lifeflight Network	[redacted]

Non Governmental Organization Invite List

displayName	Agency	mail
[redacted]	MT COAD	[redacted]

[redacted]		[redacted]
[redacted]	Help Center	[redacted]
[redacted]	Help Center	[redacted]
[redacted]	American Red Cross	[redacted]
[redacted]	Heart of the Valley	[redacted]
[redacted]	Team Rubicon	[redacted]
[redacted]	7th Day Adventist	[redacted]
[redacted]	Chaplain	[redacted]
Susan Spanjol	SW MT COAD	[redacted]
[redacted]	United Way	[redacted]
[redacted]		[redacted]

Elected Official Invite List

displayName	Agency	mail
[redacted]	West Yellowstone City Council	[redacted]
Boyer, Jennifer	Gallatin County Commission	[redacted]
Brown, Zach	Gallatin County Commission	[redacted]
[redacted]	Manhattan Town Council	[redacted]
[redacted]	Manhattan Town Council	[redacted]
[redacted]	Manhattan Town Council	[redacted]
[redacted]	Bozeman City Council	[redacted]
[redacted]	Three Forks City Council	[redacted]
[redacted]	Three Forks City Council	[redacted]
[redacted]	Three Forks City Council	[redacted]
[redacted]	Belgrade City Council	[redacted]
[redacted]	Bozeman City Council	[redacted]
[redacted]	West Yellowstone City Council	[redacted]
[redacted]	West Yellowstone City Council	[redacted]
[redacted]	Bozeman City Council	[redacted]
[redacted]	Belgrade City Council	[redacted]
[redacted]	Belgrade City Council	[redacted]
[redacted]	West Yellowstone City Council	[redacted]
[redacted]	Manhattan Town Council	[redacted]
[redacted]	Three Forks City Council	[redacted]

[redacted]	Belgrade City Council	[redacted]
[redacted]	Belgrade City Council	[redacted]
[redacted]	Three Forks City Council	[redacted]
[redacted]	Belgrade City Council	[redacted]
[redacted]	Gallatin County Commission	[redacted]
[redacted]	Bozeman City Council	[redacted]
[redacted]	West Yellowstone City Council	[redacted]

Planning Partner Invite List		
displayName	Agency	mail
[redacted]	Fort Ellis Fire	[redacted]
[redacted]	Montana Rail Link	[redacted]
[redacted]	NorthWestern Energy	[redacted]
[redacted]	Civil Air Patrol	[redacted]
Brinkley, Kyrsten	Montana DES	[redacted]
[redacted]	ExxonMobil	[redacted]
[redacted]	Volunteer	[redacted]
[redacted]	Montana State University	[redacted]
[redacted]	Montana Hospital Association	[redacted]
[redacted]		[redacted]
Christenson, Lori	Public Health	[redacted]
Chuck Winn	City of Bozeman	[redacted]
[redacted]	Community Health Partners	[redacted]
[redacted]	Montana Rail Link	[redacted]
[redacted]	City of Three Forks	[redacted]
[redacted]	Resort Tax Board	[redacted]
[redacted]	Volunteer	[redacted]
[redacted]	West Yellowstone Chamber	[redacted]
Doug Dodge	Jefferson County	[redacted]
[redacted]		[redacted]
Gail Jorgenson	City of Bozeman	[redacted]
[redacted]	USFS	[redacted]
[redacted]	Park County	[redacted]
[redacted]		[redacted]
Grimes,Christopher	Bozeman Health	[redacted]
[redacted]	Bozeman Health	[redacted]
[redacted]	Bozeman Airport	[redacted]

Jarrett, Jason	Gallatin County Sheriff	[redacted]
[redacted]	ExxonMobil	[redacted]
[redacted]	Madison County	[redacted]
[redacted]	Bozeman Health	[redacted]
[redacted]	City of Bozeman	[redacted]
[redacted]	Montana DEQ	[redacted]
Jude Waerig	Montana Hospital Association	[redacted]
[redacted]	Bozeman Airport	[redacted]
[redacted]	Bozeman Health	[redacted]
[redacted]	Ham Radio Club	[redacted]
[redacted]	Phillips66	[redacted]
[redacted]	Civil Air Patrol	[redacted]
[redacted]	American Red Cross	[redacted]
[redacted]	Resort Tax Board	[redacted]
[redacted]	Bozeman Health	[redacted]
[redacted]	Bozeman Health	[redacted]
[redacted]	Bozeman Health	[redacted]
[redacted]	City of Three Forks	[redacted]
Kurt Hartlaub	Bozeman Health	[redacted]
[redacted]	NorthWestern Energy	[redacted]
Leuschen, Mariah D -FS	USFS	[redacted]
[redacted]	Hope Dogs	[redacted]
Luhrsen, Thomas	MSU EM	[redacted]
[redacted]	National Weather Service	[redacted]
[redacted]	NorthWestern Energy	[redacted]
Meis, Michael D	NorthWestern Energy	[redacted]
[redacted]	Park Electric Coop	[redacted]
[redacted]	Volunteer	[redacted]
[redacted]	National Weather Service	[redacted]
[redacted]	Montana Weather Service	[redacted]
[redacted]	Burlington Northern Santa Fe	[redacted]
[redacted]	National Weather Service	[redacted]
[redacted]		[redacted]
[redacted]	Bozeman Health	[redacted]
[redacted]		[redacted]
[redacted]	USFS	[redacted]
[redacted]	Volunteer	[redacted]

[redacted]	Darigold	[redacted]
[redacted]	Pre Release	[redacted]
[redacted]	Darigold	[redacted]
[redacted]	Radio Dealer	[redacted]
[redacted]	Town of Manhattan	[redacted]
[redacted]	Surgery Center	[redacted]
[redacted]	Bozeman Health	[redacted]
Yeatts, Cody - FS, MT	USFS	[redacted]

Public Works & Utility Invite List

displayName	Agency	mail
[redacted]	NorthWestern Energy	[redacted]
Brian Heaston	City of Bozeman	[redacted]
[redacted]	Gallatin County	[redacted]
[redacted]	City of Begrade	[redacted]
Emiliano Esparza	City of Bozeman	[redacted]
[redacted]	NorthWestern Energy	[redacted]
Jill Miller	City of Bozeman	[redacted]
[redacted]	Town of Manhattan	[redacted]
[redacted]	NorthWestern Energy	[redacted]
[redacted]	Gallatin County	[redacted]
[redacted]	NorthWestern Energy	[redacted]
[redacted]	NorthWestern Energy	[redacted]
[redacted]	Gallatin County	[redacted]
[redacted]	City of Bozeman	[redacted]
[redacted]	City of Bozeman	[redacted]
[redacted]	City of Bozeman	[redacted]
[redacted]	Gallatin County	[redacted]
[redacted]	Montana Department of Transportation	[redacted]
[redacted]	City of Three Forks	[redacted]
[redacted]	City of Bozeman	[redacted]
[redacted]	Town of Manhattan	[redacted]

Public Information Registration

First Name	Last Name	Community you Live In	E-Mail Address	Do you have any specific areas of interest?
Wylie	Minot	Belgrade	[redacted]	floodplain management
Kathryn	Eklund	Bozeman	[redacted]	Would love an update on this process, looks like it is in process but what stage is it at and when

				will the CWPP / WUI definition update be completed?
Erin	Steva	Bozeman	[redacted]	The entire Gallatin mountain range - mainly the current WSA within Gallatin County.
susana	montana	Bozeman	[redacted]	flooding, wildfire hazards and mitigation
Bailey	Minnich	Bozeman	[redacted]	Wildfire hazard
Susan	Riggs	Bozeman	[redacted]	

Stakeholder participation Invitation letters

September 14, 2024

Nicholas Ross
Bozeman Engineering and Transportation

Dear Nicholas,

Gallatin County's Hazard Mitigation and Community Wildfire Community Protection Plan is approaching the end of it's 5 year revision cycle. We have scheduled a series of Hazard Identification and Evaluation Workshops for mid October throughout the communities covered by this plan. The workshops will allow the communities to review their previously identified hazards, modify them, and then rank their relative risk.

The plans require documented community participation from organizations such as Bozeman Engineering and Transportation in order to be adopted and recognized. Cities and counties are required to have direct participation for the plans to be recognized as covering them.

We sure appreciate any engagement <agency> can provide with the update to the Hazard Mitigation and Community Wildfire Protection Plan. In person lunch workshops (lunch provided) are scheduled for the following times and locations:

HAZARD IDENTIFICATION AND EVALUATION WORKSHOPS			
Community	**Venue**	**Address**	**Date and Time**
West Yellowstone (Calendar Invite)	West Yellowstone Town Hall	440 Yellowstone Ave West Yellowstone	October 7, 2024 11:00-1:00
Belgrade (Calendar Invite)	Central Valley Fire District	215 Wings Way Belgrade	October 8, 2024 11:00-1:00
Bozeman (Calendar Invite)	Gallatin County Emergency Management	219 E Tamarack Bozeman	October 9, 2024 11:00-1:00
Three Forks, Willow Creek & Clarkston (Calendar Invite)	Three Forks Ambulance Station	2 E Hickory Three Forks	October 10, 2024 11:00-1:00
Big Sky (Calendar Invite)	Big Sky Fire Station	650 Rainbow Trout Big Sky	October 15, 2024 11:00-1:00
Manhattan & Amsterdam (Calendar Invite)	Manhattan Town Hall	206 S Sixth Manhattan	October 16, 2024 11:00-1:00

Lunch will be provided during each workshop.

Background

This document is the combination of two separate planning requirements with similar processes and end states.

Hazard Mitigation Plans are required by the Federal Emergency Management Agency to access both pre and post incident hazard mitigation funding. To be considered compliant, each political subdivision covered by the plan much directly participate in the process and update their plan every 5 years. These plans identify risks faced by a community and identify mitigation activities that a community could use to reduce the affects from the identified hazards. Mitigation funding can only be utilized on projects identified in the approved plan.

Community Wildfire Protection Plans are derived from the Healthy Forest Restoration Act. Most federal and state wildfire mitigation funding requires a current community wildfire protection plan that identifies the risk in a community from wildfire and actions that can be taken to reduce that risk.

With the similarities of these two planning requirements, Gallatin County combined these documents into one plan in 2021. This intent of the 2025 revision is to make our Hazard Mitigation and Community Wildfire Protection Plan an even more cohesive single document for our community. Data elements of the 2021 plan have already been updated over the last couple months. The workshops in October will focus on the risks you feel face your community. These identified risks will then lead to community approaches that could help minimize those impacts.

This coming winter we will be holding some wildfire specific sessions related to wildland urban interface components of this document. We are attempting to coordinate this part of the process with some partner organizations for consistency across South Central Montana.

Following compilation of the document into a draft form where it shows the identified hazard summaries and supporting data, we will reach back out soliciting discussion on potential projects that could be done to reduce the impact of these hazards.

A plan update website has been established at https://www.readygallatin.com/2024update. Background information, scheduled activities, draft products and more will be posted to this site as we move through the process.

Please pass on the information about the Hazard Mitigation and Community Wildfire Protection Plan update to anyone you feel may have interest and reach out with your questions. We look forward to Bozeman Engineering and Transportation's participation.

Sincerely,



Patrick Lonergan
Chief of Emergency Management & Fire
Gallatin County
(406) 548-0116
patrick@readygallatin.com

Sample Mail Merge

From: Patrick Lonergan
To: Patrick Lonergan
Bcc:



[redacted]

Subject: Hazard Identification and Evaluation Workshops | Save the Dates
Date: Monday, July 22, 2024 1:16:00 PM
Attachments: image001.png
image002.png
image003.png
image004.png
image005.png
image006.png
image007.png

Good Afternoon-

Gallatin County has begun the process of updating our Hazard Mitigation and Community Wildfire Protection Plan. This document is a consolidation of two documents with very similar function and process into one planning process and document. Both plans require broad community collaboration and participation in order to be recognized for use by your organization. There will be ongoing outreach to support various phases of this project in the months to come, but the intent of this message is to serve as a Save the Date for the Hazard Identification and Evaluation Workshops coming up in October.

A major part of this planning process is identifying the risks we feel face our communities and evaluating them based on set criteria. As in the 2020 plan, we intend to conduct this update on a community specific basis which will then wrap up into a county wide ranking. It is critical to have participation from as many entities as possible, and legally required that political subdivisions participate. Please take a moment to get the meeting for your community listed below on your calendar. More detailed information will be provided as we get closer.

Hazard Identification and Evaluation Workshops

Community	Venue	Address	Date and Time
West Yellowstone	West Yellowstone Town Hall	440 Yellowstone Ave West Yellowstone	October 7, 2024 11:00-1:00
Belgrade	Central Valley Fire District	215 Wings Way Belgrade	October 8, 2024 11:00-1:00
Bozeman	Gallatin County Emergency Management	219 E Tamarack Bozeman	October 9, 2024 11:00-1:00
Three Forks, Willow Creek & Clarkston	Three Forks Ambulance Station	2 E Hickory Three Forks	October 10, 2024 11:00-1:00
Big Sky	Big Sky Fire Station	650 Rainbow Trout Big Sky	October 15, 2024 11:00-1:00
Manhattan & Amsterdam	Manhattan Town Hall	206 S Sixth Manhattan	October 16, 2024 11:00-1:00

Additional information will be posted at https://www.readygallatin.com/2024update/ as we work

through the planning process. Below are the current hazard summaries for your reference.

Table 4-18. Gallatin County Hazard Summary

Hazard	Probability of Occurrence	Property Impact	Population Impact	Economic Impact	Relative Overall Risk (Score)
Wildfire	High	High	Moderate	Moderate	**High (39)**
Drought	High	Moderate	Moderate	Moderate	**High (34)**
Earthquake	Moderate	Moderate	High	Moderate	**High (32)**
Critical Infrastructure Disruption	Moderate	Moderate	High	Moderate	**High (32)**
Severe Weather	Moderate	Moderate	Moderate	Moderate	**High (31)**
Environmental Hazards	Moderate	Moderate	Moderate	Moderate	**Moderate (26)**
Flooding	Moderate	Moderate	Moderate	Moderate	**Moderate (26)**
Communicable Disease and Bioterrorism	Moderate	Low	Moderate	Moderate	**Moderate (25)**
Hazardous Materials Release	Moderate	Low	Moderate	Moderate	**Moderate (23)**
Ground Transportation Accident	High	Low	Low	Low	**Moderate (23)**
Urban Conflagration	Moderate	Moderate	Moderate	Moderate	**Moderate (21)**
Avalanche and Landslide	Moderate	Low	Low	Low	**Moderate (16)**
Civil Unrest	Moderate	Low	Moderate	Moderate	**Moderate (16)**
Violence	Moderate	Low	Moderate	Moderate	**Moderate (16)**
Dam Failure	Low	Moderate	Moderate	Moderate	**Low (15)**
Terrorism	Low	Low	Moderate	Moderate	**Low (15)**
Aviation Accident	Moderate	Low	Low	Low	**Low (15)**
Volcano	Low	Moderate	Moderate	Moderate	**Low (13)**
Railroad Accident	Moderate	Low	Low	Low	**Low (13)**

Table 4-19. Belgrade Hazard Summary (District 4)

Hazard	Probability of Occurrence	Property Impact	Population Impact	Economic Impact	Relative Overall Risk (Score)
Drought	High	Moderate	High	Moderate	**High (38)**
Severe Weather	High	Moderate	High	Moderate	**High (36)**
Critical Infrastructure Disruption	Moderate	Moderate	High	High	**High (36)**
Earthquake	Moderate	High	High	High	**High (33)**
Environmental Hazards	High	Moderate	Moderate	Moderate	**High (33)**
Wildfire	High	Moderate	Moderate	Moderate	**High (30)**
Flooding	High	Moderate	Moderate	Moderate	**High (30)**
Communicable Disease and Bioterrorism	Moderate	Low	High	Moderate	**Moderate (19)**
Railroad Accident	Moderate	Low	Moderate	Low	**Moderate (18)**
Hazardous Materials Release	Moderate	Low	Moderate	Moderate	**Moderate (18)**
Aviation Accident	Moderate	Low	Low	Moderate	**Moderate (16)**
Ground Transportation Accident	Moderate	Low	Low	Low	**Moderate (16)**
Community Resilience	Low	Moderate	Moderate	High	**Moderate (13)**
Violence	Moderate	Low	Low	Low	**Moderate (13)**
Avalanche and Landslide	Moderate	Low	Low	Low	**Low (12)**
Dam Failure	Low	Moderate	Moderate	Moderate	**Low (12)**
Volcano	Low	Moderate	Moderate	Moderate	**Low (12)**
Civil Unrest	Low	Low	Moderate	Moderate	**Low (10)**
Urban Conflagration	Low	Low	Low	Moderate	**Low (7)**
Terrorism	Low	Low	Low	Low	**Low (6)**

Table 4-20. Big Sky Hazard Summary (District 2)

Hazard	Probability of Occurrence	Property Impact	Population Impact	Economic Impact	Relative Overall Risk (Score)
Wildfire	High	High	High	High	**High (52)**
Limited Access	High	Moderate	High	High	**High (35)**
Critical Infrastructure Disruption	Moderate	Moderate	High	Moderate	**High (35)**
Ground Transportation Accident	High	Low	Moderate	Moderate	**High (32)**
Mass Casualty Incident	High	Low	Moderate	Moderate	**High (30)**
Hazardous Materials Release	High	Low	Moderate	Moderate	**High (30)**
Drought	Moderate	Moderate	Moderate	Moderate	**Moderate (29)**
Earthquake	Moderate	Moderate	Moderate	Moderate	**Moderate (28)**
Urban Conflagration	Moderate	Moderate	Moderate	Moderate	**Moderate (28)**
Severe Weather	Moderate	Moderate	Moderate	Moderate	**Moderate (28)**
Avalanche and Landslide	High	Low	Moderate	Low	**Moderate (27)**
Communicable Disease and Bioterrorism	Moderate	Low	High	Moderate	**Moderate (23)**
Environmental Hazards	Moderate	Moderate	Moderate	Moderate	**Moderate (21)**
Flooding	Moderate	Low	Moderate	Moderate	**Moderate (20)**
Civil Unrest	Moderate	Low	Moderate	Moderate	**Moderate (20)**
Volcano	Low	High	Moderate	High	**Low (15)**
Dam Failure	Moderate	Low	Low	Moderate	**Low (14)**
Aviation Accident	Moderate	Low	Low	Low	**Low (12)**
Violence	Moderate	Low	Low	Low	**Low (12)**
Terrorism	Low	Low	Low	Moderate	**Low (7)**

