STATE OF MONTANA
MULTI-HAZARD MITIGATION PLAN & STATEWIDE HAZARD ASSESSMENT

2013 UPDATE

Prepared for:

The State of Montana
Department of Military Affairs
Disaster and Emergency Services
P.O. Box 4789
1900 Williams Street
Fort Harrison, Montana 59636

Prepared by:

Tetra Tech
303 Irene Street
Helena, Montana 59601

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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 the negative impacts. These actions, termed mitigation, often protect life, property, the economy, and other values. This State of Montana Updated Pre-Disaster Mitigation (PDM) Plan addresses the major hazards with respect to risk and vulnerabilities statewide.

Based on the results of the November 2010 FEMA approved State of Montana PDM Plan and the recommendations supplied in the Final Crosswalk from FEMA, the 2013 update has attempted to address those concerns in this updated PDM Plan. Specifically;

1). *The State should continue to evaluate how it is effectively planning and implementing drought mitigation activities.* The current 2013 PDM Plan has included drought mitigation again in both hazard profile and mitigation strategy, however the existing Montana "Drought and Water Supply Advisory Committee", http://drought.mt.gov/Committee/About.aspx - that has been in existence since 1991 is geared more toward water supply monitoring and the effects on the state's agriculture industry. The State Hazard Mitigation Officer (SHMO) and/or representative are attending these meetings now but this group has a decades-long inertia and are not yet receptive to drought mitigation of any sort, even if we could find or develop eligible drought mitigation projects under 44 CFR, which is doubtful (See Recommendation 3). It will take some time to change this Committee's paradigm.

2). *Consider developing maps that show percent change of population by county or number of residential building permits by county and hazard prone areas.* Gathering building permit data proved not to be practical nor useful since 100% data could not realistically be captured; however, as part of our GIS hazard layers and 2010 Census data this plan does present "Percent Exposure for Top Counties and Towns" and also "Percent Exposure (times) Percent Population Change for Top Counties and Towns". In some cases this worked very well but in some areas the analysis proved questionable since the parcel data does not spatially recognize building locations. It was assumed that all structures located in each parcel intersected by the hazard layer were at risk which was relatively accurate when parcel size was small, but when parcels were large, it over-reported building exposure. This data limitation also influenced the analysis of building exposure in the fastest growing communities.

3). *The Plan identifies a comprehensive range of mitigation actions and activities (…). However, there is very little information on implementation besides responsible agency and the general time range. More specific information on implementation would improve the plan, even if it is just for high priority actions.* Although this would be ideal, the current reality of the State of Montana government makes this impractical. We have brought together representatives of all the Responsible State Agencies possible and have made them understand that they are the points of contact and responsible agents to move mitigation action items through their State Agencies with our assistance. In addition, during the course of this Plan Update, the SHMO and the Governor's Authorized Representative (GAR) have met with several of the newly elected

Governor's Cabinet members (State Agency Directors, and intend to brief all 13 in the near future) discussing State Mitigation and how they as Directors can assist that effort. But the final and most important element in implementation is funding. FEMA must continue the Pre-Disaster Mitigation Competitive grant (see Recommendation 4) in order for the State of Montana to implement many of our identified action items. That said, the 2013 State Plan identifies planned activities to implement each of the State's identified mitigation actions as per recommendations in the 2010 FEMA crosswalk.

4). *Agency progress on mitigation actions.* This has always been difficult to achieve with the various State Agencies involved. The SHMO and GAR are attempting to change this as described above by meeting directly with Agency Directors. In addition, the SHMO will draft a "Policy Directive" for the Governor to Agency Directors to support statewide mitigation via the SHMO acting as clearing house. However, political realities may or may not make such a Policy Directive achievable. In addition, until FEMA completes the rulemaking to change State PDM Plans from three to five years, this suggestion is not practical (see Recommendation 1). Under the current three year span, our State Plan is only viable for one year before we must begin the funding and plan review process all over again in order to achieve a new plan within the following 24 months prior to Plan expiration. Thus we are in effect monitoring, evaluating and updating the State Plan every year now as part of the mandatory Update process. That being said, the 2013 State Plan identifies progress made on each of the State's identified mitigation actions as per recommendations in the 2010 FEMA crosswalk.

5). *Analyze and describe factors that contributed to successful implementation of Mitigation actions and describe challenges in making progress on other actions.* Even a cursory review of this Plan Update will show that the State of Montana is making progress with both previous and current mitigation action items. However, all progress is tempered by limitations in staff, grant funding and willingness on the local, Tribal or State Agency level to initiate, conduct and complete mitigation projects. Without a much increased staff, this is not really practical to accomplish. With the appeal to 13 new Agency Directors, we hope to see some developing "ownership" of mitigation action items by these Agencies and progress toward completion.

The major hazards – earthquake; flood; hazardous material release; severe summer and winter weather; wildfire – are each profiled in terms of their hazard description, history, probability and magnitude, mapping (where possible), vulnerabilities, data limitations and other factors. The vulnerabilities to critical facilities, critical infrastructure, structures, the population and future development are evaluated for each hazard. Hazard profiles were also updated for hazards less apt to impact the State including dam failure, landslide, and volcanic eruption.

Communicable Disease, Drought and Terrorism have been included in this PDM Plan Update by FEMA recommendation. However, the State of Montana Disaster and Emergency Services Division (DES) has determined that it cannot "mitigate" a Communicable Disease, Drought or Terrorism as a natural hazard with regards to the FEMA mission as described in 44 CFR. All three of these "hazards" are primarily prevention, response and recovery activities and are not 44 CFR mitigation eligible. The State of Montana concurs that these activities may well belong

in the Threat and Hazard Identification and Risk Assessment (THIRA), but does not believe they have any place in the State Pre-Disaster Mitigation Plan (see Recommendation 3). The Montana local county PDM Plans are still being encouraged to include Communicable Disease, Drought and Terrorism in their plans at their discretion along with whatever else concerns them as often the local PDM Plan is the only planning document extant in their lightly populated, vast and mainly rural jurisdictions.

Data Limitations

The State believes that this PDM Plan Update contains vastly improved hazard analysis based not only on the availability of 2010 Census data, but on development of digital locations for the State's critical facilities. Additional enhancements included development of digital hazard maps for each of the natural hazards with regional variation and use of parcel data to analyze building exposure. As noted above, in some cases the analysis proved questionable results since the parcel data does not spatially recognize building locations. It was assumed that all structures located in each parcel intersected by the hazard layer were at risk which was relatively accurate when parcel size was small, but when parcels were large, it over-reported building exposure. With the sheer magnitude of the State of Montana, drilling down to a more effective data set would more than likely be cost-prohibitive.

Recommendations

1). ***FEMA must change 44 CFR 201 rule to extend the life of State PDM Plans to five years to match local plans.*** This recommendation is retained from the 2010 Update. Although this Change in Submission Requirements for State Mitigation Plans is in the Rulemaking process for 2013, there is no sign or indication that it will come to pass this year. The arguments to implement this change also remain in effect. The State and the Nation are wasting far too much time and money updating State PDM Plans every three years vice five.

2). ***FEMA must proactively endorse and implement the Biggert-Waters Flood Insurance Reform Act of 2012 (BW-12).*** The State of Montana believes that only the immediate implementation of BW-12 will finally motivate residents in our floodways and floodplains to seriously consider effective mitigation alternatives. Without this fiscal motivation to their pocketbooks, the status quo will remain in place and very little permanent or significantly cost effective mitigation will take place, further stressing the National Flood Insurance Program deficits and rendering any State of Montana Repetitive Loss Strategy moot.

3). ***Permanently remove Communicable Disease, Drought and Terrorism as hazards required to be included in State Pre-Disaster Mitigation Plans.*** As stated above the State of Montana has and will continue to address these hazards in the THIRA and believes these three issues are not mitigation actions under the 44 CFR which guides State PDM Plans.

4). ***FEMA must retain/restore the Pre-Disaster Mitigation Competitive (PDMC) grant or replace it with a similar Non-Disaster grant.*** Without the PDMC grant or a successor that is similar in all respects, Mitigation will slowly grind to a halt in Montana and the many states like ours who experience small or infrequent Presidential Disaster Declarations. The typical small disaster declarations that Montana receives and that generate the post-disaster Hazard Mitigation Grant Program (HMGP) funding have historically provided insufficient 7% Planning funds to update even one local plan, let alone the remaining 55 counties, or the 7 Tribal Nation PDM Plans. Without the PDMC funding stream to Update PDM Plans, mitigation will eventually cease to exist in Montana.

This State of Montana Updated Pre-Disaster Mitigation Plan exceeds the requirements of a State PDM Plan as outlined in the Interim Final Rule published in the Federal Register on February 26, 2002 at Title 44 of the Code of Federal Regulations, Part 201 as part of the Disaster Mitigation Act of 2000. This plan has been approved by the Montana Disaster and Emergency Services Division as a hazard mitigation plan, and therefore, the State, 56 counties, multiple Tribal Nations, cities, and towns may be eligible for federal mitigation funds. This plan serves as a guide for understanding the major hazards facing the State, local and Tribal jurisdictions and provides a strategy for mitigating or reducing some of the impacts. We are pleased to continue to work with FEMA to save lives and protect property for all our friends and neighbors in the great State of Montana.

LIST OF ACRONYMS

APHIS	Animal and Plant Health Inspection Service
ARM	Administrative Rules of Montana
ARS	Agricultural Research Service
BCA	Benefit-Cost Analysis
BEA	Bureau of Economic Analysis
BLM	Bureau of Land Management (U.S.)
CAH	Critical Access Hospitals
CAIC	Colorado Avalanche Information Center
CDBG	Community Development Block Grant
CDC	Center for Disease Control
CEIC	Census & Economic Information Center
CoCoRaHs	Community Collaborative Rain, Hail, Snow Network
COFR	Council on Foreign Relations
COG	Continuity of Government
COOP	Continuity of Operations
CPRI	Calculated Priority Risk Index
CRP	Conservation Reserve Program
CRREL	Cold Regions Research and Engineering Laboratory
CRS	Community Rating System
CTP	Cooperating Technical Partners
CWPP	Community Wildfire Protection Plan
DES	Disaster and Emergency Services
DFIRM	Digital Flood Insurance Rate Map
DI	Damage Indicator
DLI	Department of Labor and Industry (Montana)
DMA	Disaster Mitigation Act
DNRC	Department of Natural Resources and Conservation (Montana)
DOA	Department of Administration (Montana)
DPHHS	Department of Public Health and Human Services (Montana)
EAP	Emergency Action Plan
EF	Enhanced Fujita
EO	Executive Order
EOP	Emergency Operations Plan
EPA	Environmental Protection Agency (U.S.)
EPCRA	Emergency Planning and Community Right-to-Know Act
FBI	Federal Bureau of Investigation
FCO	Federal Coordinating Officer
FEI	Fire Effects Index
FEMA	Federal Emergency Management Agency
FMA	Fire Management Assistance

LIST OF ACRONYMS (CONTINUED)

FMA	Flood Mitigation Assistance
FRI	Fire Risk Index
FSA	Farm Service Agency
FSA	Federal Suppression Assistance
FTI	Fire Threat Index
FWP	Fish, Wildlife and Parks (Montana)
FY	Fiscal Year
GAR	Governor's Authorized Representative
GDP	Gross Domestic Product
GIS	Geographic Information Systems
HAZUS-MH	Hazards of the United States-Multi Hazard
HMGP	Hazard Mitigation Grant Program
IA	Individual Assistance
IBC	International Business Code
IRC	International Residential Code
MBMG	Montana Bureau of Mines and Geology
MCA	Montana Code Annotated
MDT	Montana Department of Transportation
MSU	Montana State University
NCDC	National Climatic Data Center
NDD	National Drought Determination
NDMC	National Drought Mitigation Center
NEHRP	National Earthquake Hazards Reduction Program Earthquake
NEMA	National Emergency Management Association
NEMIS	National Emergency Management Information System
NFIP	National Flood Insurance Program
NIAID	National Institutes of Allergy & Infectious Disease
NID	National Inventory of Dams
NIFC	National Interagency Fire Center
NIMS	National Incident Management Systems
NISEE	National Information Service for Earthquake Engineering
NOAA	National Oceanic and Atmospheric Administration
NRC	National Response Center (U.S.)
NRCS	Natural Resources Conservation Service
NRIS	Natural Resource Information System
NTSB	National Transportation and Safety Board
NWS	National Weather Service (U.S.)
OPI	Office of Public Instruction (Montana)
PA	Public Assistance
PCIIS	Property Casualty Insurance Information System
PDM	Pre-Disaster Mitigation
PDMC	Pre-Disaster Mitigation-Competitive

LIST OF ACRONYMS (CONTINUED)

PDSI	Palmer Drought Severity Index
PIR	Public Instruction Related
RDD	Radiological Dispersion Device
RL	Repetitive Loss
RML	Rocky Mountain Laboratories
RMTD	Risk Management and Tort Defense (Division)
SBA	Small Business Administration
SCAT	Shoreline Cleanup Assessment Technique
SHELDUS	Spatial Hazard Events & Loss Database
SHMO	State Hazard Mitigation Officer
SPLC	Southern Poverty Law Center
SWSI	Surface Water Supply Index
THIRA	Threat Hazard Identification Risk Assessment
TPO	Tornado Project Online
TRI	Toxics Release Inventory
UM	The University of Montana
USACE	United States Army of Corps of Engineers
USDA	United States Department of Agriculture
USDC	United States Department of Commerce
USGS	United States Geological Survey
WDA	Wildland Development Areas
WHO	World Health Organization
WMD	Weapons of Mass Destruction
WUI	Wildland/Urban Interface

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1.0 INTRODUCTION

The State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment is the State's primary hazard mitigation document. It is the product of extensive input from governmental and tribal agencies, non-governmental organizations, in-depth research, and hazards analysis. The results are stand-alone sections, statewide in nature, useful for many entities throughout the State of Montana, and expandable as events occur and better data is developed. The document establishes a process for broad governmental and organizational involvement, provides a comprehensive and detailed statewide hazard assessment, and demonstrates the overarching mitigation strategy for the State of Montana.

1.1 PURPOSE AND AUTHORITY

The State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment was developed with the purpose of documenting historical hazard events and vulnerabilities, and strategies for mitigation that will make Montana a more disaster resistant State. This comprehensive and resourceful document is intended to clarify hazard information and actions that can be taken to prevent damages. As is the case with all disaster plans, this Plan does not identify or list every possible hazard. Furthermore, events listed may not occur in the manner identified. The Plan is a tool that identified actions that would reduce impacts to human health and property from the effects of natural and manmade hazards.

The authority governing the Plan's development and contents is Section 322 (Mitigation Planning) of the Robert T. Stafford Disaster Relief and Emergency Assistance Act enacted by Section 104 of the Disaster Mitigation Act of 2000 (P.L. 106-390). Specifically, the plan is to meet the requirements of the Interim Final Rule published in the Federal Register on February 26, 2002 at 44 CFR Part 201. Meeting these requirements will allow the state and communities with approved local plans to apply for federal mitigation assistance, both pre- and post-disaster.

1.2 PLAN DESCRIPTION

The scope of this Plan is to meet the required elements of a Standard Level State Plan with the potential to expand to an Enhanced Plan at a future date. Funding for the initial development of the plan was provided by the Federal Emergency Management Agency (FEMA) through the Pre-Disaster Mitigation (PDM) grant program in Fiscal Year 2003. The subsequent three year updates, as required by the Disaster Mitigation Act (DMA) of 2000, were funded through the FEMA PDM-C 2006 and 2009 grant programs and the mitigation planning funds associated with the DR-1996 Presidential Disaster. The scope of the State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment will continue to expand over time and will be dictated by the available funding and by the availability of more information.

Section 2 contains a discussion of the Planning Process utilized for development of this document and the integration of this document with other State Plans and Programs.
Section 3 provides a State Profile including sections on climate, economy and population.

Section 4, the Risk Assessment, identifies and profiles the following major hazards in Montana (listed by rank):

- Wildland and Rangeland Fires
- Flooding
- Earthquake
- Severe Summer Weather
- Severe Winter Weather
- Communicable Disease
- Hazardous Materials Incidents
- Drought
- Dam Failure
- Landslide
- Terrorism
- Volcanic Eruptions

The history of occurrence, the probability of occurrence, the severity resulting from, and the vulnerability to each of these hazards is individually discussed. Where possible, data is mapped to show vulnerability by jurisdiction, and in particular, to state-owned facilities. For greater detail by jurisdiction, local data was incorporated where practicable and available. Local Hazard Mitigation Plans (both original and updated versions) are linked electronically to this document.

Section 5, the Mitigation Strategy, looks at overall mitigation in Montana and pulls together various factors including: statewide goals and objectives; mitigation projects from the local plans, projects being considered by the state, and specific statewide projects; a prioritized list of state-specific mitigation projects; state and local capabilities; and, funding sources. The mitigation strategy considers the natural and man-made events identified in the hazard assessment and proposes potential solutions with a method and means for following those potential solutions through project implementation. The mitigation strategy does not establish or redefine mitigation in Montana, but rather provides a comprehensive look at the system for achieving disaster resistance. Integration of the approved Local Hazard Mitigation Plans into the States Plan is also discussed in this section.

Section 6 contains a Capability Assessment that discusses programs at both the state and local level available to conduct mitigation planning and implement projects.

Section 7 discusses Plan Maintenance/Update and Mitigation Project Monitoring/Evaluation procedures, and ***Section 8*** consolidates references utilized in the Plan.

The State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment strives to clearly identify and profile the hazards that pose the greatest threat to the state and prevent damages and losses in the future. The ultimate objective is to make the State of Montana a safer place to live, work, and visit.

This document comprises the 2013 Update to the State of Montana's Multi-Hazard Mitigation Plan and Statewide Hazard Assessment. It has been prepared for the State of Montana, Department of Military Affairs-Disaster and Emergency Services Division by Tetra Tech Inc., under Contract No. 130015, executed on October 24, 2012 under the direction of the State Hazard Mitigation Officer (SHMO). The original document was prepared by Resource Management Services, Inc. (Prime Contractor), Land and Water Consulting (Sub-contactor), and Big Sky Hazard Management, Inc. (Sub-contractor) under Contract No. MIL04-785J executed on November 10, 2003. The 2007 and 2010 updates were prepared by Tetra Tech, Inc. under Contracts No. MIL07-13730 and 100035 executed on November 14, 2006 and November 2, 2009, respectively.

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MONTANA STATE PDM PLAN – 2013 UPDATE REVISION LOG SECTION 2 – PLANNING PROCESS		
Sub-Section	**Description of Revision**	**Revised By:**
TEXT CHANGES		
2.1	Updated contract information between Montana DES and Tetra Tech. Indicated that social media was introduced to the planning process for the 2013 update.	Tetra Tech
2.1.1	Described participation of PDM Planning Team.	Tetra Tech
2.1.3	Updated section on Public Meetings (formerly called Local Meetings)	Tetra Tech
2.1.4	Updated (and renumbered) section on Project Website adding introduction of social media.	Tetra Tech
2.1.5	Added new section on development of Educational Curriculum	Tetra Tech
2.1.6	Added new section on Poster Display in Capital Rotunda during Montana Legislature	Tetra Tech
2.1.7 and 2.1.8	Reversed the order in the report on Plan Update Process and Plan Review and Adoption Process. Provided details on information added for the 2013 plan update.	Tetra Tech
Formerly 2.1.7	Omitted section on Planning Goals. These are residual from the 2004 State Plan Update and though still relevant, not a focus of the Planning Process approach for the 2013 State Plan update.	Tetra Tech
2.2	Updated information on organizations and agencies with mitigation responsibilities. Described state-interagency mitigation coordination.	Tetra Tech
2.3	Updated and revised description of mitigation-related plans and programs	Tetra Tech
TABLE CHANGES		
2.1-1	Updated names of Planning Team members	Tetra Tech
2.1-2	Updated details from the local meetings	Tetra Tech
2.2-1	Updated State Government Mitigation Responsibilities	Tetra Tech

2.0 PLANNING PROCESS

2.1 PLANNING PROCESS DOCUMENTATION

The planning process for the State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment (Plan) was designed and developed to maximize participation and information exchange during its development. To initiate the update process, the State of Montana, Department of Military Affairs, Disaster and Emergency Services (DES) via Contract No. 130015 (executed on October 24, 2012) retained Tetra Tech, Inc. The Contractor spearheaded and implemented the planning initiative under the direction and guidance of the State Hazard Mitigation Officer (SHMO).

A system for completing the necessary elements of a Standard State Mitigation Plan was created to provide an efficient way for participants to become active in the planning process and to facilitate an informational exchange of the most current data and programs throughout the State. During development of the original plan (2004) the planning process was focused on an Advisory Group, Hazard Technical Groups, and Stakeholders Group. During the 2007 plan update, the planning process was focused on local jurisdictions and the Stakeholders Group. During the 2010 plan update, the planning process was focused on local jurisdictions, the Stakeholders Group, and the State PDM Planning Team. The 2013 Update introduced social media into the planning process as well as involvement of the State PDM Planning Team.

2.1.1 PDM Planning Team

A PDM Planning Team was designated as the main steering committee to address development of the 2013 Update to the Montana State Hazard Mitigation Plan. Members of this advisory group were requested to participate based on their expert knowledge of hazards and/or their active role in mitigation activities in Montana, as shown in **Table 2.1-1**. They were also requested to participate because they represented a state/federal agency or non-profit organization with primary mitigation responsibility in the State. This group met formally on one occasion during the drafting stage of the plan and reviewed items as necessary throughout the planning process.

TABLE 2.1-1
STATE PDM PLANNING TEAM - 2013

AGENCY/ORGANIZATION	NAME	EXPERTISE
FireSafe Montana	Pat McKelvey, Rocky Infanger	Wildfire
Lewis & Clark County DES	Paul Spengler	All Hazards
Montana Bureau of Mines & Geology	Michael Stickney	Earthquakes
Montana Dept. of Administration, Architecture & Engineering	Jim Whaley	Earthquakes
Montana Dept. of Administration, Risk Management & Tort Defense	Aric Curtiss	All Hazards

TABLE 2.1-1
STATE PDM PLANNING TEAM - 2013

AGENCY/ORGANIZATION	NAME	EXPERTISE
Montana Dept. Military Affairs	Col. Theodore Hull	Terrorism
Montana Dept. of Natural Resources & Conservation, Forestry Division	Bruce Suenram	Wildfire
Montana Dept. of Natural Resources & Conservation, Water Resources	Jesse Aber	Drought
Montana Dept. of Natural Resources & Conservation, Water Resources	Laurence Siroky	Flooding, Dam Failure
Montana Department of Public Health and Human Services	Delila Bruno	Communicable Disease
Montana Dept. of Transportation	Cheryl Richman	Hazardous Materials, Landslides
Montana DES, State Hazard Mitigation Officer	Kent Atwood	All Hazards
National Weather Service	Gina Loss, Chris Foltz	Severe Summer & Winter Weather
USDA Forest Service	Marty Mitzkus	Wildfire

A meeting of the PDM Planning Team was held in Helena on January 17, 2013. The meeting was facilitated by the SHMP and Contractor. In advance of the meeting, individuals on the Planning Team were asked to review the 2010 mitigation strategy assigned to their agency fro implementation and determine what have been accomplished over the past three years, and what actions were planned for the three years going forward. The 2010 mitigation strategy was available for review on the project website. During the meeting, a PowerPoint presentation was used to review and analyze each section of the 2010 State Plan. Input received and decisions made are presented in *Section 2.1.6*, below. **Appendix A** contains the sign-in sheets from the Planning Team meeting, meeting notes, and a copy of the Power-Point presentation outlining how the plan and mitigation strategies were reviewed.

Additional meetings occurred with subsets of the PDM Planning Team during the course of the project including:

- December 17, 2012 – Meeting with representatives of Montana Dept. of Administration to review the list of state-owned facilities that would be geo-referenced and included in the PDM analysis as “critical” or “essential” facilities.
- January 14, 2013 – Meeting with representatives of Montana Dept. of Natural Resources and Conservation (DNRC), USDA Forest Service, and the non-profit group FireSafe Montana to review and discuss the wildfire mitigation strategy.

2.1.2 Stakeholders Group

A Stakeholders Group was created to include multiple organizations, including federal, tribal, state, and local governmental agencies or associations, businesses, non-profit organizations, utilities and trade associations. The Stakeholders Group represents a cross-section of private and public groups that have interests in mitigating the impacts of hazards and risks. Many of the participating stakeholders represent the entire state through their position and through their

academic interests. Others hold key positions intended to represent the best interests of the public that they serve. Mailing lists of the Montana Floodplain Association and registered participants from a Montana Wildfire Symposium were added to the Stakeholders Group as they bring other planning processes, capabilities and resources to the table. The planning effort for the 2010 State Plan attempted to engage more business and non-profit organizations as these entities will be involved in any rebuilding effort in a post-disaster situation.

Members of the 2013 Stakeholders Group are listed in **Appendix A**. Since approval of the previous State Plan, there has been an increase in mitigation planning efforts among federal and state agencies, business entities and non-profit organizations. An atmosphere of cooperation and collaboration has emerged due in part to the involvement of these agencies/organizations in Local PDM Plan review, an awareness of the importance of mitigation, and the recognition that funding is available due to the recent Presidential disasters and from the PDM-C grant program for mitigation projects.

Stakeholders received a number of e-mails during the course of the update project inviting them to participate in the planning process. The emphasis of stakeholder involvement was directed towards participation in local meetings and review of materials posted on the project website. These activities are described below.

2.1.3 Public Meetings

The 2013 State Plan Update involved hosting meetings in six locations around the state to gather input on the local level. The local meetings were held in the most populated cities in Montana (Billings, Bozeman, Butte, Great Falls, Helena, and Missoula).

A press release announcing the local meeting schedule was published in the five major newspapers around the state and e-mailed to the Stakeholders Group. DES coordinators in all districts were requested to attend the meetings and invite other appropriate stakeholders. **Table 2.1-2** presents the meeting schedule and number of people attending each meeting and the organizations/agencies represented.

TABLE 2.1-2
LOCAL MEETING SUMMARY - 2013

LOCATION	DATE	# ATTENDING	AGENCIES/ORGANIZATIONS ATTENDING
Billings	May 9, 2013	13	Montana DES; Yellowstone County DES; Big Horn County DES; Musselshell County DES; Billings Clinic; U.S. Bureau of Reclamation; City of Billings-Police; contractor, public
Bozeman	May 15, 2013	7	Montana State University; City of Bozeman Fire; Gallatin County DES, Floodplain Administrator; USDA NRCS; Montana Conservation Corps.
Great Falls	May 23, 2013	7	Montana Dept. of Administration; City of Great Falls Planning, Emergency Management; West Great Falls Flood Control District; Sun River Electric Co-op; Cascade County DES
Helena	April 22, 2013	13	Montana DNRC-Water, Legislative Branch, Agriculture, Historical Society, Revenue, Governor's Office of Community Service, Administration, DES; Lewis & Clark County DES

TABLE 2.1-2 LOCAL MEETING SUMMARY - 2013			
LOCATION	**DATE**	**# ATTENDING**	**AGENCIES/ORGANIZATIONS ATTENDING**
Kalispell	May 16, 2013	23	Montana DES, DNRC-Fire, Governor's Office of Community Service, Dept. of Administration; Flathead County Office of Emergency Services, Road & Bridges; City of Kalispell Fire Dept , Public Works, Healthcare; City of Creston Fire, NW MT IMT (telephone utility); Salvation Army, American Red Cross; media; public
Missoula	May 8, 2013	6	Montana Dept. Administration; University of Montana; American Red Cross; Missoula County DES

Public meetings were facilitated by the SHMO and Contractor and included a briefing on the State Plan Update process, a review of hazards currently profiled in the State Plan, a discussion on whether any new hazards affected the area, a review of the draft risk assessment developed for the 2013 State Plan, conversations on growth and development trends, and a review of existing mitigation goals. Most meetings were 1 hour in duration. Sign-in sheets, meeting notices, and the PowerPoint presentation from the local meetings are presented in **Appendix A**.

2.1.4 Project Website and Social Media Integration

As part of the 2013 State Plan Update an interactive project website was developed to engage project stakeholders in the project. The website Homepage presented a letter from the SHMO describing the project and invited the public to participate. Content was uploaded to pages on the website to provide information on: project Contacts; Meetings (including schedules, presentations and notes); Reference Materials (including FEMA's guidance for preparing State PDM Plans, Montana's 2010 State PDM Plan, and other relevant materials and websites); a Planning Team portal; a Hazards page (including photos on hazard events that had occurred around the State; a Videos page (where videos produced by FEMA and others on mitigation success stories and strategies were posted); the Draft PDM Plan; and access to the project Blog (which was maintained by the SHMO). The website for the 2013 update to the Montana State PDM Plan can be accessed at www.LetsMitigateMontana.com. Montana DES intends to keep this website active after the project is complete.

Social media was used as part of the planning process for the update to the State PDM Plan. A Facebook page, managed by the SHMO, was developed to instigate dialogue on hazard mitigation through the posting of photos, videos, mitigation success stories, news articles as well as information on the PDM Plan Update. The Facebook page was tied to the website blog and was linked to Twitter. The SHMO blogged on a regular basis and this information became the "news feed" available to "friends" of the Lets Mitigate Montana Facebook page.

The website was also interactive as it provided the public the opportunity to review the draft PDM Plan and provide on-line comments. Reviewers were able on enter their comments electronically either anonymously or by adding their e-mail address. Comments submitted were then automatically forwarded to the SHMO and Contractor for consideration in the final version of the document.

The website provided project stakeholders a way to keep informed on the project as well as opportunities to provide meaningful input on the mitigation strategy for the State of Montana. Website analytics provided insight on how many people were viewing the website and from which states and countries. The website and Facebook page were advertised to the public via stakeholder e-mail announcements, at the local meetings, and through press releases published in the five Montana main newspapers when the State Plan was available for review.

2.1.5 Mitigation Curriculum Development

Another aspect of the planning process for the 2013 State PDM Plan update was bringing the hazard mitigation message to students. The Contractor subcontracted with a curriculum specialist who developed a curriculum and implemented a pilot program to introduce hazard mitigation into the Montana secondary school system.

A three hour curriculum module was developed dealing specifically with hazard mitigation which uses the Montana State PDM Plan as the textbook. Meetings were held with the Montana Office of Public Instruction (OPI) to ensure the curriculum met the requirements of the State science standards for 9-12 science. The curriculum was designed to be relevant to students across the State, supplemented with information available in local County and Tribal mitigation plans. The basic curriculum was made available to teachers on the project website (www.letsmitigatemontana.com) as well as through the State OPI.

Several activities were conducted to introduce the curriculum to Montana teachers. A Public Instruction Related (PIR) activity was held for teachers in Helena during May 2013. The PIR day involved classroom instruction as well as a field trip to witness mitigation at work: a fuel mitigation project in the wildland urban interface, a structural and non-structural seismic retrofit, and a flood mitigation project involving construction of a new detention pond. In October 2013, a presentation was made at the annual state educator's convention introducing the curriculum to teachers state-wide. Finally, a pilot program was conducted at the Project for Alternative Learning in Helena during spring 2013 involving approximately 60 students.

The intent of the curriculum is to make students aware of how the inherent dangers and potential losses resulting from natural hazards can be mitigated so they can be better informed as adults to understand, plan and work with local officials in their communities to protect their lives and property.

2.1.6 Poster Display at Capitol Rotunda

The Montana legislature was in session during preparation of the 2013 State PDM Plan update. In order to introduce Montana lawmakers, students, and the public to the project, a poster display was presented at the Capitol Rotunda on April 18, 2013. Maps of the various hazard areas along with a photo montage of disaster damages and mitigation strategies were profiled for public viewing. A brochure was also developed and made available at the poster display

promoting the State PDM Plan project, the Lets Mitigate Montana website and Facebook page, and describe ways to comment on the draft plan.

2.1.7 Plan Update Process

The scope of work for the 2013 update was defined by the SHMO during the contracting phase of the project. Most of the enhancements were recommended by FEMA in their crosswalk evaluation of the 2010 Update to the State of Montana Hazard Mitigation Plan and Statewide Hazard Assessment. The ultimate objective of the project was to produce a FEMA approved Standard State of Montana PDM Plan. The Contractor, in consultation with the SHMO and Planning Team, reviewed and analyzed each section of the 2010 State PDM Plan. The PowerPoint presented at the Planning Team meeting to review the 2010 State PDM Plan is included in **Appendix A**. Issues of concern and/or decisions rendered are itemized below.

Section 1.0 - Introduction: Introductory materials were update as needed.

Section 2.0 - Planning Process: Provide description of the planning activities conducted throughout the update process. Present and evaluate coordination efforts between federal and state agencies as well as businesses, non-profit organizations and other interested parties. Set up and maintain for the duration of the project an interactive website with blog capability for the SHMO, set up on Facebook or Twitter, and include Montana mitigation success stories. With SHMO, conduct public meetings in each of Montana's six largest cities (Billings, Missoula, Great Falls, Butte, Bozeman and Helena).

Section 3.0 - State Profile: Provide information on the State of Montana; its climate, population, and economy. Include information on the effects of climate change and the oil and gas boom in Montana.

Section 4.0 - Risk Assessment: Examine existing hazard profiles and determine whether changed conditions have affected the risk assessment. Identify new hazards that should be considered in State Plan Update. Determine whether the State's vulnerability has changed based on local plan and state risk assessments. Evaluate whether changes in development has affected jurisdictions in hazard prone areas.

New risk assessment information in the 2013 State Plan Update included:

- Updated demographics data from the 2010 census.
- Utilization of Geographic Information Systems (GIS) technology to layer state facilities/ buildings in hazard areas using data from:
    - A spatial database of state-owned and -leased critical facilities.
    - Fire incident/reporting systems for wildfire occurrence.
    - Hazards United States (HAZUS) for flood vulnerabilities.

  - Tier I and Tier II reports indicating state buildings vulnerable to seismic risk.
  - Inundation area for high hazard dam risk.
- Loss estimates by county displayed on a state map for each hazard to showing areas of regional vulnerability.
- Development of maps showing percent change of population by county and/or number of residential building permits by county and hazard prone areas.

The communicable disease, drought, and terrorism/violence hazards were re-introduced into the 2013 State PDM Plan update, after being deferred in the 2010 update.

Section 5.0 – Mitigation Strategy: Review current mitigation strategies and determine whether they adequately guide selection of mitigation activities. Establish whether existing goals remain valid or should be revised. Analyze state and local hazard management practices and determine whether capabilities have changed.

New mitigation information in the 2013 State Plan Update included:

- Strategies from the Montana Drought Advisory committee addressing drought.
- A more detailed table of completed mitigation projects that includes all ancillary (matching) funding sources.
- A county/state map pinpointing the location of prior/ongoing construction projects compared to vulnerability maps.
- A review of local mitigation plans for mitigation actions implemented during their update or being implemented via current/ongoing projects since last update including projects other than PDM funded actions.

Mitigation projects were carefully reviewed and revised to reflect progress made since the 2010 update and activities planned for the next three years. State agencies and non-profits assigned responsibility for implementation of mitigation projects were engaged in the review and update of the strategy. Upon completion of the risk assessment, additional mitigation projects were added to the strategy to address critical facilities located in high-hazard areas.

Section 6.0 – Capability Assessment: Review methods of providing technical assistance and funding to implement mitigation strategies and update as needed. Evaluate state plan integration process and determine whether integration with FEMA programs and initiatives has occurred. Analyze project prioritization criteria and propose alternate methods as needed to account for high risk, repetitive loss, and development pressures. Continue to hyperlink all available local mitigation plans.

Section 7.0 – Plan Maintenance Procedures: Review current procedures to determine effectiveness in evaluating and maintaining the State Plan. Identify alternate procedures if plan has not been adequately maintained since the last update cycle. Review process for monitoring

and evaluating projects and develop alternate methods as needed to track the initiation, status, and completion of mitigation activities.

A mechanism for tracking revisions to the State Plan was utilized for the 2013 update process. A Revision Form was completed for each section of the document indicating what revisions were made as part of the update process. An entry was logged-in for all additions or deletions to the 2010 State Plan including the date of the change and by whom the change was made. Many of the revisions amounted to updating statistics; however, other changes involved total re-writes of a section. As appropriate, the meaning or significance behind the change was listed. **Appendix A** contains the Revision Log Forms completed for the 2013 update to the Montana State Plan.

2.1.8 Plan Review and Adoption Process

A draft version of the State Plan Update was uploaded to the project website by section with line numbers on each page so reviewers could accurately provide direction/recommendations for text additions or deletions. Individuals on the Stakeholder's list were notified of the available of the State Plan via an e-mail message. Commenters were asked to use the on-line comment form on the project website (described above) to enter their comments; however, written comments were also accepted. All comment forms were submitted to the SHMO, who reviewed the comments and reconciled any conflicting comments. The SHMO provided the Contractor with a consolidated list of comments giving direction on what to change in the draft document.

The Contractor then prepared a revised draft document for FEMA review. A 60-day review period provided FEMA the opportunity to review the proposed Update to the Montana State Plan to see if the plan met the requirements of DMA 2000 and the Stafford Act and to offer comments on recommended changes. The review period was also used to get comments from the public on the draft plan. A press release was prepared and public notices were purchased in the five primary Montana newspapers announcing the document review period and availability of the draft Montana State Plan Update on the project website. The press release encouraged the public to review the draft document and described how to provide comments. Upon receipt of comments from both FEMA and the public, the SHMO provided direction to the Contractor on changes needed and a final document was prepared.

Review of the preliminary and revised drafts of the 2013 State Plan Update provided an additional opportunity for stakeholders and the public to participate in the planning process. Through these methods, the citizens of Montana were directly and indirectly considered and valued during the development of this Plan.

The final Plan was formally adopted by the Governor of the State of Montana. The adoption of the Plan by the Governor demonstrates the State's continued commitment to fulfilling the mitigation objectives outlined in the plan, legitimizes the plan, and authorizes the responsible

agencies identified to execute their responsibilities. A copy of the resolution of adoption will be submitted to FEMA for final approval.

The resolution adopting the updated plan includes assurances that the State of Montana will comply with all applicable Federal statutes and regulations in effect with respect to the periods for which it received grant funding, in compliance with 44 CFR 13.11c. The State Plan will be amended whenever necessary to reflect changes in State or Federal laws and statutes as required in 44 CFR 13.11d.

2.2 AGENCIES WITH MITIGATION RESPONSIBILITES

The mitigation-related responsibilities of state agencies and other non-state entities were identified for the planning and update process and upon plan completion. These responsibilities fall within the mission of each organization or department as it relates to mitigation. Although the mitigation responsibilities may be a small or large part of the organization's mission and workload, they are nonetheless important. The tables outlining agency and organization responsibilities have been broken into those departments that are part of state government and those that are not (see **Table 2.2-1** and **Table 2.2-2**).

TABLE 2.2-1
STATE GOVERNMENT MITIGATION RESPONSIBILITIES

Department or Agency	Responsibilities
Department of Administration	▪ Provide and build safe state government facilities that are resistant to disaster ▪ Evaluate new construction of state-owned buildings with respect to hazard information ▪ Plan for continuity of service throughout Montana State government
Department of Agriculture	▪ Mitigate bioterrorism and disease outbreaks in agriculture
Office of the State Auditor	▪ Promote the National Flood Insurance Program and other types of hazard insurance with the insurance industry
Department of Commerce (Montana Heritage Commission)	▪ Help businesses mitigate disasters ▪ Provide safe, disaster resistant housing for low-income people ▪ Promote sustainable community development ▪ Mitigate hazards at historic properties managed by the Montana Heritage Commission ▪ Provide disaster information to tourists
Department of Corrections	▪ Provide safe, disaster resistant facilities for incarcerated populations ▪ Maintain and exercise dams managed by agency
Department of Environmental Quality	▪ Conduct outreach in hazardous material spill prevention ▪ Assist with the review of mitigation projects under the National Environmental Policy Act, as applicable
Department of Fish, Wildlife & Parks	▪ Perform fuel mitigation on agency-managed lands ▪ Assist with the review of mitigation projects under NEPA, as applicable
Office of the Governor	▪ Protect the lives and property of the citizens of-and visitors to- the State of Montana
Commissioner of Higher Education	▪ Promote safe, disaster resistant universities and colleges

TABLE 2.2-1
STATE GOVERNMENT MITIGATION RESPONSIBILITIES

Department or Agency	Responsibilities
Montana Historical Society	▪ Mitigate historic sites from disasters where possible ▪ Assist with the review of mitigation projects under NEPA, as applicable
Department of Justice	▪ Prevent terrorism whenever possible
Department of Labor and Industry (Governor's Office of Community Service)	▪ Encourage safe residential and commercial structures through building code enforcement ▪ Promote commercial and employer mitigation ▪ Interface with non-profit organizations to promote preparedness and mitigation (ready.gov)
Montana Bureau of Mines and Geology	▪ Study geological hazards
Montana Legislative Branch	▪ Create laws that will protect citizens and visitors from disasters
Montana State Library	▪ Serve as a clearinghouse for GIS data on hazard and disaster information when available
Montana University System	▪ Provide safe, disaster resistant campuses
Department of Livestock	▪ Encourage livestock health and food safety ▪ Mitigate bioterrorism and disease outbreaks in Montana's livestock industry
Department of Military Affairs	▪ Coordinate mitigation efforts statewide ▪ Manage HMGP and PDMC grants from FEMA ▪ Review local mitigation plans ▪ Provide mitigation technical assistance to local governments, tribes, and state agencies ▪ Provide regular mitigation training ▪ Protect National Guard assets from disasters
Montana State Fund	▪ Promote safe, disaster resistant workplaces
Department of Natural Resources and Conservation	▪ Conduct fuel mitigation on state-owned land ▪ Manage the state's floodplain program and floodplain mapping ▪ Promote flood mitigation ▪ Manage NFIP grants from FEMA ▪ Ensure maintenance and exercise of state-owned dams ▪ Assist with the review of mitigation projects under NEPA, as applicable
Office of Public Instruction	▪ Promote programs in school safety and disaster prevention education ▪ Promote mitigation curriculum in state secondary schools
Board of Public Education	▪ Promote safe, disaster resistant schools
Department of Public Health and Human Services	▪ Prevent epidemics and disease related disasters when possible ▪ Promote safe, disaster resistant state hospitals ▪ Promote disaster resistance and mitigation with those providing elder services
Public Service Commission	▪ Promote utility safety and reliability
Department of Transportation	▪ Mitigate damage to the state's transportation infrastructure ▪ Evaluate hazard information when designing roads and bridges to mitigate future damages

TABLE 2.2-2
NON-STATE ORGANIZATIONS WITH MITIGATION RESPONSIBILITIES

Organization	Responsibilities
American Red Cross	▪ Promote disaster preparedness ▪ Support local mitigation efforts
Bureau of Indian Affairs	▪ Promote disaster mitigation on tribal lands ▪ Encourage wildfire mitigation in the wildland/urban interface and rangeland areas
Bureau of Land Management	▪ Encourage wildfire mitigation in the wildland/urban interface and rangeland areas
FireSafe Montana, Keep Montana Green	▪ Encourage wildfire mitigation in the wildland/urban interface and rangeland areas
Federal Emergency Management Agency	▪ Promote disaster mitigation ▪ Provide grants for mitigation activities ▪ Review and approve state and local mitigation plans ▪ Administer the Hazard Mitigation Grant Program and Pre-Disaster Mitigation Competitive grants ▪ Administer the National Flood Insurance Program ▪ Coordinate the National Earthquake Hazards Reduction Program
Indian Health Service	▪ Coordinate preparedness activities for the Tribes
Montana Association of Counties	▪ Inform local governments of mitigation opportunities ▪ Introduce legislation that supports local mitigation goals
Montana Chamber of Commerce	▪ Promote safe, disaster resistant businesses ▪ Encourage and assist with mitigation partnerships
Montana Disaster and Emergency Services Association	▪ Promote mitigation opportunities with local DES coordinators
Montana League of Cities and Towns	▪ Inform local governments of mitigation opportunities ▪ Introduce legislation that supports local mitigation goals
National Park Service	▪ Encourage wildfire mitigation in the wildland/urban interface
National Weather Service	▪ Support mitigation of weather-related hazards in local communities ▪ Provide warning of potential hazards when possible ▪ Provides real time entry in EAS for all weather and non-weather related emergency messages and alerts.
Natural Resources Conservation Service	▪ Protect watersheds through the Emergency Watershed Protection Program ▪ Promote mitigation from all natural hazards ▪ Promote flood mitigation through purchase of easements ▪ Promote resource conservation ▪ Provide technical assistance on hazards to federal, state, local, tribal, and private organizations ▪ Provide technical and financial assistance to private landowners with the use of the Environmental Quality Incentive Program for drought, fire, and erosion
U.S. Army Corps of Engineers	▪ Promote flood prevention ▪ Assist with mitigation on waterways ▪ Assist with the review of mitigation projects under NEPA and USACE permits, as applicable
U.S. Department of Agriculture (NRCS, FSA)	▪ Promote drought mitigation ▪ Encourage wildfire mitigation in the wildland/urban interface
U.S. Environmental Protection Agency	▪ Protect wetlands ▪ Promote safe air quality ▪ Mitigate hazardous materials contamination
U.S. Forest Service	▪ Encourage wildfire mitigation in the wildland/urban interface
U.S. Geological Survey	▪ Monitor river levels ▪ Study seismic and other geologic hazards

The SHMO and Contractor interacted with a number of federal/state agencies and interested groups for the current planning process. Through regular communications sent to entities on the project Stakeholders List, (e.g. e-mail notifications of meetings, availability of new information on the project website) agencies/organizations who could not participate in the planning process could still stay informed. All Stakeholders were invited to contribute comments on all aspects of the project at any time via the project website or directly to the SHMO or Contractor. More project stakeholders engaged in the 2013 PDM Update planning effort than in 2010.

The SHMO is interested in establishing a formal mechanism for state-interagency mitigation coordination and acknowledges that a formal mechanism would strengthen the planning process and improve opportunities for mitigation throughout the state. Individuals representing their state/federal agencies were generally enthusiastic about incorporating mitigation into their programs and embraced the State's mitigation strategy, which was an improvement over the 2010 planning effort. Each agency was assigned responsibility to implement a variety of mitigation projects and agreed to be held accountable.

Specific agencies who engaged in the 2013 State PDM Plan update (beyond participating in the one Planning Team meeting) included:

- Department of Administration – Coordinated on which of the 4,000+ state-owned and leased facilities were "critical" or "essential" so that spatial coordinates could be determined.
- Department of Commerce – Reviewed and updated mitigation strategy assigned to the Montana Heritage Commission.
- Department of Labor and Industry – Reviewed and updated mitigation strategy assigned to the Governor's Office of Community Development.
- Department of Natural Resources and Conservation – Provided data on wildfire and flooding and dams. Reviewed and updated mitigation strategy assigned to their agency.
- Department of Public Health and Human Services - Reviewed and updated mitigation strategy assigned to their agency. Reviewed and updated communicable disease hazard profile.
- Office of Public Instruction – Reviewed and promoted mitigation curriculum developed for secondary schools.
- USDA Forest Service – Contributed wildfire data for risk assessment.
- USDI Bureau of Land Management – Contributed inundation maps for agency-owned dams to be digitized for GIS layer. Contributed wildfire data for risk assessment.
- FireSafe Montana – Requested DES make a presentation on the State Plan Update at their annual meeting in March 8, 2013.

2.3 INTEGRATION WITH OTHER STATE PLANS AND PROGRAMS

An assessment of planning efforts at the State level was conducted by the Contractor after researching and contacting various federal and state agencies. A description of the initiatives, goals in common, and opportunities for the integration of mitigation measures found is provided below.

State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment

The State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment (created in 2004 and updated in 2007 and 2010) was developed to comply with the requirements of the Disaster Mitigation Act of 2000. State Hazard Mitigation Plans are required by FEMA to be updated every three years; therefore, this Plan will be incorporated into and – will be replaced by the 2013 State Plan Update. The plan is maintained at Montana DES by the SHMO.

Hazard Mitigation Grant Program Administrative Plan - August 2008

The Hazard Mitigation Grant Program (HMGP) Administrative Plan required for the HMGP post-disaster mitigation will continue to be an important guiding document for managing HMGP projects. This administrative plan describes the process used to solicit communities for projects, select projects, and then manage the grant program to fund the projects. Attachments include sample press releases, letters, and reports and instructions for National Emergency Management Information System (NEMIS) procedures. The Pre-Disaster Mitigation (PDM) program will be managed in a very similar fashion, and therefore, the HMGP Administrative Plan will serve as an initial management guide for the PDM program. Ideally, a future opportunity will allow for the integration of the two programs and the administrative document into the Multi-Hazard Mitigation Plan and Statewide Hazard Assessment. The current HMGP administrative plan is maintained at Montana DES by the SHMO.

Montana Disaster and Emergency Plan – no date

The Montana Disaster and Emergency Plan, essentially the Emergency Operations Plan for the State of Montana, addresses the actions the State will take during times of disaster. Mitigation is an important aspect of the operations. The State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment will replace the previous Hazard Mitigation Plan as Volume 17 of the Montana Disaster and Emergency Plan. The Montana Emergency Coordination Plan is the coordinating and policy document for the Montana Disaster and Emergency Plan. Terrorism and Hazardous Materials are addressed in annexes to this document. The Montana Disaster and Emergency Plan is maintained at Montana DES.

Local Emergency Operations Plans

Many counties and tribes in Montana have Emergency Operations Plans. The primary purpose of these plans is to maximize survival of people, prevent and/or minimize injuries, and preserve property and resources by making use of all available manpower, equipment, and other resources in the event of a natural, man-made, or national security emergency/disaster. Concepts of operations include mitigation and mitigation measures, increased readiness, emergency actions, and recovery actions. Mitigation typically involves restricting development in hazardous areas, promoting fire prevention, working with commerce and industry to improve hazardous materials storage, use, transportation and disposal, and maintaining shelter/mass care and evacuation annexes. Local Emergency Operations Plans are typically maintained by local disaster and emergency management coordinators and are integrated into Local PDM Plans.

Montana's Homeland Security Strategic Plan – January 2010

Montana's Homeland Security Strategic Plan was developed by the Montana Strategic Planning Committee for Homeland Security with the purpose to "…identify strategic direction for enhancing local, tribal, regional, and state capability and capacity to prevent and reduce Montana's vulnerability from Weapons of Mass Destruction (WMD) terrorism incidents." Two of the four priorities of this plan relate directly to hazard mitigation as follows:

- Enhance detection, prevention, and mitigation, which include intelligence capabilities.
- Identification, documentation, protection, and hardening of critical infrastructure.

The focus to "incorporate an all-hazard approach into WMD terrorism planning" is also similar to the goals of hazard mitigation. This strategic plan supplements the hazard assessment done for the statewide mitigation strategy through a detailed, non-public analysis of the terrorist threats to the State of Montana. The strategic plan is maintained by and will continue to be revised by Montana DES through the Homeland Security Senior Advisory Committee and remain an important piece of the statewide hazard mitigation strategy.

Montana COOP and COG Plans

The State of Montana prepared a Continuity of Operations (COOP) Plan, an agency-wide effort to ensure the continued performance of essential government functions during times of natural disaster, security intrusions and/or acts of terrorism. Ten state agencies, identified as having a lead responsibility in emergency coordination, determined their agency's critical or essential function(s), staffing and resource requirements, critical systems, vital files, records or databases(s), and alternate facility needs. A software product was then used to generate agency-specific COOP plans which were incorporated into Montana's Continuity of Government (COG) Plan (Volume XV). Disaster mitigation is a key consideration in COOP and COG planning (e.g. non-structural mitigation projects are needed to protect data center equipment

from non-catastrophic earthquakes). The Montana COOP Plan is maintained by Montana DES with information technology responsibilities being managed by the Montana Department of Administration, Information Technology Services Division.

State and Local Human Disease and Public Health (Pandemic Influenza) Emergency Plan

The State of Montana, as well as local counties and tribes, have been involved in pandemic influenza preparedness efforts. States and local communities are responsible under their own authorities for responding to an outbreak within their jurisdictions and having comprehensive pandemic preparedness plans and measures in place to protect their citizens. The focus of these planning efforts is on practical, community-based procedures that could prevent or delay the spread of pandemic influenza, and help to reduce the burden of illness communities would contend with during an outbreak. With all "preparedness" plans there is a mitigation component. The Montana Department of Public Health and Human Services maintains the State's Pandemic Influenza Emergency Plan and County/Tribal Health Departments maintain local plans.

Montana Department of Agriculture Emergency Response Plan

The Montana Department of Agriculture has developed an Agro-Emergency Response Plan to address policies and procedures that will minimize the impact of a deliberate or unintentional incident related to the State's crop production. The purpose of the plan is to provide for rapid response to significant threats to plants that may impact food safety and public health. The plan provides guidance to mitigate against exotic plant pests and other agricultural emergencies.

Guidelines for Montana Agricultural Emergencies for Local and Tribal Governments

Montana Departments of Livestock, Agriculture, Fish Wildlife and Parks, and Public Health and Human Services are charged with protecting public health, the safety of the food supply, and the integrity of animal and plant agriculture industries in Montana. These agencies have developed guidelines for Montana Agricultural Emergencies for Local and Tribal Governments to heighten biosecurity awareness and give direction to address agricultural emergency.

Montana Individual & Family Grant Program Administrative Plan – August 2000

The Montana Individual & Family Grant Program Administrative Plan addresses the procedures used to provide Individual and Family Grant assistance to customers. This program provides financial assistance for housing, personal property, transportation, medical and funeral expenses, and other personal necessities following a Presidential disaster declaration. As it relates to mitigation, this Administrative Plan addresses the flood insurance purchase requirements, rebuilding to current building code standards, and fuels reduction activities for individuals during the recovery from a disaster. The program, by design, encourages mitigation

following an event and will continue to do so. Montana DES maintains the Individual & Family Grant Program Administrative Plan.

Montana Public Assistance Administrative Plan – March 2010

The Montana Public Assistance Administrative Plan focuses on the recovery of public assets and expenses following a disaster. The Public Assistance program provides assistance with repairing damaged public buildings, roads, bridges, water control facilities, utility systems, parks, and other publicly owned entities. Section 406 of the Stafford Act allows for the funding of mitigation to damaged facilities and infrastructure to prevent similar losses in the future. Therefore, following a disaster, mitigation activities to be conducted as part of the facility or infrastructure repair are guided by this administrative plan. The State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment will be incorporated into the Public Assistance Administrative Plan where applicable. In addition, future updates of this Plan will outline the details related to the Disaster Mitigation Act of 2000 and mitigation planning. Montana DES maintains the Montana Public Assistance Administrative Plan.

Long Range Building Program

The Long Range Building Program is Montana's program for capital projects of State owned facilities. The six year schedule of capital expenditures lists needed projects and estimated costs. This program, established by the legislature in 1965, is the financial mechanism for constructing and providing significant maintenance to state buildings. It is the "single, comprehensive and prioritized plan to allocate state resources."

Projects are submitted by state agencies during even numbered years for consideration. Each agency prioritizes its own projects based on their capital improvement goals prior to submission. The proposed projects are then reviewed by the Department of Administration, Architecture and Engineering Division and prioritized statewide. This list of prioritized projects is then submitted to the Governor for inclusion in the Governor's Budget presented to the state legislature. Once approved by the legislature, the projects can be initiated, when funded.

This program is critically important to the mitigation of hazards on state owned facilities, including the universities. All capital improvements over $150,000, including those funded federally or otherwise, are submitted through this program. The factors considered during the prioritization process include the project justification, program impact, cost, relationship to any overall long range strategic and site plans, and other pertinent factors. The project's ability to receive approval from the legislature and how well it balances the agency's needs are additional important factors.

Aspects of hazard mitigation are considered during the proposed project's evaluation such as determining if the structure is or will be in the floodplain and requiring new buildings to meet

building code standards. Special consideration for life, safety, and hazard mitigation is given when identified by the submitting agency. In addition, evaluators from the Architecture and Engineering Division are educated on hazards on a regular basis.

Montana Department of Transportation

Although not specifically detailed in a plan, the Montana Department of Transportation (MDT) has hazard mitigation integrated into the planning, design, and engineering of its road, bridge, and facility projects. Hazards, such as flooding, avalanche, landslide, and earthquake, are considered by designers and engineers when developing construction projects. Hazard information is often relayed to the designers and engineers by employees in the field that manage the roadway infrastructure on a day to day basis. Hazards are typically mitigated during major road repairs, and when possible, are prevented through minor repair projects and regular maintenance. MDT has a responsibility to prevent damages from disasters, natural or manmade, to the highway infrastructure and the surrounding environment. In addition to the road infrastructure, hazards are considered during facility design as well. Snow loads, in addition to the other hazards, are considered when designing those facilities, especially considering operational MDT facilities are often critical for response operations during a disaster. MDT will continue to evaluate hazard mitigation opportunities on an ongoing basis and copies of the hazard assessment will be distribute to those designers and engineers developing projects for their additional consideration.

Montana Floodplain Management Strategic Plan

A strategic plan for mapping and coordinating the management of the floodplains in Montana under the National Flood Insurance Program and the Map Modernization Program is currently in development by the State Floodplain Manager, Department of Natural Resources and Conservation (DNRC). Although not completed yet, this strategic plan will guide the important mitigation task of updating floodplain mapping and information. This document will serve as a supplement to the State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment.

Montana Ground Water Plan

The Montana Ground Water Plan, initiated in 1992 as required by Montana Law, addresses ground water issues and "...must set out a progressive program for the conservation, development, and utilization of the state's water resources…" (Montana Code Annotated <MCA> 85-1-203) Protection, education, and remediation are the three major subsections of the plan. This plan is important to hazard mitigation as it relates to flooding, drought, hazardous materials spills, and public health. The primary focus of the plan is on ground water issues such as supply and contamination and not those specifically related to disaster mitigation. For

legislation related to this plan see Title 85, Chapter 1, Part 2 MCA. The Montana Ground Water Plan is maintained by the Montana DNRC.

Montana Drought Response Plan

The Montana Drought Response Plan was written to enable the Montana Drought Advisory Committee "…to take measures appropriate for the mitigation of drought impacts to the people and natural resources of Montana." The Response Plan serves as a guide for assessing the impacts of drought and making recommendations for actions that mitigate its effects on the population, economy, and environment. The Plan also describes the different agency responsibilities as they relate to drought. Although drought mitigation is mentioned numerous times in the Plan, the actions are in response to existing or forecast drought conditions, not actions that can be taken prior to a drought developing. This plan is maintained by the Montana Drought Advisory Committee, a multi-agency committee required by state law, MCA 2-15-3308.

Montana Wildfire Event Action Plan for the Mitigation of Public Health Impacts Caused by Smoke from Wildfire Events

The Montana Wildfire Event Action Plan focuses on the monitoring and notification actions to be taken by the State for air quality during wildfire events. The issue of public information and suggested actions such as staying indoors, etc. is addressed. This course of action is in line with the objectives of the State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment. Additional integration of mitigation measures is not required. The Wildfire Event Action Plan is maintained by the Montana Department of Environmental Quality, Air Resources Management Bureau.

Montana Citizen Corp

The Montana Citizen Corp is organized under the Montana Office of the Governor and is coordinated nationally by the Department of Homeland Security. The purpose of the Citizen Corp is to promote volunteer service activities that support homeland security and community safety. Service programs such as AmeriCorps support Citizen Corps activities by helping to establish training and information delivery systems for neighborhoods, schools, and businesses, and by helping with family preparedness and crime prevention initiatives in a community or across a region. The Montana Citizen Corp has assisted with hazard mitigation activities around the state including removal of woody debris from flood-prone drainages and distribution of public outreach materials.

Montana University System Pre-Disaster Mitigation Plans

The Montana University System received a PDM planning grant to prepare Pre-Disaster Mitigation Plans for eight of its Montana campuses including: The University of Montana (UM)-

Missoula, UM-Western, UM-Helena College of Technology, Montana Tech of UM, Montana State University (MSU)-Bozeman, MSU-Billings, MSU-Northern, and MSU-Great Falls College of Technology. These plans outline mitigation strategies to create Disaster Resistant Universities and have been reviewed and when finalized will be incorporated into the State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment where applicable. All of these plans were FEMA approved in 2007. Montana Tech and MSU-Bozeman received funding (via DR-1996) to update their PDM Plans and these updates are scheduled to be completed during 2013 and 2014.

Local Pre-Disaster Mitigation Plans

The Local Pre-Disaster Mitigation Plans (County and Tribal PDM Plans), a vital piece of the State's mitigation strategy, have been reviewed and incorporated into the State Plan, both electronically as linked documents and as annexes to the State Plan. Approved Local PDM Plans are maintained by the respective local jurisdictions and must be reviewed and resubmitted for approval by the State annually and at least every five years by FEMA, per State and FEMA requirements.

3.0 STATE PROFILE

Montana is a large, sparsely-populated State with an economy that has historically depended on agriculture and natural resource-linked industries. The open plains of central and eastern Montana provide land for grain farming, grazing for large herds of beef cattle, oil and gas fields, and rich coal deposits. The mountainous regions of western Montana yield timber for wood products manufacturing and minerals for mining. Recent years, however, have seen the state relying less on its wood products industry and a boom in the natural resource driven economy of energy development.

The Continental Divide runs through Montana along the crests of the Rocky Mountains from Canada to Mexico, literally dividing the waters of the North American Continent. Montana is known as the headwaters state because much of the water which flows to the rest of the nation comes from the mountains of Montana. Two of the nation's major river systems, the Missouri and Columbia, are born high in the Rocky Mountains of Montana. **Table 3-1** presents Montana State Facts.

TABLE 3-1
MONTANA STATE FACTS

Admitted to the United States:	Nov. 8, 1889, the 41st state
Population:	998,199 (2011 Census estimate). Increase of 0.9% since 2010 census. According to the 2010 Census, Montana has 6.8 persons per square mile and is the 44th most populous state
Capital City:	Helena, population is 28,592 (2011 Census estimate). Increase of 1.4% since 2010 census.
Largest City:	Billings, population is 105,636 (2011 Census estimate). Increase of 1.4 % since 2010 census.
State Name:	"Montana" is from the Latin word for "mountainous region"
Size:	147,046 square miles in total area 145,556 square miles in land area 1,490 square miles in water area 94,109,440 total acres 4th largest state Greatest distance from East to West boundary: approx. 550 miles Greatest distance from North to South boundary: approx. 320 miles in western Montana and approx. 280 miles in eastern Montana
USGS Physiographic Regions:	Rocky Mountain Region in the west; Great Plains in the east
Number of Counties:	56
Number of Tribal Reservations:	7
Number of Incorporated Cities and Towns:	126
Longitude and Latitude:	Between 44 degrees 26' and 49 degrees North Latitude and 104 degrees 2' and 116 degrees 2' West Longitude
Highest Point:	12,799 feet (3,901 meters) above sea level at the summit of Granite Peak in Park County near the south central boundary
Lowest Point:	1,820 feet in Lincoln County in the northwest corner where the Kootenai River enters Idaho
Mean Elevation:	3,400 feet
Length of Canada/ US Border	545 miles

3.1 CLIMATE

The climate of Montana, as described by the Western Regional Climate Center, is presented below. (http://www.wrcc.dri.edu/narratives/MONTANA.htm)

Topography – Montana, with an area of 145,556 square miles, has large climatic variations. The half of the State southwest of a line from the southeastern corner to the Canadian Border north of Cut Bank in Glacier County is very mountainous, while the northeastern half is very much like Great Plains country, broken occasionally by wide valleys and isolated groups of hills. The extent of the climatic variations is indicated by the range in elevation of from 1,800 feet above sea level where the Kootenai River enters Idaho to 12,850 feet at Granite Peak near Yellowstone Park. Half the State lies over 4,000 feet above sea level.

The Continental Divide traverses the western half of the State in roughly a north-south direction. To the west of the Divide, Montana is drained by the Kootenai, Clark Fork, and Flathead Rivers into the Pacific Ocean through the Columbia River. Many of the tributary streams in this region have their origin in the high western slopes of the Rockies. Most streams traverse narrow canyons, at least through parts of their length, affording many valuable waterpower sites. A relatively small area located between the Hudson Bay Divide and the Rocky Mountains is drained by the St. Mary River, which finds its way to Hudson Bay through the Saskatchewan River. The remainder of the State is drained by the Missouri River, which is formed by the confluence of the Gallatin, Madison, and Jefferson Rivers at Three Forks, and travels northward through deep canyons in the Big Belt Mountains, and flows through the lower lying northeastern portion of the State. The Yellowstone River, the principal tributary of the Missouri in Montana and which has its source in Wyoming, drains the southeastern section of the State and has its confluence with the Missouri just east of the Montana-North Dakota line.

The Continental Divide exerts a marked influence on the climate of adjacent areas. West of the Divide the climate might be termed a modified north Pacific coast type, while to the east, climatic characteristics are decidedly continental. On the west of the mountain barrier winters are milder, precipitation is more evenly distributed throughout the year, summers are cooler in general, and winds are lighter than on the eastern side. There is more cloudiness in the west in all seasons, humidity runs a bit higher, and the growing season is shorter than in the eastern plains areas.

Temperature – Cold waves, which cover parts of Montana on the average of 6 to 12 times a winter, are confined mostly to the sections northeast of a Glacier Park – Miles City line. A few of these cold waves cover the entire area east of the Divide, and will cover the State all the way from the Dakotas to Idaho. These cold waves do not now hold the dangers they did years ago before transportation, roads, communications, and even heating plants developed to their present levels. However, with temperatures well below zero accompanied by strong winds with blowing snow, these cold waves can be very inconvenient and even dangerous to the careless or inexperienced. In small areas ideally situated for radiation cooling, low temperatures can fall

to -50° F or lower. The coldest ever observed was -70° F at Rogers Pass, 40 miles northwest of Helena, on January 20, 1954. This is the coldest of record for the entire United States, exclusive of Alaska. In contrast, the low at Helena that morning was only -36°F.

During the summer months hot weather occurs fairly often in the eastern parts of the State. The highest ever observed was 117° at Glendive on July 20, 1893, and Medicine Lake on July 5, 1937. Temperatures of over 100° sometimes occur in the lower elevation areas west of the Divide during the summer, but hot spells are less frequent and of shorter duration than in the plains sections. Hot spells nowhere become oppressive, however, because summer nights almost invariably are cool and pleasant. In the areas with elevations above 4,000 feet, extremely hot weather is almost unknown. Summer days, however, are usually warm enough for light summer clothing.

Winters, while usually cold, have few extended cold spells. Between cold waves there are periods, sometimes longer than 10 days, of mild but often windy weather. These warm, windy winter periods occur almost entirely along the eastern slopes of the Divide and are popularly known as “Chinook” weather. The so-called “Chinook” belt extends from the Browning-Shelby area southeastward to the Yellowstone Valley above Billings. Through this belt, “Chinook” winds frequently reach speeds of 25 to 50 mph or more and can persist, with little interruptions, for several days. In January, the coldest month, temperature averages range from 11° F in the northeastern portion of the State to 22° F for the south-central region (upper Yellowstone Valley). In some areas east of the Continental Divide, January or February can average zero or below, but such occurrences range from infrequent to about once in 10 to 15 years in the coldest spots. Most Montana lakes freeze over every winter, but Flathead Lake between Polson and Kalispell, freezes over completely only during the coldest winters, about 1 year in 10. All rivers carry floating ice during the late winter or early spring. Few streams freeze solid; water generally continues to flow beneath the ice. During the coldest winters “anchor” ice, which builds from the bottom of shallow streams, on rare occasions causes some flooding.

In July, the warmest month, temperature averages range from 74° in the southeastern portion of the State to 64° F in the southwest. This mid-summer warmth is fairly steady, very seldom severe, and is tempered by normal nighttime minimums in the 50’s and 60’s. Miles City, one of the State’s warmest places in July, has a July average minimum temperature of 60° and an average maximum of 90° F. Generally, adequate moisture permits rapid plant and crop development during most growing seasons.

The world record for a 24-hour temperature change occurred in Loma, Montana (Chouteau County) on January 15, 1972. The temperature rose 103 degrees, from -54°F to 49°F. The coldest temperature ever recorded in Montana was -70°F at Rogers Pass north of Helena (Lewis and Clark County), on January 20, 1954, a national record for the lower 48 states. Montana has reached 117°F twice in recorded history – the first time in Glendive (Dawson County) on July 20, 1893 and then again in Medicine Lake (Sheridan County) on July 5, 1937.

Tables 3.1-1 and 3.1-2 show the five hottest places and the five coldest places in Montana, respectively.

TABLE 3.1-1
FIVE HOTTEST PLACES IN MONTANA

Location	County	Average Daily High in July
Hardin	Big Horn	91.4°F
Birney	Rosebud	90.7°F
Mizpah	Custer	90.6°F
Brandenberg	Rosebud	90.2°F
Lame Deer	Rosebud	90.2°F

Source: National Weather Service, 2013

TABLE 3.1-2
FIVE COLDEST PLACES IN MONTANA

Location	County	Average Daily Low in January
Westby	Sheridan	-2.5°F
Medicine Lake	Sheridan	-1.9°F
Opheim	Valley	-1.5°F
Scobey	Daniels	-0.7°F
Wolf Point	Roosevelt	-0.3°F

Source: National Weather Service, 2013

Precipitation – Precipitation varies widely and depends largely upon topographic influences. Areas adjacent to mountain ranges in general are the wettest, although there are a few exceptions where the “rain shadow” effect appears. Generally, nearly half the annual long-term average total falls from May through July. This is perhaps the main reason why Montana in consistently one of the largest producers of dryland grain crops. The western portion of the State is the wettest and the north-central the driest. There are a few valleys in the western portion of the State that are relatively dry, as reflected by Deer Lodge and Lonepine averages of 11.00 and 11.46 inches respectively. Probably the driest part of the State is along the Clark Fork of the Yellowstone River in Carbon County. In this area, 8 miles south-southwest of Belfry, the average precipitation for a 16-year period is 6.59 inches. The highest average in the State is 34.70 inches at Heron.

Annual snowfall varies from quite heavy, 300 inches, in some parts of the mountains in the western half of the State, to around 20 inches in the northern portion of the State east of the Continental Divide. Most of the larger cities have annual snowfall within the 30 to 50 inch range. Most snow falls during the November-March period, but heavy snowstorms can occur as early as mid-September or as late as May 1 in the higher southwestern half of the State. In eastern areas early or late season snows are not very common. Mountain snowpacks in the wetter areas often exceed 100 inches in depth as the annual snow season approaches its end around April 1 to 15.

The greatest volume of flow of Montana's rivers occurs during the spring and early summer months with the melting of the winter snowpack. Heavy rains falling during the spring thaw constitute a serious flood threat. Ice jams, which occur during the spring breakup, usually in March, cause backwater flooding. Flash floods, although restricted in scope, are probably the most numerous and result from locally heavy rainstorms in the spring and summer. Damaging floods have occurred in 1952, 1953, and 1964.

Table 3.1-3 shows the five wettest places in Montana.

TABLE 3.1-3
FIVE WETTEST PLACES IN MONTANA

Location	County	Average Annual Precipitation
Heron	Sanders	33.74 inches
Hungry Horse	Flathead	32.94 inches
Bozeman	Gallatin	32.26 inches
Haugen	Mineral	30.70 inches
West Glacier	Flathead	29.15 inches

Source: National Weather Service, 2013

Other Climatic Features – Severe storms of several types can occur, but the most troublesome are hailstorms which cause crop and property damage averaging about $5 million annually. This is not unusually large for an area of 146,000 square miles, however, and their occurrence is limited mainly to July and August, infrequently in June and September.

Tornadoes develop infrequently (about 2 per year) and occur almost entirely east of the Divide, largely in the eastern third of the State. Severe windstorms of a general nature are rare but can occur locally, mainly east of the Divide, from a few to several times a year. Drought in its most severe form is practically unknown, but dry years do occur in some sections. All parts of the State rarely suffer from dryness at the same time. The only exceptions on record occurred during the 1930 decade. Drought infrequently lasts 2 or 3 years in one or two of the State's climatic subdivisions.

Water supplies in the mountainous southwestern half of the State are generally ample and of excellent quality. In the northeastern half of the State water supplies are generally dependable, but the water has a variable "hard" quality, particularly where wells are used. There are numerous irrigation projects for which water supplies are usually sufficient. Irrigated crops which do well are potatoes, sugar beets, sorghums, alfalfa, and many varieties of grain. Smaller quantities of other fairly hardy crops are grown under irrigation. Wide open areas of rangeland provide excellent quality grass for an extensive livestock industry. Between livestock and other agriculture, Montana has developed into an important food supply State. In spite of figures that may indicate winters on the cold side, growing seasons (freeze-free periods) are 4 months or more in length in much of the agricultural area. In parts of the middle Yellowstone Valley, in fact, the freeze-free period runs as long as the 150-day average at Miles City. Much of the

State has average freeze-free periods longer than 130 days, allowing plenty of time for growing a wide variety of crops. There is no freeze-free period in many higher valleys of the western mountains, but hardy and nourishing grasses thrive in such places, producing large amounts of high-quality grazing for stock.

The U.S. Environmental Protection Agency published an article on *Climate Change and Montana* (EPA, 1997). Sections of this article are reproduced below as they pertain to the natural hazards that affect Montana.

Local Climate Change

Over the last century, the average temperature in Helena has increased 1.3°F and precipitation has decreased by up to 20% in many parts of the state. Over the next century, climate in Montana may change even more. For example, based on projections made by the Intergovernmental Panel on Climate Change and results from a model that accounts for both greenhouse gases and aerosols, by 2100, temperatures in Montana could increase by about 4°F in spring and summer and 5°F in fall and winter. Precipitation is estimated to increase by roughly 10% in all seasons except winter, when the range of estimated increase is 15-40%. The amount of precipitation on extreme wet or snowy days in winter is likely to increase. The frequency of extreme hot days in summer would increase because of the general warming trend. Although it is not clear how severe storms would change, an increase in the frequency and intensity of winter storms is possible.

Climate change poses risks to human health and important economic resources such as agriculture, forestry and water resources. Warmer temperatures, more severe droughts and floods and sea level rise could have a wide range of impacts. All these stresses can add to existing stresses on resources caused by other influences such as population growth and land-use changes.

Impacts to Human Health

Higher temperatures and increased frequency of heat waves may increase the number of heat-related deaths and the incidence of heat-related illnesses. Montana, with its irregular, intense heat waves, could be susceptible. The elderly, particularly those living alone, are at greatest risk.

Warming and other climate changes may expand the habitat and infectivity of disease-carrying insects, thus increasing the potential for transmission of diseases. A recent study has concluded that a 5-9°F temperature increase would cause a significant northern shift in Western equine encephalitis outbreaks. Mosquitos capable of transmitting this disease already are present in Montana. If Montana's climate becomes warmer and wetter, mosquito populations could increase and conditions may become more favorable for disease transmission.

Impacts to Water Resources

Water resources are affected by changes in precipitation as well as by temperature, humidity, wind, and sunshine. Changes in streamflow tend to magnify changes in precipitation. Water resources in drier climates tend to be more sensitive to climate changes. Because evaporation is likely to increase with warmer climate, it could result in lower river flow and lower lake levels, particularly in the summer. If streamflow and lake levels drop, groundwater also could be reduced. In addition, more intense precipitation could increase flooding.

Western Montana drains into the Columbia River system, and most of the remaining areas of the state drain to the east into the Missouri River or its major tributary, the Yellowstone River. Winter snow accumulation and spring melt are key processes that affect the runoff of all rivers within the state. A warmer climate would lead to earlier spring snowmelt, resulting in higher streamflows in winter and spring and lower streamflows in summer and fall. Earlier spring snowmelt could reduce the performance of the reservoir system in western Montana, thus reducing summer and fall runoff, which is critical for power generation, fisheries protection, recreation, and other uses. Increased rainfall could mitigate some of these effects, but it also could lead to increased flooding.

Impacts to Agriculture

The mix of crop and livestock production in a state is influenced by climatic conditions and water availability. As climate warms, production patterns could shift northward. Increases in climate variability could make adaptation by farmers more difficult.

Warmer climates and less soil moisture due to increased evaporation may increase the need for irrigation. However, these same conditions could decrease water supplies, which also may be needed by natural ecosystems, urban populations, industry, and other sectors.

In Montana, agriculture is a $1.8 billion annual industry, one-half of which comes from livestock, mainly cattle. Just over 20% of the crop acreage is irrigated. The major crops in the state are wheat, barley, and hay. In a warmer climate wheat yields could increase by more than a third, and changes in barley and hay yields could vary between -8% and +13%, depending on whether irrigation is used, leading to changes in acres farmed and production. An increased dependence on irrigation is possible, depending on the relative balance between rainfall and increased evaporation.

Impacts to Forests

Trees and forests are adapted to specific climate conditions, and as climate warms, forests will change. These changes could include changes in species, geographic range, and health and productivity. If conditions also become drier, the current range and density of forests could be

reduced and replaced by grasslands and pasture. Even a warmer and wetter climate could lead to changes; trees that are better adapted to these conditions, such as fir and spruce, would thrive. Under these conditions, forests could become more dense. These changes could occur during the lifetimes of today's children, particularly if change is accelerated by other stresses such as fire, pests, and diseases.

Some of these stresses would themselves be worsened by a warmer and drier climate. With changes in climate, the extent of forested areas in Montana may change little or could decline by as much as 15-30%. The uncertainties depend on many factors, including whether soils become drier and, if so, how much drier. Hotter, drier weather could increase the frequency and intensity of wildfires, threatening both property and forests. Drier conditions could reduce the range and health of lodgepole and Douglas fir forests, and increase their susceptibility to fire. With increases in rainfall, however, these effects could be less severe. Grass and rangeland could expand into previously forested areas along the eastern slope of the Rocky Mountains and into some of the western valleys. Milder winters could increase the likelihood of insect outbreaks and of subsequent wildfires in the dead fuel left after such an outbreak. These changes would significantly affect the character of Montana forests and the activities that depend on them.

3.2 INVENTORY OF ASSETS

Hazards have the potential to impact the State in various ways. Hazards can increase the risk of death or injury to residents and visitors. Hazards can damage the built environment and the State's investment in public office buildings, colleges, hospitals, and prisons. Damages from hazards can interrupt the State's infrastructure, including highways, telecommunications, power distribution systems, conveyance of water, and collection of wastewater. Disasters caused by hazards can also adversely affect the State economy. The intent of this section is to describe the State's assets, and where possible, assign potential dollar values to them.

The inventory first defines State building assets which include a complete inventory of State-owned buildings and leased buildings, their content values, and real property. The inventory includes facilities that, if damaged during a disaster, could affect the ability to respond and protect the population.

State-Owned Buildings and Property

The State of Montana owns and leases approximately 4,425 buildings with a total estimated value of $3.5 billion. Buildings are located in every county in the State with government complexes concentrated in Helena and higher education complexes in Missoula, Bozeman, Butte, Billings, Havre, Dillon, and Great Falls.

Table 3.2-1 summarizes the buildings by agency and includes square footage, building value, building content value, and special content value. The University System has the largest

complex of buildings (approximately 1,100 or 25% of the total), with an estimated value of $3.2 billion including content value. The Department of Administration has the next largest group of buildings, primarily associated with the Capitol Complex. The 68 Administration buildings have an estimated total value of $410 million (with contents), including the $128 million Capitol building. The State building complexes and large facilities, with structure values over $10 million, are summarized in **Table 3.2-2**.

The Property Casualty Insurance Information System (PCIIS) database of the Montana Department of Administration, Risk Management and Tort Defense Division assigns building locations by address and city, but digital parcel location attributes are not included in the database. As part of this project, State-owned "essential" facilities were geo-referenced to use in the hazard analysis.

The State of Montana owns real property scattered throughout the state, including State highways, government office property, land in waterways, and School Trust property. The most significant land holdings are classified as School Trust property. A summary of the State real property, exclusive of highways and waterways, is shown in **Table 3.2-3**.

The Montana Department of Natural Resources and Conservation (DNRC) administers all School Trust land granted to the State through the Federal Enabling Act of 1899. This act provided over 5 million acres to the State to be managed for common school support. The trust beneficiaries include the K-12 public schools, institutions for higher education, Pine Hills Youth Correctional Facility, Montana School for the Deaf and Blind, and Montana Veteran's Home. The current surface acreage is less than the original grant due to land exchanges, incorporation by tribal reservations, and lands deeded before the Enabling Act.

TABLE 3.2-1
CONTENT AND STRUCTURE VALUE BY STATE AGENCY

Agency	Square Feet	No. of Buildings	Building Structure Value	Building Content Value	Special Content Value	Total Value
Auditor's Office	26,276	1	$0	$626,803	$56,000	$721,063
Board of Public Education	164,396	15	$19,177,116	$2,687,444	$490,000	$22,354,560
Department of Administration	1,456,095	65	$319,466,705	$55,310,009	$35,601,060	$410,377,774
Department of Agriculture	50,714	23	$508,019	$3,136,329	$558,128	$4,202,476
Department of Commerce	194,089	10	$25,647,028	$2,246,471	$808,000	$28,701,499
Department of Corrections	1,277,751	173	$178,741,647	$29,826,041	$7,767,892	$216,335,580
Department of Environmental Quality	430,760	36	$2,902,983	$1,377,590	$1,622,165	$5,902,738
Department of Fish, Wildlife and Parks	814,551	975	$62,100,447	$9,562,299	$11,285,904	$82,948,650
Department of Justice	320,326	84	$15,115,970	$11,927,344	$13,060,926	$40,104,240
Department of Labor & Industry	224,372	50	$9,572,982	$7,507,232	$1,304,609	$18,384,823
Department of Livestock	10,409	15	$0	$503,743	$262,233	$765,976
Department of Military Affairs	901,159	95	$141,620,484	$20,908,743	$3,128,892	$165,658,119
Department of Natural Resources	500,679	232	$37,236,792	$18,833,403	$2,703,400	$58,773,595
Department of Revenue	235,922	62	$6,415,058	$7,297,096	$15,016,444	$28,728,598
Department of Transportation	2,064,952	809	$160,731,352	$26,322,830	$12,241,364	$199,295,546
Montana Art's Council	3,285	1	$0	$110,396	$0	$110,396
Montana Heritage Commission	194,096	254	$28,884,340	$1,659,951	$1,767,300	$32,311,591
Historical Society	726,652	8	$2,981,990	$349,372	$4,394,847	$7,726,209
Montana State Library	103,864	0	$0	$0	$1,824,533	$1,824,533
Office of Public Instruction	33,264	32	$0	$436,845	$520,000	$956,845
Public Defenders Office	70,284	21	$0	$3,596,509	$371,527	$3,968,036
Public Employees Retirement Division	14,686	1	$0	$715,529	$0	$753,789
Public Health & Human Services	1,545,215	187	$102,486,283	$46,641,254	$22,910,988	$172,038,525
Secretary of State	-	0	$0	$0	$729,250	$729,250
State Fund	117,955	4	$27,888,738	$3,925,897	$4,996,527	$36,811,162
Supreme Court – Judiciary	119,469	3	$0	$535,371	$9,072,158	$9,607,529
University System	19,556,562	1,352	$2,339,506,329	$496,161,498	$370,539,755	$3,225,775,129
TOTALS	**31,157,783**	**4,508**	**$3,480,984,263**	**$752,205,999**	**$523,033,902**	**$4,775,868,231**

Source: DOA-RMTD, 2012
Note: Those structure values of $0 represent leased buildings, not state-owned.

TABLE 3.2-2
MAJOR STATE BUILDINGS/COMPLEXES

Agency	Complex/Building	Location	Structure Value	Aggregate Content Value	Employees
Administration					
	Capitol Complex	Helena	$638,200,332	$175,981,185	3,333
Department of Corrections					
	Women's Prison Complex	Billings	$25,593,828	$2,861,087	73
	Pine Hills School	Miles City	$19,579,419	$3,110,292	134
	State Prison	Deer Lodge	$90,981,896	$7,677,248	300
Natural Resource & Conservation					
	Toston Dam Power House	Toston	$14,463,227	$10,198,012	0
Transportation					
	Helena Headquarters Complex	Helena	$36,280,552	$13,624,319	639
Health & Human Services					
	Montana Developmental Center	Boulder	$27,721,900	$7,815,847	226
	State Hospital	Warm Spr.	$38,651,933	$10,116,845	435
Board of Education					
	School for the Deaf & Blind	Great Falls	$19,177,116	$3,151,331	84
Montana University System					
	Helena College	Helena	$34,981,439	$13,749,736	171
	MSU-Billings	Billings	$169,150,070	$63,910,620	642
	MSU-Bozeman	Bozeman	$857,762,308	$451,521,761	2,949
	MSU-Northern	Havre	$95,285,314	$25,446,030	175
	Montana Tech	Butte	$145,108,909	$63,655,554	281
	Great Falls College	Great Falls	$54,228,567	$7,775,741	154
	UM-Missoula	Missoula	$838,695,834	$207,316,954	2,887
	UM-Western	Dillon	$96,974,311	$19,230,958	531

Source: DOA-RMTD, 2012

TABLE 3.2-3
MONTANA STATE TRUST LAND ACREAGE

Land Grant	Total Agriculture	Total Grazing	Total Forest	Total Real Estate	Total Coal	Total Oil/Gas
Acquired Lands – Public Schools	0	0	32,295	0	0	0
MSU- Morrill Grant	2,014	55,216	5,512	681	77,929	77,929
MSU- Second Grant	84	8,410	22,640	872	47,404	46,918
Common Schools	556,930	3,709,916	340,053	17,859	5,437,937	5,597,451
School for the Deaf and Blind	1,409	24,217	10,399	436	41,171	41,171
Capitol Buildings	4,232	106,675	71,950	1,825	227,809	172,323
Veterans Home	90	1,270	0	57	1,276	1,276
Montana Tech	6,328	36,802	15,770	461	86,267	86,267
State Normal School	2,474	46,050	14,341	193	83,285	80,135
State Reform School	807	48,399	18,007	84	78,125	73,488
University of Montana	1,869	13,514	1,440	21	33,754	33,754
TOTALS	**576,235**	**4,050,468**	**532,407**	**22,489**	**6,114,957**	**6,210,713**

Source: DNRC, 2013

Essential Facilities

Trauma Centers and acute care hospitals provide essential healthcare services to the ill and injured during any public health emergency and the subsequent recovery period. The loss of healthcare services provided by such facilities severely impacts both the community and Montana's ability to provide critical healthcare services to Montana citizens. Supporting Montana's Trauma Centers and larger acute care hospitals is a network 46 Critical Access Hospitals (CAHs) providing immediate emergency care in smaller communities. Most CAHs have received designation in the Montana Trauma System as either Community Trauma Hospitals or Trauma Receiving Facilities ensuring the timely evaluation and transfer of patients to appropriate levels of care. Major hospitals and trauma centers in Montana are listed in **Table 3.2-4**.

TABLE 3.2-4
MAJOR HOSPITALS AND TRAUMA CENTERS IN MONTANA

Hospital Name	Address	City	Trauma	No. of Beds
Billings Clinic	2800 10th Ave N	Billings	Level II	285
St Vincent Healthcare	1233 North 30th Street	Billings	Level II	286
Benefis Healthcare	1101 26th Street South	Great Falls	Level II	264
St Patrick Hospital	500 West Broadway	Missoula	Level II	253
Community Medical Center	2827 Fort Missoula Road	Missoula	Level III	151
Kalispell Regional	310 Sunny view Lane	Kalispell	Level III	163
Bozeman Deaconess	915 Highland Blvd	Bozeman	Level III	86

Emergency operations centers are essential for coordinating and conducting disaster response. They include local police and fire stations, local and State emergency operations centers, National Guard headquarters and operations, and Federal military facilities. Loss of function of these centers may adversely affect communication and direct response activities. Other facilities, such as schools and armories, are used for emergency shelters to house displaced populations. State and Federal emergency operations centers are shown in **Table 3.2-5**.

TABLE 3.2-5
EMERGENCY OPERATIONS CENTERS

Name	Address	City	Function
Montana Army National Guard	Fort Harrison	Helena	National Guard support for disaster response
Army Aviation Support Facility	Helena Airport	Helena	Helicopter support to the Army National Guard
Montana Air National Guard	Malmstrom Air Force Base	Great Falls	Personnel and air support for natural disasters. Civil engineering support for base and contingency operations.
Air Force ICBM Operations Groups	Malmstrom Air Force Base	Great Falls	Launch, monitoring, and security for the Intercontinental Ballistic Missile complex
Montana Highway Patrol	Fort Harrison	Helena	Law enforcement support for disaster response
Montana Disaster & Emergency Services Division	Fort Harrison	Helena	Coordination, logistics, and communications for disaster response

Transportation Systems

Transportation Systems are critical for the movement of the population, mobilization of resources to respond to disasters, and the ability to import resources to restore normality to the population. There are approximately 73,600 miles of public roads and highways in Montana. Approximately 11,760 miles of highway and 2,440 bridges are maintained by the Montana Department of Transportation. The National Highway System, consisting of the Interstate System as well as other roads important to the nation's economy, defense, and mobility, includes of 3,875 miles within the State of Montana.

Approximately 3,370 miles of rail lines traverse Montana. The major rail system operators are Burlington Northern and Montana Rail Link, respectively maintaining 1,846 miles and 817 miles of active track. Amtrak has 12 passenger stations; all located along the section of northern Montana termed the High Line (area flanked by Highway 2) in northern Montana.

Montana has 15 State-owned airports and 102 general aviation airports. The following cities are serviced by regional or commercial carriers: Billings, Bozeman, Butte, Glasgow, Glendive, Great Falls, Havre, Helena, Kalispell, Lewistown, Miles City, Missoula, Sidney, West Yellowstone, and Wolf Point.

Utility Systems

The most essential utility systems in Montana include major electrical generating facilities, transmission networks, natural gas pipelines and petroleum pipelines. These facilities maintain light, heat, and energy resources for Montana and much of the northwestern United States. The location of these facilities in hazard areas increases vulnerability to service disruption and shortages of energy resources. Other critical utility systems, such as potable water supply and wastewater facilities, are owned and operated at the local level.

Montana generates more electricity than it consumes. Montana generating plants have the capacity to produce 5,200 MW of electricity through coal-fired plants and hydroelectric facilities. There are 45 electric generating facilities in Montana. The largest are the four privately owned coal-fired plants at Colstrip, which have a combined capability of 2,094 MW. The largest hydroelectric plant is the U.S. Corps of Engineer's Libby Dam with a capability of 600 MW.

Dams

Approximately 3,638 dams are located within the State of Montana (DNRC, 2012). Of these dams, 189 are high-hazard dams, indicating they are upstream from populated areas. A high-hazard dam is any dam that impounds 50 acre feet of water or more and could cause loss of life downstream if it fails. High-hazard is not a reference to the dam's condition, but rather the potential for the loss of life downstream if the dam were to fail. Of the high-hazard dams, 32 are

over 100 feet high. Of these 32 dams, 14 store more than 100,000 cubic feet of water (**Table 3.2-6**).