Table 4-21. Bozeman Hazard Summary (District 3)

Hazard	Probability of Occurrence	Property Impact	Population Impact	Economic Impact	Relative Overall Risk (Score)
Drought	High	Moderate	High	Moderate	**High (42)**
Severe Weather	High	Moderate	High	Moderate	**High (37)**
Wildfire	High	Moderate	Moderate	Moderate	**High (36)**
Critical Infrastructure Disruption	Moderate	Moderate	High	Moderate	**High (34)**
Environmental Hazards	High	Moderate	High	Moderate	**High (34)**
Earthquake	Moderate	High	High	High	**High (34)**
Flooding	High	Moderate	Moderate	Moderate	**High (33)**
Communicable Disease and Bioterrorism	Moderate	Low	High	High	**High (28)**
Cyber Security	Moderate	Low	Moderate	Moderate	**Moderate (24)**
Hazardous Materials Release	Moderate	Low	Moderate	Moderate	**Moderate (22)**
Ground Transportation Accident	High	Low	Low	Low	**Moderate (20)**
Urban Conflagration	Moderate	Moderate	Moderate	Moderate	**Moderate (20)**
Civil Unrest	Moderate	Low	Moderate	Moderate	**Moderate (20)**
Avalanche and Landslide	High	Low	Low	Low	**Moderate (18)**
Dam Failure	Low	High	High	Moderate	**Moderate (17)**
Railroad Accident	Moderate	Low	Low	Low	**Moderate (16)**
Channel Migration	Moderate	Low	Low	Low	**Moderate (15)**
Mass Casualty Incident	Moderate	Low	Moderate	Low	**Moderate (15)**
Violence	Moderate	Low	Low	Low	**Moderate (15)**
Volcano	Low	Moderate	Moderate	Moderate	**Low (12)**
Aviation Accident	Moderate	Low	Low	Low	**Low (12)**
Active Killer	Low	Low	Low	Low	**Low (11)**
Terrorism	Low	Low	Moderate	Moderate	**Low (10)**

Table 4-22. Manhattan and Three Forks Hazard Summary (District 5)

Hazard	Probability of Occurrence	Property Impact	Population Impact	Economic Impact	Relative Overall Risk (Score)
Drought	High	Moderate	Moderate	Moderate	**High (37)**
Severe Weather	High	Moderate	Moderate	Moderate	**High (37)**
Wildfire	High	Moderate	Moderate	Moderate	**High (36)**
Flooding	High	Moderate	Moderate	Moderate	**High (30)**
Environmental Hazards	High	Moderate	Moderate	Moderate	**Moderate (28)**
Earthquake	Moderate	Moderate	High	Moderate	**Moderate (28)**
Critical Infrastructure Disruption	Moderate	Moderate	Moderate	Moderate	**Moderate (25)**
Communicable Disease and Bioterrorism	Moderate	Moderate	Moderate	Moderate	**Moderate (24)**
Opioid Addiction	High	Low	Moderate	Low	**Moderate (24)**
Hazardous Materials Release	Moderate	Moderate	Moderate	Moderate	**Moderate (23)**
Violence	Moderate	Low	Moderate	Low	**Moderate (23)**
Mental Health	High	Low	Low	Low	**Moderate (22)**
Ground Transportation Accident	High	Low	Low	Low	**Moderate (21)**
Urban Conflagration	Moderate	Moderate	Low	Low	**Moderate (18)**
Aviation Accident	Moderate	Low	Low	Low	**Moderate (17)**
Active Shooter	Moderate	Low	Low	Low	**Moderate (16)**
Dam Failure	Low	Moderate	Moderate	Moderate	**Moderate (15)**
Railroad Accident	Moderate	Low	Low	Low	**Moderate (14)**
Volcano	Low	Moderate	Moderate	Moderate	**Low (13)**
Civil Unrest	Moderate	Low	Low	Low	**Low (12)**
Terrorism	Low	Low	Moderate	Low	**Low (9)**
Avalanche and Landslide	Low	Low	Low	Low	**Low (6)**

Table 4-23. West Yellowstone Hazard Summary (District 1)

Hazard	Probability of Occurrence	Property Impact	Population Impact	Economic Impact	Relative Overall Risk (Score)
Wildfire	High	High	High	High	**High (49)**
Earthquake	High	High	High	High	**High (48)**
Critical Infrastructure Disruption	High	Moderate	High	High	**High (47)**
Severe Weather	High	Moderate	High	Moderate	**High (45)**
Ground Transportation Accident	High	Low	Moderate	Moderate	**Moderate (30)**
Communicable Disease and Bioterrorism	Moderate	Low	High	High	**Moderate (30)**
Cyber Security	High	Low	Moderate	Moderate	**Moderate (29)**
Terrorism	Moderate	Moderate	Moderate	High	**Moderate (26)**
Hazard Materials Release	Moderate	Moderate	Moderate	Moderate	**Moderate (24)**
Urban Conflagration	Moderate	Moderate	Moderate	Moderate	**Moderate (23)**
Civil Unrest	Moderate	Moderate	Moderate	Moderate	**Moderate (21)**
Environmental Hazards	Moderate	Moderate	Moderate	Moderate	**Moderate (20)**
Drought	Moderate	Low	Moderate	Moderate	**Moderate (19)**
Violence	Moderate	Low	Low	Moderate	**Moderate (19)**
Aviation Accident	Moderate	Low	Low	Low	**Low (12)**
Volcano	Low	Moderate	Moderate	Moderate	**Low (12)**
Avalanche and Landslide	Moderate	Low	Low	Low	**Low (12)**
Dam Failure	Low	Low	Low	Moderate	**Low (7)**
Flooding	Low	Low	Low	Low	**Low (6)**

Patrick Lonergan
Chief of Emergency Management and Fire
Gallatin County, Montana
(406) 548-0116
patrick@readygallatin.com
ReadyGallatin.com
Schedule a Meeting

Gallatin County Emergency Management
Preparing Our Community

From: Patrick Lonergan
To: [redacted]
Bcc:
Subject: Hazard Identification and Evaluation Workshops Approaching
Date: Saturday, September 14, 2024 9:33:00 AM
Attachments: image001.png
image002.png
image003.png
image004.png
image005.png
image006.png
image007.png
Importance: High

Good Afternoon,

Gallatin County's Hazard Mitigation and Community Wildfire Community Protection Plan is approaching the end of it's 5 year revision cycle. We have scheduled a series of Hazard Identification and Evaluation Workshops for mid October throughout the communities covered by this plan. The workshops will allow the communities to review their previously identified hazards, modify them, and then rank their relative risk.

The plans require documented community participation from organizations such as yours in order to be adopted and recognized. Cities and counties are required to have direct participation for the plans to be recognized as covering them.

We sure appreciate our partners participation in updating the Hazard Mitigation and Community Wildfire Protection Plan. In person lunch workshops (lunch provided) are scheduled for the following times and locations:

Hazard Identification and Evaluation Workshops			
Community	**Venue**	**Address**	**Date and Time**
West Yellowstone (Calendar Invite)	West Yellowstone Town Hall	440 Yellowstone Ave West Yellowstone	October 7, 2024 11:00-1:00
Belgrade (Calendar Invite)	Central Valley Fire District	215 Wings Way Belgrade	October 8, 2024 11:00-1:00
Bozeman (Calendar Invite)	Gallatin County Emergency Management	219 E Tamarack Bozeman	October 9, 2024 11:00-1:00
Three Forks, Willow Creek & Clarkston (Calendar Invite)	Three Forks Ambulance Station	2 E Hickory Three Forks	October 10, 2024 11:00-1:00
Big Sky (Calendar Invite)	Big Sky Fire Station	650 Rainbow Trout Big Sky	October 15, 2024 11:00-1:00
Manhattan & Amsterdam (Calendar Invite)	Manhattan Town Hall	206 S Sixth Manhattan	October 16, 2024 11:00-1:00

Lunch will be provided during each workshop.

Background

This document is the combination of two separate planning requirements with similar processes and end states.

Hazard Mitigation Plans are required by the Federal Emergency Management Agency to access both pre and post incident hazard mitigation funding. To be considered compliant, each political subdivision covered by the plan much directly participate in the process and update their plan every 5 years. These plans identify risks faced by a community and identify mitigation activities that a community could use to reduce the affects from the identified hazards. Mitigation funding can only be utilized on projects identified in the approved plan.

Community Wildfire Protection Plans are derived from the Healthy Forest Restoration Act. Most federal and state wildfire mitigation funding requires a current community wildfire protection plan that identifies the risk in a community from wildfire and actions that can be taken to reduce that risk.

With the similarities of these two planning requirements, Gallatin County combined these documents into one plan in 2021. This intent of the 2025 revision is to make our Hazard Mitigation and Community Wildfire Protection Plan an even more cohesive single document for our community. Data elements of the 2021 plan have already been updated over the last couple months. The workshops in October will focus on the risks you feel face your community. These identified risks will then lead to community approaches that could help minimize those impacts.

This coming winter we will be holding some wildfire specific sessions related to wildland urban interface components of this document. We are attempting to coordinate this part of the process with some partner organizations for consistency across South Central Montana.

Following compilation of the document into a draft form where it shows the identified hazard summaries and supporting data, we will reach back out soliciting discussion on potential projects that could be done to reduce the impact of these hazards.

A plan update website has been established at https://www.readygallatin.com/2024update. Background information, scheduled activities, draft products and more will be posted to this site as we move through the process.

Please pass on the information about the Hazard Mitigation and Community Wildfire Protection Plan update to anyone you feel may have interest and reach out with your questions.

~~~~~~

Patrick Lonergan
Chief of Emergency Management and Fire
~~~~~~

Gallatin County, Montana
(406) 548-0116
patrick@readygallatin.com
ReadyGallatin.com
Schedule a Meeting

Gallatin County Emergency Management
Preparing Our Community

From: Patrick Lonergan
Sent: Monday, July 22, 2024 1:16 PM
To: Patrick Lonergan <patrick@readygallatin.com>
Subject: Hazard Identification and Evaluation Workshops | Save the Dates

Good Afternoon-

Gallatin County has begun the process of updating our Hazard Mitigation and Community Wildfire Protection Plan. This document is a consolidation of two documents with very similar function and process into one planning process and document. Both plans require broad community collaboration and participation in order to be recognized for use by your organization. There will be ongoing outreach to support various phases of this project in the months to come, but the intent of this message is to serve as a Save the Date for the Hazard Identification and Evaluation Workshops coming up in October.

A major part of this planning process is identifying the risks we feel face our communities and evaluating them based on set criteria. As in the 2020 plan, we intend to conduct this update on a community specific basis which will then wrap up into a county wide ranking. It is critical to have participation from as many entities as possible, and legally required that political subdivisions participate. Please take a moment to get the meeting for your community listed below on your calendar. More detailed information will be provided as we get closer.

Hazard Identification and Evaluation Workshops

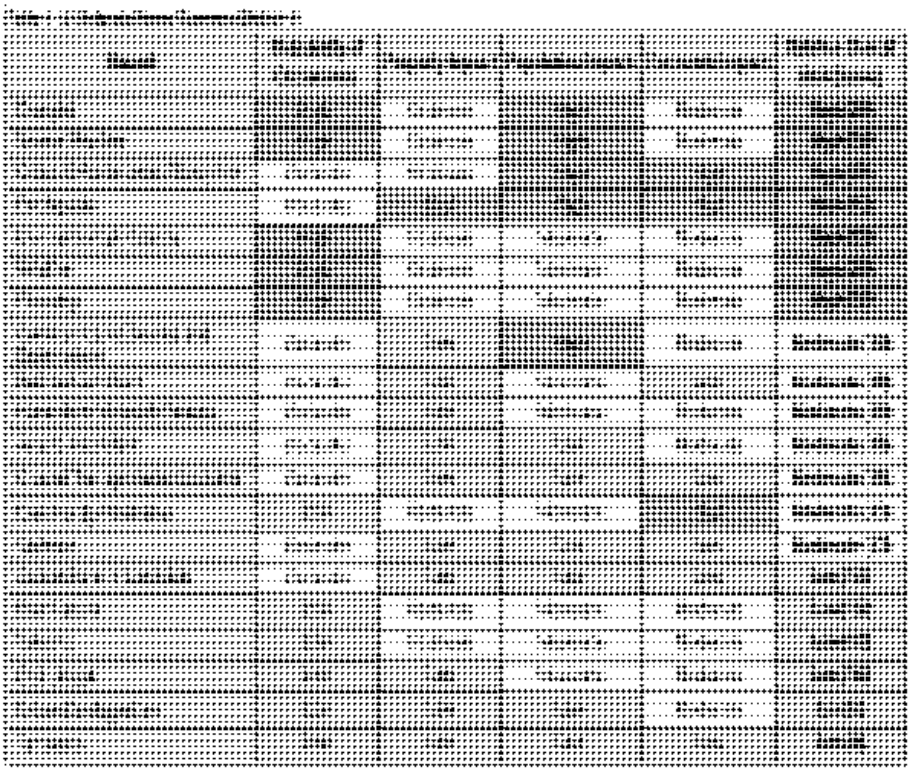
Community	Venue	Address	Date and Time
West Yellowstone	West Yellowstone Town Hall	440 Yellowstone Ave West Yellowstone	October 7, 2024 11:00-1:00
Belgrade	Central Valley Fire District	215 Wings Way Belgrade	October 8, 2024 11:00-1:00
Bozeman	Gallatin County Emergency Management	219 E Tamarack Bozeman	October 9, 2024 11:00-1:00
Three Forks, Willow	Three Forks	2 E Hickory	October 10, 2024

Creek & Clarkston	Ambulance Station	Three Forks	11:00-1:00
Big Sky	Big Sky Fire Station	650 Rainbow Trout Big Sky	October 15, 2024 11:00-1:00
Manhattan & Amsterdam	Manhattan Town Hall	206 S Sixth Manhattan	October 16, 2024 11:00-1:00

Additional information will be posted at https://www.readygallatin.com/2024update/ as we work through the planning process. Below are the current hazard summaries for your reference.

Table 4-18. Gallatin County Hazard Summary

Hazard	Probability of Occurrence	Property Impact	Population Impact	Economic Impact	Relative Overall Risk (Score)
Wildfire	High	High	Moderate	Moderate	**High (39)**
Drought	High	Moderate	Moderate	Moderate	**High (34)**
Earthquake	Moderate	Moderate	High	Moderate	**High (32)**
Critical Infrastructure Disruption	Moderate	Moderate	High	Moderate	**High (32)**
Severe Weather	Moderate	Moderate	Moderate	Moderate	**High (31)**
Environmental Hazards	Moderate	Moderate	Moderate	Moderate	**Moderate (26)**
Flooding	Moderate	Moderate	Moderate	Moderate	**Moderate (26)**
Communicable Disease and Bioterrorism	Moderate	Low	Moderate	Moderate	**Moderate (25)**
Hazardous Materials Release	Moderate	Low	Moderate	Moderate	**Moderate (23)**
Ground Transportation Accident	High	Low	Low	Low	**Moderate (23)**
Urban Conflagration	Moderate	Moderate	Moderate	Moderate	**Moderate (21)**
Avalanche and Landslide	Moderate	Low	Low	Low	**Moderate (16)**
Civil Unrest	Moderate	Low	Moderate	Moderate	**Moderate (16)**
Violence	Moderate	Low	Moderate	Moderate	**Moderate (16)**
Dam Failure	Low	Moderate	Moderate	Moderate	**Low (15)**
Terrorism	Low	Low	Moderate	Moderate	**Low (15)**
Aviation Accident	Moderate	Low	Low	Low	**Low (15)**
Volcano	Low	Moderate	Moderate	Moderate	**Low (13)**
Railroad Accident	Moderate	Low	Low	Low	**Low (13)**



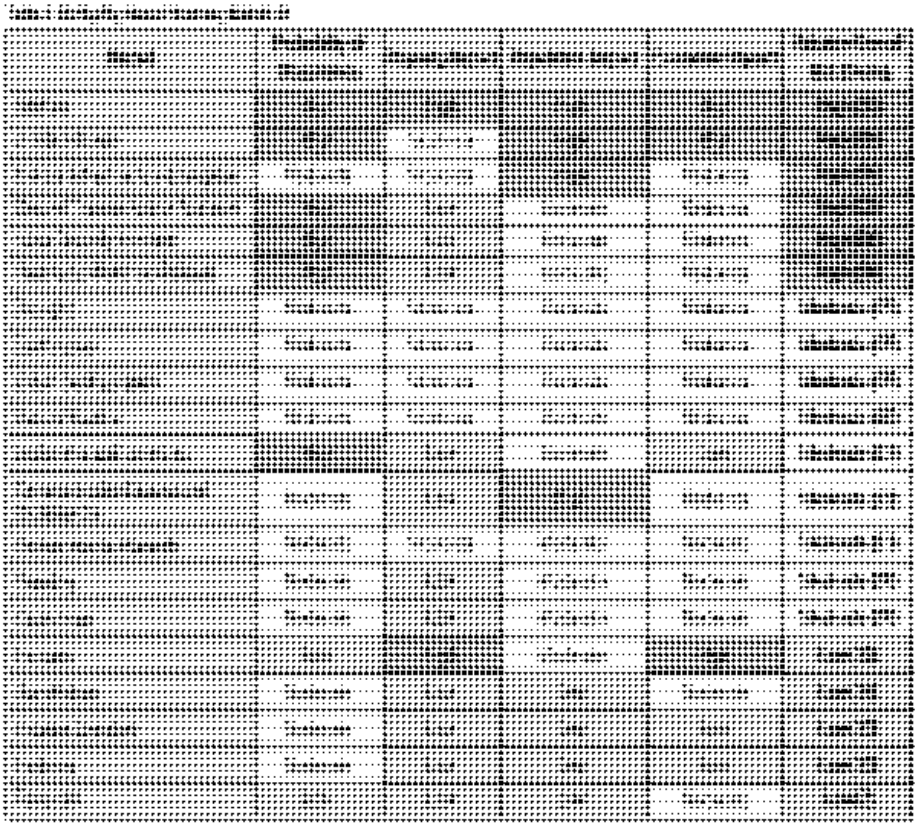
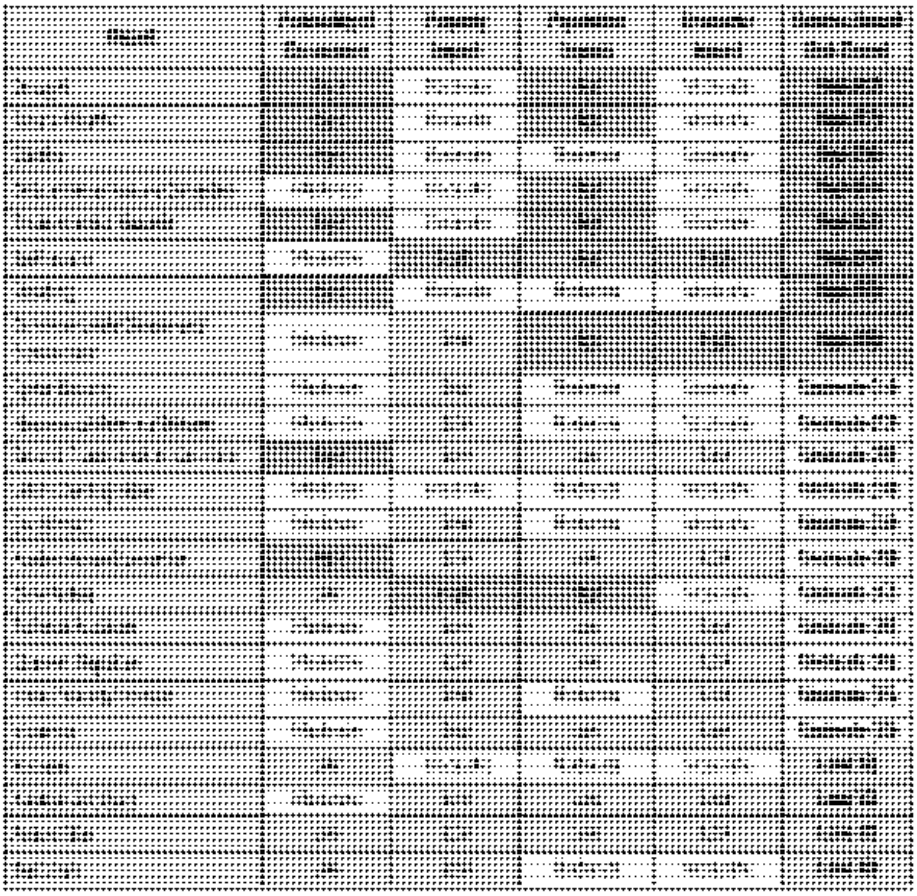


Table 4-21. Emergency Mineral Summary (District 3)



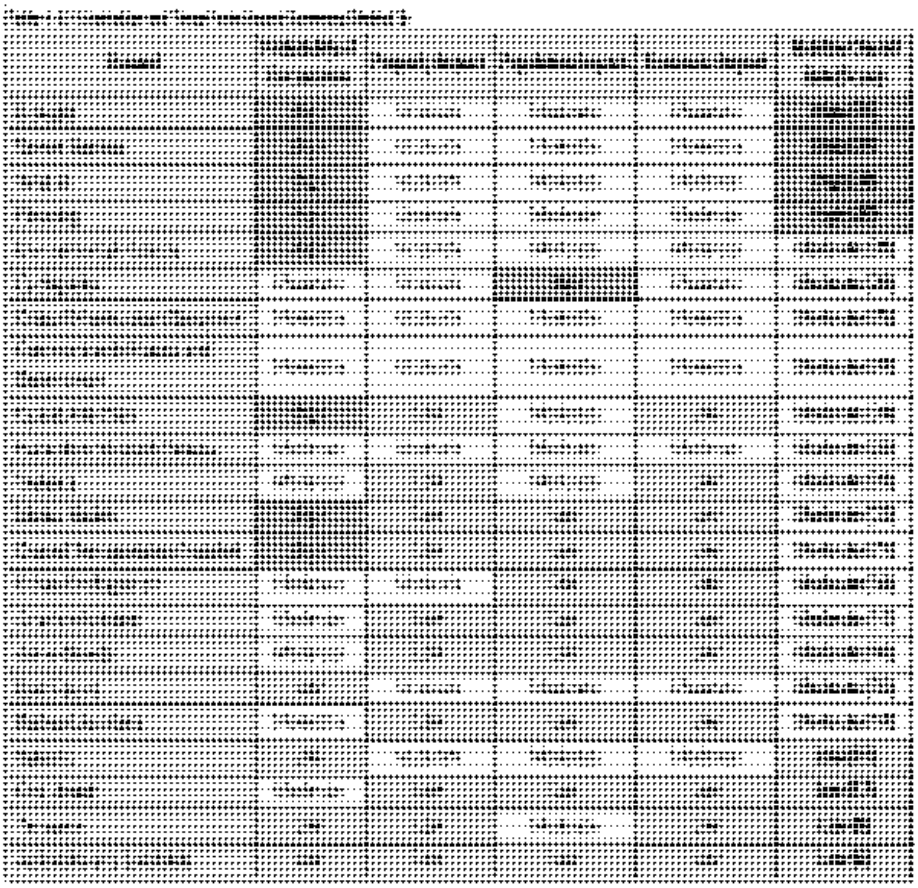


Table 4-23. West Yellowstone Hazard Summary (District 1)

Hazard	Probability of Occurrence	Property Impact	Population Impact	Economic Impact	Relative Overall Risk (Score)
Wildfire	High	High	High	High	**High (49)**
Earthquake	High	High	High	High	**High (48)**
Critical Infrastructure Disruption	High	Moderate	High	High	**High (47)**
Severe Weather	High	Moderate	High	Moderate	**High (45)**
Ground Transportation Accident	High	Low	Moderate	Moderate	**Moderate (30)**
Communicable Disease and Bioterrorism	Moderate	Low	High	High	**Moderate (30)**
Cyber Security	High	Low	Moderate	Moderate	**Moderate (29)**
Terrorism	Moderate	Moderate	Moderate	High	**Moderate (26)**
Hazard Materials Release	Moderate	Moderate	Moderate	Moderate	**Moderate (24)**
Urban Conflagration	Moderate	Moderate	Moderate	Moderate	**Moderate (23)**
Civil Unrest	Moderate	Moderate	Moderate	Moderate	**Moderate (21)**
Environmental Hazards	Moderate	Moderate	Moderate	Moderate	**Moderate (20)**
Drought	Moderate	Low	Moderate	Moderate	**Moderate (19)**
Violence	Moderate	Low	Low	Moderate	**Moderate (19)**
Aviation Accident	Moderate	Low	Low	Low	**Low (12)**
Volcano	Low	Moderate	Moderate	Moderate	**Low (12)**
Avalanche and Landslide	Moderate	Low	Low	Low	**Low (12)**
Dam Failure	Low	Low	Low	Moderate	**Low (7)**
Flooding	Low	Low	Low	Low	**Low (6)**

Patrick Lonergan
Chief of Emergency Management and Fire
Gallatin County, Montana
(406) 548-0116
patrick@readygallatin.com
ReadyGallatin.com
Schedule a Meeting

Gallatin County Emergency Management
Preparing Our Community

Gallatin County Emergency Management
Preparing Our Community

Gallatin County Hazard Mitigation and Community Wildfire Protection Plan Update

Meeting Attendance Sign In

Meeting: CWPP **Date:** 2-24-26 **Location:** EOC

Name	Agency	Title	Address	E-Mail
Josh Waldo	Bozeman FD	Fire Chief	300 E. Oak St	[redacted]
MEGHAN HAZEN	GALLATIN COUNTY Planning	com. dev. Mgr	311 W Main St	
JON ALVAREZ TRAPP	BSFD	Div Chief	650 Rainbow Trail Big Sky	

Gallatin County Emergency Management

Gallatin County Hazard Mitigation and Community Wildfire Protection Plan Update

Meeting Attendance Sign In

Meeting: CWRA Draft Review **Date:** 2/24/26 **Location:** GCEM

Name	Agency	Title	Address
Patricia Loneis	GCEM	Chief EMS A	215 E. Tamarack Bozeman
Greg Coleman	PCOEM	Emergency Management	414 E. Callender St. Livingston
Koryn Spear	FEFA		3041 Bozeman Trail Rd
Audrey Ulmer	MVFD		P.O. Box 911 222 EAST Main ST Manhattan
Bob Wilbeth	DNRC		
Craig Woolb	Manhattan	Mayor	Townhall N 6th
Eli Davis	DNRC	Service Forester	2273 Boothill Ct suite 110
James Pummel	USFS	Fire Management Specialist	3710 W Fallon Suite C
CHRIS DAHLHEIMER	HFD	Asst Chief	4541 S 3rd Rd
David Kozicki	FEFD	Chief	3041 Botema Trl Rd

[redacted]

Gallatin County Emergency Management
Preparing Our Community

Gallatin County Hazard Mitigation and Community Wildfire Protection Plan Update

Meeting Attendance Sign In

Meeting: ~~Hazard~~ Hazard Ranking Mtg Date: 10/10/24 Location: Three Forks

Name	Agency	Title	Address	[redacted]
Patrick Lonergan	Gallatin Co. Emergency Mgmt	Chief of Emi Fire	219 E. Tenacre Dr. Bozeman, MT 59715	
Jason Wheeler	Gallatin CO. Emergency Mngmt	Wildfire B.C.	"	
Bob Culbreth	MT - DNRC	Fire management		
Kara Hupsen	MT - DNRC	Boz Unit Mgr.		

Gallatin County Emergency Management
Preparing Our Community

Gallatin County Hazard Mitigation and Community Wildfire Protection Plan Update

Meeting Attendance Sign In

Meeting: Hazard Risk Assessment Date: 10/16/24 Location: Manhattan

Name	Agency	Title	Address
Patrick Lonergan	Gallatin Co. Emergency Manager	chief of EM & Fire	215 E. Tamarack Bozeman, MT 59715
Jason Wheeler	Gallatin CO. Emergency Management	Wildfire B.C.	"
Buck Taylor	"	Deputy Fire Chief	"
Dennis Wengel	Manhattan Police	Chief	Manhattan
Pam Humphrey	Town of Manhattan MVFD	Clerk/Treasurer Lt.	PO Box 96 Manhattan, MT 59741
Travis Howells	Town of Manhattan	Mayor	P.O. Box 96 Manhattan MT 59741
Charles Tuss	NorthWestern Energy	Wildfire Situation Awareness Spec.	11 E Parkat Butte MT 59701
Kara Huysser	DNRC	Unit Mgr - Bozeman	
Tonya Owens	Town of Manhattan	Dept Clerk/ Treas.	207 S 6th St Box 96 Manhattan MT 59741
Jeff Mueller	Town of Manhattan	Public Works Supervisor	PO BOX 96 Manhattan MT

[redacted]

Gallatin County Emergency Management
Preparing Our Community

Gallatin County Hazard Mitigation and Community Wildfire Protection Plan Update

Meeting Attendance Sign In

Meeting: Hazard Analysis Mtg **Date:** 10/15/24 **Location:** Big Sky

Name	Agency	Title	Address
Patrick Lonergan	Gallatin County Emergency Mgmt	Chief of EMS & Fire	215 E. Tamarack Jeremy, MT 59715
Buck Taylor	"	Duty Officer	"
Jason Wheeler	"	Wildfire B.C.	"
Joe Brummell	Madison Co EM	Dizac	5 Place Ct Virginia City
Will Flynn	Big Sky Fire Dept	Fuels Crew Boss	650 Rainbow Trout Run Big Sky MT
Nick Horn	Sun Mountain Lumber	Forester	
Tom Moltzen	Big Twig		1355 Collins Rd. Belgrade, MT 59714
Jeff Cadby	Lone Mountain Land Company	Environmental Manager	PO Box 160618 Big Sky, MT 59716
Dustin Tetrault	Big Sky Fire	Chief	650 Rainbow Trout Run PO Box 160582 Big Sky MT, 59716
Dan Shail	Big Sky Fire	Battalion Chief	650 Rainbow trout run Big Sky, MT 59716

[redacted]

Gallatin County Emergency Management
Preparing Our Community

Gallatin County Hazard Mitigation and Community Wildfire Protection Plan Update

Meeting Attendance Sign In

Meeting: Hazard Analysis Mtg **Date:** 10/17/24 **Location:** Big Sky

Name	Agency	Title	Address	[redacted]
Tor Butler	YC	U.A. OF Public Safety	1 Yellowstone Club Trail PO Box 161097 Big Sky MT 59716	
Charles Tuss	Northwestern Energy	Wildfire Situational Awareness Specialist	11 E Park St Butte MT 59701	
Anna Johnson	LMLC	Director of Community Engag.	25 Town Center Ave. Big Sky, MT 59716	
Kara Hueper	DNRC	Boz Unit Manager	—	

Gallatin County Emergency Management
Preparing Our Community

Gallatin County Hazard Mitigation and Community Wildfire Protection Plan Update

Meeting Attendance Sign In

Meeting: Hazard Ranking Mtg Date: 10/9/24 Location: Bozeman

Name	Agency	Title	Address	E-Mail
Patrick Lonergan	Gallatin Co Emergency Mgmt	Chief of Bur'l Fire	219 E. Tamarack Bozeman, MT 59715	[redacted]
Buck Taylor	"	Dep. Chief	"	
Jason Wheeler	"	Wildfire B.C.	"	
Jill Miller	City of Bozeman	WTP Superintendent	P.O. Box 1230 / 7024 Sourdough Canyon Rd Bozeman, MT 59715	
Adam Oliver	City of Bozeman	Stormwater program mgr	7 E Beall St Ste 100 59715	
Brent Zundel	MT DNRC	Civil Engineer	2273 Boot Hill Ct, Suite 110 Bozeman, MT 59715	
Brian Heaston	City of Bozeman	Floodplain Administrator	20 E. Olive	
John Huston	MT DNRC	FMO	8001 N. Montana Ave. Helena MT 59602	
Georgene Lenon	Gallatin Dept of Emergency Mgmt	Acct Technician	219 E Tamarack Bozeman, MT 59715	
Lori Christenson	GCCHD	Health Officer	215 W. Mendenhall	

Gallatin County Emergency Management
Preparing Our Community

Gallatin County Hazard Mitigation and Community Wildfire Protection Plan Update

Meeting Attendance Sign In

Meeting: Haz & Ranking Mtg Date: 10/9/24 Location: Bozeman

Name	Agency	Title	Address	E-Mail
Rebecca Williamson	Bozeman Health	System Director of Nursing & Clin. Ops.	915 Highland Blvd, Bozeman	[redacted]
Matthew Benson	Bozeman Health Big Sky Medical	Nurse Manager	334 Town Center Ave Big Sky, MT	
CHRIS GRIMMES	BOZEMAN HEALTH	ED MANAGER/ EMSA INTERIM	915 HIGHLAND BLVD BZN, MT 59718	
Kara Hunsaker	DNRC	Boz. Unit Mgr	–	
James Pummel	USFS	Fire Management Specialist	3710 W Fallon Street Suite C Bozeman, MT 59718	
Scott Sanders	MSU EM	Director Emergency Mgmt.	1750 S. 7th Bozeman, MT 59717	
Andy Knight	BZN P.D.	Deputy Chief	901 N. Rouse BZN 59715	

Gallatin County Emergency Management
Preparing Our Community

Gallatin County Hazard Mitigation and Community Wildfire Protection Plan Update

Meeting Attendance Sign In

Meeting: Bozeman **Date:** 6/9/24 **Location:** GCEM

Name	Agency	Title	Address	E-Mail
Marilyn King	Bozeman Public Schools	Deputy Supt.	404 W. Main St. Bzn, MT 59715	[redacted]
Zail Brown	Gallatin Co	Commissioner	311 W. Main	

Gallatin County Emergency Management
Preparing Our Community

Gallatin County Hazard Mitigation and Community Wildfire Protection Plan Update

Meeting Attendance Sign In

Meeting: Belgrade Risk Assessment Date: 10/8/24 Location: Belgrade

Name	Agency	Title	Address	E-Mail
Patrick Lonergan	Gallatin Co Emergency Mgmt	Chief of EMS & Fire	215 E. Tamarack Bozeman, MT 59715	[redacted]
Buck Taylor	"	Duty officer	"	
Jason Wheeler	GCEM	Wildland B.C.	"	
Jason Holman	Bozeman FD	Deputy Chief	300 E. Oak Bozeman, MT 59771	
Jay Wittwer	CVFD	Fire Chief	215 Wings Way Belgrade, MT 59714	
Kevin Larsen	GCEM	Operations + Training Mgr.	219 E. Tamarack, Boz.	
Jennifer Boyer	Gallatin County	Commissioner	311 W. Main St. Bozeman 59715	
Trey Olson	Belgrade School District	Assistant Superintendent	312 Weaver Street Belgrade MT 59714	
Brian Nicholay	Hyalite Fire	Fire Chief	4541 S. 3rd Rd Bozeman, MT	

Gallatin County Emergency Management
Preparing Our Community

Gallatin County Hazard Mitigation and Community Wildfire Protection Plan Update

Meeting Attendance Sign In

Meeting: Belgrade Risk Assessment Date: 6/18/24 Location: Belgrade

Name	Agency	Title	Address	E-Mail
Greg Tirton	City of Belgrade	Asst City Manager		[redacted]
Camaree Ulsua	City of Belgrade	PW Director		
Charles Tuss	Northwestern Energy	Wildfire situation Awareness Spec	11 E Park St Butte MT 59701	
Bob Culbreth	MT-DNRC	Assistant Fire Manager	8001 N. Montana Helena, MT 59602	

Gallatin County Emergency Management
Preparing Our Community

Gallatin County Hazard Mitigation and Community Wildfire Protection Plan Update

Meeting Attendance Sign In

Meeting: Belgrade Risk Assessmt Date: 10/8/24 Location: Belgrade

Name	Agency	Title	Address	[redacted]
BRANDON YUNG	CUFD	DEPUTY FIRE MARSHAL	310 NW PASSAGE LN MANHATTAN, MT 59741	

Gallatin County Emergency Management
Preparing Our Community

Gallatin County Hazard Mitigation and Community Wildfire Protection Plan Update

Meeting Attendance Sign In

Meeting: City of Three Forks Date: 1/21/25 Location: Library Three Forks

Name	Agency	Title	Address	
Randy Johnston	City of Three Forks	Mayor	Box 604 Three Forks	[redacted]
Roxi McDermott	City of Three Forks	Consil Member	Box 1293 Three Forks	
Gene Townsend	City of Three Forks	Council Member	Box 1 Three Forks	
Ed THARP	CITY OF THREE FKS	Council Member	Box 469 Three Forks	
GEORGE CHANCELLOR	CITY OF THREE FORKS	COUNCIL MEMBER	PO Box 527 THREE FORKS	
Kelly Smith	City of TF Treasurer	Treasurer City of Three Fork	Box 187 Three Forks MT	
Crystal Turner	CTF City clerk	City Clerk	PO Box 187 Three Forks MT 59752	

Public meeting announcements (community letters & e-mail invitations)

From: [redacted]
To:
Cc:
Subject: Wildfire Risk Assessment Workshop -- 10/22 @ Bzn (8:30 AM - 2:30 PM)
Date: Thursday, October 17, 2024 6:04:27 AM
Attachments: MT_QWRA_Workshop_Agenda_Oct22_2024.pdf

Greetings All,

Thank you again for your time **next Tuesday, Oct. 22** to attend and participate in the Wildfire Risk Modeling workshop hosted in Bozeman. Final workshop reminders include:

- **Location:** Gallatin County Emergency Mgmt. Offices (219 E. Tamarack St. Bozeman, 59715)
- **Time:** Arrival between 8:30-8:45 AM; meeting starts at 9:00 AM and adjourns at 2:30 PM
- **Agenda:** *See attached*
- **Purpose:** Discuss how to apply Pyrologix's Quantitative Wildfire Risk Assessment (QWRA) for county-level wildfire planning and management needs including data integration and product development.