TABLE 3.2-6
MONTANA HIGH HAZARD DAMS >100 FEET HIGH OR WITH >100,000 ACRE-FEET OF STORAGE

Dam Name	River	Nearest City	Height (ft)	Storage (acre-ft)	Drainage Area (sq mi)	County(s)	Owner Name
Yankee Doodle Tailings Dam	N/A	Butte	700	Not known	NA	Butte-Silver Bow	Montana Resources
Hungry Horse	South Fork Flathead River	Hungry Horse	524	3,588,000	1,640	Flathead	U.S. Bureau of Reclamation .
Yellowtail (Bighorn Lake)	Bighorn River	Saint Xavier	525	1,381,189	19,650	Big Horn	U.S. Bureau of Reclamation
Libby (Lake Koocanusa)	Kootenai River	Libby	422	6,027,000	8,985	Lincoln	U.S. Army Corps of Engineers.
Fort Peck Dam	Missouri River	Nashua	250	18,463,000	57,500	McCone, Garfield, Valley	U.S. Army Corps of Engineers
Canyon Ferry	Missouri River	Canyon Ferry	225	2,051,000	15,860	Lewis and Clark	U.S. Bureau of Reclamation
Tiber	Marias River	Loma	211	1,515,522	4,923	Liberty	U.S. Bureau of Reclamation
Kerr	Flathead River	Agency	186	1,960,000	7,096	Lake	PPL Montana, Confederated Salish & Kootenai Tribes
Noxon Rapids	Clark Fork, Pend Oreille River	Noxon	179	4,000,000	21,800	Sanders	Avista Corp.
Gibson	Sun River	Sims	199	99,100	575	Teton/Lewis & Clark	U.S. Bureau of Reclamation
Clark Canyon	Beaverhead River	Dillon	148	257,152	1,550	Beaverhead	U.S. Bureau of Reclamation
Hauser Dam	Missouri River	Craig	111	64,253	16,876	Lewis and Clark	PPL Montana
Holter Dam	Missouri River	Craig	124	240,000	17,150	Lewis and Clark	PPL Montana
Fresno	Milk River	Havre	111	129,062	2,828	Hill	U.S. Bureau of Reclamation
Lake Sherburne	Swiftcurrent Creek	Babb	117	64,793	--	Glacier	U.S. Bureau of Reclamation

Source: http://www.usbr.gov/projects/; NID, 2012

Military Facilities

Montana has a large military complex in Great Falls, which includes the 120th Fighter Wing of the Montana Air National Guard and the United States Air Force 819th Red Horse Squadron. In addition, the Montana Army National Guard has facilities in the following cities: Anaconda, Belgrade, Billings, Bozeman, Butte, Chinook, Culbertson, Dillon, Glasgow, Glendive, Great Falls, Hamilton, Harlowton, Havre, Helena, Kalispell, Lewistown, Livingston, Malta, Miles City, Missoula, and Sidney. There are also a small number of Army and Navy Reserve Center components in the State of Montana in various locations.

Montana is the home of approximately 200 Minuteman Inter-Continental Ballistic Missiles, which are overseen by Malmstrom Air Force Base in Great Falls. The Minuteman silos are scattered over various locations in north-central and north-eastern Montana. The missile silos are over 50 years old, and have been updated with new warheads several times. Under the Start II Treaty, the Air Force will "deMIRV" the remaining Minuteman III Missiles now in service, changing them from three-warhead to single-warhead weapons, which are expected to remain operational in the American West until 2020 (Air Force Magazine, 2001).

Colleges and Universities

Colleges and universities are considered potential high loss facilities for several reasons. First, over 50,000 students attend colleges and universities in Montana many of whom are housed on-site during the academic year. These facilities often house expensive research equipment, much of it owned by the State. All colleges and universities home based in Montana, not just those that are state-owned, are listed in **Table 3.2-7**.

TABLE 3.2-7
UNIVERSITIES AND COLLEGES IN MONTANA

College	Average Enrollment
Community Colleges	
Dawson Community College, Glendive	425
Flathead Valley Community College, Kalispell	2,400
Miles Community College, Miles City	550
Montana State University	
Montana State University-Bozeman	14,153
Montana State University-Billings	5,300
Montana State University-Northern, Havre	1,273
Great Falls College-MSU	1,835
City College at MSU Billings	1,336
University of Montana	
University of Montana-Missoula	15,642
Montana Tech, Butte	2,304
University of Montana-Western, Dillon	1,400
Missoula College-UM, Missoula	1,744
Highlands College of MT Tech, Butte	560
Helena College-UM	1,496
Tribal Colleges	
Aaniiih Nakoda College, Harlem	250
Blackfeet Community College, Browning	600
Chief Dull Knife College, Lame Deer	300
Fort Peck Community College, Poplar	450
Little Big Horn College, Crow Agency	Not reported
Salish Kootenai College, Pablo	1,175
Stone Child College, Box Elder	250
Private Colleges	
Carroll College, Helena	1,488
University of Great Falls	1,030
Rocky Mountain College, Billings	950

Sources: Montana, 2012; http://www.montanacolleges.com/colleges/college-profile.php?id=13

The eight main campuses of the Montana University System (UM-Missoula, MSU-Bozeman, Montana Tech of UM (Butte), MSU-Billings, UM-Helena, MSU-Great Falls, MSU-Northern (Havre), and UM-Western (Dillon) completed PDM/Disaster Resistant University (DRU) plans in 2007 that included detailed hazard assessments.

Research Facilities

The majority of university research in Montana, on a wide variety of topics, is conducted at the two universities: UM-Missoula and MSU-Bozeman. In addition, several Federal agencies conduct research, including the U.S. Department of Agriculture (USDA) -Agricultural Research Service (ARS), U.S. Forest Service, Natural Resource Conservation Service) and U.S. Department of Interior (Bureau of Land Management, Fish, Wildlife & Parks Service, and the National Park Service). University and Federal agencies often establish long-term working relationships at fixed facilities scattered around the state.

Two bio-medical research laboratories are located in Montana: Rocky Mountain Labs and the McLaughlin Research Institute. The McLaughlin Research Institute is an independent, non-profit research organization in Great Falls. Research at the institute focuses on understanding the genetic control of normal development and disease susceptibility using the mouse as a model system (MRI, 2012). Rocky Mountain Labs (RML) in Hamilton, a Bio-Safety Level 2 laboratory, studies infectious microbes that cause disease in humans and animals. RML is part of the National Institute of Allergy and Infectious Diseases (NIAID), a component of the National Institutes of Health. NIAID conducts and supports research that strives to understand, treat, and ultimately prevent the myriad infectious, immunologic and allergic diseases that threaten hundreds of millions of people worldwide (RML, 2012).

Hazardous Material Facilities

Hazardous material facilities may or may not be critical for emergency operations; however, these facilities are critical based on their potential to harm the population and the environment. Through intentional or accidental release, the population is at risk should an event result in the uncontrolled release of hazardous substances.

In Montana, approximately 3,875 miles of National Highway System highways are considered major hazardous material transportation routes. According to the Bureau of Transportation Statistics, there are over 3,370 miles of railroad along which hazardous materials are transported. In addition, over 3,000 miles of pipelines transport natural gas, crude oil, and refined petroleum products.

The list of hazardous material facilities was generated by querying the Toxics Release Inventory (TRI) database that is publicly available through the U.S. Environmental Protection Agency (EPA, 2012). The database contains information on specific toxic chemical releases and other

waste management activities reported annually by certain covered industry groups and Federal facilities. This inventory was established under the Emergency Planning and Community Right-to-Know Act of 1986, which requires facilities to use their best readily-available data to calculate their releases and waste management estimates. If facilities do not have actual monitoring data, submitted values are derived from various estimation techniques. Fifty (50) facilities are included on the TRI database for Montana. The 10 facilities with the greatest volume of wastes discharges are shown in **Table 3.2-8.**

TABLE 3.2-8
TOP TEN FACILITIES WITH WASTE DISCHARGES

Name	City/County	On- and off-Site Releases (lbs)
US Army National Guard, Fort Harrison Ranges	Fort Harrison/Lewis & Clark	17,819,737
US Antimony Corp.	Thompson Falls/Sanders	10,788,329
Thompson River Lumber	Thompson Falls/Sanders	1,906,050
Stillwater Mining Co. East Boulder Mine	Big Timber/Sweet Grass	246,903
Specialty Surgical Products, Inc. -Simatrix	Victor/Ravalli	191,070
Spring Creek Coal	Decker/Big Horn	187,884
Stillwater Mining Co.-Precious Metals, Smelter & Base Metals	Columbus/Stillwater	182,594
Sidney Sugars, Inc.	Sidney/Richland	162,658
Roseburg Forest Products Co. Missoula Particleboard	Missoula/Missoula	136,277
Roscoe Steel Culvert	Billings/Yellowstone	128,122

Source: EPA, 2012. http://www.epa.gov/tri/

3.3 MONTANA ECONOMY

Montana's economy was built on natural resource extraction industries: agriculture, forestry, and mining. The economy looks poised to ride some strong waves in the coming years, as local and regional employers forecast future growth. The following analysis was presented in the article *Montana Economy Bouncing Back*, by Rob Chaney of the Missoulian newspaper (Missoulian, 2012).

A pickup in housing starts, combined with lots of rebuilding work on the storm-ravaged East Coast, mean good news for the state's forest products industry. According to the Federal Reserve Bank of Minneapolis' Beige Book November 2012 edition, the value of Billings-area commercial construction permits this fall was four times greater than at the same point in 2011. Residential construction permit values were up 300 percent.

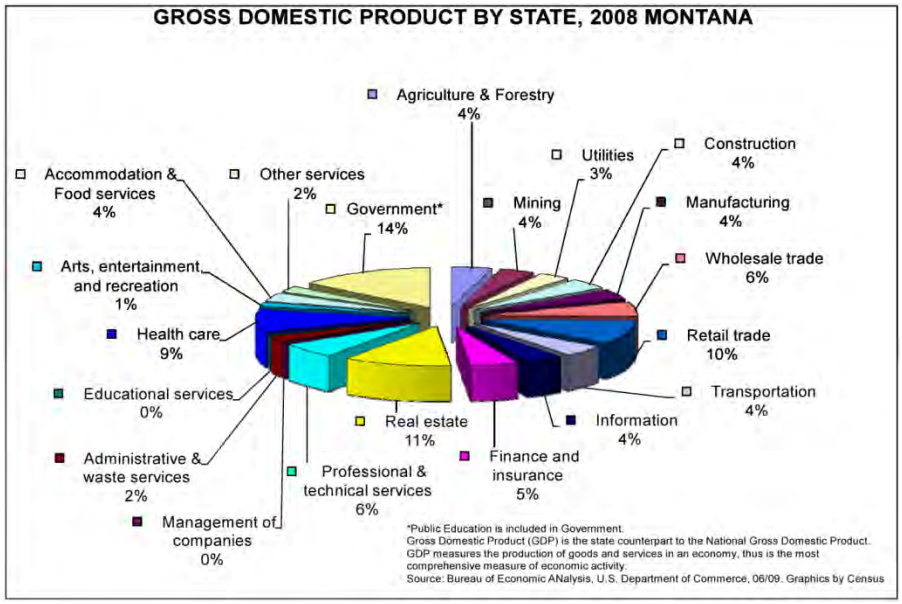
Montana posted a 6 percent unemployment rate in October, according to the U.S. Bureau of Labor Statistics. That was 14th best in the nation, while next-door North Dakota led the country at 3.1 percent and Nevada brought up the rear at 11.5 percent.

A new study released by Bozeman-based Headwaters Economics found that Montana's fastest-growing employment sector was in service jobs, including health care, professional and technical trades and real estate sales. And, the single driving factor is proximity to protected public lands. They found that employers are using the lifestyle of Montana as a way to attract

talent. The average salary is about $35,000 a year in Montana, per capita. But there's a 10 percent premium for areas located next to 100,000 acres of public lands. It's one of the unique circumstances that set Montana and the West aside from the rest of the country.

Montana job losses in manufacturing and farming were greatly offset by growth in the professional services over the past decade. Montana has added 14,402 jobs in the health care and social assistance category between 2000 and 2011, 12,715 jobs in real estate/rental leasing, and 8,272 jobs in professional, technical and scientific services. Farm employment has lost 3,484 jobs, and wood product manufacturing has lost another 3,857 jobs in the same period. **Figure 3.3-1** is a pie chart displaying Montana's gross domestic product.

Figure 3.3-1 Montana Gross Domestic Product by Major Industry in 2008
(Source: CEIC, 2012)



Montana has also seen a boom in energy-sector employment, especially on its eastern edge of the state and along the Rocky Mountain Front. Department of Commerce figures show a boost of 6,037 jobs over the past decade in mining, oil and gas work.

Personal Income by County

Personal income is calculated as the personal income of the residents of a given area divided by the resident population of the area. In computing per capita personal income, the U.S. Department of Commerce uses the Census Bureau's annual midyear population estimates. All state and local area dollar estimates are in current dollars (not adjusted for inflation). **Figure 3.3-2** shows per capita personal income by county for 2009. The average per capita income in 2009 in Montana was $34,828.

The personal income of Montana has historically been significantly less than the national average. From 1970 to 2000, Montana's per capita personal income dropped from 89 percent

to 76 percent of the national average. Across the state, there are also significant differences in personal income. **Table 3.3-1** shows the highest and lowest average personal income by county for 2008, 2009, and 2010 and the percent change during this period. The counties that have energy resource exploration or large-scale agricultural enterprises typically have higher personal incomes. **Figure 3.3-3** shows the percent change in per capita income by county from 2008 to 2009. Per capita income dropped by 1.2 percent in Montana from 2008 to 2009.

TABLE 3.3-1
PER CAPITA PERSONAL INCOME BY MONTANA COUNTY (5 HIGHEST AND 5 LOWEST)

Highest Per Capita Income	**2008**	**2009**	**2010**	**% Change 2008 to 2010**
Daniels County	$41,303	$41,283	$50,338	17.95%
Sheridan County	$41,745	$43,055	$46,457	10.14%
Richland County	$42,768	$39,979	$45,502	6.01%
Fallon County	$39,043	$37,527	$40,491	3.58%
Valley County	$36,099	$35,251	$38,806	6.98%
Lowest Per Capita Income	**2008**	**2009**	**2010**	**% Change 2008 to 2010**
Powder River County	$25,523	$24,523	$27,135	5.94%
Blaine County	$26,827	$24,474	$26,949	0.45%
Sanders County	$25,644	$24,915	$26,060	1.60%
Powell County	$24,765	$24,943	$26,014	4.80%
Big Horn County	$25,253	$25,110	$25,966	2.75%
Montana Average	**$34,736**	**$34,736**	**$35,323**	**1.66%**

Source: USDC BEA, 2012

The Census Bureau compared annual income to several factors to determine the poverty levels. Those factors include family size, number of children, and age of householder. If the family's before tax money income is less than the dollar value of their threshold, then the family is considered to be in poverty.

The number of Montana residents below the poverty threshold increased by 1.4 percent from 2009-2010, according to U.S. Census Bureau statistics. In 2010, 16.4 percent of the population was living in poverty. The national average was 15.1 percent, according to the Census Bureau's American Community Survey. **Figure 3.3-4** shows county poverty rates for 2010.

3.4 POPULATION

With 1,005,141 (2012 estimate) persons, Montana ranks 44th in total state population in the U.S. Montana is predominantly white with approximately 92 percent of the 2010 population reporting Caucasian as the primary race, compared to 78 percent in the nation. Eleven (11) American Indian tribes make up the largest minority population in Montana, representing approximately 6.4 percent of the total population, the 5th highest state in the nation. (**Table 3.4-1** presents the racial makeup of Montana's population. **Table 3.4-2** presents provides statistics on Montana's tribal governments.

Figure 3.3-2 Per Capita Personal Income by County (2009) (Source: CEIC, 2012)

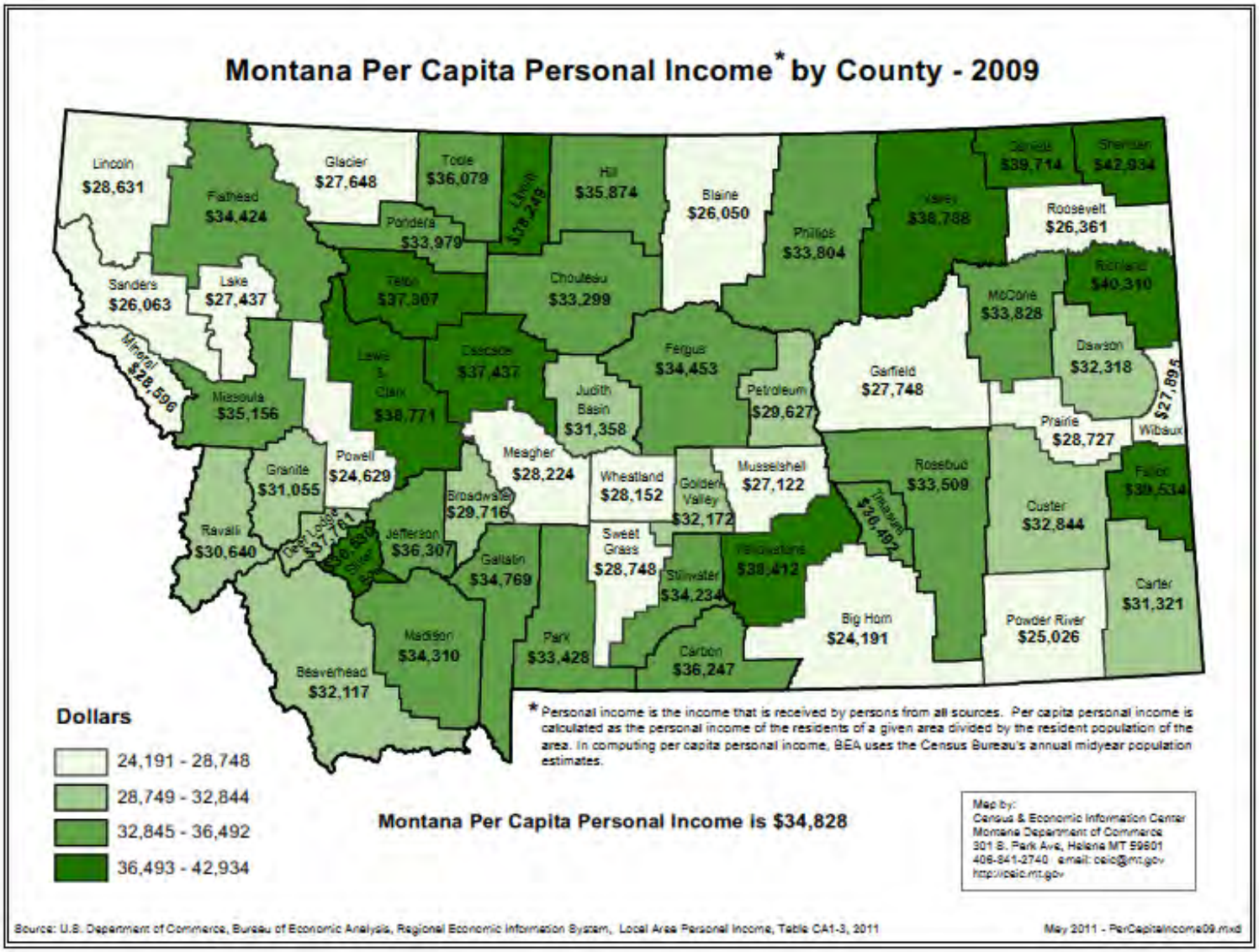


Figure 3.3-3 Percent Change in Per Capita Personal Income, 2008 – 2009 Source: CEIC, 2012)

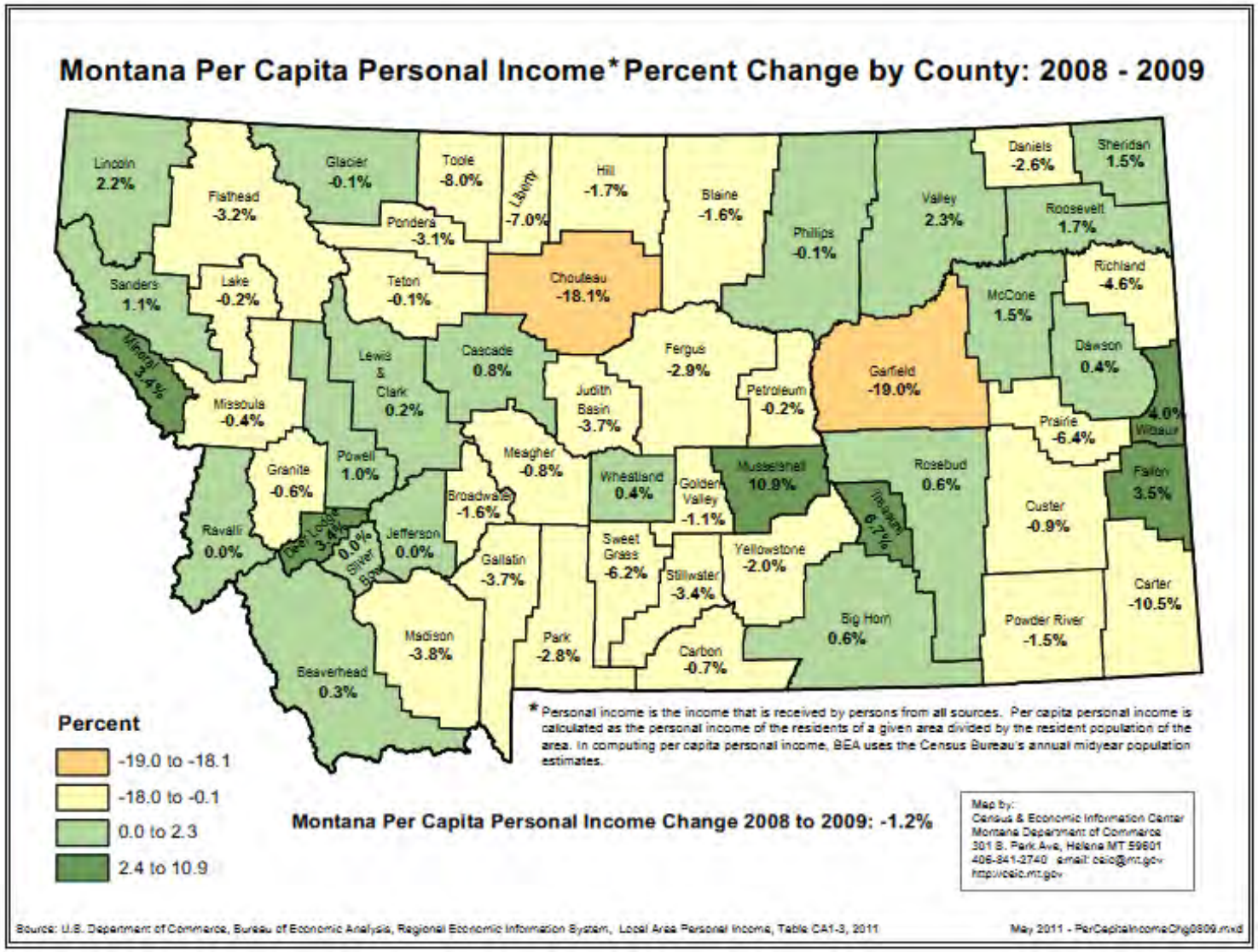


Figure 3.3-4 **Poverty in Montana; 2010** (Source: CEIC, 2012)

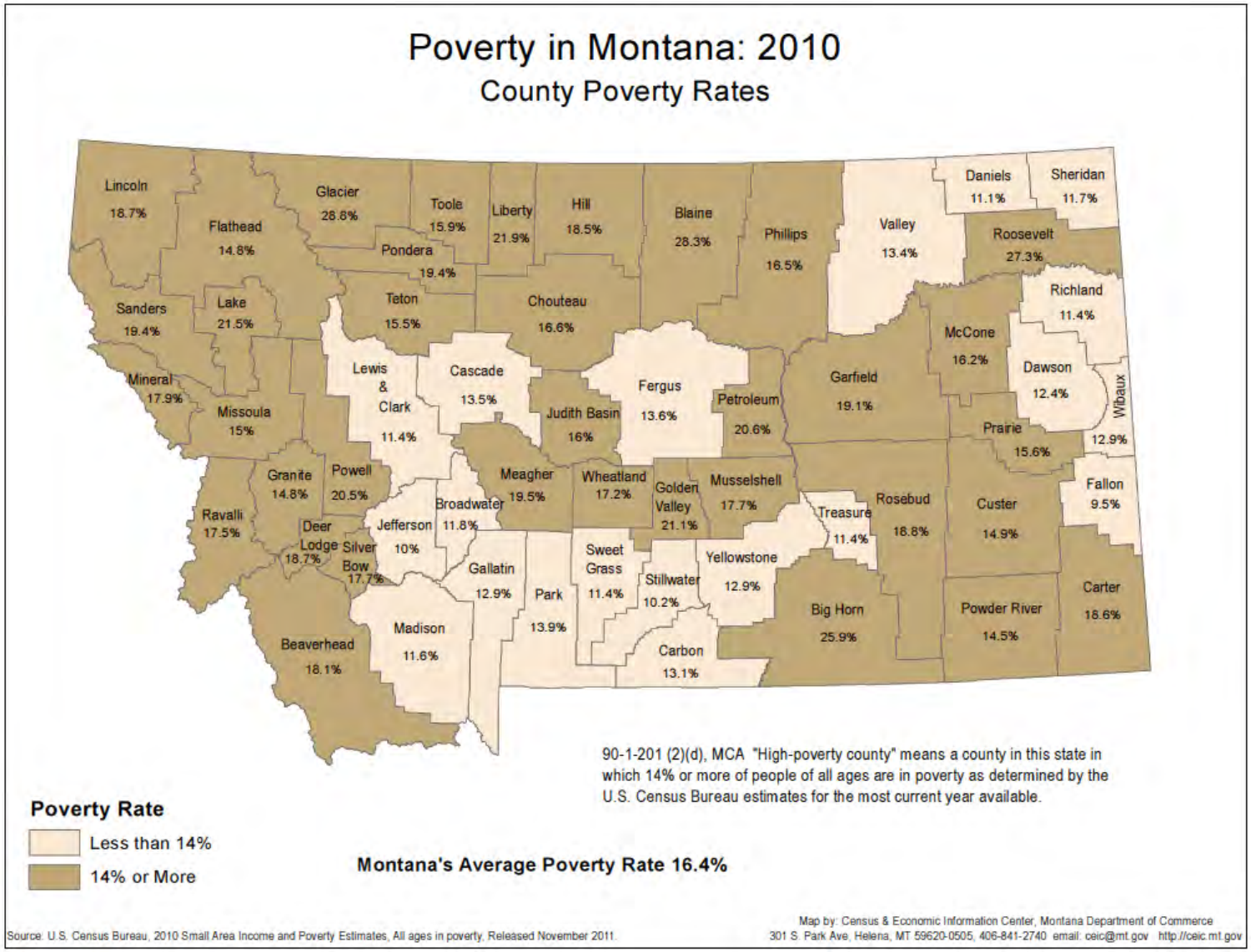


TABLE 3.4-1
MONTANA'S RACIAL MAKEUP

Race	Number of Persons	Percent of Total MT Population 2010 Census	Change since 2000 Census
White	884,537	89.4%	8.3%
American Indian	62,333	6.3%	11.6%
Hispanic	28,693	2.9%	58.0%
Black or African American	39,577	0.4%	49.6%
Asian	5,936	0.6%	33.3%
Pacific Islander	989	0.1%	42.1%
Some other Race	5,936	0.6%	12.4%
Two or more Races	24,735	2.5%	58.8%

Source: CEIC, 2012

TABLE 3.4-2
MONTANA'TRIBAL GOVERNMENTS

Names and Reservation Headquarters	Date Established	Resident Tribes	Reservation Population (2010 Census)	Reservation Population (2000 Census)	Percent Change
Blackfeet Browning, MT	1851	Blackfeet	10,405	10,100	3%
Crow Crow Agency, MT	1851	Crow	6,863	6,894	0%
Flathead Pablo, MT	1855	Salish Kootenai	28,359	26,172	8%
Fort Belknap Harlem, MT	1888	Assiniboine Gros Ventre	2,851	2,959	-4%
Fort Peck Poplar, MT	1888	Assiniboine Sioux	10,008	10,321	-3%
Northern Cheyenne Lame Deer, MT	1884	Northern Cheyenne	4,789	4,470	7%
Rocky Boy's Box Elder, MT	1916	Chippewa- Cree	3,323	2,676	24%
Little Shell* Great Falls, MT	2000	Chippewa- Cree	N/A	N/A	N/A

Notes: *The Little Shell Tribe does not have a reservation.
Sources: US Census Bureau, 2010

Montana is ranked 48th amongst other states for population density, with 6.8 persons per square mile, compared to a national average of 87.4 persons per square mile. **Figure 3.4-1** presents Montana's population density by county in 2010 and generally shows that the population is more dense in the western portion of the state than in the east.

Table 3.4-3 lists the counties with the highest and lowest populations from the 2010 census. The growth in population varies greatly across the state, with the urban areas and western counties experiencing significant growth and some rural eastern counties with net losses.

TABLE 3.4-3 COUNTIES WITH THE HIGHEST AND LOWEST POPULATIONS (2010 CENSUS)			
Counties with Highest Population	**2010 Census**	**2000 Census**	**Percent Change**
Yellowstone County	147,972	129,352	14.4%
Missoula County	109,299	95,802	14.1%
Flathead County	90,928	74,471	22.1%
Gallatin County	89,513	67,831	32.0%
Cascade County	81,327	80,357	1.2%
Counties with Lowest Population	**2010 Census**	**2000 Census**	
Petroleum County	494	493	0.2%
Treasure County	718	861	-16.6%
Golden Valley County	884	1,042	-15.2%
Wibaux County	1,017	1,068	-4.8%
Carter County	1,160	1,360	-14.7%
Montana	**989,415**	**902,195**	**8.81%**

Source: US Census, 2010

Figure 3.4-2 presents Montana's population change by county on a percentage basis, from 2000 to 2010. During this 10 year period, Montana's population grew by 9.7 percent, which is consistent with growth in the U.S. **Table 3.4-4** lists the top six counties with the greatest population gains and losses and the percent change between 2000 and 2010. This data shows that Gallatin, Broadwater, and Flathead counties experienced 32, 28 and 22 percent growth, respectively while Sheridan, Treasure and Golden Valley counties had the highest population loss of over 12 percent.

TABLE 3.4-4 COUNTIES WITH THE GREATEST POPULATION GAINS AND LOSSES IN MONTANA			
Counties with Greatest Population Gain	**2010 Census**	**2000 Census**	**Percent Change**
Gallatin County	89,513	67,831	32.0%
Broadwater County	5,612	4,385	28.0%
Flathead County	90,928	74,471	22.1%
Yellowstone County	147,972	129,352	14.4%
Missoula County	109,299	95,802	14.1%
Lewis & Clark County	63,395	55,716	13.8%
Counties with Greatest Population Loss	**2010 Census**	**2000 Census**	**Percent Change**
Sheridan County	1,160	4,105	-17.6%
Treasure County	718	861	-16.6%
Golden Valley County	884	1,042	-15.2%
Carter County	1,160	1,360	-14.7%
Daniels County	1,751	2,017	-13.2%
Montana	**989,415**	**902,195**	**8.81%**

Source: US Census, 2010

Elderly

Montana's population over 65 and 85 years of age accounted for 14.8 and 2 percent respectively of the state's total population, which is slightly more than the national average (**Figure 3.4-3**). Counties with the highest percent of elderly population include: Wibaux, Prairie, Daniels, Sheridan, Carter, Granite, with over 23 percent over the age of 65.

Figure 3.4-1 Montana Population Density by County - 2010
(Source: CEIC, 2012)

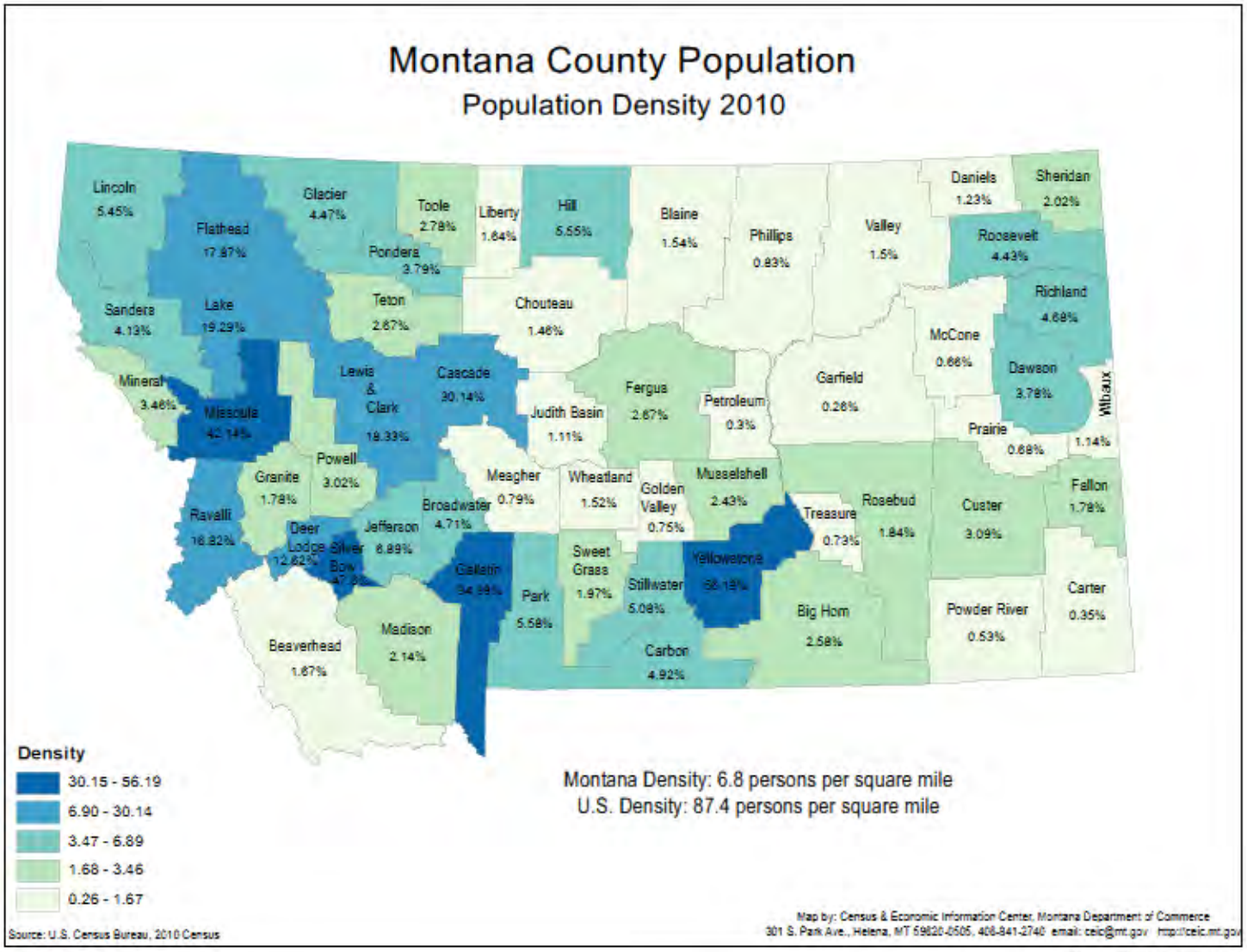


Figure 3.4-2 Montana Population Percent Change Between 2000 and 2010
(Source: CEIC, 2012)

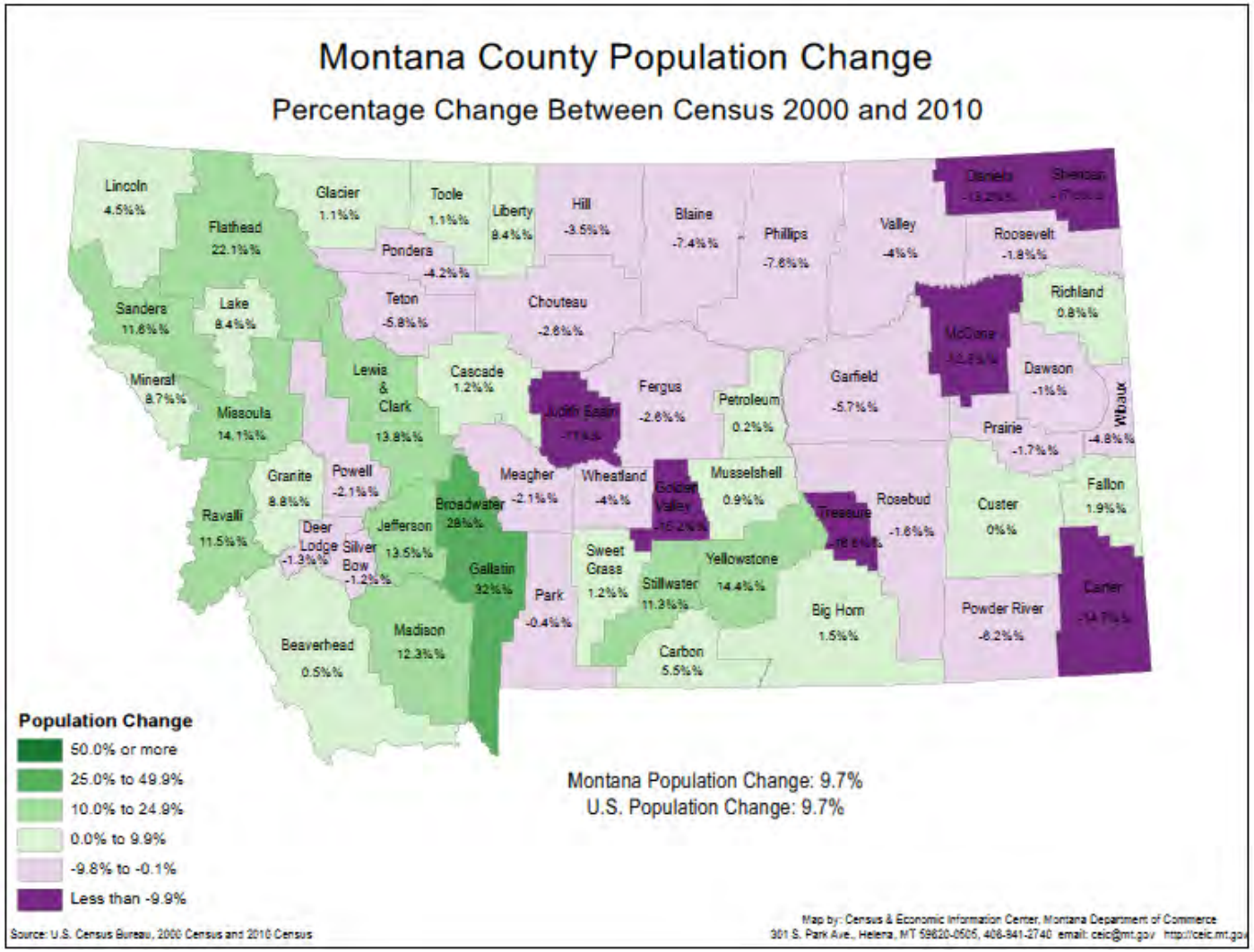
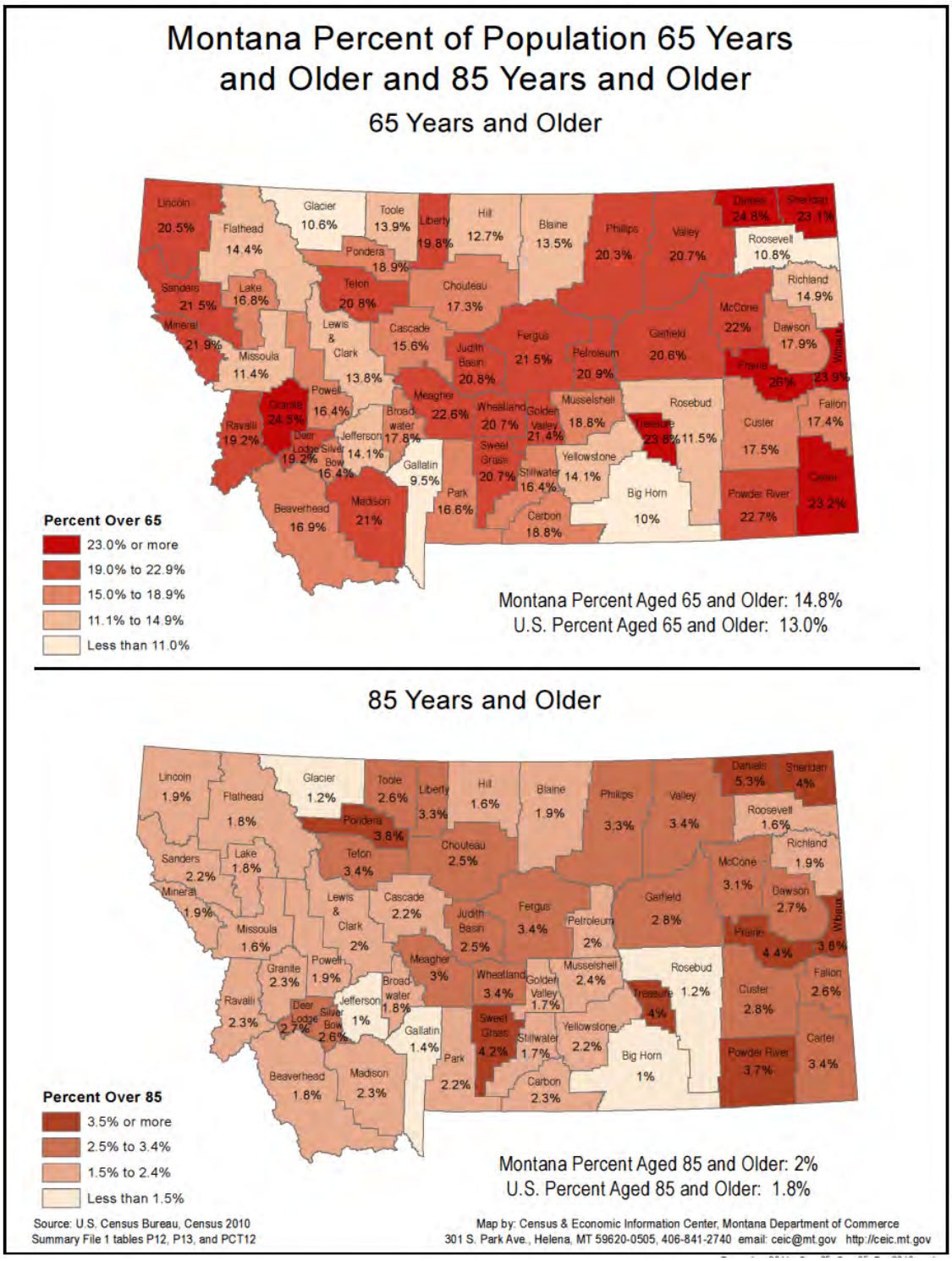


Figure 3.4-3 Percent of Population 65 Years and Older and 85 Years and Older; 2010
(Source: CEIC, 2012)



The percentage of elderly population (65 and over) in Montana increased from 13.4 percent to 14.8 percent between 2000 and 2010. This trend is expected to accelerate in the next 20 years, so that by 2025, Montana will experience one of the most dramatic demographic transformations in its history. As the Baby Boom generation (those born between 1946 and 1964) reaches retirement age, the proportion of Montana's population classified as elderly is expected to increase from 14.8 percent in 2010 to 25 percent in 2030.

3.5 References

Air Force Magazine. 2001. The nation's ICBM workhorse is still going strong. Minuteman Turns 40. By Bruce D. Callander. Vol. 84. No. 3. http://www.afa.org/magazine/March2001/0301minute_print.html

Census and Economic Information Center (CEIC). 2012. Montana Department of Commerce Gross State Product, County Population Estimates, County Maps. http://ceic.mt.gov/EstimatesCntyPop.asp; http://ceic.mt.gov/BEACountyData.asp; http://ceic.mt.gov/Economic/BEA/GSP/highlights_gdp_2008_industry_pie_chart.pdf

McLaughlin Research Institute (MRI). 2012. http://mclaughlinresearch.org/

Missoulian, 2012. Montana Economy, Bouncing Back. By, Rob Chaney. December 16, 2012.

Montana Colleges. 2012. http://www.montanacolleges.com/colleges/college-profile.php?id=13

Montana University System. 2012. http://mus.edu/Universities/university_main.asp

Montana Department of Administration (DOA) Risk Management and Tort Defense (RMTD), 2012. PCIIS Database, November, 2012.

Montana Department of Natural Resources and Conservation (DNRC). 2013. Trust Land Management Division. Data on infrastructure and assets: http://dnrc.mt.gov/Trust/Default.asp

National Inventory of Dams (NID), 2012. http://geo.usace.army.mil/pgis/f?p=397:12:

National Weather Service, 2013. Temperature extremes.

Rocky Mountain Laboratories (RML). 2012.http://www3.niaid.nih.gov/about/organization/dir/rml/overview.htm

U.S. Bureau of Reclamation. 2013. Dam projects. http://www.usbr.gov/projects

U.S. Department of the Census. 2010.

U.S. Department of Commerce (USDC) Bureau of Economic Analysis (BEA). 2012. Regional Economic Information System. Bureau of Economic Analysis. http://www.bea.gov/regional/bearfacts/action.cfm

U.S. Environmental Protection Agency (EPA). 2012. Toxic Release Inventory (TRI) Program. http://www.epa.gov/tri/

U.S. Environmental Protection Agency (EPA). 2007. Climate Change and Montana.

Western Regional Climate Center, 2010. (http://www.wrcc.dri.edu/narratives/MONTANA.htm)

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4.0 RISK ASSESSMENT

The Risk Assessment portion of this document provides a detailed description of the hazards in Montana, an assessment of the State's vulnerability to those hazards, and a basis for the mitigation goals and activities proposed in the Mitigation Strategy portion of the document. This Risk Assessment section examines natural and man-made hazards that can impact the State, determines which areas of the State are most vulnerable to each hazard, and estimates potential losses to State facilities for each hazard.

4.1 HAZARD IDENTIFICATION

A database of historical hazard events was developed using a variety of sources to identify all hazards commonly recognized as threats to the State. The research was very thorough and involved such organization as Montana DES, the National Climatic Data Center (NCDC) Storm Events Database and Spatial Hazard Events and Losses Database for the United States (SHELDUS), as described below, records of past Federal and State disaster declarations were reviewed to determine the most significant hazard events causing loss of life and property.

The NCDC Storm Events database receives Storm Data from the National Weather Service (NWS). The NWS service receives their information from a variety of sources, including County, State and Federal emergency management officials, local law enforcement officials, skywarn spotters, NWS damage surveys, newspaper clipping services, the insurance industry and the general public. Storm Data is an official publication of the National Oceanic and Atmospheric Administration (NOAA) which documents the occurrence of storms and other significant weather phenomena having sufficient intensity to cause loss of life, injuries, significant property damage, and/or disruption to commerce.

SHELDUS is a county-level hazard data set for the United States for 18 different natural hazard events types. For each event the database includes the date, location, property losses, crop losses, injuries, and fatalities that affected each county. The database includes every loss causing and/or deadly event between 1960 through 1975 and from 1995 onward. Between 1976 and 1995, SHELDUS reflects only events that caused at least one fatality or more than $50,000 in property or crop damages.

Prior knowledge of risks associated with each hazard summarized in the original Plan (2004) stemmed from a series of Hazard Technical Advisory Group and Stakeholder Meetings, which included statewide experts in resource management, emergency services and disaster mitigation. Review of the previous Plan helped form a framework for the discussions and the identification of hazards. As part of the update process, all of the hazards profiled in the original Plan were closely examined by the SHMO and Contractor, and validated by the Planning Team with regard to the following considerations:

- Prior knowledge of the relative risk associated with each of the hazards;
- Hazard events occurring within the last three years;
- Comparison to hazards identified in local jurisdiction plans; and
- The ability to effectively mitigate the hazard via the DMA 2000 process.

The hazard profiles in the local County and Tribal hazard mitigation plans were evaluated to help determine statewide risk. The presumption was that the importance given to hazards by the local communities would and should correlate to priorities for the State. As of April 1, 2013, Montana had 43 approved county and two approved tribal PDM Plans in good standing. Twelve (12) county plans and three tribal plans are in the update process and one county and two tribal plans have expired with no update underway. One Montana county (Meagher) has never completed a PDM Plan. Where available, hazard information from the local plans has been incorporated into the State Plan. In addition, electronic links to local plans for 55 of Montana's 56 Counties (Meagher County has not completed a PDM Plan) and 7 Tribal Nations are provided in **Appendix D.**

The Risk Assessment in the 2013 State Hazard Mitigation Plan focuses on the hazards listed below, as outlined in subsequent sections of this chapter:

- Communicable Disease
- Dam Failure
- Drought
- Earthquakes
- Flooding
- Hazardous Material Incidents
- Landslides
- Severe Summer Weather (formerly Severe Thunderstorms, Hail, Wind and Tornadoes)
- Severe Winter Weather (formerly Winter Storms and Avalanches)
- Terrorism
- Volcanic Eruptions
- Wildland and Rangeland Fires

Three hazards were de-emphasized in the 2010 State Hazard Mitigation Plan; communicable disease, drought, and terrorism/violence because they were covered by plans administered by other State or Federal agencies or couldn't be mitigated through the DMA 2000 process. These hazards were re-incorporated into the State PDM Plan as part of 2013 update at the request of the SHMO.

4.2 HAZARD RANKING

For the 2013 State PDM Update, hazards were ranked using the Calculated Priority Risk Index (CPRI). The CPRI examines four criteria for each hazard (probability, magnitude/severity, warning time, and duration (**Table 4.2-1**). For each hazard, an index value is assigned for each CPRI category from 0 to 4 with "0" being the least hazardous and "4" being the most hazardous situation. This value is then assigned a weighting factor and the result is a hazard ranking score. The SHMO initially completed the hazard ranking and the scores were validated by the

Planning Team. **Table 4.2-2** presents the results of the CPRI scoring for all hazards with a cumulative score sheet included in **Appendix C**.

TABLE 4.2-1
CALCULATED PRIORITY RISK INDEX

CPRI Category	Degree of Risk			Assigned Weighting Factor
	Level ID	Description	Index Value	
Probability	Unlikely	▪ Rare with no documented history of occurrences or events. ▪ Annual probability of less than 0.01.	1	45%
	Possibly	▪ Infrequent occurrences with at least one documented or anecdotal historic event. ▪ Annual probability that is between 0.1 and 0.01.	2	
	Likely	▪ Frequent occurrences with at least two or more documented historic events. ▪ Annual probability that is between 1 and 0.1.	3	
	Highly Likely	▪ Common events with a well documented history of occurrence. ▪ Annual probability that is greater than 1.	4	
Magnitude/ Severity	Negligible	▪ Negligible property damages (less than 5% of critical and non-critical facilities and infrastructure). ▪ Injuries or illnesses are treatable with first aid and there are no deaths. ▪ Negligible quality of life lost. ▪ Shut down of critical facilities for less than 24 hours.	1	30%
	Limited	▪ Slight property damages (greater than 5% and less than 25% of critical and non-critical facilities and infrastructure). ▪ Injuries or illnesses do not result in permanent disability and there are no deaths. ▪ Moderate quality of life lost. ▪ Shut down of critical facilities for more than 1 day and less than 1 week.	2	
	Critical	▪ Moderate property damages (greater than 25% and less than 50% of critical and non-critical facilities and infrastructure). ▪ Injuries or illnesses result in permanent disability and at least one death. ▪ Shut down of critical facilities for more than 1 week and less than 1 month.	3	
	Catastrophic	▪ Severe property damages (greater than 50% of critical and non-critical facilities and infrastructure). ▪ Injuries or illnesses result in permanent disability and multiple deaths. ▪ Shut down of critical facilities for more than 1 month.	4	
Warning Time	Less than 6 hours	Self explanatory.	4	15%
	6 to 12 hours	Self explanatory.	3	
	12 to 24 hours	Self explanatory.	2	
	More than 24 hours	Self explanatory.	1	
Duration	Less than 6 hours	Self explanatory.	1	10%
	Less than 24 hours	Self explanatory.	2	
	Less than one week	Self explanatory.	3	
	More than one week	Self explanatory.	4	

TABLE 4.2-2
CALCULATED PRIORITY RANKING INDEX SUMMARY

Hazard	Probability	Magnitude and/or Severity	Warning Time	Duration	CPRI Score
Wildland and Rangeland Fire	Highly likely	Critical	< 6 hours	> 1 week	3.70
Earthquake	Likely	Catastrophic	< 6 hours	> 1 week	3.55
Severe Summer Weather	Highly likely	Critical	< 6 hours	< 24 hours	3.50
Flooding	Highly likely	Critical	12-24 hours	> 1 week	3.40
Severe Winter Weather	Highly likely	Critical	12-24 hours	> 1 week	3.40
Communicable Disease	Highly likely	Critical	> 24 hours	> 1 week	3.25
Hazardous Material Incidents	Highly likely	Limited	< 6 hours	< 24 hours	3.20
Drought	Highly Likely	Limited	> 24 hours	> 1 week	2.95
Dam Failure	Possible	Limited	6-12 hours	< 1 week	2.25
Landslides	Possible	Negligible	< 6 hours	< 1 week	2.10
Terrorism/Violence	Unlikely	Limited	< 6 hours	> 1 week	2.05
Volcanic Eruptions	Unlikely	Negligible	< 6 hours	> 1 week	1.75

The SHMO elected to prioritize the flooding hazard due to historic high damages and high frequency and eliminate tie scores in the hazard ranking; therefore, the hazard ranking for the 2013 Montana State PDM Plan is presented below. The hazard profiles are arranged in the remainder of this section by rank.

1 – Wildland and Rangeland Fire (Plan Section 4.4.1)
2 – Flooding (Plan Section 4.4.2)
3 – Earthquakes (Plan Section 4.4.4)
4 – Severe Summer Weather (Plan Section 4.4.3)
5 – Severe Winter Weather (Plan Section 4.4.5)
6 – Communicable Disease (Plan Section 4.4.6)
7 – Hazardous Material Incidents (Plan Section 4.4.7)
8 – Drought (Plan Section 4.4.8)
9 – Dam Failure (Plan Section 4.4.9)
10 – Landslides (Plan Section 4.4.10)
11 – Terrorism (Plan Section 4.4.11)
12 – Volcanic Eruptions (Plan Section 4.4.12)

Table 4.2-3 compares the hazard ranking from the 2010 to the re-ranking for 2013 Montana State PDM Plan.

TABLE 4.2-3
CHANGE IN HAZARD RANKING: 2010 TO 2013

Hazard	2010 Ranking	2013 Ranking
Wildland and Rangeland Fire	1	1
Flooding	3	2

TABLE 4.2-3
CHANGE IN HAZARD RANKING: 2010 TO 2013

Hazard	2010 Ranking	2013 Ranking
Earthquake	2	3
Severe Summer Weather	4(tie)	4
Severe Winter Weather	5 (tie)	5
Communicable Disease	not ranked	6
Hazardous Materials Incidents	5 (tie)	7
Drought	not ranked	8
Dam Failure	4 (tie)	9
Landslides	5 (tie)	10
Terrorism/Violence	not ranked	11
Volcanic Eruptions	5 (tie)	12

4.3 ASSESSING VULNERABILITY

The vulnerability assessment provided in the original Plan and 2007 update was largely revised and replaced in the 2010 update. The completion of most all of the county and tribal hazard mitigation plans has resulted in additional data being available for evaluating the State's vulnerability to hazards. The 2013 State Plan update builds on what was presented in 2010 by incorporating data from recently completed original PDM plans and plan updates, determining spatial components (latitude/longitude)for State-owned critical facilities for analysis, data from the 2010 census, and assessor data from the Montana Department of Revenue (DOR) Cadastral Mapping Program. The GIS-based risk assessment template methodology to estimate loss (**Appendix B**) has also been updated.

Methodologies for assessing hazard vulnerability vary depending upon the hazard, the type of losses that can be incurred, and available data. For some hazards, models have been developed to assess the potential vulnerability and calculate losses. For others, the vulnerability is qualitative and potential losses can only be assessed in a very general nature. Potential losses were analyzed at both the state and local level. The hazard assessment identifies the exposure in structure value and content value for State-owned facilities. Hazard exposure at the local level is based on structure value, society risk and potential economic loss, as detailed in the local hazard mitigation plans reviewed.

Vulnerabilities are described in terms of critical facilities, infrastructure, building stock (residential, commercial and industrial structures), and population affected by the hazard. Hazard impact areas describe the geographic extent a hazard can impact a jurisdiction and are uniquely defined on a hazard-by-hazard basis. Mapping of the hazards, where spatial differences exist, allows for hazard analysis by geographic location.

The methods used in this risk assessment represent the best readily-available statewide data. **Table 4.3-1** describes the methods used to assess vulnerability and losses across the state.

TABLE 4.3-1
VULNERABILITY ASSESSMENT METHODS

Hazard	Vulnerability Assessment Methods
Wildland and Rangeland Fires	A GIS layer of WUI layers from local CWPPs, available from DNRC, was used in the PDM analysis. This wildfire hazard layer was intersected with MDOR assessor data and spatially located critical facilities and bridges to determine building and infrastructure exposure. The hazard layer was also intersected with 2010 census tract data to determine population exposure.
Flooding	A GIS layer was created of a HAZUS-derived flood risk area enhanced with data from DFIRM maps. This flood hazard layer was intersected with MDOR assessor data and spatially located critical facilities and bridges to determine building and infrastructure exposure. The hazard layer was also intersected with 2010 census tract data to determine population exposure.
Earthquake	A GIS layer was created by digitizing Peak Ground Acceleration seismic zones compiled by the U.S. Geological Survey. This earthquake hazard layer for 18%g and greater was intersected with MDOR assessor data and spatially located critical facilities and bridges to determine building and infrastructure exposure. The hazard layer was also intersected with 2010 census tract data to determine population exposure. Results are presented of the Tier 1 seismic evaluations of state-owned critical facilities in the Intermountain Seismic Belt.
Severe Summer Weather	A GIS layer was created from point data provided by the NWS of tornados, hail over .75 inches, and thunderstorm wind over 50 knots. This severe summer weather hazard layer was intersected with MDOR assessor data to determine building exposure. The hazard layer was also intersected with 2010 census tract data to determine exposure to vulnerable population.
Severe Winter Weather	Severe winter weather is considered to have a uniform risk across the State and was therefore, generally analyzed in the risk assessment. Historic data was used to calculate hazard frequency and magnitude. This percentage was then applied to building stock and critical facility data, and the 2010 Census to calculate annualized loss to property and population.
Communicable Disease	The communicable disease is considered to have a uniform risk across the State and was therefore, generally analyzed in the risk assessment.
Hazardous Material Incidents	A GIS layer was created by buffering the state's highways, railroads and toxic release facilities by 0.25 mile. This hazardous material hazard layer was intersected with MDOR assessor data and spatially located critical facilities and bridges to determine building and infrastructure exposure. The hazard layer was also intersected with 2010 census tract data to determine population exposure.
Drought	The drought hazard has a variable risk across the State that changes on a monthly basis. Therefore, it is only analyzed on a general basis in the risk assessment.
Dam Failure	A GIS layer was created of the inundation areas, digitized from EAPs, associated with federal, state, local and private high hazard dams. This dam failure hazard layer was intersected with MDOR assessor data and spatially located critical facilities and bridges to determine building and infrastructure exposure. The hazard layer was also intersected with 2010 census tract data to determine population exposure.
Landslide	A GIS layer was created by digitizing a landslide risk map compiled by the U.S. Geological Survey which considers topography, geology, and past landslide data. The landslide hazard layer was intersected with MDOR assessor data and spatially located critical facilities and bridges to determine building and infrastructure exposure. The hazard layer was also intersected with 2010 census tract data to determine population exposure.
Terrorism and Violence	The terrorism hazard is considered to have a uniform risk across the State. Montana DES completed a Threat Hazard Identification Risk Assessment (THIRA) in December 2012. The THIRA is included as an appendix to the State PDM Plan to address the Terrorism hazard.
Volcanic Eruptions	The volcanic ash hazard was generally analyzed in the risk assessment. Counties located adjacent to Yellowstone Park are considered vulnerable to impacts from volcanic eruptions, mudflows, and ashfall. Counties west of the Continental Divide are considered vulnerable to impacts from volcanic eruptions in the Cascade Range in Washington State.

The methodology used in risk calculations presents a quantitative assessment of the vulnerability of the building stock, population, and critical facilities to individual hazards and cumulatively to all hazards. Parcel data, available from the Montana Department of Revenue's Cadastral Mapping Program, was used in the analysis. This data spatially recognizes residential and "other" (commercial, agricultural, and industrial) land parcels along with the number of structures and appraised value of building stock (2012 data). Using GIS, hazard areas were intersected with the parcel data to identify the exposure (number and value of buildings) at risk from each hazard. It should be noted that if any part of the parcel was clipped by the hazard layer, the value and number of structures in that parcel were assumed to be located in the hazard area. This can lead to over reporting of exposure where parcels are large. Using GIS, hazard risk areas were also intersected with spatially located critical facilities to determine the exposure of those at risk to from each hazard. State-owned bridges were also included in the critical facility vulnerability analysis.

Population exposure was computed using data from the 2010 census. Using GIS, census block data was intersected with the hazard areas to determine population at risk. If any part of the census block was clipped by the hazard layer, the number of residents in that census block was assumed to reside in the hazard area. It should be noted that this may lead to over reporting where census blocks are large. Population exposure is reported according to total population living in the hazard area and individuals under the age of 18 years. Population over the age of 65 and living below the poverty level were not available on the census block level and were therefore, not included in the analysis. It should be noted that there are some inherent inaccuracies using this approach.

For hazards that are uniform across the jurisdiction (i.e. severe winter weather) the methodology presented below was used to determine annualized property loss.

- Exposure x Frequency x Hazard Loss Magnitude

Where:

- Exposure = building stock or critical facilities at risk
- Frequency = annual number of events determined by calculating the number of hazard events / period of record
- Magnitude = percent of damage expected calculated by: (property damage/# incidents)/ total building stock or critical facilities

For the hazards with regional variability and damage data (e.g. wildfire, flooding, severe summer weather, and hazardous material incidents) the hazard area factored into the annual loss estimation calculations.

For hazards without documented property damage (dam failure, landslide), magnitude could not be calculated and therefore, only the exposure of the building stock or population was computed.

Vulnerability tables within the hazard profiles present the risk assessment results by DES District, and for counties and cities/towns experiencing the greatest exposure and population growth. The DES Districts are presented in **Figure 4.3-1**. Information from the local risk assessments was analyzed on a plan-by-plan basis with exposure data for each hazard recorded on a spreadsheet (see *Local Plan Exposure Summaries* in **Appendix B**) and compared with the analysis done as part of the State PDM Plan update. Each hazard profile contains a section entitled *Review of Potential Losses in Local PDM Plans* where the analysis comparison is presented.

Probability of a hazard event occurring in the future was assessed based on hazard frequency over a 100 year period. Hazard frequency was based on the number of times the hazard event occurred divided by the period of record. If the hazard lacked a definitive historical record, the probability was assessed qualitatively based on regional history and other contributing factors. Probability was broken down as follows:

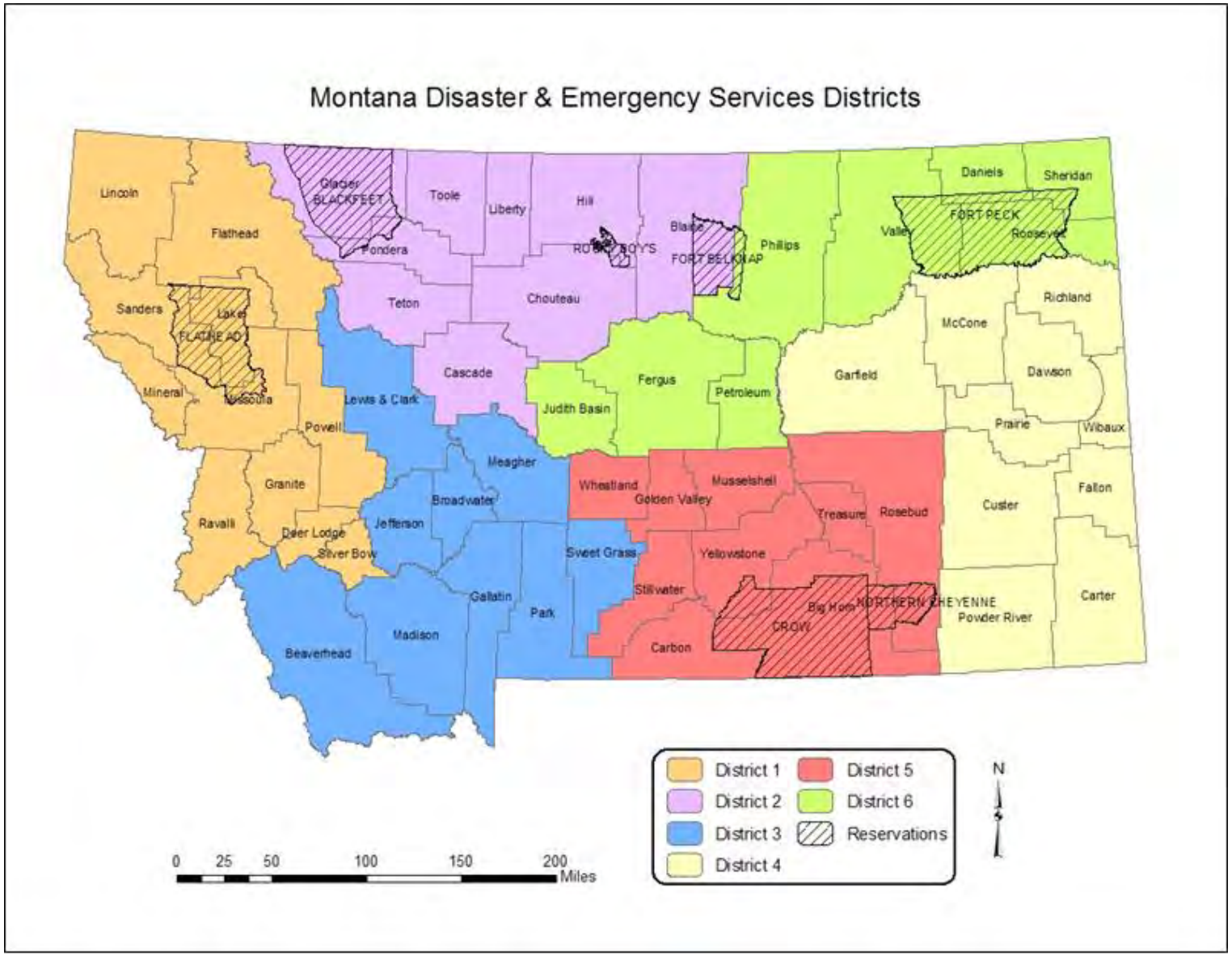
- Highly Likely – greater than 1 event per year (frequency greater than 1).
- Likely – less than 1 event per year but greater than 1 event every 10 years (frequency greater than 0.1 but less than 1).
- Possible – less than 1 event every 10 years but greater than 1 event every 100 years (frequency greater than 0. 01 but less than 0.1).
- Unlikely – less than 1 event every 100 years (frequency less than 0.01)

While loss estimates are presented as dollar values and number of structures or people affected they should not be interpreted literally. Due to data and modeling limitations the values presented may be biased high side when parcel size and census blocks are large.

4.4 HAZARD PROFILES

Hazard profiles include a description of the hazard and the history of occurrence, the vulnerability and area of impact, and the probability and magnitude of future events. The hazard profile identifies State-owned and operated facilities and infrastructure that are most vulnerable to the hazard, where possible. Risk assessment results were used to formulate the State's mitigation strategies. The remainder of this section presents hazard profiles according to their CPRI score – highest ranking hazard to lowest. *Section 4.5* is a risk assessment summary.

Figure 4.3-1 Montana Disaster & Emergency Services Districts



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4.4.1 Wildland and Rangeland Fires

CPRI = 3.70

Wildland and rangeland fires are hazards that impact Montana every year. In mild fire seasons, there may be relatively small timber and crop resource losses. In extreme years, there can be resource devastation, habitat destruction, structure losses and deaths. From 1981 to 2013, forty-seven (47) percent of wildfires were started by lightning and 53 percent were human caused. The primary sources of human caused fires include debris burns, campfires, equipment-caused fires, and railroad starts (DNRC, 2013).

A wildland or rangeland fire is any fire occurring in grassland, forestland, or other vegetation types found in rural or wilderness areas, regardless of ignition sources, damages or benefits. Three factors influence extreme wildland fire behavior: weather, topography, and fuel. These components affect and increase the likelihood of a fire starting, the speed and direction at which a fire will travel, the intensity at which it burns, and the ability to control and extinguish it.

Fuel is required for any fire to burn. In regard to wildland fire, fuels consist of live and dead vegetation, such as trees, shrubs, grasses and their debris. Forest fuels are of primary concern in western Montana where crown fire potential is high in many areas, including some areas along the wildland/urban interface. Dry grass and sagebrush associated with agricultural areas and rangeland, as well as acreage in the Conservation Reserve Program (CRP), is the primary fuel for eastern Montana wildfires.

The amount of fuel, its moisture content, arrangement, and other characteristics influence fire behavior. Dry, hot and windy weather along with lightning increase the likelihood of a major wildfire occurring. These conditions make ignition easier, allow fuels to burn more rapidly, and increase fire intensity. High wind speeds can transform a small, easily controllable fire into a catastrophic event in a matter of minutes. Since heat rises, steepness of slope greatly influences fire behavior and rate of fire spread. Slopes with south and southwest aspects tend to be drier and more prone to ignition. Steep, narrow drainages and canyons act like chimneys when wildfires occur (FireSafe Montana, 2009).

When people choose to build or buy homes in high-hazard fire areas their homes are potential fuel. Untreated wood shake and shingle roofs, narrow roads, limited access, lack of firewise landscaping, inadequate water supplies, and inadequately planned subdivisions increase the risk of wildfire to people and their property. The wildland/urban interface (WUI) is defined as the zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuel.

History of Wildland and Rangeland Fires in Montana

Wildland and rangeland fires occur every year; they are part of the normal vegetative cycle for forest and grasslands in the state. The frequency at which they occur depends on the forest and

vegetation type and the prevailing weather conditions. Historically, vegetation types influenced the fire recurrence intervals, but fire regimes have been altered through fire suppression and changes in the landscape. Fire suppression has increased the amount of fuels available to burn and decreased the separation of fuels, resulting in greater undergrowth and denser vegetation. These changes have increased fire severity and frequency, compared to the fire regime prior to the 20th century. An added factor in fire recurrence is the weather and drought resulting from climate change or natural cycles, including extended periods of low precipitation, insect infestation, and heat that increase the potential severity of a fire season. When these conditions mix with high winds, low humidity, high temperatures, and/or dry lightning storms, the fires can be devastating.

By all historical records, the Great Idaho fire of 1910 in northern Idaho and western Montana was the largest forest fire in American history. The fire burned 3 million acres, killed 86 people, destroyed numerous towns in northern Idaho and western Montana, and by some accounts, most of the destruction occurred in 6 hours. The hurricane winds of August 20 and 21, 1910 turned numerous fires scattered throughout the region into a blow-torch. The fire occurred when the US Forest Service was a fledgling agency that lacked the personnel, equipment, and communications to effectively address wildfire. Even with today's technology and resources devoted to wildland firefighting, that magnitude of fire could occur again, given similar conditions.

Grassland fires in eastern Montana have been equally as devastating. In July 1999, the Fishel Creek Fire threatened the town of Musselshell. The fire burned 33,000 acres, one home and threatened the evacuation of Musselshell. Later that same year, a grassfire burned 18,000 acres and a portion of the town of Outlook, causing $4 million in damages. In all, about 105,000 acres burned in five hours in eastern Montana that night. In July 2003, the Missouri Breaks Complex in eastern Garfield County burned 130,927 acres and destroyed eight structures and 610 miles of fence.

Table 4.4.1-1 lists some of some of the most serious wildland fires in Montana history. Some were significant because of their size, others because of the value of the resources lost or the number of lives lost. Since 1988, Montana has experienced an increase in the size and intensity of fires.

TABLE 4.4.1-1
HISTORICALLY SIGNIFICANT WILDLAND FIRES IN MONTANA

Date	Name	Location	Acres	Significance
1910	Great Idaho	ID and MT	3,000,000	86 lives lost
1949	Mann Gulch	Montana	4,339	13 smokejumpers killed
1988	Greater Yellowstone National Park	MT, ID, WY	2,281,800	Acreage burned; 52 buildings worth $3M destroyed or damaged.; 2 fatalities; $120M in suppression costs
2000	Bitterroot Complex and others	MT, ID, AK, OR, WA, WY	8M nationwide; 1.16M in MT	Acreage burned; $2.1B in suppression costs nationwide
2003	Various	Montana	378,000	5 residences and 3 buildings burned, 2,800 buildings threatened; $168.6M in suppression costs

TABLE 4.4.1-1
HISTORICALLY SIGNIFICANT WILDLAND FIRES IN MONTANA

Date	Name	Location	Acres	Significance
2006	Derby/Jungle Fires	So. of Big Timber & Livingston	237,000	26 homes, 20 outbuildings; $20M in suppression costs
2012	Dahl Fire	Musselshell Co.	22,045	74 residences and 149 other buildings

Source: NIFC, 2013; DNRC, 2012a; USDA Forest Service, 2003

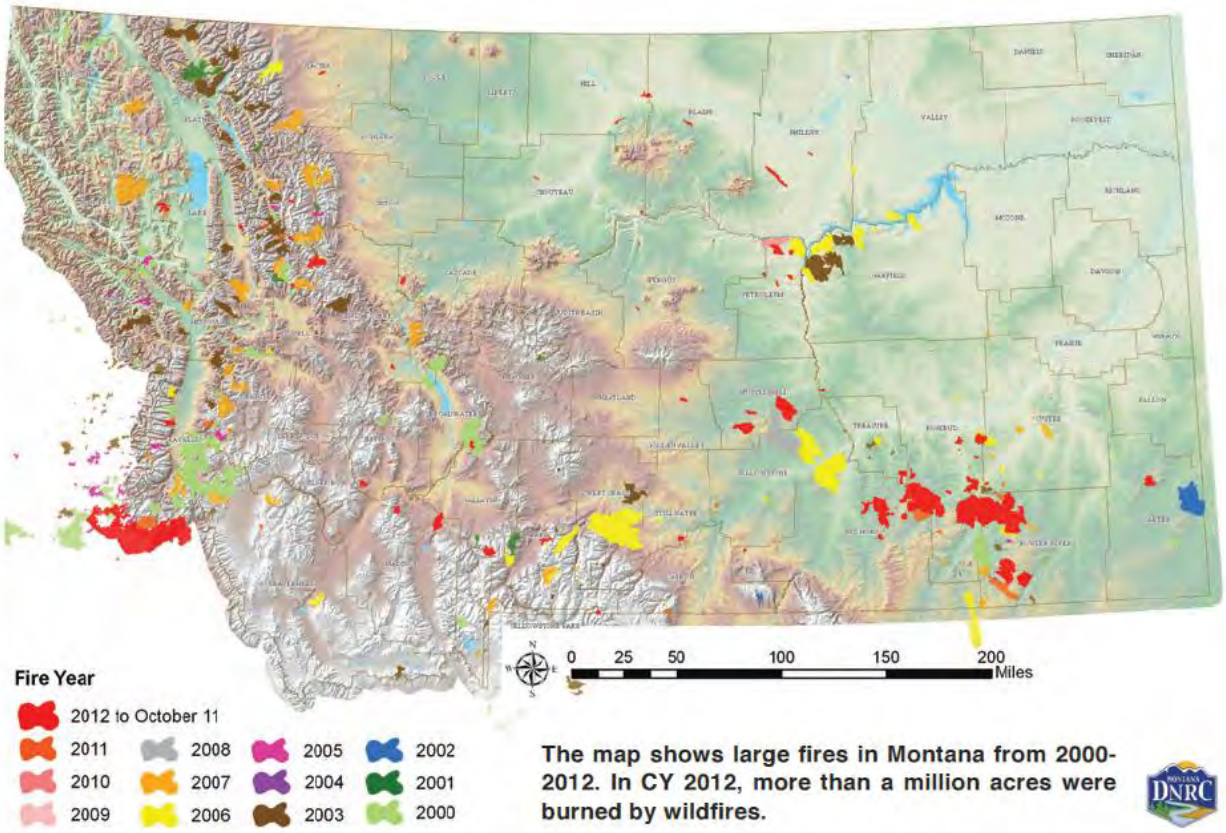
Table 4.4.1-2 presents wildfire statistics from 1991 to 2012 including number of fires and acres burned from the DNRC and USDA Forest Service. Data from the BLM for the Montana/Dakota region indicates that for a 20 year period (1992 to 2012) there were on average 178 fires per year which burned an average 124,799 acres (BLM, 2013). Fire data was requested from the Bureau of Indian Affairs but was not received as of the date of this report. **Figure 4.4.1-1** presents the large fires in Montana from 2000 through October 11, 2012.

TABLE 4.4.1-2
WILDFIRE STATISTICS FOR MONTANA BY YEAR

Year	Agency	No. of Fires	Total # Fires	Acres	Total Acres	Year	Agency	No. of Fires	Total # Fires	Acres	Total Acres
1991	DNRC	1,496	2,279	122,530	154,904	2002	DNRC	1,372	2,078	119,309	198,725
	USFS	783		32,374			USFS	706		79,416	
1992	DNRC	1,500	2,159	32,787	43,018	2003	DNRC	2,326	3,412	736,809	1,147,463
	USFS	659		10,231			USFS	1,086		410,654	
1993	DNRC	670	908	6,055	6,646	2004	DNRC	1,447	2,041	18,445	24,979
	USFS	238		591			USFS	594		6,534	
1994	DNRC	2,743	4,275	281,430	402,070	2005	DNRC	1,316	1,920	103,294	169,008
	USFS	1,532		120,640			USFS	604		65,714	
1995	DNRC	1,113	1,536	22,171	24,222	2006	DNRC	2,302	3,176	1,047,118	1,369,610
	USFS	423		2,050			USFS	874		322,492	
1996	DNRC	1,836	2,697	246,498	271,956	2007	DNRC	1,875	2,749	778,079	1,266,430
	USFS	861		25,458			USFS	874		488,351	
1997	DNRC	882	1,262	9,731	10,287	2008	DNRC	1,424	1,938	166,842	180,913
	USFS	380		556			USFS	514		14,071	
1998	DNRC	1,781	2,641	117,090	151,438	2009	DNRC	1,731	2,329	48,912	76,511
	USFS	860		34,348			USFS	598		27,599	
1999	DNRC	1,932	2,910	87,569	96,758	2010	DNRC	1,050	1,447	57,010	64,835
	USFS	978		9,189			USFS	397		7,825	
2000	DNRC	2,802	3,974	1,160,145	1,803,909	2011	DNRC	1,335	1,853	168,010	270,795
	USFS	1,172		643,764			USFS	518		102,785	
2001	DNRC	1,463	2,098	146,819	291,197	2012	DNRC	2,206	2,846	1,174,691	1,620,577
	USFS	635		144,378			USFS	640		445,886	
TOTAL									**26,739**		**3,256,406**

Source: DNRC, 2012a and 2012c; USDA Forest Service, 2013

Figure 4.4.1-1
Large Fires 2000-October 11, 2012



During the early summer 2012, extremely hazardous wild land fire conditions existed throughout the entire State of Montana, including near-record temperatures, continual wind and low relative humidity. Hot, dry and windy conditions continued throughout the remainder of the summer and fall months, and numerous wildland fires occurred in the State of Montana. Statewide there were 2,206 fires that burned 1,174,691 acres. Significant wildland and rangeland fires in Montana in 2012 are described below.

<u>Corral Fire</u> **-** The Corral fire, in the Scratchgravel Hills northwest of Helena in Lewis and Clark County, burned 1,863 acres of public and private land between June 25 and July 2, 2012. The fire ignited from a stray spark from a permitted burn that was believed to be out two days earlier and burned a plastic wheelbarrow, and then sparked an all-terrain vehicle, spreading from there. About 150 firefighters worked through the night on the fire from a variety of volunteer, federal, and state agencies. Winds were gusting at more than 50 miles per hour. A total of 4 homes were destroyed by the fire, 2 modular and 2 frame structures.

Corral Fire: 1,863 acres burned and, 4 homes destroyed.
Photo: Helena Independent Record

Dahl Fire - The Dahl Fire, 12 miles southeast of Roundup in Musselshell County, started on June 26th, 2012. Fueled by high temperatures, low relative humidities and gusty winds, the lightning-caused fire grew quickly and ultimately burned 22,045 acres. Hundreds of people and the Signal Peak coal mine near Roundup were evacuated as the fire wall spread in every direction south of Roundup. A structural assessment accounted for 223 structures lost, including 74 residences and 149 other buildings.

Dahl Fire: 223 structures were lost with 22,045 acres burned. This fire resulted in the largest loss of structures in the state. Photo: Jeff Gates

Rosebud Complex Fire - The Rosebud Complex Fire in southeast Montana started on Wednesday August 1st, 2012. It was comprised of six fires located between four and 30 miles south of Rosebud. This was the second major fire to burn on the Northern Cheyenne Reservation in 2012. The Ash Creek Fire in June burned 18 homes, forced evacuations, and resulted in $20,000 of damage to tribal property. The Chalky Fire, the largest in the Rosebud Complex, burned 171,444 acres. Two primary residences are confirmed lost in the Chalky Fire and approximately 600 firefighters and support personnel are battling the fire. Police drove the streets of the town of Lame Deer, using loudspeakers to warn residents to grab their belongings and get out of town. Buses were lined up to evacuate the entire population of 2,000 from the Northern Cheyenne Reservation community.

Ash Creek Fire: 249,562 acres burned. This fire resulted in a Presidential disaster declaration with an estimated $1.9M in damages. Photo: InciWeb

Bitterroot Fires - The Chrandal Creek fire was discovered in the upper reaches of the West Fork in early July, 2012. Burning in heavy timber in locations not near any road network, firefighters focused on using a steady air attack and hiking crews long distances in to fight the fire. By the time that fire was considered contained at a little more than 2,500 acres, the Forest Service had spent about $8 million. Later in the summer, the Sawtooth fire above Hamilton blew out the steep and nearly inaccessible high country. Firefighters built a contingency line along the lower edge of the mountainside and attacked the fire when it arrived. By the time that fire was contained, it had burned more than 6,300 acres at a cost of $7.5 million.

Pine Creek Fire - The Pine Creek Fire started on August 29, 2012 near the Yellowstone River in Park County and quickly burned through the town of Pine Creek and into the steep, inaccessible terrain of the Absaroka-Beartooth Wilderness on the Gallatin National Forest. Local firefighters, helicopters, and retardant airtankers saved many homes, the Pine Creek Church, and the Pine Creek Cafe; however, five homes and several outbuildings were destroyed. The fire moved to

the south on private land the second day, threatening more homes. The Pine Creek Fire burned a total of 8,572 acres.

19 Mile Fire – By August 29, 2012, the 19 Mile Fire, ten miles south/southeast of Butte near the town of Whitehall in Jefferson County, was threatening approximately 200 homes. The fire burned an estimated 3,789 acres, 40 percent on federal land and 60 percent on state and private land. The fire also threatened four high voltage transmission lines, roads and bridges in the area, as well as the Butte watershed. Ten homes were lost in the lightning-caused fire.

Losses

Since 1933, 41 wildland fire fatalities occurred in Montana. Twenty (20) of these deaths were from burnovers (such as the Mann Gulch Tragedy), seven were associated with aircraft crashes, and the others were from falling snags, training accidents, motor vehicle accidents, hypothermia, and heart attacks.

Wildfire losses are also measured in terms of acres burned and structures lost. **Table 4.4.1-3** displays counties that have sustained the greatest cumulative wildfire losses from DNRC data. **Table 4.4.1-4** displays data from the USDA Forest Service indicating wildfire losses for the National Forests in Montana. Suppression costs for Montana wildfires from 1992 to 2012 totaled $1.18 billion ($243.3 million from DNRC and $939.3 million from the Forest Service). Data on structures lost (residences and outbuildings) was collected beginning in 2003 for DNRC and 2008 for the Forest Service. The combined total from the two agencies is 175 residences and 210 outbuildings burned. It is not known whether there is duplication between the data reported in these tables. Data from BLM and BIA was requested but has not been received as of the date of this report.

TABLE 4.4.1-3
HIGHEST WILDFIRE LOSSES – DNRC DATA; 1992- 2012

County	Acres	Homes Lost	Outbuildings Lost	Suppression Cost
COUNTIES WITH THE MOST ACRES BURNED				
Rosebud	333,274	1	1	$2,038,931
Sweet Grass	190,029	7	37	$16,707,026
Bighorn	164,877	0	0	$3,136,040
Powder River	148,831	0	10	$4,731,785
Custer	134,801	1	4	$4,401,112
Musselshell	102,264	75	6	$2,265,888
Broadwater	86,747	0	0	$13,120,842
Garfield	84,875	1	0	$2,064,255
Missoula	79,785	4	2	$83,282,961
Lewis & Clark	56,031	9	16	$9,187,465

TABLE 4.4.1-3
HIGHEST WILDFIRE LOSSES – DNRC DATA; 1992- 2012

County	Acres	Homes Lost	Outbuildings Lost	Suppression Cost
COUNTIES WITH THE MOST STRUCTURES BURNED				
Musselshell	102,264	75	6	$2,265,888
Park	22,989	15	17	$1,054,675
Jefferson	18,244	10	0	$5,940,631
Lewis & Clark	56,031	9	16	$9,187,465
Sweet Grass	190,029	7	37	$16,707,026
Stillwater	30,447	5	1	$3,229,598
Missoula	79,785	4	2	$83,282,961
Custer	134,801	1	4	$4,401,112
Rosebud	333,274	1	1	$2,038,931
Meagher	5,095	1	0	$663,054
COUNTIES WITH MOST DOLLARS SPENT FOR SUPPRESSION				
Missoula	79,785	4	2	$83,282,961
Sanders	32,467	0	0	$21,642,804
Sweet Grass	190,029	7	37	$16,707,026
Granite	22,561	1	0	$14,436,937
Broadwater	86,747	0	0	$13,120,842
Ravalli	25,378	0	0	$11,805,097
Lincoln	12,454	0	0	$11,713,735
Flathead	6,570	0	0	$10,026,667
Lewis & Clark	56,031	9	16	$9,187,465
Powell	4,138	0	0	$5,958,347

Source: DNRC, 2013

TABLE 4.4.1-4
USDA FOREST SERVICE WILDFIRE STATISTICS 1986 - 2012

National Forest	Total # Fires	Suppression Cost	Acres Burned	Residences Burned	Other Structures Burned	# Fires >=1	Estimated Suppression Cost Fires >= 1 Acre	Acres Burned Fires >=1 Acre	Residences Burned	Other Structures Burned
Beaverhead/ Deerlodge	1,977	$90,745,139	225,691	18	34	473	$88,223,151	225,444	18	32
Bitterroot	2,803	$185,604,049	481,077	0	0	517	$180,789,720	480,686	0	0
Custer	1,529	$44,151,264	797,026	20	36	727	$41,976,369	796,839	20	36
Flathead	1,784	$167,949,591	591,280	0	0	333	$164,847,262	591,058	0	0
Gallatin	1,050	$128,611,214	587,996	5	8	185	$127,163,568	587,867	5	8
Helena	1,102	$42,162,072	270,766	0	8	193	$41,000,300	270,625	0	8
Kootenai	4,042	$91,501,208	139,325	0	1	710	$86,801,395	138,783	0	0
Lewis & Clark	750	$66,769,896	387,189	0	0	182	$65,351,390	387,089	0	0
Lolo	4,704	$216,929,870	377,729	1	3	741	$211,535,772	377,051	0	3
TOTAL	**19,741**	**$1,034,424,303**	**3,858,077**	**44**	**90**	**4,061**	**$1,007,688,927**	**3,855,442**	**43**	**87**

Source: USDA Forest Service, 2013

Declared Disasters

Requests for public assistance for wildland and rangeland fires can be from the State and/or Federal level. The Governor of Montana may declare an Executive Order (EO) that will permit the use of State funds or activation of the Montana National Guard. FEMA may authorize Fire Management Assistance Grants, formerly Fire Suppression Assistance (FSA), to local and State agencies for fire suppression. These funds are exclusive of other firefighting costs on Federal

land by Federal agencies. In extreme fire years, the Governor may request a Presidential-Declared Disaster for a wildland fire. This has occurred three times: in 1988 for most of the state; in 2000 for 48 Counties and 6 Indian Nations and in 2012 for the Ash Creek Fire in Powder River and Rose Bud Counties and the Northern Cheyenne Indian Reservation. **Table 4.4.1-5** shows wildfire disasters or emergencies declared in Montana.