For reference and prior to next week, please review DNRC's statewide wildfire risk assessment (adopted in 2020) and the broader *Wildfire Risk to Communities* websites. These tools provide foundational context for understanding, identifying, and exploring wildfire risk at multiple scales.

Thank you again and please let me know if you have any questions!

Regards,
Kimi

Kimiko Barrett, Ph.D. | Sr. Wildfire Research & Policy
Headwaters Economics | Bozeman, Montana
m. 406.224.1837 | e. kimi@headwaterseconomics.org

https://headwaterseconomics.org

HEADWATERS ECONOMICS

Wildfire Risk Modeling Workshop | Tues. Oct. 22, 2024

Gallatin County Emergency Mgmt. Office
219 E. Tamarack St., Bozeman, MT

PURPOSE

Given that Park, Gallatin, Stillwater, and Carbon counties are simultaneously updating their Community Wildfire Protection Plans (CWPPs), having a multijurisdictional, transboundary risk modeling assessment, also known as a Quantitative Wildfire Risk Assessment (QWRA), is important for data consistency, overall coordination, and regional planning.

OBJECTIVE

To discuss a proposal to apply, update, and refine the current Pyrologix wildfire risk assessment, adopted by DNRC in 2020, and use it for multi-county level planning which can correspondingly feed directly into each county's CWPP. During the workshop, we will discuss data, process, and products for developing and producing a QWRA for Park, Gallatin, Stillwater, and Carbon counties. Pyrologix is based in Missoula, MT and is a subsidiary of Vibrant Planet.

AGENDA

TIME	AGENDA ITEM	OBJECTIVE
8:30 AM	Arrival at Venue	Parking is available on the north side of the building. Meet in the main conference room.
9:00 – 9:30 AM	Introductions & Kick-Off	**Welcome!** Intros, set the agenda, housekeeping, etc.
9:30-10:30 AM	Wildfire Risk Modeling 101	**Overview with Pyrologix** Introduction to the process, methodology and data supporting a QWRA.
10:30 – 10:45 AM	*Break – pastries & coffee/tea*	
10:45 AM – 12:00 PM	Data Discussion	**Highly Valued Resources & Assets (HRVAs)** Understanding HRVAs and identifying priority HRVAs to include in the QWRA.
12:00 – 1:00 PM	*Lunch – onsite buffet*	
1:00 -1:30 PM	Data Discussion Cont.	**HVRAs Continued…**
1:30 – 2:15 PM	Products and Outcomes	**Products and Outcomes** Overview and determination of final QWRA products for integration into county CWPPs.
2:15 – 2:30 PM	Next steps & Adjourn	

From: kimi@headwaterseconomics.org
To: [redacted]
Cc: [redacted]
Subject: RE: MT Risk Assessment - scheduling mtg w/ Pyrologix for Tasks 1-3
Date: Tuesday, August 5, 2025 12:25:27 PM

Hello Everyone,

Thanks for the prompt response and it appears we have a winner of meeting with Pyrologix on **Wed. Sept. 10th @ 11 AM MST** via Zoom here. I will send out a calendar invite as well.

An agenda will be forthcoming but for now, please block it on your calendars!

Regards,
Kimi

Kimiko Barrett, Ph.D. | Sr. Wildfire Research & Policy
Headwaters Economics | Bozeman, Montana
m. 406.224.1837 | e. kimi@headwaterseconomics.org

https://headwaterseconomics.org

From: kimi@headwaterseconomics.org <kimi@headwaterseconomics.org>
Sent: Tuesday, August 5, 2025 10:24 AM
To: 'Tom Kohley' <tkohley@co.carbon.mt.us>; 'David Stamey' <dstamey@stillwatercountymt.gov>; 'Michael Inman' <wminman@parkcounty.org>; 'Greg Coleman' <gcoleman@parkcounty.org>; 'Alidade Consulting' <Alidadefuel@proton.me>; patrick@readygallatin.com
Cc: 'Jerry McAdams' <jmcadams@mcfirellc.com>
Subject: MT Risk Assessment - scheduling mtg w/ Pyrologix for Tasks 1-3

Greetings All,

Pyrologix has just notified me that their preliminary outputs for Tasks 1-3 are complete and ready for initial review by the counties. Data outputs for these tasks include the following layers:

Task 1: Landscape information ESRI geodatabase

- Fuelscape rasters
- General Land Ownership classes
- Vegetation Types
- Fuel types
- Structure-importance density
- Ignition frequi-density grid
- Perimeters of recent large fires (last ten years)

Task 2: FSim Large Fire Simulation System

- Simulation of fire growth and behavior based on thousands of simulated fire events, in order

to model potential fire spread, occurrence, duration, and size (burn probability)

Task 3: WildEST modeling (combines Task 1 w/ Task 2 and integrates structure-level data)

- Burn probability
- Flame lengths @ 0' – 12'+ (fire intensity)
- Ember production and loading to structures (direct exposure/indirect exposure)
- Damage potential to structures
- Wildfire exposure score
- Fire operations (i.e. suppression difficulty, burn probability)

At this point, it would be great to walk you through these initial tasks including the data and maps. For clarification, this is *not* the modeling of Highly Valued Resources and Assets (HVRAs) which will come in the next task (Task 4). Currently, this is the modeling of fuels (vegetation) and fire simulations of behavior and characteristics. That said, it still may be helpful to show you what Joe Scott and his team are doing so you understand what you're looking at (and paying for) up to this point.

I am hoping we can schedule a call for mid-September to collectively review these early outputs. **Please let me know your availability on Wed. Sept 10th**, and if not 9/10 other dates/times the week of Sept 8 that work for you.

And as a note, the next task (Task 4) is the modeling of HVRAs, which will be collated, vetted, and mapped. The identification of HVRAs involves a 2-hour online meeting between all four counties and Pyrologix to determine the relative importance and weighting of each HVRA. For your reference, I have attached the Pyrologix SOW to this email (see pg. 4-5 for Tasks 1-3 noted above).

Thank you very much and again, please let me know if you are available on Wed. 9/10 to meet with Pyrologix.

Kind Regards,
Kimi

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https://headwaterseconomics.org

MT Quantitative Wildfire Risk Assessment (QWRA)
Vibrant Planet/Pyrologix, Carbon, Stillwater, Park, and Gallatin Counties

Check-in Meeting | Sept. 10, 2025
Agenda

Timeline

1. Introductions - 5 min
    a. Introduce project and purpose
    b. Headwaters Economics
    c. Pyrologix/Vibrant Planet
2. Hazard Modeling Review - 25 min
    a. High level findings + Data tour
3. HVRA Data Overview - 10 min
    a. HVRA footprint review
    b. Pending HVRA questions/data needs
4. Next Steps - 10 min
    a. HVRA Characterization
    b. Meeting Scheduling
    c. Remaining timeline + deliverables

Purpose

Provide the four counties an overview of Task 1-3 including the data and preliminary mapping outputs.

- What's included in Task 1-3 (see list below)
- This is why this data is important and what it looks like

Task 1: Landscape information ESRI geodatabase

- 8 fuelscape rasters (canopy, elevation, slope, etc.)
- General Land Ownership classes
- Vegetation Types
- Fuel Types
- Structure-importance density
- Ignition frequency-density grid
- Perimeters of recent large fires (last ten years)

Task 2: FSim Large Fire Simulation System

- Simulation of fire growth and behavior based on thousands of simulated fire events, in order to model potential fire spread, occurrence, duration, and size (burn probability)

Task 3: WildEST modeling (combines Task 1 w/ Task 2 and integrates structure-level data)

- Burn probability
- Flame lengths @ 0' – 12'+ (fire intensity)
- Ember production and loading to structures (direct exposure/indirect exposure)
- Damage potential to structures

- Wildfire exposure score
- Fire operations (i.e. suppression difficulty, burn probability)

HVRA Data overview

The HVRAs will consist of:

- PEOPLE
  - Structures – custom Montana dataset that includes building type. We will use the Montana Wildfire Risk Assessment ratings for each building type to give weight
  - Roads – critical egress roads (Open Street Map as default)
  - Emergency service facilities
  - Historical structures
- INFRA
  - Electric power generation and transmission infrastructure
  - Communication infrastructure
  - Ski area infrastructure
- WATER
  - Surface drinking water sediment contributing area for public water supplies
- TIMBER
  - Managed Timberlands (all lands)

What's Next:

Task 4 - Characterization of HVRAs:

- 2-hour online "Relative Importance Workshop" in which all four counties will collectively decide the relative importance how each 'resource' and 'asset' is weighted in the risk model. One agreed upon weight will be used for each data input across all four counties.

- HVRA characterization meeting preview
  - Goal and Purpose
  - Who should attend?
  - Timing

Task 5: Final products (by November 2025)

- Net Value Change of calculations of HRVAs
- Printable pdf maps, data dictionary, and related documentation
- Geodatabases

Outlook

AHAD Meeting, 10/16

From Jay Pape <jay@readygallatin.com>
Date Tue 10/7/2025 14:59
To Jay Pape <jay@readygallatin.com>

4 attachments (2 MB)
THIRA_SPR Fillable 2025.pdf; 2025 LEPC Report Fillable.pdf; 2025 NIMS Report Fillable.pdf; 251016-AHAD Agenda.pdf;

All-
The agenda is below and attached with a virtual link for next week's meeting.
Please refer to the attached documents for the discussion items.

Gallatin County Emergency Management
Preparing Our Community

All Hazard All Discipline Agenda
October 16th @ 11:30 am
Gallatin County Coordination Center
Call In: 1-406-219-4560 ID: 865 327 132#

Join the meeting now

Agenda

Introductions	
Minutes Approval	• Approve June meeting minutes. August meeting was cancelled
Presentations	•
Discussion Items	• Hazard Mitigation Plan/CWPP- Goals Discussion • 2025 NIMS & State Preparedness Report Concurrence
Updates	•
Agency Round-Robin	• 60 second agency updates
Next Meeting	• **December 18, 2025**

Upcoming Activities

Upcoming Training (https://www.readygallatin.com/training-opportunities)			
The online calendar is updated regularly. Please check the link above for updates.			
October			
O0305	All Hazard IMT	20-24	Helena
MGT340	TEEX Crisis Leadership	21	Yellowstone Club
MGT340	TEEX Crisis Leadership	23	Helena
L388	Advanced PIO	27-31	Bismarck, ND
ICS300	ICS300	28-30	Bozeman Public Safety Center
November			
L0105	Public Information & Warning	4-6	TBD
December			
L0105	Public Information Basics	2-4	Helena
January			

L480	Organizational Leadership	8-12	Missoula
	Colorado Wildfire Academy	12-16	Colorado Springs, CO
S339	Division Group Supervisor	26-30	Missoula
February			
ICS400	ICS400	24-25	TBD
February			
O305	Type 3 IMT	9-13	Colorado Springs, CO
S203	Intro to Incident Information	9-13	Colorado Springs, CO
S390	Fire Environment Assessment	9-13	Colorado Springs, CO
S372	Helicopter Manager	23-27	Missoula
March			
RX310	Prescribed Fire Burn Boss	2-6	Missoula
	Arizona Wildfire Academy	16-20	Prescott, AZ
L381	Incident Leadership	3/30-4/3	Great Falls
L380	Fireline Leadership	6-10	Great Falls

Jay Pape
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From:
To:
Bcc:
[redacted]
Subject:
Date: Tuesday, August 12, 2025 11:01 AM
Attachments:

TO: Community Partners
FROM: Emergency Management
DATE: August 12, 2025
SUBJECT: Hazard Mitigation Goals

We are at a point in the update to the Hazard Mitigation and Community Wildfire Protection Plan that we need to review and potentially update our mitigation goals for the new plan. With the completion of the hazard analysis that many of you participated in, there are a couple areas that have moved up the list. Identifying accurate mitigation goals will help make sure our plan addresses the priority areas of importance to our communities and contains potential mitigation actions to support future projects.

We will be reviewing and updating the mitigation goals at the All Hazard/All Discipline meeting on August 21st, 2025 at 11:30 am. The meeting will be hybrid with in person at the Gallatin County Coordination Center (210 E. Tamarack in Bozeman) or virtual on Teams.

The 2020 Goals are listed on the following pages along with the hazard rankings for the overall county and each community.

Additional information is available on our Hazard Mitigation and Community Wildfire Protection Plan update page at: https://www.readygallatin.com/2024update/

Mitigation Goals from 2020 Hazard Mitigation Plan

Goal 1: Reduce impacts from Wildfire
- Objective 1.1: Reduce private losses in the Wildland-Urban Interface(WUI).
- Objective 1.2: Increase understanding of the wildfire hazard areas.
- Objective 1.3: Assist property owners in completing mitigation measures.

Goal 2: Reduce impacts from Severe Weather and Drought
- Objective 2.1: Improve weather forecasting capabilities and information distribution.
- Objective 2.2: Support coordination with state and local drought management initiatives.

Goal 3: Reduce impacts from Earthquakes
- Objective 3.1: Implement property protection projects to reduce impacts from earthquakes.
- Objective 3.2: Conduct mapping, analysis, and planning projects to reduce impacts from earthquakes.

Goal 4: Reduce impacts from Critical Infrastructure Disruption
- Objective 4.1: Implement projects to reduce impacts from critical infrastructure disruption.
- Objective 4.2: Improve emergency services communication and resiliency.
- Objective 4.3: Provide measures that enhance the confidentiality, integrity and availability of Cyber-data and information.

Goal 5: Reduce impacts from Flooding
- Objective 5.1: Implement property protection projects to reduce impacts from flooding.
- Objective 5.2: Conduct planning, analysis, and mapping projects to reduce impacts from flooding.
- Objective 5.3: Implement prevention projects to reduce impacts from flooding.
- Objective 5.4: Provide public education and awareness to reduce impacts from flooding.

Goal 6: Reduce Losses from a Transportation or Hazardous Materials Accident
- Objective 6.1: Enhance emergency services to mitigate impacts from transportation or HAZMAT accident.

Goal 7: Prevent Significant Loss of Life from Communicable Disease and Bioterrorism
- Objective 7.1: Provide public education and awareness to reduce impacts from communicable disease.
- Objective 7.2: Provide state and local governments with antidote supplies.

Goal 8: Promote All-Hazard Mitigation Measures
- Objective 8.1: Provide public education, awareness, and treatment to reduce impacts from all hazards.
- Objective 8.2: Enhance inter-jurisdictional coordination.
- Objective 8.3: Increase and enhance mental health system.
- Objective 8.4: Conduct training to address violence and public attacks.