TABLE 4.4.1-5
MONTANA DISASTER DECLARATIONS FROM WILDFIRE

Date	Event	Federal	State	Local
8/1/1979	Forest Fires. National Guard Activation	-	$8,411	-
8/1/1988	Wildland Fires. All counties in the State.	Information unavailable		
8/1/1990	Wildland Fires (EO 10-90). Broadwater County. MT Nat'l Guard Activation.		$7,190	$24,205
	Department of State Lands	-	$83,252	-
11/1/1990	Wildland Fires (EO 15-90). National Guard Activation. Beartooth Complex, Lewis & Clark County.	Information unavailable		
11/1/1990	Wildland fire (EO 17-90). Turkey Fire	Estimated damage to public facilities and infrastructure was $20K. Damage to private sector was $2.5M including homes, livestock, pasture, and hay that burned.		
5/1/1991	Wildland Fires (EO 05-91) 16 Counties, Dept. State Lands	Information unavailable		
6/1/1991	Wildland Fires (EO 10-91) 16 Counties, Dept. State Lands			
10/1/1991	Wildland Fires (EO 31-91). All counties in the State.			
10/1/1991	Wildland Fires (EO 33-91). Blaine County	-	$49,882	-
3/1/1992	Wildland Fires (EO 06-92). Teton and Cascade Counties	Information unavailable		
8/1/1992	Wildland Fires (EO 15-92). 12 Counties			
7/27/1994	Wildland Fires (EO 12-94). Lincoln, Flathead, Sanders and Lake Counties. Activation of MT National Guard.			
7/27/1994	Wildland Fires (EO 13-94). 9 counties. Activation of MT Nat'l Guard			
8/10/1994	Wildland Fires (EO 14-94). 16 counties. Activation of MT Nat'l Guard			
8/16/1994	Wildland Fires (EO 15-94). 13 counties. Activation of MT Nat'l Guard			
	FEMA-MT-2111-FSA; Little Wolf Fire, Flathead County	$2,887,129	-	-
	FEMA-MT-2110-FSA; Wilderness Complex Fire, Lincoln County	$16,959	-	-
9/4/1994	Wildland Fires (EO 19-94). 42 counties. Activation of MT Nat'l Guard	Information unavailable		
8/10/1996	Wildland Fires (EO 20-96). 12 counties. Activation of MT Nat'l Guard	-	$11,332	-
8/16/1996	Wildland Fires (EO 21-96). All Counties in State. Activation of MT National Guard.	-	$151,644	-
9/5/1996	Wildland Fires (EO 23-96). 16 counties. Activation of MT Nat'l Guard	-	$3,710	-
9/2/1998	Wildland Fires (EO 15-98)	-	$46,963	-
7/26/1999	Wildland Fires (EO 10-99). 32 Counties and activation of MT National Guard. **FEMA-2266-FSA-MT:** Fishel Creek Complex Fire, Musselshell County	$580,729	$388,150	-
11/5/1999	Wildland Fire (EO 17-99) Disaster Declaration for the Town of Outlook. Railroad paid for all costs incurred.	-	-	$126
7/24/2000	Wildland Fires (EO 17-00).	Information unavailable		
	FEMA-2314-FSA-MT: Maudlow-Toston, Broadwater Co.; Canyon Ferry Complex, Lewis & Clark Co.; Boulder Complex, Jefferson Co.	$23,568,300	-	$128,986
7/27/2000	Wildland Fires (EO 18-00). Clear Creek Divide Complex, Town of Hot Springs; Willie Fire, Carbon Co.; Mussigbord Fires, Beaverhead Co.; Average Bad Day Fire, Musselshell Co.; All Counties in the State and activation of MT National Guard.	-	$43,444	$98,446
7/27/2000	**FEMA-2317-FSA-MT.** Deer Lodge, Granite, Mineral, Missoula, Powell; Blodgett & Valley Complex, Ravalli Co.; and Silver Bow Cos.	$13,339,160	-	$8,1976
	FEMA-2318-FSA-MT. Beaverhead and Madison Counties.	$143,900	-	$4,807
	FEMA-2320-FSA-MT. Northwest Zone 1 Fire Complex. Flathead, Lake, Lincoln Co. Fires, Lincoln Co.; and Sanders Counties.	$5,361,546	$5,640	$40,378
8/16/2000	Wildland Fires (EO 20-00). All Counties in the State and activation of MT National Guard.			
	FEMA-1340-DR-MT: 48 counties and 6 Indian nations.	$11,579,000	-	-
	FEMA-2321-FSA: South Central Zone 4 Fire Complex	$91,940	-	-
	FEMA-2326-FSA:	$70,842	$21,483	$36,150
8/16/2001	Wildland Fires (EO 20-01). 19 counties. Activation of MT Nat'l Guard			

TABLE 4.4.1-5
MONTANA DISASTER DECLARATIONS FROM WILDFIRE

Date	Event	Federal	State	Local
9/3/2001	Wildland Fires (EO 22-01). 22 counties. Activation of MT Nat'l Guard			
7/18/2003	Wildland Fires (EO 14-03). All counties in the State and activation of MT National Guard.			
	FEMA-2483-FM-MT. Missouri Breaks Fire Complex, Garfield Co.	$256,726	$58,897	$8,885
	FEMA-2484-FM-MT. Robert Fire, Flathead County.	$420,963	$112,208	$20,871
	FEMA-2485-FM-MT. Wedge Canyon Fire, Flathead Co.	$351,321	$6,730	$110,377
8/7/2003	Wildland Fires (EO 16-03). All counties in the State and activation of MT National Guard.			
	FEMA-2488-FM-MT, Hobble Fire, Sweet Grass & Stillwater Cos.	$1,094,812	$32,988	$30,130
	FEMA-2489-FM-MT, Cherry Creek Fire, Sanders County.	$3,865	$769	$519
	FEMA-2490-FM-MT, Mineral & Missoula Fire Zone & Cooney Ridge Fire Complex, Mineral, Missoula and Ravalli Counties	$9,044,295	$2,944,971	$40,147
	FEMA-2492-FM-MT, Lincoln Complex, Lewis & Clark and Powell Counties	$740,657	$243,476	$3,410
	FEMA-2494-FM-MT, Flathead Fire Zone, Flathead County	$637,540	$4,832	$81,680
8/4/2005	Wildland Fires (EO 16-2005). Fire bucket training with MT National Guard.	-	$32,503.41	-
7/11/2006	Wildfires (EO 34-06). Activation of MT National Guard			
8/1/2006	Wildfires (EO 36-06). Activation of MT National Guard			
8/21/2006	Wildfire (EO 39-06). Statewide disaster.			
	FEMA-2652FM-MT-Sanders Fire, Stillwater County	$644,522	$205,053	$9788
	FEMA-2669-FM-MT-Emerald Hills Fire, Yellowstone County	$770,747	$240,527	$16,389
	FEMA-2671-FM-MT Derby Fire, Stillwater & Sweet Grass Counties	$6,243,071	$2,049,006	$32,018
8/4/2007	**FEMA-2718-FM-MT** Jocko Lakes Fire *	$16,964,927	$5,608,853	$46,122
8/16/2007	**FEMA-2721-FM-MT** Black Cat Fire*	$4,369,591	$1,408,798	$47,732
8/19/2007	**FEMA-2723-FM-MT** Ford Road Fire*	$57,568	$19,189	$0
9/16/2007	**FEMA-2730-FM-MT** Country Club Fire, Lewis & Clark County	Request withdrawn		
8/4/2009	**FEMA-2837-FM-MT** East Mount Fire	$195,000	$56,250	$8,750
2011	**FEMA-2950-FM-MT** Canyon Creek Fire, Yellowstone County	-	-	-
2012	**FEMA-2987-FM-MT** Corral Fire, Lewis & Clark County	-	-	-
2012	**FEMA-2988-FM-MT** Dahl Fire, Musselshell County	-	-	-
2012	**FEMA-2989-FM-MT** Ash Creek Fire and Rose Bud, Power River Counties	-	-	-
2012	**FEMA-4074-DR-MT** Major disaster for Rose Bud and Powder River Counties and Northern Cheyenne Tribe	$1,400,000	$120,000	$400,000
2012	**FEMA-5008-FM-MT** 19 Fire, Jefferson County	-	-	-
2012	**FEMA-5016-FM-MT** Sawtooth Fire, Ravalli County	-	-	-
Total Costs		**$87,495,950**	**$13,917,067**	**$1,039,653**

Source: DES, 2012

Wildfires have a profound effect on the forest product industry and recreational businesses. The U.S. Small Business Administration (SBA) can make declarations to provide assistance to businesses that are directly affected by forest fires.

Magnitude and Probability

The magnitude of a wildfire can be measures in terms of the acres burned, structures lost, and suppression costs. **Table 4.4.1-6** displays the magnitude of the largest and most destructive fires in Montana over the past 10 years.

TABLE 4.4.1-6
LARGEST AND MOST DESTRUCTIVE WILDFIRES; 1992 - 2012

Name of Fire	Date	County	Cause	Acres	Homes Lost	Outbuildings Lost	Suppression Cost
LARGEST FIRES							
Derby	8/22/2006	Sweet Grass	Lightning	121,725	-	-	$11,327,652
Pine Ridge / Sarpy	7/12/2006	Bighorn	Lightning	121,687	-	-	$2,504,785
Chalky	8/1/2012	Rosebud	Lightning	114,372	-	-	NA
Dunn Mountain	8/22/2008	Yellowstone	Lightning	102,380	1	4	$1,970,867
Ash Creek	6/25/2012	Rosebud	Lightning	101,177	-	-	NA
Toston / Maudlow	8/15/2000	Broadwater	Equipment	81,220	-	-	$11,994,926
Bundy Railroad	7/12/2006	Yellowstone	Lightning	78,012	-	-	$1,571,487
Taylor	7/3/2012	Powder River	Lightning	62,111	-	-	NA
Powderville	8/17/1996	Custer	Lightning	62,000	-	-	$223,610
Missouri Breaks	7/17/2003	Garfield	Lightning	49,107	0	0	$1,041,890
MOST STRUCTURES BURNED							
Dahl	6/26/2012	Musselshell	Lightning	22,045	74	-	NA
19 Mile	8/28/2012	Jefferson	Lightning	2,758	10	-	NA
Big Creek	7/29/2006	Park	Lightning	2,578	9	17	$800,066
Pine Creek	8/29/2012	Park	Equipment	3,100	5	-	NA
Hobble	8/8/2003	Sweet Grass	Lightning	36,180	4	11	$4,397,227
Corral	6/25/2012	Lewis & Clark	Debris Burning	1,851	4	-	NA
Chi Chi	11/12/2007	Sweet Grass	Campfire	17,954	3	26	$86,739
Black Mountain #2	8/9/2003	Missoula	Lightning	95	3	2	$187,667
Saunders	7/10/2006	Stillwater	Debris Burning	3,150	3	-	$863,401
Country Club	9/16/2007	Lewis & Clark	Arson	43	2	8	$7,074
COSTLIEST FIRES TO SUPPRESS							
Jocko Lakes	8/3/2007	Missoula	Lightning	32,462	1	-	$26,076,455
Toston / Maudlow	8/15/2000	Broadwater	Equipment	81,220	-	-	$11,994,926
Cooney Ridge #3	8/9/2003	Ravalli	Lightning	16,289	0	0	$11,513,802
Derby	8/22/2006	Sweet Grass	Lightning	121,725	-	-	$11,327,652
Mineral / Primm	8/6/2003	Missoula	Lightning	13,947	0	0	$9,742,407
Chippy	7/31/2007	Sanders	Miscellaneous	11,928	-	-	$8,595,321
Crazy Horse	8/10/2003	Missoula	Lightning	6,215	0	0	$8,010,788
Boles Meadow	8/9/2003	Missoula	Lightning	1,288	0	0	$7,796,622
Ryan Gulch	8/6/2000	Granite	Miscellaneous	17,118	-	-	$6,751,883
Black Cat	8/14/2007	Missoula	Miscellaneous	10,766	-	-	$6,394,793

Notes: NA = not available. Source: DNRC, 2013

For the past 20 years, Montana's wildfire suppression costs for DNRC direct and county assist fires have averaged $13.2 million annually. Suppression costs for the 2012 fire season are not currently available but are expected to greatly exceed this annual average. Fires in the WUI cost an average 46 percent more to suppress than non-WUI fires. This increased cost of fire suppression is largely due to the higher costs in the WUI associated with structure protection (DNRC, 2007).

Probability was assessed based on hazard frequency over a 20 year period using the DNRC data. The frequency of wildland and rangeland fires has a "highly likely" probability rating; an event that will occur more than once each year. A study in the *Journal of Geophysical Research* estimates that wildfires in Montana will burn 175 percent more area by the 2050s, among the highest estimates in the West (Baucus, 2009).

Vulnerability

All of Montana is vulnerable in one form or another to wildland and rangeland fires. The probability and severity of fires are highly dependent upon weather conditions and fuel conditions and thus will change from year to year. Fire is predicated on drought conditions, and Montana's forests and rangeland are more capable of supporting fires following and during drought years. Longer fire seasons caused by changing climate, lower precipitation, and reduced snow pack have also contributed to the increased level of fire activity in Montana.

Exclusive of weather, other factors can contribute to the probability and intensity of fires, thus making the fires burn hotter, become harder to suppress, and result in structure loss and loss of life. More than 100 years of excluding fire from forested areas, combined with past land-use practices, have altered the landscape. The resulting changes include a heavy buildup of dead vegetation, dense stands of trees, a shift to species that have not evolved and adapted to fire, and, occasionally, even an increase in non-native fire-prone plants.

Increased fuel loads are also attributable to infestations of spruce budworm and pine bark beetle in Montana's forests that have increased tree mortality. Since 2005, central and southwestern Montana forests have faced the largest known mountain pine beetle epidemic on record. Lodgepole pine stands with average diameters greater than 6 inches suffered higher than 90 percent mortality. Ponderosa pine stands in many areas had 90 percent of trees greater than 8 inches dead or infested. Elsewhere ponderosa stands had 40-70 percent mortality. Viewed from local highways many mountain sides in the area are a vast sea of red-needled dead trees. Because of these conditions, today's fires tend to be larger, burn hotter, and spread farther and faster, making them more severe, more dangerous, and more costly in human, economic, and ecologic terms.

A 2011 aerial check of Montana's forests shows some signs that the State's beetle infestation is abating. The *Montana Forest Insect and Disease Conditions* report shows a continued decline in mountain pine beetle activity in many areas across the State. The survey recorded beetle-caused mortality on over 1 million acres as compared to 2 million in 2010 and 3.6 million acres in 2009. However, there are new concerns emerging about western spruce budworm and pine butterfly, particularly in northwestern Montana and the southern Bitterroot Valley. The survey identified almost 1.2 million total acres defoliated by the western spruce budworm, compared to about 326,000 acres affected in 2010 and 2.6 million acres affected in 2009. Lincoln, Flathead, and Sanders Counties in northwestern Montana were the counties with the highest number acres affected. Western spruce budworm attacks Douglas-fir, spruce, and true fir trees. The insect rarely kills trees but defoliation severely stresses the tree and can be unsightly and alarming. (USDA Forest Service and Montana DNRC, 2011)

In central and eastern Montana, rangelands are also vulnerable to wildfires. Most fires burn in grass and sagebrush fuel types and although larger, generally are suppressed more quickly. The USDA Farm Service Agency's (FSA) Conservation Reserve Program is a voluntary

program available to agricultural producers to help them safeguard environmentally sensitive land. Producers enrolled in CRP establish long-term, resource-conserving covers to improve the quality of water, control soil erosion, and enhance wildlife habitat. In return, FSA provides participants with rental payments and cost-share assistance. Generally, CRP acreage may not be hayed or grazed during the primary nesting season for certain wildlife unless under emergency or managed conditions. Although the CRP may benefit the environment in many respects, the program may also increase the fire risk in nearby communities (USDA FSA, 2007). Wildland fires are one of the many natural sources of airborne particulate matter (tiny particles such as dust, soot, etc.) Particulate matter is the main pollutant of concern from smoke because it can lead to serious health problems. Smoke can also adversely affect air quality.

Statewide Vulnerability

A wildfire risk assessment, known as the West-Wide Wildfire Risk Assessment, was recently completed for 17 western states including Montana. The purpose of the project was to quantify the magnitude of the current wildfire problem and level of risk to communities and resources in the West with results comparable across geographic areas. Results for Montana counties are summarized in the following table with complete data in the Wildfire section of **Appendix B**. The project provides data compiled by County for four areas of wildfire risk, as described below and in **Table 4.4.1-7**:

- **Fire Risk Index (FRI) -** Measure of overall wildfire risk. Data from the assessment shows that Missoula, Ravalli, Gallatin, Flathead, and Park Counties have the highest Fire Risk Index rating.

- **Fire Effects Index (FEI) -** Identifies areas with important values affected by wildland fire and/or that are costly to suppress. FEI is a weighted combination of the Values Impacted Rating and Suppression Difficulty Rating data. Data from the assessment shows that Ravalli, Gallatin, Missoula, Flathead, and Big Horn Counties have the highest Fire Effects Index rating.

- **Fire Threat Index (FTI) -** Wildfire threat is an index related to the likelihood of an acre to burn. The FTI integrates the probability of an acre igniting and the expected final fire size, based on the rate of spread in four weather percentile categories, into a single measure of wildfire threat. Data from the assessment shows that Phillips, Rosebud, Custer, Flathead, and Madison Counties have the highest Fire Threat Index rating.

- **Wildland Development Areas (WDA) -** Describes where people are living in wildland areas. This dataset is derived from the LandScan population count data and represents the number of housing units per acre. Data from the assessment shows that Flathead, Gallatin, Missoula, Lake and Yellowstone Counties have the highest Wildland Development Area rating.

TABLE 4.4.1-7
WEST-WIDE WILDFIRE ASSESSMENT - MONTANA

Fire Risk Index - Acres by County					
County	**Wildland Acres**	**Non-Wildland Acres**	**FRI 7**	**FRI 8**	**FRI 9**
Missoula	1,605,418	68,272	127,106	68,751	63,524
Ravalli	1,474,702	60,007	90,934	46,850	61,538
Gallatin	1,430,875	252,782	194,258	87,310	42,886
Flathead	3,094,306	267,357	169,146	75,150	40,994
Park	1,612,892	186,747	233,497	76,807	29,790
Carbon	1,100,202	219,325	68,144	35,395	21,812
Lewis & Clark	2,078,137	157,697	65,485	30,842	20,234
Jefferson	1,027,232	33,462	42,048	20,175	19,808
Big Horn	2,899,380	308,586	75,987	34,420	19,572
Silver Bow	440,541	19,222	45,876	23,052	19,073
Fire Threat Index (FTI) - Acres by County					
County	**Wildland Acres**	**Non-Wildland Acres**	**FTI7**	**FTI8**	**FTI9**
Ravalli	1,474,702	60,007	136,386	56,928	63,558
Missoula	1,605,418	68,272	151,860	70,282	54,269
Gallatin	1,430,875	252,782	191,076	74,456	25,408
Flathead	3,094,306	267,357	140,808	46,416	22,624
Big Horn	2,899,380	308,586	117,667	43,039	21,923
Richland	872,237	472,293	10,539	10,470	17,813
Park	1,612,892	186,747	200,902	61,991	16,650
Silver Bow	440,541	19,222	40,099	34,076	15,393
Carbon	1,100,202	219,325	84,670	38,845	14,131
Glacier	1,463,117	479,263	40,783	9,569	14,064
Fire Effects Index (FEI) - Acres by County					
County	**Wildland Acres**	**Non-Wildland Acres**	**FEI7**	**FEI8**	**FEI9**
Phillips	2,869,536	463,763	6,894	13,341	38,767
Rosebud	3,022,690	191,309	7,154	26,282	36,512
Custer	2,236,861	188,290	2,030	13,538	34,524
Flathead	3,094,306	267,357	400,815	84,855	29,160
Madison	2,156,274	148,840	147,508	29,188	29,013
Dawson	1,078,234	445,157	2,314	7,928	28,833
Garfield	2,706,203	392,505	4,752	4,010	26,216
Roosevelt	811,420	704,034	3,097	4,683	25,851
Lincoln	2,297,986	52,718	306,568	67,137	24,899
Gallatin	1,430,875	252,782	118,735	56,649	24,702
Wildland Development Areas (WDA) - Acres by County					
County	**Total WDA**	**WD4**	**WD5**	**WDA6**	**WDA7**
Flathead	152,334	25,626	22,146	14,746	26
Gallatin	120,932	16,944	13,765	8,519	14
Missoula	84,991	15,113	14,619	8,644	14
Lake	105,087	14,032	10,144	4,295	12
Yellowstone	113,323	14,193	10,550	6,075	9
Cascade	88,533	9,063	6,239	4,175	9
Ravalli	139,521	24,822	17,036	4,612	7
Lewis & Clark	94,529	12,039	9,740	5,413	6
Dawson	35,203	1,292	1,014	972	5
Glacier	59,262	2,536	1,104	1,224	5

Source: West Wide Wildfire Risk Assessment Final Report (Sanborn, 2012)

Increased population growth over the past two decades in Montana has resulted in an expanded Wildland Urban Interface (WUI). Fires in these WUI areas have become much larger and burned with greater intensity. The BLM completed a Communities At-Risk Analysis across the state, identifying fire risk factors immediately around Montana communities (Dannenberg,

2004). Data was collected on vegetation, slope, aspect, weather factors, development density, and building materials within a 5-mile radius of 622 towns and cities in Montana. The results of the BLM communities risk assessment showed that 213 of the 622 communities in Montana (34 percent) were rated with an extreme or high fire danger rating.

As residential areas expand into relatively untouched forest land, people living in the WUI are increasingly threatened by forest fires. An estimated 360,000 people live in homes in the WUI in the Northern Rockies that are directly vulnerable to wildfire. The value of their homes is estimated at $21 billion. Fires in WUI areas pose extreme risk to human life and property, increase the cost of fire suppression activities, endanger the lives of firefighters that must contain and prevent losses in these areas, and have significant social, economic, and natural resources impacts. Montana DNRC fire report data shows that through the direct protection program, 50 percent more fires occurred in WUI than non-WUI areas between 1996 and 2006. Within the WUI areas, 64 percent of the fires were human-caused, with the majority of the causes being campfires and debris burning. Outside the WUI, only 27 percent of the fires were human-caused.

The wildfire hazard is not considered a uniform hazard across the State. Therefore, the PDM analysis was completed using a GIS layer of WUI data compiled from the local CWPPs. **Figure 4.4.1-2** depicts the WUI in Montana as compiled from completed Community Wildfire Protection Plans as consolidated by Montana DNRC (2012b).

To complete the vulnerability analysis for the wildfire hazard, GIS was used to intersect the WUI layer with both the critical facility and MDOR cadastral parcel datasets. Estimates of vulnerable population were calculated using census block data within the hazard area. Exposure values are presented in **Table 4.4.1-8**. The *Wildfire* section in **Appendix B** presents supporting documentation from the risk assessment including a list of critical facilities in the wildfire hazard area and loss estimates by county.

Risk assessment results show that DES District 1 has the highest exposure for residential and commercial/agricultural/industrial structures as well as critical facilities, population and annual loss. District 3 follows with the second highest exposure in these categories. Districts 2 and 5 have the third and fourth highest wildfire exposure, respectively.

Table 4.4.1-9 presents a vulnerability summary of the wildfire hazard as it relates to percent exposure and growth rates in Montana's counties, cities and towns. Percent exposure was derived by dividing the value of residential and commercial/agricultural/industrial building stock exposed to the hazard into the total value of the building stock. Percent exposure is a more

Figure 4.4.1-2 – Wildland Urban Interface in Montana (Source: DNRC, 2012b)

TABLE 4.4.1-8
WILDFIRE EXPOSURE SUMMARY BY DES DISTRICT

Item	District 1	District 2	District 3	District 4	District 5	District 6
WUI (Square Miles)	9,779.21	5,611.05	10,336.65	2,611.67	5,701.87	3,963.03
Percent WUI	38.90%	23.16%	41.31%	9.78%	25.90%	16.74%
Residential Building Exposure ($)	$14,620,072,470	$2,249,603,062	$9,460,414,708	$733,615,320	$2,752,613,371	$1,000,677,450
Residential Building Exposure (# structures)	96,305	22,342	51,711	10,410	20,865	13,522
Commercial, Agricultural, Industrial Building Exposure ($)	$3,908,232,640	$1,116,965,008	$2,694,176,701	$237,471,889	$897,700,687	$334,382,097
Commercial, Agricultural, Industrial Building Exposure (# structures)	10,970	4,385	6,631	2,098	3,020	3,628
Critical Facility Exposure ($)	$1,350,301,614	$4,498,328	$764,863,416	$12,818,677	$2,678,176	$20,278,763
Critical Facility Exposure (# structures)	277	14	136	11	7	20
Annual Loss	$6,841,993	$37,666	$2,244,147	$261,376	$564,641	$22,544
Population Living in Hazard Area	270,472	75,901	137,560	27,247	66,815	37,359
Population Under 18 Living in Hazard Area	55,423	19,244	29,972	6,041	17,705	9,045

accurate way of displaying vulnerability than presenting jurisdictions with the highest exposure because it reflects areas with the greatest risk opposed to those with high value real estate. A complete ranking is presented in the *Wildfire* section of **Appendix B**.

Counties with the highest wildfire exposure include: Missoula, Silver Bow, Mineral, Lewis and Clark and Deer Lodge; while the top cities/towns include: Helena (Lewis and Clark Co.), Whitefish (Flathead Co.), Livingston (Park Co.), Lewistown (Fergus Co.), and Sidney (Richland Co.). **Figure 4.4.1-3** presents percent exposure for the top counties and cities/towns showing regional vulnerability.

Percent exposure was multiplied by the change in population between the 2000 and 2010 census to present the jurisdictions with the highest risk that are experiencing the fastest growth. The number of residential building permits is also listed for the top ranking jurisdictions. A complete ranking is presented in the *Wildfire* section of **Appendix B**.

Counties with the highest wildfire exposure experiencing the fastest population growth include: Broadwater, Missoula, Lewis and Clark, Jefferson, and Flathead; while the top cities/towns (with population over 500) are Whitefish (Flathead Co.), Pinesdale (Ravalli Co.), East Helena (Lewis and Clark Co.), Fairview (Richland Co.), and Missoula (Missoula Co.). **Figure 4.4.1-4** presents

TABLE 4.4.1-9
WILDFIRE EXPOSURE SUMMARY FOR TOP COUNTIES, CITIES AND TOWNS

County	% Wildfire Exposure	% Growth (2000 to 2010)	# of Building Permits (2000 to 2010)	$ Residential Exposure	# Residences at Risk	$ Commercial/ Ag/Industrial Exposure	# Commercial/ Ag/Industrial Buildings at Risk	$ Critical Facilities Exposure	# Critical Facilities at Risk
COUNTIES WITH HIGHEST PERCENT EXPOSURE ($ RESIDENTIAL + $ COMMERCIAL- AG- INDUSTRIAL EXPOSURE IN HAZARD AREA / TOTAL EXPOSURE)									
MISSOULA	100.00%	14.09%	3,868	$4,953,960,400	30,529	$2,288,280,957	4,639	$956,643,682	177
SILVER BOW	99.93%	-1.23%	548	$1,122,901,894	12,758	$532,949,496	1,789	$207,667,742	25
MINERAL	99.89%	9.09%	26	$188,268,513	1,807	$41,835,675	224	$0	0
LEWIS AND CLARK	99.64%	13.78%	955	$2,708,970,193	20,950	$1,162,600,729	2,757	$611,688,429	87
DEER LODGE	99.61%	-1.25%	215	$317,397,389	4,152	$65,232,960	419	$46,511,451	12
JEFFERSON	98.78%	13.67%	8	$585,372,492	4,459	$60,065,366	368	$13,906,172	15
GRANITE	98.09%	8.38%	3	$215,324,674	1,845	$29,124,208	232	$0	0
CITIES/TOWNS WITH HIGHEST PERCENT EXPOSURE (TOWNS WITH POP. > 500) ($ RESIDENTIAL + $ COMMERCIAL- AG- INDUSTRIAL EXPOSURE IN HAZARD AREA / TOTAL EXPOSURE)									
HELENA	100.00%	9.35%	875	$1,083,967,027	7,588	$986,572,583	1,914	$588,403,244	61
WHITEFISH	100.00%	26.33%	719	$899,475,133	3,685	$196,249,753	382	$0	0
LIVINGSTON	100.00%	2.82%	278	$345,130,978	2,813	$146,215,662	447	$2,119,290	1
LEWISTOWN	100.00%	1.51%	29	$208,656,374	2,280	$76,530,094	371	$13,187,751	7
SIDNEY	100.00%	8.73%	91	$177,474,214	1,794	$66,381,275	404	$1,067,981	1
WEST	100.00%	7.99%	59	$62,472,396	304	$132,958,823	229	$0	0
DILLON	100.00%	10.18%	52	$116,681,900	1,237	$76,911,046	317	$107,080,270	19
COUNTIES WITH GREATEST EXPOSURE WHICH HAVE FASTEST GROWTH RATES (% EXPOSURE x % POPULATION CHANGE 2000 to 2010)									
BROADWATER	81.47%	28.13%	51	$220,213,607	1,940	$29,954,582	262	$22,175,873	3
MISSOULA	100.00%	14.09%	3,868	$4,953,960,400	30,529	$2,288,280,957	4,639	$956,643,682	177
LEWIS AND CLARK	99.64%	13.78%	955	$2,708,970,193	20,950	$1,162,600,729	2,757	$611,688,429	87
JEFFERSON	98.78%	13.67%	2	$585,372,492	4,459	$60,065,366	368	$13,906,172	15
FLATHEAD	56.22%	22.04%	3,155	$4,219,479,225	20,008	$488,006,976	1,282	$334,238	7
GALLATIN	36.13%	31.95%	7,122	$2,704,866,688	8,384	$614,403,231	1,075	$2,639,487	5
MADISON	86.77%	12.31%	65	$1,394,189,742	3,442	$393,874,988	499	$240,545	2
CITIES/TOWNS WITH HIGHEST PERCENT EXPOSURE WHICH HAVE FASTEST GROWTH RATES (TOWNS WITH POP. > 500) (% EXPOSURE x % POPULATION CHANGE 2000 TO 2010)									
WHITEFISH	100.00%	26.33%	719	$899,475,133	3,685	$196,249,753	382	$0	0
PINESDALE	100.00%	23.58%	0	$3,155,205	25	$15,831	1	$0	0
EAST HELENA	100.00%	20.83%	79	$57,056,371	672	$30,228,085	119	$0	0
FAIRVIEW	100.00%	18.48%	0	$15,744,283	340	$4,075,762	67	$0	0
MISSOULA	100.00%	17.06%	3,010	$2,619,245,208	16,597	$1,815,304,312	3,341	$914,569,133	160
DILLON	100.00%	10.18%	52	$116,681,900	1,237	$76,911,046	317	$107,080,270	19
HELENA	100.00%	9.35%	875	$1,083,967,027	7,588	$986,572,583	1,914	$588,403,244	61

Figure 4.4.1-3 Percent Exposure.

Figure 4.4.1-4 Percent Exposure + Percent Population Growth

percent exposure and population change for the top counties and cities/towns showing the most vulnerable areas experiencing the fastest population growth.

Review of Potential Losses in Local PDM Plans

The *Local Plan Exposure Summary* tables in the *Wildfire* section of **Appendix B** present a summary of potential wildfire losses from the Local PDM Plans. Wildfire loss is described in terms of its effect on buildings, society and the economy, as outlined below:

- Building exposure is presented either as a dollar value or high-moderate-low rating and typically refers to the vulnerability of residential structures and/or critical facilities from the hazard.
- Societal exposure is presented either as the number of lives at risk or as a high-moderate-low rating representing the vulnerability of human life from the hazard.
- Economic exposure is presented as a dollar value or high-moderate-low rating referring to the potential impact to the economy from the hazard.

Approximately 85 percent of the local PDM plans evaluated the wildfire hazard in their risk assessment. Of those with quantified results, Cascade County had the highest exposure followed by Lewis and Clark, Silver Bow, Madison, Lake, Lincoln and Sanders Counties. Mineral County lists the wildfire hazard as a Very High exposure risk while Carter, Flathead, and Powell list exposure as High.

Vulnerability of State Facilities

The PDM analysis indicates that 465 critical facilities and 1,304 bridges are located in the wildfire hazard area. These facilities are listed in the *Wildfire* section of **Appendix B**.

While structure loss can occur from wildland fire, most of the losses on state-owned land are related to state forest and crop/grazing land. Leased cropland and grazing leases return approximately $23.9 million annually to the state. Timber production from state-owned timber tracts returned $10.5 million in fiscal year 2012 (DNRC, 2012c).

Future Development

The wildland-urban interface is a very popular place to live in Montana. Development in the hazard areas has increased in recent years and has amplified the vulnerabilities in the unincorporated parts of the State. Regulating growth in these areas is a delicate balance between protecting private property rights and promoting public safety. Some counties have growth policies recognizing the wildfire threat and emphasizing defensible space, inspection of new development, water supplies, fuels mapping, and Firewise programs.

The 2005 Montana legislature passed House Joint Resolution No. 10 which recognized what professionals working in the wildfire arena have been asserting for years; the laws have not kept up with changes in circumstances and technology, population growth, and changes in weather patterns (Kurtz, 2006). During the 2005-2006 interim, a work group endeavored to correct inconsistency, modernize policy, institute policy where none existed, and clarify authority where it had been murky. As a result, the 2007 Montana Legislative session passed a bill specific to wildfire and the wildland-urban interface that may reduce the impact of wildfire and rangeland fire on future development.

Senate Bill 51 which took effect on October 1, 2009, is a revision to growth policy and subdivision law that require consideration of wildland fire. The law requires that growth policies include an evaluation of the potential for wildland fire, including whether or not there is need to delineate the WUI or adopt regulations that require defensible space around structures, adequate ingress and egress to and from structures to facilitate fire suppression activities, and/or adequate water supply for fire protection. Senate Bill 51 also amended subdivision regulations to require every county, city and town to reasonably avoid subdivisions where there is danger of injury to health, safety, or welfare by reason of natural hazard, including but not limited to fire and wildland fire. The regulations prohibit subdivisions in these areas unless the hazards can be eliminated or overcome by approved construction techniques or mitigation measures such as requiring sprinklers in certain circumstances or prohibiting cedar shake roofs.

The law engaged the DNRC and the DLI in developing rules and providing incentives to help cities and counties get ahead of growth in the WUI. This included identifying best planning and land use practices for WUI development. The law also requires promotion of forest management activities within and adjacent to the wildland-urban interface and directs the DNRC to develop rules addressing wildland-urban development including potential means of enforcement. Senate Bill 51 became law with Governor Schweitzer's signature on May 8, 2007.

Montana Code Annotated section 76-13-104(8) required that DNRC adopt administrative rules that address development within the WUI. This included best practices for development within the WUI and criteria for providing grant and loan assistance to local governments to encourage them to adopt those practices. The "best practices" subdivision and zoning regulations required by statute, referred to as "Guidelines", are summarized below (DNRC, 2009).

Subdivision Guidelines

The Subdivision Guidelines provide a list of recommendations that can be incorporated into local subdivision regulations. These would apply to the development of lots in new subdivisions. The guidelines include seven headings: (1) Wildland Fuel Mitigation discussing defensible space and the preparation of vegetation management plans; (2) Site Development discussing steep slopes, fire chimneys, and improvements prior to construction; (3) Fuel Breaks and Greenbelts; (4) Means of Access including streets and roads, gates, and signage; (5) Water Supply requirements and guidelines; (6) Alternative Development; and (7) a Miscellaneous

category which discusses mapping of fire protection features and maintenance of equipment and features. When the Montana Department of Labor and Industry defines what construction techniques or other mitigation measures are appropriate for use in mitigating hazards during the subdivision process, local government can choose to adopt them into their county subdivision regulations as well.

Zoning Regulations

The zoning guidelines provide a list of recommendations that can be incorporated into city/county zoning regulations for issues such as maintenance of vegetation management on existing lots, the construction of driveways on existing lots, and the development of lots in subdivisions. While it was recognized that it may be difficult or impossible to enforce these guidelines on existing developments, it is suggested that all efforts should be made to utilize these as much as possible on existing lots in order to best protect the lives, homes and investments. The zoning guidelines can be adopted as part of the regulations for a new zoning district, as an amendment to regulations for an existing zoning district or regulations for an overlay zoning district.

Financial Assistance for Development within the WUI

Section 76-13-104(8)(b), MCA, provides that DNRC must adopt administrative rules addressing development in the WUI, including but not limited to criteria for providing grant and loan assistance to local government entities to encourage adoption of guidelines for development in the WUI. In order to qualify for certain grant and loan assistance, local government entities must adopt a Community Wildfire Protection Plan (CWPP) or its equivalent, and the Guidelines for Subdivision Regulations or their equivalent, by October 1, 2010. These grant and loan assistance criteria apply only to grants and loans for fuel mitigation actions, fire prevention, and infrastructure improvements associated with development in the WUI. Current DNRC grant programs affected include the *Western States Wildland Urban Interface* mitigation grants and the *Community Wildfire Protection* grants. Current wildland fire suppression assistance, including grants of equipment, the provision of wildland firefighter training, funds appropriated to suppress wildland fires, and funds allocated via the federal Volunteer Fire Assistance or Rural Fire Assistance programs, are not affected by the grant and loan assistance criteria set forth above. A handbook on Preparing a Community Wildfire Protection Plan is a good resource for local communities and can be accessed at http://dnrc.mt.gov/forestry/Fire/Grants/Documents/cwpphandbook.pdf.

Data Limitations

Wildfires are dependent on so many factors that determining the vulnerability to a community is rather subjective and relies on a complex combination of variables. In addition, in a state such as Montana, with mountains in the west and grasslands to the east, a method to assess one area does not work on another.

A data limitation in the wildfire analysis presented in the State PDM Plan consists of the WUI layer derived from the local CWPPs. Various methods were used in the development of the local WUI which are generally not comparable when considering the state as a whole. Therefore, risk assessment results for wildfire are only a general representation of potential vulnerabilities.

Risk assessment methodology involved using GIS to intersect the hazard layer with parcel data from the Montana Dept. of Revenue and census block data from the 2010 U.S. Census. If the GIS intersect clipped any part of a parcel then the entire value and number of structures in that parcel were assumed to be located in the hazard area. This may lead to an over reporting of exposure where parcels are large. In determining population exposure, if the GIS intersect clipped a census block then the entire number of individuals in that census block were assumed to reside in the hazard area which may lead to over reporting of population at risk where census blocks are large.

References

Baucus, Senator Max, 2009. Letter to U.S. Forest Service Chief Tom Tidwell. In: The Clark Fork Chronicle. Baucus to Forest Service: Spend Pine Beetle Money in Montana. December 19, 2009. http://www.clarkforkchronicle.com/article.php/20091211121320118

Bureau of Land Management (BLM), 2013. Montana/Dakota BLM Prevention, Education and Mitigation Plan 2013.

Dannenberg, Mike. 2004. Communities at Risk Briefing Paper. Unpublished assessment of Montana communities and fire risk compiled by USDOI Bureau of Land Management (Billings) with contributions from various state and federal firefighting agencies.

FireSafe Montana, 2009. Living with Fire. Homeowners' Firesafe Guide for Montana, 2009.

Firewise. 2004. http://www.firewise.org/

Incident Information System, 2012. http://inciweb.org/

Montana Department of Administration (DOA), Risk Management and Tort Defense (RMTD) Division. 2012. Property Casualty Insurance Information System (PCIIS) database of State facility building and content values and loss claims. November, 2012.

Montana Department of Natural Resources and Conservation (DNRC). 2013. Fire Statistics from 1992 to 2012. Database extraction provided by Elaine Huseby. January.

Montana Department of Natural Resources and Conservation (DNRC). 2012a. Fire Statistics from 2001 to 2010. http://dnrc.mt.gov/forestry/Fire/Statistics/2010statistics.asp

Montana Department of Natural Resources and Conservation (DNRC). 2012b. GIS layer of WUI compiled from Community Wildfire Protection Plans prepared by Montana Counties and Tribes.

Montana Department of Natural Resources and Conservation (DNRC). 2012c. Trust Land Management Division, Fiscal Year 2009 Annual Report. http://dnrc.mt.gov/About_Us/publications/

Montana Department of Natural Resources and Conservation (DNRC). 2009. Final Guidelines for Development in the Wildland Urban Interface. September 24, 2009.

Montana Department of Natural Resources and Conservation (DNRC). 2007. State Wildfire Suppression and the Wildland Urban Interface. January 2007.

Montana Disaster and Emergency Services (DES). 2012. Federal and State Declared Disasters.

Montanafires.com. 2004. http://www.mtfires.com/index.php?id=4

National Interagency Fire Center (NIFC). 2013. http://www.nifc.gov/fireInfo/fireInfo_statistics.html

Sanborn, 2012. West Wide Wildfire Risk Assessment Final Report. Prepared for: Oregon Department of Forestry, Western Forestry Leadership Coalition, and Council of Western State Foresters. December 19, 2012

The Legislative Fiscal Division of Montana. October 2008. Wildfire Suppression Funding; Fiscal Pocket Guide. Available from: http://leg.mt.gov/content/publications/fiscal/leg_reference/Brochures/Wildfire_Suppression.pdf

USDA Farm Service Agency (FSA). 2007. Conservation Reserve Program Statistics. http://www.fsa.usda.gov/FSA/webapp?area=home&subject=copr&topic=crt

USDA Forest Service and Montana DNRC, 2011. Montana Forest Insect and Disease Conditions Survey. Available from: http://www.fs.usda.gov/detail/r4/forest-grasslandhealth/?cid= fsbdev3_016103

USDA Forest Service, 2013. Wildfire data 1986 – 2012. Compiled by M. Mitzkus.

USDA Forest Service, 2012. U.S. Forest Service History. The 1910 Fire. http://www.foresthistory.org/ASPNET/Policy/Fire/FamousFires/1910Fires.aspx

4.4.2 Flooding

CPRI = 3.40

Floods are the result of a multitude of naturally-occurring and human-induced factors, but they all can be defined as the accumulation of too much water in too little time in a specific area. Types of floods that affect Montana include regional floods, flash floods, and ice-jam floods. Dam failure floods are discussed in *Section 4.4.9*.

Regional flooding occurs in river systems whose tributaries drain large geographic areas and include many independent river basins. Significant flooding can have impacts to roads and homes on individual streams. Factors that directly affect the amount of flood runoff include frozen versus unfrozen precipitation amount, intensity and distribution, the amount of soil moisture, seasonal variation in vegetation, snow depth and water-resistance of the surface due to urbanization. The duration of riverine floods may vary from a few hours to many days.

Floodplains are lands bordering rivers and streams that normally are dry but are covered with water during floods. Buildings and fill material in the floodplain can change the pattern of water flow and increase flooding and flood damage on adjacent property by blocking the flow of water and increasing the width, depth, or velocity of flood waters. Buildings or other structures placed in floodplains can be damaged by floods.

Many communities in Montana are protected from flood hazards by levees and dikes. With the production of new Digital Flood Insurance Rate Maps (DFIRMs) through FEMA's Map Modernization Program, communities must demonstrate they can meet federal regulations by having their levees certified by a registered professional engineer or federal agency with responsibility for levee design. Without a new certification, the DFIRMs would show that no levee exists, requiring homeowners to purchase costly flood insurance through the National Flood Insurance Program (NFIP) and property values would drop. The U.S. Army Corps of Engineers, which built many of the levees, is no longer doing certification, which is why many flood districts have been slow to move, saying they can't afford the certification.

Flash floods are local floods of great volume and short duration. In contrast to riverine flooding, flash floods usually result from a torrential rain on a relatively small drainage area. Flash floods can occur within several seconds to several hours, with little warning. They can be deadly because they produce rapid rises in water levels and have devastating flow velocities. Factors contributing to flash flooding include: rainfall intensity, rainfall duration, surface conditions, and topography and slope of the receiving basin. Urban areas are susceptible to flash floods because a high percentage of the surface area is composed of impervious streets, roofs, and parking lots where runoff occurs very rapidly. Mountainous areas also are susceptible to flash floods, as steep topography may funnel runoff into a narrow canyon.

An ice jam is an accumulation of ice in a river that restricts water flow and may cause backwater that floods low-lying areas upstream from the jam. Downstream areas also can be flooded if the jam releases suddenly, sending a flash flood downstream. Ice jam flooding is more likely to occur in break-up events as opposed to freeze-up events. Sudden seasonal changes are the greatest factor increasing the risk of ice jam flooding. Prolonged cold periods causing significant ice formation followed by unseasonably warm periods in the winter or spring are likely formulas for ice jams.

Damages resulting from ice jams can affect roads, bridges, buildings, and homes, and can cost the affected community thousands to millions of dollars. In most instances, ice jams result in highly localized, yet serious damages, which makes it difficult to obtain the type of disaster assistance available for large-scale flooding events.

History of Flooding in Montana

Flooding is a common occurrence in Montana. The following discussion summarizes historical flooding in each major Montana watershed incorporating local plan information.

Regional Flooding - Columbia River Basin

The Columbia River Basin has been subject to numerous significant flood events over the years. The June 1908 flood in Missoula County involved nearly every major stream and river. This event was the result of unseasonably warm temperatures and 33 consecutive days of rain.

In June 1964, approximately 15 inches of rain accumulated over a 30-hour period in the upper Flathead drainage. The resulting flood damaged more than 350 houses near Kalispell. The U.S. Army Corps of Engineers estimated $25 million in damages in the Flathead Basin.

In January 1974, Lincoln, Sanders, Flathead, Glacier, Mineral, Missoula and Deer Lodge counties were hit by flood waters which caused approximately $16 million worth of damage to Forest Service roads, bridges, and facilities, and private property. These same counties suffered flood related losses again in June 1975, totaling nearly $35 million.

Regional Flooding - Missouri River Basin

The most damaging flood in the Missouri River Basin occurred in June 1964 and included the failure of two dams; Swift Reservoir on Birch Creek and Two Medicine Dam on Two Medicine

Creek on the Blackfeet Reservation. The principal rivers involved were the Dearborn, Sun, Teton and Marias. The event was initiated by 8 to 10 inches of rain over three days on a deeper-than-average snow pack. All counties situated along the Continental Divide were affected to some degree. However, the greatest damage was received by the City of Great Falls. This disaster resulted in the loss of 30 lives and an estimated $55 million in damages, with the greatest damage in the city of Great Falls. The U.S. Army Corps of Engineers has since completed a $12 million flood control levee along the north bank of the Sun River near Great Falls, which protects over 500 homes and businesses.

In 1984, the combination of snowmelt and spring rains with frequent ice jams caused flooding on the Beaverhead River near Dillon. Crews successfully prevented major damage by channeling floodwaters through town on streets lined with sandbags and straw. The Clark Canyon Dam above Dillon and emergency dikes built on the river near town reduced potential damages.

Significant floods have occurred on the Milk River and its tributaries primarily as a result of rapid snowmelt over frozen soil. Heavy snow, the associated snowmelt, and ice jams caused the greatest flood on record for this river in April 1952. Over $6 million (1952 dollars) in damages were recorded between Havre and the river's mouth below Nashua, causing significant economic impacts during this month long flood. Over 1,000 homes flooded and almost 3,000 people evacuated. Levees offered limited protection to the communities of Havre, Chinook, Malta, Saco, Glasgow, and Nashua. In September 1986, another significant flood caused by thunderstorms impacted those along the Milk River from Havre to Nashua causing over $3 million (1986 dollars) in FEMA reimbursed damages and one death, but some sources indicate over $36 million in total damages were incurred.

On November 5, 2006, unprecedented heavy rains caused catastrophic flooding in Glacier National Park. Going to the Sun Road was washed out in several areas with several bridges washed out. The Many Glacier Hotel was also flooded. The Associated Press reported $7 million in damages (NCDC, 2012).

Two Presidential flood disasters were received in recent years: one in 2010 in Hill and Choteau Counties and the Rocky Boy's Indian Reservation; and, one in 2011 where over three-quarters of Montana counties and Tribal Nations were affected by flood waters. The *Declared Disaster* section below presents additional details on these significant floods.

Regional Flooding - Yellowstone River Basin

The Yellowstone River system is one of the remaining large rivers in this country that does not have a major flood control dam, with the exception of the Yellowtail Dam on the Big Horn River tributary. Extensive flooding occurred in Park County near Livingston and Yellowstone County in 1996 and 1997. Large floods have affected the Glendive area near the end of the Yellowstone

River, typically as a result of ice jams. Flooding in 1899 took 12 lives and destroyed a new bridge. In 1936, another ice jam isolated Glendive for 10 days. The U.S. Army Corps of Engineers built a levee in 1959, which protects a portion of the town, but does not provide adequate protection from even 50-year ice jam floods. Miles City, located at the junction of the Tongue River and lower Yellowstone River is one of the more flood prone towns in the state with significant areas of the city within the floodplain. Limited protection of the city is afforded by uncertified levees. Miles City adopted a Floodplain Ordinance on June 22, 2010 and adopted the new Effective DFIRMS as of July 20, 2010. This new DFIRM now places well over 80 percent of the city limits inside the 100 year floodplain. The number of structures in the floodplain in Miles City has increased from just over 300 to well over 3,000 with the new DFIRM and poses a major concern to both Miles City residents and the State with regards to mitigation actions. Miles City recently updated their local PDM Plan and identified that recertification of their dike, acquiring easements or land to access the dike, raising the dike around the wastewater treatment plant and adding a dike around the Tongue River side of the facility were high priority mitigation actions. They also want to address storm drainage in Miles City and set up a program to acquire properties in the floodway.

The upper Yellowstone River flows along the southern border of the town of Livingston where it forks several times and creates a number of islands. The largest of these, 9th Street Island, has over 40 homes and businesses on it. In June 2008 flood waters destabilized one of the pylons of the 9th Street Island Bridge, built in the late 1950's and damaged by previous flooding events causing it to sink several feet into the river. In turn, the bridge buckled slightly at one end and badly damaged the road surface. Once authorities were notified they ordered an evacuation of the island so that people wouldn't be stranded since this bridge is the only way on and off the island. A Federal disaster declaration was unobtainable not only due to the limited damage amount (under the $1.2 million minimum for Montana) but also since a bridge inspection from 2005 found several of the bridge pylons had been severely undercut and scoured and were never repaired.

Federal and state funding has been spent for replacement of the bridge by Park County; however, the 40+ residences on 9th Street Island are still a major concern for the State with regards to mitigation actions, particularly as they reside in an extremely obvious flood hazard area. A DFIRM map for Livingston and this area of Park County has been formally approved with an effective date of October 18, 2011 and clearly shows nearly the entire surface of the islands are in the floodway with only a small portion in the floodplain. The state still considers acquisition/demolition or relocation of these homes and structures a high priority mitigation action item.

Acquisition is also being considered in the town of Harlem (Blaine County). An HMGP project is in the planning stages that would involve acquisition of homes in north Harlem which have been repeatedly flooded.

The town of Roundup was devastated by the floods of 2011 when the Musselshell River gushed into low-lying neighborhoods twice in two weeks. Much of the town was inundated for almost a week (see description of this event in the *Declared Disaster* section, below).

Flash Flooding

Flash flooding is common in some areas of the state during the summer storm season. The best examples of this type of flooding have occurred in the Billings area. Flooding of the tributaries of the Yellowstone River has resulted from intense summer thunderstorms, typically short in duration, which produce high peak flows. Major flooding of this type occurred in 1923 and 1937. Flash flooding is also common along drainages in Lincoln, Sanders, Flathead, Glacier, Mineral, Missoula and Deer Lodge Counties during the summer storm season. Heavy rainfall from thunderstorms can cause creeks and streams to rise rapidly in eastern Montana. Numerous people were killed in Terry at the turn of the century when a train was swept off of its tracks by flash flooding. Portions of Montana Highway 2 are also prone to flash flooding. However, flash flooding can occur anywhere in Montana with slow moving thunderstorms and intense rain.

Ice Jam Flooding

In Montana, 1,620 ice jam events have been recorded, the most of any lower 48 states. Ice jam events have been reported on 169 different streams and rivers. Ice jams occur most frequently in the months of February (21%) and March (45%) (NWS, 2007). Recorded ice jams do not always indicate flooding occurred with the ice jam, just the presence of an ice jam and the increased risk of flooding. **Table 4.4.2-1** summarizes some of the damages caused by ice jams.

TABLE 4.4.2-1
ICE JAM DAMAGES IN MONTANA

Loss of Life:
- 1894: Three men died while trying to escape ice jam flood waters in the Glendive area.
- 1899: Twelve people lost their lives to an ice-jam and flash flood in the Glendive area on the Yellowstone River.
- 1996: A volunteer in Fort Benton collapsed and died from a heart attack as he was helping to load sandbags.
- 1996: Two died because of ice jam flooding.

Property Damage:
- 1881: Main Street in Miles City filled with water from an ice jam in March. Residents evacuated to higher ground for one week, which they spent in tents, waiting for the floodwaters to recede.
- 1944: An ice jam on the Tongue and Yellowstone Rivers in Miles City caused 300 to 500 people to be evacuated from their homes.

Environmental Damage:
- 1996: Fish killed in the Blackfoot River by habitat destruction and disruption of spawning activity.
- 1996: Fish killed in Clark Fork River by ice jam scouring and releases of soils contaminated with toxic metals.

Source: USACE CRREL, 1998

The majority of ice jams occur east of the Continental Divide with the most events occurring in Miles City on the Yellowstone River (52), Bozeman on Hyalite and Bridger Creeks (42), and in the towns of Nashua (38), Sidney (36), and Wolf Point and Moorhead both with 31 recorded events. West of the Continental Divide, ice jams occur most frequently on the Clark Fork River

with 31 events and in the town of Libby with 14 events. The most ice jams reported for one river have occurred on the Missouri River with 171 events, followed by the Milk River with 130 events, and by the Yellowstone with 123 events. Since the State PDM Plan was last updated in 2010, sixty-four (64) ice jams were recorded in Montana. Communities most affected include Miles City (Custer County) with five ice jams events and Logan (Gallatin County) with four events (USACE CRREL, 2013). **Figures 4.4.2-1 and 4.4.2-2** present ice jam statistics for Montana communities and streams east and west of the Continental Divide, respectively, compiled by the National Weather Service in Great Falls using 2007 data.

Losses

SHELDUS data on Montana's flood losses between 1960 and 2011 (adjusted for inflation) indicate that there have been 11 fatalities (but not all fatalities may have been recorded), $84.9 million in property damage and $19.6 million in crop damage across the state. DES District 4 counties cumulatively had the highest flood losses with $28.6 million in property damage, while District 5 counties had the second highest property damage from flooding with $18.6 million. **Table 4.4.2-2** presents the counties with the most property damage from flooding during this 50+ year period.

TABLE 4.4.2-2
TOP 20 COUNTIES WITH FLOOD LOSSES (ADJUSTED TO 2011 DOLLARS): 1960 – 2012

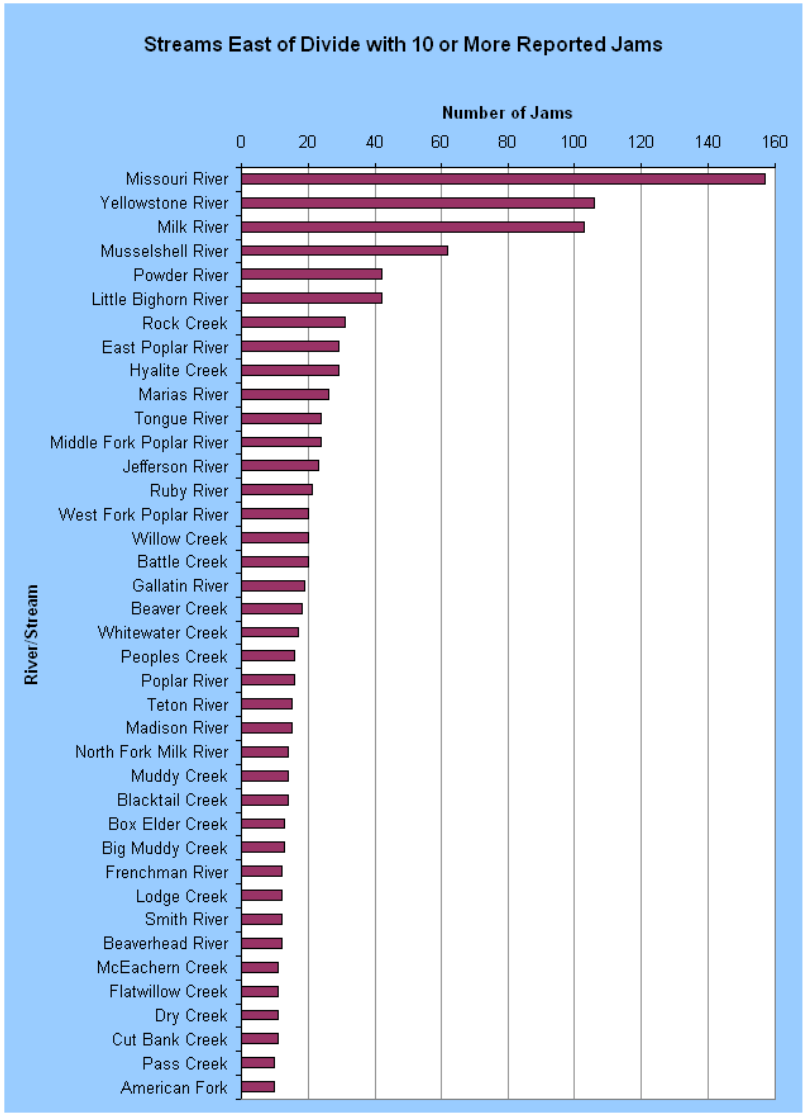
County	Property Loss	Crop Loss	County	Property Loss	Crop Loss
Custer	$8,545,675	$180,128	Dawson	$2,372,047	$1,179,027
Musselshell	$7,341,870	$415,281	Stillwater	$2,052,739	$18,934
Flathead	$6,498,677	$153,898	Valley	$1,823,893	$1,261,967
Fallon	$6,150,368	$18,934	Carbon	$1,655,919	$18,934
Powder River	$5,977,672	$109,285	Hill	$1,653,762	$817,843
Sweet Grass	$4,302,942	$289,986	Richland	$1,573,842	$1,172,325
Big Horn	$4,184,695	$185,063	Blaine	$1,397,496	$816,984
Lincoln	$3,376,772	$2,259	Daniels	$1,328,626	$1,072,178
Roosevelt	$3,270,132	$1,910,552	Garfield	$1,301,488	$919,947
Yellowstone	$2,672,398	$194,098	Chouteau	$1,194,190	$960,040

Source: SHELDUS, 2012

Declared Disasters

Montana counties with emergency and disaster declarations for floods since 1974 are shown in **Table 4.4.2-3.** There has been $65.2 million in federal and over $14.8 million in state assistance for damages to public structures and infrastructure in the past 37 years, or over $2 million per year. Most recently, Montana had Presidential flood disasters in 2010 and 2011, as described below.

Figure 4.4.2-1 Montana Cities and Streams East of the Continental Divide with the Most Reported Ice Jams
Source: USACE CRREL and NWS, 2007



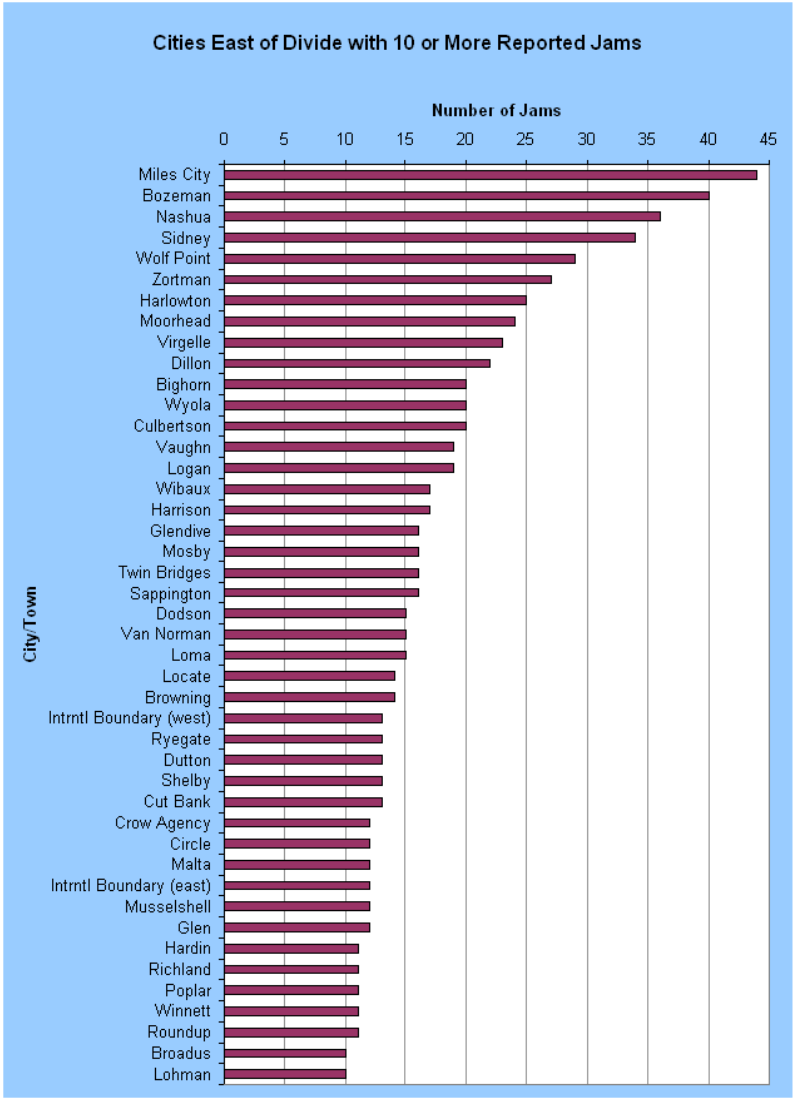
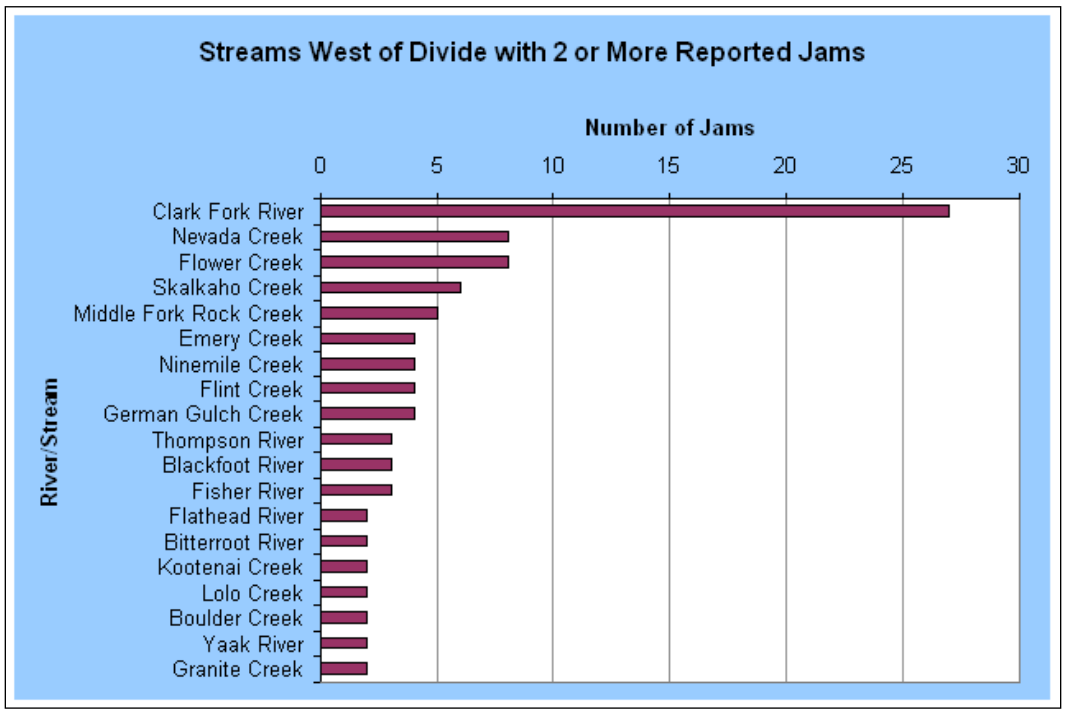


Figure 4.4.2-2 Montana Cities and Streams West of the Continental Divide with the Most Reported Ice Jams Source: USACE CRREL and NWS, 2007



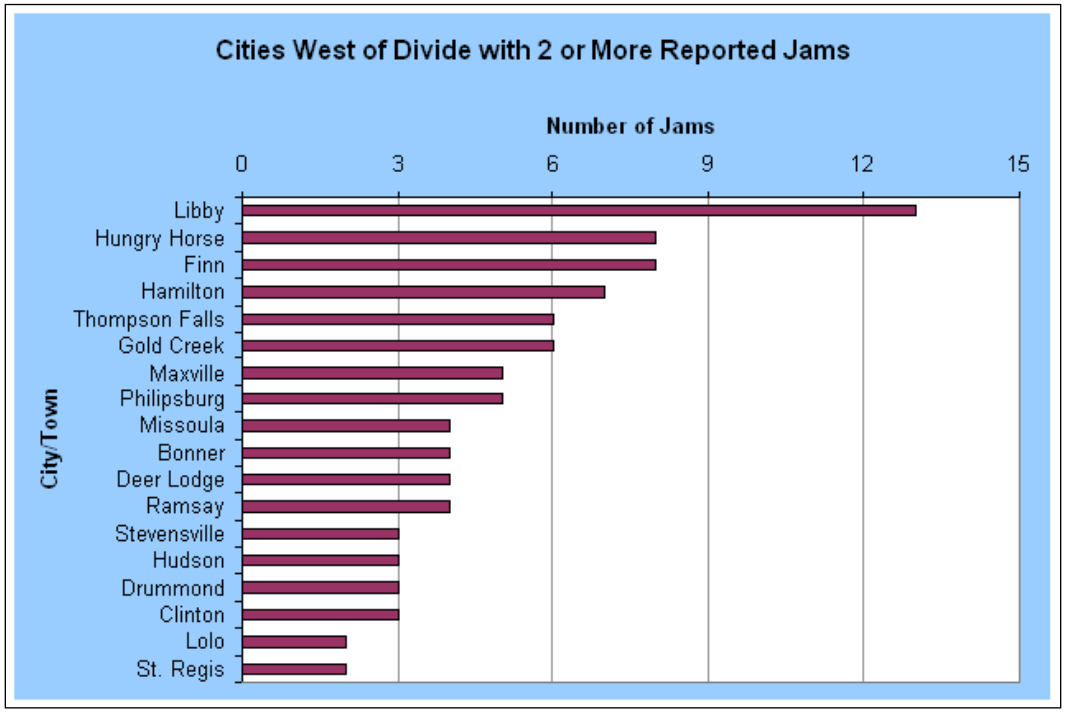


TABLE 4.4.2-3
STATE AND FEDERAL DECLARATIONS FOR FLOODING IN MONTANA (1974 - 2013)

Year	State and Federal Declarations or Public Assistance (number)	Public Assistance			Total
		Federal	State	Local	
1974	FDAA-417-DR-MT	$603,144	-	-	$603,144
1975	FDAA-472-DR-MT and IFG-267 Grants	$2,070,551	-	-	$2,583,915
1976	PA ST-76-1 Town of Froid	-	$31,268	$718	$31,986
1978	FDAA-558-DR-MT and IFG-226 Grants; EO-13-78 Town of Winnett, Petroleum Co.	$3,838,126	$135,721	$25,876	$3,999,723
1979	PA ST-79-10 Town of Denton; PA ST-79-11Petroleum Co.	-	$97,048	$885	$97,933
1981	FEMA-640-DR-MT; FG-486 Grants	$4,733,120	$944,132	$313,286	$5,990,538
1984	PA ST-84-2 Beaverhead Co.; PA ST-84-1 Madison Co.	-	$580,029	$51,559	$631,588
1986	FEMA-761/777-DR-MT; IFG-106 Grants	$2,390,854	$212,442	$584,501	$3,357,409
1991	EO 12-91 Teton Co.; EO 15-91 Blaine Co.; EO 24-91Richland Co.; EO 33-91 Blaine Co.	-	$620,342	$94,849	$715,191
1993	EO 11-93 Custer County	-	$105,630	$15,910	$121,540
1994	EO 04-94 Petroleum Co.; EO 05-94 Town of Winnett	-	$64,156	$4,339	$68,495
1995	EO 1-95; EO 15-95	-	$38,994	$385	$39,379
1996	EO 12-96	-	$196,876	$128,484	$325,360
1996	EO 3-96; FEMA 1105-DR-MT	$1,820,739	$241,888	$365,006	$2,427,633
1996	EO 7-96 Sweet Grass, Park, Stillwater counties, Cities of Livingston & Miles City; FEMA 1113-DR-MT	$1,480,471	$194,643	$128,484	$1,803,598
1997	EO 4-97 Richland Co & City of Miles City.; EO 14-97 City of Libby; EO 16-97 City of Wolf Point; FEMA-1183-DR-MT	$5,762,964	$113,170	$26,270	$5,902,404
1997	Ice Jams (EO 2-97)	-	$1,988		$1,988
1998	EO 10-98 Custer, Hill, Jefferson, Roosevelt counties, City of Culbertson	-	$332,945	$158,528	$491,473
1999	EO 3-99 Daniels County	-	$546,305	$10,062	$556,367
2001	EO 19-01	-	$56,322	$15,424	$71,746
2002	EO 13-02 FEMA 1424-DR-MT	$1,424,941	$35,783	$439,197	$1,899,921
2003	EO 5-03 Roosevelt County	-	$14,260	$92,898	$107,158
2005	EO 09-05 Sweet Grass County; EO 11-2005 Chouteau, McCone counties & City of Ronan; EO 15-2005 Dawson County	$788,055	$842,542	$98,220	$1,728,817
2006	EO 39-06 Ravalli County	-	$184,576	$143,374	$327,950
2007	EO 13-07 Towns of Nashua & Melstone, City of Glasgow	-	$149,456	$5,872	$155,328
2008	EO 34-2008 Emergency work on 9th Street Bridge, Livingston	-	$255,237	$48,356	$303,593
2009	EO 6-2009 Town of Brockton; EO-8-2009 Custer County	-	$38,657	$17,227	$55,884
2010	FEMA DR-1922 Hill & Chouteau Counties	$517,982	$94,141	$77,185	$689,308
2010	FEMA DR-1922 Rocky Boy's Reservation	$6,196,753	-	$24,000,000	$30,196,753
2010	EO 16-2010 Custer County; EO 20-2010 Dawson and Roosevelt Counties; E) 21-2010 Petroleum County	-	$237,839	$63,606	$301,445
2011	FEMA DR-1996 48 Counties & 5 Reservations	$33,593,227	$8,380,000	$2,784,000	$6,000,000
2011	EO 3-2011 City of Libby (ice jam flooding)	-	$68,165	$5,570	$73,735
2013	FEMA DR-4127; 8 Counties & 3 Reservations	Not yet determined	Not yet determined	Not yet determined	Not yet determined
TOTAL		**$65,220,927**	**$14,814,555**	**$28,378,763**	**$71,661,302**

Source: DES, 2013

2010 Presidential Flood Disaster: Between June13-17, 2010, the Rocky Boy's Reservation in Hill and Choteau Counties received 4.8 inches of precipitation which caused major flooding. The floods left 300 homes without running water on the reservation and caused major disruption to daily life. Thirty (30) families were evacuated and eight miles of water lines were destroyed. More than 200 homes were without drinking water and about 500 housing units had water damage. In addition, flood waters destroyed many bridges, culverts and driveways.

The main concern was the road leading to the health clinic and tribal offices which was completely destroyed. Rushing waters moved the $12 million clinic several inches, damaging a weight-bearing wall and rendering the facility a total loss. A Presidential disaster declaration was received and $30.2 million in public assistance was granted.

2011 Presidential Flood Disaster: A major Disaster Declaration was declared by President Obama on June 17, 2011 for the State of Montana. Flooding resulting from heavy rains (4-10 inches in 24 hours) and run off from snow melt of record snows occurred throughout the state. Out of the 56 counties, 46 were affected along with 6 of the 7 Tribal Nations. Damages were over $60 million statewide.

Town of Roundup under water. Photo: Billings Gazette

Roundup was one of the hardest-hit towns as record flooding struck twice in two weeks forcing residents to flee homes as the Musselshell River gushed into low-lying neighborhoods. Cars and trucks left behind were nearly submerged, and the ground floors of some homes were swamped by the river before it began receding. Officials evacuated between 30 and 35 residences and businesses on the southern end of town. It was a repeat of a scene that occurred two weeks prior when the Musselshell flooded dozens of homes and businesses in Roundup. Much of the town was inundated for almost a week, contributing to Gov. Brian Schweitzer's request for a Presidential disaster declaration for Montana.

Flood warnings also covered much of the rest of the state, stretching from southwestern Missoula to northeastern Glasgow. The Lewis and Clark County Commission declared a flood emergency and officials issued an evacuation advisory for at least a half-dozen homes in East Helena. Upstream from Missoula, the Clark Fork River rose two feet above major flood stage, threatening East Missoula homes and roadways in the area.

2013 Presidential Flood Disaster: A disaster was declared by President Obama on July 10, 2013. Flooding resulting from heavy rains (record or near record amounts) caused infrastructure damage for 8 counties and 3 Tribal Nations. Damages were over $3 million (preliminary estimates).

Magnitude and Probability

The magnitude of a flood event can be measured in terms of severity; how much precipitation occurred and under what conditions, how many evacuations were required, and level of response necessary. Hydrologists often use terms like “100-year flood” or “500-year flood” to convey the flood’s magnitude. These numbers are developed by extrapolating historical data to longer time periods. The term “100-year flood” means that, in any given year there is a one in 100 chance of a flood of that particular magnitude. In other words, the probability of a flood of that particular magnitude in any given year is 1/100 or 1 percent. The actual amount of water that causes a particular flood (e.g., a 100-year flood) varies from river to river.

Approximately 11 percent of the reported ice jams in Montana have known damages. The most common damages include bridge and residential damage, road flooding, evacuations, dike and levee damage, and agricultural damage. There have been at least 17 deaths from ice jam flooding in Montana. The majority of these deaths were due to flash floods released during ice jam break-up (USACE CRREL, 2007).

Probability is based on hazard frequency over a 10 year period. Based on the SHELDUS data, flood frequency has ranged from 0.02 to 0.51 which is expressed as a “possible” to “likely” probability rating. A “likely” rating indicates that flooding will not likely occur every year but will occur more than once every 10 years. A “possible” probability rating indicates that flooding will not likely occur more than once each decade but more often than once every 100 years.

National Flood Insurance Program

The National Flood Insurance Program (NFIP) is the primary insurer for flood insurance in the United States. Currently, there are 131 Montana communities that participate in the NFIP. Of these, 48 have no special flood hazard or are minimally flood prone (FEMA, 2012a). As of August 31, 2012, Montana had 5,814 NFIP policies in-force insuring $1.36 billion in property. From 1978 through August, 2012, the NFIP has paid almost $9.8 million in claims from the flooding of insured properties (NFIP, 2012). Counties and cities with the highest flood insurance claims are shown below in **Table 4.4.2-4.** Note that although flood insurance claims are being used to show past losses, this data is not an entirely accurate representation of flood losses. Many homeowners without flood insurance may have sustained flood damages and those losses would not be reflected in these figures. Twelve (12) communities in Montana do not participate in the NFIP (**Table 4.4.2-5**). According to FEMA, all 12 have been identified in a flood hazard area (FEMA, 2012a).

TABLE 4.4.2-4
COMMUNITIES WITH HIGHEST FLOOD INSURANCE CLAIMS (1/1978 TO 8/2012)

County	Insurance Claim Amount	Cities	Insurance Claim Amount
Valley	$1,331,316	Roundup	$791,103
Park	$700,420	Miles City	$398,442
Yellowstone	$580,367	Billings	$275,204
Flathead	$513,633	Bozeman	$183,990
Missoula	$494,719	Great Falls	$132,846

Source: NFIP, 2012

TABLE 4.4.2-5
COMMUNITIES NOT PARTICIPATING IN THE NFIP

Counties	Cities
Garfield County	Town of Grass Range (Fergus County)
	Town of Medicine Lake (Sheridan County)
McCone County	City of Poplar (Roosevelt County)
Prairie County	Town of Sunburst (Toole County)
Wibaux County	Town of Thompson Falls (Sanders County)

Source: FEMA, 2012a

Montana has 122 repetitive losses through the NFIP (**Table 4.4.2-6**), most of which have been in unmapped areas. Valley County has had the majority of these (51) followed by Park County (15). There are currently no Severe Repetitive Loss (SRL) properties in the State; however, the NFIP database indicates that as of 5/31/13, one property in Valley County is listed as a "Pending" SRL. The owners of this property will be approached by the State and County in the near future with regards to a possible acquisition as part of the State's Repetitive Loss Strategy.

Multiple efforts during the past few years have been made to mitigate some of the Repetitive Loss (RL) properties through the Flood Mitigation Assistance, Repetitive Flood Claims, or PDM programs but all have failed due to:

- The excessive cost of developing flood hazard data for the affected RL property immediate area to determine the Base Flood Elevation and other needed flood frequencies;
- The limited nature or long interval period of historical flooding; and
- Lower damage amount reimbursements under the NFIP program versus actual damages sustained by a structure (most individual homeowners can only recall the amount of an NFIP insurance settlement received) (NEMA, 2008).

TABLE 4.4.2-6
COMMUNITIES WITH HIGHEST NUMBER OF NFIP REPETITIVE LOSSES
AS OF 5/13/2013

Community	Losses	# Repetitive Loss Properties	Total Building Payment for RP Properties	Total Content Payment for RP Properties
Valley County	225	25	$838,931	$80,197
Park County	97	7	$153,024	$3,496
Missoula County	102	5	$35,901	$1,858
City of Billings	72	4	$42,243	$15,428

TABLE 4.4.2-6
COMMUNITIES WITH HIGHEST NUMBER OF NFIP REPETITIVE LOSSES
AS OF 5/13/2013

Community	Losses	# Repetitive Loss Properties	Total Building Payment for RL Properties	Total Content Payment for RL Properties
Cascade County	142	3	$17,023	$3,820
Yellowstone County	105	3	$108,877	$35,374
Carbon County	32	3	$76,357	$0
City of Roundup	52	2	$218,929	$24,238
Lincoln County	27	2	$55,088	$3,188
City of Glasgow	23	2	$65,842	$3,267
Meagher County	5	2	$94,463	$22,178
City of Great Falls	73	1	$3,974	$0
Lewis & Clark Co.	38	1	$36,339	$650
Ravalli County	30	1	$29,260	$0
Gallatin County	24	1	$13,001	$0
Phillips County	23	1	$9,707	$1,237
Lake County	17	1	$7,359	$0
City of Lewistown	15	1	$6,620	$0
City of Malta	13	1	$4,662	$0
Musselshell County	11	1	$56,786	$0
Fergus County	6	1	$62,598	$30,654
City of Missoula	25	0	$0	$0
TOTAL	**893**	**68**	**$1,936,982**	**$225,585**

Notes: RL = Repetitive Loss

The strategy to reduce repetitive loss properties is to work with local communities to review repetitive loss structures, with the SHMO and NFIP Coordinator drawing data from the NFIP Repetitive Loss Database, utilize previous mitigation plans and develop project plans which would identify willing and voluntary homeowners desiring to mitigate their Repetitive Loss structures. To date, specific actions the State has taken to reduce the number of repetitive loss properties have been unknown, since the Repetitive Loss Data Base has been unavailable to us for several years. However the State is in the process of Acquisition of five substantially damaged homes from the floods of 2011 (DR-1996) and considers this significant progress since no acquisitions/elevations have been done in Montana in well over fifteen years. Valley, Yellowstone and Park Counties together have had over 50 percent of the losses for the state and will remain as viable targets for Repetitive Loss Strategy action in the foreseeable future. Floodplain mitigation planning work has already been completed in these communities. Valley County has in place a 2000 Flood Hazard Mitigation Plan and a 2009 PDM Plan Update including projects that would reduce flooding hazards. Guidance for general floodplain mitigation is included in the Park County Flood Hazard Mitigation Plan dated 1998 while newer information is included their 2011

PDM Plan which incorporates significant flood mitigation in conjunction with adoption of the City of Livingston and Park County DFIRM in October 2011. Yellowstone County and the City of Billings completed their PDM Plan update in 2012 which included a floodplain study and mitigation planning for the west Billings area where significant growth is happening. Section

6.0, Capabilities Assessment, also discusses the State's intention to utilize the FEMA Flood Mitigation Assistance (FMA) grant as part of its Repetitive Loss Strategy.

The NFIP Community Rating System (CRS) is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements. As a result, flood insurance premium rates are discounted to reflect the reduced flood risk resulting from the community actions meeting the three goals of the CRS: reduce flood losses; facilitate accurate insurance rating; and, promote the awareness of flood insurance. **Table 4.4.2-7** presents the Montana communities that participate in the CRS.

TABLE 4.4.2-7
COMMUNITY RATING SYSTEM ELIGIBLE COMMUNITIES
AS OF 10/31/2012

Community Name	CRS Effective Date	Current Class
Belt, Town of	10/1/1992	8
Bozeman, City of	10/1/2009	8
Cascade County	4/1/2001	9
Circle, Town of	10/1/1993	8
Flathead County	10/1/2007	8
Great Falls, City of	10/1/2006	8
Lewis & Clark County	10/1/2002	8
Miles City, City of	10/1/1994	9
Missoula, City of	5/1/2002	8
Missoula County	5/1/2002	8
Three Forks, Town of	10/1/1998	8
Yellowstone County	5/1/2003	8

Source: FEMA, 2012b (http://www.fema.gov/library/viewRecord.do?id=3629)

Vulnerability

Flooding becomes a hazard when people compete with nature for the use of floodplains. If floodplain areas were left in their natural state, flooding would not cause major damage. Urban, industrial and other surface development in natural floodplain areas of Montana has increased the vulnerability to serious flooding. The extent of artificial surface area created by development prevents rainfall from soaking into the ground and increases the rate of runoff.

Vulnerability to flooding is also dependent on local weather conditions and site specific flood water constraints. Some areas can be completely immune to flooding because the steep incised river banks have physically impeded development near the river, limiting flood damage when floodwaters arrive. Other areas experience flooding annually where meandering rivers have created broad floodplains and development has encroached and impeded floodwaters. Because local conditions have a significant impact on the vulnerability to flooding, historic data on occurrence and loss is the best means to assess flooding vulnerability statewide.

There is an increased risk of flash flooding and debris flows in Montana as a result of the active 2012 fire season. Most burn areas will be prone to flash flooding and debris flows for at least 2

years. Locations downhill and downstream from burned areas are very susceptible to flash flooding and debris flows, especially near steep terrain. Rainfall that would normally be absorbed will run off extremely quickly after a wildfire, as burned soil can be as water repellant as pavement. As a result much less rainfall is required to produce a flash flood. As water runs downhill through burned areas it can create major erosion and pick up large amounts of ash, sand, silt, rocks and burned vegetation. The force of the rushing water and debris can damage or destroy culverts, bridges, roadways, and buildings even miles away from the burned area (NWS, 2013).

Statewide Vulnerability

The flood hazard does not pose a uniform risk across the State. Therefore, the PDM analysis was completed with data obtained from DFIRMs and a FEMA-generated HAZUS analysis of flooding in Montana. The HAZUS scenario was for a simulated 100-year flood using National Elevation Dataset, a flood frequency discharge table that references a specific discharge per return period for a given point (stream gage derived) and regression equations used between stream gage areas. DFIRMS were available from the Natural Resource Information System (NRIS). **Figure 4.4.2-3** presents the flood layer used in the PDM analysis.

To complete the vulnerability analysis for the flood hazard, GIS was used to intersect the resulting flood hazard layer with both the critical facility and MDOR cadastral parcel datasets. Estimates of vulnerable population were calculated using census block data within the hazard area. Exposure values are presented in **Table 4.4.2-8**. The *Flood* section in **Appendix B** presents supporting documentation from the risk assessment including a list of critical facilities in the flood hazard area and loss estimates by county.

Risk assessment results indicate that DES District 1 has the highest residential exposure in terms of number of structures at risk from flooding, followed by Districts 3, 2 and 4. Regarding commercial/agricultural/industrial building exposure, District 1 is highest in terms of number of structures followed by Districts 2, 5 and 3. Exposure in terms of building value is actually higher in other districts where there are fewer but higher valued structures at risk. In terms of critical facilities, District 3 has the highest exposure and District 1 has the most population at risk, followed by Districts 3, 5 and 2. Annual loss if highest in District 2 followed by Districts 1 and 5.

Figure 4.4.2-3 Flood Hazard Area from HAZUS Analysis of 100-Year Flood Event and Adopted DFIRMs (Source: FEMA, 2010c; NRIS)

TABLE 4.4.2-8
FLOODING EXPOSURE SUMMARY BY DES DISTRICT

Item	District 1	District 2	District 3	District 4	District 5	District 6
Flood Hazard Area (Square Miles)	699.40	1,056.51	564.83	1,023.83	724.85	1,271.56
Percent Flood Hazard Area	2.78%	4.36%	2.26%	3.83%	3.29%	5.37%
Residential Building Exposure ($)	$4,078,370,184	$880,781,936	$1,606,748,294	$182,926,912	$929,904,995	$219,727,817
Residential Building Exposure (# structures)	21,738	7,480	9,139	2,584	7,603	2,497
Commercial, Agricultural, Industrial Building Exposure ($)	$1,387,492,576	$394,868,235	$477,691,670	$51,988,051	$739,000,736	$78,221,273
Commercial, Agricultural, Industrial Building Exposure (# structures)	3,156	1,617	1,092	595	1,250	1,002
Critical Facility Exposure ($)	$253,420	$1,299,977	$84,189,416	$0	$2,674,608	$15,254
Critical Facility Exposure (# structures)	3	1	26	0	1	1
Annual Loss	$63,869	$88,342	$11,947	$13,950	$34,782	$29,013
Population Living in Hazard Area	123,863	40,020	50,277	13,591	48,512	14,857
Population Under 18 Living in Hazard Area	26,571	10,065	10,258	2,835	11,974	3,469

Table 4.4.2-9 presents a vulnerability summary of the flooding hazard as it relates to percent exposure and growth rates in Montana's counties, cities and towns. Percent exposure was derived by dividing the value of residential and commercial/agricultural/industrial building stock exposed to the hazard into the total value of the building stock. Percent exposure is a more accurate way of displaying vulnerability than presenting jurisdictions with the highest exposure because it reflects areas with the greatest risk opposed to those with high value real estate. A complete ranking of percent exposure is presented in the *Flooding* section of **Appendix B**.

Counties with the highest exposure from flooding include: Petroleum, Treasure, Blaine, Wheatland and Phillips; while the top cities/towns include: Belt (Cascade Co.), Malta (Phillips Co.), Browning (Glacier Co.), Fort Benton (Chouteau Co.), and Forsyth (Rosebud Co.). **Figure 4.4.2-4** presents percent exposure for the top counties and cities/towns showing regional vulnerability.

Percent exposure was multiplied by the change in population between the 2000 and 2010 census to present the jurisdictions with the highest risk that are experiencing the fastest growth. The number of residential building permits is also listed for the top ranking jurisdictions. A complete ranking is presented in the *Flooding* section of **Appendix B**.

Counties with the highest exposure from flooding that are experiencing the fastest population growth include: Flathead, Broadwater, Sanders, Liberty, and Stillwater, while the top cities/towns (with population over 500) are Whitefish, Kalispell and Columbia Falls (Flathead

TABLE 4.4.2-9
FLOODING EXPOSURE SUMMARY FOR TOP COUNTIES, CITIES AND TOWNS

County	% Flood Exposure	% Growth (2000 to 2010)	# of Building Permits (2000 to 2010)	$ Residential Exposure	# Residences at Risk	$ Commercial/ Ag/Industrial Exposure	# Commercial/ Ag/Industrial Buildings at Risk	$ Critical Facilities Exposure	# Critical Facilities at Risk
COUNTIES WITH HIGHEST PERCENT EXPOSURE ($ RESIDENTIAL + $ COMMERCIAL-AG- INDUSTRIAL EXPOSURE IN HAZARD AREA / TOTAL EXPOSURE)									
PETROLEUM	64.44%	-0.41%	0	$9,791,548	117	$652,071	30	$0	0
TREASURE	45.77%	-15.17%	0	$9,462,115	138	$1,685,077	25	$0	0
BLAINE	39.23%	-6.33%	3	$48,093,216	661	$13,733,070	128	$1,299,977	1
WHEATLAND	38.25%	-5.27%	0	$29,800,864	214	$2,358,504	59	$0	0
PHILLIPS	35.61%	-7.63%	13	$44,341,035	558	$25,198,378	229	$0	0
MINERAL	35.41%	8.71%	26	$63,601,389	498	$17,968,878	77	$0	0
BIG HORN	35.11%	3.29%	42	$40,696,721	429	$76,577,081	133	$0	0
CITIES/TOWNS WITH HIGHEST PERCENT EXPOSURE (TOWNS WITH POP. > 500) ($ RESIDENTIAL + $ COMMERCIAL- AG- INDUSTRIAL EXPOSURE IN HAZARD AREA / TOTAL EXPOSURE)									
BELT	69.98%	-5.21%	0	$10,313,362	143	$4,699,355	27	$0	0
MALTA	38.77%	-5.99%	13	$18,684,054	268	$20,357,053	87	$0	0
BROWNING	34.64%	-3.66%	0	$1,987,077	52	$2,712,947	21	$0	0
FORT BENTON	30.16%	-8.41%	26	$11,577,229	152	$9,632,781	77	$0	0
FORSYTH	29.56%	-2.98%	9	$15,085,720	258	$3,674,063	21	$0	0
CHINOOK	29.39%	-12.27%	3	$14,517,912	236	$393,611	8	$0	0
CHESTER	26.21%	0.34%	0	$5,331,046	103	$2,782,775	35	$0	0
COUNTIES WITH HIGHEST PERCENT EXPOSURE WHICH HAVE FASTEST GROWTH RATES (% EXPOSURE x % POPULATION CHANGE 2000 TO 2010)									
FLATHEAD	33.17%	22.54%	3,155	$2,132,284,123	10,085	$645,213,964	1649	$84,951	1
BROADWATER	15.20%	31.32%	51	$43,321,260	295	$3,351,556	54	$2,305,006	1
SANDERS	33.33%	11.74%	0	$204,523,470	1,513	$34,786,993	197	$0	0
LIBERTY	30.23%	11.31%	0	$24,704,458	193	$4,613,758	86	$0	0
STILLWATER	29.23%	11.07%	79	$153,083,564	1,010	$15,102,623	101	$0	0
MINERAL	35.41%	8.71%	26	$63,601,389	498	$17,968,878	77	$0	0
GRANITE	30.38%	7.99%	3	$71,089,238	410	$4,620,159	20	$0	0
CITIES/TOWNS WITH HIGHEST PERCENT EXPOSURE WHICH HAVE FASTEST GROWTH RATES (TOWNS WITH POP. > 500) (% EXPOSURE x % POPULATION CHANGE 2000 TO 2010)									
WHITEFISH	18.23%	26.87%	719	$176,058,119	631	$23,711,362	50	$0	0
KALISPELL	8.15%	40.67%	1,858	$69,226,246	547	$67,782,515	128	$0	0
EAST HELENA	13.41%	24.30%	79	$6,827,300	89	$4,880,694	17	$0	0
FAIRVIEW	10.47%	22.99%	0	$1,704,333	29	$371,815	6	$0	0
COLUMBIA FALLS	7.40%	29.14%	332	$11,319,630	824	$7,996,134	18	$0	0
SIDNEY	15.31%	13.87%	91	$26,467,722	321	$10,873,968	51	$0	0
HAMILTON	10.66%	18.06%	271	$4,225,473	25	$39,107,648	31	$0	0

Figure 4.4.2-4 - % Exposure

Figure 4.4.2-5 - % Exposure

Figure 4.4.2-6 – Aerial Exposure

Co.), East Helena (Lewis and Clark Co.), and Fairview (Richland Co.). **Figure 4.4.2-5** presents percent exposure and population change for the top counties and cities/towns showing the most vulnerable areas experiencing the fastest population growth. **Figure 4.4.2-6** presents aerial photos showing flood inundations for the six most vulnerable cities/towns experiencing rapid population growth.

Review of Potential Losses in Local PDM Plans

The Local Plan Exposure Summary table in the Flooding section of **Appendix B** presents a summary of potential flood losses from the Local PDM Plans. Flood losses are described in terms of their effect on buildings, society, and the economy, as outlined below:

- Building exposure is presented either as a dollar value or high-moderate-low rating and typically refers to the vulnerability of residential structures and/or critical facilities from the hazard.
- Societal exposure is presented either as the number of lives at risk or as a high-moderate-low rating representing the vulnerability of human life from the hazard.
- Economic exposure is presented as a dollar value or high-moderate-low rating referring to the potential impact to the economy from the hazard.

All of the local PDM plans evaluated the flooding hazard in their risk assessment. Of those with quantified results, Custer County had the highest exposure followed by Cascade, Lake, Powell Roosevelt and Lincoln Counties. Flathead County lists the flooding hazard as a Very High exposure risk while Carter and Power River list exposure as High.

Vulnerability of State Facilities

The results of the 2013 PDM risk assessment identified 31 buildings located within the flood hazard area (**Table 4.4.2-10**). It should be noted that the flood layer obviously has some inaccuracies because in the case of the Montana State Fund Building, the Last Chance Gulch drainage is buried beneath the street; thereby, eliminating the flood hazard to the building. Similar conditions may exist with other critical facilities identified by the PDM analysis as being in the flood hazard area. Bridges located in the flood hazard area are listed in the *Flood* section of **Appendix B**.

TABLE 4.4.2-10
CRITICAL FACILITIES IN FLOOD HAZARD AREA

Agency	Name	Jurisdiction	County	Building & Content Value
State Fund	Montana State Fund Building	Helena	Lewis and Clark	$36,717,184
Dept of Administration	Armory PBX	Helena	Lewis and Clark	$11,852,934
Dept of Administration	Old Liquor Warehouse	Helena	Lewis and Clark	$10,461,478
DPHHS, MDC	Offices/Vocational	Boulder	Jefferson	$6,116,431
Dept. Justice	MLEATraining Facility	Helena	Lewis and Clark	$3,544,068

TABLE 4.4.2-10
CRITICAL FACILITIES IN FLOOD HAZARD AREA

Agency	Name	Jurisdiction	County	Building & Content Value
MDT	Billings Office & Shop	Billings	Yellowstone	$2,674,608
DNRC	Rubber Dams	County	Broadwater	$2,305,006
Dept. Justice	MLEA - School Building & Adm.	Helena	Lewis and Clark	$2,054,760
Dept. Justice	MLEA - Maple Cottage No. 2	Helena	Lewis and Clark	$2,050,675
DPHHS, MDC	Administration	Boulder	Jefferson	$1,325,851
DMA	Chinook Armory	County	Blaine	$1,299,977
DPHHS, MDC	Maintenance Shop	Boulder	Jefferson	$1,053,285
Dept. Corrections, Riverside	ASU Administration	Boulder	Jefferson	$880,466
Dept. Justice	MLEA - Cottonwood Cottage	Helena	Lewis and Clark	$646,802
Dept. Justice	MLEA - Gymnasium	Helena	Lewis and Clark	$613,610
Dept. Justice	MLEA - Cafeteria	Helena	Lewis and Clark	$610,591
DPHHS, MDC	Home 4 Bed ASU A	Boulder	Jefferson	$555,639
DPHHS, MDC	Home 4 Bed ASU B	Boulder	Jefferson	$555,639
DPHHS, MDC	Home 4 Bed ASU C	Boulder	Jefferson	$555,639
DNRC	Greenough Fire Cache	County	Missoula	$388,655
Dept. Justice	MLEA - Water Tank & Tower	Helena	Lewis and Clark	$363,304
DPHHS, MDC	Home - 10/12 Bed #2	Boulder	Jefferson	$330,208
DPHHS, MDC	Home - 10/12 Bed #1	Boulder	Jefferson	$320,508
DPHHS, MDC	Home - 8/10 Bed #1	Boulder	Jefferson	$266,139
DPHHS, MDC	Home - 8/10 Bed #2	Boulder	Jefferson	$266,139
MT Heritage Commission	McFarland Curatorial Center	County	Madison	$231,111
DPHHS, MDC	Home - 6 Bed #1	Boulder	Jefferson	$222,019
DPHHS, MDC	Home - 6 Bed #2	Boulder	Jefferson	$222,019
DNRC	Greenough Fire Cache Warehouse	County	Missoula	$159,219
DNRC	Office Firecache	County	Flathead	$84,951
Dept. Justice	MLEA - Pump House	Helena	Lewis and Clark	$67,911
MDT	Aeronautics NDB - Wolf Point	Wolf Point	Roosevelt	$15,254

Table 4.4.2-11 presents loss claims associated with flooding for state-owned facilities. The flood loss at the UM-Western building in Dillon was associated with heavy rain whereas losses at the MSU-Bozeman agricultural experiment station, Montana Law Enforcement Academy in Helena and Montana Fish, Wildlife and Parks (FWP) facilities in Pryor and Denton were associated with riverine flooding. Losses at the FWP facility in Townsend were due to ice jam flooding.

TABLE 4.4.2-11
LOSS CLAIMS FROM FLOODING FOR STATE FACILITIES

Claim ID	Agency	Location	Date of Loss	Indemnity
P-19913	University System	Bozeman	7/22/2008	$250,000
P-20079	University System	Dillon	7/24/2008	$11,636
P-22247	Department of Justice, MLEA	Helena	6/8/2011	$13,023
P-22230	Dept. Fish, Wildlife & Parks	Pryor	5/24/2011	$41,811
P-22511	Dept. Fish, Wildlife & Parks	Denton	6/1/2011	$15,000
P-22810	Dept. Fish, Wildlife & Parks	Townsend	1/24/2012	$4,015
TOTAL				$335,485

Source: DOA-RMTD, 2012

Many of Montana's bridges have been compromised by scour associated with flooding. Scour is the hole left behind when sediment (sand and rocks) is washed away from the bottom of a river. Although scour may occur at any time, scour action is especially strong during floods. Swiftly flowing water has more energy than calm water to lift and carry sediment down river. The Montana Department of Transportation (MDT) has identified 103 bridges in the state which have critical scour potential. **Table 4.4.2-12** identifies the 23 state-owned bridges with critical scour potential while the county-owned structures are identified in **Appendix B**.

TABLE 4.4.2-12
STATE-OWNED BRIDGES WITH CRITICAL SCOUR POTENTIAL

County	Water-Body Crossed	Location	County	Water-Body Crossed	Location
Big Horn	Little Bighorn River	3m E Hardin	Mineral	St Regis River	9 Km E De Borgia
Blaine	Bean Creek	11m S Chinook	Park	Yellowstone River	6m NE Livingston
Blaine	White Bear Creek	9m S Ft Belknap Agency	Pondera	Dry Fork Marias	2m N of Conrad
Carbon	Rock Creek	Rockvale	Ravalli	Skalkaho Creek	1m E Grantsdale
Daniels	Smoke Creek	11m S Flaxville	Ravalli	Sweathouse Creek	Victor
Deer Lodge	Silverbow Creek	4m S Opportunity	Roosevelt	Clover Creek	1m E Culbertson
Gallatin	Cougar Creek	7m N West Yellowstone	Rosebud	East Spring Coulee	11m NW Forsyth
Gallatin	East Gallatin River	5m E Manhattan	Wibaux	Beaver Creek	South Edge of Wibaux
Garfield	Big Dry Creek S	13m E Jordan	Wibaux	Beaver Creek S	NE Edge Wibaux
Madison	Jefferson River	Jefferson Island	Wibaux	Beaver Creek	1 M South of Wibaux
Mc Cone	Timber Creek	5m N of Flowing Wells	Yellowstone	Fly Creek	Pompey's Pillar
Mineral	St Regis River	9 Km E De Borgia			

Source: MDT, 2013

Future Development

Montana law prevents development of structures in the floodway but with a permit, structures may be developed in 100-year floodplains. Many counties have more stringent floodplain regulations than the state that are enforced. Floodplain regulations are in place to promote the public health, safety and general welfare, to minimize flood losses in areas subject to flood hazards and to promote wise use of the floodplain. The state floodplain requirement of a freeboard of two feet reduces the vulnerability of new development in the mapped flood zones. This proactive approach to floodplain management helps in making new construction less prone to flood damages. However, the program is only as good as the mapping, and in some instances, development may be occurring in unmapped, flood prone areas.

Much of the growth in Montana is occurring near rivers and streams. The Montana Floodplain Association is advocating adoption of the No Adverse Impact approach for floodplain management. No Adverse Impact standards can be incorporated into a community's zoning ordinances, subdivision regulations, building and health codes, and/or special purpose ordinances recognizing that future development can cause impacts elsewhere in the watershed. Progress has been made on the incorporation of flood-resistant construction standards in both the International Building and Residential Codes. Incorporation of standards for flood-resistant construction in these codes will help ensure that building officials become involved in that part of the floodplain management process that deals with how buildings are constructed.

Data Limitations

A substantial amount of the USACE Cold Regions Research and Engineering Laboratory (CRREL) information on ice jams in Montana (about 80 percent) has come from USGS Water Supply Paper 1679 published in 1966. Other publications include NWS statements, Corps of Engineers' Datacols, other USGS publications, newspapers, and personal accounts. It is important to note that the high number of recorded ice jam events on the Missouri, Yellowstone, and Milk Rivers compared to other rivers in the state reflects information gathered during field visits to that area in August 1997. There could be other rivers that experienced more ice jams than the Missouri River, but because there are few people living near the river, few if any floods or ice jams are ever reported.

The PDM analysis utilized a flood hazard layer that was derived from a combination of a HAZUS flood model and digital flood insurance rate maps. DFIRMs are not available for the entire State but as they become available in the future, the flood hazard layer for the State should be appended with this data. **Figure 4.4.2-7** shows the status of the Montana Map Modernization Project. *Section 6.1.2* presents additional information on the Map Modernization Project.

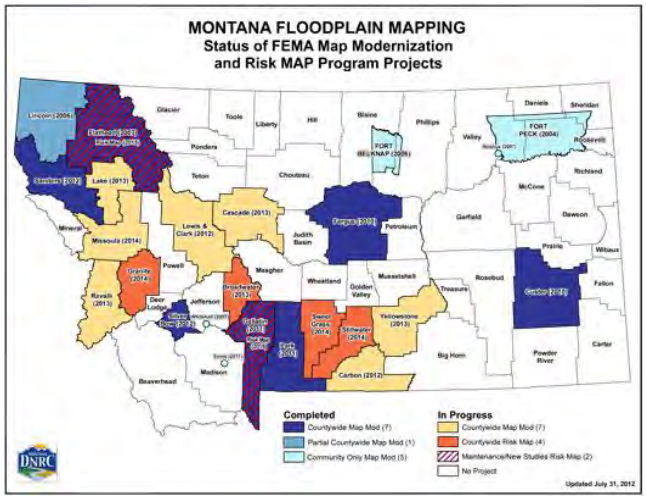


Figure 4.4.2-7
Montana Map Modernization
DFIRM Production Status
Source: Montana DNRC

References

FEMA, 2012a. Community Status Book Report, Montana.

FEMA, 2012b. Community Rating System. http://www.fema.gov/library/viewRecord.do?id=3629

FEMA, 2010. HAZUS Flood Data. Jesse Rozelle, Bismarck, North Dakota. March, 2010.

Intermountain Hazards. 2003. Flood Risk Assessment, State of Montana. Unpublished report prepared for the Department of Administration, Risk Management & Tort Defense Division by Intermountain Hazards, Salt Lake City, Utah.

Montana Department of Administration (DOA), Risk Management and Tort Defense (RMTD) Division. 2012. Property Casualty Insurance Information System database of State facility building and content values.

Montana Department of Transportation (MDT). 2013. Critical Scour Potential Structures. http://www3.mdt.mt.gov:7783/db-pub/pontis40_site.htm

Montana Disaster and Emergency Services (DES). 2013. State and Federal Declared Disasters.

National Climatic Data Center (NCDC). 2012. http://www.ncdc.noaa.gov/stormevents/

National Emergency Management Association (NEMA), 2008. Mitigation Committee Position Paper, September 8, 2008.

National Flood Insurance Program (NFIP). 2012. Flood Insurance Loss Statistics from January 1, 1978 through October 31, 2012. http://bsa.nfipstat.fema.gov/reports/1040.htm

National Weather Service (NWS). 2007. Ice Jam Awareness Day. http://www.wrh.noaa.gov/tfx/icejam/

National Weather Service (NWS). 2013. Billings Forecast Office. Wildfire and flooding. http://www.wrh.noaa.gov/byz/hydro/burnscar/burnscar.php?topic=threat

Natural Resource Information System (NRIS), 2012. Compilation of digital flood insurance rate maps for State of Montana.

SHELDUS. 2012. Hazards & Vulnerability Research Institute. The Spatial Hazard Events and Losses Database for the United States, Version 7.0 [Online Database]. Columbia, SC: University of South Carolina. Available from http://www.sheldus.org

US Army Corps of Engineers (USACE) Cold Regions Research and Engineering Laboratory (CRREL). 2013. Ice Jam Database. http://www.crrel.usace.army.mil/icejams/

US Army Corps of Engineers (USACE) Cold Regions Research and Engineering Laboratory (CRREL). 2007. Ice Jam Database. http://www.crrel.usace.army.mil/icejams/

US Army Corps of Engineers (USACE) Cold Regions Research and Engineering Laboratory (CRREL) and National Weather Service (NWS). 2007. Tables produced using CRREL Ice Jam data.

US Army Corps of Engineers (USACE) Cold Regions Research and Engineering Laboratory (CRREL). 1998. Ice Jams in Montana. Ice Engineering, Number 19, July 1998. Hanover, New Hampshire.

USGS. 2000. Significant Floods in the United States during the 20th Century - USGS Measures a Century of Floods. USGS Fact Sheet 024-00. March 2000. http://ks.water.usgs.gov/Kansas/pubs/fact-sheets/fs.024-00.html

4.4.4 Severe Summer Weather

CPRI = 3.50

Severe summer weather includes thunderstorms, wind, hail, lightning, tornadoes, and microbursts that typically occur between May and October of each year in Montana.

A thunderstorm is formed from a combination of moisture, rapidly rising warm air, and a force capable of lifting air, such as a warm and cold front or a mountain. A severe thunderstorm is a thunderstorm which produces tornadoes, hail 1 inch or more in diameter, or winds of 50 knots (58 mph) or more. All thunderstorms contain lightning. Thunderstorms may occur singly, in clusters, or in lines. Thus, it is possible for several thunderstorms to affect one location in the course of a few hours. Some of the most severe flooding from thunderstorms occurs when a single thunderstorm affects one location for an extended time. Straight-line winds are responsible for most thunderstorm damage.

High winds can occur with strong pressure gradients or gusty frontal passages. These winds can affect the entire State with wind speeds in excess of 75-100 mph. A Chinook is a warm wind that develops down the east slopes of the Rocky Mountains. At times, these winds can reach several hundreds of miles into the high plains.

Lightning is an electrical discharge that results from the buildup of positive and negative charges within a thunderstorm and the earth's surface. When the buildup becomes strong enough, lightning appears as a "bolt". This flash of light usually occurs within the clouds or between the clouds and the ground. Lightning's electrical charge and intense heat can electrocute on contact, split trees, ignite fires, and cause electrical failures.

A tornado is a violently rotating column of air in contact with the ground and extending from the base of a thunderstorm. Until recently, tornadoes were categorized by the Fujita scale based on the tornado's wind speed. The Enhanced Fujita (EF) Scale was implemented in place of the Fujita scale and began operational use on February 1, 2007. A comparison of the Fujita and EF scales and wind speeds are summarized in **Table 4.4.4-1.** The EF scale has six categories from zero to five representing increasing degrees of damage. It was revised to reflect better align wind speeds more closely with associated storm damage. It also adds more types of structures as well as vegetation, expands degrees of damage, and better accounts for variables such as differences in construction quality. The EF-scale is a set of wind estimates based on damage. It uses three-second estimated gusts at the point of damage. These estimates vary with height and exposure. Forensic meteorologists use 28 damage indicators (**Table 4.4.4-2**) and up to 9 degrees of damage to assign estimated speeds to the wind gusts.

TABLE 4.4.4-1
COMPARISON OF FUJITA AND ENHANCED FUJITA TORNADO SCALE

Fujita Scale			Enhanced Fujita (EF) Scale		
Scale	**Wind Speed (mph)**	**Typical Damage**	**Scale**	**3-Second Gust Speed (mph)**	**Typical Damage**
F0	<73	Light Damage - Some damage to chimneys; branches broken off trees; shallow-rooted trees pushed over; sign boards damaged.	EF0	66-85	Light Damage – Causes some damage to siding and shingles.
F1	73-112	Moderate Damage - Peels surface off roofs; mobile homes pushed off foundations or overturned; moving autos blown off roads.	EF1	86-110	Moderate Damage – Considerable roof damage. Winds uproot tees and overturn mobile homes. Flagpoles bend.
F2	113-157	Considerable Damage - Roofs torn off frame houses; mobile homes demolished; boxcars overturned; large trees snapped or uprooted; light object missiles generated; cars lifted off ground.	EF2	111-135	Considerable Damage – Most single-wide mobile homes destroyed. Permanent homes can shift off foundations. Flagpoles collapse. Softwood trees debarked.
F3	158-206	Severe Damage - Roofs and some walls torn off well-constructed houses; trains overturned; most trees in forest uprooted; heavy cars lifted off ground and thrown.	EF3	136-165	Severe Damage – Hardwood trees debarked. All but small portions of houses destroyed.
F4	207-260	Devastating Damage - Well-built houses leveled; structures with weak foundations blown away some distance; cars thrown and large missiles generated.	EF4	166-200	Devastating damage – Complete destruction of well-built residences, and large sections of school buildings.
F5	261-318	Incredible Damage - Strong frame houses lifted off foundations and swept away; automobile sized missiles fly through the air in excess of 100 meters.	EF5	>200	Incredible Damage – Significant structural deformation of mid- and High-rise buildings.

Source: NOAA-Storm Prediction Center, 2012

TABLE 4.4.4-2
ENHANCED FUJITA SCALE DAMAGE INDICATORS (DI)

DI No.	Damage Indicator	DI No.	Damage Indicator
1	Small Barns or Farm Outbuildings	15	Elementary School (Single-Story; Interior or Exterior Hallways)
2	One- or Two-Family Residences	16	Junior or Senior High School
3	Manufactured Home – Single Wide	17	Low-Rise Building (1-4 Stories)
4	Manufactured Home – Double Wide	18	Mid-Rise Building (5-20 Stories)
5	Apartment, Townhouse (3 floors or less)	19	High-Rise Building (over 20 Stories)
6	Motel	20	Institutional Building (Hospital, Government)
7	Masonry Apartment or Motel Building	21	Metal Building System
8	Small Retail Building (Fast Food Restaurant)	22	Service Station Canopy
9	Small Professional Buildings (Doctor's Office, Branch Bank)	23	Warehouse Building (Tilt-Up Walls or Heavy Timber Construction)
10	Strip Mall	24	Transmission Line Towers
11	Large Shopping Mall	25	Free-Standing Towers
12	Large, Isolated ("big box") Retail Building	26	Free Standing Light Poles, Flag Poles
13	Automobile Showroom	27	Tree – Hardwood
14	Automotive Service Building	28	Tree – Softwood

Source: NOAA-Storm Prediction Center, 2012

A microburst is a very localized column of sinking air, producing damaging divergent and straight-line winds at the surface that are similar to, but distinguishable from, tornadoes. The scale and suddenness of a microburst makes it a great danger to aircraft due to the low-level wind shear caused by its gust front, with several fatal crashes having been attributed to the phenomenon over the past several decades. Microbursts in forested regions have flattened acres of standing timber.

History of Severe Summer Weather in Montana

The recording of weather events is highly dependent upon the public's observations and reporting to the National Weather Service. While weather stations are used to document wind speeds and precipitation, the spotting of tornadoes and assessment of hail stone size is often recorded based on a person's observations. These observations may be more accurate in populated areas where weather stations and other observations can verify extreme events. Rural areas may go under reported because of the fewer people that observe or witness the events. Reporting of extreme events may have also increased in the last 15 years because of better means to communicate storm events to the National Weather Service. As a result, records of storm events may indicate more frequent storms in recent history than in the past, a greater number of reports in populated areas versus rural areas, and more recent recording and documentation of losses related to severe thunderstorms

In Montana, most of the tornadoes occur in June, followed closely by the month of July. From 1952 to 2012, Montana had an annual average of six tornadoes. From 1952 to 2012, 114 of the 378 recorded tornado events in Montana were considered F1 speeds or greater as recorded by the National Weather Service (2012). Montana had seven deaths and at least 69 injuries from tornadoes from 1880 to 2012 (**Table 4.4.4-3**) and nine deaths and 30 injuries from lightning strikes in the last 60 years. From 1952 to 2012, severe summer weather has caused $51.5 million in property damage and $26.3 million in crop damage (NCDC, 2012).

TABLE 4.4.4-3
TORNADOES CAUSING AT LEAST ONE DEATH OR THREE INJURIES IN MONTANA (1880 TO 2012)

Date	Event	Deaths	Injuries
May 15, 1883	Homes and other buildings destroyed at a mining community, eight miles south of Butte.	0	6
June 10, 1923	Two men killed by a falling tree as a tornado hit a copper mine near Rivulet in Mineral County.	2	0
June 15, 1924	Three homes destroyed at farming community northwest of Great Falls.	0	7
July 4, 1927	Barns destroyed and livestock killed eight miles southwest of Suffolk, Fergus County.	0	6
May 22, 1933	10 buildings destroyed in Bainville, Roosevelt Co. Injuries were in a cafe.	0	12
May 8, 1934	Roofs blown off 12 homes and two service stations destroyed in Plentywood, Sheridan County.	0	7
June 27, 1936	Seven injured by an F1 tornado in Blaine County.	0	7
June 7, 1946	One killed and one injured by an F3 tornado in Roosevelt County.	1	1
September 16, 1946	A small home destroyed near Sidney, Richland County.	0	8
July 19, 1952	Large farm near North Dakota border completely destroyed in Wibaux Co.	1	2

TABLE 4.4.4-3
TORNADOES CAUSING AT LEAST ONE DEATH OR THREE INJURIES IN MONTANA (1880 TO 2012)

Date	Event	Deaths	Injuries
July 10, 1965	F1 tornado injured 5 and caused $2.5M in property damage in Chouteau Co.	0	5
July 9, 1983	As the tornado passed near Vida, McCone County, it threw a car, with two people, for 200 yards.	1	1
July 20, 1993	Two mobile homes destroyed in Rosebud Co., two miles south of Lame Deer	0	3
August 14, 1999	Two miles east of Lewistown	0	3
July 26, 2010	EF3 tornado in Sheridan County causing 300 K in property damage and two fatalities at the Smith Ranch near Medicine Lake.	2	1
TOTAL		**7**	**69**

Source: TPO, 2007; NCDC, 2012

Governor Brian Schweitzer declared a state of emergency after the largest tornado to hit the City of Billings in more than 50 years peeled the roof off of a sports arena, causing millions of dollars in damage on June 20, 2010. No deaths or major injuries were reported. The 35-year-old, 12,000-seat Metra - the state's largest arena - draws crowds that pump millions of dollars into the local economy. The Metra was repaired and upgraded in less than one year. Wind speeds from the tornado were estimated at 111 to 135 mph. The winds damaged homes, snapped trees and telephone poles and left tangles of insulation and metal roofing strewn for hundreds of yards - some of it hanging from power lines. The twister hovered for about 15 minutes over the arena.

On June 30, 2010, a large hailstorm stuck Bozeman and the Gallatin Valley. Golfball-size hail started pounding Bozeman around 4pm and continued to fall for about a half hour. The Montana State University (MSU) campus was directly in the path of the hailstorm, which bombarded building, cars and people with hailstones up to 2.5 inches across. The hail broke 800 to 1,000 windows on campus. Windows on the west- and south-facing walls suffered the most damage. Most of the windows on the west side of Roberts Hall were broken, along with quite a few windows in North and South Hedges, two of the university's high-rise residence halls. The hailstorm resulted in over $500,000 in damages from repair to windows, roofs and tree damage on the campus and to other state-owned facilities in Bozeman.

On July 26, 2010, an EF3 tornado struck the Smith Ranch, about 11 miles northwest of Medicine Lake in Sheridan County. This tornado was one of the strongest and most deadly in Montana history. Ranch buildings were demolished by the storm, with three members of the Smith family in the main home when the tornado hit, two of which died. In addition to the significant property damage, including a two story house that was completely destroyed, a single-wide trailer was blown away, numerous outbuildings and ranch vehicles destroyed, and there were also livestock and crop losses reported. Sheridan Electric Cooperative had six miles of down power poles and lines. The strong tornadic winds were estimated to be approximately 150 miles per hour.

Losses

Electric utilities in Montana are usually the first entities to experience loss from severe summer weather. Losses to local electric utilities can be expensive to replace and put a major burden on other emergency services during these critical times by not having electricity available.

Severe summer weather incidents from the National Weather Service are presented in the National Climatic Data Center and SHELDUS databases. **Table 4.4.4-4** presents losses over a 52 year period from the various types of severe summer weather. **Table 4.4.4-5** presents losses from these severe summer events by County and DES District.

TABLE 4.4.4-4
SEVERE SUMMER WEATHER SUMMARY FOR MONTANA (1960-2012)

TYPE	Number of Events	Fatalities	Injuries	Property Damage	Crop Damage
Dust Storms	5	2	9	$0	$0
Tornadoes (F1/EF1 or greater)	111	4	14	$74,519,000	$130,000
Hail (2 inches in diameter or greater)	385	0	2	$16,557,000	$21,575,000
Significant Lightning Events	51	9	30	$1,503,000	$3,000
Winds Events with at least one death	10	13	6	$510,000	$0
Wind Events with Property Damage	387	2	20	$42,866,500	$13,259,500
Total	**949**	**30**	**81**	**$135,955,500**	**$34,967,500**

Source: NCDC, 2012

TABLE 4.4.4-5
SEVERE SUMMER WEATHER LOSSES (ADJUSTED TO 2011 DOLLARS): 1960 – 2012

DES District	Jurisdiction	Injuries[1]	Fatalities[1]	Property Loss	Crop Loss
1	Deer Lodge County	6.11	2.2	$330,202	$102,246
1	Flathead County	5.59	3.2	$2,022,421	$2,309,342
1	Flathead Reservation – included in Lake and Sanders County totals				
1	Granite County	7.11	2.45	$1,262,429	$3,438
1	Lake County	2.19	2.45	$1,562,674	$761,990
1	Lincoln County	7.52	2.2	$2,598,009	$205,088
1	Mineral County	1.19	1.2	$790,545	$2,774
1	Missoula County	8.52	3.45	$2,521,069	$58,115
1	Powell County	2.02	1.45	$1,341,773	$6,859
1	Ravalli County	4.11	1.2	$3,364,551	$339,528
1	Sanders County	3.19	1.2	$442,966	$720,418
1	Silver Bow County	0.11	2.2	$1,209,129	$105,906
	District 1 Total	**47.66**	**23.2**	**$17,445,768**	**$4,615,704**
2	Blackfeet Reservation – included in Glacier County total				
2	Blaine County	0.09	0	$3,601,679	$4,651,684
2	Cascade County	9.22	2.4	$11,121,610	$6,121,652
2	Chouteau County	7.09	1.2	$4,734,775	$16,963,970
2	Fort Belknap Reservation – included in Blaine County total				
2	Glacier County	3.29	5.4	$897,645	$4,234,305
2	Hill County	3.09	1.2	$2,908,953	$6,679,978
2	Liberty County	0.76	0	$1,803,142	$5,346,998
2	Pondera County	0.96	1.4	$1,522,102	$3,239,162
2	Rocky Boy's Reservation – included in Hill County total				
2	Teton County	1.29	2.4	$1,727,408	$6,209,361
2	Toole County	5.96	1.4	$1,438,131	$17,691,998
	District 2 Total	**31.75**	**15.4**	**$29,755,445**	**$71,139,108**

TABLE 4.4.4-5
SEVERE SUMMER WEATHER LOSSES (ADJUSTED TO 2011 DOLLARS): 1960 – 2012

DES District	Jurisdiction	Injuries(1)	Fatalities(1)	Property Loss	Crop Loss
3	Beaverhead County	3.11	3.2	$809,651	$2,436,654
3	Broadwater County	1.11	3.7	$1,270,508	$445,158
3	Gallatin County	2.09	5.2	$63,359,620	$873,962
3	Jefferson County	0.61	1.2	$1,243,049	$121,355
3	Lewis & Clark County	11.52	10.7	$15,437,367	$622,158
3	Madison County	1.11	1.2	$463,663	$86,919
3	Meagher County	1.11	1.2	$1,256,301	$3,885,084
3	Park County	4.09	1.2	$33,882,971	$631,859
3	Sweet Grass County	1	1.2	$327,347	$487,599
	District 3 Total	**25.75**	**28.8**	**$118,050,477**	**$9,590,748**
4	Carter County	0	0	$1,586,963	$1,345,562
4	Custer County	4.6	2	$4,841,401	$8,086,670
4	Dawson County	3.95	0.67	$8,734,440	$6,273,415
4	Fallon County	0.6	0	$1,087,988	$2,647,837
4	Garfield County	3.02	0	$1,597,249	$9,211,726
4	McCone County	4.35	1	$4,205,403	$11,338,450
4	Powder River County	4	0	$2,749,905	$5,604,208
4	Prairie County	2.62	1	$1,783,349	$3,295,595
4	Richland County	2.09	1.67	$7,255,063	$16,432,720
4	Wibaux County	3.95	1.67	$2,342,790	$4,560,514
	District 4 Total	**29.18**	**8.01**	**$36,184,551**	**$68,796,697**
5	Big Horn County	3	4	$3,026,524	$3,571,092
5	Carbon County	5	3	$449,582	$775,071
5	Crow Reservation – included in Big Horn, Carbon and Yellowstone County totals				
5	Golden Valley County	0.02	0	$1,144,903	$819,501
5	Musselshell County	1.02	1	$416,888	$748,474
5	Northern Cheyenne Reservation – included in Rosebud and Big Horn County totals				
5	Rosebud County	16	1	$4,510,751	$3,334,060
5	Stillwater County	0	0	$323,668	$1,266,066
5	Treasure County	0	0	$1,433,099	$3,457,481
5	Wheatland County	1.02	1.2	$1,492,893	$675,570
5	Yellowstone County	4	4	$28,495,573	$6,300,887
	District 5 Total	**30.06**	**14.2**	**$41,293,881**	**$20,948,202**
6	Daniels County	2.09	0	$1,570,078	$9,628,657
6	Fergus County	4.02	0	$8,423,412	$7,432,297
6	Fort Peck Reservation – included in Valley and Roosevelt County totals				
6	Judith Basin County	1.02	1.2	$1,876,429	$1,325,989
6	Petroleum County	2.02	1	$1,442,558	$1,144,849
6	Phillips County	7.09	2	$2,910,842	$5,746,192
6	Roosevelt County	2.09	1	$8,419,555	$10,672,670
6	Sheridan County	7.09	2	$2,940,381	$8,532,337
6	Valley County	4.09	0	$20,586,921	$39,413,337
	District 6 Total	**29.51**	**7.2**	**$48,170,176**	**$83,896,328**
Total		**193.91**	**96.81**	**$290,900,298**	**$258,986,787**

(1) In order to assign the damage amount to a specific county, the fatalities, injuries and dollar losses are divided by the number of counties affected by the hazard event.
Source: SHELDUS, 2012

The SHELDUS data shows that between 1960 and 2012, District 3 counties cumulatively had the most property damage from thunderstorms, hail and tornados, using dollar values adjusted for inflation. District 1 and 2 counties have had the most fatalities but the least amount of property loss. **Table 4.4.4-6** summaries the table above and presents the top 20 counties with thunderstorm, wind, hail and tornado losses.

TABLE 4.4.4-6
TOP 20 COUNTIES WITH SEVERE SUMMER WEATHER LOSSES
(ADJUSTED TO 2011 DOLLARS): 1960 – 2012

County	Property Loss	Crop Loss	County	Property Loss	Crop Loss
Gallatin	$63,359,620	$873,962	Custer	$4,841,401	$8,086,670
Park	$33,882,971	$631,859	Chouteau	$4,734,775	$3,571,092
Yellowstone	$28,495,573	$6,300,887	Rosebud	$4,510,751	$6,121,652
Valley	$20,586,921	$16,432,720	McCone	$4,205,403	$4,234,305
Lewis and Clark	$15,437,367	$622,158	Blaine	$3,601,679	$4,651,684
Cascade	$11,121,610	$6,121,652	Ravalli	$3,364,551	$339,528
Dawson	$8,734,440	$6,273,415	Big Horn	$3,026,524	$39,413,337
Fergus	$8,423,412	$7,432,297	Sheridan	$2,940,381	$8,532,337
Roosevelt	$8,419,555	$10,672,670	Phillips	$2,910,842	$5,746,192
Richland	$7,255,063	$3,334,060	Hill	$2,908,953	$6,679,978

Source: SHELDUS, 2012

Declared Disasters

State disaster declarations for tornado and extreme wind and hailstorm events are shown in **Table 4.4.4-7**. No federal declarations have been made specifically for these types of storms.

TABLE 4.4.4-7
MONTANA DISASTER DECLARATIONS FROM SEVERE SUMMER WEATHER (1974 – 2012)

Date	Event	Damages
June 23, 1999	Windstorm/Tornado (EO 7-99). Disaster declaration for the Town of Opheim	State: $10,366 Local: $206
August 14, 1999	Windstorm/Tornado (EO 11-99). Disaster declaration Fergus County and the City of Lewistown	State: $298,609 Local: $11,544
June 14, 2006	Windstorm (EO 35-06). Disaster declaration in the City of Glendive.	State: $30,056

Source: Montana DES, 2012

Magnitude and Probability

The magnitude of severe summer weather is measured by the severity of these events and the resulting damage. Severe summer weather can cause damage to buildings, homes, and other property but rarely cause death, serious injury, or long-lasting health effects. On average, there are 1,000,000 thunderstorms each year in the U.S. Approximately 1,000 tornadoes develop from these storms. Straight-line winds are responsible for most thunderstorm damage. The National Weather Service reports that severe summer weather has caused $51.5 million in property damage and $26.3 million in crop damage over the past 60 years in Montana. Nine deaths and 30 injuries were attributed to lightning strikes. Across the country, large hail results in nearly $1 billion in damage annually to property and crops.

Table 4.4.4-8 shows the counties with the highest frequency of severe summer weather events. Valley County has had the greatest number of tornadoes, large hail, and high thunderstorm wind events followed by Yellowstone County. The highest number of synoptic wind events occur along the Rocky Mountain Front (Glacier, Teton, and Cascade Counties) and the

Yellowstone River Valley (Park and Stillwater Counties). Concentrations of these recorded events identify patterns of where they are likely to occur in the future.

TABLE 4.4.4-8
COUNTIES WITH HIGH FREQUENCY OF SEVERE SUMMER WEATHER EVENTS 1950 - 2012

Tornadoes (≥ EF0)		Hail (≥2-inch diameter)		Thunderstorm Wind (≥ 75 mph)		Synoptic Wind (≥ 75 mph)	
1950-2012		1955-2012		1955-2012		1993-2012	
County	**#**	**County**	**#**	**County**	**#**	**County**	**#**
Valley	41	Valley	34	Valley	34	Glacier	67
Fergus	26	Rosebud	20	Yellowstone	23	Park	47
Yellowstone	21	Powder River	20	Big Horn	21	Teton	33
Powder River	16	Yellowstone	19	Richland	18	Stillwater	29
Roosevelt	15	Fergus	17	Roosevelt	17	Cascade	8
Cascade	14	McCone	16	Custer	17	Blaine	8
Dawson	14	Carter	13	Phillips	11	Carbon	7
Chouteau	14	Phillips	12	Rosebud	11	Yellowstone	7
Judith Basin	14	Garfield	12	Dawson	11	Fergus	7
Richland	12	Daniels	12	Hill	9	Valley	6
Garfield	11	Big Horn	11	Garfield	9	Flathead	6

Source: NCDC, 2012

Probability of the severe summer weather hazard was assessed based on frequency over a 10 year period. The frequency of these events represent a “highly likely” probability rating since they occur more than once per year in many regions of Montana.

Vulnerability

Statewide Vulnerability

Storm event data from 1995 to 2012 was obtained from the National Climatic Data Center (NCDC) to evaluate the severe summer weather hazard. Spatial components of over 5,787 severe summer weather hazard events (154 tornado events, 4,715 hail over 0.75 inch, and 918 thunderstorm wind events over 50 knots [58 mph]) were used as isolated points to create a map showing regional variability (**Figure 4.4.4-1**).

To complete the vulnerability analysis, GIS was used to intersect the severe summer weather hazard point map with the critical facility and MDOR cadastral parcel datasets. Estimates of vulnerable population were calculated using census block data within the hazard area. Exposure values are presented in **Table 4.4.4-9**. Annual loss was calculated based on damage data from the SHELDUS database. The *Severe Summer Weather* section in **Appendix B** presents supporting documentation from the risk assessment.

Figure 4.4.4-1 – Summer Weather Hazard

TABLE 4.4.4-9
SEVERE SUMMER WEATHER EXPOSURE SUMMARY BY DES DISTRICT

Item	District 1	District 2	District 3	District 4	District 5	District 6
Hazard Area (Square Miles)	N/A	N/A	N/A	N/A	N/A	N/A
Percent Hazard Area	N/A	N/A	N/A	N/A	N/A	N/A
Residential Building Exposure ($)	$9,028,130	$7,771,897	$16,292,647	$11,606,352	$16,376,365	$9,002,756
Residential Building Exposure (# structures)	51	58	75	146	129	107
Commercial, Agricultural, Industrial Building Exposure ($)	$860,929	$22,106,552	$35,635,365	$823,880	$40,662,767	$6,814,681
Commercial, Agricultural, Industrial Building Exposure (# structures)	9	18	12	44	39	59
Critical Facility Exposure ($)	0	0	0	0	0	0
Critical Facility Exposure (# structures)	0	0	0	0	0	0
Annual Loss	$216	$3,386	$7,417	$8,363	$6,607	$8,714
Population Living in Hazard Area	8,648	4,914	5,538	4,697	11,495	4,884
Population Under 18 Living in Hazard Area	1,968	1,210	1,185	960	2,916	1,170

The PDM analysis shows that DES District 4 has the highest residential exposure in terms of number of buildings, followed by Districts 5 and 6; however, the highest exposure value is in Districts 5 and 3. District 6 has the highest commercial/agricultural/industrial exposure in terms of number of buildings, followed by Districts 4 and 5; however, the highest exposure value is in Districts 5 and 3. Since the PDM analysis involved points associated with severe summer weather events, no critical facilities were identified as being at risk. District 5 has the most population at risk from severe winter weather, followed by Districts 1 and 3.

Table 4.4.4-10 presents a vulnerability summary of the severe summer weather hazard as it relates to percent exposure and growth rates in Montana's counties, cities and towns. Percent exposure was derived by dividing the value of residential and commercial/agricultural/industrial building stock exposed to the hazard into the total value of the building stock. Percent exposure is a more accurate way of displaying vulnerability than presenting jurisdictions with the highest exposure because it reflects areas with the greatest risk opposed to those with high value real estate. A complete ranking of percent exposure is presented in the *Severe Summer Weather* section of **Appendix B**.

TABLE 4.4.4-10
SEVERE SUMMER WEATHER EXPOSURE SUMMARY FOR TOP COUNTIES, CITIES AND TOWNS

County	% Severe Summer Weather Exposure	% Growth (2000 to 2010)	# of Building Permits (2000 to 2010)	$ Residential Exposure	# Residences at Risk	$ Commercial/ Ag/Industrial Exposure	# Commercial/ Ag/Industrial Buildings at Risk	$ Critical Facilities Exposure	# Critical Facilities at Risk
COUNTIES WITH HIGHEST PERCENT EXPOSURE ($ RESIDENTIAL + $ COMMERCIAL- AG- INDUSTRIAL EXPOSURE IN HAZARD AREA / TOTAL EXPOSURE)									
JUDITH BASIN	6.16%	-13.84%	0	$817,571	14	$5,687,683	8	N/A	N/A
BIG HORN	5.68%	-3.91%	0	$1,006,684	11	$35,802	3	N/A	N/A
PRAIRIE	3.33%	-3.34%	6	$1,071,796	13	$35,802	3	N/A	N/A
GOLDEN VALLEY	2.87%	-16.83%	0	$1,192,376	10	$42,409	5	N/A	N/A
POWDER RIVER	2.72%	-6.46%	0	$1,279,207	17	$40,229	5	N/A	N/A
MCCONE	2.70%	-13.19%	3	$1,559,807	18	$143,629	14	N/A	N/A
TREASURE	2.53%	-15.17%	0	$532,393	7	$84,457	1	N/A	N/A
CITIES/TOWNS WITH HIGHEST PERCENT EXPOSURE (TOWNS WITH POP. > 500) ($ RESIDENTIAL + $ COMMERCIAL- AG- INDUSTRIAL EXPOSURE IN HAZARD AREA / TOTAL EXPOSURE)									
HARDIN	11.63%	5.41%	40	$260,280	2	$14,976,801	2	N/A	N/A
BROWNING	1.18%	-3.66%	0	$0	0	$159,600	1	N/A	N/A
CULBERTSON	0.65%	0.70%	17	$146,980	1	$0	0	N/A	N/A
MANHATTAN	0.54%	11.25%	71	$0	0	$528,700	1	N/A	N/A
TERRY	0.44%	-2.78%	6	$65,112	2	$0	0	N/A	N/A
BRIDGER	0.44%	-5.50%	13	$132,559	1	$0	0	N/A	N/A
BIG TIMBER	0.40%	-1.27%	22	$364,671	1	$0	0	N/A	N/A
COUNTIES WITH GREATEST PERCENT EXPOSURE WHICH HAVE FASTEST GROWTH RATES (% EXPOSURE x % CHANGE 2000 TO 2010)									
BIG HORN	4.94%	3.29%	42	$923,561	10	$15,587,946	8	N/A	N/A
GALLATIN	0.40%	34.70%	7,122	$3,886,885	13	$33,229,774	6	N/A	N/A
STILLWATER	0.47%	11.07%	79	$2,668,887	15	$21,303	3	N/A	N/A
MUSSELSHELL	1.03%	4.65%	17	$2,015,855	16	$0	0	N/A	N/A
LIBERTY	0.41%	11.31%	0	$393,036	2	$0	0	N/A	N/A
YELLOWSTONE	0.29%	16.02%	5,273	$5,030,637	35	$24,809,017	17	N/A	N/A
JEFFERSON	0.32%	13.42%	8	$450,989	4	$1,642,900	2	N/A	N/A
CITIES/TOWNS WITH HIGHEST PERCENT EXPOSURE WHICH HAVE FASTEST GROWTH RATES (TOWNS WITH POP. > 500) (% EXPOSURE x % CHANGE 2000 TO 2010)									
HARDIN	11.63%	5.41%	40	$260,280	2	$14,976,801	2	N/A	N/A
BOZEMAN	0.14%	38.23%	2,975	$72,939	1	$4,855,893	2	N/A	N/A
BILLINGS	0.22%	17.57%	5,126	$1,179,799	7	$15,517,882	6	N/A	N/A
COLUMBIA FALLS	0.03%	29.14%	332	$74,474	1	$0	0	N/A	N/A
RONAN	0.18%	3.92%	39	$0	0	$144,000	1	N/A	N/A
KALISPELL	0.01%	40.67%	1,858	$145,938	1	$101,100	1	N/A	N/A
CULBERTSON	0.65%	0.70%	17	$146,980	1	$0	0	N/A	N/A

*Critical Facility Exposure is Non-Applicable for Summer Vulnerability due to the data limitations of intersecting point data with point data.

Counties with the highest severe summer weather exposure include: Judith Basin, Big Horn, Prairie, Golden Valley, and Powder River; while the top cities/towns include: Hardin (Big Horn Co.), Browning (Glacier Co.), Culbertson (Roosevelt Co.), Manhattan (Gallatin Co.), and Terry (Prairie Co.). **Figure 4.4.4-2** presents percent exposure for the top counties and cities/towns showing regional vulnerability.

Percent exposure was multiplied by the population change between the 2000 and 2010 census to present the jurisdictions with the highest risk that are experiencing the fastest growth. The number of residential building permits is also listed for the top ranking jurisdictions. A complete ranking is presented in the *Severe Summer Weather* section of **Appendix B**.

Counties with the highest severe summer weather exposure experiencing the fastest population growth include: Big Horn, Gallatin, Stillwater, Musselshell, and Liberty, while the top cities/towns (with population over 500) are Hardin (Big Horn Co.), Bozeman (Gallatin Co.), Billings (Yellowstone Co.), Columbia Falls (Flathead Co.), and Ronan (Lake Co.). **Figure 4.4.2-3** presents percent exposure and population change for the top counties and cities/towns showing the most vulnerable areas experiencing the fastest population growth.

Review of Potential Losses in Local PDM Plans

The *Local Plan Exposure Summary* tables in **Appendix B** present a summary of severe summer weather losses from the Local PDM Plans. Severe summer weather losses are described in terms of their effect on buildings, society, and the economy, as outlined below:

- Building exposure is presented either as a dollar value or high-moderate-low rating and typically refers to the vulnerability of residential structures and/or critical facilities from the hazard.
- Societal exposure is presented either as the number of lives at risk or as a high-moderate-low rating representing the vulnerability of human life from the hazard.
- Economic exposure is presented as a dollar value or high-moderate-low rating referring to the potential impact to the economy from the hazard.

Approximately 85 percent of the local PDM plans evaluated the severe summer weather hazard in their risk assessment. Of those with quantified results, Phillips and Yellowstone Counties had the highest annual loss followed by Cascade, Madison and Stillwater Counties. Flathead County is listed as having Very High exposure from severe summer weather.

Vulnerability of State Property

State-owned buildings that are considered to be highly vulnerable to severe summer weather are those in counties that have a high frequency of the combined events. **Table 4.4.4-11** lists the value of State-owned facilities within those counties that are considered highly vulnerable to tornados, wind, and hail events (see **Table 4.4.4-8**).

Figure 4.4.4-2 – % Exposure

Figure 4.4.4-3 - % Exposure + % Population

TABLE 4.4.4-11
STATE BUILDING VALUES IN COUNTIES HIGHLY VULNERABLE TO SEVERE SUMMER WEATHER

County	Building Value	Contents Value	Total Value	State Employee Count
Big Horn	$2,894,497	$695,501	$3,589,998	30
Blaine	$1,772,857	$2,729,691	$4,502,548	13
Carbon	$4,784,089	$467,225	$5,251,314	19
Carter	$352,675	$130,945	$483,620	4
Cascade	$90,201,224	$19,816,228	$110,017,452	651
Chouteau	$952,475	$325,639	$1,278,114	5
Custer	$33,005,713	$18,194,067	$51,199,780	281
Daniels	$1,333,669	$102,270	$1,435,939	2
Dawson	$19,554,846	$4,684,082	$24,238,928	96
Fergus	$16,821,786	$6,233,634	$23,055,420	583
Flathead	$48,267,287	$15,923,386	$64,190,673	505
Garfield	$866,619	$236,427	$1,103,046	3
Glacier	$2,129,138	$803,370	$2,932,508	36
Hill	$100,986,672	$28,482,400	$129,469,072	247
Judith Basin	$2,935,017	$1,356,513	$4,291,530	5
McCone	$433,171	$151,968	$585,139	5
Park	$3,944,308	$1,365,652	$5,309,960	42
Phillips	$3,610,982	$2,496,906	$6,107,888	16
Powder River	$1,548,691	$222,302	$1,770,993	3
Richland	$4,290,592	$1,451,370	$5,741,962	31
Roosevelt	$6,143,989	$3,053,764	$9,197,753	69
Rosebud	$2,549,412	$648,764	$3,198,176	19
Stillwater	$1,736,864	$354,881	$2,091,745	9
Teton	$1,571,749	$593,672	$2,165,421	17
Valley	$3,911,612	$2,244,606	$6,156,218	82
Yellowstone	$229,446,369	$84,219,012	$313,665,381	1,282
Totals	**583,151,806**	**$196,288,774**	**$779,440,580**	**4,025**

Source: NCDC, 2012; DOA-RMTD 2012

Insurance claim data from severe summer weather damage to state property is summarized in **Table 4.4.4-12**. Montana State University in Bozeman has the total highest claim amount at over $400K. Most of the damage is from hail.

TABLE 4.4.4-12
LOSS CLAIMS FROM SEVERE SUMMER WEATHER FOR STATE FACILITIES; 1998-2012

Agency	Location	Indemnity
Corrections	Deer Lodge	$20,637
Corrections	Miles City	$650
Dept. Commerce – Heritage	Virginia City	$1,565
Dept. Corrections	Miles City	$2,598
Dept. Fish, Wildfire & Parks	Bannack (Dillon)	$147,937
Dept. Justice	-	$715
Dept. Natural Resources & Conservation	-	$2,718
Dept. Public Health & Human Services	Boulder, Glendive, Lewistown	$161,384
Justice-Highway Patrol		$3,227
Multiple Agencies	Bozeman, Glasgow, others	$708,198
State Board of Education	Great Falls	$7,822
Transportation	Missoula	$6,059
University System	Billings	$184,665
University System	Bozeman	$421,621

TABLE 4.4.4-12
LOSS CLAIMS FROM SEVERE SUMMER WEATHER FOR STATE FACILITIES; 1998-2012

Agency	Location	Indemnity
University System	Butte	$19,444
University System	Havre	$149,000
University System	Havre	$3,878
University System	Huntley	$3,655
University System	Lewistown	$1,147
University System	Missoula	$11,861
TOTAL		**$1,858,781**

Source: DOA-RMTD, 2012

Future Development

The State of Montana has adopted the 2009 International Building Code, which stipulates that buildings throughout the state must be constructed to withstand a constant velocity of 75 mph and three second gusts of 90 mph.

Zoning and/or subdivision regulations across the State do not address severe summer weather. Local building regulations could be developed in highly vulnerable areas to require shatter-proof glass on critical facilities and/or facilities housing vulnerable populations, higher standards for tying down roofs, and/or other methods to mitigate impacts from severe summer storms.

Data Limitations

National Weather Service data has improved significantly in the past decade; however, events are typically only recorded if observed by a weather station or reported to the local NWS office. In a state as rural as Montana, the data will therefore be somewhat dependent on event location (in a populated area versus an unpopulated area) and limited in that respect.

SHELDUS data is only available on a county level; therefore, extrapolating the annual loss value to the city/town level may result in over-reporting of exposure.

The risk assessment methodology used GIS intersecting parcel data with the hazard layer which consists of points. This may have led to a slight under-reporting of building stock exposure. Risk assessment results are only a general representation of potential vulnerabilities.

No critical facility analysis was possible as the severe summer weather hazard layer was a collection of points; none of which coincided with the location of any critical facility.

References

Montana Department of Administration (DOA), Risk Management and Tort Defense (RMTD) Division. 2012. Property Casualty Insurance Information System Database of State facility building and content values and loss claims.

Montana Disaster and Emergency Services (DES). 2012. Federal and State Declared Disasters.

National Climatic Data Center (NCDC). 2012. Storm Events database. http://www.ncdc.noaa.gov/stormevents/

National Oceanic and Atmospheric Administration (NOAA), Storm Prediction Center. 2012. http://www.spc.noaa.gov/efscale/

SHELDUS. 2012. Hazards & Vulnerability Research Institute. The Spatial Hazard Events and Losses Database for the United States, Version 7.0 [Online Database]. Columbia, SC: University of South Carolina. Available from http://www.sheldus.org

Tornado Project Online (TPO). 2007. http://www.tornadoproject.com/

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4.4.5 Severe Winter Weather

Severe winter weather presents one of the greatest threats to life of any hazard in Montana. Statistics on winter deaths are difficult to obtain, but nationwide there are on average 100 lives directly and indirectly lost to winter weather, more than lightning, hurricanes, or tornadoes. Winter storms are considered to be deceptive killers because most deaths are indirectly related to the storm. People die in traffic accidents on snow- or ice-covered roads, from hypothermia due to prolonged exposure to cold, and from heart attacks due to overexertion. About 70 percent of the winter deaths in the U.S. occur in automobiles and nearly 25 percent are from people caught out in the storm (NOAA, 2001).

Winter storms may be categorized as ice storms, heavy snowfall, or blizzards. These storms vary in size and intensity and may affect a small part of the state or several states at once. Blizzards are common in Montana. A blizzard is a storm that has sustained winds or frequent gusts of 35 miles per hour or higher with snow and blowing snow reducing visibility to near zero. Blowing and rapid snowfall can overwhelm the plowing resources, making roadways impassable, and severely reduce visibility. Particularly heavy snows, early or late season snows, and ice events can damage infrastructure such as power lines, and block roads or damage structures with downed trees.

A deputy Sheriff Directs Traffic around a Crash in a Blizzard along U.S. Highway 2 near Columbia Falls on January 27, 2004. Heavy snow to the east near Essex triggered avalanches that knocked off cars on a freight train (Robin Loznak/The Daily Inter Lake – NWS, 2004).

Cold temperatures into the negative numbers are also common throughout the winter months in Montana. The coldest places in Montana are in Valley, Sheridan and Roosevelt Counties where average daily low temperatures have ranged from -5.8°F to -2.0°F. The coldest temperature ever recorded in Montana was -70°F at Rogers Pass north of Helena, on January 20, 1954. Extended cold periods, especially when coupled with strong winds, can create dangerous situations for those outdoors or those without heat, such as in the case of a utility disruption.

Major problems typically only occur during record snowfalls and extended periods of below zero temperatures. Initial consequences include threats to vulnerable populations from utility interruption, freezing pipes, and snow removal costs. Economic losses include commercial aviation delays/cancellations, medical flights unable to transport patients, and loss in revenue to hotels and restaurants when large events are canceled (school sports, etc.). Residual effects from severe winter weather include agricultural considerations and potential flooding concerns.

Most Montana residents are prepared for winter weather each year. Every community receives snow on an annual basis, so residents expect measurable snow several times each winter. Winter storms are generally slow in developing, often taking one to three days to mature. This does not in any way diminish their importance, nor their potential for causing loss of life and destruction. What it does mean is that the National Weather Service is often able to provide advance notice of winter storms, in some cases, lead times of one to two days. Winter weather typically affects the state from November to April each year but late storms can extend into June, causing extreme impacts to the agricultural industry.

Highway 191 Near Malta, December 28, 2003. The highway was closed for several days following the record snowfalls in northeastern Montana. Many drivers were stranded during the storm that created this snow drift (NWS, 2004).

Avalanches are often the result of severe winter weather in Montana. An avalanche is a mass of loosened snow, ice, and/or earth suddenly and swiftly sliding down a mountain. Avalanches occur throughout the mountains of Montana and, to a limited extent, elsewhere in the state. Avalanche hazards most-directly threaten winter recreationists and communication and transportation networks in mountainous regions. Two of Montana's ski areas, Bridger Bowl and Big Sky, are respectively the second and fourth most avalanche-prone ski resorts in the United States. Where communities have built or developments have encroached into steep mountainous terrain, the vulnerability for avalanches increases. The complex interaction of weather and terrain factors contributes to the location, size, and timing of avalanches. In the absence of detailed scientific observation, any accumulation of snow on a slope steeper than 20 degrees should be considered a potential avalanche hazard.

History of Severe Winter Weather in Montana

Severe winter weather impacts the state annually with blowing and drifting snow, extreme cold, hazardous driving conditions, and utility interruption. From 2009 through 2011 there were 58 severe winter weather events causing either loss of life or property damage (SHELDUS, 2012). Avalanches are also responsible for fatalities to recreationists such as skiers, snowboarders, snowmobilers and climbers. From 1998 to 2012, there were 70 avalanche fatalities in Montana, representing more than 15 percent of the nationwide avalanche-related deaths (American Avalanche Association, 2012). **Table 4.4.5-1** summarizes the avalanche-related fatalities in Montana since 2006 followed by a description of several severe winter weather events that have occurred in Montana since 1996.

TABLE 4.4.5-1
SUMMARY OF AVALANCHES IN MONTANA: 2006-2012

Date	Location	Activity	Fatalities	Injuries
12/16/2006	Scotch Bonnet Mountain near Cooke City	Snowmobiling	1	0
12/28/2006	Lionhead area near West Yellowstone	Snowmobiling	1	1
1/1/2007	Mt. Jefferson, Centennial Range	Snowmobiling	1	1
2/17/2007	Big Belt Mountains, northeast of Townsend	Snowmobiling	2	0
3/3/2007	Yellow Mountain near Big Sky	Skiing	1	0
1/13/2008	Canyon Creek, near Whitefish Mountain	Skiing	2	0
1/20/2008	Beehive Basin, near Big Sky	Skiing	1	0
1/17/2009	Gravelly Range	Snowmobiling	1	0
1/17/2009	Crown Butte	Snowmobiling	1	0
1/17/2009	Mount Jefferson	Snowmobiling	1	0
12/10/2009	Hyalite Drainage, northern Gallatin's, Bozeman	Climbing	1	0
1/3/2010	Scotch Bonnet Mountain, near Lulu Pass	Snowmobiling	1	-
3/27/2010	Near Missoula Lake	Snowmobiling	1	-
3/31/2010	Peak 6966 near Marias Pass, Glacier National Park	Snowboarding	1	-
4/14/2010	McAtee Basin, Southern Madison Range	Snowmobiling	1	-
6/14/2010	Lolo Peak	Skiing	1	-
2/14/2011	Truman Gulch, Bridger Ranger	Snowboarding	1	-
1/1/2012	Phillipsburg, Flint Range, Red Lion	Snowmobiling	1	-
2/1/2012	Twin Lakes, Swan Range	Skiing	1	-
2/20/2012	Lost Johnny drainage, east of Kalispell	Snowmobiling	1	-
2/22/2012	Daisy Pass Road, north of Cooke City	Snowmobiling	1	-
2/25/2012	Skyline Creek, near Marias Pass	Snowbiking	1	-

Source: CAIC, 2012

February 1996 - Unusually cold temperatures covered most of the state, but communities in the northeast portion were exposed to life-threatening wind chills. The cold temperatures ruptured a natural gas line in Chouteau, compounding the life-threatening situation further. Later that year in November and December 1996, heavy snowfall and freezing rain caused power outages in western Montana and collapsed numerous buildings in the northwestern portion of the state.

November 2000 - Eastern Montana suffered an ice storm and blizzard in November 2000 which knocked out power to many homes and businesses from Plentywood to Ekalaka. Some locations did not have power restored for several weeks. Estimated damages were $3 million. The storm received a Presidential disaster declaration.

June 2002 - A major late season winter storm affected much of the Rocky Mountain Front. Heavy snow fell for three days with snow accumulations ranging from 3 to 4 feet over the valleys, to 5 to 7 feet above 5,000 feet. This snow had a very high moisture content, which caused 301 power poles to break, 232 power pole cross arms to snap off, 521 splices, and over 30 miles of destroyed power lines. The power was out to over 2,500 customers, some for several days. Roads were closed over the entire Rocky Mountain Front region for 2 days. The deep snow cover resulted in the loss of over 3,200 livestock. Property damage was estimated at $3.2 million. The storm received a Presidential disaster declaration for flooding.

May 2008 - A severe spring storm with snowfall, ice, and high winds occurred in southeast Montana. The primary impact was damage to utilities. A Presidential disaster declaration was issued for Carter, Custer, Fallon, and Powder River Counties which made Public Assistance available for emergency work and the repair or replacement of facilities damaged by the severe winter storm.

January 2010 - Many areas of northeastern Montana felt the effects of severe winter weather with blowing snow and extended cold. In Opheim in Valley County, thick fog and ice on power lines left residents without electricity for several days. Damage from the storm was estimated at $75,000 to repair damaged power lines.

March 2011 – A state of emergency was declared by Glacier County and the Blackfeet Tribe due to huge snow drifts and blizzard-like condition. In some areas snow nearly reached rooftops and covered doors and windows. In East Glacier, 13 inches fell on top of 51 inches already on the ground. Browning had 20 hours of whiteout condition when approximately 20 motorists were stranded temporarily and the viaduct at the U.S. Highway 2 and U.S. 89 intersection was snowed under. Three people were seriously injured in a head-on collision caused when one driver couldn't see through the blowing snow and drifted into the other lane just west of Browning. The deep snow made it impossible for emergency responders to land a helicopter.

Losses

The SHELDUS database includes losses from winter storms and avalanche over the past 52 years. These losses are shown by county within each DES District in **Table 4.4.5-2**.

TABLE 4.4.5-2
SEVERE WINTER WEATHER LOSSES (ADJUSTED TO 2011 DOLLARS): 1960 – 2012

DES District	Jurisdiction	Injuries(1)	Fatalities(1)	Property Loss	Crop Loss
1	Deer Lodge County	0.72	0.31	$886,053	$69,599
1	Flathead County	21.78	1.56	$3,497,787	$88,225
1	Flathead Reservation – included in Lake and Sanders County totals				
1	Granite County	0.59	0.56	$2,841,778	$89,813
1	Lake County	5.78	1.56	$3,214,832	$65,233
1	Lincoln County	2.78	0.56	$2,651,721	$57,430
1	Mineral County	0.83	3.43	$2,559,884	$66,822
1	Missoula County	26.45	6.56	$3,060,265	$79,837
1	Powell County	2.41	1.31	$2,814,603	$89,292
1	Ravalli County	1.01	1.43	$2,817,544	$95,130
1	Sanders County	0.53	1.43	$2,785,988	$73,037
1	Silver Bow County	0.87	1.35	$719,069	$69,599
	District 1 Total	**63.75**	**20.06**	**$27,849,524**	**$844,017**
2	Blackfeet Reservation – included in Glacier County total				
2	Blaine County	1.51	2.04	$831,632	$4,534
2	Cascade County	5.79	5.24	$1,046,760	$82,251
2	Chouteau County	3.55	1.04	$799,414	$4,534
2	Fort Belknap Reservation – included in Blaine County total				
2	Glacier County	15.81	0.24	$5,263,452	$105,242
2	Hill County	2.55	1.04	$734,494	$4,534
2	Liberty County	0.55	1.04	$457,204	$4,534

TABLE 4.4.5-2
SEVERE WINTER WEATHER LOSSES (ADJUSTED TO 2011 DOLLARS): 1960 – 2012

DES District	Jurisdiction	Injuries[1]	Fatalities[1]	Property Loss	Crop Loss
2	Pondera County	5.21	0.24	$2,233,117	$105,615
2	Rocky Boy's Reservation – included in Hill County total				
2	Teton County	2.21	0.24	$2,229,319	$105,615
2	Toole County	0.75	3.24	$986,825	$82,251
	District 2 Total	**37.93**	**14.36**	**$14,582,217**	**$499,110**
3	Beaverhead County	1.82	2	$624,282	$61,796
3	Broadwater County	1.4	0.04	$572,226	$38,805
3	Gallatin County	1.73	0.04	$1,152,834	$68,299
3	Jefferson County	0.53	0.04	$580,575	$61,796
3	Lewis & Clark County	3.98	2.04	$4,275,474	$125,750
3	Madison County	0.73	0.04	$649,596	$61,796
3	Meagher County	0.22	0.04	$958,255	$45,308
3	Park County	4.2	3.04	$1,187,055	$10,226
3	Sweet Grass County	0.87	0.04	$632,328	$10,226
	District 3 Total	**15.48**	**7.32**	**$10,632,625**	**$484,002**
4	Carter County	0.51	2	$1,924,123	$827,831
4	Custer County	0.18	1	$1,719,313	$827,678
4	Dawson County	2.86	1.32	$1,962,362	$820,873
4	Fallon County	0.14	0	$1,861,992	$827,831
4	Garfield County	0.86	2.19	$1,333,405	$820,873
4	McCone County	0.9	0.36	$1,355,988	$820,873
4	Powder River County	0.51	0	$1,988,121	$827,831
4	Prairie County	0.49	1.21	$2,141,265	$821,176
4	Richland County	0.86	2.32	$2,024,612	$823,019
4	Wibaux County	0.68	1.32	$2,085,727	$821,026
	District 4 Total	**7.99**	**11.72**	**$18,396,908**	**$8,239,011**
5	Big Horn County	1.58	1.5	$3,640,284	$827,839
5	Carbon County	9.02	1.04	$884,048	$10,379
5	Crow Reservation – included in Big Horn, Carbon and Yellowstone County totals				
5	Golden Valley County	0.36	0.04	$451,870	$10,492
5	Musselshell County	0.32	0	$1,254,623	$827,952
5	Northern Cheyenne Reservation – included in Rosebud and Big Horn County totals				
5	Rosebud County	0.82	4.5	$1,819,095	$829,194
5	Stillwater County	0.69	0.04	$611,373	$10,226
5	Treasure County	0.18	0	$1,656,587	$827,678
5	Wheatland County	0.52	0.04	$812,987	$10,492
5	Yellowstone County	1.58	0	$1,585,479	$827,686
	District 5 Total	**15.07**	**7.16**	**$12,716,346**	**$4,181,938**
6	Daniels County	0.86	1.32	$1,230,388	$823,019
6	Fergus County	0.73	1.54	$787,900	$3,989
6	Fort Peck Reservation – included in Valley and Roosevelt County totals				
6	Judith Basin County	0.36	1.54	$819,700	$3,989
6	Petroleum County	0.97	0.08	$1,429,222	$821,449
6	Phillips County	1.86	1.12	$1,710,200	$821,994
6	Roosevelt County	1.86	1.32	$1,932,836	$823,019
6	Sheridan County	0.86	0.32	$1,932,027	$823,019
6	Valley County	2.86	1.23	$1,450,646	$823,019
	District 6 Total	**10.36**	**8.47**	**$11,292,919**	**$4,943,497**
Total		**150.58**	**69.09**	**$95,470,539**	**$19,191,575**

The SHELDUS data indicates that between 1960 and 2012, District 1 counties cumulatively had the greatest number of fatalities and most property damage from severe winter weather, using dollar values adjusted for inflation. **Table 4.4.5-3** presents the top 20 counties with severe winter weather losses.

TABLE 4.4.5-3 TOP 20 COUNTIES WITH SEVERE WINTER WEATHER LOSSES (ADUSTED TO 2011 DOLLARS): 1960 – 2012			
County	**Property Loss**	**County**	**Property Loss**
Glacier	$5,263,452	Lincoln	$2,651,721
Lewis and Clark	$4,275,474	Mineral	$2,559,884
Big Horn	$3,640,284	Pondera	$2,233,117
Flathead	$3,497,787	Teton	$2,229,319
Lake	$3,214,832	Prairie	$2,141,265
Missoula	$3,060,265	Wibaux	$2,085,727
Granite	$2,841,778	Richland	$2,024,612
Ravalli	$2,817,544	Powder River	$1,988,121
Powell	$2,814,603	Dawson	$1,962,362
Sanders	$2,785,988	Roosevelt	$1,932,836

Source: SHELDUS, 2012

Declared Disasters

Numerous disasters have been declared in Montana due to severe winter weather. **Table 4.4.5-4** summarizes disaster declarations from 1974 to 2012 and **Table 4.4.5-5** presents the disaster assistance granted to individual jurisdictions. There have been no federal or state disasters for severe winter weather since the State PDM Plan was last updated in 2010.

TABLE 4.4.5-4 FEDERAL WINTER STORM DISASTER DECLARATIONS IN MONTANA (1974 - 2012)					
Date	**Disaster No.**	**Areas Declared**	**Public Assistance ($)**		
		Counties and Reservations	**Federal**	**State**	**Local**
11/2000	FEMA-1350-DR-MT	Carter, Daniels, Dawson, Fallon, Richland, Roosevelt Sheridan, Wibaux	$2,049,746	$2,229	$681,019
4/2001	FEMA-1377-DR-MT	Big Horn, Flathead, Lake, Yellowstone & Crow Reservation	$705,644	$439	$234,776
6/2001	FEMA-1385-DR-MT	Gallatin, Missoula & Powell	$922,154	$18,938	$288,447
6/2002	FEMA-1424-DR-MT	Glacier, Toole, Liberty, Hill, Pondera & Blackfeet Reservation	$1,361,886	$23,885	$430,077
6/2008	FEMA-1767-DR-MT	Carter, Custer, Fallon & Power River	$3,312,191	$314,258	$779,410
TOTALS			**$8,351,621**	**$359,749**	**$2,413,729**

Source: DES, 2012

TABLE 4.4.5-5 STATE DECLARED WINTER STORM DISASTERS AND ASSISTANCE IN MONTANA				
Year	**PA /EO/#**	**Applicant**	**State**	**Local**
1978	ST-78-1	Blaine County	$117,620	$23,714
	ST-78-2	City of Havre	$19,495	$18,200
	ST-78-3	Phillips County	$121,075	$22,085
	ST-78-4	Carter County	$76,008	$14,135
	ST-78-5	Valley County	$22,349	$29,681
	ST-78-6	Dawson County	$31,524	$27,508
	ST-78-7	Garfield County	$114,937	$41,484
	ST-78-8	Wibaux County	$47,990	$18,728
	ST-78-9	McCone County	$14,944	$19,117
	ST-78-10	City of Wolf Point	$10,231	$5,040

TABLE 4.4.5-5
STATE DECLARED WINTER STORM DISASTERS AND ASSISTANCE IN MONTANA

Year	PA /EO/#	Applicant	State	Local
1979	ST-79-1	Judith Basin County	$201,825	$17,320
	ST-79-2	Sweet Grass County	$34,145	$10,174
	ST-79-3	Teton County	$247,818	$24,210
	ST-79-4	Golden Valley County	$66,693	$7,746
	ST-79-5	Carter County	$95,672	$13,370
	ST-79-6	Garfield County	$88,387	$13,800
	ST-79-7	McCone County	$15,790	$21,680
	ST-79-8	Wibaux County	$39,559	$15,650
	ST-79-9	Dawson County	$75,947	$20,949
1985	MT-85-1	Town of Neihart	$12,542	$243
1990	MT-2-90	Town of Browning	$2,493	$806
1996	EO2-96	Teton County	$2,288	$0
	EO29-96	Glacier County, Browning, Blackfeet Reservation	$35,521	$0
	EO30-96	City of Libby	$74,645	$0
2004	EO 8-04	Petroleum County	$11,282	$2,936
	EO 8-04	Daniels County	$22,504	$9,373
	EO 8-04	Garfield County	$31,389	$0
	EO 8-04	Richland County	$45,162	$22,294
	EO 8-04	Roosevelt County	$46,392	$43,444
	EO 8-04	Sheridan County	$26,239	$12,575
	EO 8-04	Culbertson, Wolf Point, Froid, Jordan, Glasgow, Nashua, Opheim, Fort Peck, Sidney, Scobey, Flaxville, Medicine Lake	$66,713	$19,619
2005	EO 23-05	City of Glendive	$26,242	$0
2008	EO 27-08	City of Libby	$16,409	$5,602
TOTALS			**$1,861,830**	**$481,483**

Source: DES, 2012

Magnitude and Probability

The magnitude of severe winter weather is measured by the severity of the event. Winter storms are generally slow in developing and advance notice often lessens their effects on the population. Severe winter weather that results in loss of life, extended road closures, long-term power outages, or significant isolation problems represent high magnitude weather events for Montana. Routine damages to property are largely due to frozen pipes. Collapsed roofs from snow load are not common due to the low percent moisture in typical snow loads.

Probability was assessed based on hazard frequency over a 10 year period. The frequency of severe winter weather has a “highly likely” probability rating; an event that occurs every year in many parts of Montana.

Vulnerability

The entire State is considered vulnerable to severe winter weather. Arctic cold fronts typically enter the state from the northeast and may cross the Continental Divide, affecting the western portion of the State. Arctic fronts meeting wet maritime fronts often combine to cause heavy snowfall, which can occur in all parts of the State. The lowest temperatures are typically

experienced in the northeast, whereas the heaviest snowfall most often occurs in the mountain regions. Exposure does not equate to vulnerability, as preparedness and awareness in the most exposed portions of the State reduce vulnerability. For those reasons, the entire State is considered equally vulnerable to affects from severe winter weather.

Of the major avalanche hazards, the interruption of communications lines probably occurs most frequently. Places of highest hazard include ski areas, mountain passes, and other areas where transmission lines cross avalanche paths. In regions where important highways or railroads cross areas subject to frequent snow slides, losses resulting from blocked roads, buried railroad tracks, and destroyed bridges can reach into the millions of dollars.

Statewide Vulnerability

Since it was assumed that the severe winter weather hazard poses a uniform risk in areas of the state where people live, no hazard map was developed depicting regional variability. To complete the vulnerability analysis, all critical facilities and residential, commercial/industrial/ agricultural parcels are equally exposed to the severe winter weather hazard. Vulnerable population consists of the entire state, with numbers reported from the 2010 census. Exposure values are presented in **Table 4.4.5-6**. Annual loss was calculated based on damage data from the SHELDUS database. The *Severe Winter Weather* section in **Appendix B** presents supporting documentation from the risk assessment.

TABLE 4.4.5-6
SEVERE WINTER WEATHER EXPOSURE SUMMARY BY DES DISTRICT

Item	District 1	District 2	District 3	District 4	District 5	District 6
Hazard Area (Square Miles)	25,141.06	24,223.64	25,024.59	26,709.39	22,015.25	23,669.54
Percent Hazard Area	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Residential Building Exposure ($)	$19,705,504,282	$4,986,793,102	$13,637,924,705	$1,205,353,258	$8,736,497,015	$1,208,159,897
Residential Building Exposure (# structures)	130,926	44,677	72,013	16,756	67,608	16,423
Commercial, Agricultural, Industrial Building Exposure ($)	$5,677,228,280	$2,434,950,853	$4,907,273,717	$363,317,086	$4,073,963,791	$381,131,004
Commercial, Agricultural, Industrial Building Exposure (# structures)	16,213	8,972	10,024	3,647	9,787	5,232
Critical Facility Exposure ($)	$1,384,831,570	$117,672,903	$1,935,072,375	$40,448,726	$123,461,503	$20,651,678
Critical Facility Exposure (# structures)	287	43	222	20	25	28
Annual Loss	$535,568	$280,427	$204,474	$353,787	$244,545	$217,172
Population Living in Hazard Area	358,112	143,015	208,041	41,340	197,573	41,334
Population Under 18 Living in Hazard Area	76,834	35,232	44,577	9,192	47,786	9,938

TABLE 4.4.5-7
SEVERE WINTER WEATHER EXPOSURE SUMMARY FOR TOP COUNTIES, CITIES AND TOWNS

County	% Severe Winter Weather Exposure	% Growth (2000 to 2010)	# of Building Permits (2000 to 2010)	$ Residential Exposure	# Residences at Risk	$ Commercial/ Ag/Industrial Expose	# Commercial/ Ag/Industrial Buildings at Risk	$ Critical Facilities Exposure	# Critical Facilities at Risk
COUNTIES WITH HIGHEST PERCENT EXPOSURE (ANNUAL LOSS / TOTAL EXPOSURE)									
PETROLEUM	0.16959%	0.20%	0	$14,118,478	235	$2,087,976	65	$0	0
WIBAUX	0.13466%	-4.69%	5	$23,565,507	412	$6,221,208	144	$0	0
TREASURE	0.13080%	-16.22%	0	$19,854,295	346	$4,502,174	65	$0	0
PRAIRIE	0.12371%	-1.67%	6	$27,844,724	651	$5,440,538	165	$0	0
CARTER	0.10265%	-14.58%	3	$32,491,412	781	$3,555,612	53	$0	0
POWDER RIVER	0.07878%	-6.19%	0	$39,346,759	734	$9,184,185	205	$32,159	2
GARFIELD	0.06315%	-5.71%	9	$33,925,861	599	$6,676,540	164	$15,254	1
CITIES/TOWNS WITH HIGHEST PERCENT EXPOSURE (ANNUAL LOSS / TOTAL EXPOSURE) (TOWNS WITH POP. > 500)									
PINESDALE	1.70872%	23.58%	0	$3,155,205	25	$15,831	1	$0	0
BROWNING	0.74599%	-4.60%	0	$5,332,026	168	$8,236,548	96	$0	0
WIBAUX	0.32911%	3.88%	5	$7,981,398	233	$4,205,988	47	$0	0
POPLAR	0.27982%	-11.09%	0	$6,675,103	203	$6,608,499	110	$0	0
TERRY	0.27567%	-0.98%	6	$11,451,259	362	$3,485,905	64	$0	0
HOT SPRINGS	0.23246%	2.45%	0	$15,791,667	283	$7,255,890	51	$0	0
ST. IGNATIUS	0.22118%	6.85%	0	$19,093,648	229	$8,858,778	68	$0	0
COUNTIES WITH GREATEST PERCENT EXPOSURE WHICH HAVE FASTEST GROWTH RATES (% EXPOSURE x % POPULATION CHANGE 2000 TO 2010)									
GRANITE	0.02193%	8.38%	3	$219,758,850	1,915	$29,461,142	244	$0	0
BROADWATER	0.00358%	28.13%	51	$268,226,420	2,196	$38,835,636	301	$24,480,879	4
SANDERS	0.00746%	11.48%	0	$599,585,758	5,146	$118,420,567	620	$0	0
FALLON	0.04109%	1.94%	20	$69,432,457	1,383	$17,714,944	205	$15,650	1
LIBERTY	0.00907%	8.39%	0	$81,901,232	788	$15,084,488	286	$196,636	3
GLACIER	0.04019%	1.20%	4	$167,567,943	2,240	$84,310,132	633	$113,344	2
PETROLEUM	0.16959%	0.20%	0	$14,118,478	235	$2,087,976	65	$0	0
CITIES/TOWNS WITH HIGHEST PERCENT EXPOSURE WHICH HAVE FASTEST GROWTH RATES (TOWNS WITH POP. > 500) (% EXPOSURE x % POPULATION CHANGE 2000 TO 2010)									
PINESDALE	1.70872%	23.58%	0	$3,155,205	25	$15,831	1	$0	0
FAIRVIEW	0.19644%	18.48%	0	$15,744,283	340	$4,075,762	67	$0	0
EAST HELENA	0.09420%	20.83%	79	$57,056,371	672	$30,228,085	119	$0	0
ST. IGNATIUS	0.22118%	6.85%	0	$19,093,648	229	$8,858,778	68	$0	0
WIBAUX	0.32911%	3.88%	5	$7,981,398	233	$4,205,988	47	$0	0
FAIRFIELD	0.11448%	7.44%	7	$22,460,731	275	$14,989,284	70	$0	0
STEVENSVILLE	0.05150%	16.48%	70	$70,477,627	625	$34,731,260	136	$0	0

Since the PDM vulnerability analysis did not model the regional variations on how Montana is exposed to severe winter weather, the results mirror total exposure. DES District 1 has the highest building and population exposure, followed by Districts 3 and 5. There are more critical facilities at risk in District 1; however, the exposure value is highest in District 3. Annual loss is highest for District 1, followed by Districts 4 and 2.

Table 4.4.5-7 presents a vulnerability summary of the severe winter weather hazard as it relates to percent exposure and growth rates in Montana's counties, cities and towns. Since the severe winter weather hazard was considered to be uniform across the state for the purposes of the PDM risk assessment, percent exposure was calculated differently that with the other hazards. Percent exposure was derived by dividing the annual loss (frequency x magnitude x building stock) into the total value of the building stock. Annual loss is typically calculated on a county-basis but is applied here to cities and towns. A complete ranking of percent exposure is presented in the *Severe Winter Weather* section of **Appendix B**.

Counties with the highest exposure to severe winter weather include: Petroleum, Wibaux, Treasure, Prairie, and Carter; while the top cities/towns include: Pinesdale (Ravalli Co.), Browning (Glacier Co.), Wibaux (Wibaux Co.), Poplar (Roosevelt Co.) and Terry (Prairie Co.). **Figure 4.4.5-1** presents percent exposure for the top counties and cities/towns.

To determine the jurisdictions with the highest risk that are experiencing the fastest growth, percent exposure was multiplied by the change in population between the 2000 and 2010 census. A complete ranking is presented in the *Severe Winter Weather* section of **Appendix B**.

Counties with the highest percent exposure which are experiencing the fastest population growth include: Granite, Broadwater, Sanders, Fallon and Liberty; while the top cities/towns (with population over 500) are Pinesdale (Ravalli Co.), Fairview (Richland Co.), East Helena (Lewis and Clark Co.), St. Ignatius (Lake Co.) and Wibaux (Wibaux Co.). **Figure 4.4.2-2** presents percent exposure and population change for the top counties and cities/towns showing the most vulnerable areas experiencing the fastest population growth.

Review of Potential Losses in Local PDM Plans

The *Local Plan Exposure Summary* table in the *Severe Winter Weather* section of **Appendix B** presents a summary of severe winter weather exposure from the Local PDM Plans. Losses are described in terms of their effect on buildings, society, and the economy, as outlined below:

- Building exposure is presented either as a dollar value or high-moderate-low rating and typically refers to the vulnerability of residential structures and/or critical facilities from the hazard.
- Societal exposure is presented either as the number of lives at risk or as a high-moderate-low rating representing the vulnerability of human life from the hazard.

Figure 4.4.5-1 - % Exposure

Figure 4.4.5-2 - % Exposure + % Population Change

- Economic exposure is presented as a dollar value or high-moderate-low rating referring to the potential impact to the economy from the hazard.

Approximately 85 percent of the local PDM plans evaluated the severe winter weather hazard in their risk assessment. Of those with quantified results, Phillips County had the highest annual loss followed by Lewis and Clark, Glacier, and Cascade Counties. Flathead County was rated as Very High exposure and, Carter and Fallon Counties were rated as High.

Vulnerability of State Property

State property that may be vulnerable to severe winter weather includes property which may have sustained damage from frozen water pipes or collapsed roofs due to heavy snow loads. Unprotected water lines or water lines above frost lines in the ground could expose buildings to potential flood damage. The same applies to building structures that may not be structurally sound to withstand high snow loads. An inventory of state-owned buildings with unprotected water lines or insufficient structural integrity was not available.

Table 4.4.5-8 shows totals by state agency and university for insurance claims related to severe winter weather. The highest total claims are from the university campuses in Bozeman and Missoula. Many of these losses are related to flooding from frozen pipes.

TABLE 4.4.5-8
LOSS CLAIMS FOR STATE FACILITIES CAUSED BY SEVERE WINTER WEATHER 1997-2012

Agency	City	Total
Department of Administration	Helena	$194,083
Department of Commerce	Helena	$2,342
Department of Corrections	Boulder, Deer Lodge	$96,729
Department of Justice, MLEA	Helena	$1,167
Department of Military Affairs	Billings	$10,125
Department of Transportation	Big Sky, Bonner, Butte, Kalispell, Lewistown, Missoula	$220,758
Dept. Fish, Wildlife & Parks	-	$4,253
Dept. of Justice, Highway Patrol	Laurel	$80
Dept. Public Health & Human Services	Glendive	$3,350
Environmental Quality	-	$2,410
University System	Billings	$128,235
University System	Bozeman	$663,787
University System	Butte	$16,275
University System	Dillon	$5,337
University System	Havre	$136,776
University System	Helena	$135,789
University System	Missoula	$608,720
TOTAL		**$2,230,216**

Source: DOA-RMTD, 2012

Future Development

The State of Montana has adopted the 2009 International Building Codes (IBC). The IBC includes a provision that buildings must be constructed to withstand a wind load of 75 mph constant velocity and three second gusts of 90 mph. Buildings must be designed to withstand a snow load of 30 pounds per square foot minimum.

No zoning or subdivision regulations across the State address severe winter weather. Montana snow is generally dry and snow loads do not threaten roof collapse in most areas. However, the northwestern portion of the State where snow contains greater moisture content should consider building regulations that require a stricter design standard for flat roofs to ensure they can support maximum snow loads.

Data Limitations

Spatial data on the regional variability of the severe winter weather hazard was not available for the PDM analysis; therefore, it was assumed that it affects populated areas of the state in a uniform manner.

National Weather Service data has improved significantly in the past decade; however, events are typically only recorded if observed by a weather station or reported to the local NWS office. In a state as rural as Montana, the data will therefore be somewhat dependent on event location (in a populated area versus an unpopulated area) and limited in that respect.

SHELDUS data is only available on a county level; therefore, extrapolating the annual loss value to the city/town level may result in over-reporting of exposure.

There is no data on state-owned buildings with unprotected water lines or insufficient structural integrity to withstand snow loads. To further evaluate vulnerability from the winter weather hazard, this type of data would be needed. To adequately evaluate avalanche hazards, the state buildings would need to be assessed with reference to slope and average annual snowfall.

References

American Avalanche Association, 2012. http://avalanche.org/accidents.php

Colorado Avalanche Information Center (CAIC). 2012. Avalanche fatalities. https://avalanche.state.co.us/acc/acc_us.php

Montana Department of Administration (DOA), Risk Management and Tort Defense (RMTD) Division. 2012. Property Casualty Insurance Information System database of loss claims for State facilities. November, 2012.

Montana Disaster and Emergency Services (DES). 2012. Federal and State Declared Disasters.

National Oceanic and Atmospheric Administration (NOAA). 2001. Winter Storms: The Deceptive Killers. A preparedness guide prepared by NOAA and the American Red Cross, December 2001.

National Weather Service (NWS). 2004. Billings, Glasgow and Great Falls Weather Forecast Offices. http://www.wrh.noaa.gov/Billings/questions/q27.shtml ; and http://www.wrh.noaa.gov/Greatfalls/tfx.php?TEXT+precipcomps.html.

SHELDUS. 2012. Hazards & Vulnerability Research Institute. The Spatial Hazard Events and Losses Database for the United States, Version 7.0 [Online Database]. Columbia, SC: University of South Carolina. Available from http://www.sheldus.org

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4.4.6 Communicable Disease

CPRI = 3.25

Communicable diseases, sometimes called infectious diseases, are illnesses caused by organisms such as bacteria, viruses, fungi and parasites. Sometimes the illness is not due to the organism itself, but rather a toxin that the organism produces after it has been introduced into a human host. Communicable disease may be transmitted (spread) either by: one infected person to another, from an animal to a human, from an animal to an animal, or from some inanimate object (doorknobs, table tops, etc.) to an individual.

Human Diseases

One of the most common communicable diseases is influenza. Influenza is a contagious, upper-respiratory disease caused by many different strains of influenza viruses. In 1979 and again in late 2003, a flu epidemic hit the U.S. infecting hundreds of people. The swine flu (H1N1) pandemic of 2009 caused a number of fatalities in the country. The 2012-2013 flu outbreak in Montana claimed 15 lives. The best way to prevent the flu is by getting a flu vaccine each year.

Air travel has significantly increased the speed with which diseases can spread. Most of the world's great cities are now within a few hours of each other. A virus that is in Hong Kong one day can be carried to any point in Southeast Asia within three or four hours, to Europe in 12 hours, and to North America in 18 hours. Nearly 1.5 billion passengers travel by air every year (WHO, 2009). A pandemic is a global disease outbreak.

Diseases that have been eliminated from the U.S. population, such as smallpox, could be used in bioterrorism. The following list gives examples of biological agents or diseases that could occur naturally or be used by terrorists as identified by the Centers for Disease Control and Prevention (2011). These diseases/bioterrorism agents can infect populations rapidly, particularly through groups of people in close proximity such as schools, assisted living facilities, and workplaces.

Category A

Definition - The U.S. public health system and primary healthcare providers must be prepared to address various biological agents, including pathogens that are rarely seen in the U.S. High-priority agents include organisms that pose a risk to national security because they:

- Can be easily disseminated or transmitted from person to person;
- Result in high mortality rates and have the potential for major public health impact;
- Might cause public panic and social disruption; and
- Require special action for public health preparedness.

Agents/Diseases

- Anthrax (*Bacillus anthracis*)
- Botulism (*Clostridium botulinum* toxin)
- Plague (*Yersinia pestis*)
- Smallpox (variola major)
- Tularemia (*Francisella tularensis*)
- Viral hemorrhagic fevers (filoviruses [e.g., Ebola, Marburg] and arenaviruses [e.g., Lassa, Machupo])

Category B

Definition - Second highest priority agents include those that:

- Are moderately easy to disseminate;
- Result in moderate morbidity rates and low mortality rates; and
- Require specific enhancements of CDC's diagnostic capacity and enhanced disease surveillance.

Agents/Diseases

- Brucellosis (*Brucella* species)
- Epsilon toxin of *Clostridium perfringens*
- Food safety threats (e.g., *Salmonella* species, *Escherichia coli* O157:H7, *Shigella*)
- Glanders (*Burkholderia mallei*)
- Melioidosis (*Burkholderia pseudomallei*)
- Psittacosis (*Chlamydia psittaci*)
- Q fever (*Coxiella burnetii*)
- Ricin toxin from *Ricinus communis* (castor beans)
- Staphylococcal enterotoxin B
- Typhus fever (*Rickettsia prowazekii*)
- Viral encephalitis (alphaviruses [e.g., Venezuelan equine encephalitis, eastern equine encephalitis, western equine encephalitis])
- Water safety threats (e.g., *Vibrio cholerae*, *Cryptosporidium parvum*)

Category C

Definition - Third highest priority agents include emerging pathogens that could be engineered for mass dissemination in the future because of:

- Availability;
- Ease of production and dissemination; and
- Potential for high morbidity and mortality rates and major health impact.

Agents

- Emerging infectious diseases such as Nipah virus and hantavirus

Animal and Plant Diseases

Agriculture dominates Montana's economy contributing $3.046 billion per year with $1.78 billion coming from crops and $1.27 billion coming from livestock (USDA National Agriculture Statistics Service, 2013). Wheat is Montana's most important crop followed by hay, barley, and sugar beets. Montana's most important livestock commodities are cattle and calves, followed by hogs and pigs, and sheep and lambs. The security of the state's crop and livestock industry is of paramount importance to Montana's economy. Some of the animal diseases with the potential to threaten the state's agricultural industry include: anthrax, brucellosis, chronic wasting disease, foot and mouth disease and mad cow (BSE) disease. Many plant pests are sporadic in their occurrence cycling with environmental conditions such as dry or wet cycles. However, major insect pests such as alfalfa weevil, wheat stem sawfly, wireworms, cutworm species, grasshoppers and cereal leaf beetle are likely to attain pest status in the state each year.

History of Communicable Disease in Montana

Public health emergencies that have affected Montana include vector-borne disease, such as West Nile Virus, food-borne illness like *E.coli*, and vaccine-resistant illness such as virulent strains of influenza. The Montana Department of Public Health and Human Services (DPHHS) manage a database of reportable communicable disease occurrences. The communicable disease summary between 2002 and 2012 is presented in **Table 4.4.6-1**.

There have been four major global flu pandemics since 1900. The 2009 swine flu pandemic. The Hong Kong flu (1968-1969) which killed approximately one million people. The Asian flu pandemic (1957-1958) originated in China and is estimated to have killed between one and four million people. The Spanish flu pandemic (1918-1919) killed between 50-100 million people worldwide (Walsh, 2009).

The single deadliest flu pandemic in history was the Spanish flu pandemic during 1918-1919. Occurring in the three waves of increasing lethality, the Spanish flu killed more people in 24 weeks than AIDS did in 24 years. It also killed more people in one year than smallpox or the Black Plague did in 50 years (Iezzoni, 1999). The Spanish influenza outbreak caused 9.9 deaths per 1,000 people in the State of Montana (Brainerd and Siegler, 2002). Historical records from newspapers show that the influenza outbreak was so bad in 1918 that residents were quarantined from November 30 to December 17 after 18 people died and 53 new cases were discovered. Native Americans died at a rate four times the national average from the Spanish flu (Iezzoni, 1999).