Potential Goals to add for 2025:

- Reduce impacts from Utility outages
- Reduce impacts from power insecurity

County Wide Summary

	Probability of Occurrence	Population Impact	Property Impact	Economic Impact	Relative Overall Risk
	(0-3)	(1-3) raw	(1-3) raw	(1-3) raw	(0-54)
Wind Events	3.0	3.0	3.0	2.0	51.0
Earthquake	2.5	3.0	3.0	2.8	44.6
Railway Incidents	2.8	2.8	2.5	2.3	42.6
Severe Weather	2.8	2.7	2.5	2.0	42.5
Electrical Outage	3.0	3.0	1.5	1.5	40.5
Wildfire - WUI	2.8	2.3	2.3	2.2	39.2
Community Access	3.0	3.0	1.0	2.0	39.0
Air Quality	3.0	3.0	1.0	1.0	36.0
Critical Infrastructure Failure	3.0	2.7	1.3	1.3	36.0
Public Notification Limitations	3.0	3.0	1.0	1.0	36.0
Utility Outage - Water & Gas	2.8	2.5	1.8	1.0	33.0
Communicable Disease	2.8	2.7	1.2	1.2	32.6
Flooding	2.7	2.3	1.5	1.7	31.1
Water Supply/ Drought & Quality	2.7	2.5	1.3	1.5	31.1
Wildland Fire - Forest	3.0	2.0	1.0	2.0	30.0
Cybersecurity	2.5	2.3	1.3	1.0	25.6
Urban Conflagration	2.3	1.7	1.3	1.7	21.8
Hazardous Materials Incident	2.2	2.0	1.3	1.3	21.7
Transportation Accidents	2.8	1.4	1.0	1.0	20.2
Active Killer	2.0	2.0	1.3	1.3	20.0
Mental Health	2.5	1.5	1.0	1.0	18.8
Aviation Incidents	2.7	1.0	1.5	1.0	18.7
Community Resilience	2.0	2.0	1.0	1.0	18.0
Mass Casualty Incident	3.0	1.0	1.0	1.0	18.0
Illegal Drugs	2.5	1.0	1.5	1.0	17.5
Terrorism	1.8	2.0	1.3	1.3	17.1
Volcano Eruption	1.0	2.8	2.8	2.8	16.8
Dam Failures	1.3	1.7	1.5	1.5	12.7
Landslide & Avalanche	1.8	1.0	1.0	1.3	10.9
Violence and Civil Unrest	1.8	1.0	1.0	1.0	10.8

West Yellowstone

Hazard	Probability of Occurrence	Population Impact	Property Impact	Economic Impact	Relative Overall Risk
	(0-3)	(1-3) raw	(1-3) raw	(1-3) raw	(0-54)
Wildfire	3	3	3	3	54
Earthquake	3	3	3	3	54
Severe Weather	3	3	3	2	51
Critical Infrastructure - Electric	3	3	2	2	45
Air Quality	3	3	1	1	36
Critical Infrastructure - Water	3	3	1	1	36
Critical Infrastructure - Telecommunications	3	3	1	1	36
Communicable Disease	3	3	1	1	36
Drought	3	2	2	2	36
Critical Infrastructure - Natural Gas	2	3	2	2	30
Cyber Security	3	2	1	1	27
Ground Transportation	3	1	1	1	18
Volcano	1	3	3	3	18
Urban Conflagration	3	1	1	1	18
Landslides	2	1	1	2	14
Violent Attack	2	1	1	1	12
Terrorism & Bioterrorism	1	3	1	1	12
Aviation Accident	2	1	1	1	12
Avalanche	2	1	1	1	12
Flooding	2	1	1	1	12
Dam Failure	1	1	1	1	6
Hazardous Materials	1	1	1	1	6

Belgrade

Hazard	Probability of Occurrence	Population Impact	Property Impact	Economic Impact	Relative Overall Risk
	(0-3)	(1-3) raw	(1-3) raw	(1-3) raw	(0-54)
Trains	3	3	3	2	51
Wind Event	3	3	3	2	51
Flooding	3	3	2	2	45
Water Supply	3	3	2	1	42
Severe Weather	3	3	2	1	42
Earthquake	2	3	3	3	36
Electrical Outage	3	3	1	1	36
Wildfire	3	2	2	2	36
Air Quality	3	3	1	1	36
Communicable Disease	3	3	1	1	36
Communications Outage	3	3	1	1	36
Municipal Utilities	3	2	2	1	33
Cybersecurity	3	2	2	1	33
Transportation Accidents	3	2	1	1	27
Aviation	3	1	2	1	24
Dam Failure	1	3	3	3	18
Hazardous Materials	2	2	1	1	18
Community Resilience	2	2	1	1	18
Volcano	1	3	3	3	18
Violence & Civil Unrest	2	1	1	1	12

Big Sky

Hazard	Probability of Occurrence	Population Impact	Property Impact	Economic Impact	Relative Overall Risk
	(0-3)	(1-3) raw	(1-3) raw	(1-3) raw	(0-54)
Wildland Fire - WUI	3	3	3	3	54
Limited Access	3	3	1	2	39
Air Quality	3	3	1	1	36
Public Notification	3	3	1	1	36
Telecommunications Infrstructure	3	3	1	1	36
Transportation Infrastructure	3	3	1	1	36
Earthquake	2	3	3	3	36
Utility Infrastructure	2	3	3	1	32
Wildland Fire - Forest	3	2	1	2	30
Flooding	3	2	1	1	27
Communicable Disease & Bio Terrorism	3	2	1	1	27
Hazardous Materials Release	3	2	1	1	27
Severe Drought	2	3	1	1	24
Severe Weather	2	2	2	2	24
Volcano	1	3	3	3	18
Ground Transportation Accident	3	1	1	1	18
Mass Casualty Incident	3	1	1	1	18
Land Slide & Avalanche	2	1	1	1	12
Violence, Terrorism & Civil Unrest	2	1	1	1	12
Aviation	2	1	1	1	12
Dam Failure	1	1	1	1	6

Bozeman					
Hazard	Probability of Occurrence	Population Impact	Property Impact	Economic Impact	Relative Overall Risk
	(0-3)	(1-3) raw	(1-3) raw	(1-3) raw	(0-54)
Extreme Weather Event	3	3	3	2	51
Wildfire	3	3	2	3	48
Air Quality	3	3	1	1	36
Drought	3	3	1	1	36
Communicable Disease	3	3	1	1	36
Critical Infrastructure Failure	3	3	1	1	36
Earthquake	2	3	3	2	34
Railroad	3	2	2	1	33
Hazardous Materials	3	2	1	1	27
Cybersecurity	2	3	1	2	26
Flooding	2	2	2	2	24
Bio Terrorism	2	3	1	1	24
Ground Transportation Accident	3	1	1	1	18
Dam Failure	1	3	2	2	15
Civil Unrest	2	1	1	1	12
Active Killer	2	1	1	1	12
Aviation Accident	2	1	1	1	12
Landslides and Avalanches	2	1	1	1	12

Manhattan					
Hazard	Probabilty of Occurrence	Population Impact	Property Impact	Economic Impact	Relative Overall Risk
	(0-3)	(1-3) raw	(1-3) raw	(1-3) raw	(0-54)
Earthquake	3	3	3	3	54
Severe Weather	3	3	3	3	54
Train	3	3	2	3	48
Flooding	3	3	1	2	39
Wildfire	3	1	3	1	30
Hazardous Materials	2	3	2	2	30
Aviation Accident	3	1	3	1	30
Utility Outage	3	2	1	1	27
Ground Transportation	3	2	1	1	27
Water Quality	2	3	1	2	26
Communicable Disease & Bioterrorism	2	3	1	1	24
Cybersecurity	2	3	1	1	24
Mental Health	2	2	1	1	18
Volcano	1	3	3	3	18
Active Shooter	1	3	2	2	15
Drug Issues	2	1	1	1	12
Terrorism	1	2	1	2	10
Urban Conflagration	1	2	1	2	10
Dam Failure	1	2	1	1	9
Violence	1	1	1	1	6
Civil Unrest	1	1	1	1	6

Three Forks					
Hazard	Probability of Occurrence	Population Impact	Property Impact	Economic Impact	Relative Overall Risk
	(0-3)	(1-3) raw	(1-3) raw	(1-3) raw	(0-54)
Earthquake	3	3	3	3	54
Flooding	3	3	2	2	45
Severe Weather	3	2	2	2	36
Environmental Hazards	3	2	2	2	36
Critical Infrastructure Disruption	3	2	2	2	36
Communicable Disease and Bioterrorism	3	2	2	2	36
Urban Conflagration	3	2	2	2	36
Railroad Accident	2	3	3	3	36
Substance Addiction	3	1	2	1	24
Hazardous Materials Release	2	2	2	2	24
Dam Failure	2	2	2	2	24
Terrorism	2	2	2	1	22
Drought	3	1	1	2	21
Wildfire	2	2	1	1	18
Mental Health	3	1	1	1	18
Aviation Accident	3	1	1	1	18
Active Shooter	2	2	1	1	18
Ground Transportation Accident	2	1	1	1	12
Volcano	1	2	2	2	12
Civil Unrest	2	1	1	1	12
Violence	1	1	1	1	6
Skydiving Accident	1	1	1	1	6
Avalanche and Landslide	0	1	1	1	0

Patrick Lonergan
Chief of Emergency Management and Fire
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ReadyGallatin.com
Schedule a Meeting

Gallatin County Emergency Management
Preparing Our Community

From: Patrick Lonergan
To: Patrick Lonergan
Bcc: [redacted]

Subject: Hazard Mitigation Goals and Objectives
Date: Thursday, January 29, 2026 2:41:00 PM
Attachments: image001.png

Good Afternoon,

We need your assistance to review and comment on proposed Mitigation Goals and Objectives for the Hazard Mitigation and Community Wildfire Protection Plan update. We have taken the new consolidated county wide hazard ranking that you all helped develop and created draft Mitigation Goals and Objectives that hopefully encapsulate all the hazards.

We are asking for 5 minutes of your time to take a look at the Goals and Objectives and verify they cover what we need. Visit this Online Form (https://forms.office.com/r/jmm77tQJhS) to review and provide input no later than February 6th. Even if you have no comments, please submit the form to record that you reviewed it.

After February 6th, we will then attach proposed projects to each Objective for your review, contributions, and ranking. Projects must be identified in our plan to utilize state or federal mitigation funding towards them. You can view an example of where we are heading with these Mitigation Goals, Objectives & Projects from our current plan.

Thanks-

Patrick

~~~~~~
~~~~~~

From: Patrick Lonergan
To: Patrick Lonergan
Bcc: [redacted]

Subject: Mitigation Project Identification | Hazard Mitigation Plan Update
Date: Friday, February 6, 2026 3:17:00 PM
Attachments: image001.png
Importance: High

Good Afternoon,

Thank you so much for those who contributed with reviewing and commenting on the Mitigation Goals and the associated Objectives. We've taken the feedback and worked to combine everything into Objectives that make sense and capture your provided intent.

The next step we are asking for your help with is reviewing and contributing to potential Mitigation Projects.

For anyone within the County to utilize federal mitigation funding, the desired project must be identified in this list within the approved mitigation plan. So, our goal is to be inclusive of any potential mitigation projects we think could be valuable to our communities. Identifying a potential project is not a commitment to the project, but rather is a tool to put it on the radar screen.

We have again taken previous discussions and feedback to develop proposed draft projects for reviewers to start with. We really appreciate you taking 5 minutes to review these project concepts and make sure we are not missing anything.

You can review and comment on the proposed project concepts at: https://forms.office.com/r/XcYsESVBra before February 20th. Even if you have no specific feedback, please complete and submit the form so we can document your review participation.

Following your review of the projects on 2/20, the next step will consist of scoring the identified project concepts.

We appreciate your support and please reach out with any questions.

Patrick Lonergan
Chief of Emergency Management and Fire
Gallatin County, Montana
(406) 548-0116
patrick@readygallatin.com
ReadyGallatin.com
Schedule a Meeting

Gallatin County Emergency Management
Preparing Our Community

Gallatin County Emergency Management

Preparing Our Community

All Hazard All Discipline Agenda

October 17, 2024 @ 11:30 am

Gallatin County Coordination Center

Call In: 406-219-4560 ID: 193 799 906#

Join the meeting now

Agenda

Introductions	
Minutes Approval	• June 20, 2024
Presentations	• Lessons Learned - Missoula Wind Event, Adriene Beck, Missoula County Emergency Management
Discussion Items	• LEPC Annual Report Approval • NIMS Compliance Report Approval • THIRA/ SPR Approval • Hazard Mitigation and Community Wildfire Protection Plan Update ○ Wildfire Risk Modeling
Updates	• Introduction of new Wildfire Battalion Chief • 2025 Fuels Crew Plan • Emergency Medical Services Update • Bozeman Pass WUI Project • Collaborative Wildfire Risk Reduction Program Funding
Next Meeting	• **December 19, 2024**

Upcoming Activities

Upcoming Training (https://www.readygallatin.com/training-opportunities)
• MGT481, Disaster Recovery, 10/19-21/24, Missoula • ICS300, Intermediate ICS, 12/3-5/24, Virtual • ICS400, Advanced ICS, 12/17-18/24, Virtual • Colorado Wildfire Academy, 1/6-12/25, Colorado Springs • Enhanced All-Hazards Incident Mgmt/Unified Command, 2/3-7-25, College Station, Tx • O305, All Hazard IMT, 2/3-7/25, Colorado Springs • MGT318, All Hazard PIO, 3/4-5/25, Bozeman • G318, Local Mitigation Planning, 4/15-17/25, Fairmont
Upcoming Exercises
•

10/17/2024

Gallatin County Emergency Management
Preparing Our Community

All Hazard All Discipline Notes

October 17, 2024 @ 11:30 am
Gallatin County Coordination Center

Call In: 406-219-4560 ID: #

Agenda

Present	Patrick Lonergan, Jason Wheeler, Scott Sanders, Whitney Bermes, Jason Jarrett, Tim Martindale, Brian Nickolay, Otto Marx, Deborah McAtee, Lori Christenson, Dustin Tetrault, Mason Quick, Maura Casey
Minutes Approval	• June 20, 2024
Presentations	• Adriane Beck provided an overview of their summer wind event in Missoula County. Key item included need for charging stations for the community, extended ice supply operation, certified tree evaluators, affidavits for storm debris, tracking of land owner work for match.
Discussion Items	• LEPC Annual Report Approved • NIMS Compliance Report Approved • THIRA/ SPR Approved • Patrick provided an update on the risk assessment sessions held over the past couple weeks for the update to the Hazard Mitigation and Community Wildfire Protection Plan. He also spoke to the discussions taking place with Park, Stillwater and Carbon Counties on attempting to use standardized modeling and definitions for the wildfire work.
Updates	• Jason Wheeler was introduced as the new Wildfire Battalion Chief. • The County is looking to increase the fuels crew to 8 people in 2025, with two being longer term seasonals. • Emergency Medical Services process is underway to create an implementation plan for a county wide EMS System. The core group is meeting in November. • Gallatin County is expecting a formal award for a Western State WUI Grant for the Bozeman Pass area working in both counties. • The Custer Gallatin National Forest received funding for the Collaborative Wildfire Risk Reduction Program for work in the Bozeman Fire Shed. Part of this funding will support the Gallatin County and Big Sky Crews performing work on the project. • Maura Casey provided a long range weather forecast for the winter.
Next Meeting	• **December 19, 2024**

Upcoming Activities

Upcoming Training (https://www.readygallatin.com/training-opportunities)
• ICS300, Intermediate ICS, 12/3-5/24, Virtual • ICS400, Advanced ICS, 12/17-18/24, Virtual

10/17/2024

- Colorado Wildfire Academy, 1/6-12/25, Colorado Springs
- Enhanced All-Hazards Incident Mgmt/Unified Command, 2/3-7-25, College Station, Tx
- O305, All Hazard IMT, 2/3-7/25, Colorado Springs
- MGT318, All Hazard PIO, 3/4-5/25, Bozeman
- G318, Local Mitigation Planning, 4/15-17/25, Fairmont

Upcoming Exercises

-

10/17/2024

Gallatin County Emergency Management

Preparing Our Community

All Hazard All Discipline Agenda

June 19th, @ 11:30 am

Gallatin County Coordination Center

Call In: 406-219-4560 ID: 512 487 61#

Join the meeting now

Agenda

Introductions	
Minutes Approval	• April 19, 2025
Presentations	•
Discussion Items	• Recap of May 1 "August Blowout" Exercise • 2026 Exercise Topics
Updates	• Measles Coordination • Hazard Mitigation & Community Wildfire Defense Plan • Scheduled Training ○ MGT 340 Tabletop ○ ICS 300 & ICS 400 ○ O305 All Hazard IMT • Desired training for 2026?
Agency Round Robin	• 60 second agency updates
Next Meeting	• August 21, 2025

Upcoming Activities

Upcoming Training (https://www.readygallatin.com/training-opportunities)			
The online calendar is updated regularly. Please check the link above for updates.			
August			
G197	Integrating access & Functional Needs into EM	12-13	Helena
October			
O0305	All Hazard IMT	20-24	Helena
MGT340	TEEX Crisis Leadership	21	TBD Bozeman
MGT340	TEEX Crisis Leadership	23	Helena
L388	Advanced PIO	27-31	Bismarck, ND
ICS300	ICS300	28-30	TBD Bozeman
November			
L0105	Public Information & Warning	4-6	TBD
December			
L0105	Public Information Basics	2-4	Helena
February			
ICS400	ICS400	24-25	TBD

06/19/2025 Agenda

06/19/2025 Agenda

Gallatin County Emergency Management

Preparing Our Community

All Hazard All Discipline Agenda

December 18 @ 11:30 am

Gallatin County Coordination Center

Call In +1 406-219-4560 ID: 176 993 241#

Join the meeting now

Agenda

Introductions	
Minutes Approval	• Approve October meeting minutes.
Presentations	•
	•
Discussion Items	• AHAD- Future format an approach
Updates	• Homeland Security Grant Status • Quantitative Wildfire Risk Assessment
Agency Round-Robin	• 60 second agency updates
Next Meeting	• TBD

Upcoming Activities

Upcoming Training (https://www.readygallatin.com/training-opportunities)			
The online calendar is updated regularly. Please check the link above for updates.			
January			
	Colorado Wildfire Academy	12-16	Colorado Springs, CO
ICS300	Intermediate ICS	21-22	Miles City
S339	Division Group Supervisor	26-30	Missoula
ICS400	Advanced ICS	27-28	Lewistown
February			
O305	Type 3 IMT	9-13	Colorado Springs, CO
S203	Intro to Incident Information	9-13	Colorado Springs, CO
S390	Fire Environment Assessment	9-13	Colorado Springs, CO
S372	Helicopter Manager	23-27	Missoula
ICS400	Advanced ICS	24-25	Bozeman
March			
RX310	Prescribed Fire Burn Boss	2-6	Missoula
	Arizona Wildfire Academy	16-20	Prescott, AZ
L381	Incident Leadership	3/30-4/3	Great Falls
April			
L380	Fireline Leadership	6-10	Great Falls
S236	Heavy Equipment Boss	14-16	Butte
S219	Firing Operations	21-22	Townsend
May- TBD			
June			
S215	Firing Operations in the WUI	2-4	Butte
S219	Firing Operations	21-22	Butte

12/18/2025

Gallatin County Emergency Management
Preparing Our Community

All Hazard All Discipline Minutes

December 19, 2024 @ 11:30 am
Gallatin County Coordination Center

Call In: (406) 219-4560 ID: #

Minutes

Present	• Patrick Lonergan, Jay Pape, Jason Jarrett, Steve Thime, James Short, Jeff Hurley, Steve Sorlie, Jake Zlomie, Jay Wittwer, Dana McNeil, John Vonk, Whitney Bermes, Kevin Lasen, Otto Marth, Brian Nickolay, Scott Sanders
Minutes Approval	• October 17, 2024- approved
Presentations	• The NWS gave a seasonal outlook- continued minor drought conditions through the end of 2024. La Nina expected to bring cooler/wetter weather Jan-Mar, 2025. • Jay Pape gave a presentation on his deployment to Hurricane Helene
Discussion Items	• Homeland Security Grants- The Bozeman FD request for a Unified Command Course, and the Bozeman PD request for surveillance equipment were moved forward. Central Valley FD withdrew their request. • Training & Exercise Goals for 2025- Hyalite FD requested a large-scale wildland fire table topo exercise. Planning is underway. • Emergency Lodging- Keven Larson discussed the challenges, particularly for providing 12-24hr support for displaced persons and was looking into the possibilities of providing cash cards to those in immediate need. Also suggest that he GCSO Chaplain may be able to connect people with local faith-based providers. Kerri Strassheim discussed Red Cross evacuation center activation and the hotel list as options.
Updates	• Patrick Lonergan provided an update on the Quantitative Wildfire Risk Analysis with CWPP mapping covering all counties with contiguous portions of the Custer-Gallatin NF including Madison-Gallatin-Park-Sweetgrass-Carbon. With the goal of developing consistent risk data metrics across this landscape.
Agency Round Robin	• Bozeman FD- Anticipates 12 new firefighters for the Spring '25 Academy. • Bozeman PD- MSU is developing a POST academy which will aid future hiring. • Central Valley FD- A complete Executive Staff roster is in place. Steve McAdams as the new Training Officer. • Hyalite FD- Working on a spring fleet turnover, planning an academy for March '25, currently has 40 applications. • Gallatin County Sheriff- The new facility is completed and occupied.