TABLE 4.4.6-1
COMMUNICABLE DISEASE SUMMARY; 2002 – 2012

CONDITIONS WITH AT LEAST 20 CASES	# OF CASES	COUNTIES WITH HIGHEST NUMBER OF CASES				
Hepatitis C Virus Infection, Chronic	6,138	Yellowstone (1,262)	Missoula (706)	Cascade (537)	Gallatin (381)	Roosevelt (373)
Pertussis	1,792	Flathead (283)	Yellowstone (268)	Lewis and Clark (279)	Gallatin (170)	Missoula (102)
Campylobacteriosis	1,651	Gallatin (264)	Missoula (192)	Yellowstone (174)	Flathead (166)	Lewis and Clark (124)
Varicella (Chickenpox)	1,436	Flathead (314)	Gallatin (159)	Lewis and Clark (141)	Custer (102)	Lincoln (88)
Salmonellosis	1,284	Missoula (203)	Yellowstone (141)	Gallatin (117)	Flathead (112)	Lewis and Clark (101)
Giardiasis	990	Missoula (179)	Gallatin (149),	Flathead (122),	Yellowstone (82),	Cascade (60),
Cryptosporidiosis	602	Missoula (124)	Flathead (113)	Gallatin (72)	Yellowstone (50)	Cascade (48)
West Nile	474	Yellowstone (64)	Custer (44)	Roosevelt (37)	Valley (35)	Cascade (26)
Meningitis, Viral	382	Yellowstone (116)	Gallatin (49)	Flathead (51)	Cascade (22)	Missoula (19)
Shiga Toxin-Producing Escherichia Coli (Stec)	334	Gallatin (53)	Lewis and Clark (50)	Missoula (45)	Yellowstone (40)	Cascade (31)
Shigellosis	271	Roosevelt (48)	Granite (47)	Glacier (46)	Valley (23)	Gallatin (16)
Rabies, Animal	198	Yellowstone (26)	Flathead (22)	Cascade (13)	Dawson (10)	Missoula (9)
Streptococcus Pneumoniae, Invasive	144	Lewis and Clark (36)	Missoula (14)	Lake (13)	Lincoln (12)	Hill (10)
Tuberculosis	91	Glacier (9)	Roosevelt (7)	Flathead (7)	Lewis and Clark (7)	Lake (6)
Hepatitis A, Acute	68	Missoula (11)	Gallatin (10)	Lewis and Clark (9)	Flathead (7)	Yellowstone (5)
Hepatitis B Virus Infection, Chronic	57	Missoula (13)	Yellowstone (12)	Gallatin (9)	Lewis and Clark (5)	Flathead (4)
Meningitis, Bacterial	53	Yellowstone (7)	Silver Bow (6)	Missoula (5)	Lincoln (4)	Cascade (3), Lake (3)
Hepatitis B, Acute	51	Yellowstone (8)	Cascade (7)	Lewis and Clark (6)	Gallatin (5)	Flathead, Missoula (4)
Lyme Disease	51	Gallatin (10)	Missoula (6)	Flathead (5)	Yellowstone (5)	Cascade (4)
Neisseria Meningitidis, Invasive (Mening. Disease)	48	Missoula (9)	Yellowstone (8)	Cascade (5)	Gallatin (5)	Silver Bow (4)
Legionellosis	45	Missoula (7)	Cascade (6)	Lewis and Clark (6)	Yellowstone (5)	Ravalli (3)
Encephalitis, West Nile	40	Yellowstone (10)	Blaine (5)	Roosevelt (4)	Lewis and Clark (3)	Cascade, Richland, Sheridan (2)
Hepatitis C, Acute	35	Lincoln (12)	Yellowstone (5)	Hill (3)	Ravalli (3)	Cascade, Lewis and Clark, Custer, Valley (2)
Spotted Fever Rickettsiosis	28	Cascade (4)	Gallatin (2)	Missoula (2)	Yellowstone (2)	Big Horn , Ravalli, Roosevelt , Sanders (2)
Amebiasis	26	Yellowstone (7)	Missoula (5)	Gallatin (4)	Cascade (3)	Ravalli, Flathead (2)
Coccidioidomycosis	25	Cascade (4)	Gallatin (4)	Yellowstone (4)	Ravalli (2)	Lewis and Clark (2)
Yersiniosis	22	Flathead (13)	Missoula (3)	Lincoln (2)	Gallatin (2)	Lewis and Clark (2)
Haemophilus Influenzae, Invasive	21	Lewis and Clark (5)	Gallatin (3)	Yellowstone (2)	Jefferson (2)	Silver Bow (2)
Q Fever	21	Lewis and Clark (6)	Cascade (4)	Teton (4)	Yellowstone (2)	Phillips (2)

Source: DPHHS, 2013

There have been few cases of livestock or plant disease in Montana that have caused significant economic impact. An anthrax outbreak occurred in 2003 causing the death of 37 cows in Roosevelt County. One case of a foot-and-mouth type disease was detected in Yellowstone County in 2005 before is spread further. Brucellosis was detected in Montana cattle in 2007 (Carbon County) and 2011 (Park County) threatening the state's brucellosis-free status.

Declared Disasters

No state of federal disaster declarations have been made as the result of a communicable disease outbreak. Public health emergencies are issued when an infectious disease outbreak has occurred or is anticipated.

Magnitude and Probability

Annual flu viruses (not including flu pandemics) infect up to 20 percent of Americans, put 200,000 in the hospital with flu-related complications, and kill about 36,000 people (Friedlander, 2009). As many as 200,000 Americans are hospitalized because of it each year, and as many as 36,000 die of the disease or complications associated with it. Children under age 1, people 65 or older and people suffering from underlying medical conditions are at a higher risk of serious complications. The cost of treating annual flu epidemics, including lost wages and productivity of workers, is billions of dollars each year in just the United States alone (Goldsmith, 2007).

Influenza cases, including hospitalizations and deaths, are reportable to local public health in Montana. Even though the 2011-2012 flu season was considered "very mild," there were 10 people hospitalized and three deaths directly attributable to influenza. Approximately 340 influenza-associated hospitalizations were reported in connection with the 2012-2013 flu outbreak, a rate of 39.1 per 100,000 population. There were 15 deaths attributed to the influenza; 13 were individuals 65 years of age or older (DPHHS, 2013b). **Figure 4.4.6-1** presents the rate of confirmed cases of influenza by county for 2012-2013.

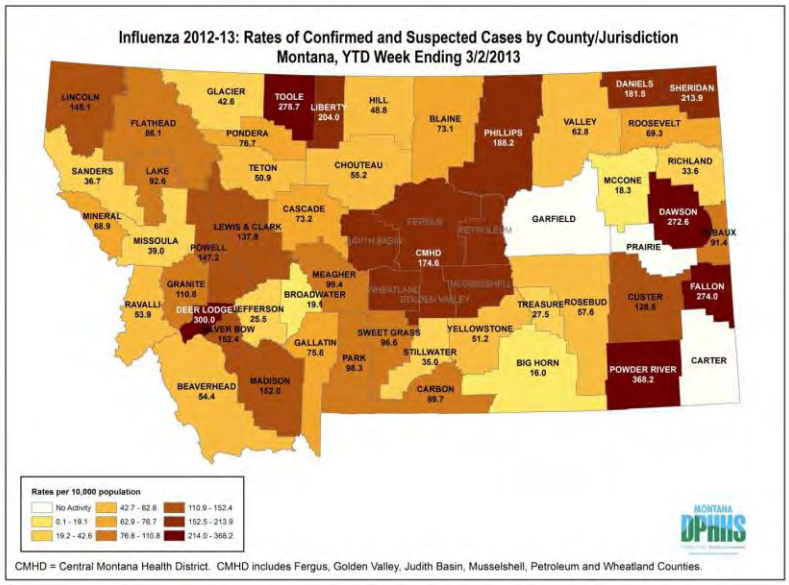

Figure 4.4.6-1
Influenza 2012-2013; Rates of Confirmed and Suspected Cases

Probability is based on the frequency of the hazard over a 10 year period. Since communicable disease incidents occur more than once per year, the probability rating is “highly likely” for this hazard. Scientists believe that flu pandemics occur two or three times each century (WHO, 2009).

Vulnerability

Communicable disease or biological agents could be devastating to the population or economy of Montana. Human diseases when on an epidemic scale, can lead to high infection rates in the population causing isolation, quarantines and potential mass fatalities.

Effective communicable disease control efforts rely on an effective surveillance and response system that promotes collaboration, coordination and communication among public health and clinical professionals. Surveillance can be defined as 'ongoing systematic collection, collation, analysis and interpretation of data and the dissemination of information to those who need to know in order that action may be taken.

A secure agricultural system requires rapid detection of outbreaks, accurate diagnoses of problems, and early response to minimize impact. The U.S. Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS) Plant Protection and Quarantine Program coordinates pest detection activities nationwide. Plant pest detection coordination is handled locally by the Montana Department of Agriculture and Montana State University (MSU) Extension Service.

Statewide Vulnerability

The entire population of the State of Montana is at risk for contracting disease. The urban population centers are more vulnerable to rapidly spreading and highly contagious diseases than more rural parts of the state. The number of fatalities would depend on the mortality rate and the percentage of the population affected. The ability to control the spread of disease would be dependent on the contagiousness of the disease, movement of the population, and the warning time involved.

Experts are not able to predict when the next influenza pandemic will occur, or which influenza virus subtype will cause it. Modeling based on the 1968 pandemic estimates 2 million to 7.4 million deaths worldwide. In the United States alone, the next influenza pandemic could cause 89,000 to 207,000 deaths and 314,000 to 734,000 hospitalizations, as well as tens of millions of outpatient visits and additional illnesses, in the absence of effective interventions. The economic costs due to deaths, illness, and hospitalizations in the United States, excluding disruptions to commerce and society, would be $71.3 to $166.5 billion (Meltzer and others, 1999 in CDC, 2007). The potential impact on the Montana economy has not been quantified.

The State of Montana, as well as local counties and tribes, have been involved in pandemic influenza preparedness efforts and have a *State and Local Human Disease and Public Health (Pandemic Influenza) Emergency Plan*. States and local communities are responsible under their own authorities for responding to an outbreak within their jurisdictions and having comprehensive pandemic preparedness plans and measures in place to protect their citizens. The focus of these planning efforts is on practical, community-based procedures that could prevent or delay the spread of pandemic influenza, and help to reduce the burden of illness communities would contend with during an outbreak.

Foreign plant and animal pests and diseases may be introduced into the United States through banned agricultural products and unchecked foreign goods. These pests and diseases could devastate America's crops, livestock and environment. APHIS estimates that introduced plant pests result in an annual $41 billion loss to American agriculture and cost taxpayers millions more dollars in control expenditures (USDA APHIS, 2005). Yellowstone National Park bison leave the park boundaries each winter and have the potential to transmit brucellosis to cattle, a scenario which would be economically devastating to Montana's livestock industry.

The Montana Department of Agriculture has developed an *Agro-Emergency Response Plan* to address policies and procedures that will minimize the impact of a deliberate or unintentional incident related to the State's crop production. The purpose of the plan is to provide for rapid response to significant threats to plants that may impact food safety and public health. The plan provides guidance to mitigate against exotic plant pests and other agricultural emergencies. Montana Department of Livestock, Agriculture, Montana Fish Wildlife and Parks, and DPHHS are charged with protecting public health, the safety of the food supply, and the integrity of animal and plant agriculture industries in Montana. These agencies have developed guidelines for Montana Agricultural Emergencies for Local and Tribal Governments to heighten biosecurity awareness and give direction to address agricultural emergency.

Review of Potential Losses in Local PDM Plans

The *Local Plan Exposure Summary* tables in the *Communicable Disease* section in **Appendix B** present an exposure summary as reported in the Local PDM Plans. Losses from communicable disease are described in terms of their effect on the population and economy rather than on buildings, as outlined below:

- Societal exposure is presented either as the number of lives at risk or as a high-moderate-low rating representing the vulnerability of human life from the hazard.
- Economic exposure is presented as a dollar value or high-moderate-low rating referring to the potential impact to the economy from the hazard.

Approximately one-third of the local PDM plans evaluated the communicable disease hazard in their risk assessment. Beaverhead, Deer Lodge, Chouteau, and Gallatin Counties listed a high societal exposure. Rosebud County lists the highest population at risk followed by Stillwater, Valley and Madison Counties. Most local plans which evaluated the communicable disease hazard recognized the potential for economic impacts.

Vulnerability of State Facilities

In general, critical facilities are not structurally threatened by communicable disease; however, their accessibility and function can be lost. Contamination of a critical facility could render the facility non-functional until decontamination or the threat has passed. For this reason, all critical facilities are assumed to be at risk from communicable disease. As with any human biological event, the hospitals and health service providers would most likely discover a threat and possibly become the first contaminated. Public water systems are also potentially at risk to communicable diseases.

Future Development

Future development would not be directly impacted by communicable disease, but any additional residents would be at risk for disease. Future development would not impact the communicable disease hazard within the agricultural community.

Data Limitations

Disease is a difficult hazard for which to provide specific vulnerabilities. For a disease to have a major impact, it first has to enter the community and then spread. That starting point, how the disease progresses, and preventive actions taken will determine the eventual outcome. The data and analysis are limited by these outside factors.

References

Brainerd, Elizabeth and Mark V. Siegler. 2002. The Economic Effects of the 1918 Influenza Epidemic.

Center for Disease Control (CDC), 2007 and 2011. National Center for Infectious Diseases.

Friedlander, Mark P., Jr. 2009. Outbreak: Disease Detectives at Work. Minneapolis, MN: Twenty-First Century Books.

Goldsmith, Connie. 2007. Influenza: The Next Pandemic? Minneapolis, MN: Twenty-First Century Books.

Iezzoni, Lynette. 1999. Influenza 1918: The Worst Epidemic in American History. New York, NY: TV Books, L.L.C.

Meltzer, M.T., N.J. Cox, and K. Fukuda. 1999. The Economic Impact of Pandemic Influenza in the United States: Priorities for Interventions. Emerging Infectious Disease. 1999:5:659-71.

Montana Department of Public Health and Human Services (DPHHS), 2013a. *http://www.dphhs.mt.gov/influenza/index.shtml*

Montana Department of Public Health and Human Services (DPHHS), 2013b. 2002-2012 Communicable Disease Summary.

U.S. Department of Agriculture (USDA), National Agricultural Statistics Service, 2013. http://www.nass.usda.gov/Statistics_by_State/Montana/Publications/Annual_Statistical_Bulletin/2012/RankMtRank.pdf

U.S. Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS), 2005. The Cooperative Agricultural Pest Survey. U.S. Department of Agriculture, Animal and Plant Health Inspection Service. Program Aid No. 1830.

Walsh, Byran. 2009. "A Brief History of: Flu Pandemics." Time.com. April 30, 2009. Accessed: June 28, 2009.

World Health Organization (WHO), 2009. "Influenza A (H1N1)." WHO.int. June 2009. Accessed: June 28, 2009.

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CPRI = 3.2

4.4.7 Hazardous Material Incidents

Hazardous materials are chemical substances, which if released or misused can pose a threat to the environment or health. Hazardous materials come in the form of explosives, flammable and combustible substances, poisons, and radioactive materials and can cause death, serious injury, long-lasting health effects, and damage to buildings, homes, and other property.

Varying quantities of hazardous materials are manufactured, used, or stored at an estimated 4.5 million facilities in the U.S.--from major industrial plants to local dry cleaning establishments and gardening supply stores. As many as 500,000 products pose physical or health hazards and can be defined as "hazardous chemicals" (FEMA, 2013).

Hazardous materials incidents can occur anywhere. Communities located near chemical manufacturing plants are particularly at risk. However, hazardous materials are transported on our highways, railroads, waterways, and pipelines daily, so any area is considered vulnerable. In 2012, there were 13,844 transportation-related hazardous materials incidents nationwide that resulted in 10 deaths and 160 injuries. The Montana Department of Transportation regulates transportation routes and speed limits used by carriers and monitors the types of hazardous materials crossing state lines.

The volume and type of hazardous materials that flow into, are stored, and flow through communities determine exposure to a potential release of hazardous materials. The Emergency Planning and Community Right-to-Know Act (EPCRA) was enacted in 1986 to inform communities and citizens of chemical hazards in their areas. EPCRA requires businesses to report the locations and quantities of chemicals stored on-site to State and local governments in order to help communities prepare to respond to chemical spills and similar emergencies. EPCRA also requires EPA and the States to annually collect data on releases and transfers of certain toxic chemicals from industrial facilities, and make the data available to the public in the Toxics Release Inventory (TRI). In 1990 Congress passed the Pollution Prevention Act which required that additional data on waste management and source reduction activities be reported under TRI. The goal of TRI is to empower citizens, through information, to hold companies and local governments accountable in terms of how toxic chemicals are managed. **Table 4.4.7-1** presents TRI data for Montana facilities.

History of Hazardous Material Incidents in Montana

Table 4.4.7-2 shows a summary of the hazardous material incidents in Montana from 2000 to 2012 reported to the National Response Center (NRC) by type of release. During this time, 1,985 incidents were reported. Of these, 47 percent were from fixed facilities compared to the national average of 36 percent. Mobile facilities, including aircraft and railroad incidents, accounted for 32 percent of the incidents, compared to the 14 percent national average.

TABLE 4.4.7-1
TOXIC RELEASE INVENTORY FOR MONTANA - 2011

DES District	County	Facilities	Total On-site Disposal or Other Releases	Total Off-site Disposal or Other Releases	Total On- and Off-site Disposal or Other Releases
1	Deer Lodge	Dave Gates Generating Station	25,739	.	25,739
1	Flathead	Columbia Falls Aluminum Co. LLC; JTL Group - Kalispell DBA Knife River - Kalispell; Plum Creek MDF Inc.; Plum Creek Northwest Plywood Inc.	136,288	0	136,288
1	Missoula	Conoco Missoula Products Terminal; JTL Group Missoula (DBA Knife River - Missoula); Momentive Specialty Chemicals; Roseburg Forest Products Co. - Missoula Particleboard	78,736	305	79,041
1	Ravalli	Glaxosmithkline Biologicals North; SSP-Simatrix	8,091	8,794	16,885
1	Sanders	Thompson River Lumber; US Antimony Corp.	5,718	0	5,718
1	Silver Bow	Montana Resources LLP; REC Advanced Silicon Materials	17,819,992	29,345	17,849,337
2	Cascade	Montana Refining Co. Inc.; US DOD USAF Malmstrom AFB	82,035	76	82,111
3	Broadwater	Graymont Western US Inc.; US Army National Guard Limestone Hills Ranges	5,648	0	5,648
3	Gallatin	Corbond Corp; Holcim US Inc. Trident Plant; JTL Group Belgrade DBA Knife River - Belgrade	185	0	185
3	Jefferson	Ash Grove Cement Co. Montana City Plant; Golden Sunlight Mines Inc.; Marks-Miller Post & Pole Inc.	1,910,475	0	1,910,475
3	Lewis and Clark	American Chemet Corp.; US Army National Guard Fort Harrison Ranges	20,807	0	20,807
3	Sweet Grass	Stillwater Mining Co. East Boulder Mine	187,884	0	187,884
4	Richland	Lewis & Clark Station; Sidney Sugars Inc.	249,244	141,265	390,509
5	Big Horn	Decker Coal Company; Hardin Generating Station; Spring Creek Coal Mine	42,283	132,193	174,476
5	Rosebud	Colstrip Energy LP Rosebud Power Plant; Colstrip Steam Electric Station	10,970,923	408,255	11,379,178
5	Stillwater	Montana Silversmiths; SMC Nye Mine Site; SMC Precious Metals Smelter & Base Metals Refinery	22,631	459,400	482,031
5	Yellowstone	Brenntag Pacific Inc.; CHS Inc. Laurel Refinery; ConocoPhillips Co. Billings Refinery; ExxonMobil Billings Refinery; JE Corette Steam Electric Station; JTL Group Billings (DBA - Knife River Billings); Jupiter Sulphur LLC; Knife River Billings East Site; Loveland Products Inc. - Billings (Formerly Transbas); Roscoe Steel & Culvert Co.; Western Sugar Cooperative	844,428	186,085	1,030,513
6	Sheridan	Raymond Port of Entry	257	0	257
Total			32,411,363	1,365,718	33,777,081

TABLE 4.4.7-2
HAZARDOUS MATERIAL INCIDENTS TYPES AND RECEPTORS IN MONTANA (2000 - 2012)

Type of Incident	Air	Land & Soil	Other	Sub-surface	Unknown	Water	No Release	No Info	Total
Aircraft	1	9	1	0	0	9	0	0	20
Continuous	11	0	0	0	0	0	0	9	20
Fixed	408	285	15	11	11	208	4	0	942
Mobile	9	188	9	1	10	112	7	1	337
Pipeline	39	76	1	7	4	76	1	0	204
Railroad	6	79	150	0	6	13	21	1	276
Storage Tank	11	57	6	1	2	26	1	0	104
Unknown Sheen	4	12	0	2	4	41	0	0	63
Vessel	0	0	0	0	1	17	1	0	19
TOTAL	**489**	**706**	**182**	**22**	**38**	**502**	**35**	**11**	**1,985**

Source: NRC, 2012

Several significant hazardous material incidents in Montana history are described below.

Alberton Chlorine Spill: On April 11, 1996, 19 cars from a Montana Rail Link freight train derailed near Alberton, Montana. Six of the derailed cars contained hazardous materials. One derailed tank car containing chlorine (a poison gas) ruptured, releasing 130,000 pounds of chlorine into the atmosphere; another tank car containing potassium hydroxide solution (potassium cresylate, a corrosive liquid) lost 17,000 gallons of product; and a covered hopper car containing sodium chlorate (an oxidizer) spilled 85 dry gallons onto the ground. This chlorine spill is the second largest in U.S. history.

Alberton, MT; KPAX TV video; Missoula, MT

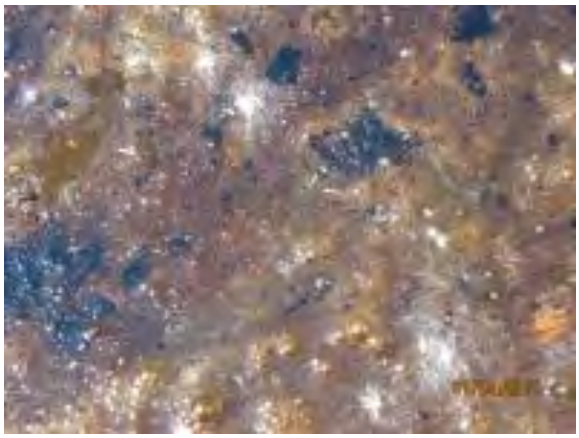
About 1,000 people from the surrounding area were evacuated. Approximately 350 people were treated for chlorine inhalation, 123 of whom sustained injury. Nine people, including both members of the train crew, were hospitalized. A transient riding the train died from acute chlorine toxicity.

U.S. Interstate Highway 90 (I-90) is roughly parallel and about 150 yards north of the MRL tracks at the accident site. The hazardous material cloud drifted across I-90 resulting in multiple highway traffic accidents. Several motorists were stranded in the cloud after these accidents. I-90 was closed requiring an 81-mile detour. Monetary damage was estimated to be $10 million.

The Governor of Montana declared a state of emergency in Missoula and Mineral Counties. On April 14, 1996 the evacuation area was reduced to 15 square miles; residents were temporarily escorted into the area to feed and water livestock animals, retrieve some personal possessions, and locate pets (NTSB, 1998).

Flathead Lake Petroleum Tanker Spill: A major toxic spill into Flathead Lake occurred in April 2008 when a tanker truck crashed on Highway 35 and spilled 6,400 gallons of gasoline on the East Shore south of Finley Point. The crash forced five families who lived nearby from their lakeshore homes. The EPA ordered the trucking company to clean up the contamination associated with the spill in order to fully protect the health of local residents and the renowned aquatic and recreational resources provided by Flathead Lake. The cleanup involved removing contaminated soils and water and elimination of hazardous vapors in nearby residences. The 2008 tanker truck spill caused over $1 million in damages.

Yellowstone River Oil Pipeline Spill: On July 1, 2011, a break occurred in the ExxonMobil Silvertip 12-inch crude-oil pipeline that crosses under the Yellowstone River approximately 20 miles upstream from Billings, Montana. ExxonMobil reported an estimated 63,000 gallons of oil entered the river before the pipeline was shut down.



The Environmental Protection Agency (EPA) and U.S. Fish and Wildlife Service conducted an aerial survey that identified oil deposited along the river banks, and pools of oil in backwaters and eddies along the north and south banks of the river. At the time of the survey, oil was visible along the river for 45 miles downstream from the location where the pipeline broke, near Laurel, Montana.

EPA ensured that the ExxonMobil Pipeline Company addressed all potential impacts of the spill and provided direction and oversight that cleanup and restoration of the Yellowstone River and people's health and the environment were protected. There were over 1,000 personnel engaged in cleanup and shoreline assessment efforts. Shoreline Cleanup Assessment Technique (SCAT) teams assessed more than 6,500 acres. EPA sampling results for air, water, soil, and sediment showed there were no levels of concern in the water and no elevated levels above instrument detection for volatile organic compounds.

Declared Disasters

Two separate incidents that occurred within one week of each other are the only two state emergency declarations for hazardous material release: the Alberton Chlorine Spill (EO-8-96) and another derailment involving a chlorine tanker car near Dodson (EO-9-96). The Dodson derailment did not cause a chlorine release. There have been no federal disaster declarations associated with hazardous material incidents in Montana.

Magnitude and Probability

Hazardous materials incidents can cause death, serious injury, long-lasting health effects, and damage to buildings, homes, and other property. The magnitude of the hazard is often expressed as a percentage of property damage caused by the incident. **Table 4.4.7-3** presents property damage associated with the top transportation-related hazardous material incidents in Montana over a 23 year period. This data indicates that $15.66 million in damages have resulted from hazardous material incidents during this period; $4 million from highway accidents and $11.6 million from railroad accidents.

Probability is based on the frequency of the hazard over a 10 year period. Since hazardous material incidents occur more than once per year, the probability rating is “highly likely” for this hazard.

Vulnerability

Statewide Vulnerability

To model hazardous material incident risk a GIS data layer of transportation arteries was developed which included highways, major roadways, and railroads. Facilities with hazardous materials or petroleum reporting requirements from EPA’s Toxic Release Inventory were added to this layer and it was then buffered by 0.25 miles. **Figure 4.4.7-1** depicts the hazardous material incident layer used in the PDM analysis. Pipeline data was incomplete and therefore, not included in the hazard layer.

Building exposure was calculated by intersecting the hazardous material buffer with the MDOR cadastral parcel and state critical facility datasets. Estimates of vulnerable population were calculated using census block data within the hazard area. Exposure values are presented in **Table 4.4.7-4**. The *Hazardous Material Incidents* section in **Appendix B** presents supporting documentation from the risk assessment including a list of critical facilities in the hazardous material incident buffer and exposure estimates by county.

TABLE 4.4.7-3
TOP HIGHWAY AND RAILROAD HAZARDOUS MATERIAL INCIDENTS; 1990 to 2012

Date of Incident	Mode of Transportation	Carrier/Reporter Name	County	City	Quantity Released (gallons)	Commodity	Damages
4/2/2008	Highway	Keller Transport Inc.	Lake	Polson	6,403	Gasoline	$1,019,000
10/14/2010	Highway	J & H Oilfield Services LLC	Richland	Fairview	2,859	Petroleum crude oil	$387,241
7/26/2009	Highway	Farstad Oil Inc.	Carbon	Belfry	5,402	Gasoline	$310,500
1/16/1996	Highway	Koch Industries Inc.	Richland	Sidney	4,200	Petroleum crude oil	$302,300
1/10/2005	Highway	CHS Inc.	Jefferson	Montana City	3,048	Gasoline	$269,215
6/22/2004	Highway	Sanjel (USA) Inc.	Blaine	Chinook	5,660	Refrigerated liquid Nitrogen	$266,944
9/10/2008	Highway	Curt Laingen Trucking Inc.	Fergus	Lewistown	12,500	Gasoline	$240,000
8/19/1993	Highway	Keller Transport Inc.	Gallatin	Bozeman	3,857	Gasoline	$235,168
1/1/2008	Highway	IBI Secured Transport	Yellowstone	Billings	1,520	Corrosive acid	$209,259
5/6/2005	Highway	CHS Inc.	Carbon	Belfry	3,066	Petroleum crude oil	$163,650
3/4/2007	Highway	Schneider National Inc.	Fergus	Lewistown	485	Combustible liquid	$140,000
9/1/2010	Highway	Ryan Brothers Trucking	Yellowstone	Billings	1,500	Elevated temperature liquid	$130,836
11/20/1996	Highway	Heritage Holdings	Gallatin	Bozeman	1	Liquefied petroleum gas	$125,001
8/11/1991	Highway	Town Pump Inc.	Pondera	Valier	1,842	Gasoline	$108,658
7/17/2002	Highway	Red Eagle Oil Inc.	Carbon	Bridger	440	Fuel oil	$103,600
10/4/1997	Highway	Trimac Trans Serv Ltd	Lewis and Clark	Lincoln	3,375	Environmentally hazardous substances	$100,000
4/11/1996	Rail	Montana Rail Link Inc.	Mineral	Alberton	16,250	Chlorine	$10,000,000
					17,000	Potassium hydroxide	
					680	Sodium chlorate	
7/11/1999	Rail	Montana Rail Link Inc.	Plains	Paradise	18,000	Corrosive basic liquid	$641,955
6/18/2006	Rail	Montana Rail Link Inc.	Missoula	Missoula	13,063	Alcohol	$414,858
8/5/2012	Rail	BNSF Railway Company	Fallon	Plevna	23,655	Alcohol	$197,200
6/23/1995	Rail	Montana Rail Link Inc.	Lewis and Clark	Helena	16,700	Aviation fuel	$173,517
9/30/1999	Rail	Montana Rail Link Inc.	Granite	Drummond	22,570	Denatured alcohol	$126,556

SOURCE: https://hazmatonline.phmsa.dot.gov/IncidentReportsSearch/search.aspx

Figure 4.4.7-1 Transportation Routes and Toxic Release Facilities

TABLE 4.4.7-4
HAZARDOUS MATERIAL INCIDENT EXPOSURE SUMMARY BY DES DISTRICT

Item	District 1	District 2	District 3	District 4	District 5	District 6
Hazard Area (Square Miles)	1,006.26	832.89	803.26	1,458.10	688.73	748.71
Percent Hazard Area	4.00%	3.44%	3.21%	5.46%	3.13%	3.16%
Residential Building Exposure ($)	$6,287,627,653	$1,867,619,605	$3,690,806,696	$591,787,871	$2,814,355,136	$560,273,553
Residential Building Exposure (# structures)	52,400	20,832	26,017	8,424	26,547	9,144
Commercial, Agricultural, Industrial Building Exposure ($)	$4,620,151,457	$1,861,566,830	$2,937,817,871	$309,533,743	$2,981,940,651	$307,682,609
Commercial, Agricultural, Industrial Building Exposure (# structures)	11,784	5,482	6,673	2,177	6,010	2,719
Critical Facility Exposure ($)	$423,076,250	$18,750,376	$473,004,573	$31,870,790	$119,975,442	$17,916,207
Critical Facility Exposure (# structures)	59	14	78	12	16	11
Annual Loss	$44,225	$9,670	$17,296	$8,102	$25,483	$8,909
Population Living in Hazard Area	223,784	84,167	113,850	29,302	110,318	29,426
Population Under 18 Living in Hazard Area	46,047	20,259	24,076	6,451	26,422	6,998

The vulnerability analysis indicates that DES District 1 has the highest residential and commercial/agricultural/industrial building exposure as well as societal risk to hazardous material incidents, followed by Districts 3 and 5. District 3 has the greatest critical facility exposure, followed by District 1.

Table 4.4.7-5 presents a vulnerability summary of the hazardous material incident hazard as it relates to percent exposure and growth rates in Montana's counties, cities and towns. Percent exposure was derived by dividing the value of residential and commercial/agricultural/industrial building stock exposed to the hazard into the total value of the building stock. Percent exposure is a more accurate way of displaying vulnerability than presenting jurisdictions with the highest exposure because it reflects areas with the greatest risk opposed to those with high value real estate. A complete ranking is presented in the *Hazardous Material Incident* section of **Appendix B**.

Counties with the highest hazardous material incident exposure include: Mineral, Deer Lodge, Sheridan, Big Horn, and Custer; while the top cities/towns include: Poplar and Culbertson (Roosevelt Co.), Whitehall (Jefferson Co.), Harlem (Blaine Co.), and Browning (Glacier Co.). **Figure 4.4.7-2** presents percent exposure for the top counties and cities/towns showing regional vulnerability.

TABLE 4.4.7-5
HAZARDOUS MATERIAL INCIDENT EXPOSURE SUMMARY FOR TOP COUNTIES, CITIES AND TOWNS

County	% HAZMAT Exposure	% Growth (2000 to 2010)	# of Building Permits (2000 to 2010)	$ Residential Exposure	# Residences at Risk	$ Commercial/ Ag/Industrial Exposure	# Commercial/ Ag/Industrial Buildings at Risk	$ Critical Facilities Exposure	# Critical Facilities at Risk
COUNTIES WITH HIGHEST PERCENT EXPOSURE ($ RESIDENTIAL + $ COMMERCIAL-AG-INDUSTRIAL EXPOSURE IN HAZARD AREA / TOTAL EXPOSURE)									
MINERAL	70.65%	8.71%	26	$127,180,440	1,267	$35,557,632	175	0	0
DEER LODGE	67.02%	-1.24%	215	$196,524,399	2,737	$60,910,996	375	$45,721,879	10
SHERIDAN	66.79%	-15.71%	10	$56,482,872	1,205	$33,023,224	432	0	0
BIG HORN	64.44%	3.29%	42	$88,016,239	1,303	$127,254,885	425	0	0
CUSTER	64.41%	0.50%	58	$183,726,679	2,386	$102,440,162	558	$27,526,469	6
ROOSEVELT	64.16%	-0.99%	33	$61,338,311	1,355	$48,570,724	529	$3,470,273	3
DAWSON	64.00%	-0.77%	31	$155,655,668	2,021	$59,752,389	432	$3,245,436	3
CITIES/TOWNS WITH HIGHEST PERCENT EXPOSURE (TOWNS WITH POP. > 500) ($ RESIDENTIAL + $ COMMERCIAL-AG-INDUSTRIAL EXPOSURE IN HAZARD AREA / TOTAL EXPOSURE)									
POPLAR	100.00%	-10.10%	0	$6,675,103	203	$6,608,499	110	0	0
CULBERTSON	100.00%	0.70%	17	$15,249,289	294	$7,268,855	86	0	0
WHITEHALL	99.81%	-0.86%	8	$30,338,945	389	$9,568,755	79	0	0
HARLEM	98.97%	-3.54%	0	$10,853,396	290	$8,770,265	64	0	0
BROWNING	97.68%	-3.66%	0	$5,218,255	163	$8,035,228	91	0	0
TROY	96.88%	-2.51%	8	$21,777,786	339	$12,507,764	77	0	0
FAIRVIEW	96.59%	22.99%	0	$15,069,326	323	$4,075,762	67	0	0
COUNTIES WITH GREATEST PERCENT EXPOSURE WHICH HAVE FASTEST GROWTH RATES (% EXPOSURE x % POPULATION CHANGE 2000 TO 2010)									
BROADWATER	41.24%	31.32%	51	$100,126,735	946	$26,511,334	177	$24,480,879	4
GALLATIN	35.72%	34.70%	7,122	$1,654,426,307	8,692	$1,627,574,356	2,587	$72,607,628	15
MISSOULA	52.39%	14.96%	3,868	$1,793,972,255	13,191	$2,000,300,018	3,569	$339,877,915	36
FLATHEAD	34.52%	22.54%	3,155	$1,656,801,774	11,613	$1,234,113,821	2,796	$5,650,261	3
YELLOWSTONE	44.19%	16.02%	5,273	$2,008,705,920	17,588	$2,603,437,109	3,999	$118,271,206	12
LEWIS AND CLARK	40.39%	15.44%	955	$755,382,431	6,661	$813,878,874	1,835	$266,711,879	38
MINERAL	70.65%	8.71%	26	$127,180,440	1,267	$35,557,632	175	$0	0
CITIES/TOWNS WITH HIGHEST PERCENT EXPOSURE WHICH HAVE FASTEST GROWTH RATES (TOWNS WITH POP. > 500) (% EXPOSURE x % POPULATION CHANGE 2000 to 2010)									
BELGRADE	74.04%	31.79%	355	$174,144,777	1,270	$129,513,870	346	$0	0
FAIRVIEW	96.59%	22.99%	0	$15,069,326	323	$4,075,762	67	$0	0
COLUMBIA FALLS	70.46%	29.14%	332	$109,005,196	1,021	$74,875,317	248	$0	0
KALISPELL	44.97%	40.67%	1,858	$227,909,457	1,968	$527,936,355	976	$5,641,011	2
EAST HELENA	62.59%	24.30%	79	$31,845,086	410	$22,786,396	89	$0	0
BOZEMAN	37.80%	38.23%	2,975	$370,791,730	1,813	$932,115,208	1,175	$72,607,628	15
STEVENSVILLE	79.07%	17.19%	70	$49,659,979	474	$33,531,599	127	$0	0

Figure 4.4.7-2 - % Exposure – Haz Mat

Percent exposure was multiplied by the population change between the 2000 and 2010 census to present the jurisdictions with the highest risk that are experiencing the fastest growth. A complete ranking is presented in the *Hazardous Material Incident* section of **Appendix B**.

Counties with the highest hazardous material incident exposure experiencing the fastest population growth include: Broadwater, Gallatin, Missoula, Flathead, and Yellowstone; while the top cities/towns (with population over 500) are Belgrade (Gallatin Co.), Fairview (Richland Co.), Columbia Falls and Kalispell (Flathead Co.), and East Helena (Lewis and Clark Co.). **Figure 4.4.7-3** presents percent exposure and population change for the top counties and cities/towns showing the most vulnerable areas experiencing the fastest population growth.

Vulnerability of State Facilities

Current data and history do not suggest that State property is highly vulnerable to hazardous material releases; however, depending on the proximity of State facilities to hazardous material transportation routes and fixed facilities, some locations may be more vulnerable than others. Critical facilities and bridges located in the hazard area are listed in the *Hazardous Material Incident* section of **Appendix B**.

Review of Potential Losses in Local PDM Plans

The *Hazardous Material Incident* section in **Appendix B** presents an exposure summary for hazardous material incidents as reported in the Local PDM Plans. Losses from hazardous material incidents are described in terms of their effect on buildings, society, and the economy, as outlined below:

- Building exposure is presented either as a dollar value or high-moderate-low rating and typically refers to the vulnerability of residential structures and/or critical facilities from the hazard.
- Societal exposure is presented either as the number of lives at risk or as a high-moderate-low rating representing the vulnerability of human life from the hazard.
- Economic exposure is presented as a dollar value or high-moderate-low rating referring to the potential impact to the economy from the hazard.

Approximately 75 percent of the local PDM plans evaluated the hazardous material incident hazard in their risk assessment. Of those with quantified results, Cascade County had the highest exposure followed by Silver Bow, Lewis and Clark, and Lake Counties. Plans reporting

Figure 4.4.7-3 % Exposure + % Population – Haz Mat

structures at risk indicate Madison, Valley, Broadwater, and Beaverhead have the greatest exposure.

Future Development

Much of the future development currently occurring in the State is off of the major road and rail networks. The potential does exist for development of agricultural lands bordering the highways and railroad, particularly in the unincorporated parts of the State. Very few restrictions are in place to prevent development in these areas.

Risk assessment methodology involved using GIS to intersect the hazard layer with parcel data from the Montana Dept. of Revenue and census block data from the 2010 U.S. Census. If the GIS intersect clipped any part of a parcel then the entire value and number of structures in that parcel were assumed to be located in the hazard area. This may lead to an over reporting of exposure where parcels are large. In determining population exposure, if the GIS intersect clipped a census block then the entire number of individuals in that census block were assumed to reside in the hazard area which may lead to over reporting of population at risk where census blocks are large.

Data Limitations

Risk assessment results are only a general representation of potential vulnerabilities. The risk assessment methodology used GIS intersecting parcel data with the hazard layer. If the intersect included any portion of a parcel, structures on the parcel were assumed to be within the hazard area. This may have led to a slight over reporting of building exposure.

References

FEMA. 2013. Hazardous Materials Incidents.
http://www.ready.gov/hazardous-materials-incidents

National Transportation Safety Board (NTSB). 1998. Derailment and Hazardous Materials Release with Fatality, Montana Rail Link, Albertson, Montana, April 11, 1996. Railroad Accident Brief Report, Lax 96 Fr 010. http://www.ntsb.gov/publictn/1998/RAB9807.pdf

National Response Center (NRC). 2012. Query Download and other data.
http://www.nrc.uscg.mil/pls/apex/f?p=109:2:0::NO:::

U.S. Department of Transportation, Office of Hazardous Materials Safety, 2013. Incidents Reports Database Search.
https://hazmatonline.phmsa.dot.gov/IncidentReportsSearch/search.aspx

U.S. Environmental Protection Agency (EPA). 2012. EPA Envirofacts. Toxic Release Inventory. http://iaspub.epa.gov/triexplorer/tri_release.chemical

4.4.8 Drought

CPRI = 2.95

Drought is an extended period of below normal precipitation which causes damage to crops and other ground cover; diminishes natural stream flow; depletes soil and subsoil moisture; and because of these effects, causes social, environmental, and economic impacts to Montana. Identifying the point at which drought begins and ends is difficult because physical water supply and moisture conditions translate into different consequences for natural resources and various economic activities.

Drought is usually considered relative to some long-term average condition of balance between precipitation and evapo-transpiration perceived as "normal". Drought is related to the timing (i.e., principal season of occurrence, delays in the start of the rainy season, occurrence of rains in relation to principal crop growth stages) and the effectiveness (i.e., rainfall intensity, number of rainfall events) of the rains.

Drought can have a widespread impact on the environment and the economy, depending upon its severity, although it typically does not result in loss of life or damage to property, as do other natural hazards; however, livestock has been known to die as a result of drought. The National Drought Mitigation Center used three categories to describe likely drought impacts:

- Agricultural – Drought threatens crops that rely on natural precipitation.
- Water Supply – Drought threatens supplies of water for irrigated crops and for communities.
- Fire Hazard – Drought increases the threat of wildfires from dry conditions in forest and rangelands.

The effects become apparent when the drought is severe and more moisture-related activities are affected. Agriculturally, non-irrigated croplands are most susceptible to moisture shortages. Rangeland and irrigated agricultural lands do not feel the effects of drought as quickly as the non-irrigated, cultivated acreage, but their yields can also be greatly reduced due to drought. Reductions in yields due to moisture shortages are often aggravated by wind-induced soil erosion.

Drought affects groundwater resources which can lead to reduced pumping capacity, wells going dry, and degraded groundwater quality. Additionally, drought threatens the supply of hydropower produced in the state.

In periods of severe drought, plant and forest fuel moisture is very low, increasing the potential for devastating wildland and rangeland fires. Under extreme drought conditions, lakes, reservoirs, and rivers can be subject to severe water shortages, impacting irrigation, drinking water, fish populations, and fire suppression water supplies.

An additional hazard resulting from drought conditions is insect infestation. In the Northern Great Plains, rangeland grasshopper outbreaks have caused significant damage to the agricultural economy. Grasshopper populations tend to increase with both livestock grazing rates and dry conditions, and they can double, triple, or quadruple with each successive year of drought. During a severe grasshopper outbreak, grasshoppers often remove more vegetation than cattle in the same pasture. (NDMC, 2004; Branson, 2002).

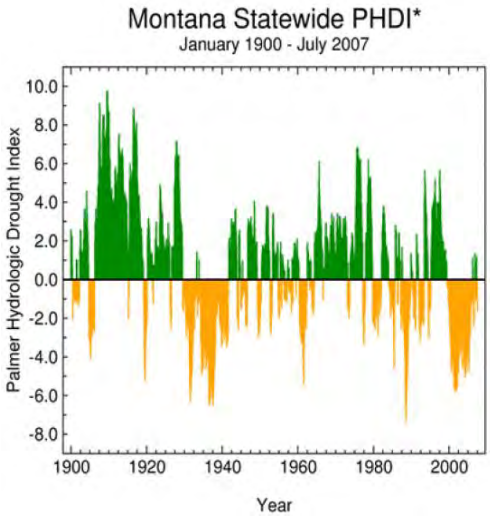
History of Drought in Montana

In the last 100 years, the first drought impacts occurred shortly after homesteaders flooded the state. The homestead boom of 1906 through 1918 “busted” when severe drought swept the state from 1917 through 1923. The drought was compounded by plummeting market prices and banks demanding repayments (Montana Historical Society, 2004). The Dust Bowl years further impacted agricultural production and economies throughout the state. The period from 1928 through 1939 was the driest in the historic record. The Palmer Hydrologic Drought Index (PHDI) showed the entire state was in a hydrologic deficit for over 10 years.

The drought of the 1930s was exacerbated by poor farming practices, low market prices and a depressed economy. A variety of adjustments ensued: improved farmland management, the establishment of insurance programs, liberalization of credit, and diversification of the regional economy. As a result, impacts caused by the drought of the 1950s were much less severe than those of the 1930s, even though the conditions were similar to those of the dust bowl era of the 1930s (Montana Drought Response Plan, 1995).

From 1976 through the present, Montana has endured a period largely characterized by years of below average precipitation, punctuated by the extremely dry years of 1977, 1987-88, 1992, and 1994 (**Figure 4.4.8-1**). The drought from 2000-2007 suggests the dryness and hydrologic deficit mimics the Dust Bowl years in everything but duration. According to the Palmer Drought Index, Montana has been in severe and extreme drought between 10 and 20 percent of the time in the last one hundred years.

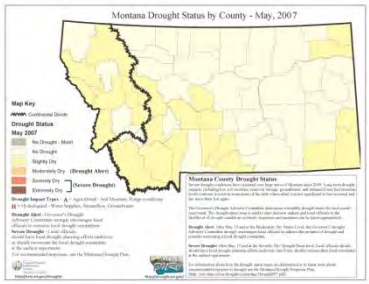
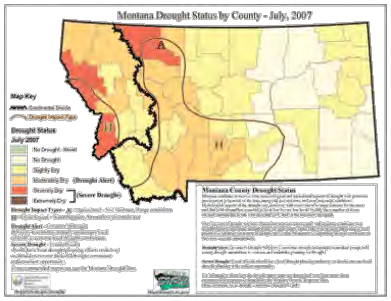
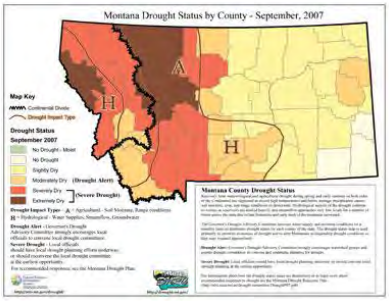
Figure 4.4.8-1 Palmer Hydrologic Drought Index 1900-2007
(Source: NCDC, 2007)



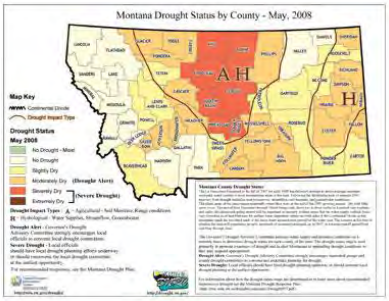
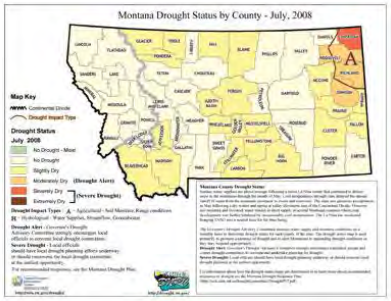
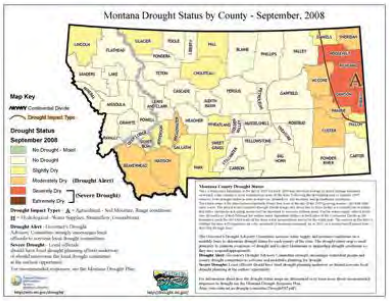
The Palmer Drought Severity Index (PDSI) and the Surface Water Supply Index (SWSI) are some of the indices used as indicators of drought. The PDSI is a soil moisture index based on measured precipitation, estimated evaporation and evapotranspiration, and climatic characteristics. PDSI figures are available for over 140 stations statewide. The SWSI projects streamflow for runoff and snowmelt-driven hydrologic regimes. The SWSI is based on snowpack, mountain precipitation, soil moisture, and reservoir storage. The Natural Resources Conservation Service (NRCS) calculates SWSIs for over 50 individual Montana river basins. Montana's drought status (now known as it's water supply and moisture conditions) for May, July and September for the period 2007 through 2012 are shown in **Figure 4.4.8-2**.

Figure 4.4.8-2
Montana Drought Status 2007 - 2012

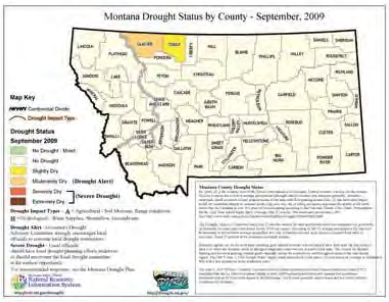
2007 Montana Drought Status by County

May	July	September
		

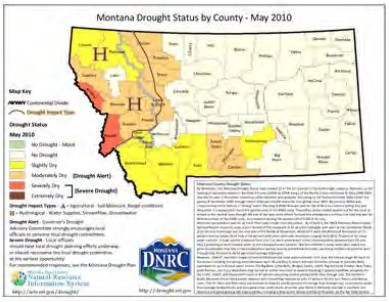
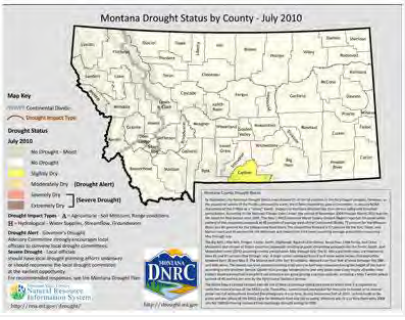
2008 Montana Drought Status by County

May	July	September
		

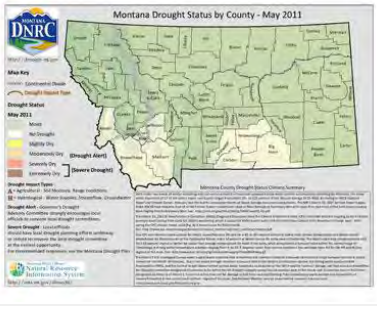
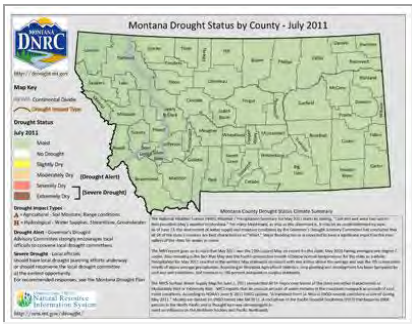
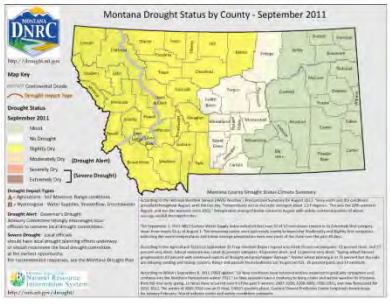
2009 Montana Drought Status by County

May	July	September
		

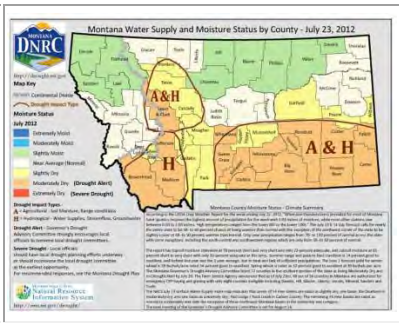
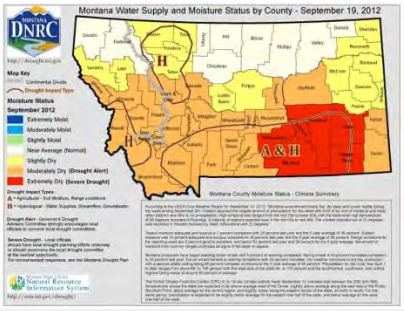
2010 Montana Drought Status by County

May	July	September
		

2011 Montana Drought Status by County

May	July	September
		

2012 Montana Water Supply and Moisture Conditions by County

May	July	September
		

Source: http://nris.mt.gov/drought/status/

Declared Disasters

Drought disasters are unique; they typically do not require evacuations or constitute an imminent threat to life or property. As a result, disaster declarations and assistance are typically provided by agencies such as the USDA Farm Service Agency (FSA) and Small Business Administration (SBA). There have been no Presidential disaster declarations for drought, except for those related to wildland fires. The declarations at the federal level have been from the Secretary of Agriculture and are referred to as Natural Disaster Determinations (NDD). NDDs allow various assistance programs, such as the low-interest FSA Emergency Loans to Eligible Producers, and assistance through the Crop Disaster Program, Livestock Compensation Program, and Livestock Indemnity Program, among others. State disaster declarations and assistance were provided for grasshopper infestations in Valley County in 1975; Judith Basin, Pondera, Prairie, Sheridan and Wibaux Counties in 1985; and, Carter, Daniels, Golden Valley, Petroleum, Richland, Roosevelt, Sheridan, Treasure, and Wibaux Counties in 1986.

Drought and agricultural disaster declarations in Montana are summarized in **Table 4.4.8-1.**

TABLE 4.4.8-1
MONTANA DROUGHT AND OTHER AGRICULTURAL DISASTERS

Date	Event	Damages
1930-1938	Dust Bowl	
1938	Grasshopper Infestation affecting 17 counties with populations “between 40 and 500 hoppers per square yard”.	$6,500,000
1956	20 counties applied for Federal disaster aid due to reduced precipitation	
1961	17 counties requested designation as federal disaster areas due to lack of moisture, higher than normal temperatures, and grasshopper infestation.	
August 1961	24 counties applied for federal drought disaster aid.	Federal: $420,000
1966	Below-normal precipitation for a 10-month period recorded in 10 weather stations across the state.	
August 1975	Grasshopper Infestation, Valley County. Up to 110-120 hoppers per square yard in hay fields. 40,000 acres sprayed.	State: $60,000 Local: $60,000
May 1977	Soil damaged by winds in western and southern part of state over a 7-month period.	250,000 acres of farmland damaged
June 1977	Hydroelectric water supplies critical; Governor Judge issued an energy supply alert and ordered 10% reduction in electricity use by state and local governments.	
1980	Record-low precipitation in eastern Montana since 1979. In Richland County alone, 600 of the county's 800 farmers had applied for federal payments for drought. Grasshopper infestations in isolated areas, little wheat planted, large numbers of livestock sold due to hay and water shortages.	Est. economic loss: $380 million
1981	Drought starting in 1979 continued. March snow pack 50-60% of normal	
1984	By July, many High-Line cities experiencing water shortages and rationing schedules put into effect. Numerous forest and range fires.	Est. crop losses: $12 to $15 million
1985	All 56 counties received disaster declarations for drought during this year. From 1982 to 1985, cattle herds reduced by 1/3. Smallest wheat crop in 45 years. Extended effects of drought: loss of off-farm jobs, closing of implement dealerships and Production Credit Associations.	Est. economic loss: $3 million
June 1986	Grasshopper Infestation. Carter, Daniels, Golden Valley, Petroleum, Richland, Roosevelt, Sheridan, Treasure & Wibaux counties.	State: $350,000 Local: $350,000

TABLE 4.4.8-1
MONTANA DROUGHT AND OTHER AGRICULTURAL DISASTERS

Date	Event	Damages
June 1992	Drought Emergency (EO 13-92). All areas of the state, suspend certain regulatory authorities relating to the issuance of beneficial water use permits by DNRC because of drought.	
June 1992	Drought Disaster (EO 14-92). All areas of the state continue the suspension of certain regulatory authorities relating to the issuance of beneficial water use permits by DNRC because of drought.	
October 1992	Terminating drought disaster (EO 20-92). Executive Order terminating the declaration of disaster ordered in EO 14-92.	
August 1994	Drought emergencies were declared in a number of Montana counties with 83% of the State reported under drought conditions at mid-month. Stress to stream fisheries (low water levels, high temp.); crop yields, wildfires.	
2000	Severe drought and persistent heat causing significant losses to agriculture and related industries	$4.2 billion in damage/costs and 140 deaths nationwide
2000- 2002	The U.S. Department of Agriculture (USDA) issued Natural Disaster Determinations (NDD) for drought for the entire state of Montana for the years 2000, 2001, and 2002. This designation entitled counties to low interest loans for producers, small business administration loans, and an Internal Revenue Service provision deferring capital gains.	
2003	The USDA issued NDD for drought for 35 counties in Montana on December 3, 2003. This designation makes Montana farmers and ranchers eligible for USDA Farm Service Agency (FSA) emergency farm loans if they have losses caused by drought in the 2003 crop year.	$154,012,122 paid by FSA in Montana
2004	The USDA issued NDD for drought for 20 counties in Montana on April 23, 2004. This designation makes Montana farmers and ranchers eligible for USDA Farm Service Agency (FSA) emergency farm loans if they have losses caused by drought in the 2004 crop year.	

Sources: DES, 1998, 2004 and 2007; NOAA, 2004; NCDC, 2004; US-SBA, 2004.

Magnitude and Probability

The magnitude of drought can be measured by damage to the agricultural industry; reduced yields and herds, increased fuel and labor costs associated with replanting second crops, and reduced revenues to main street businesses in agricultural communities. The National Drought Mitigation Center tracks indemnity payments for losses suffered due to drought on a county basis. **Table 4.4.8-2** presents drought damages for a 21 year period (1989 to 2009) listing the top five counties for each year. The data shows that 2001 had the greatest indemnity payments from drought for the State with $132 million, followed by 2002 with $108 million, and 2008 with $75 million. Indemnity payments account for only a portion of the economic loss associated with drought.

Over the 21 year period of record, Chouteau County has had $95.7 million in indemnity payments from drought, followed by Hill County at $60.4 million, Liberty County at $49.8 million, Toole County at $40.5 million, and Pondera County at $44.3 million. The State of Montana sustained a total of $675 million in indemnity payments from drought between 1989 and 2009.

TABLE 4.4.8-2
DROUGHT INSURANCE CLAIMS; 1989 - 2009

Year	State Total	Top 5 Counties		Year	State Total	Top 5 Counties		Year	State Total	Top 5 Counties	
1989	$14,361,948	Valley	$2,796,432	1996	$10,637,521	Chouteau	$1,512,172	2003	$41,148,170	Chouteau	$5,187,498
		Sheridan	$2,431,510			Blaine	$1,005,464			Liberty	$3,089,480
		Roosevelt	$2,017,595			Cascade	$881,542			Fergus	$2,819,858
		Daniels	$1,553,283			Phillips	$777,522			Blaine	$2,805,712
		Richland	$1,085,166			Fergus	$769,512			Hill	$2,566,968
1990	$29,146,575	Valley	$6,215,237	1997	$3,830,310	Chouteau	$526,998	2004	$29,427,194	Carter	$2,687,355
		Roosevelt	$5,146,184			Liberty	$487,803			Powder River	$2,079,390
		Daniels	$2,984,917			Sheridan	$287,265			Fallon	$1,916,447
		Richland	$2,295,067			Toole	$284,591			Wheatland	$1,477,212
		McCone	$2,124,320			Richland	$275,294			Dawson	$1,360,224
1991	$2,775,746	Meagher	$290,716	1998	$18,201,060	Chouteau	$3,611,610	2005	$5,905,724	Fergus	$949,023
		Chouteau	$249,008			Liberty	$3,030,160			Chouteau	$668,516
		Beaverhead	$204,296			Hill	$1,898,949			Hill	$584,163
		Big Horn	$196,608			Toole	$1,789,324			Judith Basin	$558,075
		Broadwater	$192,028			Valley	$1,183,222			Liberty	$428,232
1992	$37,767,835	Chouteau	$15,629,080	1999	$19,189,328	Liberty	$2,936,675	2006	$41,483,327	Sheridan	$6,982,442
		Hill	$4,789,465			Chouteau	$2,661,108			Valley	$6,521,425
		Teton	$3,969,401			Hill	$2,490,130			Roosevelt	$4,996,648
		Pondera	$3,622,761			Glacier	$2,471,959			Daniels	$4,818,308
		Cascade	$2,117,438			Pondera	$1,512,343			Hill	$2,563,037
1993	$344,432	Carbon	$54,348	2000	$44,989,149	Chouteau	$5,314,398	2007	$22,015,676	Toole	$4,805,757
		Valley	$35,762			Glacier	$5,218,814			Glacier	$4,442,653
		McCone	$31,654			Hill	$4,390,966			Pondera	$2,614,556
		Big Horn	$30,323			Toole	$3,996,866			Liberty	$2,574,847
		Glacier	$29,378			Liberty	$3,602,521			Hill	$1,514,318
1994	$5,539,598	Chouteau	$1,303,418	2001	$131,976,513	Chouteau	$27,002,598	2008	$74,979,811	Sheridan	$13,847,520
		Teton	$883,405			Hill	$20,335,635			Roosevelt	$11,679,299
		Pondera	$760,837			Liberty	$15,502,810			Daniels	$8,432,009
		Blaine	$420,591			Toole	$14,954,687			Richland	$6,611,614
		Cascade	$367,452			Pondera	$9,923,217			Valley	$4,330,862
1995	$2,413,758	Chouteau	$530,250	2002	$108,139,519	Chouteau	$23,761,975	2009	$30,435,526	Valley	$6,002,619
		Cascade	$379,512			Hill	$13,922,966			Roosevelt	$3,406,429
		Pondera	$328,719			Liberty	$12,301,739			Chouteau	$2,773,980
		Hill	$284,760			Pondera	$6,629,182			McCone	$2,021,015
		Teton	$194,728			Fergus	$4,597,108			Phillips	$1,953,967

Source: http://drought.unl.edu/Planning/Impacts/DroughtIndemnityData.aspx

Probability is based on hazard frequency over a 10 year period. Based on data from the National Drought Mitigation Center, drought losses are sustained each year in Montana. Although some years are more severe than others, the probability that drought will continue to occur annually somewhere in Montana is expressed as a "highly likely" probability rating.

Vulnerability

State actions to mitigate drought impacts vary due to Montana's diverse topography and precipitation regimes. Annual precipitation ranges from 6 inches in the southcentral prairies to 120 inches in the northwest mountains. The mountainous regions of the state receive 55 to 80 percent of annual precipitation between October and April. Most of this precipitation is snow that is stored as snowpack until spring runoff. Records indicate that in years when snowpacks are below normal by March 1st, and soil moisture levels are low, streamflows most likely will be low in coming months (Montana Drought Response Plan, 1995).

In contrast, the eastern two-thirds of the state, which is primarily characterized by prairie topography, receives 55 to 65 percent of its annual precipitation between April and August. The prairie dryland farming regions must receive spring and summer rains to avert the impacts of drought. Drought mitigation management for this region consists primarily of conservation farming practices, use of drought-resistant grain varieties, and participation in programs that preclude land from production such as the Conservation Reserve Program (CRP) (Montana Drought Response Plan, 1995).

The National Drought Mitigation Center reports that with the projected global temperature increase, the global hydrological cycle may also intensify. Global climate models indicate that global precipitation could increase 7–15 percent. Meanwhile, global evapotranspiration could increase 5–10 percent. Thus, the combined impacts of increased temperature, precipitation, and evapotranspiration will affect snowmelt, runoff, and soil moisture conditions. The models generally show that precipitation will increase at high latitudes and decrease at low and mid-latitudes. Therefore, in mid-continent regions, evapotranspiration will be greater than precipitation and there will exist the potential for more severe, longer-lasting droughts in these areas (National Drought Mitigation Center, 2013).

Statewide Vulnerability

Any place in the state can be considered vulnerable to drought. Weather cycles will dictate the availability of water and the extreme temperatures to exacerbate drought. Vulnerability is related to lack of preparedness. The ability to have adequate stores of water, to change to drought resistant crops, to implement conservation measures during extended dry periods, all help to reduce negative impacts. Vulnerability is increased when lessons learned during drought are ignored or forgotten following a return to normal weather patterns.

Since Montana's population and water usage is continuing to grow, demand for water is rising at a steady rate. Available supplies have also increased over the years through a variety of structural (dams) and non-structural (conservation) means, but the State's ability to create new levels of supply is marginal. In recent years, demands on water have been increasing faster than supplies, so that tolerance to deal with water shortages is diminishing. The balance between supply and demand is likely to be disrupted more and more often, and in the future, water shortages are likely to be more frequent and costly.

The most effective means to assess vulnerability from drought is to determine what areas are exposed economically to the effects of drought. Water shortages force conservation and water use restrictions, can reduce recreation opportunities, and can increase the threat of wildland and rangeland fire. For many Montana residents, water shortages may impact sectors of our economy, but are seldom disastrous. The major exception is agriculture, and those who directly depend on the agricultural economy. Drought has the most profound impact on growing crops and providing enough feed for livestock.

Drought impacts related to surface water shortages can often be mitigated by changes in water management practices. Adjustments of water management during drought can be effective in mountainous regions of the state that are dependent on mountain snowpack runoff for irrigation. This approach will hold true for central and eastern regions of the state that depend on irrigation water from rivers and reservoirs fed by snowmelt from nearby and distant mountain ranges. Reliable water supply forecasts for irrigation and instream flows can be made early for runoff-dependent regions of the state in contrast to dryland farming regions, which depend on timely precipitation to provide soil moisture for crop growth. (Montana Drought Response Plan, 1995)

The Governor's Drought Advisory Committee was established by an act of the Montana State Legislature in 1991 following the drought years of the late 1980s, including the highly publicized Yellowstone National Park wildfire year of 1988. The rationale behind the initiative to create a state drought advisory committee was that if state, local, and federal officials who monitor water supply and moisture conditions can be brought together on a regular basis, and ahead of the seasons when impacts are most likely to occur to Montana's economy and natural resources, advance measures could be taken to lessen the degree of those impacts. HB59 signed by the Governor changed the name to read Drought and Water Supply Advisory Committee.

The drought advisory committee serves as a clearinghouse for the sharing of water supply and moisture conditions on a monthly basis among state and local agency officials with responsibility to manage natural resources and support constituents most likely affected by drought. The drought statute provides guidance on the membership of the committee and its responsibilities, including development of a state drought plan which specifies actions to be taken that correspond with the state of current and expected conditions. In its monthly assessment of conditions, the committee considers various scientific indicators that quantify and forecast precipitation, mountain snowpack, streamflow, soil moisture, reservoir contents, and agricultural

and livestock production. The committee also provides planning support and information sharing with watershed groups and county drought committees through this Internet website and staff contact.

State voting member agencies include the Governor's Office, DNRC, DEQ, FWP, Agriculture, Livestock, Commerce, and Disaster Services. Federal reporting partners include the Bureau of Reclamation, U.S. Geological Survey, Natural Resource Conservation Service, Agricultural Statistics Service, and the National Weather Service. Other reporters include the multi-agency Northern Rockies Coordination Center for fire conditions, Montana Tech's Groundwater Information Center, Montana Climate Office, USDA Farm Service Agency, U.S. Congressional delegation representatives, U.S. Small Business Administration, Rural Development, and Montana State University Extension Service. The committee chair is held by the Governor's representative, traditionally the Lieutenant Governor. The committee is required to meet in April and October at a minimum and monthly between those months as warranted by current and expected conditions.

Review of Potential Losses in Local PDM Plans

The *Local Plan Exposure Summary* table in the *Drought* section of **Appendix B** presents a summary of potential drought losses from the Local PDM Plans. Drought loss is described in terms of its effect on the economy, either as a dollar value or high-moderate-low rating referring to the potential impact to the economy from the hazard.

Approximately one-third of the local PDM plans evaluated the drought hazard in their risk assessment. Of those with quantified results, Valley County had the highest economic exposure ($67M), followed by Fergus ($62M), Sheridan ($43M), Madison ($37M) and Stillwater ($34M) counties. Toole County lists the drought hazard with Very High economic exposure while Carter and Gallatin Counties list economic exposure from drought as High.

Vulnerability of State Property

State-owned facilities are not considered to be vulnerable to drought. State land would be more prone to wildland fire and lands leased for agricultural purposes could generate lower lease payments if the availability of forage for livestock grazing and/or water availability for irrigation is reduced or diminished.

Future Development

The impact of future development on the drought hazard would be through limiting groundwater resources. Since the Montana Department of Environmental Quality carefully monitors and regulates public water systems, individual wells and septic systems, the impact of future development with respect to drought is considered low.

References

Branson, D., 2002. More Grass, Fewer Grasshoppers! USDA-ARS NPARL, 1500 N. Central, Sidney, MT 59270. http://www.sidney.ars.usda.gov/sidebar/publications.html

Montana Disaster and Emergency Services (DES), 1998. State of Montana Hazard Mitigation Plan. Revised 1998.

Montana Disaster and Emergency Services (DES), 2004. State of Montana Department of Military Affairs Disaster and Emergency Services Division. Correspondence with J. Aber.

Montana Disaster and Emergency Services (DES), 2007. Federal and State Declared Disasters.

Montana Drought Response Plan, 1995.

Montana Drought Website, 2013. http://drought.mt.gov/default.aspx

Montana Historical Society, 2004. Montana History Website: A Resource for Teachers of Montana History. URL: http://www.metnet.state.mt.us/teachmthistory/index.html.

Montana Natural Resource Information System (NRIS), 2013. Montana Water Supply and Moisture Conditions by County. http://nris.mt.gov/drought/status/

National Climatic Data Center (NCDC), 2004. Event Record Details. NOAA. http://www.ncdc.noaa.gov/oa/ncdc.html

National Drought Mitigation Center (NDMC), 2013. http://drought.unl.edu/AboutUs.aspx

National Drought Mitigation Center (NDMC), 2004. What is Drought? http://www.drought.unl.edu/whatis/what.htm

National Oceanic and Atmospheric Administration (NOAA), 2004. National Weather Service, Climate Prediction Center, U.S. Drought Assessment and On-Line Data. http://www.cpc.ncep.noaa.gov/products/expert_assessment/drought_assessment.html and http://www.ncdc.noaa.gov/oa/climate/climatedata.html

U.S. Small Business Administration (SBA), 2004 and 2007. Disaster Updates by State. http://www.sba.gov/gopher/Disnews/

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4.4.9 Dam Failure

CPRI = 2.25

Dam failures are usually associated with intense rainfall or prolonged flood conditions, but can occur during an earthquake. Dam failure may be caused by faulty design, construction and operational inadequacies, intentional breaches, or a flood event larger than the design flood. The greatest threat from dam failure is to people and property in areas immediately below the dam since flood discharges decrease as the flood wave moves downstream.

According to FEMA, dams are classified into one of three categories, as outlined below:

Low Hazard Potential - Dams where failure or misoperation results in no probable loss of human life and low economic and/or environmental losses. Losses are principally limited to the owner's property.

Significant Hazard Potential - Dams where failure or misoperation results in no probable loss of human life but can cause economic loss, environment damage, disruption of lifeline facilities, or impact other concerns. Significant hazard potential classification dams are often located in predominantly rural or agricultural areas but could be located in areas with population and significant infrastructure.

High Hazard Potential - Dams where failure/misoperation will probably cause loss of human life.

Montana has approximately 3,651 dams with normal capacity of 50 acre feet (DNRC, 2013). Of these dams, 189 are considered "high-hazard dams", indicating there is potential for loss of life downstream. **Table 4.4.9-1** summarizes the hazard categories of dams by ownership.

TABLE 4.4.9-1
NUMBER OF DAMS WITHIN THE STATE OF MONTANA

Hazard Categories	Federal Dams	State Dams	Local Government Dams	Public Utility Dams	Private Dams	Total
High	44	35	39	19	52	**189**
Significant	25	10	5	4	158	**202**
Low	560	127	44	13	2,516	**3,260**
TOTAL	**629**	**172**	**88**	**36**	**2,726**	**3,651**

Source: DNRC, 2013

History of Dam Failure in Montana

Dam failure floods in Montana have primarily been associated with riverine and flash flooding. Nevertheless, the potential for a major flood occurring solely as a result of dam failure is a real possibility. A partial list of dam-failure related flooding in Montana is presented in **Table 4.4.9-2.** Considering only the events shown in the table, there have been 34 deaths and extensive property damage from dam-failure flooding in Montana.

TABLE 4.4.9-2
MONTANA DAM FAILURES AND INCIDENTS

Date	Event	Damages
June 4, 1908	**White's Reservoir Dam near Butte** failed leaving the city without phones, telegraphs, electricity, street cars, or railroad service.	
July 11, 1916	**Superior Dam**, north of Meaderville, broke and flooded **northeast Butte** with mine tailings.	$8,000
1927	**Pattengail Creek Dam in Beaverhead County** failed causing four known deaths and near complete destruction of the towns of Dewey & Wise River.	4 deaths
March 1939	**Midway Dam**, 40 miles northwest of Nashua, breached during the Porcupine Creek flood when the spillway was undermined by huge floating ice cakes. When the dam failed, a four-foot liquid wall swept down the valley causing extensive damage.	
July 1946	**Carrol Dam**, located eight miles northwest of **Plentywood**, failed following several inches of rain in a short timeframe. There were no fatalities attributable to the dam failure but destruction was evident throughout the 15 mile valley which took the brunt of the flood. Several homes and farm buildings were destroyed.	
April 1952	**Frenchman Dam** on Frenchman Creek failed upstream of the Milk River. The dam was located in Phillips County, 20 miles north of Saco. The dam failure caused the highest peak ever recorded on the Milk River below its confluence with Frenchman Creek.	$150,000
1964	Failure of **Swift Reservoir** on Birch Creek and **Two Medicine Dam** on Two Medicine Creek resulted in the loss of 30 lives on the Blackfeet Reservation.	30 deaths
June 20, 1984	**Browns Lake Dam**, located in **Beaverhead County**, was overtopped resulting in washed out roads and bridges downstream.	Property damage: $100,000
July 11, 1996	Incident Response in **Granite County** (EO 16-96) for the possible failure of the **East Fork of Rock Creek Dam.**	
June 1, 1998	Incident Response for **Tin Cup Dam** (EO 9-98). State response to a leak in Tin Cup Dam, located in the **Selway-Bitterroot Wilderness Area** of the Bitterroot National Forest, Ravalli County.	
Spring 1998	**Anita Dam** outlet failure – BLM dam – north of Chinook. Evacuation necessary.	
Summer 2002	Failure of **Ross Dam** in Garfield County; evacuation necessary but limited damage downstream.	

Source: DES, 1998 and 2003; Maxim, 2003a, 2003b; BSHM 2004

Aging infrastructure is to blame for a number of failed dams in Montana. There have been numerous small failures primarily related to deterioration of corrugated metal pipe outlet works, which causes slow release of reservoir contents along the outside of the outlet pipe, with minimal downstream property damage but serious damage to the structure (DNRC, 2013).

According to Montana DNRC (2013), the top high hazard dams in terms of risk to population regulated by the State include: Hyalite Dam upstream of Bozeman (Gallatin County), Flower Creek Dam above Libby (Lincoln County), Cooney Dam above Billings (Yellowstone County), and Painted Rock Dam on the West Fork of the Bitterroot River above Hamilton (Ravalli County). A number of the high hazard dams used for power generation that are federally-regulated also pose a high risk to population centers in Montana. Emergency Action Plans (EAPs) are available at DNRC for the Montana-regulated high hazard dams. EAPs have also been prepared for the Federally-regulated high hazard dams; however, these are not considered public information (for security reasons) but are often available at the local DES offices.

Declared Disasters

No declared disasters from the effects of dam failure have been made.

Probability and Magnitude

The degree and extent of damage depend on the size of the dam and the circumstances of failure. A small dam retaining water in a stock pond may break resulting in little more damage than the loss of the structure itself. In contrast, a similar dam break could result in the loss of irrigation water for a season, causing extreme financial hardship to many farmers. An even larger dam failure might bring about considerable loss of property, destruction of cropland, roads and utilities and even loss of life. Consequences of dam failure that are more far-reaching can include loss of income, disruption of services and environmental devastation (DES, 1996).

Probability was assessed based on hazard frequency over a 10 year period. Since the dam failure hazard causing loss of life and extensive property damage occurs less than once every 10 years (but greater than 1 event every 100 years) it was given a “possible” probability rating.

Vulnerability

Numerous factors contribute to determining dam vulnerability including: design standards; construction, operation and maintenance; intense rainfall or prolonged flood conditions; and/or earthquakes. The vulnerability of property and population downstream of dams is related to construction in inundation areas.

The Dam Safety Act required that owners of all high and significant hazard dams prepare Emergency Action Plans (EAP). The objectives of the EAP is to pre-plan the coordination of necessary actions by the dam owner and the responsible local and state emergency management officials; identify conditions which could lead to dam failure in order to initiate emergency measures that could prevent or minimize the loss of life or property; and, provide timely notification of a warning of a dam emergency and evacuation in the event of potential failure of the dam.

Statewide Vulnerability

Vulnerability to dam failure is compounded by differences in the dam inundation areas versus the 100-year floodplain. Floodplain development, in most cases, is regulated, whereas dam inundation areas are not. Extreme rain and snow melt events can exceed the flood storage capacity of even large reservoirs. At such times, the excess water that passes over the spillway (the primary purpose of which is to protect the dam) may cause damages downstream that approach those damages that would have occurred had the flood control dam not been built. In

addition, the failure of a dam can produce extreme, rapid flood damages outside the 100-year or even 500-year floodplains (DES, 1996).

As part of this project, a GIS layer was created of the inundation areas of the high hazard dams in the State of Montana (federal, state and private). Inundation maps for the federal and private high hazard dams, available from the dam-specific EAPs, were digitized and consolidated into a GIS layer together with DNRC's inundation areas for the state-owned dams (**Figure 4.4.9-1**).

To complete the vulnerability analysis for the dam failure hazard, the dam inundation hazard layer was intersected with both the critical facility and MDOR cadastral parcel datasets. Estimates of vulnerable population were calculated using census block data within the hazard area. Exposure values are presented in **Table 4.4.9-3**. Annual loss was not calculated since there is no source of damage data associated with the landslide hazard. The *Dam Failure* section in **Appendix B** presents supporting documentation from the risk assessment including a list of critical facilities in the dam inundation areas and loss estimates by county.

TABLE 4.4.9-3
DAM FAILURE EXPOSURE SUMMARY BY DES DISTRICT

Item	District 1	District 2	District 3	District 4	District 5	District 6
Inundation Area (Square Miles)	568.71	500.55	579.97	299.24	572.85	261.26
Percent Hazard Area	2.26%	2.07%	2.32%	1.12%	2.60%	1.10%
Residential Building Exposure ($)	$4,090,797,889	$1,116,397,493	$1,521,516,539	$389,310,536	$697,750,813	$216,313,343
Residential Building Exposure (# structures)	29,361	10,441	10,635	5,482	8,074	3,909
Commercial, Agricultural, Industrial Building Exposure ($)	$1,478,793,701	$626,450,104	$498,493,438	$159,614,188	$539,976,622	$126,965,135
Commercial, Agricultural, Industrial Building Exposure (# structures)	4,696	1,980	1,548	1,103	1,694	1,190
Critical Facility Exposure ($)	$65,757,157	$1,299,977	$146,485,995	$30,564,634	$27,495,592	$3,483,834
Critical Facility Exposure (# structures)	17	1	32	8	2	4
Annual Loss	N/A	N/A	N/A	N/A	N/A	N/A
Population Living in Hazard Area	114,365	38,136	42,551	17,843	31,163	16,652
Population Under 18 Living in Hazard Area	25,425	8,880	9,220	3,875	7,862	4,488

Figure 4.4.9-1 Dam Inundation Hazard Map

DES District 1 has the highest residential exposure from the dam failure hazard, followed by District 3 then District 2. District 1 followed by District 5 have the highest exposure to commercial/agricultural/industrial building stock from dam failure. The highest critical facility exposure is in District 3. District 1 has the most population at risk; more than 2.5 times that of District 3 which has the second most population in the hazard area.

Table 4.4.9-4 presents a vulnerability summary of the dam failure hazard as it relates to percent exposure and growth rates in Montana's counties, cities and towns. Percent exposure was derived by dividing the value of residential and commercial/agricultural/industrial building stock exposed to the hazard into the total value of the building stock. Percent exposure is a more accurate way of displaying vulnerability than presenting jurisdictions with the highest exposure because it reflects areas with the greatest risk opposed to those with high valued real estate. A complete ranking of percent exposure is presented in the *Dam Failure* section of **Appendix B**.

Counties with the highest dam inundation exposure include: Custer, Treasure, Big Horn, Beaverhead, and Roosevelt; while the top cities/towns include: Hardin (Big Horn Co.), Chinook (Blaine Co.), Townsend (Broadwater Co.), Columbia Falls (Flathead Co.), and Troy (Lincoln Co.). **Figure 4.4.9-2** presents loss estimates for the top counties and cities/towns showing regional vulnerability.

Percent exposure was multiplied by the population change between the 2000 and 2010 census to present the jurisdictions with the highest risk that are experiencing the fastest growth. A complete ranking is presented in the *Dam Failure* section of **Appendix B**.

Counties with the highest exposure in dam inundation areas that are experiencing the fastest population growth include: Broadwater, Flathead, Sanders, Ravalli, and Gallatin; while the top cities/towns (with population over 500) are: Columbia Falls (Flathead Co.), Hamilton (Ravalli Co.), Kalispell (Flathead Co.), Three Forks (Gallatin Co.), and Dillon (Beaverhead Co.) **Figure 4.4.9-3** presents percent exposure and population change for the top counties and cities/towns showing the most vulnerable areas experiencing the fastest population growth. **Figure 4.4.9-4** presents aerial photos showing dam inundations areas for the six most vulnerable cities/towns experiencing rapid population growth.

Vulnerability of State Facilities

The Dam Safety Act requires regular inspections for high hazard dams. Deficiencies or the need for further analyses was identified for 11 dams, as indicated below in **Table 4.4.9-5.**

TABLE 4.4.9-4
DAM FAILURE EXPOSURE SUMMARY FOR TOP COUNTIES, CITIES AND TOWNS

County	% Dam Exposure	% Growth (2000 to 2010)	# of Building Permits (2000 to 2010)	$ Residential Exposure	# Residences at Risk	$ Commercial/ Ag/Industrial Exposure	# Commercial/ Ag/Industrial Buildings at Risk	$ Critical Facilities Exposure	# Critical Facilities at Risk
COUNTIES WITH HIGHEST PERCENT EXPOSURE ($ RESIDENTIAL + $ COMMERCIAL- AG- INDUSTRIAL EXPOSURE IN HAZARD AREA / TOTAL EXPOSURE)									
CUSTER	84.45%	0.50%	58	$270,982,300	3,563	$104,187,018	610	$27,526,469	6
TREASURE	77.50%	-15.17%	0	$15,660,824	279	$3,214,355	44	$0	0
BIG HORN	60.63%	3.29%	42	$117,768,975	1,632	$84,771,650	434	$0	0
BEAVERHEAD	56.05%	0.07%	52	$230,346,647	2,012	$98,445,332	391	$112,053,395	20
ROOSEVELT	54.07%	-0.99%	33	$50,978,033	1,172	$41,638,283	447	$3,470,273	3
SHERIDAN	46.87%	-15.71%	10	$43,016,803	777	$19,796,144	205	$0	0
BLAINE	44.36%	-6.33%	3	$49,846,537	785	$20,057,607	163	$1,299,977	1
CITIES/TOWNS WITH HIGHEST PERCENT EXPOSURE (TOWNS WITH POP. > 500) ($ RESIDENTIAL + $ COMMERCIAL- AG- INDUSTRIAL EXPOSURE IN HAZARD AREA / TOTAL EXPOSURE)									
HARDIN	100.00%	5.41%	40	$66,365,544	953	$64,594,896	260	$0	0
CHINOOK	100.00%	-12.27%	3	$34,501,724	573	$16,236,138	114	$0	0
TOWNSEND	100.00%	3.05%	51	$51,784,962	671	$13,103,571	118	$0	0
COLUMBIA FALLS	100.00%	29.14%	332	$179,462,255	1,523	$81,518,958	272	$14,387,374	1
TROY	100.00%	-2.51%	8	$22,881,751	349	$12,507,764	77	$0	0
POPLAR	100.00%	-10.10%	0	$6,675,103	203	$6,608,499	110	$0	0
FORSYTH	100.00%	-2.98%	9	$45,440,438	722	$18,023,877	137	$0	0
COUNTIES WITH GREATEST PERCENT EXPOSURE WHICH HAVE FASTEST GROWTH RATES (% EXPOSURE x % POPULATION CHANGE 2000 TO 2010)									
BROADWATER	28.82%	31.32%	51	$72,008,836	819	$16,491,050	146	$24,480,879	4
FLATHEAD	28.16%	22.54%	3,155	$1,707,809,692	11,866	$650,553,202	2,061	$16,906,354	2
SANDERS	32.36%	11.74%	0	$187,326,860	1,635	$45,008,418	258	$0	0
RAVALLI	27.70%	12.07%	354	$529,193,487	3,638	$293,806,271	759	$951,154	1
GALLATIN	9.50%	34.70%	7,122	$606,804,088	2,991	$265,689,801	428	$0	0
LAKE	29.51%	9.31%	389	$553,532,391	2,509	$45,666,732	337	$0	0
GRANITE	29.65%	7.99%	3	$69,446,940	511	$4,439,300	44	$0	0
CITIES/TOWNS WITH HIGHEST PERCENT EXPOSURE WHICH HAVE FASTEST GROWTH RATES (TOWNS WITH POP. > 500) (% EXPOSURE x % POPULATION CHANGE 2000 TO 2010)									
COLUMBIA FALLS	100.00%	29.14%	332	$179,462,255	1,523	$81,518,958	272	$14,387,374	1
HAMILTON	90.96%	18.06%	271	$155,390,823	1,362	$214,400,307	427	$951,154	1
KALISPELL	33.57%	40.67%	1,858	$329,290,079	2,647	$234,841,319	589	$2,518,980	1
THREE FORKS	98.23%	10.47%	62	$84,926,659	705	$20,736,456	127	$0	0
DILLON	98.62%	9.62%	52	$114,013,545	1,229	$76,911,046	317	$107,080,270	19
EAST HELENA	24.82%	24.30%	79	$13,343,892	166	$8,321,654	42	$0	0
HARDIN	100.00%	5.41%	40	$66,365,544	953	$64,594,896	260	$0	0

Figure 4.4.9-2 - % Exposure

Figure 4.4.9-3 - % Exposure + % Population Change

Figure 4.4.9-4 – Air Photo of Top Cities/Towns

TABLE 4.4.9-5
NON-FEDERAL DAMS IN MONTANA REQUIRING FURTHER ANALYSIS OR REHABILITATION

Name	County	Rehabilitation or Data Needed	Nearest Community	Owner
Willow Creek Dam	Madison	Auxiliary Spillway	Harrison	DNRC State Water Projects
Upper Baker	Fallon	Outlet Rehabilitation	Baker	Fallon County
Ruby Dam	Madison	Outlet Rehabilitation	Alder	DNRC State Water Projects
Eureka Dam	Teton	Outlet Rehabilitation – under construction	Choteau	Teton Coop Canal co.
Kerns Lake Dam	Deer Lodge	Outlet Rehabilitation – under construction	Powell	DOC Correctional Enterprise Ranch
Flower Creek Dam	Lincoln	Dam Replacement	Libby	City of Libby
Missile Silo Dam	Fergus	Breach – under construction	Judith Gap	DNRC Trust Lands Management
Kootenai Develop Impound. Dam	Lincoln	Decommission or repair to handle extreme storms without damage	Libby	WR Grace/Kootenai Development Co.

Source: DNRC, 2013

Critical facilities and bridges located in the dam inundation hazard area are listed in the *Dam Failure* section of **Appendix B**.

Review of Potential Losses in Local PDM Plans

The *Local Plan Exposure Summary* table in the *Dam Failure* section of **Appendix B** presents a summary of potential dam failure losses from the Local PDM Plans. Dam failure losses are described in terms of their effect on buildings, society, and the economy, as outlined below:

- Building exposure is presented either as a dollar value or high-moderate-low rating and typically refers to the vulnerability of residential structures and/or critical facilities from the hazard.
- Societal exposure is presented either as the number of lives at risk or as a high-moderate-low rating representing the vulnerability of human life from the hazard.
- Economic exposure is presented as a dollar value or high-moderate-low rating referring to the potential impact to the economy from the hazard.

Approximately 50 percent of the local PDM plans evaluated the dam failure hazard in their risk assessment. Of those with quantified results, Cascade County had the highest exposure followed by Silver Bow, Lake, Lincoln, Lewis and Clark, and Sanders Counties. Flathead and Ravalli Counties are listed as Very High exposure and Sheridan County lists 1,000 structures at risk.

Future Development

Several areas experiencing growth and development in Montana are within dam inundation areas. Future development below dams can have significant financial impact on dam owners. When new development occurs in the inundation area below an existing dam that previously lacked downstream hazards, the dam could be reclassified as "high hazard". High

hazard dams are required to meet stringent requirements for design, construction, inspection and maintenance. Bringing a dam up to high hazard design standards can be costly for a dam owner. Even for dams already classified as high hazard, additional downstream development can still have a financial impact. Spillway design standards are based on potential for loss of life downstream. As the population at risk increases, the spillway design standard increases. A dam that is currently in compliance with state design standards can suddenly be out of compliance after a subdivision is built downstream. Rebuilding a spillway to provide additional capacity can also be costly for the dam owners, often exceeding a million dollars. To go along with the spillway improvements, the inundation areas have to be evaluated for risk and hazard assessment. The liability of the dam owner's increase with development which can lead to increased insurance rates. Aging infrastructure and design life of dams is a critical issue to consider when considering subdivision approval.

Without consideration of dam failure during the subdivision permitting process, future development could place residences and businesses in high hazard areas. Knowledge of a home or subdivision being in a dam's inundation area may not be known by home owners. Reclassification of some of the State's dams should be considered in areas where development has spread.

Data Limitations

Dam failure is an infrequent occurrence in Montana and therefore, data for annual loss is not available. Some inundations areas which were digitized for the hazard layer were not continuous; instead showing mapped areas around centers of population centers and not rural areas where agricultural developments may be present. This could have led to an under reporting of building exposure in the PDM vulnerability analysis.