	• Otto Marth- The Help Center is moving to a new location and will be offering suicide prevention trainings.
Next Meeting	• **To be held February 20, 2025**

Upcoming Activities

Upcoming Training (https://www.readygallatin.com/training-opportunities)
• Colorado Wildfire Academy, 1/6-12/25, Colorado Springs • ICS400, Advanced ICS, 1/21-22/25, Great Falls • ICS300, Intermediate ICS, 1/28-30/25, Lewistown • Enhanced All-Hazards Incident Mgmt/Unified Command, 2/3-7-25, College Station, Tx • O305, All Hazard IMT, 2/3-7/25, Colorado Springs • L-381, Incident Leadership, 2/10-14/25, Great Falls • ICS300, Intermediate ICS, 2/12-14/25, Helena • ICS300, Intermediate ICS, 2/24-26/25, Helena • S-230/231, Crew & Engine Boss, 2/26-28/25, Helena • S-230, Crew Boss, 3/15-16/25, Billings • S270/271, Basic Air Ops & HECM, 3/17-20/25, Helena • L-280, Followership to Leadership, 3/25-26/25, Butte • S-200, Initial Attack IC, 3/29-20/25, Lockwood • S219, Firing Operations, 4/12-13/25, Shepherd • S-236, Heavy Equipment Boss, 4/15-17/25, Butte • G318, Local Mitigation Planning, 4/15-17/25, Fairmont • MGT318, All Hazard PIO, 4/22-23/25, Bozeman • S-219, Firing Operations, 4/24-25/25, Townsend • S-215, Firing Operations in WUI, 4/26-27/25 • S270/271, Basic Air Ops & HECM, 4/12-16/25, Helena • L0103, Planning: Emergency Ops, 5/13-14/25 Location TBD • L0146, HSEEP, 6/10-11/25, Location TBD • L0105, Public Information & Warning, 11/4-6/25 Location TBD •
Upcoming Exercises
•

Gallatin County Emergency Management
Preparing Our Community

All Hazard All Discipline Minutes

October 16, 2025@ 11:30 am
Gallatin County Coordination Center

Minutes

Present	• Patrick Lonergan, Jay Pape, Whitney Bermes, Josh Waldo, John Vonk, Kevin Larsen, Jake Simpson, Brian Connelly, Deb McAtee, Dustin Tetrault, Austin McDowell, Jordyn Heiam,
Minutes Approval	• August 21, 2025- approved
Presentations	• The NWS gave a seasonal outlook- continued minor drought conditions with delayed precipitation going into winter. •
Discussion Items	• Patrick Lonergan gave an update on the Hazard Mitigation Plan/CWPP and goals for future participation. Issues discussed inclusion of Air Quality issues and public access to filter resources, and critical infrastructure impacts including utility outages, public outreach/education should be added to all goals sections, and explanation and demonstration of Pyrologix ember-cast modeling. The NIMS Concurrence report and • THIRA gaps reduced included communications, EMS, wildfire mitigation crews, HAZMAT general reporting & Tier 2 reporting, propane storage facilities and battery banks. Gaps to be closed a included planning, PIO/community warnings and notifications, and interoperability for extended events.
Updates	• There will be locally sponsored ICS300 & 400 courses in December '25 & February 226 delivered by TEEX. See the GCEM training calendar for updates.
Agency Round Robin	•
Next Meeting	• **December 18, 2025**

Upcoming Activities

Upcoming Training (https://www.readygallatin.com/training-opportunities)			
The online calendar is updated regularly. Please check the link above for updates.			
October			
O0305	All Hazard IMT	20-24	Helena
MGT340	TEEX Crisis Leadership	21	Yellowstone Club
MGT340	TEEX Crisis Leadership	23	Helena
L388	Advanced PIO	27-31	Bismarck, ND
ICS300	ICS300	28-30	Bozeman Public Safety Center
November			
L0105	Public Information & Warning	4-6	TBD
December			
L0105	Public Information Basics	2-4	Helena
January			
L480	Organizational Leadership	8-12	Missoula
	Colorado Wildfire Academy	12-16	Colorado Springs, CO

S339	Division Group Supervisor	26-30	Missoula
February			
ICS400	ICS400	24-25	TBD
February			
O305	Type 3 IMT	9-13	Colorado Springs, CO
S203	Intro to Incident Information	9-13	Colorado Springs, CO
S390	Fire Environment Assessment	9-13	Colorado Springs, CO
S372	Helicopter Manager	23-27	Missoula
March			
RX310	Prescribed Fire Burn Boss	2-6	Missoula
	Arizona Wildfire Academy	16-20	Prescott, AZ
L381	Incident Leadership	3/30-4/3	Great Falls
L380	Fireline Leadership	6-10	Great Falls

Gallatin County Emergency Management

Preparing Our Community

All Hazard All Discipline Agenda

April 17, 2025 @ 11:30 am

Gallatin County Coordination Center

Call In: 406-219-4560 ID: 145 803 592#

Join the meeting now

Agenda

Introductions	
Minutes Approval	• December 19, 2024 (The February meeting was cancelled)
Presentations	• NWS Season Update- Maura Casey •
Discussion Items	•
Updates	• Multi Agency Coordination Exercise • Hazard Mitigation & Community Wildfire Protection Plan • Interagency Wildfire System for Summer •
Agency Round Robin	• 60 second agency updates
Next Meeting	• June 19, 2025

Upcoming Activities

Upcoming Training (https://www.readygallatin.com/training-opportunities)			
The online calendar is updated regularly. Please check the link above for updates.			
April 2025			
S236	Heavy Equipment Boss	15-17	Butte
G318	Local Mitigation Planning	15-17	Fairmont
MGT318	All Hazard PIO	22-23	Bozeman
S219	Firing Operations	24-25	Townsend
S215	Fire Operations in the WUI	26-27	Columbus
	DNRC Basic	26-27	Bozeman
May 2025			
Course #	Name	Date	Location
S200	Initial Attack IC	3-4	TBD
S390	Introduction to Wildland Fire Behavior Calcs	5-9	Missoula
	Rail Incidents: Preparedness & Response for EM's	16	Laurel
	Rail Safety Training Event & Drill	17	Laurel
S270/271	Basic Air Ops & HECM	12-16	
L0103	Planning: Emergency Ops	13-14	TBD
S215	Fire Operations in the WUI	17-18	TBD

04/17/2025 Agenda

S270/271	Basic Air Ops	19-23	Bozeman
S215	Fire Operations in the WUI	20-21	Augusta
	DNRC Wildland Training Academy	5/28-6/6	Dillon
S230/231	Crew & Engine Boss	29-31	Dillon
June 2025			
Course #	**Name**	**Date**	**Location**
S200	Initial Attack IC	1-4	Dillon
S290	Intermediate Fire Behavior	1-2	Dillon
L280	Followship to Leadership	2-3	Helena
S215	Fire Operations in the WUI	3-4	Dillon
S211	Portable Pumps	3-4	Dillon
S219	Firing Operations	4-5	Dillon
	Aerial Fire Attack	9-11	Colorado Springs
L0146	HSEEP	10-11	TBD
August			
G197	Integrating access and Functional Needs into EM	12-13	Helena
October			
MGT340	TEEX Crisis Leadership	21	TBD Bozeman
MGT340	TEEX Crisis Leadership	23	Helena
October			
L388	Advanced PIO	27-31	Bismarck, ND
November			
L0105	Public Information & Warning	4-6	TBD

04/17/2025 Agenda

Gallatin County Emergency Management
Preparing Our Community

Gallatin Emergency Planning Committee

April 2, 2026 @ 08:30
Gallatin County Coordination Center
Light, working breakfast provided.

Join the meeting now — Dial In: 1-406-219-4560, ID# 79305430963#

Agenda	
Welcome & Introductions	
Minutes Approval	
Presentation	**Lincoln County Flooding Event: Lessons Learned in Response & Recovery** • Boyd White- Lincoln County EM • Darren Short- Lincoln County Sheriff • Sam Sikes- City Manager- Libby, MT
Discussion Items	**New Quantitative Wildfire Analysis and Gallatin County's Functional WUI** Functional WUI.pdf **Gallatin County Emergency Management Plan: Annex E- Draft of the revised Evacuation Plan** Annex E (Evacuation) 2026.pdf
Training & Updates-	**Disaster Recovery: Strategic Overview of the Public Assistance Process** • *Many jurisdictions do not have a good understanding of this process and thereby fail to obtain, and retain, all the recovery revenue the community is eligible for.* • May 6, 2026. Delivered by TEEX • Register Here. **Comprehensive Training Calendar** • Here
Agency Updates	
Next Meeting	July 2, 2026
Adjourn	

From: Patrick Lonergan
To: Patrick Lonergan
Bcc: [redacted]
Subject: Data Review - Community Wildfire Protection
Date: Wednesday, February 4, 2026 12:39:00 PM
Attachments: image001.png
Gallatin County Quantitative Wildfire Risk Assessment 1.2026.pdf
Importance: High

Good Afternoon-

We have received our wildfire data from Pyrologix and now need to sit down as a group to review it. There are several data sets that we have not had before that illustrate the wildfire risk from different angles. Ultimately, a big piece of this discussion will be what we want to use as an approach for defining the Wildland Urban Interface in our current plan update.

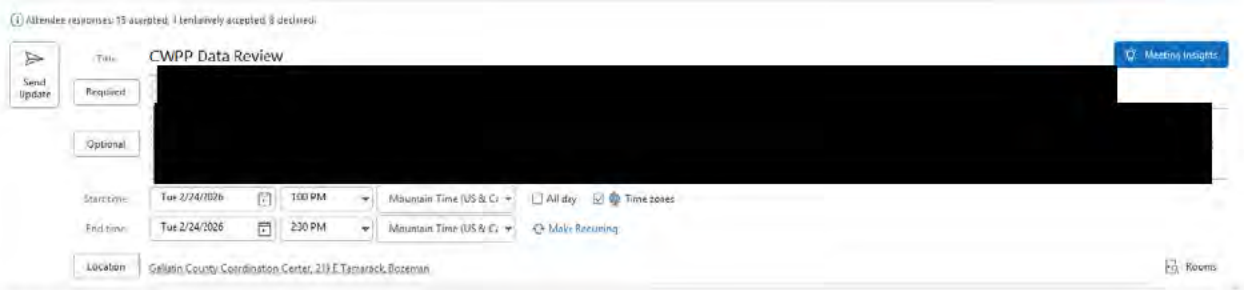
I'm looking for 90 minutes sitting down in person to look at the data together on the big screen. Please complete this Doodle by 2/10 so we can find the best time possible: https://doodle.com/group-poll/participate/dL1v2Awe.

Attached is the Gallatin County Quantitative Wildfire Risk Assessment document that Pyrologix produced. This gives you a good overview of the data sets we'll be looking at more granularly that are available for us to tell our story with.

Patrick

Patrick Lonergan
Chief of Emergency Management and Fire
Gallatin County, Montana
(406) 548-0116
patrick@readygallatin.com
ReadyGallatin.com
Schedule a Meeting

Gallatin County Emergency Management
Preparing Our Community



Meeting Objectives:

1. Review data provided in Quantitative Wildfire Risk Assessment live in ArcGIS
   a. Familiarize ourselves with the new data sets available for use in updated CWPP.
   b. Seek clarification on abnormalities
   c. Seek clarification on data we just don't understand (i.e. what it truly means, underlying modeling, etc...)
2. Discussion on approach for defining the Wildland Urban Interface in our plan update.
   a. Evaluate Functional WUI created by Pyrologix

Reference:

- Gallatin County Quantitative Wildfire Risk Assessment
- Current Gallatin County WUI: Print Map or WebMap
- Current Gallatin County WUI Definition

From: Patrick Lonergan <patrick@readygallatin.com>
Sent: Wednesday, February 4, 2026 12:39
To: Patrick Lonergan <patrick@readygallatin.com>
Subject: Data Review - Community Wildfire Protection

Good Afternoon-

We have received our wildfire data from Pyrologix and now need to sit down as a group to review it. There are several data sets that we have not had before that illustrate the wildfire risk from different angles. Ultimately, a big piece of this discussion will be what we want to use as an approach for defining the Wildland Urban Interface in our current plan update.

I'm looking for 90 minutes sitting down in person to look at the data together on the big screen. Please complete this Doodle by 2/10 so we can find the best time possible: https://doodle.com/group-poll/participate/dL1r2Awe.

Attached is the Gallatin County Quantitative Wildfire Risk Assessment document that Pyrologix produced. This gives you a good overview of the data sets we'll be looking at more granularly that are available for us to tell our story with.

Patrick

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NOTICE

Public Meetings for revision of Hazard Mitigation and Community Wildfire Protection Plan scheduled. Schedule at ReadyGallatin.com/2024update.
Pub Sept 21, 28, 2024

AD #	DESCRIPTION	START	STOP	TIMES	AMOUNT
560533	NOTICE Public Meetin	09/21/24	09/28/24	4	$20.00

Payments:

Date	Method	Card Type	Last 4 Digits	Check	Amount

Discount:	**$0.00**	Gross:	**$20.00**
Surcharge:	**$0.00**	Paid Amount:	**$0.00**
Credits:	**$0.00**		
		Amount Due:	**$20.00**

We Appreciate Your Business!

AD# 560533

Plan comment and feedback solicitation (VIA e-mail & GCEM webpage)

Mitigation Goals and Objectives Feedback

Goal 1: Reduce Impacts from Wildfire

Objective	Description
1.1	Reduce private losses in the Wildland-Urban Interface (WUI).
1.2	Increase understanding of the wildfire hazard risk.
1.3	Increase implementation of wildfire mitigation on private lands.
1.4	Increase fuel management projects on publicly owned lands.

1	No.
2	1.2 Increase understanding of the wildfire hazard risk and the survivable and defensible space understanding during extreme weather wildfires
3	Not that I can think of.
4	looks good
5	No
6	These goals look appropriate.
7	No, but was thinking about something like "Consider wildfire hazard risk as part of subdivision review." I think this could be covered by 1.1 without adding another objective. 1.1 is very broad and I think a lot of helpful actions could fit under it.
8	No
9	Ensure local resource readiness and availability during peak season.
10	No

11	No
12	For 1.4, I would amend to say "Increase fuel management projects on publicly owned lands adjacent to the WUI.
13	If 1.2 implies a public information component like I assume it does, then this looks great to me!
14	No
15	No, 1.4 is my highest priority.
16	While aligned with 1.2, I would increase education component of we the people be the problem when it comes to wildfire.
17	no
18	No
19	Reduce future facilities being built in WUI.
20	One that could be considered would be assisting neighborhoods within the WUI in creating mitigation/evacuation plans

Goal 2: Reduce Impacts from Severe Weather and Drought

Goal 2: Reduce Impacts from Severe Weather and Drought	
Objective	**Description**
2.1	Improve weather forecasting capabilities and information distribution.
2.2	Support coordination with state and local drought management initiatives.
2.3	Develop debris management plan for expedited recovery.
2.4	Increase knowledge on mitigation opportunities to reduce wind damage.

1	Snow load and impacts of Heavy snowfall on buildings
2	Increase knowledge on mitigation opportunities and projects to reduce flood risk and damage.
3	looks good
4	No
5	This looks like it was well covered.
6	No
7	In 2.4 Increase knowledge on mitigation opportunities and public preparedness for severe weather events (Wind and Snow).
8	No
9	No
10	If 2.4 implies a public information component like I assume it does, then this looks great to me!
11	No
12	Communications plan when in severe drought conditions.
13	prepare communities for extreme flooding, so they are prepared when it happens
14	No
15	No

Goal 3: Reduce Impacts from Seismic Events

Goal 3: Reduce Impacts from Seismic Events		
	Objective	**Description**
	3.1	Increase education on mitigation opportunities to reduce impacts from earthquakes.
	3.2	Conduct mapping, analysis, and planning projects to reduce impacts from earthquakes.
	3.3	Increase community knowledge of local earthquake risk.

1	No.
2	No.
3	No
4	No
5	Looks good
6	No
7	No
8	No
9	If 3.3 implies a public information component like I assume it does, then this looks great to me!
10	No
11	No

12	no
13	No
14	no

Goal 4: Reduce Impacts from Critical Infrastructure Disruption

Goal 4: Reduce Impacts from Critical Infrastructure Disruption	
Objective	**Description**
4.1	Implement projects to reduce impacts from critical infrastructure disruption.
4.2	Improve emergency services communication and resiliency.
4.3	Provide measures that enhance the confidentiality, integrity, and availability of cyber data.
4.4	Increase understanding of Public Safety Power Shutoff impacts.
4.5	Enhance understanding of utility services and outage impact reduction opportunities.
4.6	Increase understanding of High Hazard Dams and their inundation areas.

1	No
2	Not that I can think of.
3	No
4	No
5	No
6	No

7	As long as internet is including in utilities then no
8	If 4.4, 4.5 and 4.6 imply a public information component like I assume it does, then this looks great to me!
9	I think 4.1 could be reworded or add to include "increase community resiliency", as reducing impacts is not quite broad enough to include that concept. We need both reducing of impacts and building community capacity.
10	4.1 should be the highest priority.
11	Very good list
12	No
13	Measure and minimize fire risk from utility transmission infrastructure.

Goal 5: Reduce Impacts from Flooding

Goal 5: Reduce Impacts from Flooding		
	Objective	**Description**
	5.1	Implement property protection projects to reduce impacts from flooding.
	5.2	Conduct planning, analysis, and mapping projects to reduce impacts from flooding.
	5.3	Implement prevention projects to reduce impacts from flooding.
	5.4	Provide public education and awareness to reduce impacts from flooding.

1	No.

2	Maybe my previous suggestion to Goal #2 should go here - but it said "severe weather" which a flood could fall under there too. So maybe place it in both goal sections?
3	No
4	No
5	Looks good
6	Reduce financial impact of flood events by providing information about flood insurance
7	No
8	No
9	No
10	Support proactive floodplain management strategies such as land use and development regulations in addition to "property protection projects" (prevent development in the fp)
11	Looks great!
12	No
13	Item 5.3 should be highest priority.
14	Emphasize 5.2 and 5.4
15	none

16	No
17	no

Goal 6: Reduce Losses from Transportation or Hazardous Materials Accident

Goal 6: Reduce Losses from Transportation or Hazardous Materials Accident		
	Objective	**Description**
	6.1	Enhance emergency services to mitigate impacts from transportation or HAZMAT accidents.
	6.2	Identify opportunities to minimize railway traffic conflicts.
	6.3	Increase community understanding of commodity transport in the area.

1	No.
2	No.
3	No
4	No
5	No
6	No
7	Nothing to add but if the federal funding is indeed gone, 6.1 will be important
8	If 6.3 implies a public information component like I assume it does, then this looks great to me!
9	No

10	No
11	no
12	No
13	no
14	Might add a mention of MCI events to 6.1?

Goal 7: Prevent Significant Loss of Life from Communicable Disease and Bioterrorism

Goal 7: Prevent Significant Loss of Life from Communicable Disease and Bioterrorism		
	Objective	**Description**
	7.1	Provide public education and awareness to reduce impacts from communicable disease.
	7.2	Provide state and local governments with antidote supplies.

1	No.
2	No.
3	NO
4	No
5	No
6	Not objective but tactic- partnership with the hospital in a mitigation plan.

7	No
8	Looks great!
9	No
10	Perform training at critical facilities, such as water treatment plants.
11	Work with Public Safety partners to establish plans and equipment to deal with these issues, improve interoperability and planning sessions.
12	good
13	No
14	no
15	Could 7.1 add: In coordination with local public health, provide public…

Goal 8: Promote All-Hazard Mitigation Measures

Goal 8: Promote All-Hazard Mitigation Measures		
	Objective	**Description**
	8.1	Provide public education, awareness, and treatment to reduce impacts from all hazards.
	8.2	Enhance inter-jurisdictional coordination.
	8.3	Increase and enhance mental health systems.
	8.4	Conduct training to address violence and public attacks.
	8.5	Increase infrastructure mitigation knowledge and opportunities.

1	No.
2	No.
3	No
4	No
5	Looks good
6	No
7	No
8	Looks great!
9	Build community capacity and resilience?
10	Develop and construct infrastructure supporting hazard mitigation.
11	looks good
12	no
13	No
14	how is AHAD possibly going to affect mental health systems?

Any other thoughts or comments?

1	No

2	I think it's a valiant effort with these goals, and they are important, but sometimes it seems that this department is taking over individuals' responsibilities. Working in the government I get "reducing fire hazard on private land" meaning the government helps out, but it's frustrating that taxpayer money (federal, state or local grants and taxes) will be used when the property owner should be a good steward and help their neighbors by mitigating risks on their own property...in turn helping the entire community.
3	NO
4	No
5	Very thoughtful plan. So hard to mitigate and plan for so many scenarios that may only happen once in one's lifetime!
6	These goals look well structured.
7	Thanks for your work on this and for your partnership with the hospital.
8	No
9	Thank you for allowing me to provide feedback!
10	Not at this time.
11	thank you for all the work you do
12	No
13	Thanks for this work!

Submitter

1	Montana State University	Thomas Luhrsen
2	GCEM	Bob Fry
3	MDT	Josh Ritchie
4	City of Three Forks	Crystal Turner
5	Gallatin Airport Authority	DPeterson
6	Three Forks fire department	Keith Aune
7	YMCRFD	Tom Butler
8	Bozeman Public Schools	Patrick McClellan
9	Town of West Yellowstone	Travis Watt
10	Gallatin County 911	Geoff Solberg
11	Gallatin County Planning & Community Development	Sean O'Callaghan
12	Destination Yellowstone (West Yellowstone Chamber of Commerce)	Katrina Wiese
13	Bozeman Fire	James Short
14	Bozeman Health	Rebecca Williamson
15	Bozeman Fire	Josh Waldo
16	County Fire	Bryan Connelley

17	Self	Wylie Minot
18	The Wilderness Society	Kathryn Eklund
19	City of Belgrade	Whitney Bermes
20	ARC, DNRC (water)	Kerri Strasheim
21	City of Bozeman	Shawn Kohtz
22	City of Belgrade	Greg Tryon
23	City of Three Forks	Kelly Smith
24	Gallatin Forest Partnership	Erin Steva
25	Willow creek fire	Preston Hughes
26	County Commission	Zach Brown
27	Fort Ellis Fire, local publicc health	Buck Taylor
28	Town of Manhattan	Traig Howells

Mitigation Projects Feedback

Goal 1: Reduce Impacts from Wildfire		
Objective		Projects
1.1	Reduce private losses in the Wildland-Urban Interface (WUI).	
		Expand implementation of Fire Adapted Community Programs for communities in WUI interface and intermix areas with risk of high wildfire impact such as Bridger Canyon, Bozeman Pass, Northern Gallatin Front, Beckman Flats, Clarkston, Big Sky and West Yellowstone.
		Continue wildfire risk assessments that support property owners understanding of risk reduction through landscape, home ignitio zone, and home hardening best practices.
		Review and update Subdivision Regulations for wildfire risk in all communities.
		Research and implement sustainable approachesfor wildfire mitigation programs to support the communities in intermix area across the service area.
		Continue building wildfire mitigation skill and capacity among lo partners through collaborative activities, training and project implementation.
		Increase wildfire response capacity to reduce impacts through innovative approaches to expand wildland urban interface firefighting skills, available resources and specialized tools.

1	along with subdivision regs - opportunity to integrate standards and mitigation in zoning reform work in 2026
2	No specific comment. Great project goals
3	Great! Not sure if this is the section to add assistance to HOAs, road associations and others on helping to build evacuation plans? Also, could there be any push to get private bridge owners to provide and place signs for bridge capacities?

4	To reduce losses in the WUI, we should adopt the IWUIC. Pre-plan defensive firing/holding features throughout the community… Develop Potential Control Locations.
5	Partnering on fuels mitigation projects with Park County creates synergies between our two jurisdictions.
6	Looks good.
7	No comments
8	Inform/support initiatives for fire resistant building materials. Foster support for a real WUI building code.
9	Very important topic for the surrounding area.



Goal 1: Reduce Impacts from Wildfire		
Objective		Projects
1.2	Increase understanding of the wildfire hazard risk, resulting fire behavior and the effect of mitigation.	
		Maintain current data analysis of wildfire risk conditions locally v integration of CWPP with Hazard Mitigation Plan to ensure a 5 yea update cycle.
		Provide wildland fire incident reports to DNRC to maintain accura wildfire history database for Gallatin County.
		Implement a online storyboard tool that graphically explains wild risk and opportunities.

1	I love the story board action
2	No specific comment. Good Project goals

3	Good
4	We must increase awareness of current fire conditions. Measures of ERC, BI and VPC should be boiled down to useful measurements of risk.
5	Looks good
6	No comments
7	Additional cameras?
8	Good goal

Goal 1: Reduce Impacts from Wildfire		
Objective		Projects
1.3	Increase implementation of wildfire mitigation on private lands.	
		Maintain mitigation position to continue wildfire risk assessmen across the the service area.
		Research and implement opportunites to expand support for priv land owner wildfire mitigation work by lowering the cost barrier.
		Grow capacity in fuels modules to expand available work season.
		Grow capacity in fuels modules to better support implementation prescribed fire.
		Participate in and support rollout of the new State of Montana Certified Burner program.
		Maintain active list of high impact wildfire mitigation project area within Community Wildfire Protection planning process.

1	good list
2	No specific comment. Not as excited about these projects

3	Makes sense
4	Grow capacities of fuels modules to respond directly in the Initial Attack role. They should be used as a force multiplier to keep fires small.
5	Looks good
6	I think there should be some project that includes public outreach/community education. Feels like you can't increase implementation if private land owners don't know about your work.
7	No comments
8	Consider adding- smoke awareness programs... filters, clean air refuges, outreach to senior living centers. Smoke management plan in the CWPP
9	Burner program sounds interesting.

Goal 1: Reduce Impacts from Wildfire	
Objective	Projects
1.4 Increase fuel management projects on publicly owned lands.	
	Identify and prioritize projects along adjacent public and private lands.
	Continue and expand opportunities for Supplemental Fire Project Agreement activities to support reduction on fuel on public lands.
	Investigate opportunities for projects through Good Neighbor Authority.
	Maintain Fire Adapted Gallatin Working Group to support plannin and coordination of cross boundary collaborative fuels projects.

1	Engage on the Hy-Cotton (hyalite cottonwood) FS project?
2	No specific comment
3	Are there any opportunities for both the Forest Service and DNRC to provide more integration with the general public?
4	Work with federal and state agencies to develop agreed-upon Potential Control Locations (PCLs) and Potential Operational Delineations (PODs). Focus mitigation in these areas first to increase effectiveness of suppression operations.
5	Looks good.
6	No comments
7	Implement fuels reduction projects that reduce the severity and extent of wildfire within municipal watersheds.

Goal 2: Reduce Impacts from Severe Weather and Drought	
Objective	Projects
2.1 Improve weather forecasting capabilities and information distribution.	Support opportunities to establish local radar to support enhanc weather forecasts in the Gallatin Valley and Gallatin Canyon. Continue supporting annual severe weather education and preparedness program rotating among all communities. Develop tools to support better real time situational awareness through technology such as remote weather stations and camera

1	This is a big need. NWS and NOAA are blind in Gallatin County. Our radar capability is non-existent.
2	Good
3	Winds and Vapor Pressure Deficit should be closely tracked.
4	Looks good.
5	No comments
6	- Maintain existing Snotel stations, real-time USGS streamflow gages, and DNRC stream gages. - Install and maintain additional real-time snowpack and streamflow monitoring stations.
7	Wildfire cameras?
8	Great plan

Goal 2: Reduce Impacts from Severe Weather and Drought		
Objective		Projects
2.2	Support coordination with state and local drought management initiatives.	
		Continue expansion of drought Communication and Outreach Program.
		Continue expansion of Water Use Education.
		Continue research and implementation of aquifer Storage and Recovery project.
		Support development of Drought and Deluge Adaptive Managemer Plan.
		Planning for future water needs and future approaches to close th gap.

1	THANK YOU for participating in DDAMP!
2	No specific comment
3	Looks good
4	No comments
5	This year very important

Goal 2: Reduce Impacts from Severe Weather and Drought		
Objective		Projects
2.3	Develop debris management plan for expedited recovery.	
		Develop and implement a debris management plan.
		Expand internal knowledge with government agencies to support debris management.

1	do we need to think about equipment? who has what and how can we borrow equipment?
2	No specific comment

3	This would be great. Guessing a list of removal contractors as part of the plan?
4	Park County is also developing a debris management plan. We would be interested in opportunities to partner, perhaps with pre-positioned contracts.
5	Looks good.
6	No comments

Goal 2: Reduce Impacts from Severe Weather and Drought		
Objective		Projects
2.4	Increase community recognition of disaster resiliant building construction.	
		Develop toolkit that consolidates resources on construction for heavy snow load areas.
		Develop and/ or amplifly toolkits for low water usage constructior and landscaping.
		Develop local toolkit to support options for wind resistent construction approaches.

1	Can we connect low water use and wind construction into our planning / subdivision regs?
2	Great ideas
3	Looks good
4	No comments

5	See wildfire section… fire resistant materials. WUI code stuff
6	This information would be good to have

Goal 3: Reduce Impacts from Seismic Events	
Objective	Projects
3.1 Increase education on mitigation opportunities to reduce impacts from earthquakes.	Seek opportunities to implement seismic retrofits in older facilitie not meeting current standards.
	Seek opportunities to implement retrofit projects anchoring transformers and generators at critical facilities.
	Explore opportunities to implement expansion joints for utilities

1	good list
2	Also a good idea. We used a grant like this back in 2013 to retrofit buildings at MSU. Current buildings are built more resilient but retrofitting older structures are a good idea.
3	Would be great to see! Is there money for it?
4	Looks Good
5	No comments
6	This is a good idea to explore

Goal 3: Reduce Impacts from Seismic Events		
Objective		Projects
3.2	Conduct mapping, analysis, and planning projects to reduce impacts from earthquakes.	
		Continue Earthquake retrofit education and expansion of online community resoruces.
		Research earthquake retrofit financial incentives to offset local match requirements.
		Support commercial structures seismic surveys.
		Conduct seismic bridge inspections.

1	Good idea
2	Yes and make these more publically-available?
3	Looks good.
4	No comments
5	Fault lines

Goal 3: Reduce Impacts from Seismic Events		
Objective		Projects
3.3	Increase community knowledge of local earthquake risk.	
		Develop educational campaign covering the regions earthquake history and risk.
		Update website earthquake preparedness page with more recent materials.

1	Don't see a lot of this in our valley but could benefit from the knowledge.
2	Looks good.

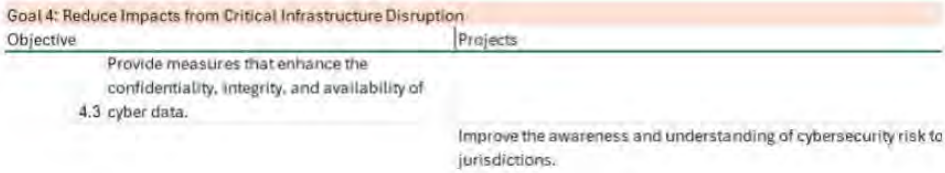
3	No comments

Goal 4: Reduce Impacts from Critical Infrastructure Disruption	
Objective	Projects
4.1 Implement projects to reduce impact and recover rapidly from critical infrastructure disruption.	
	Develop tools to support prioritization and hardening of critical infrastructure to support continuity of operations for critical operations.

1	Power, Power, Power and redundancy is the key. Just did a TTX in Helena with a 10 day power outage. Scary.
2	yes!
3	Looks good.
4	No comments
5	Include wildfire mitigation around critical infrastructure here too?

Goal 4: Reduce Impacts from Critical Infrastructure Disruption	
Objective	Projects
4.2 Improve emergency services communication and resiliency.	
	Expand education on vulnerability and importance of Critical Infrastructure Backup Systems (Facilities and Communication) to ensure all agencies continuity of operation.
	Seek opportunities for back up generator retrofit projects for critic facilities.
	Support implementation and expansion of redundent data system for critical facilities and systems.

1	Critical in the loss of power mentioned above. Whatever we can do to at least maintain FM comms with EMS and LE.
2	Effective, prioritized and redundant communications options need to be available for first responders.
3	Looks good.
4	No comments



Goal 4: Reduce Impacts from Critical Infrastructure Disruption	
Objective	Projects
4.3 Provide measures that enhance the confidentiality, integrity, and availability of cyber data.	Improve the awareness and understanding of cybersecurity risk to jurisdictions.

1	Secure Montana is working with MSU on this exact project. Pen testing and other hardening are critical to keep our networks up.
2	yes
3	Looks good.
4	No comments

Goal 4: Reduce Impacts from Critical Infrastructure Disruption		
Objective		Projects
4.4	Increase understanding of Public Safety Power Shutoff impacts.	
		Enhance community understanding of Public Safety Power Shutof
		Begin integration of Public Safety Power Shutoffs into planning an coordination activities.

1	Obviously important for our rural community that encroaches on wilderness
2	Looks good.
3	No comments

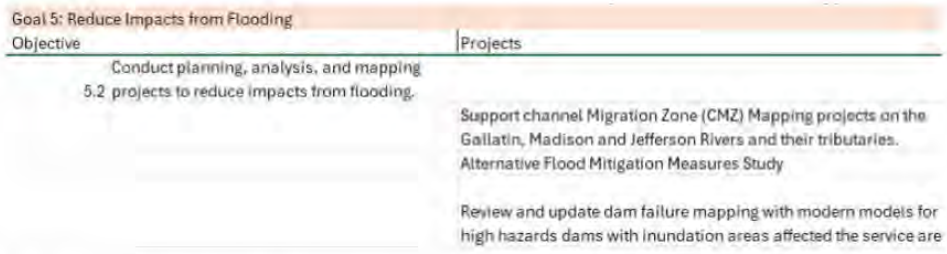
Goal 4: Reduce Impacts from Critical Infrastructure Disruption		
Objective		Projects
4.5	Enhance understanding of utility services and outage impact reduction opportunities.	
		Develop understanding of crticial systems, their effects and approaches to reduce impacts.
		Enhance relationship and coordination with utility providers.