Risk assessment methodology involved using GIS to intersect the hazard layer with parcel data from the Montana Dept. of Revenue and census block data from the 2010 U.S. Census. If the GIS intersect clipped any part of a parcel then the entire value and number of structures in that parcel were assumed to be located in the hazard area. This may lead to an over reporting of exposure where parcels are large. In determining population exposure, if the GIS intersect clipped a census block then the entire number of individuals in that census block were assumed to reside in the hazard area which may lead to over reporting of population at risk where census blocks are large.

References

Big Sky Hazard Management (BSHM). 2004. Silver Bow County Hazard Mitigation Plan. February 2004.

Federal Emergency Management Agency (FEMA). 2004. Federal Guidelines for Dam Safety, Hazard Potential Classification System for Dams. April 2004.

Maxim, 2003a. Daniels County Montana Pre-Disaster Mitigation Plan. Prepared For: Daniels County, P.O. Box 247, Scobey, Montana 59263. Prepared By: Maxim Technologies, Inc. September 2003.

Maxim, 2003b. Valley County Montana Pre-Disaster Mitigation Plan. Prepared For: Valley County, 501 Court Square, Glasgow, Montana. Prepared By: Maxim Technologies, Inc. May 12, 2003.

Montana Department of Natural Resources and Conservation (DNRC). 2013. Information on federals, state, local, private, and utility dams and dams with deficiencies. Provided by Michele LeMieux, DNRC Dam Safety Program.

Montana Department of Natural Resources and Conservation (DNRC). 2012. Information on State-regulated dams and inundation area GIS data. Provided by Chad Newman, DNRC Dam Safety Program.

Montana Disaster and Emergency Services (DES). 1996. State of Montana Hazard Mitigation Plan. Revised October 1996.

Montana Disaster and Emergency Services (DES). 1998. State of Montana Hazard Mitigation Plan. Revised 1998.

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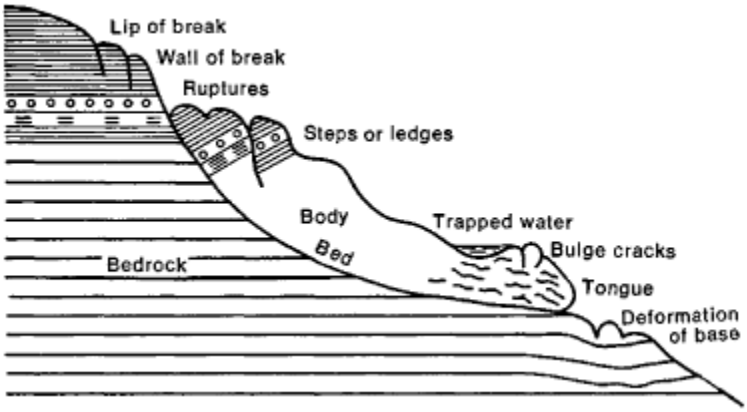
4.4.10 Landslide

The term landslide includes all types of gravity-caused mass movements of earth material, ranging from rock falls, slumps, rock slides, mud slides, and debris flows. Landslides occur in all 50 of the United States (USGS, 2001).

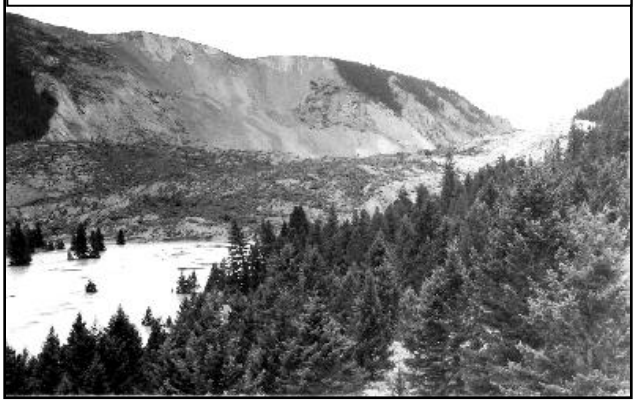
The surface of the earth is a collection of slopes that are inherently unstable. When material is exposed to weathering and erosion processes it immediately begins to break it apart and move.



Earth movement may occur suddenly as catastrophic landslides or rockfalls, but more commonly, occurs as the slow creep of soil down gentle slopes. Precipitation, topography, geology, and human activities can all trigger landslides. In landslide-prone areas, anything affecting slope condition, such as construction, seismic activity, or increased soil moisture, may cause movement or may reactivate prior movement. Recent landslide movements often are the reactivation of smaller sections of older, unstable landslide masses.

History of Landslides in Montana

Photo 4.4.10-1: Landslide from Hebgen Lake Earthquake, August 1959



Landslides are among the most common geologic hazards in Montana, causing damage in rural and urban areas of the state. Sudden movements are often spectacular and receive much publicity. The Hebgen Lake Earthquake of August 18, 1959 triggered the largest landslide in Montana history, where nearly 1.25 miles of the Madison River and Montana Highway 287 were buried to depths as great as 394 feet (see *Section 3.3.2.2, History of Earthquakes*). However, slower movement can also cause severe problems in developing areas. The effects of the very slow movements can be seen along many roadways in the form of leaning trees, misaligned fences and walls, and damaged road surfaces and foundations (MBMG, 2002).

Whether caused solely by natural processes or aggravated by human activity, when landslides occur in proximity to human-made structures, repairs and remediation can be costly. For example, a small lobe of a much larger ancient slide south of Dillon was reactivated by removing the toe of the slope. The slide is proving very costly to the railroad and could impact Interstate 15 if a larger segment of the slide area should move (MBMG, 2002). State Highway 2 was built on another slide near Glacier Park and the roadway has had constant subsidence problems. The Goat Lick slide forced the Montana Department of Transportation to re-construct the roadway with a cantilevered outside driving lane to prevent further subsidence.

Photo 4.4.10-2 Goat Lick Slide, US Highway 2

A rain-on-snow event in mid-March 2005 caused a mudslide that severely damaged more than 12 miles of U.S. Highway 212 outside Red Lodge, Montana. The road is a crucial link to the western route to Yellowstone Park and is only open to traffic from late-May until mid-October. An Executive Order was issued declaring an emergency in Carbon County. The order requested assistance from the Federal Highway Administration for the repairs. The $15.2 million repair involved excavating rock and slide debris, reconstructing the drainage, roadway and new alignment, and constructing tie-back walls. Rock fall fences were also constructed at several locations and overall drainage capacity was increased by creating water diversions along stable locations on the mountain and constructing special inlets to allow rock over 3-inch diameter to pass.

Photo 4.4.10-3 Beartooth Highway Landslide

The majority of the damage associated with the June 2010 flood on the Rocky Boy's Indian Reservation was due to mass movement (i.e. slippage). Mass movement of land under the newly constructed Chippewa Cree Health Center caused significant structural damage and the building is no longer fit for occupancy. Several roads also failed due to the over-saturation from the heavy rainfall that resulted in mass movement. Reports of sinkholes are also associated with this flood event. The mechanisms of sinkhole formation involves natural process of erosion or gradual removal of slightly soluble bedrock by percolating water, the collapse of a cave roof, or a lowering of the water table. Sinkholes can be human-induced and new sinkholes have

been correlated to land-use practices, especially, from ground-water pumping, construction, and development practices. They can also form when natural water-drainage patterns are changed and new water-diversion systems are developed. Some sinkholes form when the land surface is changed, such as when industrial and runoff-storage ponds are created; the substantial weight of the new material can trigger an underground collapse of supporting material, thus, causing a sinkhole.

Landslides appear to have a stronger association with faulting than with any specific geologic unit (MBMG, 2002); however, some geologic formations or lithologies can be identified as being particularly prone to movement:

- Volcanic rocks, or sediments derived from them, are often the originating lithology for landslides. These sediments often contain ash and clay materials that facilitate movement.
- Poorly-consolidated sediments, particularly those of Cretaceous, Tertiary and Quaternary age, appear to have a tendency toward landslide.
- In the Butte and Dillon 1:250,000-scale areas, Proterozoic-age (Precambrian Belt Supergroup) rocks appear to be prone to landslide.

The types of material identified for each slide or flow appears to generally correspond to well-defined topographic settings:

- Earth slides and flows occur most often on more gentle slopes with less vegetation—the foothills and river courses.
- Debris slides and flows generally occur in the steeper, mountainous areas and in areas covered with vegetation.
- Rock slides and flows occur in previously-glaciated high valleys with steep slopes that generally lack vegetative cover, and along other very steep slopes (generally > 50 degrees).

Losses

Table 4.4.10-1 presents Montana's landslide historic losses associated with the landslide hazard from the SHELDUS database.

TABLE 4.4.10-1
LANDSLIDE LOSSES (ADJUSTED TO 2011 DOLLARS); 1960-2012

District	County	Injuries	Fatalities	Property Damage (Adjusted to 2011 $)	Crop Damage (Adjusted to 2011 $)
1	Flathead	1	0	$0.00	$0.00
1	Lake	1	0	$0.00	$0.00
District 1 Total		2	0	$0.00	$0.00
5	Carbon	0	0	$15,507,222	$0.00
District 5 Total		0	0	$15,507,222	$0.00
Total		**2**	**0**	**$15,507,222**	**$0.00**

Source: SHELDUS, 20012

Two DES districts have reported landslide losses. The District 1 losses involved fatalities but no reported property or crop damage. The District 5 loss in Carbon County occurred on the Beartooth Highway, as discussed previously, and resulted in a declared disaster.

Declared Disasters

Executive Order No. 08-05, proclaiming an emergency to exist in Carbon County was signed by the governor on May 27, 2005 (DES, 2007). Flooding and rapid runoff caused landslides at several locations on U.S. Highway 212 (Beartooth Highway) to result in serious and extensive damage to both public and private property, including a federal-aid highway. The Federal Highway Administration reimbursed Montana $15 million for expenses associated with the highway repair as part of an emergency supplemental appropriations package passed by Congress and signed by President Bush. The Small Business Administration made a declaration to provide assistance to small, non-farm businesses in Big Horn, Carbon, Gallatin, Golden Valley, Meagher, Park, Stillwater, Sweet Grass, and Yellowstone Counties that suffered financial losses as a result of the closure of the Beartooth Highway due to the landslide disaster (Small Business Administration Declaration #10130) (SBA, 2007).

Magnitude and Probability

Landslides can damage and destroy homes, roads, railroads, pipelines, electrical and telephone lines, mines, oil wells, commercial buildings, canals, sewers, bridges, dams, airports, forests, parks, and farms. According to FEMA (1997), best estimates of losses attributed to landslides in the United States are 25 to 50 lives per year and $1-2 billion in property damage. The Beartooth Highway landslide involved $15.2 million to repair.

Probability is based on the frequency of the hazard over a 10 year period. Since damaging landslides do not occur more than once per decade, the probability rating is “probable” for this hazard.

Vulnerability

Vulnerability to landslides is dependent on slope, lithology, and location of current and ancient slides. Activation of landslides depends upon environmental factors, such as amount of rainfall and snowmelt, and human activities, such as road and housing construction. Many landslides cannot be predicted and can be activated by multiple factors including earthquakes, high precipitation, overgrazing, and deforestation (especially from forest fires). Many, if not most, high-risk areas can be identified on the basis of past landslide activity. Many recent landslides are small, relatively minor events within the boundaries of older, much larger ones.

Statewide Vulnerability to Landslides

As part of the 2013 State Plan Update, a GIS layer developed by the U.S. Geological Survey (USGS) was used to evaluate landslide risk (**Figure 4.4.10-1**). The USGS developed the landslide hazard map by evaluating formations shown on the geologic map of the United States as being of high, medium, or low susceptibility to landsliding and thereby classifying the formations as having high, medium, or low landslide incidence. Susceptibility to landsliding was defined as the probable degree of response of the areal rocks and soils to natural or artificial cutting or loading of slopes or to anomalously high precipitation. In areas of continental glaciation, additional data were used to identify surficial deposits that are susceptible to slope movement (USGS, 1982). Only the high and medium susceptibility formations were used in the PDM analysis.

To complete the vulnerability analysis for the landslide hazard, the hazard layer was intersected with both the critical facility and MDOR cadastral parcel datasets. Estimates of vulnerable population were calculated using census block data within the hazard area. Exposure values are presented in **Table 4.4.10-2**. Annual loss was not calculated since there is no source of damage data associated with the landslide hazard. The *Landslide* section in **Appendix B** presents supporting documentation from the risk assessment including a list of critical facilities in landslide hazard areas and loss estimates.

TABLE 4.4.10-2
LANDSLIDE EXPOSURE SUMMARY BY DES DISTRICT

Item	District 1	District 2	District 3	District 4	District 5	District 6
Landslide Area (Square Miles)	1,245.23	12,241.54	7,321.87	4,494.57	10,871.84	14,432.58
Percent Hazard Area	4.95%	50.54%	29.26%	16.83%	49.38%	60.98%
Residential Building Exposure ($)	$3,093,374,332	$1,640,969,384	$2,826,616,864	$451,467,526	$7,884,471,851	$782,444,119
Residential Building Exposure (# structures)	20,039	13,640	9,575	5,453	59,522	9,763
Commercial, Agricultural, Industrial Building Exposure ($)	$1,337,387,386	$528,605,556	$856,354,330	$150,393,937	$3,835,183,138	$255,027,339
Commercial, Agricultural, Industrial Building Exposure (# structures)	2,636	2,895	1,201	1,080	8,554	2,584
Critical Facility Exposure ($)	$69,541,342	$41,288,443	$2,216,847	$1,607,269	$122,447,495	$18,167,078
Critical Facility Exposure (# structures)	20	22	6	5	17	19
Annual Loss	N/A	N/A	N/A	N/A	N/A	N/A
Population Living in Hazard Area	76,141	44,287	21,270	15,434	176,041	29,232
Population Under 18 Living in Hazard Area	16,506	11,506	4,084	3,486	42,325	7,321

Figure 4.4.10-1 Landslide Prone Terrain in Montana

TABLE 4.4.10-3
LANDSLIDE EXPOSURE SUMMARY FOR TOP COUNTIES, CITIES AND TOWNS

County	% Landslide Exposure	% Growth (2000 to 2010)	# of Building Permits (2000 to 2010)	$ Residential Exposure	# Residences at Risk	$ Commercial/ Ag/Industrial Exposure	# Commercial/ Ag/Industrial Buildings at Risk	$ Critical Facilities Exposure	# Critical Facilities at Risk
COUNTIES WITH HIGHEST PERCENT EXPOSURE ($ RESIDENTIAL + $ COMMERCIAL- AG- INDUSTRIAL EXPOSURE IN HAZARD AREA / TOTAL EXPOSURE)									
YELLOWSTONE	99.36%	16.02%	5,273	$6,801,006,915	49,881	$3,570,561,358	6,692	$120,736,440	14
HILL	99.06%	-1.64%	88	$464,789,513	4,601	$199,929,713	1,363	$39,886,279	17
WHEATLAND	97.57%	-5.27%	0	$67,608,226	929	$14,423,939	277	$1,711,055	3
PHILLIPS	96.80%	-7.63%	13	$119,640,904	1,666	$69,366,103	608	$1,179,311	3
LIBERTY	93.90%	11.31%	0	$76,848,407	744	$14,219,575	264	$15,650	1
RICHLAND	89.67%	4.78%	196	$293,300,673	3,157	$109,541,468	670	$1,083,235	2
GOLDEN VALLEY	89.02%	-16.83%	0	$33,785,002	382	$4,545,102	147	$0	0
CITIES/TOWNS WITH HIGHEST PERCENT EXPOSURE (TOWNS WITH POP. > 500) ($ RESIDENTIAL + $ COMMERCIAL-AG- INDUSTRIAL EXPOSURE IN HAZARD AREA / TOTAL EXPOSURE)									
LIVINGSTON	1.72%	1.72%	278	$345,130,978	2,813	146215662	447	$2,119,290	1
HAVRE	-0.22%	-0.22%	88	$274,407,744	2,782	98087722	574	$35,971,337	13
LAUREL	8.94%	8.94%	147	$222,888,678	2,473	125963389	470	$0	0
SIDNEY	13.87%	13.87%	91	$177,474,214	1,794	66381275	404	$1,067,981	1
HARDIN	5.41%	5.41%	40	$66,365,544	953	64594896	260	$0	0
COLUMBUS	8.47%	8.47%	79	$65,383,045	687	46507380	140	$0	0
GLASGOW	1.48%	1.48%	16	$74,924,606	1,266	32283289	246	$1,205,537	1
COUNTIES WITH GREATEST PERCENT EXPOSURE WITH FASTEST GROWTH RATES (% EXPOSURE x % POPULATION CHANGE 2000 TO 2010)									
YELLOWSTONE	99.36%	16.02%	5,273	$6,801,006,915	49,881	$3,570,561,358	6,692	$120,736,440	14
LIBERTY	93.90%	11.31%	0	$76,848,407	744	$14,219,575	264	$15,650	1
MISSOULA	53.03%	14.96%	3,868	$2,549,515,771	16,076	$1,291,283,538	2,414	$62,658,191	15
MADISON	62.62%	11.86%	65	$942,756,818	673	$347,692,892	75	$9,434	1
STILLWATER	56.55%	11.07%	79	$267,415,288	2,139	$58,011,350	313	$0	0
GALLATIN	13.25%	34.70%	7,122	$953,892,008	1,978	$263,232,577	255	$0	0
RICHLAND	89.67%	4.78%	196	$293,300,673	3,157	$109,541,468	670	$1,083,235	2
CITIES/TOWNS WITH HIGHEST PERCENT EXPOSURE WHICH HAVE FASTEST GROWTH RATES (TOWNS WITH POP. > 500) (% EXPOSURE x % POPULATION CHANGE 2000 TO 2010)									
PINESDALE	100.00%	24.53%	0	$3,155,205	25	15831	1	$0	0
FAIRVIEW	100.00%	22.99%	0	$15,744,283	340	4075762	67	$0	0
SIDNEY	100.00%	13.87%	91	$177,474,214	1,794	66381275	404	$1,067,981	1
MISSOULA	57.18%	17.94%	3,010	$1,519,295,818	10,199	1016627309	1,855	$28,997,436	5
LAUREL	100.00%	8.94%	147	$222,888,678	2,473	125963389	470	$0	0
COLUMBUS	100.00%	8.47%	79	$65,383,045	687	46507380	140	$0	0
HARDIN	100.00%	5.41%	40	$66,365,544	953	64594896	260	$0	0

The vulnerability analysis shows that DES District 5 has the highest residential and commercial/ agricultural/industrial exposure to the landslide hazard; three times higher than Districts 1, 2 and 3 which follow with the next highest exposure. District 1 has the highest critical facility exposure in dollars, although District 2 has more buildings at risk. District 5 has the most population living in the hazard area, followed by Districts 1 and 2.

Table 4.4.10-3 presents a vulnerability summary of the landslide hazard as it relates to percent exposure and growth rates in Montana's counties, cities and towns. Percent exposure was derived by dividing the value of residential and commercial/agricultural/industrial building stock exposed to the hazard into the total value of the building stock. Percent exposure is a more accurate way of displaying vulnerability than presenting jurisdictions with the highest exposure because it reflects areas with the greatest risk opposed to those with high value real estate. A complete percent exposure ranking is presented in the *Landslide* section of **Appendix B**.

Counties with the highest landslide exposure include: Yellowstone, Hill, Wheatland, Phillips, and Liberty; while the top cities/towns include: Livingston (Park Co.), Havre (Hill Co.), Laurel (Yellowstone Co.), Sidney (Richland Co.) and Hardin (Big Horn Co.). **Figure 4.4.10-2** presents loss estimates for the top counties and cities/towns showing regional vulnerability.

Percent exposure was multiplied by the population change between the 2000 and 2010 census to present the jurisdictions with the highest risk that are experiencing the fastest growth. A complete ranking is presented in the *Landslide* section of **Appendix B**.

Counties with the highest landslide exposure experiencing the fastest population growth include: Yellowstone, Liberty, Missoula, Madison, and Stillwater, while the top cities/towns (with population over 500) are Pinesdale (Ravalli Co.), Fairview and Sidney (Richland Co.), Missoula (Missoula Co.), and Laurel (Yellowstone Co.). **Figure 4.4.10-3** presents percent exposure and population change for the top counties and cities/towns showing the most vulnerable areas experiencing the fastest population growth.

Review of Potential Losses in Local PDM Plans

The *Local Plan Exposure Summary* table in the *Landslide* section of **Appendix B** presents a summary of potential loss estimates due to landslides as calculated in the Local PDM Plans. Landslide loss is described in terms of its effect on buildings, society and the economy, where generally:

- Building loss is presented either as a dollar value or a high-moderate-low rating and typically refers to the potential loss to critical facilities in the jurisdiction.
- Societal loss is presented either as the number of lives at risk or as a high-moderate-low rating representing the potential for loss of human life.

Figure 4.4.10-2 Percent Exposure - Landslide

Figure 4.4.10-3 Percent Exposure and Population Change - Landslide

- Economic risk is presented as a dollar value or high-moderate-low rating referring to the potential impact to the economy of the local jurisdiction.

Less than 50 percent of the local PDM plans evaluated the landslide hazard in their risk assessment. Of those with quantified results, Lake County had the highest exposure followed by Sanders, Lincoln, Hill, and Silver Bow Counties. No counties list landslide as a High or Moderate exposure risk.

Vulnerability of State Property

Since past damages are a reflection on future vulnerability, Montana's state facilities do not appear to be highly vulnerable to the landslide hazard. There have been no insurance claims related to landslide damage for state-owned buildings in the past 10 years. Critical facilities and bridges located in the landslide hazard area are listed in the *Landslide* section of **Appendix B**.

The greatest exposure to state infrastructure may be to roadways. Two of the major slides, the Pipe Organ slide on Interstate 15 and the Goat Lick slide on Highway 2, were discussed previously. Slides that bury and undermine roadways represent significant costs to the state. Although historically, damages to public roads from landslides have occurred, the Montana Department of Transportation does not maintain a compilation of losses and repairs to roadways as a result of landslides.

Future Development

As urbanization and development increase in Montana, particularly in the mountainous regions, the potential for large losses from landslides also increases. Many local jurisdictions have subdivision regulations in place whereby, development is not allowed on steep slopes. Landslide risk should be evaluated on a case-by-case basis to reduce or eliminate exposure of public infrastructure and private development.

Data Limitations

Risk assessment results are only a general representation of potential vulnerabilities. The USGS landslide hazard map is highly generalized, owing to the small scale and the scarcity of precise landslide information; it is unsuitable for local planning or actual site selection.

Risk assessment methodology involved using GIS to intersect the hazard layer with parcel data from the Montana Dept. of Revenue and census block data from the 2010 U.S. Census. If the GIS intersect clipped any part of a parcel then the entire value and number of structures in that parcel were assumed to be located in the hazard area. This may lead to an over reporting of exposure where parcels are large. In determining population exposure, if the GIS intersect clipped a census block then the entire number of individuals in that census block were assumed

to reside in the hazard area which may lead to over reporting of population at risk where census blocks are large.

Landslide infrequently causes significant damage in Montana and therefore, data for annual loss is not available.

References

Federal Emergency Management Agency (FEMA). 1997. Talking about Disaster Guide: Landslide and Debris Flow (Mudslide). http://www.fema.gov/pdf/rrr/talkdiz/landslide.pdf

Montana Bureau of Mines and Geology (MBMG). 2002. Compilation of Landslide Location Maps and Index for Identification of Slide-Prone Areas: A Pilot Study for the Butte District. Authors: Edith M. Wilde, Kenneth L. Sandau, Patrick J. Kennelly, and David A. Lopez. Completed for the Montana Department of Transportation. MBMG 472.

Montana Bureau of Mines and Geology (MBMG). 2009. Landslide data. http://www.mbmg.mtech.edu/gis/gis-datalinks.asp

Montana Disaster and Emergency Services (DES). 2007. Federal and State Declared Disasters.

SHELDUS. 2012. Hazards & Vulnerability Research Institute. The Spatial Hazard Events and Losses Database for the United States, Version 7.0 [Online Database]. Columbia, SC: University of South Carolina. Available from http://www.sheldus.org

USFS, no date. Clearwater-Nez Perce National Forest Summary of Landslide Prone Delineation for Forest Plan Revision.

U.S. Geological Survey (USGS). 2001. Socioeconomic and Environmental Impacts of Landslides in the Western Hemisphere. By Robert L. Schuster and Lynn M. Highland. U.S. Geological Survey Open-File Report 01-0276. http://pubs.usgs.gov/of/2001/ofr-01-0276/

U.S. Geological Survey (USGS). 1982. Landslide Overview Map of the Conterminous United States. Open-File Report 97-289. *Digital Compilation of Landslide Overview Map of the Conterminous United States* By: Dorothy H. Radbruch-Hall, Roger B. Colton, William E. Davies, Ivo Lucchitta, Betty A. Skipp, and David J. Varnes. http://landslides.usgs.gov/learning/nationalmap/

U.S. Small Business Administration (SBA). 2007. Disaster Updates by State. http://www.sba.gov/gopher/Disnews/

CPRI = 2.05

4.4.11 Terrorism and Violence

Terrorism is defined in the Code of Federal Regulations 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 States. Other possible methods include attacks on transportation routes, utilities, or other public services, or incidents involving chemical or biological agents.

Cyber-terrorism involves computers, networks, and the information they contain. Like other terrorist acts, cyber-terror attacks are typically premeditated, politically motivated, perpetrated by small groups rather than governments, and designed to call attention to a cause, spread fear, or otherwise influence the public and decision-makers.

Biological and chemical weapons have been used primarily to terrorize an unprotected civilian population and not as a weapon of war. Biological agents are infectious microbes or toxins used to produce illness or death in people, animals, or plants that can be dispersed as aerosols or airborne particles. Biological agents could be used to contaminate food or water because they are extremely difficult to detect. Chemical agents kill or incapacitate people, destroy livestock, or ravage crops. Some chemical agents are odorless, tasteless, and are difficult to detect. They can have an immediate effect (a few seconds to a few minutes) or a delayed effect (several hours to several days).

Radiological dispersion devices (RDDs) are a combination of conventional explosives and radioactive material designed to scatter dangerous and sub-lethal amounts of radioactive material over a general area. Terrorist use of RDDs is considered far more likely than use of a nuclear device because they require very little technical knowledge to build and deploy compared to that of a nuclear device. RDDs also appeal to terrorists because certain radiological materials are used widely in medicine, agriculture, industry and research, and are much more readily available compared to weapons grade uranium or plutonium.

Eco-terrorism is the use or threatened use of violence of a criminal nature against innocent victims or property by an environmentally-oriented, subnational group for environmental-political reasons, or aimed at an audience beyond the target, often of a symbolic nature.

Terrorists typically try to cross into and out of the United States through remote locations. Montana's sparsely populated international border is a potential access point for terrorists moving between countries. Montana has 545 miles of international border with Canada.

Local, State, and Federal law enforcement officials monitor suspected terrorist groups and try to prevent or protect against a suspected attack. Additionally, the U.S. government works with other countries to limit the sources of support for terrorism.

When terrorism strikes, communities may receive assistance from state and federal agencies operating within the National Incident Management System (NIMS). The Federal Bureau of Investigation (FBI) is the lead Federal agency for crisis management and FEMA is the lead Federal agency for consequence management, including supporting State and local response.

History of Terrorism and Violence in Montana

Civil unrest, violence and terrorism are not common hazards affecting Montana, but over the short history of Montana, labor strikes have caused economic disruption, threats of terrorism have disrupted community security, and large scale violence has claimed several lives. Montana's sparse population with smaller cities may limit the state as a terrorist target, but the state's rural nature has attracted terrorist and extremist groups as a safe haven. Violent racial, anti-government, and environmental extremist organizations have and continue to exist in Montana. Federal, state, and local law enforcement, however, have thwarted several violent uprisings and plots based in Montana. Some of the incidents involving civil unrest, violence and terrorism in Montana are listed below:

1920 Anaconda Road Massacre: On April 21, 1920, the Anaconda Road Massacre occurred in Butte. Fifteen people were shot during this incident that occurred during an International Workers of the World strike. The US Military was used the following day to curb additional violence.

White Supremacists of the 1990s: The Creativity Movement, formerly known as the World Church of the Creator, a white supremacist group promoting and carrying out violence, held annual meetings in Superior, Montana during the 1990s.

1996 Freemen Crisis: Garfield County made national news during the Montana Freemen Crisis. In the spring of 1996, hundreds of FBI agents surrounded the Ralph Clark ranch complex near Jordan, Montana for a total siege of 81 days. The government alleged that the nearly thirty people inside were of a radical anti-government and racist religious sect who had written bad checks and threatened judges, among other things.

1996 Bomb Threat: Amtrak offices in Philadelphia received notification by phone from a person claiming to have knowledge of a bomb placed on a train headed for western Montana. At that time, the train was 10 minutes out of Wolf Point. The decision was made to evacuate passengers from the train and to allow a search to take place. Once the train was evacuated, it was moved to the east end of town, where it was anticipated that an explosion would cause less property damage. Teams were sent from Great Falls, including a canine search team from

Malmstrom and the Explosives Ordinance Disposal team from the Montana Air National Guard. No sign of explosives were found and the train was cleared to continue its journey.

Unabomber Attacks: From 1978 to 1995, Ted Kaczynski, commonly known as the Unabomber, killed three people and injured 22 others across the county with mail bombs while he resided in a cabin near Lincoln, Montana.

Project Seven 2002-2004: A group called Project Seven in the Flathead Valley was broken up by Montana officials in February 2002 and additional arrests occurred in 2004. This militia organization is alleged to have stockpiled weapons and plotted to kill judges, prosecutors, and police officers in an effort to activate the Montana National Guard and start a war.

Declared Disasters

Montana has declared disasters for several terrorism, civil unrest, and hostage situations which have allowed for incident response and/or deployment of the National Guard troops to assist the local communities. These incidents are listed in **Table 4.4.11-1**, below.

TABLE 4.4.11-1
MONTANA DECLARED INCIDENTS FROM TERRORISM, CIVIL UNREST AND HOSTAGE SITUATIONS (1974 – 2012)

Date	Event	Assistance/ Damages
January & Feb. 1979	**Montana State Institution Strike**. National Guard Activation.	State: $1,393,714
April 1991	**Montana State Institution Strike** (EO 03-91). National Guard Activation and assistance statewide.	
August 1995	**Tactical Incident** (EO 10-95). Prairie County and Town of Terry, activation of National Guard.	State: $11,042
April 23, 1996	**Incident Response** (EO 10-96). Anniversary of Waco and Oklahoma City, affecting whole state.	State: $4,368
April 19, 2000	**Incident Response,** Lincoln County (EO 9-00). State response to Civil Disobedience Rallies in Lincoln County.	
June 10, 2000	**North American Rainbow Gathering**, Beaverhead County (EO 15-00). Emergency declaration providing state assistance to Beaverhead County to meet the life threatening situations and imminent threat to the public health and safety.	State: $77,606; Local: $23,911
September 11, 2001	**Terrorism Threats** (EO 23-01). Emergency declaration following terrorist attacks to the World Trade Center and Pentagon.	
September 11, 2001	**Terrorism Threats** (EO 28-01). Executive Order establishing the Montana Homeland Security Task Force and designating the Disaster and Emergency Services Division as lead agency.	
September 28, 2001	**Terrorism Threats** (EO 26-01). Executive Order proclaiming support to the President's request for security assistance at Montana Airports. MT National Guard provide personnel for up to 6 months.	
September 2, 2004	**Incident Response,** (EO 13-04). Executive Order authorizing Incident Response authority in the State of Montana due to an escape of Department of Corrections convict in the City of Helena	
January 11, 2006	**Incident Response,** (EO 26-2006) Executive Order authorizing Incident Response authority in the State of Montana due to a Department of Corrections prisoner escape from a prison transport vehicle within the City of Helena and Lewis & Clark County.	

Source: DES, 2012a

Magnitude and Probability

The effects of terrorism can vary significantly from loss of life and injuries to property damage and disruptions in services such as electricity, water supply, public transportation, and communications.

Cyber-terrorism could involve destroying the actual machinery of the information infrastructure, remotely disrupting the information technology underlying the Internet, government computer networks, or critical civilian systems such as financial networks or mass media, or using computer networks to take over machines that control traffic lights, power plants, or dams. If cyber-terrorists managed to disrupt financial markets or media broadcasts, an attack could undermine confidence and cause panic. Attacks could also involve remotely hijacking control systems, with potentially dire consequences, such as breaching dams, colliding airplanes, or shutting down the power grid.

The probability of a significant terrorism incident in Montana is ranked as “unlikely”; with less than one event expected per 100 years.

Vulnerability

The origins and targets for terrorism and civil unrest are difficult to predict. Individuals or groups that feel oppressed on any issue can resort to violent acts to inflict harm and damage in an attempt to gain publicity or affect policy. The locations of these attacks can occur anywhere but often the symbols that represent a threat to their cause are often times the target. From a historic perspective, these targets have often been government buildings, government officials, and university facilities. Other common targets include medical clinics, businesses, population concentrations, computer mainframes, or critical infrastructure with the ability to cause significant disruption and damage. Civil unrest and riots are typically associated with large public gatherings, initially peaceful protests, controversial political decisions, large strikes, and law enforcement standoffs.

Statewide Vulnerability

According to the Southern Poverty Law Center, an organization devoted to tracking hate groups in the United States, 12 hate groups were active in Montana during 2012, including: White Nationalist organizations in Whitefish and Kalispell; Neo-Nazi groups in Billings; Christian Identity groups in Big Sandy, Billings, Great Falls; and Ku Klux Klan groups in Great Falls and Polson. Although these organizations did not cause any known violence in Montana during 2012, a future incident cannot be ruled out. Montana also has a long international border with Canada and is sensitive to the challenges and vulnerabilities associated with it.

Other potential non-structural targets include our population, plants, and animals through bioterrorism. Our state could also be affected by bioterrorism initiated in another location and

transmitted to Montana. Terrorists, both domestic and international, will commonly act in unpredictable ways, and therefore all methods of attack cannot be specified. Because of this unpredictability, specific vulnerabilities cannot be determined without disclosing sensitive information.

The Montana Threat and Hazard Identification and Risk Assessment (THIRA) was completed in 2012 (DES, 2012b). The THIRA provides information regarding the threats and hazards faced by the state, including the projected consequences or impacts, the State's goals, and quantified targets on which to focus time and resources. The *Terrorism* section of **Appendix B** presents a copy of the THIRA.

Review of Potential Losses in Local PDM Plans

The *Local Plan Exposure Summary* table in the *Terrorism* section of **Appendix B** presents a summary of potential terrorism losses from the Local PDM Plans. Terrorism losses are generally described in terms of their effect on buildings, society, and the economy, as outlined below:

- Building exposure is presented either as a dollar value or high-moderate-low rating and typically refers to the vulnerability of residential structures and/or critical facilities from the hazard.
- Societal exposure is presented either as the number of lives at risk or as a high-moderate-low rating representing the vulnerability of human life from the hazard.
- Economic exposure is presented as a dollar value or high-moderate-low rating referring to the potential impact to the economy from the hazard.

Approximately 33 percent of the local PDM plans evaluated the terrorism hazard in their risk assessment. Counties listing a high or moderate societal risk included: Broadwater, Daniels, Deer Lodge, Flathead, Garfield, Granite, Madison, Petroleum, Powder River, Sheridan, Stillwater Treasure, and Valley. Most of these counties also perceived there would be an economic loss from a terrorist incident.

Vulnerability of State Facilities

The state building complexes, including the Capitol Complex and the university facilities, could be targets for violence related to civil unrest or terrorist acts because they represent symbols of state government. State government strikes, although historically peaceful, can erupt into violence and vandalism, as witnessed in civil disturbances during the Vietnam War and civil rights protests in the 1960s. Based on the civil unrest that has occurred in the past, it is unlikely there would be widespread damage to state buildings.

Future Development

Future development should have little to no impact on the terrorism or violence threat. Given the goals of eco-terrorists; however, future develop could serve as the basis for an event over controversial development.

Data Limitations

Most of this analysis was completed from articles and publications discussing civil unrest and terrorism. As is the nature of terrorism and major civil incidences, little specific information on the hazard exists. Facilities would need to be assessed at the site-specific level to determine their vulnerabilities to terrorism and violence. In addition, much of the information needed for a true hazard analysis of the terrorist threat in Montana and the associated vulnerabilities is considered non-public, and therefore, not contained in this document. Sensitive information is needed for an in-depth non-public hazard profile.

References

Council on Foreign Relations (COFR), 2004. Terrorism Questions and Answers. http://www.terrorismanswers.com/terrorism/cyberterrorism.html

Department of Homeland Security (DHS), 2003. Radiological Dispersion Devices Fact Sheet, February 2003. http://www.dhs.gov/dhspublic/display?theme=47&content=455

Federal Bureau of Investigation (FBI), 2002. The Threat of Eco-Terrorism. http://www.fbi.gov/congress/congress02/jarboe021202.htm

Federal Emergency Management Agency (FEMA), 2004. Backgrounder: Terrorism. http://www.fema.gov/hazards/terrorism/terror.shtm.

Montana Disaster and Emergency Services (DES), 2012a. State of Montana, Department of Military Affairs, Disaster and Emergency Services Division. List of Declared Disasters.

Montana Disaster and Emergency Services (DES), 2012b. Montana Threat and Hazard Identification and Risk Assessment (THIRA).

Southern Poverty Law Center (SPLC), 2013. Active US Hate Groups in 2012. http://www.splcenter.org/get-informed/hate-map#s=MT

4.4.12 Volcanic Eruptions

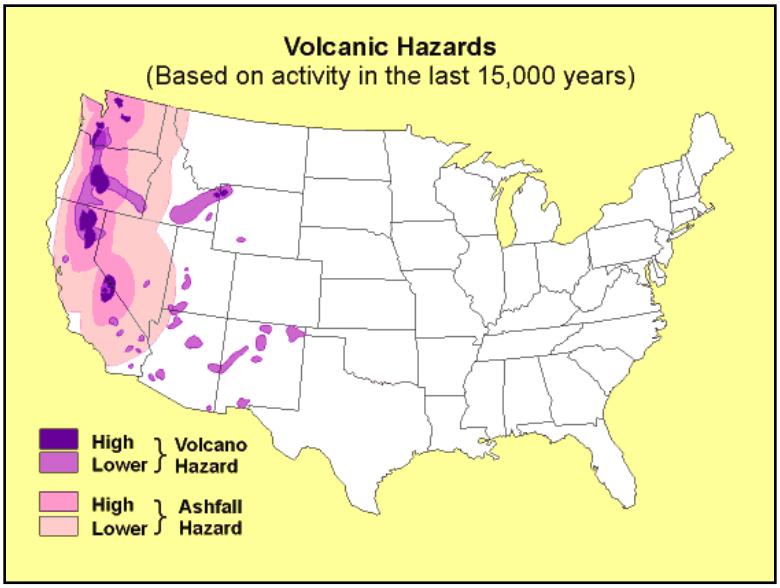
CPRI = 1.75

Volcanic eruptions are generally not a major concern in Montana due to the relatively low probability (compared with other hazards) of events in any given year. However, Montana is within a region with a significant component of volcanic activity and has experienced the effects of volcanic activity as recently as 1980 (the eruption of Mount St. Helens in the state of Washington).

There are 20 active or potentially-active volcanoes in the United States (**Figure 4.4.12-1**). The two volcanic centers affecting Montana in recent geologic time are: 1) the Cascade Range of Washington, Oregon and California; and 2) the Yellowstone Caldera in Wyoming and eastern Idaho. Volcanic eruptions in the Cascade Mountains are more likely to impact Montana than Yellowstone eruptions, based on the historic trends of past eruptions. The primary effect of the Cascade volcanic eruptions on Montana would be ash fall.

The distribution of ash from a violent eruption is a function of the weather, particularly wind direction and speed and atmospheric stability, and the duration of the eruption. As the prevailing wind in the mid-latitudes of the northern hemisphere is generally from the west, ash is usually spread eastward from the volcano. Exceptions to this rule do, however, occur. Ash fall, because of its potential widespread distribution, offers some significant volcanic hazards.

Figure 4.4.12-1 Volcanic Hazards (based on activity in the last 15,000 years).

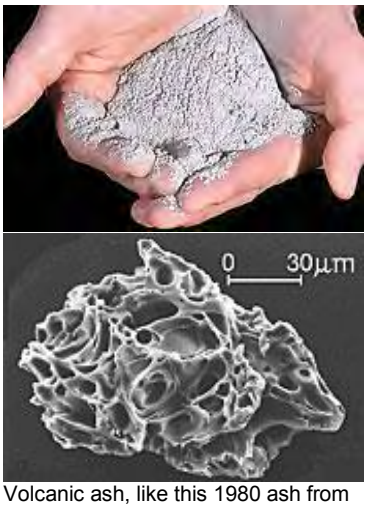


Areas in purple show regions at greater or lesser risk of volcanic activity, including lava flows, ashfall, lahar (volcanic mudflows) and debris avalanches, based on the record of the last 15,000 years, as compiled by Mullineaux (1976). Areas in pink show regions at risk of receiving 5 cm or more of ashfall from large or very large explosive eruptions originating at the volcanic centers shown in purple. These projected ashfall extents are based on observed ashfall distribution from a large eruption of Mt. St. Helens that took place 3,400 years ago, and the eruption of Mount Mazama that formed Crater Lake, Oregon, 6,800 years ago.

Volcanic ash can cause failure of electronic components, interrupt telephone and radio communications, and cause internal combustion engines to stall. Airborne particles of volcanic

ash can pose a health risk to people with respiratory conditions. **Table 4.4.12-1** describes the effects of volcanic ash.

TABLE 4.4.12-1
EFFECTS OF VOLCANIC ASH



Volcanic ash, like this 1980 ash from Mount St. Helens, is made up of tiny jagged particles of rock and glass (photo on bottom; magnified 200 times).

- Short-circuits and failure of electronic components, especially high-voltage circuits and transformers (wet ash conducts electricity).
- Eruption clouds and ashfall commonly interrupt or prevent telephone and radio communications.
- Volcanic ash can cause internal-combustion engines to stall by clogging air filters and also damage the moving parts. Engines of jet aircraft have suddenly failed after flying through clouds of even thinly dispersed ash.
- Roads, highways, and airport runways can be made treacherous or impassable because ash is slippery and may reduce visibility to near zero. Cars driving faster than 5 miles per hour on ash-covered roads stir up thick clouds of ash, reducing visibility and causing accidents.
- Ash also clogs filters used in air-ventilation systems to the point that airflow often stops completely, causing equipment to overheat.
- Crop damage can range from negligible to severe, depending on the thickness of ash, type and maturity of plants, and timing of subsequent rainfall.
- Like airborne particles from dust storms, forest fires, and air pollution, volcanic ash poses a health risk, especially to children, the elderly, and people with cardiac or respiratory conditions, such as asthma, chronic bronchitis, and emphysema.

Source: USGS, 2003b

History of Volcanic Eruptions Affecting Montana

Table 4.4.12-2 shows the thicknesses of recorded ash deposits in Montana. The most recent ash was deposited in May 1980 after the Mount St. Helens eruption in the state of Washington.

TABLE 4.4.12-2
RECENT VOLCANIC ASH EVENTS AFFECTING MONTANA

Volcano	Most Recent Eruption (Yrs before Present)	Location Affected	Thickness of Ash in Montana
Yellowstone Caldera	665,000	Eastern Montana	
Glacier Peak	14,500	Western Montana	1.2 inches (compacted)
Crater Lake (Mt. Mazama)	7,600	Western Montana	Up to 6 inches (compacted)
Mount St. Helens	32	Entire State	Up to 0.2 inches (uncompacted)

Source: DES, 1996; Sarna-Wojcicki and others, 1981; USGS, 2003a; Nimlos, 1981.

Figure 4.4.12-2 shows the distribution of ash fall from some historic volcanic eruptions.

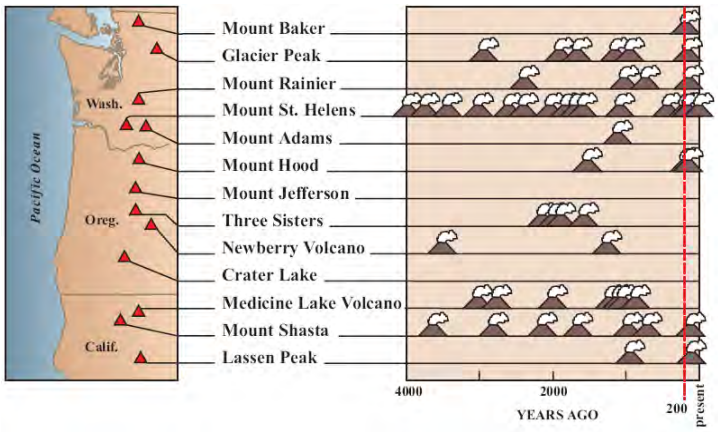
Figure 4.4.12-2
Areas of the U.S. Once Covered by Volcanic Ash
Source: USGS, 2005

Cascade Eruptions

The Cascade Range includes 27 volcanoes, many of which have been active in the last 4,000 years (**Figure 4.4.12-3**). The major threat these volcanoes pose to Montana is ashfall. The likely extent of such ashfall can be estimated on the basis of past eruptions.

After the eruption of Mount St. Helens in May 1980, a coating of up to 5.0 mm (0.2 inches) of ash fell on Western Montana (Sarna-Wojcicki and others, 1981). Ash deposits were thickest in the western portions of the state, tapering to near zero on the eastern part of the state (**Figure 4.4.12-2**). It is estimated that the ashfall cost Missoula County nearly $6 million in cleanup and lost work time. Statewide cost from this event has been estimated at between $15 and $20 million (DES, 2004).

Figure 4.4.12-3
Cascade Eruptions during the Past 4,000 Years
Source: USGS, 2008



Travel was restricted in Western Montana for over a week because of concerns for public health; the ash was determined to be a physical respiratory irritant but not a toxic substance. The main hazards in Western Montana included reduced visibility (and resulting closed roads and airports), clogging of air filters, and a health risk to children, the elderly, and people with

cardiac or respiratory conditions, such as asthma, chronic bronchitis, and emphysema. Claims for State facilities totaled approximately $55,000 (DES, 2004).

The 1980 Mount St. Helens eruption was not a large eruption by world historical standards or even among prior Cascade eruptions. The amount of volcanic material ejected into the air from Mount St. Helens in 1980 (less than one-tenth cubic mile) was only about 1/80th of the volume ejected during the 1815 eruption of the Tambora volcano in Indonesia and less than 1/100th of the estimated ejecta from Mount Mazama during the eruption that formed Crater Lake. Therefore, future eruptions of large Cascade volcanoes, including Mount St. Helens, might be much larger than the May 18, 1980 eruption (Foxworthy and Hill, 1982).

Yellowstone Eruptions

Another area of volcanic activity that has affected Montana in the past and could pose a serious threat in the future is the Yellowstone Caldera in northwestern Wyoming, just south of the Montana border. A caldera is a term for a large volcanic crater. The Yellowstone Caldera is 45 miles across at its greatest diameter. The spectacular geysers, boiling hot springs, and mud pots that have made Yellowstone famous are surface manifestations of a magma chamber at depth.

Cataclysmic eruptions 2.0, 1.3, and 0.6 million years ago ejected huge volumes of rhyolite magma; each eruption formed a caldera and extensive layers of thick pyroclastic-flow deposits. The caldera is buried by several extensive rhyolite lava flows that erupted between 75,000 and 150,000 years ago. Fortunately for mankind, an eruption comparable in magnitude with those of Yellowstone has not occurred during recorded history. Initial lava flows were confined to the immediate area of the vent, but later flows inundated the headwaters of the Yellowstone River, near Gardiner. Pyroclastic flows (the Huckleberry Ridge Tuff) extended up to 55 miles from the vents. **Figure 4.4.12-3** shows distribution of ashfall from Yellowstone's giant eruptions 2 million and 630,000 years ago, compared with ashfall from the 760,000-year-old Long Valley caldera eruptions at Mammoth Lakes, California, and the 1980 eruption of Mount St. Helens, Washington (Adapted from Sarna-Wojcicki, 1991).

Declared Disasters

The 1980 Mount St. Helens eruption covered most of the state with variable amounts of ash. Based on DES records, Lake County was the only Montana County to apply for state assistance (**Table 4.4.12-3**).

TABLE 4.4.12-3
STATE DECLARATIONS FOR VOLCANIC HAZARDS

Date	Pa. No.	Applicant	State	Local	Comments
1980	ST-80-1	Lake County	$ 8,320	$47,102	Volcanic Ash Fallout (Mt. St. Helens) & Flooding

Magnitude and Probability

The most likely event affecting Montana would be a Cascade volcano eruption causing ash fall in the western portion of the state. An ash fall event could cause equipment failure to the State's motor-pool and other motorized equipment. Clearing ash fall from the State's highways would cause extra resources devoted to the cleanup. The overall impact to State-owned facilities would be minor and primarily a response and recovery operation. A Yellowstone eruption could be devastating. While the immediate area would have the greatest exposure to ash flows, tephra fallout, and mudflows, heavy ash fall could have severe impacts on areas within 100 miles of the eruption. After the eruption of Mount St. Helens in May 1980, a coating of up to 0.2 inches cost the state between $15 and $20 million in cleanup and lost work time (DES, 2004). The trajectory of ash fall events is heavily dependent upon the size of the eruption and the prevailing weather and ambient winds.

Although the probability is minimal, there is the potential for a catastrophic volcanic eruption in the vicinity of Yellowstone National Park that would have very serious consequences for Montana and neighboring states. The probability of the volcanic eruption hazard is ranked as "unlikely"; with less than one event per 100 years. The State recognizes this probability for a major event as very low and when and if they do occur as a response and recovery evolution as well as a public health and education issue.

Vulnerability

Statewide Vulnerability

The U.S. Geological Survey has determined that two areas in Montana may have exposure to volcanic hazards:

- The extreme western edge of Montana (Lincoln, Sanders, and Mineral Counties) could be subject to ash fall of 5 mm or greater from eruptions of the Cascade Volcanoes.
- The southwestern corner of the state (portions of Madison and Gallatin Counties) could be subject to ash flows, lava flows, and lahars (ash/mudflows) from a Yellowstone eruption.

The primary hazard to which the State may be vulnerable at some future time, is ash fall from a Cascade volcano. Eruptions in the Cascades have occurred at an average rate of 1-2 per century during the last 4,000 years, and future eruptions are certain. Seven volcanoes in the Cascades have erupted in the last 200 years. The next eruption in the Cascades could affect hundreds of thousands of people. The effect in Montana would depend on the interaction of such variables as source location, frequency, magnitude and duration of eruptions, the nature of the ejected material and the weather conditions. Therefore, the entire state may be considered vulnerable to ashfall to some degree in the event of a volcanic eruption.

There is evidence that ash fall from a Yellowstone eruption could impact a far greater area and have significant impact on the southern half of Montana. Three major periods of activity in the Yellowstone system have occurred at intervals of approximately 600,000 years, and the most recent was about 600,000 years ago. The evidence available is not sufficient to confirm that calderas such as the one in Yellowstone erupt at regular intervals, so the amount of time elapsed is not necessarily a valid indicator of imminent activity. There is no doubt, however, that a large body of molten magma exists, probably less than a mile beneath the surface of Yellowstone National Park. The presence of this body has been detected by scientists who discovered that earthquake waves passing beneath the park behave as if passing through a liquid. The only liquid at that location that could absorb those waves is molten rock. The extremely high temperatures of some of the hot springs in the park further suggest the existence of molten rock at shallow depth. A small upward movement in the magma could easily cause this magma to erupt at the surface. If a major eruption occurred, the explosion would be "comparable to what we might expect if a major nuclear arsenal were to explode all at once, in one place" (Alt and Hyndman, 1986). **Figure 4.4.12-4** presents volcanic history and recent seismic activity in the Yellowstone region.

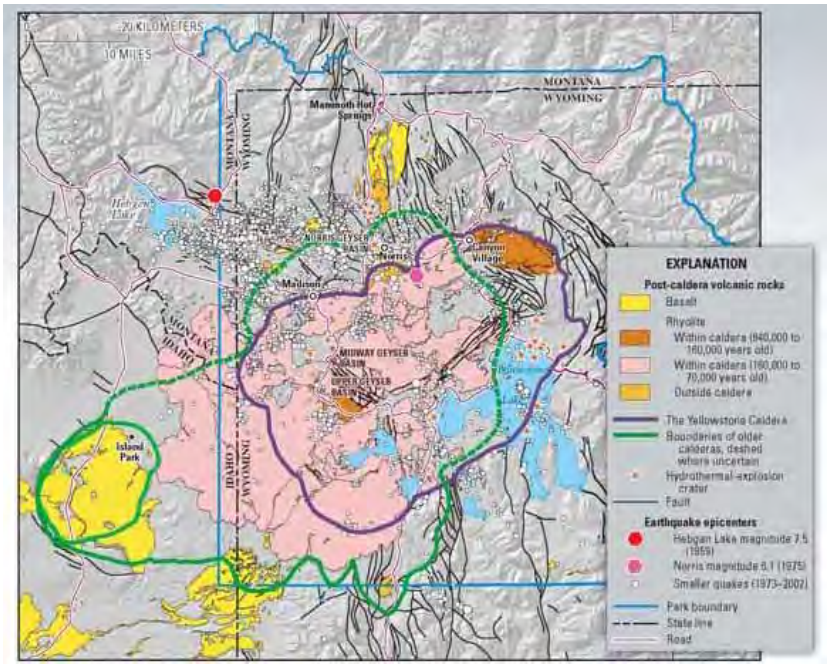


Figure 4.4.12-4
Volcanic History and Recent Seismic Activity in the Yellowstone Region
Source: USGS, 2005

Review of Potential Losses in Local PDM Plans

The *Local Plan Exposure Summary* table in the in the *Volcanic Eruption* section of **Appendix B** presents a summary of potential dam failure losses from the Local PDM Plans. Dam failure losses are described in terms of their effect on buildings, society, and the economy, as outlined below:

- Building exposure is presented either as a dollar value or high-moderate-low rating and typically refers to the vulnerability of residential structures and/or critical facilities from the hazard.
- Societal exposure is presented either as the number of lives at risk or as a high-moderate-low rating representing the vulnerability of human life from the hazard.
- Economic exposure is presented as a dollar value or high-moderate-low rating referring to the potential impact to the economy from the hazard.

Approximately, one-third of local plans evaluated the volcanic eruption hazard and two-thirds did not profile the hazard in their risk assessment. The majority of the local jurisdictions that evaluated the volcanic eruption hazard did so in a qualitative fashion ranking the hazard as low to moderate for building, societal and economic loss instead of giving loss estimates.

Vulnerability of State Property

Exposure to State-owned facilities can be classified into two types of events: a Yellowstone eruption causing ash flows and tephra fallout impacting the immediate area, and ash falls from either a Yellowstone eruption or a Cascade Volcano eruption blanketing portions of the state. Counties with greatest vulnerability are those that are located within 100 miles of Yellowstone Park. Those counties and the value of State-owned facilities are shown in **Table 4.4.12-4**.

TABLE 4.4.12-4
STATE BUILDING VALUES IN COUNTIES HIGHLY VULNERABLE TO YELLOWSTONE ERUPTION

County	Building Value	Contents Value	Total Value	State Employee Count
Gallatin	$879,948,787	$464,879,443	$1,344,831,473	3,243
Jefferson	$37,535,756	$9,284,871	$46,820,895	268
Madison	$29,667,028	$3,825,676	$33,492,727	23
Broadwater	$14,830,491	$10,393,876	$25,224,374	7
Park	$3,944,308	$1,365,652	$5,310,002	42
Carbon	$4,784,089	$467,225	$5,251,333	19
Stillwater	$1,736,864	$354,881	$2,091,754	9
TOTALS	**$972,447,323**	**$490,571,624**	**$1,463,022,558**	**3,611**

Source: DOA-RMTD, 2012

Future Development

As population increases in the west and southwest Montana and recreational usage is expanding, more and more people and property are at risk from ashfall associated with volcanic activity.

Data Limitations

Volcanic eruptions are somewhat unpredictable events and the ash fall is highly dependent on weather parameters. Generally, western and southwestern Montana are considered more vulnerable than other parts of state given their proximity to volcanic areas; however, the science of volcanoes and related effects do not allow for more specific analysis.

References

Alt, D. and Hyndman, D. 1986. Roadside Geology of Montana.

Foxworthy and Hill. 1982. Volcanic Eruptions of 1980 at Mount St. Helens, The First 100 Days: USGS Professional Paper 1249.

Montana Department of Administration (DOA), Risk Management and Tort Defense (RMTD) Division. 2009. Property Casualty Insurance Information System database of State facility building and content values. September, 2009.

Montana Disaster and Emergency Services (DES). 1996. State of Montana Hazard Mitigation Plan. Revised October 1996.

Montana Disaster and Emergency Services (DES). 2004. Federal and State Declared Disasters.

Mullineaux, D.R. 1976. Preliminary overview map of volcanic hazards in the 48 conterminous United States: U.S. Geological Survey Miscellaneous Field Studies Map MF-786, scale 1:7,500,000.

Nimlos, T.J. 1981. Volcanic Ash Soils in Montana. Bulletin 45, Montana Forest and Conservation Experiment Station, School of Forestry, Univ. of Montana, Missoula, MT.

Sarna-Wojcicki, A.M, and others. 1981. Aerial Distribution, thickness, mass, volume, and grain size of air-fall ash the six major eruptions of 1980. in U.S. Geological Survey Professional Paper 1250, p. 577-600.

U.S. Geological Survey (USGS). 2003a. Volcano Hazard Assessments. http://vulcan.wr.usgs.gov/Publications/hazards_reports.html

U.S. Geological Survey (USGS). 2003b. Volcanic Ash Fall–A "Hard Rain" of Abrasive Particles. U.S. Geological Survey Fact Sheet 027-00 Online Version 1.0. Authors: Christopher A. Kenedi, Steven R. Brantley, James W. Hendley II, and Peter H. Stauffer. http://geopubs.wr.usgs.gov/fact-sheet/fs027-00/

U.S. Geological Survey. 2005. Steam Explosions, Earthquakes, and Volcanic Eruptions—What's in Yellowstone's Future? USGS Fact Sheet 2005-3024. http://pubs.usgs.gov/fs/2005/3024/

U.S. Geological Survey. 2008. Eruptions in the Cascade Range During the Past 4,000 Years. Bobbie Myers and Carolyn Driedger. http://pubs.usgs.gov/gip/63/

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4.5 RISK ASSESSMENT SUMMARY

This section summarizes the results of the individual risk assessments presented under the hazard profiles. It should be noted that the limitations described under the individual risk assessments are valid for this section as well. **Table 4.5-1** presents hazard summary listing frequency, magnitude, and probability of future events.

TABLE 4.5-1
HAZARD SUMMARY

Hazard	# Incidents	Period of Record	Magnitude	Probability of Future Events
Wildfires	1,963(1)	21 years	$249.6M in suppression costs(1)	Highly Likely
Flooding	401(2)	17 to 95 years	$408.6M in property damage(2)	Highly Likely
Earthquakes	2(5)	55	29 fatalities $11M+ in damage(5)	Likely
Severe Summer Weather	2,456(2)	52 years	97 fatalities; $290.9M in property damage(2)	Highly Likely
Severe Winter Weather	2,935(2)	52 years	106 fatalities; $95.5M in property damage(2)	Highly Likely
Communicable Disease	16,378(3)	10 years	NA	Highly Likely
Hazardous Material Incidents	61(4)	23 years	$15.7M in property damage(4)	Highly Likely
Drought	21(5)	21 years	$665M economic damage(5)	Likely
Dam Failure	7(6)	61 years	30 fatalities >$100K in property damage(6)	Possible
Landslide	1(2)	8 years	$15.5M in highway damage(2)	Possible
Terrorism & Violence	0	50 years	NA	Unlikely
Volcanic Ash	1(5)	50 years	$20M(5)	Unlikely

Notes: Probability based on Methodology in Section 4.1
NA = Not Available; M = million
(1) Wildfire incidents and suppression costs from DNRC data only
(2) Data from SHELDUS (2012) adjusted for inflation
(3) Data from Montana Dept. Public Health and Human Services
(4) Data from U.S. Dept. Transportation, Office of Hazardous Materials Safety
(5) National Drought Mitigation Center
(6) Anecdotal information from historic accounts

This summary shows that communicable disease occurs more frequently than any of the other hazards followed by severe winter weather and severe summer weather. Hazards which have caused the most property damage are severe summer weather, followed by flooding and severe winter weather. In recent years, suppression of wildland fires has been more costly than the property damage caused by all other hazards combined. Drought has caused the most economic damage in the state.

Table 4.5-2 presents a summary of building stock and societal vulnerability with annual loss estimates, as appropriate. Of those with localized hazard areas, wildfire exposes the most building stock to damage, followed by earthquakes. Severe summer and winter weather expose the total building stock to damage.

Future Development

The Governor's executive budget for 2013 proposes the new major buildings listed below. **Figure 4.5-1** presents the composite of hazard prone areas in the State showing these future development projects.

- Low side housing: Montana State Prison, Deer Lodge
- Dept. Military Affairs Readiness Center: Malta
- Dept. Transportation Shops: Noxon, Terry & Shelby
- Dept. Transportation Office Building: Bozeman
- Science & Technology Building, MSU-B Campus, Billings
- Automotive Technology Center, MSU-N campus, Havre
- UM College of Technology: UM South Campus, Missoula
- Natural Resource Research Center: MT Tech-UM, Butte
- Montana Heritage Center: Capitol Complex, Helena
- Jabs Hall: MSU Campus, Bozeman
- Athlete Academic Center: UM Campus, Missoula
- Gilkey Executive Education Center: UM Campus, Missoula

Table 4.5-3 presents a matrix of each identified future development project, showing which hazards they will be exposed to. Data on proposed construction method and estimated cost were not available.

TABLE 4.5-2
VULNERABILITY ANALYSIS SUMMARY

Hazard	Building Value (Residential + Commercial/ Agricultural/ Industrial) Exposure n Hazard Area)	Building Number (Residential + Commercial/ Agricultural/ Industrial) Exposure in Hazard Area	Annual Loss - Building Stock	Critical Facility $ (Exposure in Hazard Area)	# Critical Facilities (Exposure in Hazard Area)	Annual Loss – Critical Facilities	Population in Hazard Area	Under 18 in Hazard Area
Wildland & Rangeland Fire	$39,996,284,364	245,819	$9,972,367	$2,155,438,974	465	$805,133	615,009	137,344
Flooding	$11,063,435,195	60,248	$241,903	$88,432,675	32	$6,227	291,120	65,172
Earthquakes	$35,950,138,027	171,279	NA	$2,956,899,751	426	NA	444,286	96,725
Severe Summer Weather	$176,982,321	747	$34,703	ND	ND	ND	40,176	9,409
Severe Winter Weather	$67,318,096,990	402,278	$1,786,743	$3,622,138,755	625	$58,511	989,415	223,559
Communicable Disease	NA	NA	NA	NA	NA	NA	NA	NA
Hazardous Material Incidents	$28,831,163,675	178,209	$113,685	$1,084,593,638	190	$509,414	590,847	130,253
Drought	NA	NA	NA	NA	NA	NA	NA	NA
Dam Failure	$11,462,379,801	80113	NA	$275,087,189	64	NA	260,710	59,750
Landslide	$23,642,295,762	136,942	NA	$255,268,474	89	NA	362,405	85,228
Terrorism	NA	NA	NA	NA	NA	NA	NA	NA
Volcanic Eruption	NA	NA	NA	NA	NA	NA	NA	NA

NA = Not Available. Magnitude cannot be calculated since historic property damage figures are not available.
ND = Not Determined. Severe summer weather events are points and therefore, did not intersect with critical facility locations.

Figure 4.5-1
Hazard Composite w/ Future Development Figure

TABLE 4.5-3
FUTURE DEVELOPMENT SUMMARY

Proposed Project	Hazard Areas											
	Wildfire	Flooding	Earthquake	Severe Summer Weather	Severe Winter Weather	Communicable Disease	Hazardous Material Incidents	Drought	Dam Failure	Landslide	Terrorism & Violence	Volcanic Eruption
Low side housing: Montana State Prison, Deer Lodge	Yes	No	No	Yes	Yes	Yes	No	No	No	No	Yes	No
DMA Readiness Center: Malta	Yes	No	No	Yes	Yes	Yes	Yes	No	No	Yes	Yes	No
MDT Shop: Noxon	Yes	Yes	No	Yes	Yes	Yes	No	No	Yes	No	Yes	No
MDT Shop: Terry	Yes	No	No	Yes	Yes	Yes	Yes	No	Yes	No	Yes	No
MDT Shop: Shelby	Yes	Yes	No	Yes	Yes	Yes	Yes	No	Yes	No	Yes	No
MDT Office Building: Bozeman	No	No	No	Yes	Yes	Yes	Yes	No	No	No	Yes	No
Science & Technology Building, MSU-B Campus, Billings	No	No	No	Yes	Yes	Yes	Yes	No	No	Yes	Yes	No
Automotive Technology Center, MSU-N campus, Havre	Yes	No	No	Yes	Yes	Yes	No	No	No	Yes	Yes	No
UM College of Technology: Missoula	Yes	No	Yes	Yes	Yes	Yes	Yes	No	No	No	Yes	No
Natural Resource Research Center: MT Tech-UM, Butte	Yes	No	No	Yes	Yes	Yes	No	No	No	No	Yes	No
Montana Heritage Center: Capitol Complex, Helena	No	No	Yes	Yes	Yes	Yes	Yes	No	No	No	Yes	No
Jabs Hall: MSU Campus, Bozeman	No	No	No	Yes	Yes	Yes	Yes	No	No	No	Yes	No
Athlete Academic Center: UM Campus, Missoula	Yes	No	Yes	Yes	Yes	Yes	Yes	No	No	No	Yes	No
Gilkey Executive Education Center: UM Campus, Missoula	Yes	No	Yes	Yes	Yes	Yes	Yes	No	No	No	Yes	No

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5.0 MITIGATION STRATEGY

Mitigation goals and objectives serve as the framework for future mitigation funding and project decisions. They shape the long term vision in the State of Montana for hazard mitigation. The prioritization of project requests and statewide initiatives will be representative of this strategy.

5.1 MITIGATION GOALS AND OBJECTIVES

For years, the federal, state, tribal, and local governments, business, organizations, and individuals have spent trillions of dollars recovering from disasters. Mitigation works to reduce those losses, both fiscal and those that cannot be given a price, such as a life or sentimental items, by preventing the losses and even sometimes the disaster. With a comprehensive overview of the hazards that threaten Montana, goals and objectives have been developed to mitigate potential losses from those hazards. These goals represent a global vision and a general direction for mitigation activities. The objectives are more specific and generally categorize the actions that can be taken to meet the goals.

Mitigation goals and objectives for the 2013 State Plan Update are consistent with those identified in the 2010 State Plan with the following changes: 1) hazard-specific goals were re-ordered to reflect the hazard ranking, 2) goals for the less frequent hazard which were grouped under one goal are now addressed in separate goals, 3) goals were introduced for the three hazards deferred in the 2010 State Plan (communicable disease, drought, and terrorism). Existing goals were reviewed and discussed at meetings of the State PDM Planning Team and local stakeholders, and input was solicited from the public via the project website. Changes made to the State of Montana mitigation goals and objectives are as follows:

TABLE 5.1-1
2013 MITIGATION GOALS AND OBJECTIVES

Goal	Hazard Mitigated	Change from 2010 Strategy
Goal 1	Wildfire, Flooding, Earthquake, Severe Summer Weather, Severe Winter Weather, Communicable Disease, Hazardous Material Incidents, Drought, Dam Failure, Landslides, Terrorism, and Volcanic Eruption	No change
Goal 2	Wildfire, Flooding, Earthquake, Severe Summer Weather, Severe Winter Weather, Communicable Disease, Hazardous Material Incidents, Drought, Dam Failure, Landslides, Terrorism, and Volcanic Eruption	No change
Goal 3	Wildfire	Previously Goal 9
Goal 4	Flooding	Previously Goal 5
Goal 5	Earthquakes	Previously Goal 4
Goal 6	Severe Summer Weather	Previously Goal 8
Goal 7	Severe Winter Weather	Previously Goal 10
Goal 8	Communicable Disease	Deferred in 2010
Goal 9	Hazardous Material Incidents	Previously Goal 6
Goal 10	Drought	Deferred in 2010
Goal 11	Dam Failure	Previously Goal 3
Goal 12	Landslides	Previously Goal 7.

TABLE 5.1-1 2013 MITIGATION GOALS AND OBJECTIVES		
Goal	**Hazard Mitigated**	**Change from 2010 Strategy**
Goal 13	Terrorism	Deferred in 2010.
Goal 14	Volcanic Eruption	Previously grouped with less frequent hazards.

The 2013 mitigation goals listed below are presented by hazard rank after the two All Hazard goals.

- **Goal 1** - Maximize the Use of Mitigation Actions that Prevent Losses from All Hazards
- **Goal 2** - Increase State's Capability to Provide and Assist Locals with Mitigation Opportunities
- **Goal 3** - Reduce the Community Impacts of Wildland and Rangeland Fires
- **Goal 4** - Mitigate the Potential Loss of Life and Property from Flooding
- **Goal 5**- Reduce Potential Earthquake Losses in Seismically Prone Areas
- **Goal 6** - Reduce Impacts from Severe Summer Weather
- **Goal 7** - Reduce Impacts from Severe Winter Weather
- **Goal 8** - Minimize Impacts from Communicable Disease Outbreaks
- **Goal 9** - Reduce Losses from Hazardous Material Incidents
- **Goal 10** - Reduce the Impacts from Drought
- **Goal 11** - Reduce Impacts from Dam Failure Hazard
- **Goal 12** - Reduce Impacts from Landslides
- **Goal 13** - Minimize Impacts from Terrorism
- **Goal 14** - Minimize Impacts from Volcanic Eruptions

5.2 MITIGATION PROJECTS

In Montana, most mitigation projects from construction projects to community outreach are done at the local level. County and city government typically make the decisions governing projects from project design to implementation for their jurisdictions. With a state the size of Montana, local officials know the problems and issues within their community's best. The variations in climate, terrain, and population make each jurisdiction unique. What may work in one community, may not work in another. Rather than dictating the projects that should be done at the local level, the State typically acts as a guide and resource. Continuing in this spirit, only projects that are statewide in nature are listed in this plan.

Mitigation projects are of two types: Planning Projects which included education, outreach, regulatory, and mapping projects, and Non-Planning Projects which were essentially construction or acquisition projects.

5.2.1 Mitigation Project Review

The PDM Planning Team was assembled on December 13, 2012 to review the 2010 mitigation strategy. Members of the team represented state agencies, several local jurisdictions, federal agencies, and/or non-profit organizations. Participating members were knowledgeable in hazard mitigation practices, project engineering, environmental review procedures, cost-benefit methods, vulnerabilities, and/or disaster services. Planning Team members evaluated the various components of each project including: project title, project ranking, state priority, implementation schedule, responsible agency, and funding source. The main emphasis however, was to document activities completed under each project since 2010 and planned activities for the next three to five years. Several projects were determined to be complete and several others were dropped due to redundancy. Reconciliation between the 2010 and 2013 mitigation strategy is included in **Appendix C**.

Table 5.2-1 presents the 2013 Montana Mitigation Strategy including projects completed since 2010. The following sections explain the methodology and/or describe the various fields presented in this table.

5.2.2 Prioritization Scheme

To prioritize projects, a general scoring system was utilized. This prioritization scheme was developed based on input received from Stakeholders in previous plan updates regarding what factors should be considered when prioritizing and selecting projects. These factors range from cost-benefit analysis, to details on the hazard being mitigated, to environmental impacts. Since planning projects are somewhat different than non-planning projects when it comes to reviewing them, different criteria were considered depending on the type of project.

Non-Planning Projects Ranking Criteria

- Estimated Cost
  - Very High = >$5,000,000 (1 point)
  - High = $1,000,000 to $5,000,000 (2 points)
  - Medium = $500,000 to $1,000,000 (3 points)
  - Low = $100,000 to $500,000 (4 points)
  - Very Low = <$100,000 (5 points)

- Population Benefit
  - Very High = 100% of State residents would benefit (5 points)
  - High = 60% to 80% of State residents would benefit (4 points)
  - Medium = 40% to 60% of State residents would benefit (3 points)
  - Low = 20% to 40% of State residents would benefit (2 points)
  - Very Low = <20% of State residents would benefit (1 point)

TABLE 5.2-1
MONTANA STATE PLAN UPDATE – 2013 MITIGATION STRATEGY

Goal	Objective	Project	Project Type	HML-Score	Numeric Score	State Priority	Schedule	Responsible Agencies
Goal 1: Maximize the Use of Mitigation Actions that Prevent Losses from all Hazards	Objective 1.1: Increase capability for continuity of government	Project 1.1.1 Migrate IT systems to central disaster resilient facilities.	Non-Planning	High	63	High	Completed	All State Agencies
		Project 1.1.2 Identify and protect essential government records in appropriate facilities.	Non-Planning	High	66	Medium	Mid-Range	Secretary of State
	Objective 1.2: Enhance warning capabilities	Project 1.2.1 Place NOAA weather radios in all state government offices.	Non-Planning	Medium	34	Low	Partially Complete Ongoing	All State Agencies
		Project 1.2.2 Promote use of NOAA weather radios in homes and when recreating (battery operated).	Planning	Medium	15	Low	Ongoing	National Weather Service
		Project 1.2.3 Recommend voluntary placement of NOAA weather radios in restaurants, gas stations, stores, day cares, movie theaters, baseball fields, and/or golf courses.	Planning	Medium	15	Low	Ongoing	National Weather Service
	Objective 1.3: Increase the public awareness of hazards.	Project 1.3.2 Promote hazard mitigation education in schools.	Planning	Medium	13	High	Ongoing	DES, Governor's Office of Community Service
	Objective 1.4: Continuously improve hazard assessments	Project 1.4.1 Determine GPS locations of all State buildings and infrastructure for detailed analysis.	Planning	High	16	High	Complete for State's essential facilities Short Range	All State Agencies, University System
		Project 1.4.2 Conduct a risk assessment that utilizes specific State building locations and infrastructure locations to be used for mitigation strategy.	Planning	Medium	15	High	Completed as part of 2013 Update	Dept. Administration, DES
		Project 1.4.3 Encourage local jurisdictions and tribal nations to geo-locate their critical facilities for use in risk assessment.	Planning	High	16	High	Ongoing	DES
		Project 1.4.4 Recommend that local and tribal PDM Plans conduct Level 2 HAZUS analysis for critical facilities.	Planning	Medium	14	Medium	Ongoing	DES
Goal 1: Maximize the Use of Mitigation Actions that Prevent Losses from all Hazards	Objective 1.4: Continuously improve hazard assessments	Project 1.4.5 Coordinate with NRIS to provide GIS layers for hazard mitigation planning that Counties and tribal nations can use.	Planning	High	16	High	Completed as part of 2013 Update	DES

TABLE 5.2-1
MONTANA STATE PLAN UPDATE – 2013 MITIGATION STRATEGY

Goal	Objective	Project	Project Type	HML-Score	Numeric Score	State Priority	Schedule	Responsible Agencies
Goal 1: Maximize the Use of Mitigation Actions that Prevent Losses from all Hazards	Objective 1.5 Protect cultural resources	Project 1.5.1 Plan for the protection of historic and cultural properties in hazard prone areas.	Planning	High	16	Low	Ongoing	Dept. Commerce-Montana Heritage Commission, Historical Society, Dept. Administration, Arts Council, Governor's Office of Indian Affairs, University System, FWP
Goal 2: Increase the State's Capability to Provide and Assist Local Jurisdictions and Tribal Nations with Mitigation Opportunities	Objective 2.1: Support mitigation planning at all levels.	Project 2.1.1 Provide mitigation benefit-cost analysis (BCA) training courses.	Planning	Medium	12	High	Ongoing	DES
		Project 2.1.2 Coordinate local and tribal PDM Plan Updates.	Planning	Medium	12	High	Ongoing	DES
		Project 2.1.3 Assist local jurisdictions and tribal nations fill out FEMA mitigation grant applications.	Planning	Medium	12	High	Ongoing	DES
		Project 2.1.4 Encourage DES staff to assist local and Tribal DES coordinators to develop a plan of action to complete their more feasible mitigation projects.	Planning	Medium	12	High	Ongoing	DES
		Project 2.1.5 Negotiate with FEMA to unify and simplify HMA grant process.	Planning	Medium	12	High	Ongoing	DES
		Project 2.1.6 Encourage HMA applicants to work more closely with federal counterparts and utilize their expertise and training relative to hazard mitigation.	Planning	Medium	12	Medium	Ongoing	DES
	Objective 2.2: Promote mitigation through supportive legislation and funding.	Project 2.2.1 Create a State-funded grant program to assist with the 25 percent PDM-C match for local and tribal governments.	Planning	Medium	12	High	Ongoing	DES, DNRC
		Project 2.2.2 Promote State programs that receive adequate funding to engage in mitigation planning and project implementation.	Planning	Medium	12	High	Ongoing	DES, Dept. Administration

TABLE 5.2-1
MONTANA STATE PLAN UPDATE – 2013 MITIGATION STRATEGY

Goal	Objective	Project	Project Type	HML-Score	Numeric Score	State Priority	Schedule	Responsible Agencies
Goal 2: Increase the State's Capability to Provide and Assist Local Jurisdictions and Tribal Nations with Mitigation Opportunities	Objective 2.2: Promote mitigation through supportive legislation and funding.	Project 2.2.3 Encourage local and tribal growth policies to consider natural and man-made hazards.	Planning	Medium	12	Low	Ongoing	DES
		Project 2.2.4 Promote mitigation awareness.	Planning	Medium	12	High	Ongoing	All State Agencies, DES
		Project 2.2.5 Explore economic incentives for mitigation (i.e. insurance premium discounts, state tax credits, etc.).	Planning	Medium	11	Medium	Mid-Range	DES, DNRC-Fire, FireSafe Montana
	Objective 2.3: Coordinate and establish priorities for hazard mitigation projects at all levels in the State of Montana.	Project 2.3.1 Continue outreach of mitigation project funding opportunities.	Planning	Medium	14	High	Ongoing	DES
		Project 2.3.2 Document mitigation successes.	Planning	Medium	12	High	Ongoing	DES
		Project 2.3.3 Continue to engage State agencies such as DMA, DOA, MDT, FWP and DNRC in the mitigation planning process.	Planning	Medium	12	High	Ongoing	DES
		Project 2.3.4 Increase the scope and participation of the State Planning Team during State PDM updates.	Planning	Medium	12	High	Ongoing	DES
Goal 3: Reduce Impacts of Wildland and Rangeland Fires	Objective 3.1: Reduce fuels in the WUI	Project 3.1.1 Conduct wildland fuel reduction on state property including parks, day-use facilities and highway rights-of-way.	Non-Planning	Medium	30	High	Ongoing	DNRC - Trust Lands, FWP, MDT
		Project 3.1.2 Encourage fuel reduction in the WUI and along evacuation routes on local jurisdiction, tribal nation, and privately owned lands.	Non-Planning	Medium	40	High	Ongoing	DNRC -Fire & Forestry Assistance, DES, FireSafe Montana, RC&Ds, BIA, Local and Tribal Jurisdictions
		Project 3.1.3 Encourage utilities, local jurisdictions, and private entities to conduct fuel reduction in right-of-ways along power lines and radio sites.	Non-Planning	Medium	34	High	Ongoing	Utilities, FireSafe Montana, DNRC - Fire, DES, Keep Montana Green, State Fire Marshall
		Project 3.1.4 Participate in the coordination of mitigation projects on federal lands adjacent to state/private holdings.	Non-Planning	Low	28	High	Ongoing	DNRC - Fire & Forestry Assistance, USFS, Dept. Interior, DES, Tribal Nations, FireSafe Montana
		Project 3.1.5 Encourage biomass utilization from wildland fuel mitigation projects.	Planning	Medium	11	High	Ongoing	DES, FireSafe Montana, DNRC - Fire & Forestry Assistance, FWP, State Fire Marshall

TABLE 5.2-1
MONTANA STATE PLAN UPDATE – 2013 MITIGATION STRATEGY

Goal	Objective	Project	Project Type	HML-Score	Numeric Score	State Priority	Schedule	Responsible Agencies
Goal 3: Reduce Impacts of Wildland and Rangeland Fires	Objective 3.1: Reduce fuels in the WUI	Project 3.1.6 Protect state structures in the WUI via fuel reduction	Non-Planning	Medium	34	High	Ongoing	DNRC, FWP
	Objective 3.2: Enhance community awareness of wildfires through education	Project 3.2.1 Promote public responsibility for defensible/ survivable space in the WUI.	Planning	High	17	High	Ongoing	DNRC - Fire, FireSafe Montana, Keep Montana Green, Governor's Office of Community Service, FWP, State Fire Marshall, Local Jurisdictions & Tribes, RC&Ds
		Project 3.2.2 Continue to support and fund the statewide FireSafe Montana organization that gathers, disseminates and assists counties and other political subdivisions with grant information, project development and operations.	Planning	Medium	14	Medium	Ongoing	BLM, DNRC - Fire, USFS
	Objective 3.3: Establish mapping or record keeping practices to support fuel management strategies	Project 3.3.1 Develop fire/fuel GIS layer for state lands.	Non-Planning	Low	28	Medium	Completed	DNRC - Fire
		Project 3.3.2 Compile WUI GIS layer from CWPPs.	Non-Planning	Medium	32	High	Completed	DNRC - Fire
		Project 3.3.3 Compile coordinated database of structures lost and saved for use in future risk and damage assessments.	Non-Planning	Medium	38	Medium	Short Range	DNRC - Fire, Dept. Justice-State Fire Marshall, BLM, USFS, BIA
Goal 4: Mitigate the Potential Loss of Life and Property from Flooding	Objective 4.1: Reduce the number of current and future structures in the floodplain.	Project 4.1.1 Encourage jurisdictions to pursue mitigation projects for repetitive loss structures or any severe repetitive loss properties identified in the future.	Non-Planning	Low	26	High	Ongoing	DES, DNRC-Water
		Project 4.1.2 Develop and improve upon model floodplain ordinances for local and tribal governments.	Planning	High	18	High	Completed; Annual updates	DNRC - Water
		Project 4.1.3 Encourage appropriate entities to obtain conservation easements for land in the floodplain.	Planning	Medium	15	Medium	Mid-Range	MDT, FWP, DNRC-Water, DES, Conservation Districts
	Objective 4.2: Mitigate flooding of structures and infrastructure.	Project 4.2.1 Encourage mitigation projects that upgrade undersized bridges that inhibit water flow or those with scour potential.	Non-Planning	Medium	32	High	Ongoing	DES, MDT, DNRC-Water

TABLE 5.2-1
MONTANA STATE PLAN UPDATE – 2013 MITIGATION STRATEGY

Goal	Objective	Project	Project Type	HML-Score	Numeric Score	State Priority	Schedule	Responsible Agencies
Goal 4: Mitigate the Potential Loss of Life and Property from Flooding	Objective 4.2: Mitigate flooding of structures and infrastructure.	Project 4.2.2 Encourage communities at risk from ice jam flooding to apply for mitigation grants to install ice jam mitigation systems.	Non-Planning	Medium	36	High	Ongoing	DES, Corps of Engineers
	Objective 4.3: Increase public awareness of flood mitigation.	Project 4.3.1 Continue to provide flood insurance education.	Planning	Medium	13	High	Ongoing	DNRC - Water, National Weather Service
		Project 4.3.2 Educate public on need to limit future development in the floodplain.	Planning	High	16	High	Ongoing	DNRC - Water
		Project 4.3.3 Educate home and business owners on utility tie-downs.	Planning	Medium	14	Medium	Mid-Range	DNRC - Water, DES, Dept. Labor & Industry-Building Codes
	Objective 4.4: Improve the effectiveness of flood insurance programs.	Project 4.4.1 Provide outreach and technical assistance in joining the NFIP Community Rating System for reducing flood insurance premiums.	Planning	Medium	13	High	Ongoing	DNRC - Water
		Project 4.4.2 Develop mapping for flood prone areas without maps.	Non-Planning	Low	26	High	Ongoing	DNRC - Water
		Project 4.4.3 Update floodplain mapping from approximate to detailed maps.	Non-Planning	Medium	34	High	Ongoing	DNRC - Water
		Project 4.4.4 Establish a schedule for National Flood Insurance Program map review and updates.	Planning	Medium	12	High	Ongoing	DNRC - Water
		Project 4.4.5 Encourage coordination between DES Coordinators, floodplain managers and land use planners.	Planning	Medium	12	High	Ongoing	DES, DNRC-Water, Local Jurisdictions, Tribal Nations
Goal 5: Reduce Potential Earthquake Losses in Seismically Prone Areas	Objective 5.1 Provide for earthquake resistance in new construction	Project 5.1.1 Integrate seismic resilience into significant building retrofits.	Non-Planning	High	63	High	Ongoing	Dept. Administration
		Project 5.1.2 Adopt seismic requirements of updated International Code Council.	Planning	High	18	Medium	Ongoing	Dept. Labor & Industry-Building Codes
	Objective 5.2: Educate the public in earthquake mitigation and readiness.	Project 5.2.1 Continue “Earthquake Preparedness Month” outreach activities during the month of October.	Planning	Medium	11	High	Ongoing	DES, Governor’s Office of Community Service
		Project 5.2.2 Continue presentations and distribution of earthquake preparedness materials, including encouraging steps such as anchoring hot water heaters.	Planning	Medium	11	High	Ongoing	DES, Governor’s Office of Community Service

TABLE 5.2-1
MONTANA STATE PLAN UPDATE – 2013 MITIGATION STRATEGY

Goal	Objective	Project	Project Type	HML-Score	Numeric Score	State Priority	Schedule	Responsible Agencies
Goal 5: Reduce Potential Earthquake Losses in Seismically Prone Areas	Objective 5.2: Educate the public in earthquake mitigation and readiness.	Project 5.2.3 Expand and upgrade the earthquake monitoring network and information reporting capabilities in high hazard areas.	Non-Planning	Medium	34	Medium	Mid-Range	Montana Bureau Mines & Geology
		Project 5.2.4 Quantify seismic hazards posed by faults.	Non-Planning	Medium	32	Medium	Ongoing	Montana Bureau Mines & Geology
	Objective 5.3: Seismically retrofit existing critical facilities/infrastructure and government assets.	Project 5.3.1 Survey and install utility shut-off valves at all state buildings in the intermountain seismic belt.	Non-Planning	High	60	High	Ongoing	DOA-General Services and A&E
		Project 5.3.2 At the Capitol Complex in Helena, seismically retrofit buildings with most vulnerability and highest occupancy to mitigate loss.	Non-Planning	Medium	48	High	Ongoing	Dept. Administration
		Project 5.3.3 At Montana University System campuses in the intermountain seismic belt, seismically retrofit most vulnerable and highest occupancy buildings.	Non-Planning	Medium	48	High	Ongoing	Dept. Administration, University System
		Project 5.3.4 At the Department of Corrections facilities in Deer Lodge, improve support systems and implement seismic upgrades to ensure security and maintain operation.	Non-Planning	Low	17	High	Mid-Range	Dept. Administration, Dept. Corrections
		Project 5.3.5 At the Montana State Hospital in Warm Springs, seismically harden buildings and expand support systems to assure continued operation and meet medical needs.	Non-Planning	Low	18	High	Mid-Range	Dept. Administration
		Project 5.3.6 At the Montana Developmental Center and Riverside in Boulder, implement seismic upgrades.	Non-Planning	Low	17	High	Mid-Range	Dept. Administration, Dept. Corrections, DPHHS
		Project 5.3.7 Conduct seismic evaluations of state-owned buildings in the intermountain seismic belt (including utility tunnels and infrastructure systems) to identify where seismic retrofits are necessary.	Non-Planning	Medium	38	High	Completed 2009-2012	Dept. Administration
		Project 5.3.8 Encourage local jurisdictions and tribal nations in the intermountain seismic belt to conduct seismic evaluations of their critical facilities.	Non-Planning	High	63	High	Ongoing	DES, Local Jurisdictions, Tribal Nations

TABLE 5.2-1
MONTANA STATE PLAN UPDATE – 2013 MITIGATION STRATEGY

Goal	Objective	Project	Project Type	HML-Score	Numeric Score	State Priority	Schedule	Responsible Agencies
Goal 5: Reduce Potential Earthquake Losses in Seismically Prone Areas	Objective 5.3: Seismically retrofit existing critical facilities/infrastructure and government assets.	Project 5.3.9 Encourage and educate homeowners and businesses in the intermountain seismic belt to implement seismic retrofit projects.	Planning	High	17	Medium	Ongoing	DES
		Project 5.3.10 Encourage private utilities in intermountain seismic belt to retrofit their systems for seismic stability.	Non-Planning	Low	26	High	Ongoing	DES, Utilities
	Objective 5.4: Implement non-structural mitigation projects to harden State and community assets and infrastructure from seismic hazards	Project 5.4.1 Implement non-structural projects such as anchoring utilities at state buildings in the intermountain seismic belt.	Non-Planning	Low	19	High	Mid-Range	All State Agencies, University System
Goal 6: Reduce Impacts from Severe Summer Weather	Objective 6.1: Increase community capabilities to mitigate summer weather hazards.	Project 6.1.1 Encourage utilities to bury electric lines that could blow down to improve reliability.	Non-Planning	Low	30	High	Ongoing	Utilities, DES, Local Jurisdictions, Tribal Nations, Public Service Commission
		Project 6.1.2 Modify vulnerable buildings to resist water penetration and wind damage.	Non-Planning	Medium	36	High	Ongoing	Dept. Administration, University System
	Objective 6.2: Increase public awareness of ways to mitigate summer weather hazards.	Project 6.2.1 Maintain partnership with National Weather Service and media to publicize Severe Weather Awareness Week to help educate public on preparedness and what to do when the warnings are issued.	Planning	High	16	Medium	Mid-Range	National Weather Service, DES, Governor's Office of Community Service
Goal 7: Reduce Impacts from Severe Winter Weather	Objective 7.1: Increase community capabilities to mitigate winter weather hazards.	Project 7.1.1 Encourage utilities to put their equipment underground in areas that are hit by extreme weather.	Non-Planning	Medium	36	High	Ongoing	Utilities, Local Jurisdictions, Tribal Nations, Public Service Commission, DES
		Project 7.1.2 Encourage utilities to apply for mitigation grants to install air flow spoilers on above ground utility lines.	Non-Planning	Medium	42	High	Ongoing	Utilities, Local Jurisdictions, Tribal Nations, Public Service Commission, DES
	Objective 7.2: Increase public awareness of winter weather hazards.	Project 7.2.1 Promote partnership with National Weather Service and media to publicize Winter Weather Hazards Awareness Week to help educate public on preparedness.	Planning	High	16	Medium	Ongoing	National Weather Service, MDT, Governor's Office of Community Service

TABLE 5.2-1
MONTANA STATE PLAN UPDATE – 2013 MITIGATION STRATEGY

Goal	Objective	Project	Project Type	HML-Score	Numeric Score	State Priority	Schedule	Responsible Agencies
Goal 7: Reduce Impacts from Severe Winter Weather	Objective 7.2: Increase public awareness of winter weather hazards.	Project 7.2.2 Encourage local jurisdictions and tribal nations to create partnerships with a private company for winter survival kits already put together that can be sold to the public at a reasonable price.	Planning	High	16	Medium	Mid-Range	Local Jurisdictions, Tribal Nations, DES
	Objective 7.3: Implement actions to enhance reliability of power supply.	Project 7.3.1 Publicize demonstrated ability of airflow spoilers to reduce power line failure.	Planning	High	16	High	Short Range	DES, Public Service Commission, Utilities
		Project 7.3.2 Encourage backup power at state, local, and tribal critical facilities	Non-Planning	Medium	36	Medium	Ongoing	DES
Goal 8: Minimize Impacts from Communicable Disease Outbreaks	Objective 8.1: Minimize the impacts communicable disease events have on public health.	Project 8.1.1 Conduct public health surveillance, disease investigations, and provide mitigation strategies.	Planning	High	16	High	Ongoing	DPHHS
		Project 8.1.2 Improve the timeliness and completeness of disease reporting.	Planning	High	16	High	Ongoing	DPHHS
		Project 8.1.3 Ensure Department Emergency Operations Plans (EOPs) and all associated annexes and procedures are current and complete.	Planning	High	16	High	Ongoing	DPHHS
		Project 8.1.4 Test and evaluate public health response plans.	Planning	High	16	High	Ongoing	DPHHS
Goal 9: Reduce Losses from Hazardous Material Incidents	Objective 9.1 Collect data to support mitigation projects	Project 9.1.1 Complete hazmat flow studies at highly vulnerable locations.	Non-Planning	Medium	40	Medium	Mid-Range	DES, MDT
		Project 9.1.2 Obtain hazmat incident property damage for use in future risk assessments.	Planning	Medium	11	Medium	Completed as part of 2013 Update	DES, MDT, State Auditor-Insurance Commission
Goal 10: Reduce the Impacts from Drought	Objective 10.1 Enhance planning efforts, public information, and education regarding drought	10.1.1 Increase the educational emphasis given to forest and range management practices for the minimizing of drought impacts.	Planning	Medium	12	Medium	Long Range	DNRC-Water
		10.1.2 Inventory operating plans of reservoirs to ensure drought contingency plans.	Planning	Medium	12	Medium	Long Range	DNRC-Water
		10.1.3 Develop and implement drought plans for state-funded reservoirs.	Planning	Medium	11	Medium	Long Range	DNRC-Water
		10.1.4 Encourage system of soil moisture gauges to monitor drought	Non-Planning	Low	15	Medium	Mid-Range	DNRC-Water
	Objective 10.2 Implement economic incentives to mitigate drought	10.2.1 Establish stronger economic and other incentives for private investments in water conservation.	Planning	Medium	11	Medium	Long Range	DNRC-Water

TABLE 5.2-1
MONTANA STATE PLAN UPDATE – 2013 MITIGATION STRATEGY

Goal	Objective	Project	Project Type	HML-Score	Numeric Score	State Priority	Schedule	Responsible Agencies
Goal 10: Reduce the Impacts from Drought	Objective 10.3 Implement actions to ensure water conservation during drought	10.3.1 Encourage voluntary water conservation by domestic, municipal, and industrial users.	Planning	Medium	13	Medium	Long Range	DNRC-Water
		10.3.2 Clarify state law so that water rights holders who conserve water are clearly allowed to sell or lease salvaged water in a manner that does not adversely affect water rights.	Planning	Medium	11	Medium	Long Range	DNRC-Water
	Objective 10.4 Enhance water storage capacity and irrigation conveyance.	10.4.1 Consider feasible water storage where it will increase water supply security such as development of catchment basins with wells and storage capacity and/or percolation ponds.	Non-Planning	Low	15	High	Mid-Range	DNRC-Water
		10.4.2 Improve water conveyance efficiencies in agricultural, municipal, and industrial uses.	Non-Planning	Low	14	Medium	Mid-Range	DNRC-Water
		10.4.3 Urge DNRC to adopt rules for irrigation water metering devices to resolve conflict on water short drainages.	Planning	Medium	12	Medium	Long Range	DNRC-Water
		10.4.4 Find ways to better expedite the resolution of water use conflicts and water rights enforcement during drought.	Planning	Medium	11	Medium	Long Range	DNRC-Water
	Objective 10.5 Implement appropriate regulations to mitigate drought.	10.5.1 Develop a model water conservation ordinance and funding of residential metering for use by municipalities and rural domestic water suppliers.	Planning	Medium	11	Medium	Long Range	DNRC-Water
		10.5.2 Establish a legal mechanism and process for expediting temporary changes in points of diversion and places of use to address exigencies caused by drought.	Planning	Medium	11	Medium	Long Range	DNRC-Water
Goal 11: Reduce Impacts from Dam Failure Hazard	Objective 11.1 Reduce the risk of dam failure	Project 11.1.1 Obtain digitized inundation maps for federally-regulated high hazard dams for risk assessment.	Planning	High	19	High	Completed as part of 2013 Update	DES
		Project 11.1.2 Repair state high hazard dams with deficiencies.	Non-Planning	Medium	42	High	Ongoing	DNRC - Water, FWP, Dept. Corrections, Dept. Commerce-MT Heritage Commission

TABLE 5.2-1
MONTANA STATE PLAN UPDATE – 2013 MITIGATION STRATEGY

Goal	Objective	Project	Project Type	HML-Score	Numeric Score	State Priority	Schedule	Responsible Agencies
Goal 11: Reduce Impacts from Dam Failure Hazard	Objective 11.1 Reduce the risk of dam failure	Project 11.1.3 Evaluate existing state dams for hazard classification.	Non-Planning	Medium	40	High	Short Range	DNRC - Water, DES, FWP, Dept. Corrections, Dept. Commerce-MT Heritage Commission
		Project 11.1.4 Keep Emergency Action Plans current.	Non-Planning	Medium	40	High	Ongoing	DNRC - Water, FWP, Dept. Corrections, Dept. Commerce-MT Heritage Commission
		Project 11.1.5 Exercise Emergency Action Plans every five years.	Non-Planning	Medium	34	High	Ongoing	DNRC - Water, FWP, Dept. Corrections, Dept. Commerce-MT Heritage Commission
		Project 11.1.6 Encourage continued participation of local and tribal DES in DNRC dam safety table top exercises.	Planning	High	16	High	Ongoing	DNRC - Water, DES
Goal 12: Reduce Impacts from Landslides	Objective 12.1: Reduce the risk that landslides will damage public property.	Project 12.1.1 Conduct proactive scaling and reducing of back slopes along highways.	Non-Planning	Low	13	Medium	Ongoing	MDT
		Project 12.1.2 Create a GIS layer of areas vulnerable to landslides using geology, soil type, slope and past occurrence.	Planning	High	16	Medium	Completed as part of 2013 Update	DES
Goal 13: Minimize Impacts from Terrorism	Objective 13.1: Prevent losses from acts f terrorism, violence, and civil unrest.	Project 13.1.1 Support mitigation-related goals, objectives, and actions of the Montana Homeland Security Strategic Plan.	Planning	High	16	Medium	Ongoing	DES
Goal 14: Minimize Impacts from Volcanic Eruptions	Objective 14.1: Identify and reduce losses from volcanic activity.	Project 14.1.1 Educate the public on how to respond to volcanic ash fall-out.	Planning	Medium	15	Low	Long-Range	DES

- Property Benefit
  - Very High = >$5,000,000 (5 points)
  - High = $1,000,000 to $5,000,000 (4 points)
  - Medium = $500,000 to $1,000,000 (3 points)
  - Low = $100,000 to $500,000 (2 points)
  - Very Low = <$100,000 (1 point)

- Feasibility
  - High = Technology available/legislative support or implementation very likely (3 points)
  - Medium = Technology available/legislative support difficult/implementation possible (2 points)
  - Low = No technology available/legislative support or implementation unlikely (1 point)

- Effectiveness/Sustainability
  - High = Project eliminates repetitive loss (3 points)
  - Medium = Project is effective but moderately sustainable (2 points)
  - Low = Project is effective but not sustainable (1 point)

- Hazard Frequency
  - High = Project mitigates a common hazard; occurs more than once a year (3 points)
  - Medium = Project mitigates a frequent hazard; occurs less than once a year but more than once a decade (2 points)
  - Low = Project mitigates an infrequent hazard; occurs less than once per decade (1 point)

- Hazard Magnitude
  - High = Hazard causes high damage and loss of life (3 points)
  - Medium = Hazard causes moderate damage and occasional loss of life (2 points)
  - Low = Hazard causes minor damage ad rarely loss of life (1 point)

Planning Project Ranking Criteria

- Estimated Cost (1 to 5 points, see above)
- Population Benefit (1 to 5 points, see above)
- Property Benefit (1 to 5 points, see above)
- Feasibility (1 to 3 points, see above)
- Effectiveness/Sustainability (1 to 3 points, see above)

Base-Plus-Risk Weighting Factor

Non-Planning project scores were enhanced depending on their ability of mitigate hazards in high population density areas. This Base-Plus-Risk weighting factor was determined as follows:

- Projects located in high population density areas (multiply score by 3)
- Projects located in moderate population density areas (multiply score by 2)
- Projects located in rural locations (multiple score by 1)

Final Ranking

Upon ranking a project in each of these categories, a total score was derived by adding together each of the scores. The project was then be ranking high, medium, or low based on the numeric thresholds listed in **Table 5.2-2**. A Mitigation Action Plan for each project containing their ranking is presented in **Appendix C**. Final ranking is shown in **Table 5.2-1**.