1	Need to be able to see ourselves in relation to system operability.
2	Looks good.
3	No comments

Goal 5: Reduce Impacts from Flooding		
Objective		Projects
5.1	Implement property protection projects to reduce impacts from flooding.	
		Expand knowledge of Woody Debris Removal process from Rivers
		Work to maintain, or renew, certification for flood control measur usch as dikes and levies along the Jefferson, Madison, Gallatin a Missouri Rivers.
		Explore implementation of flood diversion projects to reduce identified flood zones in areas along the Jefferson, Madison, Gall and Missouri Rivers.
		Development and implementation of bank stabilization projects i waterways.
		Research and implementation of open space, or park, designs thi divert/ hold flood water away from devlopment in urban areas.
		Continued support for Stormwater Management projects in Bozen Belgrade and Manhattan.
		Research and implement projects to mitigate exposure to Critical Facilities located in a floodplain.
		Continue community planning process to limit development withi the mapped floodplains.

1	what does woody debris removal refer to? keep wood to reduce erosion or remove if it threatens infrastructure? Can we also approach levees etc. with greener approaches like Three Forks projects - maintaining floodplains to receive and absorb floodwater? It is good to differentiate bank stabilization - rip rap vs. deformable and the pros and cons depending on the situation. Stormwater approaches including low impact development approaches.
2	No specific comment
3	Great

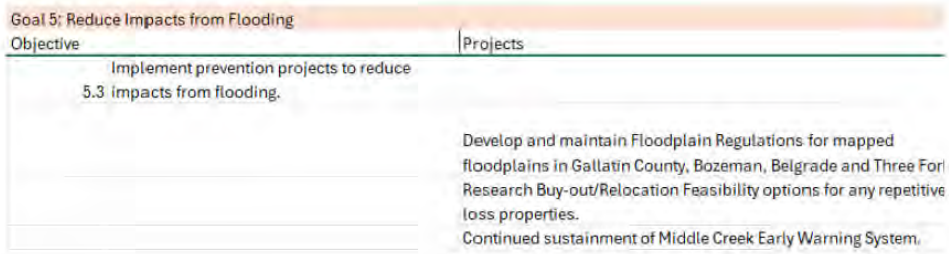
4	I don't believe any of the levees or dikes in Gallatin County are eligible for Army Corps certification, nor would it necessarily be a good thing.
5	Looks good.
6	Is it worth calling out Bozeman Creek as a flood area with it's potential impact on downtown Bozeman
7	Does stating specifically "Jefferson, Madison, Gallatin and Missouri Rivers" limit application of this project type to those rivers? Consider adding "and tributaries" or removing specific stream names in case other potential project locations are identified. Likewise, is "bank stabilization" too limiting in its language? Consider "stream restoration" projects which often times implement more wholistic, reach-scale solutions.
8	Typo in the 2nd project "usch" should be such. The City of Three Forks Flood Mitigation Project should probably be on this list. I would like to know more about the "Continued support for Stormwater Management projects in Bozeman, Belgrade, and Manhattan"



Goal 5: Reduce Impacts from Flooding	
Objective	Projects
5.2 Conduct planning, analysis, and mapping projects to reduce impacts from flooding.	Support channel Migration Zone (CMZ) Mapping projects on the Gallatin, Madison and Jefferson Rivers and their tributaries. Alternative Flood Mitigation Measures Study Review and update dam failure mapping with modern models for high hazards dams with inundation areas affected the service are

1	new floodplain mapping got approved for our Gallatin basin!
2	No specific comment
3	Park County just finished CMZ studies. The products are helpful for identifying risks to critical infrastructure and private property. These studies provide good value for tax dollars.
4	Looks good.
5	No comments
6	What is the "Alternative Flood Mitigation Measures Study?" There is an ongoing Base Level Engineering (BLE) study for Gallatin County being performed by the FEMA PTS which will provide high-level floodplain mapping data county-wide (estimated completion 2027). Consider how this data should be leveraged in the HMP and how the HMP could promote data enhancement and validation.

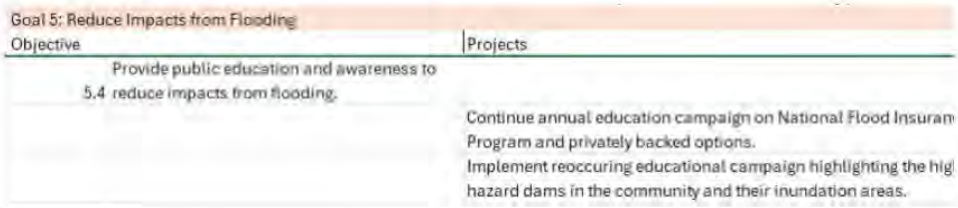
7	Good Goals



Goal 5: Reduce Impacts from Flooding	
Objective	Projects
5.3 Implement prevention projects to reduce impacts from flooding.	Develop and maintain Floodplain Regulations for mapped floodplains in Gallatin County, Bozeman, Belgrade and Three For Research Buy-out/Relocation Feasibility options for any repetitive loss properties. Continued sustainment of Middle Creek Early Warning System.

1	No specific comment
2	Good
3	Please share any funding sources you find for buy-out matches.
4	Looks good.
5	No comments
6	BLE data will soon be available to enhance floodplain management in currently unmapped portions of Gallatin County. Are there other areas that could benefit from an EWS?
7	1) Reduce flood hazards associated with Bozeman Creek by implementing flood hazard mitigation projects or programs adopted by the Bozeman City Commission contained in the

	Bozeman Creek Vision Plan once completed. 2) Reduce flood hazards associated with Bozeman Creek in the Bozeman downtown core by investigating structural stability and implementing necessary structural modifications to the historic tunnel structure conveying Bozeman Creek under Main Street and the privately owned buildings on either side. 3) Reduce overbank flooding of Bozeman Creek within the City of Bozeman by implementing channel modifications in key locations. 4) Reduce flood hazards associated with Bozeman Creek to the historic core of the City of Bozeman by constructing a flood bypass channel to convey excess Bozeman Creek floodwaters around the historic core of the City of Bozeman.
8	Always good goals



Goal 5: Reduce Impacts from Flooding	
Objective	Projects
5.4 Provide public education and awareness to reduce impacts from flooding.	Continue annual education campaign on National Flood Insuran Program and privately backed options. Implement reoccuring educational campaign highlighting the hig hazard dams in the community and their inundation areas.

1	No specific comment
2	Looks good.
3	No comments

4	"privately backed options"...for insurance? Please specify. Consider other flood related hazards and flood mitigation that should be included in public education campaigns beyond high-hazard dams (for example: low-water crossings, flood proofing)
5	Anything to help the public understand

Goal 6: Reduce Losses from Transportation or Hazardous Materials Accident		
Objective		Projects
6.1	Enhance emergency services to mitigate impacts from transportation or HAZMAT accidents.	
		Develop Emergency/Evacuation Transportation Plan for communities.
		Continue use and support of E-Plan for Fixed Site Mapping (TIER) f all communities in the service area.
		Develop, train and equip. emergency responders for dealing with Mass Casualty Incidents (MCIs) with buildout of regional respons plan and equipment.
		Continued support for the Bozeman-Gallatin County Hazardous Materials Response Team.

1	Great investment opportunity for all
2	Yes!
3	Park County would like to partner on MCI training with the mass causaulty trailers.
4	Looks good.

5	Federal funding support of the BZN-GC team may be gone, thanks for calling it out here.
6	Anything to help emergency services

Goal 6: Reduce Losses from Transportation or Hazardous Materials Accident	
Objective	Projects
6.2 Identify opportunities to minimize railway traffic conflicts.	Intestigate and implement options for railway overpass, or underpass, projects on major community corridors such as Rous Griffin, Valley Spur, South Broadway (Belgrade), Jackrabbit, North Broadway (Manhattan).

1	this will make so many people happy
2	No specific comment. Worthwhile project
3	Looks good.
4	No comments
5	educate the public of the dangers

Goal 6: Reduce Losses from Transportation or Hazardous Materials Accident	
Objective	Projects
6.3 Increase community understanding of commodity transport in the area.	Continued period review of commodity flow reports/ studies.

1	No specific comment

2	Looks good.
3	No comments

Goal 7: Prevent Significant Loss of Life from Communicable Disease and Bioterrorism	
Objective	Projects
7.1 Provide public education and awareness to reduce impacts from communicable disease.	Promote public education on preventing communicable disease Continue providing training to Health Dept. on incident response. Development and sustainment of Medical Surveillance System.

1	do we want to coordinate with FWP and CWD that is in the county? especially with urban deer?
2	Continue efforts in this arena. The more we educate the better we can get ahead of potential outbreaks.
3	Important. Bring back the Community Healthcare Advisory Group for quarterly meetings. These were helpful for prepardness and drills.
4	Make sure there is a team studying and preparing for potential bioterrorism events.
5	Looks Good.
6	No comments
7	good goal

Goal 7: Prevent Significant Loss of Life from Communicable Disease and Bioterrorism		
Objective		Projects
7.2	Provide state and local governments with antidote supplies.	
		Continue review and sustainment of Chempack program for the region.

1	No specific comment
2	Looks Good.
3	No comments

Goal 8: Promote All-Hazard Mitigation Measures		
Objective		Projects
8.1	Continue programs to prepare and communicate with the community.	
		Continue sustainment and expansion of Community Notification System with residents and for internal use by organizations.
		Continue promotion of overall Community Preparedness Program the both counties and all 5 cities and towns.
		Contiunue community outreach on individual preparedness to reduce community impacts in a disaster.

1	Must keep this program viable for the foreseeable future
2	Looks Good.
3	No comments

Goal 8: Promote All-Hazard Mitigation Measures	
Objective	Projects
8.2 Enhance inter-jurisdictional coordination.	
	Improve health care system communication in the service area.
	Improve emergency response coordination between Gallatin/Madison Counties in Big Sky Area
	Continue expansion of coordination activities among partner agencies.

1	Critical in case of emergency
2	Looks good.
3	No comments

Goal 8: Promote All-Hazard Mitigation Measures	
Objective	Projects
8.3 Increase and enhance mental health systems.	
	Expand and sustain mental health treatment facilities throughout county.

1	is this for responders? just curious how this fits but agree generally with the goal
2	This is a great goal that could be greatly enhanced with grant funding.
3	I do not understand the nexus between mental health and FEMA/AHAD. How will either of these groups actually help with mental health service delivery and funding and facilities?

4	Park County relies on available mental health resources in Gallatin County that are not available locally. We appreciate any extra capacity.
5	Looks good.
6	I'm not sure I have a better suggestion off the top of my head, but this project doesn't feel like it falls under the scope of emergency management. Maybe it's more along the lines of providing training and support to other collaborators. But this feels like WAY too big of project for emergency management to get involved in other than just in an assisting capacity. And it's also ongoing with the Gallatin Behavioral Health Coalition and their partners.
7	No comments

Goal 8: Promote All-Hazard Mitigation Measures	
Objective	Projects
8.4 Conduct training to address violence and public attacks.	Provide training and programs to support response to Active Kille Shooter events.

1	de-escalation training?
2	Community Outreach for all.

3	Encourage the development and training of Rescue Task Forces.
4	Looks good.
5	No comments

Goal 8: Promote All-Hazard Mitigation Measures	
Objective	Projects
8.5 Increase mitigation knowledge and access to opportunities.	
	Work on approaches to reduce mitigation application complexity proposed projects.
	Seek opportunities to offset up front costs (hard and personnel tir for completing mitigation project applications.
	Support approaches to lower the cost barrier for high priority mitigation projects.

1	No specific comment
2	Looks Good.
3	No comments

Name and Agency

1	Gallatin Co Commission	Jennifer Boyer
2	Montana State University	Thomas Luhrsen
3	Gallatin County Commission	Zach Brown

4	Fort Ellis Fire/Rescue	Buck Taylor
5	Big Sky Fire Department	Jon Trapp
6	Park County OEM	Greg Coleman
7	Gallatin County Planning Department	Sean O'Callaghan
8	YC	Tom Butler
9	MSU PD	Adam Pankratz
10	City of Belgrade	Whitney Bermes
11	Bozeman Fire	Josh Waldo
12	City of Bozeman	Brian Heaston
13	Self - while I am submitting comments on my personal behalf as a Gallatin County resident, please let me know if I can help coordinating any needs with the team developing BLE floodplain data for the county	Wylie Minot (wylieminot@gmail.com)

14	Fort Ellis Fire / Rescue	David Kozicki
15	GCEM	Jay Pape
16	City of Bozeman	Brian Heaston
17	City of Three Forks	Kelly Smith

BLANK

Planning Participation

Appendix B



Community	Date &Time	Location
Belgrade	Tuesday, October 8, 2024 11:00-1:00	Central Valley Fire District 215 Wings Way
Bozeman	Wednesday, October 9, 2024 11:00-1:00	Gallatin County Coordination Center 219 E Tamarack
Manhattan & Amsterdam	Wednesday, October 16, 2024 11:00-1:00	Manhattan Town Hall 206 S Sixth
Three Forks, Willow Creek & Clarkston	Thursday, October 10, 2024 11:00-1:00	Three Forks Ambulance Station 2 E Hickory
West Yellowstone	Monday, October 7, 2024 11:00-1:00	West Yellowstone City Hall 440 Yellowstone, West Yellowstone
Big Sky	Tuesday, October 15, 2024	Big Sky Fire Station 1 650 Rainbow Trout

All Hazard All Discipline Meeting (October 17, 2024)
Update on Hazard Identification and Evaluation Workshops along with overview of intended QWRA implementation. Gallatin County was looking at participating in a joint multi county QWRA, which the participants supported.

Quantitative Wildfire Risk Assessment Workshop
On October 22, 2024 planning partners met to review wildfire data modeling from Vibrant Planet. Vibrant Planet staff explained the modeling products they produce and options on what could be provided, along with how communities could use it. The group decided to move forward with Vibrant Planet as a 4 county partnership.

All Hazard All Discipline Meeting (December 19, 2024)
Update provided on 4 county QWRA kickoff meeting and the plan to participate in the multi county QWRA. AHAD supported this approach.

All Hazard All Discipline Meeting (June 19, 2025)
Update on Hazard Mitigation and Community Wildfire Protection Plan.

All Hazard All Discipline Meeting (April 17, 2025)
Update on Hazard Mitigation and Community Wildfire Protection Plan.

Quantitative Wildfire Risk Assessment Initial Review (September 2025)

On September 10, 2025 planning partners met virtually to review initial data from Vibrant Planet. Feedback was provided on initial draft products and initial feedback on our we prioritize HVRAs.

Hazard Mitigation Goals at AHAD (October 16, 2025)

During the October 16, 2025 All Hazard All Discipline (AHAD) meeting participants reviewed and updated our mitigation goals. Notifications were distributed to 337 partners on October 7, 2025 as well as appeared in the AHAD agenda distributed on the same date. This set the stage for development of draft objectives for electronic review.

Highly Valued Resources and Assets Workshop

On October 22, 2025 planning partners met with Vibrant Plant, reviewed and weighted HVRAs.

Hazard Mitigation Objectives (January 29, 2026)

On January 29, 2026 our 337 partners were invited to review and provide edits for proposed objectives aligned with the identified goals. This opportunity was conducted remotely utilizing an online system. Completion of objectives allowed for development of proposed projects for electronic review.

All Hazard All Discipline Group (December 18, 2025)

Review of Quantitative Wildfire Risk Assessment draft data.

Project Identification (February 6, 2026)

On February 6, 2026 our 337 partners were invited to review current projects, provide updates and propose new projects. This opportunity was conducted remotely utilizing and online system.

CWPP Data Review (February 24, 2026)

On February 24, 2026 local, state and federal partners engaged in wildfire mitigation were invited to review QWRA data. Data was reviewed and accepted. The group also identified and agreed upon a data definition for the Gallatin County WUI.

Functional Wildland Urban Interface (April 2, 2026)

At the April 2, 2026 Emergency Planning Committee, the Functional Wildland Urban Interface data was reviewed. The proposed approach the developing a Gallatin County WUI definition from that data was discussed and supported.

Plan Changes

Appendix C



APPENDIX C

SUMMARY OF PLAN CHANGES

2026 PLAN CHANGES

The 2026 Gallatin County Hazard Mitigation and Community Wildfire Protection Plan was updated to reflect current conditions, hazards, and the prioritization of hazards to inform an accurate risk assessment. Data, maps, and figures were updated based on recent, available information, and hazards were discretized geographically to reflect varying vulnerability throughout the county. Changes were made to the document format to improve plan organization and readability. Specific plan changes are outlined in the sections below.

Executive Summary

- Introduction of Service Area terminology to explain the plan coverage across county lines.
- Service Area map included.
- Updated goals incorporated.
- Added new programs.

Section 1.0 – Introduction

- Updated with current statistics, program references and mapping.

Section 2.0 – Planning Process and Methodologies

- Updated with current statistics, program references and mapping.
- Outlines public meeting process.

Chapter 3.0 – Risk Assessment and Community Inventory

- Identified hazards were expanded. Largely due to semantical preferences or the desire to break out similar hazards, such as the type of wildfires.
- Utilizing assessed valuation with any validity was not feasible. Plan was shifted to a representative replacement cost range approach.

- Critical Infrastructure lists updated with new mapping.

Chapter 4.0 – Risk Assessment/Hazard Profiles

- Updated statistics, graphics, maps, etc…
- Direct integration of the Community Wildfire Protection Plan in to the Wildfire profile.

Chapter 5.0 – Mitigation Strategy

- Updated Goals and Objectives implemented.
- Graphics added to scoring explanation for better clarity.
- Updated work completed from the 2020 plan.

Chapter 6.0 – Plan Maintenance Procedures

- Edited the maintenance plan to reflect planning for the next required update and added a recommended update timeline.
- .

FEMA Approval

Appendix D



APPENDIX D

FEMA APPROVAL DOCUMENTATION

1. FEMA APPROVAL LETTER
2. LOCAL MITIGATION PLAN REVIEW TOOL

Local Approvals

Appendix E



APPENDIX E

LOCAL PLAN ADOPTION DOCUMENTATION



ReadyGallatin.com