TABLE 5.2-2
NUMERIC THRESHOLDS FOR PROJECT RANKING

Non-Planning Projects		Planning Projects	
Priority	**Score**	**Priority**	**Score**
High	57-81	High	16-21
Medium	32-56	Medium	10-15
Low	9-31	Low	5-9

State Priority Rank

A second rank was assigned each project at the discretion of the Montana SHMO and Planning Team. A rank of high, medium, or low was determined based on the perceived need of the project to mitigate hazards and maintain continuity of government. **Table 5.2-1** presents the State Priority Ranking for each project. **Appendix C** contains a table of the 2013 mitigation strategy sorted by State priority.

5.2.3 Mitigation Project Implementation

The Mitigation Action Plan for the State of Montana considered several other facets of project implementation; funding sources, schedule and responsible entity. These items are further described below.

Implementation Schedule

Mitigation projects were assigned one of three categories as a tentative schedule for implementation; short-range, mid-range, and ongoing. Implementation of short-range projects will begin within the next three years (or before the next State Plan Update). Mid-range projects

will require some planning and likely require funding beyond what is currently allocated to the various agencies in the State's general fund. Projects in the mid-range category will generally begin implementation within the next three to six years. Many projects are currently being implemented by the various agencies and these are assigned to the ongoing category. These projects account a large percentage of the planning projects and are primarily under the All Hazard goals (Goals 1 & 2). The implementation schedule for Montana's mitigation projects are summarized in **Table 5.2-1** and outlined in the Mitigation Action Plan contained in **Appendix C**.

Agency Responsible for Implementation

The concept of hazard mitigation must be embraced by all Montana's state agencies, federal land management agencies, non-governmental organizations, and businesses. In order for progress to be made towards achieving Montana's mitigation strategy, agencies and organizations were assigned specific projects to incorporate into their mission of serving the public and/or protecting Montana's resources. The Planning Team assembled to review the State mitigation strategy represented at least half of the agencies and organizations assigned the responsibility for implementation of various mitigation projects. Other agencies and organizations will be invited to subsequent Planning Team meetings in order to have a meaningful mitigation strategy. Entities responsible for implementing Montana's mitigation strategy are summarized in **Table 5.2-1** and outlined in the Mitigation Action Plan contained in **Appendix C**.

5.2.4 Mitigation Funding Sources

Funding for mitigation projects can come from a multitude of sources. Some sources may be specifically designed for disaster mitigation activities, while others may have another overarching purpose that certain mitigation activities may qualify for. The majority of the funding sources are recurring through legislation or continued funding. Some, however, may be from an isolated instance of financial support. Whenever possible, creative financing is encouraged. Often, additional funding sources are found through working with other agencies or businesses to identify common or complementary goals and objectives.

Presently, mitigation in Montana is funded through a number of sources, primarily federal. These sources, though, are often met with a match of in-kind services. A description of each of the sources is presented in **Table 5.2-3**.

Additional funding sources may exist that can be used to advance mitigation priorities. These sources, although not explicitly used for mitigation, can be used to fund certain mitigation activities. In the future, these funding sources will be pursued whenever possible. In some cases, these funding sources have been used in the past and are currently being used in some local communities. A list of alternative funding sources can be found in **Table 5.2-4**.

TABLE 5.2-3
MITIGATION FUNDING SOURCES

Name	Description	Agency	Typical Funding
Community Assistance Program	Provides funding to States to assist communities in complying with NFIP requirements. Managed by Montana DNRC.	FEMA, NFIP	$145,000 per year
Community Fire Protection Program	Funding for mitigation delivered via USDA Forest Service and Private Forestry Coop Fire Program. Managed by Montana DNRC.	USDA Forest Service	FY11: $442,830 FY12: 495,940
Dam Safety Program	Provides funding to the State to promote dam safety through emergency action plans and exercises. Managed by Montana DNRC.	FEMA, State	$230,000 per year federal and $120,000 per year state
Flood Mitigation Assistance Program	Provides pre-disaster funding for repetitive flood loss property reduction. Since many homeowners are not interested in these opportunities, often the funds go unused. Managed by Montana DNRC.	FEMA	About $100,000 per year per homeowner
Hazard Mitigation Grant Program	Provides post-disaster mitigation funding. Managed by Montana DES.	FEMA	Varies with each disaster event. As small as $86,642 to as large as $7.6 million
Homeland Security Grants	Through multiple grants, provides funding for homeland security activities identified in the state and local strategic plans. Some projects can be considered mitigation. Managed by Montana DES.	DOJ, DHS	$103M from 2001-2010 for planning , security and prevention
Individual Assistance	Following a disaster, funds can be used to mitigate hazards when repairing individual and family homes.	FEMA/State	N/A
Map Modernization Program	Provides funding to establish or update floodplain mapping. Managed by Montana DNRC.	FEMA, NFIP	$300,000 per year with $100,000 state appropriation pending
National Fire Plan	Provides pre-disaster funding for primarily wildland fire mitigation, but also planning for all hazards. Managed by DNRC.	U.S. Land Management Agencies	FY10: $1,831,397 FY11: $2,456,153 FY12: $1,500,000
Pre-Disaster Mitigation Competitive Grants (PDMC)	Provides grants through a competitive process for specific mitigation projects, including planning. Managed by Montana DES.	FEMA	$14,046,038 from 2003 to 2012
Public Assistance	Following a disaster, funds can be used to mitigate hazards when repairing damages to a public structure or infrastructure. Managed by Montana DES.	FEMA/State	N/A
Reclamation and Development Grants Program	Provides funding from the interest income of the Resource Indemnity Trust Fund to local governments for dam safety and other water related projects. Managed by DNRC.	State, DNRC	$3,000,000

TABLE 5.2-4
ALTERNATIVE MITIGATION FUNDING SOURCES

Name	Description	Agency
AmeriCorps	Provides funding for volunteers to serve communities, including disaster prevention.	Corporation for National & Community Service
Community Development Block Grant (CDBG)	Often following a disaster, the state will receive a CDBG Supplement intended to do mitigation projects in the affected areas. In this instance, DES coordinates with the MT Dept of Commerce.	Montana Department of Commerce
Clean Water Act Section 319 Grants	Provides grants for a wide variety of activities related to non-point source pollution runoff mitigation.	EPA
Economic Development Administration Grants and Investments	Invests and provides grants for community construction projects, including mitigation activities.	U.S. Department of Commerce, EDA
Emergency Watershed Protection	Provides funding and technical assistance for emergency measures such as floodplain easements in impaired watersheds.	USDA, NRCS
Environmental Quality Incentives Program	Provides funding and technical assistance to farmers and ranchers to promote agricultural production and environmental quality as compatible goals.	USDA, NRCS
Forest Land Enhancement Program	Provides educational, technical, and financial assistance to help landowners implement sustainable forestry management objectives	U.S. Forest Service, DNRC
Housing and Urban Development Grants	Provides a number of grants related to safe housing initiatives.	U.S. Department of Housing and Urban Development
National Wildlife Wetland Refuge System	Provides funding for the acquisition of lands into the federal wildlife refuge system.	U.S. Fish, Wildlife, & Parks
North American Wetland Conservation Fund	Provides funding for wetland conservation projects.	U.S. Fish, Wildlife, & Parks
NRCS Conservation Programs	Provides funding through a number of programs for the conservation of natural resources.	USDA, NRCS
Partners for Fish and Wildlife	Provides financial and technical assistance to landowners for wetland restoration projects in “Focus Areas” of the state.	U.S. Fish, Wildlife & Parks
Planning Assistance to States	Provides assistance to States in the planning for the development, utilization, and conservation of water and related land resources.	USACE
Renewable Resource Development Grant	Provides funding to protect, conserve, or develop renewable resources, including water.	Montana DNRC, Conservation and Resource Development Division
Rural Development Grants	Provides grants and loans for infrastructure and public safety development and enhancement in rural areas.	USDA, Rural Development
Rural Fire Assistance Grant	Funds fire mitigation activities in rural communities	National Interagency Fire Center
SBA Pre-Disaster Mitigation Loan Program	Provides low-interest loans to small businesses for mitigation projects.	US Small Business Administration
Small Flood Control Projects	Authority of USACE to construct small flood control projects.	USACE
Streambank & Shoreline Protection	Authority of USACE to construct streambank stabilization projects.	USACE
Wetland Program Development Grants	Provides funding for studies related to water pollution prevention.	EPA

These lists of potential funding sources are not all inclusive. Many opportunities for mitigation funding exist both in the public and private sectors such as foundations and philanthropic organizations. New funding mechanisms are constantly being created while others are drying up. The funding sources targeted will depend on the specific project needing to be financed. Through continuous creativity and research, opportunities for mitigation in Montana will continue. Mitigation project funding sources are outlined in the Mitigation Action Plan contained in **Appendix C**.

5.2.5 Status of Montana Mitigation Strategy

Table 5.2-5 presents the status of Montana's mitigation strategy with details provided on progress made, activities planned and completed planning and non-planning types of projects. Funding sources associated with these projects are also included in the table. Most of the project funding has come from either FEMA in the form of HMGP, PDMC or National Earthquake Hazards Reduction Program grants or from the State of Montana. Funding for the 2013 Update to the State's Hazard Mitigation Plan allowed a number of mitigation projects associated with hazard data acquisition to be completed. These resources have allowed the State of Montana to move forward and complete a number of projects outlined in their mitigation strategy.

Mitigation construction projects have been ongoing across the State as funding is available. **Figures 5.2-1, 5.2-2, and 5.2-3** present a series of maps pinpointing the location of prior and ongoing mitigation construction projects compared to wildfire, flooding, and earthquake vulnerability maps, respectively. Many of the mitigation projects identified on these figures are local in nature, while others were or are being implemented by the state. **Table 5.2-6** outlines the completed and ongoing construction projects with details on ancillary (matching) funding sources.

TABLE 5.2-5
PROGRESS MADE, PLANNED ACTIVITIES, AND COMPLETED MITIGATION PROJECTS

Hazard	Number	Mitigation Action/Project	Status	Progress Made	Planned Activities	Funding Used
All Hazard	1.1.1	Migrate IT systems to central disaster resilient facilities.	**Project is Complete**	New Data Center behind MDT in Helena w/ redundant server in Miles City	None - Project is Complete	State Resources
All Hazard	1.1.2	Identify and protect essential government records in appropriate facilities.	Not yet implemented	No progress to report.	TBD.	State Resources
All Hazard	1.2.1	Place NOAA weather radios in all state government offices.	In progress	Purchased 100 radios; 70 go to locals/tribes and 30 for state agencies	Distribute weather radios to government offices	FEMA-HMGP
All Hazard	1.2.2	Promote use of NOAA weather radios in homes and when recreating (battery operated).	In progress	NWS is doing this.	NWS to continue to promote use.	National Weather Service
All Hazard	1.2.3	Recommend voluntary placement of NOAA weather radios in restaurants, gas stations, stores, day cares, movie theaters, baseball fields, and golf courses.	In progress	NWS is doing this. It is rolled into all their products.	Continue to promote voluntary placement of weather radios.	National Weather Service
All Hazard	1.3.2	Promote hazard mitigation education in schools.	In progress	The 2013 Montana State PDM Plan Update includes development of an educational curriculum for high school students on hazard mitigation which will be presented to the Montana Teacher's convention with a pilot program at the Helena Project of Alternative Learning in 2013.	Post curriculum on project website and promote availability to all school districts in Montana.	FEMA-PDMC (2013 State Plan Update)
All Hazard	1.4.1	Determine GPS locations of all State buildings and infrastructure for detailed analysis.	**Complete** for "essential facilities".	Spatial coordinates of selected state buildings (critical facilities) have been determined as part of 2013 State PDM Plan update. MDT has coordinates for bridges. Spatial coordinates were used in vulnerability analysis for the 2013 State PDM Plan Update.	Determine spatial coordinates for remaining state-owned buildings for use in future risk assessments.	FEMA-PDMC (2013 State Plan Update)
All Hazard	1.4.2	Conduct risk assessment that utilizes State building locations and infrastructure locations to be used for mitigation strategy.	**Project is complete**			
All Hazard	1.4.3	Encourage local jurisdictions and tribal nations to geo-locate their critical facilities for use in risk assessment.	In progress	Updated local PDM plans have done this. NRIS has some spatial coordinates available for local critical facilities with more accurate locations than HAZUS.	SHMO will continue to do this as applications come in to fund PDM updates.	DES
All Hazard	1.4.4	Recommend that local and tribal PDM Plans conduct Level 2 HAZUS analysis for critical facilities.	In progress	Some updated local PDM plans in the Intermountain Seismic Belt have done this.	SHMO will continue to recommend that this be part of scope of work when plans are updated.	FEMA-PDMC
All Hazard	1.4.5	Coordinate with NRIS to provide GIS layers for hazard mitigation planning that counties and tribal nations can use.	**Project is complete**	Will be completed as part of 2013 State PDM Update	Provide NRIS with GIS hazard layers used in 2013 State PDM analysis; dam inundation, flood, wildfire, earthquake, hazardous materials, landslide.	FEMA-PDMC

TABLE 5.2-5
PROGRESS MADE, PLANNED ACTIVITIES, AND COMPLETED MITIGATION PROJECTS

Hazard	Number	Mitigation Action/Project	Status	Progress Made	Planned Activities	Funding Used
All Hazard	1.5.1	Plan for the protection of historic and cultural properties in hazard prone areas.	In progress	Upgraded Main Hall at UM-Western.	TBD	State/University Funding
All Hazard	2.1.1	Provide mitigation benefit-cost analysis (BCA) training courses.	In progress	Since 2010, SHMO has offered BCA training in Coeur D'Alene (2010) a Dillon (2011), Billings (2012) and Missoula (2013) with about 70 in attendance.	SHMO is planning another BCA training in 2014.	DES
All Hazard	2.1.2	Coordinate local and tribal PDM Plan Updates.	In progress	Since 2009, PDMC funded the completion of 19 PDM plans (17 updates and 2 original plans).	DR-1996 HMGP funding will likely fund completion of PDM Updates for two universities, three Tribes, and 12 counties.	FEMA-HMGP
All Hazard	2.1.3	Assist local jurisdictions and tribal nations fill out FEMA mitigation grant applications.	In progress	Since 2009, the SHMO and staff have assisted with PDMC grant applications for 12 planning projects and 3 non-planning projects. They have also assisted local and tribal nations with HMGP grants for 10 planning projects, 16 non-planning projects, and 40 five percent projects.	Continue to assist counties and tribes as availability of funding permits.	DES
All Hazard	2.1.4	Encourage DES staff to assist local and tribal DES coordinators to develop plan of action to complete their more feasible and cost effective mitigation projects.	In progress	SHMO does this as part of his job.	Continue as time permits.	DES
All Hazard	2.1.5	Negotiate with FEMA to unify and simplify HMA grant process.	In progress	FMA/RFC/SRL grants are merging into one.	With each new disaster declaration state desires to do 406 mitigation on largest number of projects possible.	DES
All Hazard	2.1.6	Encourage HMA applicants to work more closely with federal counterparts and utilize their expertise and training relative to hazard mitigation.	In progress	No progress to report.	SHMO works on this as part of his job.	DES
All Hazard	2.2.1	Create a State-funded grant program to assist with the 25 percent PDM-C match for local and tribal governments.	In progress	Bill of this nature failed in 2009 legislature.	Identify bill sponsor in next legislature.	State Resources - DNRC
All Hazard	2.2.2	Promote State programs that receive adequate funding to engage in mitigation planning and project implementation.	In progress	SHMO does this as part of his job.	Hold mitigation workshops with state agencies during next PDM update.	DES
All Hazard	2.2.3	Encourage local and tribal growth policies to consider natural and man-made hazards.	Not yet implemented	No progress to report.	TBD	

TABLE 5.2-5
PROGRESS MADE, PLANNED ACTIVITIES, AND COMPLETED MITIGATION PROJECTS

Hazard	Number	Mitigation Action/Project	Status	Progress Made	Planned Activities	Funding Used
All Hazard	2.2.4	Promote mitigation awareness.	In progress	DES has developed a website (LetsMitigateMontana.com) and Facebook page to promote mitigation awareness	SHMO will continue to blog on mitigation and post to project website and Facebook.	FEMA-PDMC (2013 State Plan Update)
All Hazard	2.2.5	Explore economic incentives for mitigation (i.e. insurance premium discounts, state tax credits, etc.).	Not yet implemented	FireSafe Montana has been talking to insurance companies regarding discounts for landowners who do fuel mitigation.	SHMO will find an insurance conference to present at.	DES, FireSafe Montana
All Hazard	2.3.1	Continue outreach of mitigation project funding opportunities.	In progress	SHMO sent out letter out state-wide when DR-1996 HMGP funds became available encouraging Counties, Tribes, Cities and Towns, and Universities to take advantage of the funding opportunity to implement their mitigation projects. Applicant briefing on DR-4074 in Rosebud County and No. Cheyenne Nation.	SHMP intends to publicize future mitigation funding opportunities.	DES
All Hazard	2.3.2	Document mitigation successes.	In progress	DES has developed a website (LetsMitigateMontana.com) and Facebook page to promote mitigation success stories.	SHMO will continue to promote mitigation successes through blog posts on project website and Facebook. Add “best practices” portfolio to website.	FEMA-PDMC (2013 State Plan Update)
All Hazard	2.3.3	Continue to engage state agencies such as DMA, DOA, MDT, FWP and DNRC in the mitigation planning process.	In progress	MDT and DOA-A&E have applied for several sub-grants.	DES desires to brief cabinet members of new Montana administration. Hold mitigation workshops with state agencies.	DES
All Hazard	2.3.4	Increase the scope and participation of the State Planning Team during State PDM updates.	In progress	SHMO and contractor met with Dept. of Administration staff to identify state-owned and -leased facilities that are essential or house vulnerable populations for analysis in 2013 State Plan Update.	SHMO and contractor will meet individually with State agencies represented on the PDM Planning Team to work on mitigation strategy during 2013 update.	FEMA-PDMC (2013 State Plan Update)
Wildfire	3.1.1	Conduct wildland fuel reduction on state property including parks, day-use facilities and highway rights-of-way.	In progress	FWP has completed fuel mitigation at several Wildlife Management Areas and Fishing Access sites across the State including Painted Rock State Park (Ravalli Co.) and Mt. Haggin Game Range. MDT has completed fuel mitigation on McDonald Pass, around Bernice, and around Main Street in Jefferson City. Dept. Corrections has performed fuel mitigation around the Prison Industries facilities.	DNRC is planning a prescribed burn at the Beartooth Game Range to mitigate the wildfire hazard. Right-of-way projects include Highway 200 near Greenough, Dry Creek Road near Ovando, and highway east of Miles City containing a major power line.	State Resources

TABLE 5.2-5
PROGRESS MADE, PLANNED ACTIVITIES, AND COMPLETED MITIGATION PROJECTS

Hazard	Number	Mitigation Action/Project	Status	Progress Made	Planned Activities	Funding Used
Wildfire	3.1.2	Encourage fuel reduction in the WUI and along evacuation routes on local jurisdiction, tribal nation, and privately owned lands.	In progress	The Northern Rockies Coordinating Group (DNRC Fire Management offices and all Federal agencies) have established two committees to do this: the Fire Prevention Committee and the Fuels Committee.	More of the same too numerous to mention. FireSafe Montana is planning to establish two new councils to raise awareness, involve insurance agencies, and continue to hold workshops for the public.	Multi-Agency Resources
Wildfire	3.1.3	Encourage utilities, local jurisdictions, and private entities to conduct fuel reduction in right-of-ways along power lines and radio sites.	In progress	Fuel mitigation project was completed by NorthWestern Energy from Bernice south to Butte along major transmission line. Park Electric and Glacier Electric (rural electric cooperatives) have also engaged in fuel mitigation activities. The Stillwater Mine has performed fuel mitigation along the transmission line along the Boulder River that feeds their mine.	SHMO to present at annual convention of rural electric co-ops and will discuss fuel mitigation.	Utility and Private Funding
Wildfire	3.1.4	Participate in the coordination of mitigation projects on federal lands adjacent to state/private holdings.	In progress	Hauser Dam Road (BLM) including power line and along road. Scratchgravel Hills (BLM) and Unionville (USFS) in Lewis and Clark County. Clancy Creek (BLM) above town. Too many projects to mention.	Seeley Lake (USFS): Horseshoe West, Colts Summit, Auggie Fuels. This is an on-going effort with too many projects to mention.	Federal Funding
Wildfire	3.1.5	Encourage biomass utilization from wildland fuel mitigation projects.	In progress	As part of the Fuels for Schools Program, biomass boilers have been installed in: Darby, Victor, Thompson Falls, Philipsburg, Troy, Kalispell, Townsend and Eureka, the University of Montana-Western campus in Dillon and Deer Lodge Elementary Central Park Center. Also at the following private facilities: Stoltz Lumber in Columbia Falls and Boise Inc. in Bonner.	Biomass projects are being planned at the following private facilities: Silver City Sawmill in Lewis & Clark County, Columbia Falls Aluminum Plant in Flathead County, and the Correctional Enterprises Work Center in Deer Lodge.	State, Local, and Private Funding
Wildfire	3.1.6	Protect state structures in the WUI via fuel reduction.	New project.	New project for 2013 State Plan	Identify State structures in WUI and determine where fuel mitigation is needed. Secure funding for mitigation activities. Implement by hiring contractor to do work.	State Funding

TABLE 5.2-5
PROGRESS MADE, PLANNED ACTIVITIES, AND COMPLETED MITIGATION PROJECTS

Hazard	Number	Mitigation Action/Project	Status	Progress Made	Planned Activities	Funding Used
Wildfire	3.2.1	Promote public responsibility for defensible/survivable space in the WUI.	In progress	FireSafe Montana has informative website and brochures. They hold a conference every other year promoting responsibility for defensible/survivable space in the WUI. Northern Rocky Coordinating Group also has also had conferences. Fire Teams consistently promote this during fire season.	FireSafe Montana 2013 Conference in Libby, Helena, Miles City and Hamilton. On-going activities.	Non-Profit and Federal Agency Funding
Wildfire	3.2.2	Continue to support and fund the statewide FireSafe Montana organization that gathers, disseminates and assists counties and other political subdivisions with grant information, project development and operations.	In progress	FireSafe Montana has successfully engaged the insurance companies and is now getting support from State Farm and Farmers.	FireSafe Montana has organized an fund raising committee and will be targeting the railroads and oil companies during the next year for support. They plan to create a website that's a clearing house of all the other organizations sharing their same goals of wildfire prevention, preparedness, and mitigation.	Federal Funding
Wildfire	3.3.1	Develop fire/fuel GIS layer for state lands.	**Project is complete**	Veg layers from DNRC and USFS were combined to create the Land Fire Project used in the West-wide Assessment.	GIS layer will be continuously refreshed.	Federal and State Funding
Wildfire	3.3.2	Compile WUI GIS layer from Community Wildfire Protection Plans (CWPPs).	**Project is complete**	Will be used in the wildfire analysis for the State PDM 2013 Update.	Parcel lines will be used in future updates so WUI layers are more consistent between the counties.	FEMA-PDMC (2013 State Plan Update)
Wildfire	3.3.3	Compile coordinated database of structures lost and saved from wildfire for use in future risk and damage assessments.	In progress	Data on structures lost to wildfire is being compiled by DNRC. FireSafe Montana is looking at studies on saving structures from other states to apply in Montana.	Add information on what types of structures (i.e. garages, homes, etc.) and how many structures were saved as a result of firefighting efforts.	State Funding
Flooding	4.1.1	Encourage jurisdictions to pursue mitigation for repetitive loss structures or any severe repetitive loss properties identified in future.	In progress	Deer Lodge and Missoula Counties have HMGP acquisition projects through DR-1996.	Acquisitions planned in Musselshell County and Harlem/Blaine County.	FEMA-HMGP
Flooding	4.1.2	Develop and improve upon model floodplain ordinances for local and tribal governments.	**Project is complete**	DNRC rolled this out in September 2012.	Annual updates are planned.	State Funding - DNRC
Flooding	4.1.3	Encourage appropriate entities to obtain conservation easements for land in the floodplain.	In progress	NRCS made acquisitions around Roundup/Musselshell County.	Check into FWP acquisitions.	Federal Funding
Flooding	4.2.1	Encourage mitigation projects that upgrade undersized bridges that inhibit water flow or those with scour potential.	In progress	Kearny Lane Bridge/Madison Co. HMGP project through DR-1996 and Main Street Bridge/Deer Lodge PDMC Project (2010).	Potentially some for DR-4074.	FEMA-HMGP

TABLE 5.2-5
PROGRESS MADE, PLANNED ACTIVITIES, AND COMPLETED MITIGATION PROJECTS

Hazard	Number	Mitigation Action/Project	Status	Progress Made	Planned Activities	Funding Used
Flooding	4.2.2	Encourage communities at risk from ice jam flooding to apply for mitigation grants to install ice jam mitigation systems.	In progress	SHMO has promoted this but has been unsuccessful so far.	Trying to get Ennis and Twin Bridges to apply and possibly Townsend.	DES
Flooding	4.3.1	Continue to provide flood insurance education.	In progress	DNRC has public service announcement annually. NWS promotes NFIP on its website during flood awareness week and ice jam awareness day.	Continue these activities.	State Resources - DNRC
Flooding	4.3.2	Educate public on need to limit future development in the floodplain.	In progress	State is accomplishing this through ordinances and mapping.	Continue as funding allows	State Resources - DNRC
Flooding	4.3.3	Educate home and business owners on utility tie-downs.	In progress	No progress to report.	Part of NFIP outreach.	State Resources - DNRC
Flooding	4.4.1	Provide outreach and technical assistance in joining the NFIP Community Rating System for reducing flood insurance premiums.	In progress	A couple of Montana communities have been downgraded in CRS Program.	Future of program is unknown. May be a casualty of the fiscal cliff.	State Resources - DNRC
Flooding	4.4.2	Develop mapping for flood prone areas without maps.	In progress	DNRC has received funding for comprehensive mapping program that identifies areas subject to flooding.	Will continue as funding allows.	State Resources - DNRC
Flooding	4.4.3	Update floodplain mapping from approximate to detailed maps.	In progress	Working on Big Hole River now (FEMA/State/Local cooperative project).	There is money in the budget office ($100,000 per year for two years) for cost share to match FEMA. West Gallatin River will be mapped next.	State Resources - DNRC
Flooding	4.4.4	Establish a schedule for National Flood Insurance Program map review and updates.	In progress	DFIRMS have been completed or underway for 13 counties where 70% of the State's population reside.	Funding has been reduced to $300,000. DNRC has schedule.	State Resources - DNRC
Flooding	4.4.5	Encourage coordination between DES coordinators, floodplain managers and land use planners.	In progress	Local workshops have been held to get local planners, floodplain administrators and DES coordinators to know each other. DES participates in the Assoc. of MT Floodplain Managers. A resource seminar was held in July 2012 for County Commissioners and Floodplain Administrators. Missoula and Lincoln County floodplain managers received mitigation awards and have completed projects.	Continue these activities.	DES
Earthquake	5.1.1	Integrate seismic resilience into significant building retrofits.	In progress	Mathews Hall at UM-Western, Creative Arts Center at MSU-Bozeman, and Montana Law Enforcement Academy have secured funding for structural and/or non-structural retrofits	High performance building standards are being developed.	State Resources - Dept. Administration
Earthquake	5.1.2	Adopt seismic requirements of updated International Code Council.	In progress	2009 IBC adopted.	2011 IBC will be adopted.	State Resources - Dept. Administration

TABLE 5.2-5
PROGRESS MADE, PLANNED ACTIVITIES, AND COMPLETED MITIGATION PROJECTS

Hazard	Number	Mitigation Action/Project	Status	Progress Made	Planned Activities	Funding Used
Earthquake	5.2.1	Continue "Earthquake Preparedness Month" outreach activities during the month of October.	In progress	DES did not conduct earthquake outreach during 2012.	DES will conduct earthquake preparedness outreach during October 2013. MBMG will participate in the "Great American Shake Out".	DES
Earthquake	5.2.2	Continue presentations and distribution of earthquake preparedness materials including encouraging steps such as anchoring hot water heaters.	In progress	SHMO has been designated the Montana Earthquake Program Manager.	DES to develop earthquake awareness program	DES
Earthquake	5.2.3	Expand and upgrade the earthquake monitoring network and information reporting capabilities in high hazard areas.	In progress	Received funding and upgraded three stations to digital.	Continue as funding allows.	State Resources - MBMG
Earthquake	5.2.4	Quantify seismic hazards posed by faults.	In progress	No progress to report.	Pull together coalition and determine where maps exist. Acquire LiDAR data.	State Resources - MBMG
Earthquake	5.3.1	Survey and install utility shut-off valves at all state buildings in the intermountain seismic belt.	In progress	Utility shut-off valves are part of the projects at Montana Law Enforcement Academy in Helena and Creative Arts Center at MSU-Bozeman.	City of Helena Seismic Shut-off valves and Mathews Hall retrofit at UM-Western. Seismic resilience will be integrated into future building retrofits.	FEMA-PDMC & HMGP; Dept. Administration
Earthquake	5.3.2	At the Capitol Complex in Helena, seismically retrofit buildings with most vulnerability and highest occupancy to mitigate loss.	In progress	Completed Tier 1 seismic evaluations of Capitol Complex buildings and identified structural and non-structural vulnerabilities.	Seismic resilience will be integrated into future building retrofits. Highest priority is hangar housing Governor's plane at Helena airport.	FEMA/ State Resources - Dept. Administration
Earthquake	5.3.3	At Montana University System campuses in the intermountain seismic belt, seismically retrofit most vulnerable and highest occupancy buildings.	In progress	Completed Tier 1 seismic evaluations of University buildings and identified structural and non-structural vulnerabilities. Received PDMC grant to seismically retrofit Creative Arts Center at MSU-Bozeman.	Have pending HMGP project through DR-1996 to seismically retrofit Mathews Hall at UM-Western.	FEMA/ State Resources - University System/ Dept. Administration
Earthquake	5.3.4	At the Dept. of Corrections facilities in Deer Lodge, improve support systems and implement seismic upgrades to ensure security & maintain operation.	In progress	Completed Tier 1 seismic evaluations of Dept. Correction buildings and identified structural and non-structural vulnerabilities.	Seismic resilience will be integrated into future building retrofits.	FEMA/ State Resources - Dept. Administration
Earthquake	5.3.5	At the Montana State Hospital in Warm Springs, seismically harden buildings and expand support systems to assure continued operation & meet medical needs.	In progress	Completed Tier 1 seismic evaluations of Montana State Hospital buildings and identified structural and non-structural vulnerabilities.	Seismic resilience will be integrated into future building retrofits.	FEMA/ State Resources - Dept. Administration
Earthquake	5.3.6	At the Montana Developmental Center and Riverside in Boulder, implement seismic upgrades.	In progress	Completed Tier 1 seismic evaluations of several MDC buildings and identified structural and non-structural vulnerabilities.	Seismic resilience will be integrated into future building retrofits. State legislature is determining whether this facility will remain open.	FEMA/ State Resources - Dept. Administration

TABLE 5.2-5
PROGRESS MADE, PLANNED ACTIVITIES, AND COMPLETED MITIGATION PROJECTS

Hazard	Number	Mitigation Action/Project	Status	Progress Made	Planned Activities	Funding Used
Earthquake	5.3.7	Conduct seismic evaluations of state-owned buildings in the intermountain seismic belt (including utility tunnels and infrastructure) to identify where seismic retrofits are necessary.	**Project is complete**	Completed Tier 1 seismic evaluations of 114 state-owned buildings at 15 campus/locations and identified structural and non-structural vulnerabilities.	None - Project is Complete	FEMA/ State Resources - Dept. Administration
Earthquake	5.3.8	Encourage local jurisdictions and tribal nations in the intermountain seismic belt to conduct seismic evaluations of their critical facilities.	In progress	Local PDM Plan updates have identified this as a mitigation project. Without funding, implementation uncertain.	SHMO will continue to do this.	DES
Earthquake	5.3.9	Encourage and educate home owners and businesses in the intermountain seismic belt to implement seismic retrofit projects.	Not yet implemented	No progress to report.	TBD	DES
Earthquake	5.3.10	Encourage private utilities in intermountain seismic belt to retrofit their systems for seismic stability.	In progress	No progress to report.	SHMO plans to make presentation at annual meeting of rural electric cooperatives during October 2013 and encourage them to bury their transmission lines in vulnerable areas.	DES
Earthquake	5.4.1	Implement non-structural projects at state buildings in the intermountain seismic belt such as anchoring utilities.	In progress	Completed Tier 1 seismic evaluations of 114 state-owned buildings at 15 campus/locations and identified non-structural deficiencies. Received PDMC grant to seismically retrofit (including non-structural elements) Creative Arts Center at MSU-Bozeman. Have pending HMGP projects through DR-1996 to seismically retrofit (including non-structural elements) Mathews Hall at UM-Western and MT Law Enforcement Academy in Helena.	General Services Administration will implement non-structural projects as part of building maintenance.	FEMA/State Resources - GSA
Severe Summer Weather	6.1.1	Encourage utilities to bury electric lines that could blow down to improve reliability.	In progress	SHMO has met with rural electric cooperatives in southeast Montana.	SHMO plans to make presentation at annual meeting of rural electric cooperatives to encourage them to bury transmission lines.	DES
Severe Summer Weather	6.1.2	Modify vulnerable buildings to resist water penetration and wind damage.	In progress	No progress to report.	High performance building standards are being developed to address this project.	State Resources - Dept. Administration
Severe Summer Weather	6.2.1	Maintain partnership with National Weather Service and media to publicize Severe Weather Awareness Week to help educate public on preparedness.	In progress	NWS conducts media outreach (website, social media) on an annual basis. They have been doing local presentations and have posted YouTube videos and provide INWS text messages to cell phones.	NWS will continue outreach.	National Weather Service

TABLE 5.2-5
PROGRESS MADE, PLANNED ACTIVITIES, AND COMPLETED MITIGATION PROJECTS

Hazard	Number	Mitigation Action/Project	Status	Progress Made	Planned Activities	Funding Used
Severe Winter Weather	7.1.1	Encourage utilities to put their equipment underground in areas that are hit by extreme weather.	In progress	SHMO has met with rural electric cooperatives in southeast Montana.	SHMO plans to make presentation at annual meeting of rural electric cooperatives to encourage them to bury transmission lines.	DES
Severe Winter Weather	7.1.2	Encourage utilities to apply for mitigation grants to install air flow spoilers on above ground utility lines.	In progress	No progress to report.	Trying to get electric co-ops to apply under DR-4074.	DES
Severe Winter Weather	7.2.1	Promote partnership with National Weather Service and media to publicize Winter Weather Hazards Awareness Week to help educate public on preparedness.	In progress	NWS conducts media outreach (website, social media) on an annual basis. They have been doing local presentations and have posted YouTube videos and provide INWS text messages to cell phones.	NWS will continue outreach.	National Weather Service
Severe Winter Weather	7.2.2	Encourage local jurisdictions and tribal nations to create partnerships with a private company (such as Wal-Mart, Home Depot, etc.) for winter survival kits already put together that can be sold to the public at a reasonable price.	Not yet implemented	Governor's Office of Community Service has made preparedness "bags" available at no charge that come with a list of necessary supplies.	TBD	DES
Severe Winter Weather	7.3.1	Publicize demonstrated ability of airflow spoilers to reduce power line failure.	In progress	No progress to report.	SHMO to attend next rural electric co-op annual meeting and make presentation.	DES
Severe Winter Weather	7.3.2	Encourage backup power at state, local, and tribal critical facilities.	New project	New project for 2013 State Plan	Apply for based upon availability of disaster and non-disaster grant funds from FEMA.	DES
Communicable Disease	8.1.1	Conduct public health surveillance, disease investigations, and provide mitigation strategies.	New project	New project for 2013 State Plan	Increase percentage of communicable diseases reported to local health departments within 24 hours. Review inspections of licensed food establishments and provide each with educational material on food safety. Increase age-appropriate immunizations rates for vaccine preventable communicable diseases.	State Resources - DPHHS
Communicable Disease	8.1.2	Improve the timeliness and completeness of disease reporting.	New project	New project for 2013 State Plan	All local health departments will use the Montana Infectious Disease Information System (MIDIS)	State Resources - DPHHS

TABLE 5.2-5
PROGRESS MADE, PLANNED ACTIVITIES, AND COMPLETED MITIGATION PROJECTS

Hazard	Number	Mitigation Action/Project	Status	Progress Made	Planned Activities	Funding Used
Communicable Disease	8.1.3	Ensure Department Emergency Operations Plans (EOPs) and all associated annexes and procedures are current and complete.	New project	New project for 2013 State Plan	Develop Medical Surge Annex including provider Crisis Standards of Care, hospital bed availability reporting, and procedures for sharing clinical hospital staff. Incorporate Communicable Disease Epidemiological Annex including Outbreak Response Protocol.	State Resources - DPHHS
Communicable Disease	8.1.4	Test and evaluate public health response plans.	New project	New project for 2013 State Plan	Establish and maintain training and exercise calendar. Complete After Action Reports and Corrective Action Plans for exercises. Utilize Health Alert Network notification system to verify ability to contact all health jurisdictions within 24 hours of releasing significant message.	State Resources - DPHHS
Hazardous Material Incidents	9.1.1	Complete hazmat flow studies at highly vulnerable locations.	Mid-Range	No activities to report.	MDT will plan for this as funding allows.	State Resources - MDT
Hazardous Material Incidents	9.1.2	Obtain hazmat incident property damage for use in future risk assessments.	**Project is complete**	Part of 2013 State Plan Update. Used data from U.S. Dept. of Transportation Hazardous Materials Safety in State PDM risk assessment.	None - Project is Complete	FEMA-PCMD (2013 State Plan Update)
Drought	10.1.1	Increase the educational emphasis given to forest and range management practices for the minimizing of drought impacts.	New project	New project for 2013 State Plan	Request DNRC establish budget for education and outreach.	State Resources - DNRC
Drought	10.1.2	Inventory operating plans of reservoirs to ensure drought contingency plans.	New project	New project for 2013 State Plan	Request DNRC Dam Safety hold and review dam plans for this data.	State Resources - DNRC
Drought	10.1.3	Develop and implement drought plans for state-funded reservoirs.	New project	New project for 2013 State Plan	Request DNRC Dam Safety integrate this data into their plans.	State Resources - DNRC
Drought	10.1.4	Encourage system of soil moisture gauges to monitor drought.	New project	New project for 2013 State Plan	Request DNRC and Agriculture Dept. fund or request FEMA HMGP 5% project funding for system of soil gauges.	State Resources - DNRC
Drought	10.2.1	Establish stronger economic and other incentives for private investments in water conservation.	New project	New project for 2013 State Plan	Request assistance from commercial insurance companies.	State Resources - DNRC
Drought	10.3.1	Encourage voluntary water conservation by domestic, municipal, and industrial users.	New project	New project for 2013 State Plan	Request DNRC budget, fund and conduct public education and outreach.	State Resources - DNRC

TABLE 5.2-5
PROGRESS MADE, PLANNED ACTIVITIES, AND COMPLETED MITIGATION PROJECTS

Hazard	Number	Mitigation Action/Project	Status	Progress Made	Planned Activities	Funding Used
Drought	10.3.2	Clarify state law so that water rights holders who conserve water are clearly allowed to sell or lease salvaged water in a manner that does not adversely affect water rights.	New project	New project for 2013 State Plan	DNRC conduct legislative groundwork for 2015 legislative session with willing legislator.	State Resources - DNRC
Drought	10.4.1	Consider feasible water storage where it will increase water supply security such as development of catchment basins with wells and storage capacity and/or percolation ponds.	New project	New project for 2013 State Plan	DNRC apply for FEMA mitigation grants for a catchment basin with well head.	State Resources - DNRC
Drought	10.4.2	Improve water conveyance efficiencies in agricultural, municipal, and industrial uses.	New project	New project for 2013 State Plan	Request DNRC funding for pass through to local jurisdictions to implement in the field.	State Resources - DNRC
Drought	10.4.3	Urge DNRC to adopt rules for irrigation water metering devices to resolve conflict on water short drainages.	New project	New project for 2013 State Plan	Request DNRC to create and implement.	State Resources - DNRC
Drought	10.4.4	Find ways to better expedite the resolution of water use conflicts and water rights enforcement during drought.	New project	New project for 2013 State Plan	DNRC request Attorney General's office for assistance in development.	State Resources - DNRC
Drought	10.5.1	Develop a model water conservation ordinance and funding of residential metering for use by municipalities and rural domestic water suppliers	New project	New project for 2013 State Plan	Request DNRC, Dept. Agriculture and NRCS to form working group to create and implement.	State Resources - DNRC
Drought	10.5.2	Establish a legal mechanism and process for expediting temporary changes in points of diversion and places of use to address exigencies caused by drought.	New project	New project for 2013 State Plan	DNRC request Attorney General's office assistance.	State Resources - DNRC
Dam Failure	11.1.1	Obtain digitized inundation maps for federally-regulated high hazard dams for risk assessment.	**Project is complete**	Was completed as part of 2013 State PDM Plan Update.	None - Project is Complete	DES
Dam Failure	11.1.2	Repair state high hazard dams with deficiencies.	In progress	TSEP funding secured for repair of Flower Creek Dam in Libby.	State agencies will continue this activity as funding allows	State Resources
Dam Failure	11.1.3	Evaluate existing state dams for hazard classification.	In progress	This has been done in Hamilton/Ravalli County and in Lincoln County.	Done as needed on an application basis.	State Resources - DNRC
Dam Failure	11.1.4	Keep Emergency Action Plans current.	In progress	Updating EAPs required on annual basis. DNRC has system that tracks status.	Continue updating EAPs for State-owned dams.	State Resources - DNRC

TABLE 5.2-5
PROGRESS MADE, PLANNED ACTIVITIES, AND COMPLETED MITIGATION PROJECTS

Hazard	Number	Mitigation Action/Project	Status	Progress Made	Planned Activities	Funding Used
Dam Failure	11.1.5	Exercise Emergency Action Plans every five years.	In progress	2012: Pondera Co. Lake Francis; Toole Co. Cowpath and Sullivan; Powell Co. Prison Ranch Dams (Upper Taylor, Tin Cup, Kerns, Mud Lake, and Powell) and Miller Creek Dam; Lewis and Clark Co. ASARCO (Smelter) Dam. 2008 - 2011: Fallon Co. Baker Dam, Ackley; Hill Co. Bearpaw Dam, Beaver Creek Reservoir, Scott Coulee, and Bull Hook dams; Park Co. Cottonwood and Crazy Mountain Dams; Meagher Co. Newlan Creek Dam, Jackson Lake Dam, and Doggett Reservoir; Lewis and Clark Co. Northern Pacific Dam; Fergus Co. East Fork, Big Casino Creek, Hanson Creek, and Pike Creek Dams; Judith Basin Co. Wilson (Surprise Creek) Reservoir; Gallatin Co. Big Sky Dam, Big Sky Wastewater Ponds; Beaverhead Co. Lima Dam; Granite Co. Georgetown Lake (Flint Creek Dam); Wheatland and Golden Valley Co. Bair, Martinsdale, Lebo 1,2 & 3, Deadmans Basin, Voldseth, and Jawbone Dam; Ravalli Co. Tamarack Lake Dam; Lincoln Co. Flower Creek Dam; Teton Co. Eureka Dam; Deer Lodge Co. Warm Springs Ponds	Deer Lodge County - Warm Springs Ponds; Silver Bow County - Basin Creek; Carbon County - Cooney; Jefferson County - Delmoe; Big Horn County - Tongue River; Madison County - Cataract, Ruby, or Willow Creek; Rosebud County - Castle Rock/Colstrip)	State Resources - DNRC
Dam Failure	11.1.6	Encourage continued participation of local and tribal DES in DNRC dam safety table top exercises.	In progress	See list above under Project 11.1.5	DES and DNRC will continue to promote exercising EAPs for high hazard dams.	State Resources - DNRC & DES
Landslide	12.1.1	Conduct proactive scaling and reducing back slopes along highways.	In progress	No specific activity to report.	MDT will continue this as needed.	State Resources - MDT
Landslide	12.1.2	Create a GIS layer of areas vulnerable to landslides using geology, soil type, slope and past occurrence.	**Project is complete**	Landslide layer of this type was available from USGS and was used to complete the risk assessment for the 2013 State PDM Plan Update.	None - Project is Complete	FEMA-PDMC (2013 State Plan Update)
Terrorism & Violence	13.1.1	Support mitigation-related goals, objectives, and actions of the MT Homeland Security Strategic Plan.	New Project	New project for 2013 State Plan	TBD	DES
Volcanic Eruption	14.1.1	Educate the public on how to respond to volcanic ash fall-out.	New Project	New project for 2013 State Plan	TBD	DES

Figure 5.2-1 – Wildfire Construction Projects

Figure 5.2-2 – Flooding Construction Projects

Figure 5.2-3 – Earthquake Construction Projects

TABLE 5.2-6
COMPLETED/PLANNED MITIGATION CONSTRUCTION PROJECTS WITH MATCHING FUNDS

Hazard	Mitigation Project	Federal Share	Matching Funds
Flooding	Grant Creek Flood Mitigation Project	$3,000,000	$1,145,000 / Missoula County
	Powell County/City of Deer Lodge Flood Hazard Mitigation Project	$2,002,228	$667,409 / City of Deer Lodge & Powell County
	Blacktail Deer Creek City/County Flood Mitigation Project	$435,000	$160,260 / City of Dillon & Beaverhead County
	Harris Creek Bridge	$139,870	$62,330 / Custer County
	Fleshman Creek Flood Mitigation Project	$2,280,000	$760,000 / Park County
	Main Street Bridge, Deer Lodge	$1,191,304	$692,831 / MT Dept. of Transportation
	Trap Club Detention Pond	$518,669	$172,890 / Lewis & Clark County
	Deep Creek Flood Mitigation	$1,331,250	$443,750 / Broadwater County
	Moores Creek	$748,224	$249,408 / Madison County
	Valier Pump House	$141,191	$47,064 / Town of Valier
	Kearny Lane Bridge	$57,000	$19,000 / Madison County
	Travelers Home	$121,320	$40,440 / Granite County
	Cottonwood Creek	$523,910	$174,637 / Powell County
	Whitefish Stage Road	$298,000	$99,333 / City of Whitefish
	Acquisition 100 Main St, Deer Lodge	$56,270	$18,757 / City of Deer Lodge
	3417 Kehrwald Acquisition, Missoula	$119,190	$39,730 / City of Missoula
	Toledo Mine Road Culvert Replacement	$37,500	$12,500 / Madison County
	Little Bighorn River Flood Mitigation	$607,831	$202,610 / Crow Tribe
Wildfire	Helena South Hills Fuel Reduction	$102,956	$34,319 / City of Helena
	City of Helena Tenmile Creek Water Supply Fuel Reduction Project	$312,831	$104,277 / City of Helena
	City of Helena Open Lands Fuel Reduction	$308,998	$103,002 / City of Helena
	Ten Mile Fuel Reduction	$387,750	$129,250 / Lewis & Clark County
Earthquake	Creative Arts Center Seismic Retrofit	$746,921	$2,240,759 / MSU-Bozeman
	City of Helena Seismic	$334,800	$111,600 / City of Helena
	Mathews Hall Seismic Retrofit	$857,904	$285,968 / UM-Western
	Law Enforcement Academy	$94,209	$31,403 / State of Montana

5.3 LOCAL PLAN INTEGRATION

Once approved by the State, a Local PDM Plan can be incorporated into the State Hazard Assessment and Mitigation Strategy. This integration is done through a variety of means. First and foremost, the local plan automatically becomes an annex to the State Plan and the Montana Disaster and Emergency Plan. Second, specific plan contents are integrated into the State Hazard Assessment and Mitigation Strategy. This formal incorporation will occur on an annual basis during the yearly plan review and update.

Integrating the Local PDM Plans into the State Plan for the 2013 State Plan Update involved: 1) categorizing local projects consistent with State Plan goals and objectives; 2) compiling potential loss estimates from the local plans for buildings, society and the economy for each hazard profiled in the State Plan; and, linking the Local Plans electronically to the State Plan. Integration of local plans into the State Plan took place over approximately eight months from November 2012 through June 2013. As part of the 2013 State Plan Update, the Risk Assessment Template was updated (see **Appendix B**) as a tool for local jurisdictions to use at

their discretion. Having a more consistent methodology for local risk assessments will strengthen the State Plan by providing more consistent data for comparisons of loss estimates on a local level for the various hazards.

In the Mitigation Strategy, local projects that can be applied to statewide concepts will be integrated into the statewide strategy of potential actions. More importantly, the local mitigation strategies will assist the SHMO when reviewing project applications, providing technical assistance, and researching funding options.

An extensive review of the completed and ongoing mitigation projects listed in the local PDM Plans was conducted for integration into the 2013 State Plan Update. **Appendix C** contains a table developed to show how the State Mitigation Strategy is consistent with local mitigation projects. Some projects in the local plans are not consistent with the State Mitigation Strategy as they are response or preparedness projects rather than mitigation or involve implementation of concepts beyond the State's authorities (local regulations, levee recertification).

6.0 CAPABILITY ASSESSMENT

Montana is a large, diverse state. From the mountainous areas of the west to the open plains in the east, the state varies in climate, terrain, and hazards from one area to the next. This diversity is both an asset and a challenge when it comes to mitigation. The challenges of mitigation in a diverse state arise because what may work in one community may not work in another and priorities may vary significantly from county to county. This variety of priorities and projects, however, requires local governments to ultimately decide what mitigation measures and/or actions their community really needs. This process encourages creativity, effectiveness, and high levels of local involvement when it comes to mitigation projects. With this perspective in mind, mitigation is driven by the local governments and individuals in Montana. They typically initiate, develop, and implement mitigation projects.

6.1 STATE CAPABILITY ASSESSMENT

The state still plays an important role in creating opportunities, coordinating, and supporting mitigation actions. At the state level, mitigation is achieved through a number of departments in a variety of ways. Montana does not have one central mitigation office. Floodplain and fire issues are handled by different divisions within the DNRC while much of the mitigation grant funding is managed by the DES Division of the Department of Military Affairs. Again, this diversity can sometimes be a challenge; however, involving multiple agencies in mitigation allows for the integration of mitigation into other programs and the opportunity for active participation across state government. The Montana Seismic Project (described under the Earthquake Program in *Section 6.1.2*, below) and the availability of additional DFIRM maps (see Map Modernization Program in *Section 6.1.2*, below) have enhanced mitigation opportunities since the State Plan was last updated in 2010. Hazard management capabilities of the State have not changed since approval of the previous State Plan update, with one exception; mitigation funding associated the DR-1996 allowed for the hiring of an assistant to the SHMO.

Having two full time employees dedicated to mitigation has enhanced the State's capabilities to coordinate and support mitigation actions. However, it is still a very challenging feat to achieve and implement some of the many mitigation action items identified in the plan due to the inter-agency coordination required and lack of funding for project implementation. It would facilitate the mitigation effort if every affected state agency had a dedicated staff position with emergency management responsibilities accountable for implementing their portion of the State's mitigation strategy, to coordinate with the SHMO on mitigation actions, and to participate on the State PDM Planning Team. Mitigation responsibilities should be written into job descriptions.

Another key element in implementing identified mitigation actions from the State PDM Plan is that Montana is a home rule state and the real power to initiate and implement mitigation action items lies with the local jurisdictions. The State of Montana feels it continues to be moderately successful in convincing all our local and Tribal Nation jurisdictions not only to update their local

PDM Plans at or before the five year point but also to promote and select the best, most cost effective mitigation non-planning projects that prevent the most loss of life and property damage.

A key success of several mitigation action items from the 2010 State of Montana Plan is that several state agencies have become engaged in and applying for mitigation non-planning PDM grants to protect or mitigate State infrastructure from natural hazards such as replacement of a bridge compromised by flooding and seismic retrofits of state-owned buildings. These successes are described in other sections of the plan.

Funding for the 2013 Update to the State's Hazard Mitigation Plan allowed a number of planning projects identified in the 2010 mitigation strategy to be completed. These projects involved acquisition of hazard data for use in the risk assessment such as spatially locating the State's essential facilities and digitizing inundation maps for the high hazard dams, among others. The enhanced data allowed for a more focused vulnerability analysis which will ultimately identify new mitigation actions to protect life and property on the local level.

Although hampered by severe limitations, the State of Montana continues to attempt to implement as many mitigation action items as is realistically possible. If FEMA cuts funding for PDM grants then most local jurisdictions will not update their plans.

6.1.1 State Mitigation Structure

State Hazard Mitigation Officer (SHMO)

The SHMO leads the mitigation planning effort in Montana. The SHMO in Montana is part of the Department of Military Affairs, DES and is one of two full time employees devoted to mitigation in DES. Due to the HMGP funding available from DR-1996, the SHMO will have a full time assistant through 2014 to help with coordination of the HMGP and PDM programs. Presently, the essential responsibilities of the SHMO include:

- Coordinate and implement the Pre-Disaster Mitigation and Hazard Mitigation Grant Programs from application development, grant management and grant closeouts
- Maintain the Montana Hazard Mitigation Plan
- Maintain the Montana Hazard Mitigation Administrative Plan
- Review local mitigation plans
- Provide mitigation training to state and local officials
- Develop mitigation partnerships
- Lead the State PDM Planning Team

DES District Representatives

The DES District Representatives act on behalf of Montana DES and are primarily responsible for assisting local and tribal governments with the development of their emergency management program which includes mitigation projects and planning. The district representatives are the main conduit for implementation of various emergency management, federal, state and division initiatives affecting local and tribal government. There are six DES District Representatives within the state (see **Figure 4.3-1** for a map showing the DES districts).

State Floodplain Management and Dam Safety

The DNRC, Water Resources Division coordinates the National Flood Insurance Program and the associated Community Assistance Program, Flood Mitigation Assistance Grant, and Community Rating System program in Montana. The Dam Safety Program is also coordinated by the DNRC and includes the permitting of 154 high-hazard dams within the state. The Water Projects Bureau at DNRC manages 35 high-hazard dams owned by the state. Federal dams are not included in the permitting process.

State Fire Prevention and Education

The DNRC, Forestry Division coordinates the fire mitigation programs in the State of Montana, including the National Fire Plan. The National Fire Plan and associated mitigation programs are managed by one full-time employee and two part-time employees funded by federal grants. DNRC protects 50 million acres of state and private forest and watershed lands.

Montana Governor's Drought and Water Supply Advisory Committee

The drought and water supply advisory committee serves as a clearinghouse for the sharing of water supply and moisture conditions on a monthly basis among state and local agency officials with responsibility to manage natural resources and support constituents most likely affected by drought. The drought statute provides guidance on the membership of the committee and its responsibilities, including development of a state drought plan which specifies actions to be taken that correspond with the state of current and expected conditions. In its monthly assessment of conditions, the committee considers various scientific indicators that quantify and forecast precipitation, mountain snowpack, streamflow, soil moisture, reservoir contents, and agricultural and livestock production. The committee also provides planning support and information sharing with watershed groups and county drought committees through this Internet website and staff contact.

State voting member agencies include the Governor's Office, DNRC, DEQ, FWP, Agriculture, Livestock, Commerce, and Disaster Services. Federal reporting partners include the Bureau of Reclamation, U.S. Geological Survey, Natural Resource Conservation Service, Agricultural Statistics Service, and the National Weather Service. Other reporters include the multi-agency

Northern Rockies Coordination Center for fire conditions, Montana Tech's Groundwater Information Center, Montana Climate Office, USDA Farm Service Agency, U.S. Congressional delegation representatives, U.S. Small Business Administration, Rural Development, and Montana State University Extension Service. The committee chair is held by the Governor's representative, traditionally the Lieutenant Governor. The committee is required to meet in April and October at a minimum and monthly between those months as warranted by current and expected conditions.

Department of Public Health and Human Services (DPHHS)

A goal of the Public Health and Safety Division of DPHHS is to improve the health of Montanans to the highest possible level with objectives to prevent and control communicable disease, and to prepare the public health system to respond to public health events and emergencies. The Public Health and Safety Division continuously monitors: the proportion of children (19-35 months) fully immunized and the number of local jurisdictions that participate in a public health emergency exercise every other year as measurement in achieving this goal.

Governor's Office of Community Service (OCS)

The OCS is engaged in earthquake outreach activities and information distribution. They also help publicize Severe Weather Awareness week in conjunction with the National Weather Service via social media. OCS coordinates the Winter Ready Montana call-to-service initiative, which includes winter hazard awareness outreach and information distribution.

Homeland Security

The Montana Homeland Security Senior Advisory Committee is the key organization coordinating homeland security programs in Montana. Many agencies from across the state are represented on this committee. The State Strategic Plan addresses mitigation opportunities. for homeland security. Through this plan, mitigation of terrorist events are included by the Homeland Security staff within DES.

State PDM Planning Team

The State PDM Planning Team is a team of state, federal and local officials called upon by the SHMO or Governor's Authorized Representative when needed for additional mitigation support. Typically, this additional support is requested annually (or more frequently) to review mitigation actions, project applications, priorities and problem areas. For additional information on the members of the PDM Planning Team, see **Appendix A**. The responsibilities of the State PDM Planning Team include:

- Participating in planning meetings and report development.
- Coordinate mitigation activities for their agency.
- Assist with project selection, ranking and development.

6.1.2 Pre-Disaster Mitigation Policies, Programs, and Capabilities

Pre-disaster mitigation programs have been the cornerstone of mitigation in Montana. Reducing/mitigating disasters before they occur and not just after they happen is essential to mitigating losses. If PDM funding is discontinues, mitigation in Montana will be drastically reduced in scale and may become ineffective and sporatic.

Pre-Disaster Mitigation Program

Montana's PDM Program consists of planning projects and non-planning (construction) projects. The following sections describe each with tables showing projects completed to date.

Pre-Disaster Mitigation Planning Projects

The PDM Program is making an impact in Montana. All but one of Montana's 56 counties and seven tribes have completed Pre-Disaster Mitigation Plans and many are in good standing. **Figure 6.1-1** shows the planning status of counties in Montana. **Table 6.1-1** presents the funding provided for PDM Planning Projects since 2004. Meagher County is the only county which has not completed a PDM Plan. At present, Garfield, Powder River, and Roosevelt Counties have expired PDM Plans and have not applied for funding to update their plans. Ten (10) county and three tribal plans will be updated during 2013 with post-disaster HMGP funds from DR-1996. The State's approach to reviewing, coordinating and integrating local mitigation plans has allowed for all but one county plan to be included in this State Plan update. These plans are linked to the State Plan electronically (see **Appendix D**).

The State most strongly encourages county and tribal nations to update their plans prior to or if they reach their five year expiration dates with either a PDMC Planning grant of HMGP planning application. The State realizes that local jurisdictions cannot be forced to update their PDM Plans but has been successful in convincing most counties and tribes to do so. Although all counties are encouraged to do so, the State was and is most concerned with keeping the largest clusters of population protected with PDM Plans.

In order to improve the local plans, the standardized Risk Assessment Template (developed for the 2010 State Plan update) was enhanced with an updated methodology. The Risk Assessment Template standardizes the way "risk" is looked at so that a comparable approach can be used in future local plan updates (see **Appendix B**). Local plans may also improve through the availability of county- and city-level risk assessment documentation in the State Plan. This will enhance coordination between counties and tribes where hazard vulnerability crosses jurisdictional lines. The State Plan will serve as a reference document for future local

Figure 6.1-1 Planning Status of Local Montana PDM Plans

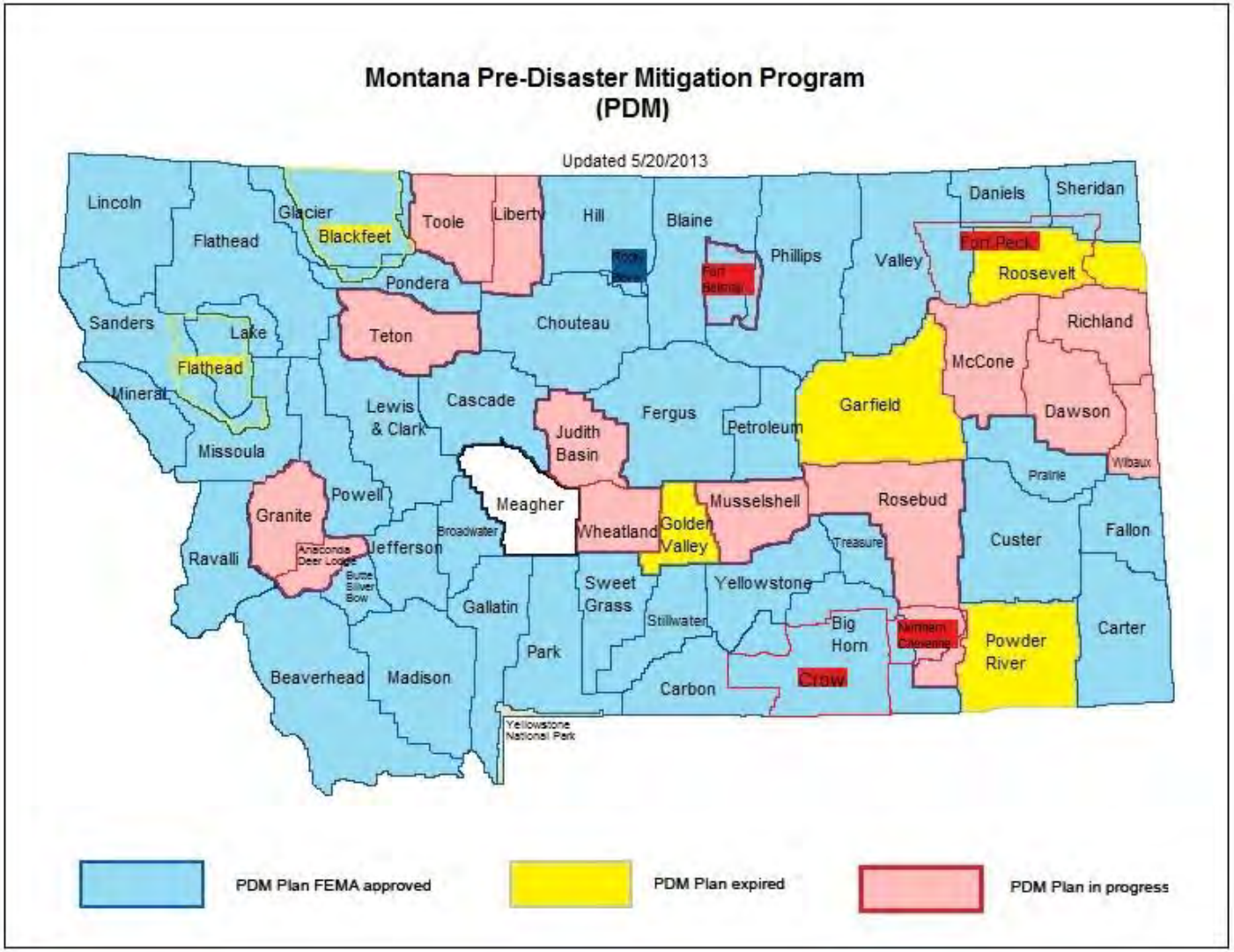


TABLE 6.1-1
PDM PLANNING PROJECTS SINCE 2004

Year	Application Title	Sub-Grantee	Non-Federal Share	Federal Share	Federal Share %
2005	Remaining and Unfunded Montana Communities Planning Grant Application	Montana DES	$69,500	$208,500	75%
2005	Montana University System Multi-Hazard Planning	Montana University System	$85,006	$255,017	75%
2006	State of Montana Multi-Hazard Mitigation Plan Update	Montana DES	$37,484	$112,438	75%
2007	Petroleum County PDM Plan Update 2007	Petroleum County	$694	$6,250	90%
2007	Northeastern Montana PDM Plan Update 2007	Valley, Sheridan and Daniels County	$9,167	$27,500	75%
2007	Butte-Silver Bow County Geological Hazards	Butte-Silver Bow City/County	$70,204	$210,329	75%
2008	Southwest Montana Pre-Disaster Mitigation Plan Update	Madison, Beaverhead, Broadwater Counties	$9,718	$29,154	75%
2008	Sweet Grass County PDM Planning	Sweet Grass County	$4,172	$12,274	75%
2008	Missoula County PDM Update	Missoula, Mineral and Ravalli County	$6,488	$19,012	75%
2009	State of Montana PDM Plan Update	Montana DES	$15,000	$45,001	75%
2009	Yellowstone County, MT	Yellowstone County	$76,489	$229,467	75%
2009	DR-1767 Planning Grants Update and complete PDM Plans	Powell , Stillwater Counties, Fort Peck Reservation	$12,241	$36,722	75%
2010	Lewis & Clark and Jefferson Counties PDM Plan Update	Lewis & Clark and Jefferson Counties	$10,000	$30,000	75%
2010	Pondera & Glacier County PDM Update	Pondera & Glacier Counties	$11,667	$35,000	75%
2010	Park County PDM Plan Update	Park County	$3,252	$9,750	75%
2010	Carter/Fallon/Prairie PDM Plans	Carter County	$7,000	$20,624	75%
2010	Lincoln County PDM Update	Lincoln County	$6,667	$20,000	75%
2010	Custer County PDM Plan Update	Custer County	$7,667	$23,000	75%
2010	Cascade County PDM Plan	Cascade County	$5,000	$15,000	75%
2010	Deer Lodge & Granite Counties PDM Plan Update	Anaconda-Deer Lodge County	$5,779	$17,337	75%
2011	North Central Montana Counties PDM Plan Updates	Blaine, Hill and Phillips Counties	$17,500.00	$52,500.00	75%
2011	Lake and Sanders County and Confederated Salish & Kootenai Tribes (CSKT) PDM Plan Updates (**CSKT withdrawn**)	Lake and Sanders Counties and CSKT	$17,500.00	$52,500.00	75%
2011	Big Horn and Carbon Counties	Big Horn and Carbon Counties	$12,800.00	$36,000.00	75%
2011	Roosevelt County (**withdrawn**)	Roosevelt County	$6,250.00	$1,750.00	75%
2012	Update State PDM Plan	Montana DES	$30,177.25	$90,531.75	75%
2012	Dawson, Richland, Wibaux & McCone County PDM Updates	Dawson, Richland, Wibaux and McCone Counties	$30,177.25	$91,800.00	75%
2012	Montana Tech PDM Plan Update	Montana Tech	$8,333.33	$25,000.00	75%
2012	MSU Bozeman PDM Plan Update	MSU-Bozeman	$8,333.33	$25,000.00	75%
2012	Crow Montana PDM Plan	Crow Nation	$9,500.00	$28,500.00	75%
2012	Fort Belknap Tribal PDM Plan	Fort Belknap Nation	$8,333.33	$24,999.99	75%

TABLE 6.1-1
PDM PLANNING PROJECTS SINCE 2004

Year	Application Title	Sub-Grantee	Non-Federal Share	Federal Share	Federal Share %
	Update				
2012	Liberty/Toole/Teton County PDM Plan Updates	Liberty, Toole and Teton Counties	$22,000.00	$65,999.99	75%
2012	Central Montana PDM Plans	Judith Basin, Wheatland, and Musselshell Counties	$20,000.00	$60,000.00	75%
2012	Northern Cheyenne Tribal PDM Plan	Northern Cheyenne Nation	$8,750.00	$26,250.00	75%
2012	Rosebud County PDM Plan Update	Rosebud County	$7,650.00	$22,950.00	75%
2012	Fergus County PDM Plan Update	Fergus County	$27,833.33	$83,500.00	75%
Totals			**$570,784**	**$1,579,889.70**	

plan updates. Local capabilities will be enhanced through the continued technical assistance offered by the SHMO.

PDM planning grants also typically fund update of the State's Hazard Mitigation Plan every three years. However, the 2013 update was funded by an HMGP grant (see *Post-Disaster Mitigation Policies, Programs, and Capabilities* section, below).

Pre-Disaster Mitigation Non-Planning Projects

Since 2004, FEMA has awarded competitive PDM grants (PDMC) to a number of Montana jurisdictions for mitigation construction projects. These projects require a 25 percent local match. **Table 6.1-2** presents a summary of these projects since 2005. For specific grant projects, the State uses benefit-cost reviews to determine which projects maximize benefits relative to their cost. The State encourages all jurisdictions and tribal nations to submit worthy, cost effective non-planning mitigation projects under the mitigation grants program realizing that not all of them may be selected for further review or eventual award. The State will also encourage and attempt to prioritize those communities and jurisdictions with the highest risks and most intense development pressures to apply for non-planning mitigation projects to reduce vulnerabilities to the higher risks they are facing. The State has convened the PDM Planning Team prior to submission of these non-planning mitigation project grant applications in order to review associated benefit-cost ratios and to determine how many people are served by the projects. Based on this qualitative and quantitative review, the Planning Team ranks the projects prior to submission.

Capabilities:

- The PDM planning program has elicited a high participation rate by Montana counties and tribes.
- Communities have found assessing their hazards to be quite beneficial and informative.

TABLE 6.1-2
PDMC CONSTRUCTION PROJECTS SINCE 2004

Year	Application Title	Sub-Grantee	Non-Federal Share	Federal Share	Federal Share %
2005	Missoula County Grant Creek Flood Mitigation Project	Missoula County	$1,145,000	$3,000,000	75%
2005	Powell County/City of Deer Lodge Flood Hazard Mitigation Project	Powell County	$667,409	$2,002,228	75%
2005	Blacktail Deer Creek City/County Flood Mitigation Project	Beaverhead County	$160,260	$435,000	75%
2008	Helena South Hills Fuel Reduction 2007	Tri-County Fire Safe Working Group/City of Helena	$34,319	$102,956	75%
2008	City of Helena Tenmile Creek Water Supply Fuel Reduction Project	City of Helena	$104,277	$312,831	75%
2009	Harris Creek Bridge	Custer County	$62,330	$139,870	69%
2009	Park County Fleshman Creek Flood Mitigation Project	Park County	$760,000	$2,280,000	75%
2010	City of Helena Open Lands Fuel Reduction	City of Helena	$103,002	$308,998	75%
2011	Main Street Bridge, Deer Lodge	MT Dept. of Transportation	$692,831	$1,191,304	75%
2012	Creative Arts Center Seismic Retrofit	MSU-Bozeman	$2,240,759	$746,921	67%
TOTAL			**$3,997,518**	**$8,082,880**	-

Limitations:
At times, more counties/tribes have been interested in participating than funding to support their efforts has been available.

National Fire Plan and Fire Prevention

The DNRC-Forestry Division coordinates National Fire Plan fire mitigation programs funded by the USDA Forest Service State and Private Forestry branch. One full-time and two half-time employees coordinate this program, with administrative support from the Forestry Division's Business Management Bureau.

In 2010-2012, Montana received over $5 million in federal funding for hazardous fuel mitigation. These projects represent hazardous fuels reduction treatments on approximately 5,000 acres of private property within the WUI in Missoula, Flathead, Lincoln, Mineral, Ravalli, Powell, Lewis and Clark, Silver Bow, Madison, Lake, Jefferson, Broadwater, Meagher, Park, Gallatin, Stillwater, Sweet Grass, Carbon, and Rosebud Counties. The projects are offered as a 50/50 cost-sharing partnership with homeowners. Most projects also contain an education element to provide resources for homeowners about how to protect their property from wildfires. The Forestry Division delivers programs to homeowners through partnerships with a network of local governmental and non-governmental organizations, who manage fuel mitigation projects at the local level. These organizations include Resource Conservation and Development Areas (RC&Ds), Conservation Districts, and non-profit groups.

The Community Protection and Fuels Mitigation Grant Program provides cost-share assistance in Montana for fuels treatment on non-federal lands adjacent to federal lands that are also scheduled for treatments which include a prescribed fire component. It provides an opportunity for landscape-level treatment across ownerships. DNRC administers this program in direct partnership with the Forest Service. Counties and tribes are tracking what is happening in their jurisdictions.

DNRC also works in partnership with Montana State University Forestry Extension and the National Resource Conservation Service to provide information and educational workshops to landowners on forest ecological principles and management practices. DNRC foresters provide technical assistance to landowners in developing management plans and treatment plans to address wildfire risk and other land management issues.

Capabilities:

- The potential for significant mitigation funding exists, if the projects qualify for and are selected for the nationally competitive National Fire Plan programs.
- Other federal land management agencies have similar funding sources available and work to complete fire mitigation projects directly with the local communities.
- State fire suppression costs can be used as match for these federal grants.
- The National Fire Plan program has created a well-coordinated mitigation system for planning and projects at the state level.
- Numerous partnerships have been and continue to be developed through this program.

Limitations:

- Funding for fire mitigation varies greatly from year to year due to the competitive nature of the program. No baseline funding exists for fire mitigation.
- The State of Montana does not have a state funded fire mitigation initiative.

Montana Earthquake Program

This Montana Earthquake program, coordinated at present by the SHMO, is primarily a public education and outreach program. Each October is Earthquake Preparedness Month in Montana, and media outlets inform residents of preparedness and mitigation techniques they can take. Briefings and training sessions have also been conducted through this program. Montana Bureau of Mines and Geology, Earthquake Studies Office heavily supports this program through research, education, and outreach. In 2013, Montana will participate in the Great American Shakeout.

From 2009 through 2012, the Montana Dept. of Administration received FEMA funding through the National Earthquake Hazards Reduction Program Earthquake (NEHRP) State Assistance program to complete the *Critical Facility Seismic Evaluation and Hazard Reduction Project* for state-owned buildings in the Intermountain Seismic Belt. Approximately $150,000 in grant funds

were used to complete a planning document and approximately 115 Tier 1 seismic evaluations of state-owned assets, including the State Capitol complex and the Montana University System facilities. These evaluations provide the information needed to apply through the FEMA mitigation grant programs for seismic retrofit projects.

Capabilities:

- Grant funds through FEMA have allowed the State to identify critical infrastructure where structural retrofits are necessary to maintain continuity of operations and government.

Limitations:

- Specific funding for mitigation projects is not present at the state level for this program, and therefore, projects are dependent on grant programs..

National Flood Insurance Program (NFIP) and Community Rating System (CRS)

Through funding from the Community Assistance Program, the State NFIP is coordinated by the DNRC. In Montana, 131 out of 139 communities participate in the NFIP. Twelve (12) of those communities also participate in the CRS program. The Flooding Profile in *Section 4.4.2* identifies communities in the CRS program and those who have flood hazards but don't participate in the NFIP.

Since 1978 over $9.8 million has been paid out in flood insurance claims in the State of Montana, and as of August 31, 2012, 5,814 policies have existed insuring over $1.36 billion in property. This program, specifically managed at the local level, is supported by the State Floodplain Manager, part of the DNRC-Water Resources Division.

Capabilities:

- The NFIP allows the State to assist counties and cities with floodplain problems.
- The majority of Montana flood hazard areas are regulated as part of the NFIP.

Limitations:

- Very little funding is available for NFIP education.
- Counties and cities are limited in staffing. Often the local floodplain manager has multiple duties and only issues one or two floodplain permits a year.
- Local floodplain managers, because of their other duties and infrequent floodplain development, often have very little training in the NFIP.

Map Modernization and Risk MAP Programs

On May 18, 2005 the State of Montana became a Cooperating Technical Partner with FEMA and began participating in the Map Modernization program which was a 5 year funded initiative put in place by Congress in 2004 to update floodplain mapping across the country. In Montana,

this program was implemented in three phases. The first phase of $30,000 was to develop a business plan, which has been updated annually, for the state's Map Modernization program that is housed in the DNRC-Water Resources Division. Phase 2, was for $116,000 in FEMA funding, to add a program management employee and a half time outreach specialist employee. Phase 3 was to digitize existing FIRM and Flood Hazard Boundary Maps (FHBM), and where money was available to perform new floodplain mapping studies.

The Map Modernization program officially ended in 2009, and the Risk Map process began. In total, 27 projects, countywide and partial countywide, have been initiated and 16 of those are now complete, with 11 currently underway. Communities with completed DFIRM mapping projects are Lincoln, Flathead, Sanders, Lake, Lewis and Clark, Cascade, Fergus, Custer, Carbon, Park, Gallatin, Butte Silver Bow, Fort Belknap, Fort Peck, Ennis, and Whitehall. Counties with mapping projects underway include Yellowstone, Stillwater, Sweet Grass, Broadwater, Granite, Ravalli, Missoula, Flathead, Evergreen (partial countywide) and Bozeman/Gallatin. In addition, the DNRC together with local stakeholders has just completed an approximate-level study for the Big Hole Watershed, involving Beaverhead, Silver Bow and Madison Counties.

With the end of the Map Modernization program FEMA is transitioning into the Risk MAP program which is aimed less at converting paper FIRMs and FHBMs to DFIRMS and more at performing new floodplain mapping studies, addressing errors on existing maps, identifying risk, performing hazard assessments and efforts to better tie mapping activities to mitigation endeavors. Under the Risk MAP program the State of Montana DNRC received funding for Stillwater, Sweet Grass, and Broadwater counties and their communities. These will likely be the last full countywide conversion projects under the Risk MAP program.

FEMA still funds a full time Risk Map management position and a half time outreach specialist at DNRC. To date the State of Montana DNRC has received approximately $7.5 million in grant funding from FEMA for the program. However, there is still additional need throughout approximately 2/3 of the State, which is documented in the programs business plan and "unmet floodplain mapping needs list". In 2011 and 2012 the Risk MAP program entered a maintenance phase with lower funding allocations for new mapping and future funding uncertainty for new mapping. This lull in taking on new countywide maps has allowed the State to catch up on the project backlog.

Capabilities:

- Nationally, Congress has allocated a significant amount of funding for first the Map Modernization and then the Risk MAP initiatives.
- Currently, the program requires only State in-kind match which eliminates the greatest limitation in similar programs.
- The State's NAIP imagery can be considered match for individual projects.

- Partnerships with the US Army Corps of Engineers, Department of Environmental Quality, and other entities and communities have been built for acquiring topographic data and other floodplain mapping related information.
- Some topographic data acquisition has been funded under the Map Modernization program and may continue to be funded under the Risk MAP program. This information can be utilized for diverse purposes beyond floodplain mapping.

Limitations:

- Montana is not as competitive as other states for national flood funding due to our low population, historic damages, lack of topographic data in many areas, and small amounts of match for individual projects.
- The mapping process takes three years if everything progresses without issues.
- To maximize the continuity of the program, state funding is needed to supplement the federal funding.

Flood Mitigation Assistance Program

In a typical year, about $100,000 in FEMA Flood Mitigation Assistance (FMA) funds are available for Montana projects; however, most of these funds have typically gone unspent due to a lack of promotion and homeowner interest in the program. This program is keyed to mitigation activities for NFIP repetitive loss properties but any NFIP insured property is eligible to participate. With approximately 122 repetitive loss properties in Montana, a limited number of opportunities exist, and many of those opportunities are lost due to the 25 percent match requirement. Without state funds to meet the match requirements, the match responsibility is passed on to the homeowner. Frequently, the homeowner is not able or willing to provide the match. Until recently, the FMA program was administered by the DNRC-Water Resources Division. However on 19 July 2013 a meeting was held between Kent Atwood, the State Hazard Mitigation Officer and Tim Davis, Administrator, Water Resources Division, State of Montana Department of Natural Resources (DNRC); Laurence Siroky, Bureau Chief, Water Operations Bureau DNRC; and Traci Sears, NFIP/CAP Coordinator DNRC. After a brief discussion of alternatives and options, the decision was made and agreed by all present that effective 7/19/2013 and forward, Montana Disaster and Emergency Services, under Montana Department of Military Affairs, would assume both implementation authority and full responsibility as the Grantee for the FMA grant for the State of Montana and all eligible sub-grantees.

Capabilities:

- The program is focused on the most vulnerable structures based on flood insurance losses.
- Properties recently identified in floodplains due to new or preliminary DFIRMS may be able to use the FMA program for acquisitions, relocations or elevations.

- As provided in the HMA Guidance, the SHMO and the NFIP Coordinator are/have requested access to the NFIP Legacy Systems Data Exchange in order to access the Repetitive Loss Data Base.
- The SHMO intends to aggressively pursue known Repetitive Loss property owners (while respecting their privacy rights) with the goal of utilizing the FMA to acquire/relocate/elevate one to two Repetitive Loss Properties per year as part of the State Repetitive Loss Strategy.

Limitations:

- The 25 percent match represents a significant barrier for many homeowners.
- With the program being keyed to repetitive loss properties, relatively few opportunities for mitigation exist; however, more repetitive loss properties will be targeted for contact during the course of this plan life.

Dam Safety Program

The dam safety program oversees and regulates the non-federal dams in Montana. High Hazard Dams (dams with potential for loss of life downstream) are required to have permits and emergency action plans. Ninety-eight (98) dams are currently permitted by the State of Montana. The Montana Dam Safety Program has an ongoing education and outreach program targeting significant and low hazard dams using a Federal National Dam Safety Grant. This program is managed by the DNRC-Water Resources Division.

Capabilities:

- The dam safety program provides regulations and standards for dams, and therefore, ensures a level of safety.

Limitations:

- Over 3,400 significant and low hazard dams in Montana are not required to have a permit. In many cases, maintenance and repair may be needed.
- The general lack of county zoning in Montana allows development in inundation areas of high, significant and low hazard dams without review and/or dam reclassification.

Homeland Security

Funding for Homeland Security vastly outweighs the funding available for traditional hazard mitigation, with over $150 million in grant funding from 2001-2012. This funding is primarily directed toward pre-identified preparedness activities such as training, exercises, and equipment. From a mitigation perspective, since terrorism is such a highly uncertain and variable type of hazard, most activities that are being conducted through the homeland security program are mitigation in some form. Preparing our responders and gathering intelligence may mitigate an event from occurring or may reduce the impacts from an event. In this sense, these

activities can be considered mitigation, although, not in the traditional sense of the word and not under FEMA mitigation grants.

Capabilities:

- An enormous amount of funding is being used to prepare the state to prevent and respond to a terrorist attack.
- Much of the equipment and training being conducted for homeland security purposes can also be used for any hazard or event, natural or man-made.

Limitations:

- Homeland security funds are quite specific in what they can be used for and do not allow for a lot of flexibility.
- Only equipment listed in the "Authorized Equipment List" (AEL) can be funded.
- Only actions identified in the local and state strategic plans can be funded.

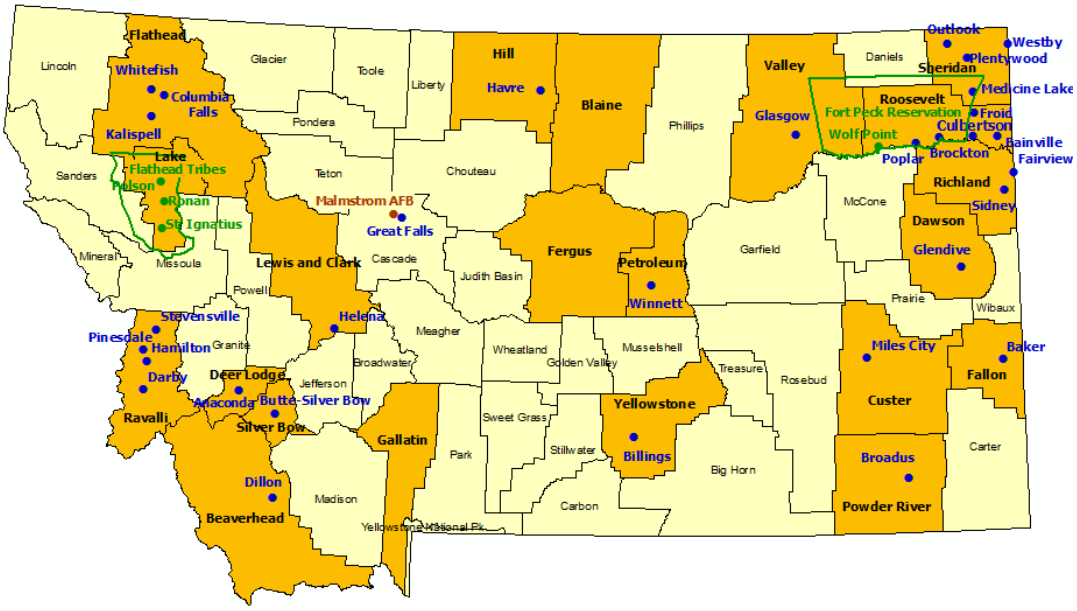
National Weather Service Initiatives

The National Weather Service provides weather, hydrologic, and climate forecasts and warnings for the United States for the protection of life and property and the enhancement of the national economy. NWS data and products form a national information database and infrastructure which can be used by other governmental agencies, the private sector, the public, and the global community. The NWS initiatives, described below, are making great strides in getting the hazard mitigation message out to citizens of Montana.

The StormReady Program started in 1999 to help communities develop the communication and safety skills needed to save lives and property – before and during hazard events. StormReady helps community leaders and emergency managers strengthen local safety programs through better planning, education, and awareness. Montana has 59 StormReady Designations (**Figure 6.1-2**) including 21 counties, 35 communities, 2 Indian Nation, one military site, and three supporters. More information on the StormReady Program can be found at: http://www.stormready.noaa.gov/.

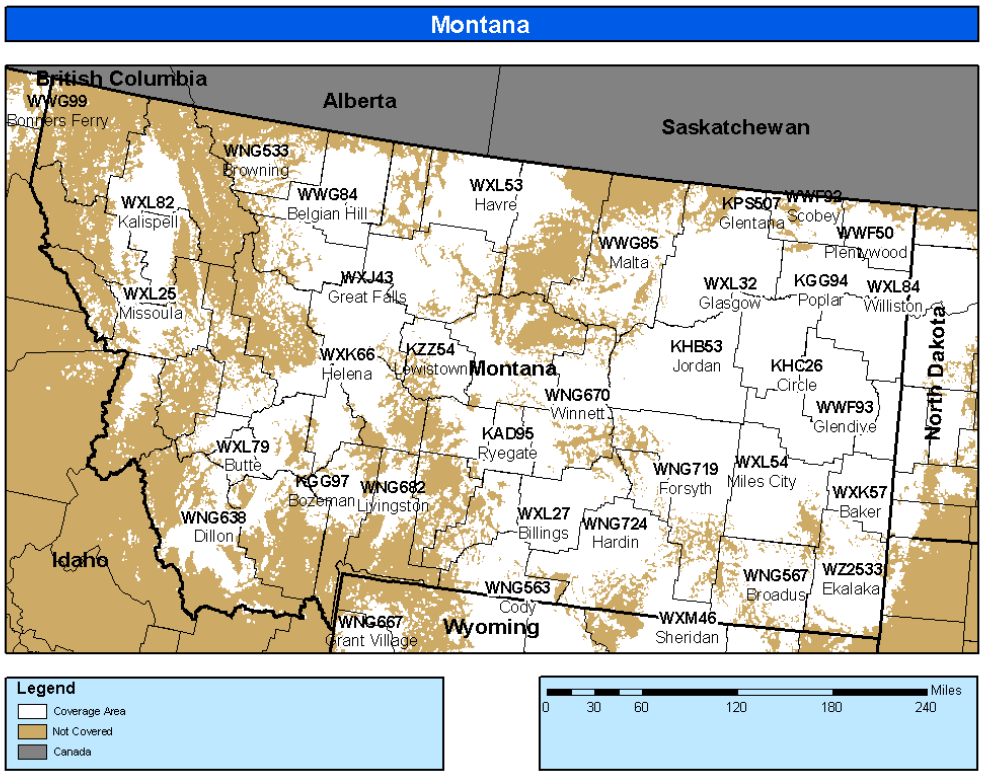
The NOAA Weather "All Hazard" Radio (NWR) program is provided as a public service by NOAA. NWR is a nationwide network of radio stations broadcasting continuous weather information directly from the nearest NWS office. In conjunction with Federal, State, and Local Emergency Managers and other public officials, NWR also broadcasts warning and post-event information for all types of hazards – including natural (such as earthquakes or avalanches), environmental (such as chemical releases or oil spills), and public safety (such as AMBER alerts or 911 Telephone outages). **Figure 6.1-3** shows the NOAA weather radio sites and coverage in Montana. More information on NOAA Weather Radios can be found at: http://www.nws.noaa.gov/nwr/.

Figure 6.1-2 Montana StormReady Counties, Tribes and Communities



Gold Shading: StormReady County **Green Dot: StormReady Indian Nation**
Blue Dot: StormReady Community **Brown Dot: StormReady Military Site**

Figure 6.1-3 NOAA Weather Radio Sites and Coverage in Montana



CoCoRaHS is an acronym for the Community Collaborative Rain, Hail and Snow Network, a program sponsored by NOAA. CoCoRaHS is a grassroots volunteer network of weather observers working together to measure and map precipitation (rain, hail and snow) in local communities. By using low-cost measurement tools, stressing training and education, and utilizing an interactive web-site, they provide accurate high-quality precipitation data to observers, decision makers and other end-users on a timely basis. Observers report precipitation information on a daily basis and it is available to the public to see. (http://www.cocorahs.org)

Montana Winter Awareness Week and ***Montana Severe Weather Awareness Week*** are two other NWS public outreach programs aimed to mitigate the effects of natural hazards through education. They are held in the third week of October (Winter) and the third week in April (Severe Weather). Other awareness programs include Montana Ice Jam Awareness Day (generally in late January), National Flood Safety Awareness Week (in March), and National Lightning Safety Awareness Week (third week in June).

FireSafe Montana

FireSafe Montana is a private, non-profit organization coordinating and supporting a statewide coalition of diverse interests working together to help Montanans make their homes, neighborhoods, and communities fire safe. FireSafe Montana actively encourages and assists in the development of local FireSafe councils across the state. These councils are key to raising public awareness of local wildland fire threats and issues, motivating residents to take positive action, and providing access to the expertise and resources homeowners need to get the job done. When people take personal responsibility for applying and maintaining Firewise practices on their property, they greatly increase the chances of their homes surviving a wildfire. Through its public information programs and materials, website, newsletter, and special events, as well as its active involvement in federal, state, and local fire mitigation efforts, FireSafe Montana is working hard to reduce the potential loss of life and property from wildfire in Montana. FireSafe Montana has designated June 3-9, 2013 as Wildfire Awareness Week in Montana.

6.1.3 Post-Disaster Mitigation Policies, Programs, and Capabilities

Until 2011, Montana had not had a disaster resulting in millions of dollars in HMGP funds; presidential disaster declarations have typically been sporadic and small in scale of total damages. This changed in 2011 with DR-1996, a presidential flood disaster that brought approximately $7.6 million in HMGP funding to the state.

Disaster Field Office

Following a presidential declared disaster, the State works with FEMA setting up a Disaster Field Office. When a disaster is declared, the President identifies the scope of the assistance

programs and the director of FEMA designates the affected counties. A Federal Coordinating Officer (FCO) is named to direct the federal response and recovery activities and FEMA Stafford Act Employees are deployed. The FCO will frequently set up 'shop' in the conference room of a local hotel until an 'official' Disaster Field Office is established. Once a location is found (a building of needed size to house needed staff and one that is adaptable to security and technological requirements), it develops into a fully functional office for disaster workers.

Capabilities:

- Convene response and recovery expertise to provide high level of staff response and the support.
- Work with State, tribal, and local governments; non-government organizations; and private-sector organizations to support response and long-term recovery planning for highly impacted communities.
- Link recovery planning to sound risk reduction practices to encourage a more viable recovery.
- Strategically apply subject-matter expertise to help communities recover from disasters.

Limitations:

- Only available after a Presidential disaster.

Hazard Mitigation Grant Program

Following a Presidential Declared Disaster, Montana has historically received 15 percent of eligible disaster costs in funding for mitigation activities. This program, coordinated through DES by the SHMO, has received over $10.8 million following 12 Presidential disasters since 1996. Fifty-four (54) projects were funded through 2010 with another 16 projects associated with DR-1996 submitted for approval. These include planning, non-planning, and 5 percent projects. Typically, the HMGP program is opened up for all counties, not just those in the disaster area, and the projects are not restricted to those hazards involved in the disaster. This allows for maximum flexibility and quality in the projects submitted for funding. **Table 6.1-3** shows the various disasters and associated HMGP funding. **Tables 6.1-4** and **6.1-5** present the mitigation non-planning and planning projects, respectively, that have received (and/or are seeking) HMGP funding. **Table 6.1-6** presents the 5 percent projects funded from DR-1996. The SHMO convenes the PDM Planning Team to assist in project selection using criteria such as BCA score, highest risk, repetitive loss, and development pressure. HMGP funding has contributed towards the update of several local mitigation plans.

TABLE 6.1-3
HMGP FUNDING BY DISASTER

Date	FEMA Disaster #	Location	Disaster Type	HMGP Funding
February 1996	1105	Western Montana	Flooding, Winter Storms	$268,598
March 1996	1113	Milk River, Northern Montana	Flooding, Spring Storms (road, culvert, and bridge damage)	$207,000
Spring 1997	1183	Missouri & Yellowstone Rivers	Flooding (roadway & infrastructure damage)	$883,110
Summer 2000	1340	Statewide	Wildfire	$290,766
Fall 2000	1350	Eastern Montana	Winter Storms (heavy snow loads, drifting, power outages)	$284,005
Spring 2001	1377	Big Horn County, Crow Reservation	Winter Storms (heavy snow loads, power outages)	$105,770
June 2001	1385	Gallatin, Missoula, and Powell Counties	Spring Storms (heavy snow loads, power outages)	$137,349
June 2002	1424	Northern Montana	Spring Storms, Flooding (heavy snow and rain, power outages, road damage)	$207,984
June 2008	1767	Carter, Custer, Fallon & Powder River Counties	Severe Winter Storm	$524,596
June 2010	1922	Hill and Chouteau Counties	Flooding	$84,642
2011	1996	48 Counties & 5 Reservations	Flooding	$7,614,076
2012	4074	Rosebud, Powder River Co. & No. Cheyenne Reservation	Wildland Fire	$227,876 (6 month estimate)
2013	4127	8 Counties and 3 Reservations	Flooding	$300,000 (preliminary)
TOTAL				**$10,835,772**

TABLE 6.1-4
DISASTER-FUNDED NON-PLANNING MITIGATION PROJECTS

Application Title	Sub-Grantee	Non-Federal Share	Federal Share	Federal Share %
DR-1767-MT				
Fuel Reduction Project	Yellowstone County	$38,830	$101,720	28%
2nd Street Bridge	Powell County/City of	$142,411	$166,945	54%
South Hills Fuel Reduction (2009)	City of Helena	$78,519	$235,477	25%
	TOTAL	**$259,760**	**$504,142**	
DR-1996-MT PROJECTS - *Submitted for approval*				
Trap Club Detention Pond	Lewis & Clark County	$172,890	$518,669	75%
City of Helena Seismic	City of Helena	$111,600	$334,800	75%
Deep Creek Flood Mitigation	Broadwater County	$443,750	$1,331,250	75%
Moores Creek	Madison County	$249,408	$748,224	75%
Mathews Hall Seismic Retrofit	UM-Western	$285,968	$857,904	75%
Ten Mile Fuel Reduction	Lewis & Clark County	$129,250	$387,750	75%
Valier Pump House	Town of Valier	$47,064	$141,191	75%
Montana Law Enforcement Academy	State of Montana A&E	$31,403	$94,209	75%
Kearny Lane Bridge	Madison County	$19,000	$57,000	75%
Travelers Home	Granite County	$40,440	$121,320	75%
Cottonwood Creek	Powell County	$174,637	$523,910	75%
Whitefish Stage Road	City of Whitefish	$99,333	$298,000	75%
Acquisition 100 Main St, Deer Lodge	City of Deer Lodge	$18,757	$56,270	75%
3417 Kehrwald Acquisition, Missoula	City of Missoula	$39,730	$119,190	75%
Toledo Mine Road Culvert Replacement	Madison County	$12,500	$37,500	75%
Little Bighorn River Flood Mitigation	Crow Tribe	$202,610	$607,831	75%
	TOTAL	**$3,835,099**	**$13,570,977**	-

TABLE 6.1-5
DISASTER-FUNDED PLANNING MITIGATION PROJECTS

Application Title	Sub-Grantee	Non-Federal Share	Federal Share	Federal Share %
DR-1767-MT				
DR-1767 Planning Grants Update and complete PDM Plans	Powell , Stillwater Counties, Fort Peck Reservation	$12,241	$36,722	75%
TOTAL		**$12,241**	**$36,722**	
DR-1996-MT PROJECTS				
Update State PDM Plan	Montana DES	$30,177.25	$90,531.75	75%
Dawson, Richland, Wibaux & McCone County PDM Updates	Dawson, Richland, Wibaux and McCone Counties	$30,177.25	$91,800.00	75%
Montana Tech PDM Plan Update	Montana Tech	$8,333.33	$25,000.00	75%
MSU Bozeman PDM Plan Update	MSU-Bozeman	$8,333.33	$25,000.00	75%
Crow Montana PDM Plan	Crow Nation	$9,500.00	$28,500.00	75%
Fort Belknap Tribal PDM Plan Update	Fort Belknap Nation	$8,333.33	$24,999.99	75%
Liberty/Toole/Teton County PDM Plan Updates	Liberty, Toole and Teton Counties	$22,000.00	$65,999.99	75%
Central Montana PDM Plans	Judith Basin,	$20,000.00	$60,000.00	75%
Northern Cheyenne Tribal PDM Plan	Northern Cheyenne	$8,750.00	$26,250.00	75%
Rosebud County PDM Plan Update	Rosebud County	$7,650.00	$22,950.00	75%
	TOTAL	**$153,254.49**	**$461,031.73**	-

TABLE 6.1-6
DR-1996-MT FIVE PERCENT PROJECTS

Application Title	Federal Share	Application Title	Federal Share
Weather Radios	$2,250	Gallatin County Courthouse	$22,500
Miles City ARC Software	$15,925	Columbia Falls	$82,004
Sweet Grass Ambulance	$2,246	WVFD Helena	$56,383
Kalispell Water System	$72,000	West Kootenai	$11,976
Belgrade Generator	$28,079	McCormick	$5,601
West Yellowstone	$18,987	Great Falls Fire #3	$11,985
Town of Browning	$17,258	Cabinet View	$11,976
Carter County High School	$35,250	Park County Culvert Mapping	$52,500
Daniels Memorial	$7,462	Meadowlark Blaine County	$32,018
Town of Superior	$17,342	City of Great Falls #4	$3,996
Upper Yaak	$11,976	Fisher River	$11,976
Sidney Water Treatment	$47,411	St. Luke Healthcare	$13,061
Bull Lake	$11,976	City of Great Falls #2	$3,996
Havre High School	$16,650	Carter County Courthouse	$11,559
Granite County Medical Center	$105,000	SMDC	$236,016
Miles City Lift Stations	$43,980	Colstrip	$44,278
Vaughn Water Back Up	$29,765	Green Tree Meadows	$33,788
Fergus County	$5,210	Melrose Sewer District	$29,843
Harlem School, Blaine County	$46,043	HCT Generators	$125,674
TFS	$11,976	Park County Calculator	$58,125
Chouteau County	$52,500	**TOTAL**	**$1,458,541**

Capabilities:

- As many projects as possible are funded through HMGP, and the program is typically opened up to the entire state and all identified natural hazards following a disaster.

Limitations:

- Montana is required to follow the same procedures as a larger state but with generally less funding available for projects and their management.

Public and Individual Assistance Mitigation

When presidential disaster Public Assistance (PA) and Individual Assistance (IA) funds become available for repairs to public and private structures and infrastructure, mitigation opportunities are taken whenever possible. Although not a separate program, mitigation is conducted following a disaster through the recovery programs (406 mitigation). PA and IA officers are trained in mitigation and will directly and indirectly mitigate hazards when repairing the damages. This mitigation is an integrated part of the disaster recovery and cannot be easily put into dollar amounts.

Capabilities:

- Mitigation during recovery allows for “cheaper” mitigation because the mitigation is done while repairing damages.
- Immediately following a disaster, the public and local officials may be more willing to invest in mitigation due to both increased awareness and public pressure.

Limitations:

- Typically, following a disaster, recovery, and not mitigation, is the primary objective.
- The mitigation costs cannot be easily separated from the recovery costs.
- Identification of mitigation opportunities depends on the recovery officers’ abilities to notice them.

6.1.4 Evaluation of State Laws and Regulations

An evaluation of Montana laws and regulations was conducted to identify those sections that relate to mitigation. Many laws that can be related to mitigation are “buried” in various sections, such as Montana Code Annotated (MCA), Title 20, Chapter 6, Part 6 (MCA 20-6-621) which states that school locations are to meet building codes. Only the major sections as they pertain to mitigation will be listed here. See **Table 6.1-7** for specific legislation.

TABLE 6.1-7
MONTANA LAWS AND REGULATIONS RELATED TO MITIGATION

Reference	Description	Capabilities	Limitations
MCA Title 7	Local Government	▪ Allows local governments to construct public buildings, utility services, roads, and bridges ▪ Gives local government the right to adopt their own building codes	▪ Does not require local building codes or enforcement
MCA 10-3	Disaster and Emergency Services	▪ Establishes state and local emergency management organizations and responsibilities	▪ Mentions mitigation in a very limited fashion
MCA 17-7-2	Long Range Building Program	▪ Establishes the Long Range Building Program for State facilities ▪ Consolidates and prioritizes requests for significant building improvements and new construction	▪ Does not require the consideration of disaster prevention or mitigation.
MCA 50-3	State Fire Prevention and Investigation Program	▪ Establishes State Fire Prevention Program ▪ Establishes fire inspection program for State buildings	
MCA 50-60	Building Construction Standards	▪ Authorizes State Building Code ▪ Allows for local county, city, or town building codes	▪ Except for the energy, plumbing, and electrical codes, the State Building Code is not applicable for residential structures less than five dwelling units, unless required by local jurisdictions.
MCA 50-61	Fire Safety in Public Buildings	▪ Establishes fire safety regulations for public buildings	
MCA 50-62	Fire Hazards	▪ Allows for remediation, removal, or demolish of structures that are considered fire hazards	
MCA 50-79	Nuclear Regulation	▪ Establishes regulations for sources of ionizing radiation	
MCA Title 60	Highways and Transportation	▪ Authorizes maintenance and creation of State roads and roadway infrastructure	▪ No requirements for the mitigation of hazards
MCA Title 67	Aeronautics	▪ Provides regulations for airports and aircrafts	
MCA Title 69	Public Utilities and Carriers	▪ Establishes requirements for utility providers, including the construction of such facilities	▪ Does not require hazard considerations
MCA 75-1	Montana Environmental Policy Act	▪ Establishes procedures for environmental reviews	
MCA 75-2	Air Quality	▪ Establishes air quality regulations	
MCA 75-5	Water Quality	▪ Establishes water quality regulations	
MCA 75-6	Public Water Supplies, Distribution, and Treatment	▪ Establishes regulations for the construction and operation of public water supplies and wastewater	
MCA 75-7	Aquatic Ecosystem Protections	▪ Requires the protection of streambeds and lakeshores	
MCA 75-20	Montana Major Facility Siting Act	▪ Establishes regulations regarding the placement of major energy production or transmission facilities	▪ Does not require an evaluation of natural or man-made hazards of the facility location.

TABLE 6.1-7
MONTANA LAWS AND REGULATIONS RELATED TO MITIGATION

Reference	Description	Capabilities	Limitations
MCA 76-1	Growth Policy	▪ Creates a smart growth planning process that cities and counties can use together to plan for efficient growth inside and adjacent to cities and towns. ▪ Allows streamlined subdivision review if city or county engages public in planning and adopts zoning that implements plans. ▪ Must identify where the WUI areas are located to help in planning to protect people and property from wildfire. ▪ Must avoid or mitigate adverse impacts on wildlife, waters, the natural environment, health and safety, and local services.	▪ Growth policies are not regulatory and do not have authority to deny land use.
MCA 76-2	Planning and Zoning	▪ Allows local governments to establish and manage zoning districts	▪ Does not establish statewide zoning or require it at the local level
MCA 76-3	Montana Subdivision and Platting Act	▪ Allows a subdivision to be denied that doesn't mitigate/avoid threats to public health & safety. ▪ Requires that subdivision regulations protect people and property from wildland fire. ▪ Engages DNRC and DLI in developing rules and providing incentives to help cities/counties get ahead of growth in WUI.	▪ Does not establish statewide standards for hazards
MCA 76-5	Floodplain and Floodway Management	▪ Establishes state floodplain management program and regulations ▪ Requires a Flood Protection Elevation of 2 feet above the 100-year Base Flood Elevation ▪ Establishes a Floodway Obstruction Removal Fund ▪ Initiates a comprehensive program for the delineation of designated floodplains and floodways in the state.	
MCA 76-6	Open-Space Land and Voluntary Conservation Easement Act	▪ Provides regulations for open space designations and compensation	▪ Does not emphasize open space in hazardous areas
MCA 76-11-1	Natural Resource Protection from Fire	▪ Directs DNRC to protect natural resources from fire	
MCA 76-13	Timber Resources	▪ Provides for the protection of forest resources ▪ Establishes regulations to prevent uncontrolled fire starts ▪ Allows for tree disease and insect control ▪ Designation of wildland urban interface parcels	
MCA 76-14	Montana Rangeland Resources Act	▪ Allows for sagebrush and weed management	▪ Does not specifically mention fire management
MCA 85-15	Montana Dam Safety Act	▪ Allows for safe construction of dams ▪ Provides authority for dam permitting, inspection, and repair	

TABLE 6.1-7
MONTANA LAWS AND REGULATIONS RELATED TO MITIGATION

Reference	Description	Capabilities	Limitations
MCA 90-15	Natural Resource Information System	▪ Authorizes the development of a natural resource information system and a natural heritage program	

The State laws in the MCA are then translated into the Administrative Rules of Montana (ARM). This document specifies the rules as they relate to the MCA. Individual agencies are responsible for identifying and addressing the shortcomings with mitigation in their own agency rules.

6.1.5 Development in Hazard Prone Areas

Although experiencing declining populations in many eastern rural counties, Montana has been experiencing rapid population growth in the south-central and western parts of the State since the 1930's. Currently, Richland County and several other eastern Montana counties are experiencing rapid growth associated with the Bakken oil and gas boom. With that growth comes challenges in hazard mitigation. The impact of future development is discussed for each hazard in *Section 4*.

Western Montana has been the area with the most concentrated growth in recent years. This section of the State includes several known and unknown seismic faults with prehistoric and historic major earthquake events, and therefore, growth is taking place in high probability earthquake hazard areas. Currently, little zoning or development regulations in seismically prone areas is occurring.

The state floodplain requirement of a freeboard of two feet reduces the vulnerability of new development in the mapped flood zones. This proactive approach to floodplain management helps in making new construction less prone to flood damages. However, the program is only as good as the mapping, and in some instances, development may be occurring in unmapped, flood prone areas.

Of greatest concern and magnitude; however, is the development occurring in the wildland/urban interface areas. With the greatest wildland fire hazards existing in western Montana and much of the growth occurring in this part of the State, development is occurring in the hazard prone areas. Most local jurisdictions have adopted the State's model subdivision regulations which address fuel reduction, structure placement, water supply and roadway requirements that may help reduce the risk to fire response personnel during an event. However, individual homes are often constructed in the WUI without the benefit of subdivision review. Forested mountains continue to be places that are popular to live and accelerated growth continues in these areas.

Since the 2010 State Plan Update, several pieces of mitigation-related legislation were proposed. These initiatives included:

- Tax Incentive for Fuel Reduction – Failed in 2013 Session
- HB 279 - Tribes can access State Disaster Funds for 25 percent match – Passed 2011
- County Building Codes (Voluntary) – Passed 2011

6.1.6 State Funding Capabilities

The DES Division of the Department of Military Affairs in Montana has a limited budget to provide the very basic emergency management services. This division with a staff of 24 (including six field representatives) in Fiscal Year 2014 has $2.34 million for personnel and operating expenses, a decrease of $75,000 from SFY 2013. This includes a minimum 6% vacancy savings reduction required by the legislature. This minimal budget leaves little room for additional mitigation support. Approximately 40 percent of this budget is funded federally through EMPG funds and the other 60 percent is the state's required match paid from the state's general fund and other federal grant funds. The remaining EMPG grant funds are used to fund county and tribal DES coordinators. Most county coordinators are ½- or ¼-time for DES with other responsibilities. Some have hired coordinators for homeland security grants, however, most have not. Little time and funding is available to these local coordinators for mitigation activities. As with DES, the other State departments managing mitigation programs do not have State funds available for mitigation purposes. Available State funds are currently used to provide personnel resources, and in some cases, those personnel resources are also funded through federal funds requiring state match.

Historically, Montana has seen eight-year cycles that feature revenue increases for seven years – with the more rapid growth in the 5th, 6th and 7th years – capped with a revenue drop in the 8th year. General fund revenue was relatively stable from FY 2008 through FY 2011 but has been decreasing slightly each year and predictions indicate this trend will continue. The current state fiscal situation is stable and there is a budget surplus for the 2013 State Legislature. Accordingly, funding for mitigation projects will not follow without a significant revision of policy towards hazard mitigation and/or development of a mitigation trust fund to assist local jurisdictions with project match.

Capabilities:

- The full-time SHMO and full-time HMGP assistant are able to offer project funding through the HMGP and PDM programs, when available.
- Federal mitigation funds are available through a several State agencies.
- Travel for the SHMO is normally funded through grant management cost or grant administration funds.

Limitations:

- The programs can only grow as large as the personnel able to coordinate them.
- For federal funds, the 25 percent match is often not available.
- A mitigation program budget does not exist except through federal grants for projects.

6.2 LOCAL CAPABILITY ASSESSMENT

Most mitigation projects in the State of Montana begin at the local level. Following a major disaster or a minor event, someone such as a county commissioner, the road crew, or a homeowner notices a problem that can be mitigated. Typically, the local officials will submit a request for mitigation grant funding as it is available. Ultimately, local mitigation projects are created, submitted, and implemented by those who live in the community. These local officials work closely with the SHMO and other State and federal officials in determining the best course of action. Completed and ongoing local mitigation projects are summarized in a table presented in **Appendix C**.

Montana, being a large, mostly rural state, is managed primarily by county government with additional city and town governments in the more developed communities. Each county and tribe in Montana has a DES Coordinator. These coordinators are typically positions that are not dedicated to emergency management full-time, and most are half or quarter time. Frequently, the coordinator will also have other duties within the county such as the sheriff or the fire chief. Only about 11 of 62 DES coordinators at the county or tribal level are full time. In most cases, these coordinators are also responsible for preparedness, response, recovery, and homeland security coordination. They are assisted by six state DES district representatives who act as liaisons between the State DES office and the county DES coordinators.

6.2.1 Local Policies and Programs

A variety of resources exist at the local level to assist in the hazard mitigation effort. Although, many programs and policies are proactive in some communities, others may not be. With each local government developing its own programs and policies, consistency across the state is lacking. **Table 6.2-1** demonstrates some of the more significant efforts at the local level. These efforts were identified through close partnership with the local jurisdictions.

TABLE 6.2-1
LOCAL POLICIES AND PROGRAMS AFFECTING HAZARD MITIGATION

Name	Description	Capabilities	Limitations
Building Codes	A minimum State building code exists for all communities; however, several have adopted their own stronger codes.	Implemented and enforced at the local level, structural building codes (some only residential) are in place in over 40 communities.	Many local jurisdictions have not adopted local building codes, nor do they have the staffing to do so. The State building code does not address structural codes for residences under 5 dwelling units.

TABLE 6.2-1
LOCAL POLICIES AND PROGRAMS AFFECTING HAZARD MITIGATION

Name	Description	Capabilities	Limitations
Zoning	Statewide zoning does not exist, nor is it required. Many communities have created zoning districts.	Many communities have adopted zoning districts, including those that consider hazard areas. The creation of zoning districts is typically a grassroots effort.	Much of Montana is not zoned for hazard areas.
Growth Policies	State law requires local jurisdictions develop a document meeting specific criteria that addresses growth issues.	An adopted growth policy is required prior to the adoption of zoning ordinances and subdivision regulations. An assessment of the wildland-urban interface is required, as of 2009.	The growth policies are not regulatory and restrictions cannot be placed on development based on them.
Subdivision Regulations	Local jurisdictions can have regulations addressing requirements such as fire safety and open space for new subdivisions.	Local officials have the ability to regulate large development in hazard prone areas. Beginning in 2009, subdivisions can be denied where there is danger of injury to health, safety, or welfare by reason of natural hazard, including wildland fire.	Some communities may not have subdivision regulations, or they may not address natural hazards.
Planning Boards	Community planning boards can oversee growth and development and implement zoning ordinances and subdivision regulations.	Planning boards have the power to approve or deny development based on zoning ordinances and subdivision regulations.	Many planning boards are not be required to consider natural hazards while reviewing applications.
Floodplain Management	Everyday enforcement of floodplain ordinances as part of the National Flood Insurance Program are conducted at the local level.	Local floodplain managers have the ability to manage their own area floodplains. A statewide freeboard of 2 feet strengthens floodplain management across the State. Local jurisdictions have the ability to impose greater restrictions in the floodplain if desired.	Local floodplain managers are extremely part-time and may not be able to keep up with changes in the program. Much of the floodplain mapping in the State needs to be updated.

Specifically for mitigation, the local officials through their DES coordinator or local hazard mitigation officer are responsible for:

- Developing local mitigation plans
- Applying for and implementing mitigation projects
- Reporting on mitigation progress
- Working with the State PDM Planning Team, as requested

6.2.2 Local Planning and Technical Assistance

Through planning grant funding from FEMA, communities have been motivated to develop or update plans for mitigating hazards. Communities have been assisted in developing mitigation plans in large part by the SHMO. The SHMO conducts an annual Benefit-Cost Analysis (BCA) workshop annually for potential applications for FEMA mitigation grants and is often assisted in teaching these courses by FEMA officials. Frequently, the SHMO provides technical assistance on a case-by-case basis as requested over the phone, via e-mail, or in person. Significant

technical assistance is also provided during the State review process of the plans. If needed, detailed comments and suggestions for improvement are made prior to State approval and submission to FEMA.

The SHMO is not the only person providing technical assistance with local planning. Specifically, with the development of risk assessments, the local National Weather Service offices, Montana Bureau of Mines and Geology, and Montana Department of Natural Resources have assisted communities with supportive data and expert review of the various hazards being analyzed. Typically, the local communities contact their area offices directly for technical assistance. Additional resources to the communities include their DES District Representatives with whom they meet regularly.

Completed local mitigation plans are submitted to the SHMO at the Montana DES for state approval and submission to FEMA – Region VIII. The plan is then reviewed in detail by the SHMO for compliance with the DMA 2000. The review process at the State level typically takes up to 30 days. During this timeframe, the SHMO will approve the plan, provide comments in the plan's crosswalk, and either submit the plan to FEMA for approval or return the plan to the local jurisdiction for improvements with statements specifically outlining the criteria not met. Once at FEMA, the review process may take up to 60 days for final approval to be given or returned for improvements.

7.0 PLAN MAINTENANCE PROCEDURES

This section describes the methods used for the past three years to evaluate the Montana State Hazard Mitigation Plan and monitor mitigation projects. A revised process for the next three years is presented based on "lessons learned".

7.1 PLAN EVALUATION AND MAINTENANCE

The SHMO, as part of the Montana DES and the State PDM Planning Team, is responsible for the evaluation and maintenance of the State of Montana Hazard Mitigation Plan and Statewide Hazard Assessment. Comments and updated information can be submitted at any time to:

Department of Military Affairs
ATTN: DES- State Hazard Mitigation Officer
1956 Mt. Majo Street
P.O. Box 4789
Fort Harrison, Montana 59636-4789

7.1.1 Process Used Over the Past Three Years

An HMGP DR-1996 grant application was submitted to FEMA and awarded to the State on 1 June 2012 to complete the 2013 update to the State Hazard Mitigation Plan. The State followed appropriate contracting guidelines to hire a contractor to complete the plan update. This process was initiated at least 16 months prior to the expiration date of the current plan. The term of the contract to update the State Plan was essentially one year.

The State PDM Planning Team came together to evaluate the State Plan at the start of the update project. The Planning Team is comprised of representatives from the various state agencies with mitigation responsibility. Some non-profit agencies, federal agencies and local DES coordinators are also part of the team. The meeting included a chapter-by-chapter review of the 2010 State Plan with emphasis on methods and sources of data for the statewide risk assessment for the update and review of the current mitigation strategy. The Planning Team contributed information on the progress made by their agency specific to each mitigation action and activities planned over the next three years. Completed projects were identified and others were deemed redundant or not needed and were therefore, omitted from the strategy. There was a facilitated exchange on how to improve coordination among agencies and how to more effectively integrate mitigation into other state programs.

7.1.2 Revised Process for Next Plan Update

Prior to the next plan update, the SHMO intends to brief the new cabinet members and agency heads of Montana's recently elected governor on how to coordinate implementation of the state-wide mitigation strategy. The SHMO would like to get commitment on regular agency

participation in implementing the State Hazard Mitigation Plan and promoting mitigation within each agency's area of responsibility. The SHMO would like the job descriptions of one or more of each agencies staff designated for mitigation coordination to be modified to include these responsibilities.

In lieu of conducting public meetings around the state (which have been consistently poorly attended) as part of the next State Plan update, the SHMO intends to hold workshops with agencies "responsible" for implementing the State's mitigation strategy. These workshops will be "tele-video" workshops if the capability exists and is budgeted. The purpose of the workshops will be to more fully develop individual mitigation projects, determine the steps needed to work towards implementation, and to identify funding sources.

A schedule of updates, as shown in **Table 7.1-1**, demonstrates the aspects of the plan that will be reviewed following a disaster, are ongoing, completed annually, and every three years. Following the three year review, a copy of the updated plan would be submitted to the FEMA – Region VIII office for approval, as required by the Disaster Mitigation Act of 2000. The next State Plan Update is currently scheduled for 2016.

TABLE 7.1-1
SCHEDULE OF UPDATE ACTIVITIES

Plan Aspect	Post-Disaster	Ongoing	Annually	Every 3 Years
Planning Team meeting on the past year's activities, problems, and input process	X			X
Planning process, blog and website updates		X		
Organization responsibilities				X
Integration with other state plans	X			X
Integration of local plans				X
Economic data				X
Population data				X
Hazard profiles/Addition of new hazards	X			X
Hazard assessment methodology				X
History and disaster declarations	X			X
New study data			X	X
GIS data				X
State structure data				X
Data limitations				X
Qualitative hazard assessment				X
Goals, objectives, and potential actions	X		X	X
Funding sources			X	X
State capabilities				X
Local capabilities	X			X
Plan and project coordination			X	X
Project prioritization	X			X
Plan evaluation process				X
Project monitoring			X	X

The SHMO intends to maintain the project website (www.letsmitigatemontana.com) for the next three years in order to solicit and receive more comments, input and public education and outreach and will continue blogging on hazard mitigation topics. If there is no FEMA funding for

the next State Plan update, the SHMO will track and include into the 2015 DES budget that at least $200,000 is allocated from the state general fund for this project.

7.2 PROJECT MONITORING/EVALUATION

In addition to updating the information in the plan document, projects and their progress towards achieving goals and objectives, individual projects are monitored by the state agency implementing the project or the grant. Generally, HMGP and PDM projects are monitored by DES staff, Flood Mitigation Assistance and NFIP projects will now be monitored by the SHMO and DES Division effective 19 July 2013, and National Fire Plan projects are monitored by DNRC-Forestry Division. Each agency tracks projects through their own databases and quarterly reports to federal agencies.

7.2.1 Process Used Over the Past Three Years

The SHMO intended to enhance the State PDM Planning Team to include at least one representative from each state agency involved in hazard mitigation. The team was to meet on a semi-annual basis to work on program integration and implementing the statewide mitigation strategy. In general, this did not happen. No meetings were held (outside of the meeting described below) and several key agencies are still not represented on the Planning Team.

Monitoring and evaluation of projects was performed when the SHMO convened the PDM Plan to assist with project ranking in conjunction with DR-1996. Prior to submission of mitigation project grant applications, the Planning Team reviewed the project narrative, benefit-cost ratios and determined how many people are served by each of the projects. Based on this qualitative and quantitative review, the projects were ranked prior to submission. The SHMO generally monitors the projects in conjunction with the entity who applied for the funding. A new addition to project monitoring and closeout has been added and **Table 7.2-1** presents the methodology used to monitor projects from the *Montana Mitigation Sub-Grant Monitoring Plan.*

TABLE 7.2-1
MONTANA MITIGATION SUB GRANT MONITORING PLAN

I.	Desk Reviews will be conducted on each Reimbursement Request submitted to Montana Disaster & Emergency Services (DES). To be complete they must include:
	A. Copies of Invoices from contractors
	B. Copies of checks or warrants used to pay invoices
	C. A written memo or email clearly stating how much the reimbursement request is in dollar amounts
	D. A spreadsheet of “Local Match” accrued to date.
II.	Your Quarterly Reports will also be reviewed for any problems with performance
III.	Site Visits: At a minimum the State will conduct three site visits:
	A. The initial or “Award” visit
	B. Visit at the halfway point of regular (non-planning) project.
	C. A closeout or “Final Inspection” visit at or near project completion.

TABLE 7.2-1 MONTANA MITIGATION SUB GRANT MONITORING PLAN	
IV.	Projects considered "High Risk" will be monitored more closely and receive more site visits. These may be identified by triggers or concerns with reimbursement requests, quarterly reports or Previous Years Audit Reports that contain significant deficiencies or major weaknesses. Other factors considered "High Risk" may include:
	A. Large award amounts exceeding $500,000 Federal Share
	B. Possibility of Scope of Work (SOW) mission creep
	C. High public interest or opposition to the project
	D. Congressional interest in the project
	E. Sub-grantee difficulties with prior grants
	F. Local Match: A large amount or percentage of In-kind or soft match

7.2.2 Revised Process for Next Plan Update

The process for monitoring and evaluating mitigation projects will continue to be a responsibility of the State PDM Planning Team. As a result of targeted outreach to agencies responsible for mitigation, the SHMO hopes to expand the Planning Team to assemble a group of dedicated subject matter experts to assist with program integration, implementing the statewide mitigation strategy and sub-grant development, scoring and ranking. The State PDM Planning Team will meet as-needed, at the SHMO's request, to monitor and evaluate projects.

The SHMO intends to brief Montana's recently elected governor on the challenges of coordinating mitigation efforts amongst the various state agencies. He plans to prepare a draft "policy directive" for the governor's consideration to be issued to each agency "assigned" responsibility for implementing the State mitigation strategy to ensure engagement, commitment, and accountability. The SHMO should be the "clearinghouse" of all mitigation that is implemented around the state so progress can be measured and accountability maintained.

8.0 REFERENCES

8.1 State Profile References (Section 3)

Air Force Magazine. 2001. The nation's ICBM workhorse is still going strong. Minuteman Turns 40. By Bruce D. Callander. Vol. 84. No. 3. http://www.afa.org/magazine/March2001/0301minute_print.html

Census and Economic Information Center (CEIC). 2012. Montana Department of Commerce Gross State Product, County Population Estimates, County Maps. http://ceic.mt.gov/EstimatesCntyPop.asp; http://ceic.mt.gov/BEACountyData.asp; http://ceic.mt.gov/Economic/BEA/GSP/highlights_gdp_2008_industry_pie_chart.pdf

McLaughlin Research Institute (MRI). 2012. http://mclaughlinresearch.org/

Missoulian, 2012. Montana Economy, Bouncing Back. By, Rob Chaney. December 16, 2012.

Montana Colleges. 2012. http://www.montanacolleges.com/colleges/college-profile.php?id=13

Montana University System. 2012. http://mus.edu/Universities/university_main.asp

Montana Department of Administration (DOA) Risk Management and Tort Defense (RMTD), 2012. PCIIS Database, November, 2012.

Montana Department of Natural Resources and Conservation (DNRC). 2013. Trust Land Management Division. Data on infrastructure and assets: http://dnrc.mt.gov/Trust/Default.asp

National Inventory of Dams (NID), 2012. http://geo.usace.army.mil/pgis/f?p=397:12:

National Weather Service, 2013. Temperature extremes.

Rocky Mountain Laboratories (RML). 2012. http://www3.niaid.nih.gov/about/organization/dir/rml/overview.htm

U.S. Bureau of Reclamation. 2013. Dam projects. http://www.usbr.gov/projects

U.S. Department of the Census. 2010.

U.S. Department of Commerce (USDC) Bureau of Economic Analysis (BEA). 2012. Regional Economic Information System. Bureau of Economic Analysis. http://www.bea.gov/regional/bearfacts/action.cfm

U.S. Environmental Protection Agency (EPA). 2012. Toxic Release Inventory (TRI) Program. http://www.epa.gov/tri/

U.S. Environmental Protection Agency (EPA). 2007. Climate Change and Montana.

Western Regional Climate Center, 2010. (http://www.wrcc.dri.edu/narratives/MONTANA.htm)

8.2 Wildfire References (Section 4.4.1)

Baucus, Senator Max, 2009. Letter to U.S. Forest Service Chief Tom Tidwell. In: The Clark Fork Chronicle. Baucus to Forest Service: Spend Pine Beetle Money in Montana. December 19, 2009. http://www.clarkforkchronicle.com/article.php/20091211121320118

Bureau of Land Management (BLM), 2013. Montana/Dakota BLM Prevention, Education and Mitigation Plan 2013.

Dannenberg, Mike. 2004. Communities at Risk Briefing Paper. Unpublished assessment of Montana communities and fire risk compiled by USDOI Bureau of Land Management (Billings) with contributions from various state and federal firefighting agencies.

FireSafe Montana, 2009. Living with Fire. Homeowners' Firesafe Guide for Montana, 2009.

Firewise. 2004. http://www.firewise.org/

Incident Information System, 2012. http://inciweb.org/

Montana Department of Administration (DOA), Risk Management and Tort Defense (RMTD) Division. 2012. Property Casualty Insurance Information System (PCIIS) database of State facility building and content values and loss claims. November, 2012.

Montana Department of Natural Resources and Conservation (DNRC). 2013. Fire Statistics from 1992 to 2012. Database extraction provided by Elaine Huseby. January.

Montana Department of Natural Resources and Conservation (DNRC). 2012a. Fire Statistics from 2001 to 2010. http://dnrc.mt.gov/forestry/Fire/Statistics/2010statistics.asp

Montana Department of Natural Resources and Conservation (DNRC). 2012b. GIS layer of WUI compiled from Community Wildfire Protection Plans prepared by Montana Counties and Tribes.

Montana Department of Natural Resources and Conservation (DNRC). 2012c. Trust Land Management Division, Fiscal Year 2009 Annual Report. http://dnrc.mt.gov/About_Us/publications/

Montana Department of Natural Resources and Conservation (DNRC). 2009. Final Guidelines for Development in the Wildland Urban Interface. September 24, 2009.

Montana Department of Natural Resources and Conservation (DNRC). 2007. State Wildfire Suppression and the Wildland Urban Interface. January 2007.

Montana Disaster and Emergency Services (DES). 2012. Federal and State Declared Disasters.

Montanafires.com. 2004. http://www.mtfires.com/index.php?id=4

National Interagency Fire Center (NIFC). 2013. http://www.nifc.gov/fireInfo/fireInfo_statistics.html

Sanborn, 2012. West Wide Wildfire Risk Assessment Final Report. Prepared for: Oregon Department of Forestry, Western Forestry Leadership Coalition, and Council of Western State Foresters. December 19, 2012

The Legislative Fiscal Division of Montana. October 2008. Wildfire Suppression Funding; Fiscal Pocket Guide. Available from: http://leg.mt.gov/content/publications/fiscal/leg_reference/Brochures/Wildfire_Suppression.pdf

USDA Farm Service Agency (FSA). 2007. Conservation Reserve Program Statistics. http://www.fsa.usda.gov/FSA/webapp?area=home&subject=copr&topic=crt

USDA Forest Service and Montana DNRC, 2011. Montana Forest Insect and Disease Conditions Survey. Available from: http://www.fs.usda.gov/detail/r4/forest-grasslandhealth/?cid= fsbdev3_016103

USDA Forest Service, 2013. Wildfire data 1986 – 2012. Compiled by M. Mitzkus.

USDA Forest Service, 2012. U.S. Forest Service History. The 1910 Fire. http://www.foresthistory.org/ASPNET/Policy/Fire/FamousFires/1910Fires.aspx

8.3 Flooding References (Section 4.4.2)

FEMA, 2012a. Community Status Book Report, Montana.

FEMA, 2012b. Community Rating System. http://www.fema.gov/library/viewRecord.do?id=3629

FEMA, 2010. HAZUS Flood Data. Jesse Rozelle, Bismarck, North Dakota. March, 2010.

Intermountain Hazards. 2003. Flood Risk Assessment, State of Montana. Unpublished report prepared for the Department of Administration, Risk Management & Tort Defense Division by Intermountain Hazards, Salt Lake City, Utah.

Montana Department of Administration (DOA), Risk Management and Tort Defense (RMTD) Division. 2012. Property Casualty Insurance Information System database of State facility building and content values.

Montana Department of Transportation (MDT). 2013. Critical Scour Potential Structures. http://www3.mdt.mt.gov:7783/db-pub/pontis40_site.htm

Montana Disaster and Emergency Services (DES). 2013. State and Federal Declared Disasters.

National Climatic Data Center (NCDC). 2012. http://www.ncdc.noaa.gov/stormevents/

National Emergency Management Association (NEMA), 2008. Mitigation Committee Position Paper, September 8, 2008.

National Flood Insurance Program (NFIP). 2012. Flood Insurance Loss Statistics from January 1, 1978 through October 31, 2012. http://bsa.nfipstat.fema.gov/reports/1040.htm

National Weather Service (NWS). 2007. Ice Jam Awareness Day. http://www.wrh.noaa.gov/tfx/hydro/MRIAD2007/mriadmain.php?wfo=byz

National Weather Service (NWS). 2013. Billings Forecast Office. Wildfire and flooding. http://www.wrh.noaa.gov/byz/hydro/burnscar/burnscar.php?topic=threat

Natural Resource Information System (NRIS), 2012. Compilation of digital flood insurance rate maps for State of Montana.

SHELDUS. 2012. Hazards & Vulnerability Research Institute. The Spatial Hazard Events and Losses Database for the United States, Version 7.0 [Online Database]. Columbia, SC: University of South Carolina. Available from http://www.sheldus.org

US Army Corps of Engineers (USACE) Cold Regions Research and Engineering Laboratory (CRREL). 2013. Ice Jam Database. http://www.crrel.usace.army.mil/icejams/

US Army Corps of Engineers (USACE) Cold Regions Research and Engineering Laboratory (CRREL). 2007. Ice Jam Database. http://www.crrel.usace.army.mil/icejams/

US Army Corps of Engineers (USACE) Cold Regions Research and Engineering Laboratory (CRREL) and National Weather Service (NWS). 2007. Tables produced using CRREL Ice Jam data.

US Army Corps of Engineers (USACE) Cold Regions Research and Engineering Laboratory (CRREL). 1998. Ice Jams in Montana. Ice Engineering, Number 19, July 1998. Hanover, New Hampshire.

USGS. 2000. Significant Floods in the United States during the 20th Century - USGS Measures a Century of Floods. USGS Fact Sheet 024-00. March 2000. http://ks.water.usgs.gov/Kansas/pubs/fact-sheets/fs.024-00.html

8.4 Earthquake References (Section 4.4.3)

Doser, D. I., 1989. Source Parameters of Montana Earthquakes (1925-1964) and Tectonic Deformation in the Northern Intermountain Seismic Belt. Bulletin of the Seismological Society of America. V. 79, p. 31-50.

FEMA. 2001. HAZUS99 Estimated Annualized Earthquake Losses for the United States. FEMA 366, Federal Emergency Management Agency, February 2001.

Montana Department of Administration (DOA), Risk Management and Tort Defense (RMTD) Division. 2012. Database of State facility building and content values.

Montana Bureau of Mines and Geology (MBMG). 2010. Earthquake Studies. Seismicity in Montana. http://www.ncedc.org/anss/catalog-search.html

Montana Department of Labor and Industry (DLI). 2012. Building Standards Program. http://bsd.dli.mt.gov/bc/pdf/CertCityList.pdf

National Information Service for Earthquake Engineering (NISEE). 1998. Helena, Montana, 1935. By Charles James and Lydia Hernandez, National Information Service for Earthquake Engineering, University of California, Berkeley. http://www.nisee.org/montana/montana.html

Qamar, A.I., and Stickney, M.C. 1983. Montana Earthquakes, 1869-1979, Historical Seismicity and Earthquake Hazard. Memoir 51, Montana Bureau of Mines and Geology.

Qamar, Anthony. 2008. Earthquake Hazards in the Pacific Northwest. University of Washington. Cascadia Region Earthquake Workgroup. January 2008. http://www.crew.org/ep/hazards.html

SHELDUS, 2012. Hazards & Vulnerability Research Institute (2009). The Spatial Hazard Events and Losses Database for the United States, Version 7.0 [Online Database]. Columbia, SC: University of South Carolina. Available from http://www.sheldus.org

Stickney, Mike. 2007. The 26 July 2005 Dillon, Montana Earthquake. Montana Bureau of Mines and Geology. http://serc.carleton.edu/files/earthscoperockies/stickneyposter_1129844125.pdf

Stickney, M.C., Haller, K.M. and Machette, M.N. 2000. Quaternary faults and seismicity in western Montana: 1:750,000 scale map with text, MBMG Special Publication No. 114.

Stover, C.W. and Coffman, J.L. 1993. Seismicity of the United States, 1568-1989 (Revised), U.S. Geological Survey Professional Paper 1527.

USGS. 2003. National Seismic Hazard Mapping Project. http://geohazards.cr.usgs.gov/

USGS. 2004. Earthquake Hazards Program. http://earthquake.usgs.gov/activity/past.html; http://neic.usgs.gov/neis/eq_depot/usa/1959_08_18_pics_1.html; and http://geohazards.cr.usgs.gov/eq/faq/psha01.html

Utah NEHRP. 2004. http://www.seis.utah.edu/NEHRP_HTM/1959hebg/1959he1.htm

Wong and others. 2005. Probabilistic Earthquake Hazard Maps for the State of Montana. Montana Bureau of Mines and Geology, Special Publication 117.

8.5 Severe Summer Weather References (Section 4.4.4)

Montana Department of Administration (DOA), Risk Management and Tort Defense (RMTD) Division. 2012. Property Casualty Insurance Information System Database of State facility building and content values and loss claims.

Montana Disaster and Emergency Services (DES). 2012. Federal and State Declared Disasters.

National Climatic Data Center (NCDC). 2012. Storm Events database. http://www.ncdc.noaa.gov/stormevents/

National Oceanic and Atmospheric Administration (NOAA), Storm Prediction Center. 2012. http://www.spc.noaa.gov/efscale/

SHELDUS. 2012. Hazards & Vulnerability Research Institute. The Spatial Hazard Events and Losses Database for the United States, Version 7.0 [Online Database]. Columbia, SC: University of South Carolina. Available from http://www.sheldus.org

Tornado Project Online (TPO). 2007. http://www.tornadoproject.com/

8.6 Severe Winter Weather References (Section 4.4.5)

American Avalanche Association, 2012. http://avalanche.org/accidents.php

Colorado Avalanche Information Center (CAIC). 2012. Avalanche fatalities. https://avalanche.state.co.us/acc/acc_us.php

Montana Department of Administration (DOA), Risk Management and Tort Defense (RMTD) Division. 2012. Property Casualty Insurance Information System database of loss claims for State facilities. November, 2012.

Montana Disaster and Emergency Services (DES). 2012. Federal and State Declared Disasters.

National Oceanic and Atmospheric Administration (NOAA). 2001. Winter Storms: The Deceptive Killers. A preparedness guide prepared by NOAA and the American Red Cross, December 2001.

National Weather Service (NWS). 2004. Billings, Glasgow and Great Falls Weather Forecast Offices. http://www.wrh.noaa.gov/Billings/questions/q27.shtml ; and http://www.wrh.noaa.gov/Greatfalls/tfx.php?TEXT+precipcomps.html.

SHELDUS. 2012. Hazards & Vulnerability Research Institute. The Spatial Hazard Events and Losses Database for the United States, Version 7.0 [Online Database]. Columbia, SC: University of South Carolina. Available from http://www.sheldus.org

8.7 Communicable Disease (Section 4.4.6)

Brainerd, Elizabeth and Mark V. Siegler. 2002. The Economic Effects of the 1918 Influenza Epidemic.

Center for Disease Control (CDC), 2007 and 2011. National Center for Infectious Diseases.

Friedlander, Mark P., Jr. 2009. Outbreak: Disease Detectives at Work. Minneapolis, MN: Twenty-First Century Books.

Goldsmith, Connie. 2007. Influenza: The Next Pandemic? Minneapolis, MN: Twenty-First Century Books.

Iezzoni, Lynette. 1999. Influenza 1918: The Worst Epidemic in American History. New York, NY: TV Books, L.L.C.

Meltzer, M.T., N.J. Cox, and K. Fukuda. 1999. The Economic Impact of Pandemic Influenza in the United States: Priorities for Interventions. Emerging Infectious Disease. 1999:5:659-71.

Montana Department of Public Health and Human Services (MDPHHS), 2013a. *http://www.dphhs.mt.gov/influenza/index.shtml*

Montana Department of Public Health and Human Services (MDPHHS), 2013b. 2002-2012 Communicable Disease Summary.

U.S. Department of Agriculture (USDA), National Agricultural Statistics Service, 2013. http://www.nass.usda.gov/Statistics_by_State/Montana/Publications/Annual_Statistical_Bulletin/2012/RankMtRank.pdf

U.S. Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS), 2005. The Cooperative Agricultural Pest Survey. U.S. Department of Agriculture, Animal and Plant Health Inspection Service. Program Aid No. 1830.

Walsh, Byran. 2009. "A Brief History of: Flu Pandemics." Time.com. April 30, 2009. Accessed: June 28, 2009.

World Health Organization (WHO), 2009. "Influenza A (H1N1)." WHO.int. June 2009. Accessed: June 28, 2009.

8.8 Hazardous Material Incidents (Section 4.4.7)

FEMA. 2013. Hazardous Materials Incidents. http://www.ready.gov/hazardous-materials-incidents

National Transportation Safety Board (NTSB). 1998. Derailment and Hazardous Materials Release with Fatality, Montana Rail Link, Albertson, Montana, April 11, 1996. Railroad Accident Brief Report, Lax 96 Fr 010. http://www.ntsb.gov/publictn/1998/RAB9807.pdf

National Response Center (NRC). 2012. Query Download and other data. http://www.nrc.uscg.mil/pls/apex/f?p=109:2:0::NO:::

U.S. Department of Transportation, Office of Hazardous Materials Safety, 2013. Incidents Reports Database Search. https://hazmatonline.phmsa.dot.gov/IncidentReportsSearch/search.aspx

U.S. Environmental Protection Agency (EPA). 2012. EPA Envirofacts. Toxic Release Inventory. http://iaspub.epa.gov/triexplorer/tri_release.chemical

8.9 Drought References (Section 4.4.8)

Branson, D., 2002. More Grass, Fewer Grasshoppers! USDA-ARS NPARL, 1500 N. Central, Sidney, MT 59270. http://www.sidney.ars.usda.gov/sidebar/publications.html

Montana Disaster and Emergency Services (DES), 1998. State of Montana Hazard Mitigation Plan. Revised 1998.

Montana Disaster and Emergency Services (DES), 2004. State of Montana Department of Military Affairs Disaster and Emergency Services Division. Correspondence with J. Aber.

Montana Disaster and Emergency Services (DES), 2007. Federal and State Declared Disasters.

Montana Drought Response Plan, 1995.

Montana Drought Website, 2013. http://drought.mt.gov/default.aspx

Montana Historical Society, 2004. Montana History Website: A Resource for Teachers of Montana History. URL: http://www.metnet.state.mt.us/teachmthistory/index.html.

Montana Natural Resource Information System (NRIS), 2013. Montana Water Supply and Moisture Conditions by County. http://nris.mt.gov/drought/status/

National Climatic Data Center (NCDC), 2004. Event Record Details. NOAA. http://www.ncdc.noaa.gov/oa/ncdc.html

National Drought Mitigation Center (NDMC), 2013. http://drought.unl.edu/AboutUs.aspx

National Drought Mitigation Center (NDMC), 2004. What is Drought? http://www.drought.unl.edu/whatis/what.htm

National Oceanic and Atmospheric Administration (NOAA), 2004. National Weather Service, Climate Prediction Center, U.S. Drought Assessment and On-Line Data. http://www.cpc.ncep.noaa.gov/products/expert_assessment/drought_assessment.html and http://www.ncdc.noaa.gov/oa/climate/climatedata.html

U.S. Small Business Administration (US-SBA), 2004 and 2007. Disaster Updates by State. http://www.sba.gov/gopher/Disnews/

8.10 Dam Failure References (Section 4.4.9)

Big Sky Hazard Management (BSHM). 2004. Silver Bow County Hazard Mitigation Plan. February 2004.

Federal Emergency Management Agency (FEMA). 2004. Federal Guidelines for Dam Safety, Hazard Potential Classification System for Dams. April 2004.

Maxim, 2003a. Daniels County Montana Pre-Disaster Mitigation Plan. Prepared For: Daniels County, P.O. Box 247, Scobey, Montana 59263. Prepared By: Maxim Technologies, Inc. September 2003.

Maxim, 2003b. Valley County Montana Pre-Disaster Mitigation Plan. Prepared For: Valley County, 501 Court Square, Glasgow, Montana. Prepared By: Maxim Technologies, Inc. May 12, 2003.

Montana Department of Natural Resources and Conservation (DNRC). 2013. Information on federals, state, local, private, and utility dams and dams with deficiencies. Provided by Michele LeMieux, DNRC Dam Safety Program.

Montana Department of Natural Resources and Conservation (DNRC). 2012. Information on State-regulated dams and inundation area GIS data. Provided by Chad Newman, DNRC Dam Safety Program.

Montana Disaster and Emergency Services (DES). 1996. State of Montana Hazard Mitigation Plan. Revised October 1996.

Montana Disaster and Emergency Services (DES). 1998. State of Montana Hazard Mitigation Plan. Revised 1998.

8.11 Landslide References (Section 4.4.10)

Federal Emergency Management Agency (FEMA). 1997. Talking about Disaster Guide: Landslide and Debris Flow (Mudslide). http://www.fema.gov/pdf/rrr/talkdiz/landslide.pdf

Montana Bureau of Mines and Geology (MBMG). 2002. Compilation of Landslide Location Maps and Index for Identification of Slide-Prone Areas: A Pilot Study for the Butte District. Authors: Edith M. Wilde, Kenneth L. Sandau, Patrick J. Kennelly, and David A. Lopez. Completed for the Montana Department of Transportation. MBMG 472.

Montana Bureau of Mines and Geology (MBMG). 2009. Landslide data. http://www.mbmg.mtech.edu/gis/gis-datalinks.asp

Montana Disaster and Emergency Services (DES). 2007. Federal and State Declared Disasters.

SHELDUS. 2012. Hazards & Vulnerability Research Institute. The Spatial Hazard Events and Losses Database for the United States, Version 7.0 [Online Database]. Columbia, SC: University of South Carolina. Available from http://www.sheldus.org

USFS, no date. Clearwater-Nez Perce National Forest Summary of Landslide Prone Delineation for Forest Plan Revision.

U.S. Geological Survey (USGS). 2001. Socioeconomic and Environmental Impacts of Landslides in the Western Hemisphere. By Robert L. Schuster and Lynn M. Highland. U.S. Geological Survey Open-File Report 01-0276. http://pubs.usgs.gov/of/2001/ofr-01-0276/

U.S. Geological Survey (USGS). 1982. Landslide Overview Map of the Conterminous United States. Open-File Report 97-289. *Digital Compilation of Landslide Overview Map of the Conterminous United States* By: Dorothy H. Radbruch-Hall, Roger B. Colton, William E. Davies, Ivo Lucchitta, Betty A. Skipp, and David J. Varnes. http://landslides.usgs.gov/learning/nationalmap/

U.S. Small Business Administration (SBA). 2007. Disaster Updates by State. http://www.sba.gov/gopher/Disnews/

8.12 Terrorism and Violence References (Section 4.4.11)

Council on Foreign Relations (COFR), 2004. Terrorism Questions and Aswers. http://www.terrorismanswers.com/terrorism/cyberterrorism.html

Department of Homeland Security (DHS), 2003. Radiological Dispersion Devices Fact Sheet, February 2003. http://www.dhs.gov/dhspublic/display?theme=47&content=455

Federal Bureau of Investigation (FBI), 2002. The Threat of Eco-Terrorism. http://www.fbi.gov/congress/congress02/jarboe021202.htm

Federal Emergency Management Agency (FEMA), 2004. Backgrounder: Terrorism. http://www.fema.gov/hazards/terrorism/terror.shtm.

Montana Disaster and Emergency Services (DES), 2012a. State of Montana, Department of Military Affairs, Disaster and Emergency Services Division. List of Declared Disasters.

Montana Disaster and Emergency Services (DES), 2012b. Montana Threat and Hazard Identification and Risk Assessment (THIRA).

Southern Poverty Law Center (SPLC), 2013. Active US Hate Groups in 2012. http://www.splcenter.org/get-informed/hate-map#s=MT

8.13 Volcanic Eruption References (Section 4.4.12)

Alt, D. and Hyndman, D. 1986. Roadside Geology of Montana.

Foxworthy and Hill. 1982. Volcanic Eruptions of 1980 at Mount St. Helens, The First 100 Days: USGS Professional Paper 1249.

Montana Department of Administration (DOA), Risk Management and Tort Defense (RMTD) Division. 2009. Property Casualty Insurance Information System database of State facility building and content values. September, 2009.

Montana Disaster and Emergency Services (DES). 1996. State of Montana Hazard Mitigation Plan. Revised October 1996.

Montana Disaster and Emergency Services (DES). 2004. Federal and State Declared Disasters.

Mullineaux, D.R. 1976. Preliminary overview map of volcanic hazards in the 48 conterminous United States: U.S. Geological Survey Miscellaneous Field Studies Map MF-786, scale 1:7,500,000.

Nimlos, T.J. 1981. Volcanic Ash Soils in Montana. Bulletin 45, Montana Forest and Conservation Experiment Station, School of Forestry, Univ. of Montana, Missoula, MT.

Sarna-Wojcicki, A.M, and others. 1981. Aerial Distribution, thickness, mass, volume, and grain size of air-fall ash the six major eruptions of 1980. in U.S. Geological Survey Professional Paper 1250, p. 577-600.

U.S. Geological Survey (USGS). 2003a. Volcano Hazard Assessments. http://vulcan.wr.usgs.gov/Publications/hazards_reports.html

U.S. Geological Survey (USGS). 2003b. Volcanic Ash Fall–A "Hard Rain" of Abrasive Particles. U.S. Geological Survey Fact Sheet 027-00 Online Version 1.0. Authors: Christopher A. Kenedi, Steven R. Brantley, James W. Hendley II, and Peter H. Stauffer. http://geopubs.wr.usgs.gov/fact-sheet/fs027-00/

U.S. Geological Survey. 2005. Steam Explosions, Earthquakes, and Volcanic Eruptions—What's in Yellowstone's Future? USGS Fact Sheet 2005-3024. http://pubs.usgs.gov/fs/2005/3024/

U.S. Geological Survey. 2008. Eruptions in the Cascade Range During the Past 4,000 Years. Bobbie Myers and Carolyn Driedger. http://pubs.usgs.gov/gip/63/

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CATEGORY	AGENCY/ORGANIZATION	FIRST NAME	LAST NAME	POSITION
Business	CHS, Inc. Petroleum Terminal	Jay	Martin	
Business	F.H. Stolze Land & Lumber Co.	Brian	Hobday	Forester
Business	Montana Rail Link	Jeff	Adams	
Business	Phillips 66	TJ	Hagemo	
Business	Pyramid Lumber, Inc.	Gordy	Sanders	Resource Manager
Business	PPL Montana	Gary	Jones	
DES District No. 1	Butte / Silver Bow County OEM	Roger	Ebner	DES Coordinator
DES District No. 1	Confederated Salish and Kootenai Tribes	Dale	Nelson	DES Coordinator
DES District No. 1	Deer Lodge County OES	Bill	Converse	DES Coordinator
DES District No. 1	Flathead County OES	Cindy	Mullaney	DES Coordinator
DES District No. 1	Granite County OES	Bart	Bonney	DES Coordinator
DES District No. 1	Lake County OEM	Steve	Stanley	DES Coordinator
DES District No. 1	Lincoln County EMA	Lisa	Oedewaldt	Floodplain Administrator
DES District No. 1	Lincoln County EMA	Victor L.	White	DES Coordinator
DES District No. 1	Mineral County OEM	George M.	Gupton	DES Coordinator
DES District No. 1	Missoula County OEM	Chris	Lounsbury	DES Coordinator
DES District No. 1	Powell County OEM	Bernard K.	Barton	DES Coordinator
DES District No. 1	Ravalli County OEM	Ron	Nicholas	DES Coordinator
DES District No. 1	Sanders County OEM	Bill	Naegeli	DES Coordinator
DES District No. 2	Blaine County DES	Haley	Justitis	DES Coordinator
DES District No. 2	Blackfeet Tribe	Robert	Desrosier	DES Coordinator
DES District No. 2	Blackfeet Tribe	Nora	Kennedy	DES Coordinator
DES District No. 2	Cascade County DES	Vince	Kolar	DES Coordinator
DES District No. 2	Chouteau County DES	Linda	Williams	DES Coordinator
DES District No. 2	City of Great Falls OEM	Kristal	Kuhn	DES Coordinator
DES District No. 2	Fort Belknap Indian Community	Gilbert Buddy	Horn	DES Coordinator
DES District No. 2	Glacier County DES	Charles	Farmer	DES Coordinator
DES District No. 2	Hill County OEM	Joseph	Parenteau	DES Coordinator
DES District No. 2	Liberty/Toole County DES	Darrel	Stafford	DES Coordinator
DES District No. 2	Pondera County DES	Leann	Hermance	DES Coordinator
DES District No. 2	Rocky Boys Reservation/Chippewa Cree Tribe	Richard	Macdonald	THMO
DES District No. 2	Teton County DES	Debra	Coverdell	DES Coordinator
DES District No. 3	Beaverhead County DES	Larry G.	Laknar	DES Coordinator
DES District No. 3	Broadwater County DES	Bill	Fleiner	DES Coordinator
DES District No. 3	Gallatin County Emergency Management	Patrick	Lonergan	Gallatin County DES
DES District No. 3	Jefferson County DES	Salley	Buckles	DES Coordinator
DES District No. 3	Lewis and Clark County DES	Pat	McKelvey	Deputy
DES District No. 3	Lewis and Clark County DES	Paul	Spengler	DES Coordinator
DES District No. 3	Madison County DES	Christopher	Mumme	DES Coordinator
DES District No. 3	Meagher County DES	Richard E	Seidlitz	DES Coordinator
DES District No. 3	Park County DES	Belinda	Van Nurden	DES Coordinator
DES District No. 3	Sweet Grass County DES	Brooke	Osen	DES Coordinator
DES District No. 4	Carter County DES	Ashley	Padden	DES Coordinator
DES District No. 4	Custer County DES	James	Zabrocki	DES Coordinator
DES District No. 4	Dawson County DES	Mary Jo	Gehnert	DES Coordinator
DES District No. 4	Fallon County DES	Chuck	Lee	DES Coordinator
DES District No. 4	Garfield County	Shelly	Fogle	DES Coordinator
DES District No. 4	McCone County DES	Benjamin	Fletes	DES Coordinator
DES District No. 4	Powder River County DES	Becky	McEuen	DES Coordinator
DES District No. 4	Prairie County DES	John	Pisk	DES Coordinator
DES District No. 4	Richland County DES	Butch	Renders	DES Coordinator
DES District No. 4	Wibaux County	Frank V.	Datta	DES Coordinator
DES District No. 5	Big Horn County DES	Ed	Auker	DES Coordinator
DES District No. 5	Carbon County DES	Darrel	Krum	DES Coordinator
DES District No. 5	Crow Agency	Joyce	LaForge	DES Coordinator
DES District No. 5	Golden Valley County Civil Defense	Floyd	Fisher	DES Coordinator
DES District No. 5	Musselshell County DES	Jeff	Gates	DES Coordinator
DES District No. 5	No. Cheyenne / Lame Deer	Ed	Joiner	DES Coordinator
DES District No. 5	Rosebud County DES	Carole	Raymond	DES Coordinator
DES District No. 5	Stillwater County DES	Carole	Arkell	DES Coordinator
DES District No. 5	Treasure County DES	Carla	Lind	DES Coordinator
DES District No. 5	Wheatland County DES	David	Jones	DES Coordinator
DES District No. 5	Yellowstone County DES	Duane	Winslow	DES Coordinator
DES District No. 6	Daniels County DES	Mary	Nyhus	DES Coordinator
DES District No. 6	Fergus County DES	Cheri	Kilby	DES Coordinator
DES District No. 6	Fort Peck Assiniboine and Sioux Tribes	Chris	Headdress	Director
DES District No. 6	Judith Basin County DES	Bonnie	Ostertag	DES Coordinator
DES District No. 6	Petroleum County DES	Bill	Cassell	DES Coordinator
DES District No. 6	Phillips County DES	Greg	Speer	DES Coordinator
DES District No. 6	Roosevelt County DES	Dan	Sietsema	DES Coordinator
DES District No. 6	Sheridan County DES	Curtis	Petrik	DES Coordinator

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CATEGORY	AGENCY/ORGANIZATION	FIRST NAME	LAST NAME	POSITION
DES District No. 6	Valley County DES	Richard	Seiler	DES Coordinator
Federal Agency	Air Force EPLO	Col. Monte	Boettger	DES Coordinator
Federal Agency	Army EPLO	Col. Alan	Stempel	DES Coordinator
Federal Agency	BLM	Mike	Dannenberg	Fire Management
Federal Agency	BLM	Karly	DeMars	Fire Management
Federal Agency	BLM	Terina	Mullen	Fire Management
Federal Agency	BLM	Michael J	Montgomery	Dam Safety
Federal Agency	Bureau of Reclamation	Tom	Sawatzke	Montana Area Office
Federal Agency	Bureau of Reclamation	Tim	Felchle	Drought Committee Member
Federal Agency	FEMA	Julie	Baxter	Community Planner
Federal Agency	FEMA	Margaret	Doherty	Community Planner
Federal Agency	Malmstrom AFB	Royce	Shipley	DES Coordinator
Federal Agency	National Weather Service - Billings	Keith	Meier	Meteorologist In Charge
Federal Agency	National Weather Service - Billings	Tom	Frieders	Warning Coordination Meteorologist
Federal Agency	National Weather Service - Glasgow	Tanja	Fransen	Warning Coordination Meteorologist
Federal Agency	National Weather Service - Great Falls	Gina	Loss	Senior Service Hydrologist
Federal Agency	National Weather Service - Great Falls	Chris	Foltz	Warning Coordination Meteorologist
Federal Agency	National Weather Service - Missoula	Bruce	Bauck	Meteorologist In Charge
Federal Agency	National Weather Service - Missoula	Ray	Nickless	Service Hydrologist
Federal Agency	National Weather Service - Missoula	Marty	Whitmore	Warning Coordination Meteorologist
Federal Agency	USACE	Randall	Behm	Floodplain Management
Federal Agency	USACE	Paul	Cooke	Floodplain Coordinator
Federal Agency	USACE	Patricia	Gilbert	Fort Peck Dam
Federal Agency	USDA, Farm Service Agency	Bruce	Nelson	Drought Committee Member
Federal Agency	USDA Forest Service	Margie	Ewing	Urban & Community Forester
Federal Agency	USDA Forest Service, Beaverhead-Deerlodge NF	Mike	Goicoechea	Fire Management Officer
Federal Agency	USDA Forest Service, Bitteroot National Forest	Rick	Floch	Fire Management Officer
Federal Agency	USDA Forest Service, Custer National Forest	Scott	Schuster	Fire Management Officer
Federal Agency	USDA Forest Service, Flathead National Forest	Rick	Connell	Fire Management Officer
Federal Agency	USDA Forest Service, Helena National Forest	Marty	Mitzkus	Fire Management Officer
Federal Agency	USDA Forest Service, Gallatin National Forest	Mike	Gagen	Fire Management Officer
Federal Agency	USDA Forest Service, Kootenai National Forest	Charlie	Webster	Fire Management Officer
Federal Agency	USDA Forest Service, Lewis & Clark National Forest	Brad	McBratney	Fire Management Officer
Federal Agency	USDA Forest Service	Kathy	Bushnell	Public Information Officer
Federal Agency	USDA Forest Service, Helena NF & Lewis & Clark NF	Marty	Mitzkus	Deputy Fire Management Officer
Federal Agency	USDA, Natural Resource Conservation Service	Lucas	Zukiewicz	
Federal Agency	USDA, Natural Resource Conservation Service	Brian	Domonkos	
Federal Agency	USDA Rural Development	Bill	Barr	Drought Committee Member
Federal Agency	U.S. Geological Survey	Wayne	Berkas	Hydrologist
Federal Agency	U.S. Geological Survey	Steve	Holnbeck	Hydrologist
Federal Agency	U.S. Geological Survey	Kathy	Chase	Hydrologist
Local Government	Anaconda-Deer Lodge County	Connie	Daniels	Floodplain Administrator
Local Government	Belgrade, City of	Jason	Karp	Floodplain Administrator
Local Government	Belgrade, City of	Joseph	Menicucci	Floodplain Administrator
Local Government	Belt, City of	Jean	Fontana	Floodplain Administrator
Local Government	Big Horn County	CRAIG	TAFT	Floodplain Administrator
Local Government	Blaine County	Ron	Andersen	Floodplain Administrator
Local Government	Boulder, City of	Diana	Van Haecke	Floodplain Administrator
Local Government	Bozeman, City of	Richard	Hixson	Floodplain Administrator
Local Government	Broadus, Town of	Raymond	Ragsdale	Floodplain Administrator
Local Government	Broadwater County	Shawn	Higley	Floodplain Administrator
Local Government	Brockton, Town of	Rodney	Burshia	Floodplain Administrator
Local Government	Browning, City of	William	Morris	Floodplain Administrator
Local Government	Butte-Silver Bow Planning Department	Steve	Hess	Floodplain Administrator
Local Government	Carbon County	Melissa	Rickbeil	Floodplain Administrator
Local Government	Cascade County Planning Department	Susan	Conell	Floodplain Administrator
Local Government	Chester, City of	John	Kleinsasser	Floodplain Administrator
Local Government	Choteau, City of	Jodi	Rogers	Floodplain Administrator
Local Government	Circle, City of	Ned	Sikveland	Floodplain Administrator
Local Government	Columbia Falls, City of	Susan	Niccosia	Floodplain Administrator
Local Government	Conrad, City of	John	Shevlin	Floodplain Administrator
Local Government	Custer County	Bill	Ellis	Floodplain Administrator
Local Government	Culbertson, City of	Raedelle	Aspenlieder	Floodplain Administrator
Local Government	Darby, Town of	Rick	Scheele	Floodplain Administrator
Local Government	Dawson County	Wade	Humphries	Floodplain Administrator
Local Government	Deer Lodge, City of	Heather	Gregory	Floodplain Administrator
Local Government	Dillon, City of	J.S.	Turner	Floodplain Administrator
Local Government	Dodson, Town of	Eldora	Henry	Floodplain Administrator
Local Government	Drummond, Town of	Cary	McLure	Floodplain Administrator
Local Government	East Helena, City of	Bill	Casey	Floodplain Administrator
Local Government	Ekalaka, Town of	Lisa	Jourdan	Floodplain Administrator

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CATEGORY	AGENCY/ORGANIZATION	FIRST NAME	LAST NAME	POSITION
Local Government	Ennis, Town of	Suzanne	Cross	Floodplain Administrator
Local Government	Fairview, Town of	Faye	Carlson	Floodplain Administrator
Local Government	Fallon County	Jessica	Dinardi	Floodplain Administrator
Local Government	Fergus County	Pamela Jo	Vosen	Floodplain Administrator
Local Government	Flathead County	Bailey	Minnich	Floodplain Administrator
Local Government	Forsyth, City of	Richard	Thompson	Floodplain Administrator
Local Government	Fort Peck Indian Reservation	Morning	Walking Eagle	Floodplain Administrator
Local Government	Fromberg, Town of	Edward	Warner-Combs	Floodplain Administrator
Local Government	Gallatin County	Chris	Scott	Asst. Floodplain Administrator
Local Government	Gallatin County	Sean	O'Callaghan	Floodplain Administrator
Local Government	Glasgow, City of	Dan	Carney	Floodplain Administrator
Local Government	Golden Valley County	Monte	Sealey	Floodplain Administrator
Local Government	Granite County	Mike	Kahoe	Floodplain Administrator
Local Government	Great Falls, City of	Charlie	Sheets	Floodplain Administrator
Local Government	Hamilton, City of	Land	Hansen	Floodplain Administrator
Local Government	Hardin, City of	Dallas	Eidem	Floodplain Administrator
Local Government	Harlem, City of	Rebecca	Skoyen	Floodplain Administrator
Local Government	Harlowton, City of	Jeffery	Sell	Floodplain Administrator
Local Government	Helena, City of	Brandt	Salo	Building Department
Local Government	Hill County	Clay	Vincent	Floodplain Administrator
Local Government	Hingham, Town of	Ray	Lipp	Floodplain Administrator
Local Government	Hot Springs, Town of	Randy	Wood	Floodplain Administrator
Local Government	Jefferson County	Megan	Bullock	Floodplain Administrator
Local Government	Joliet, Town of	Tracy	McNeilly	Floodplain Administrator
Local Government	Jordan, Town of	Evelyn	Ritter	Floodplain Administrator
Local Government	Kalispell, City of	PJ	Sorensen	Planner
Local Government	Lake County	Joel	Nelson	Floodplain Administrator
Local Government	Laurel, City of	Monica	Plecker	Floodplain Administrator
Local Government	Lavina, Town of	David	Kojetin	Floodplain Administrator
Local Government	Lewistown, City of	Duane	Ferdinand	Floodplain Administrator
Local Government	Liberty County	Jim	Ghekiere	Floodplain Administrator
Local Government	Lima, City of	David	Olson	Floodplain Administrator
Local Government	Lincoln County	Ed	Levert	Fire Management
Local Government	Livingston, City of	Jim	Woodhull	Floodplain Administrator
Local Government	Lodge Grass, Town of	Joe	Lovato	Floodplain Administrator
Local Government	Madison County	Ralph	Hammler	Floodplain Administrator
Local Government	Malta, City of	Carolyn	Schmoeckel	Floodplain Administrator
Local Government	Meagher County	Brian	Clifton	Floodplain Administrator
Local Government	Miles City, City of	Samantha	Malenovsky	Floodplain Administrator
Local Government	Mineral County	Tim	Read	Floodplain Administrator
Local Government	Missoula County	Todd	Klietz	Floodplain Administrator
Local Government	Nashua, Town of	Stephanie	Viste	Floodplain Administrator
Local Government	Neihart, Town of	Mike	McCord	Floodplain Administrator
Local Government	Park County	Barbara	Woodbury	Floodplain Administrator
Local Government	Park County	Mike	Inman	Floodplain Administrator
Local Government	Phillips County	Julie	Burke	Floodplain Administrator
Local Government	Philipsburg, Town of	Anne	Filmore	Floodplain Administrator
Local Government	Plains, Town of	Michael	Brinson	Floodplain Administrator
Local Government	Polson, City of	Todd	Crossett	Floodplain Administrator
Local Government	Powder River County	Wanda	Smith	Floodplain Administrator
Local Government	Powell County	Brian	Bender	Floodplain Administrator
Local Government	Ravalli County	Brian	Wilkinson	Floodplain Administrator
Local Government	Red Lodge, City of	Forest	Sanderson	Floodplain Administrator
Local Government	Richland County	Russ	Huotari	Floodplain Administrator
Local Government	Ronan, City of	Dan	Miller	Floodplain Administrator
Local Government	Ryegate, Town of	Patti	Bruner	Floodplain Administrator
Local Government	Saco, Town of	Howard	Pippin	Floodplain Administrator
Local Government	Sanders County	Kathy	Matthew	Floodplain Administrator
Local Government	Sheridan, Town of	Christopher	Mumme	Floodplain Administrator
Local Government	Sidney, City of	Jeffery	Hintz	Floodplain Administrator
Local Government	Stillwater County	Stephanie	Moodry	Floodplain Administrator
Local Government	Superior, City of	Roger	Wasley	Floodplain Administrator
Local Government	Sweet Grass County	Page	Dringman	Floodplain Administrator
Local Government	Teton County	Paul	Wick	Floodplain Administrator
Local Government	Three Forks, City of	Kelly	Smith	Floodplain Administrator
Local Government	Townsend, City of	Mary	Upton	Floodplain Administrator
Local Government	Treasure County	County	Commissioners	Floodplain Administrator
Local Government	Twin Bridges, Town of	Sam	Novich	Floodplain Administrator
Local Government	Valier, Town of	Vern	Stokes	Floodplain Administrator
Local Government	Valier, Town of	McKenzie	Graye	Floodplain Administrator
Local Government	Valley Counthy	Cal	Shipp	Floodplain Administrator

Montana Pre-Disaster Mitigation Plan 2013 Update - Stakeholders List

CATEGORY	AGENCY/ORGANIZATION	FIRST NAME	LAST NAME	POSITION
Local Government	White Sulphur Springs, City of	Julian	Theriault	Floodplain Administrator
Local Government	Whitefish, City of	David	Taylor	Floodplain Administrator
Local Government	Whitehall, Town of	Darcy	Perrenoud	Floodplain Administrator
Local Government	Wibaux, Town of	Debbie	McBride	Floodplain Administrator
Local Government	Wolf Creek, Town of	Rocky	Infanger	Fire Department
Local Government	Wolf Point, City of	Richard	Isle	Floodplain Administrator
Local Government	Yellowstone County	Mike	Black	Floodplain Administrator
Local Government	Yellowstone County	Tim	Miller	Floodplain Administrator
Local Government	Yellowstone County	Darin	Swenson	Floodplain Administrator
Non-Profit	American Red Cross of Montana	Allison	Hupp	Director, Emergency Operations
Non-Profit	American Red Cross of Montana	Jenny	Litus	Resources Development Assoc.
Non-Profit	American Red Cross of Montana	Diane	Wright	Chief Development Officer
Non-Profit	American Red Cross of Montana	Rod	Kopp	CEO
Non-Profit	American Red Cross of Montana	Colleen	Tone	Manager, Disaster Services
Non-Profit	American Red Cross of Montana	Kevin	Murszewski	Directory of Preparedness & Military Services
Non-Profit	Beartooth RC&D	Chris	Mehus	Fuels Program Director
Non-Profit	Big Sky FireSafe Council	Steve	Schumacher	
Non-Profit	Clearwater Resource Council	Ken	Barber	Seeley Swan Mitigation Task Force
Non-Profit	FireSafe Montana	Pat	McKelvey	
Non-Profit	FireSafe Montana	Jennifer	Mayberry LaManna	Executive Director
Non-Profit	Flathead Policy Center	Carol	Daly	
Non-Profit	Glacier Fire Safe Council	Bruce	Running Crane	
Non-Profit	Montana Association of Conservation Districts	Jeff	Tiberi	Drought Committee Member
Non-Profit	Montana Association of Counties	Kent	Evans	Drought Committee Member
Non-Profit	Montana Grain Growers Association	Curt	Diehl	Drought Committee Member
Non-Profit	Montana League of Cities and Towns	Alec N.	Hansen	Executive Director
Non-Profit	Montana Stockgrowers Association	Jay	Bodner	Drought Committee Member
Non-Profit	Montana Water Resources Association	Mike	Murphy	Drought Committee Member
Non-Profit	Montana Citizen Corps			Ready Montana
Non-Profit	Northern Rockies RC&D	Crystal	Hagerman	MSU Gallatin County Extension
Non-Profit	NW RC&D	Bill	Swope	
Non-Profit	Park County FireSafe Coalition	Greg	Coleman	
Non-Profit	Sweet Grass County Fuels Reduction Committee	Doug	Lowry	
Non-Profit	Westfork/Painted Rock FireSafe Council	Bob	Mutch	
Non-Profit	Whitefish Area FireSafe Council	Michael	Frost	
Non-Profit	Whitefish Area FireSafe Council	Patrick	Sullivan	
State Agency	Governor's Office of Community Service	Katie	Gallagher	Grants Coordinator
State Agency	Montana Bureau of Mines and Geology	Mike	Stickney	Earthquake Studies Office
State Agency	Montana Dept. of Administration	Lou	Antonick	Emergency Management Planner
State Agency	Montana Dept. of Administration	Tom	O'Connell	Architecture & Engineering
State Agency	Montana Dept. of Administration	Jim	Whaley	Architecture & Engineering
State Agency	Montana Dept. of Administration, Montana Lottery	Angela	Wong	Director of Security
State Agency	Montana Dept. of Administration, Risk Management	Brett E.	Dahl	Risk Management Tort Defense
State Agency	Montana Dept. of Administration, Risk Management	Aric	Curtiss	Risk Management Tort Defense
State Agency	Montana Dept. of Administration, ITSD	Dawn	Pizzini	Service Continuity
State Agency	Montana Department of Agriculture	Ron	de Young	Director
State Agency	Montana Department of Agriculture	Ron	Zellar	Information Specialist
State Agency	Montana State Auditor's Office	Barbara	Van Der Mars	Policyholder Services Supervisor
State Agency	Montana State Auditor's Office	Mike	Anderson	Chief Auditor
State Agency	Montana State Auditor's Office	Greg	Dahl	
State Agency	Montana Department of Commerce	Kelly	Lynch	
State Agency	Montana Department of Commerce	Dore	Schwinden	Director
State Agency	Montana Department of Commerce	Bruce	Brensdal	Drought Committee Member
State Agency	Montana Dept. Commerce, Heritage Commission	Elijah	Allen	Operations Director
State Agency	Montana Dept. Environmental Quality	Richard	Opper	Director
State Agency	Montana Fish, Wildlife & Parks	Joe	Maurier	Director
State Agency	Montana Fish, Wildlife & Parks	Chas	Van Genderen	Parks Department
State Agency	Montana Fish, Wildlife & Parks	Andy	Brummond	Drought Committee Member
State Agency	Montana Historical Society	Bruce	Whittenberg	Director
State Agency	Montana Dept. Justice, Highway Patrol	Col. Michael T.	Tooley	Chief Administrator
State Agency	Montana Department of Justice	Joe	Wodnik	Criminal Investigation
State Agency	Montana State Library, NRIS	Gerry	Daumiller	Drought Committee Member
State Agency	Montana Department of Livestock	Christian	Mackay	Director
State Agency	Montana Dept. Military Affairs, DES	Martha Jo	Smith	District No. 1 Representative
State Agency	Montana Dept. Military Affairs, DES	Ed	Gierke	District No. 2 Representative
State Agency	Montana Dept. Military Affairs, DES	Bob	Fry	District No. 3 Representative
State Agency	Montana Dept. Military Affairs, DES	Alan	Stempel	District No. 4 Representative
State Agency	Montana Dept. Military Affairs, DES	Charlie	Hanson	District No. 5 Representative
State Agency	Montana Dept. Military Affairs, DES	Mark	Gruener	District No. 6 Representative
State Agency	Montana Dept. Military Affairs, DES	Steve	Knecht	Deputy Administrator

Montana Pre-Disaster Mitigation Plan 2013 Update - Stakeholders List

CATEGORY	AGENCY/ORGANIZATION	FIRST NAME	LAST NAME	POSITION
State Agency	Montana Dept. Military Affairs, DES	Sheri	Lanz	Homeland Security Branch Director
State Agency	Montana Dept. Military Affairs, DES	Kent	Atwood	State Hazard Mitigation Officer
State Agency	Montana Dept. Military Affairs, DES	Nadene	Wadsworth	Assistant to SHMO
State Agency	Montana Dept. Military Affairs	Matthew T.	Quinn	National Guard, Adjutant General
State Agency	Montana Dept. Military Affairs, DES	Ed	Tinsley	Administrator
State Agency	Montana Dept. Military Affairs, DES	Marschal	Rothe	Training Coordinator
State Agency	Montana Dept. Military Affairs, DES	Janice	Traynor	Drought Committee Member
State Agency	Montana Dept. Military Affairs	Co. Theodore	Hull	National Guard
State Agency	Montana DNRC Water Resources	Laurence	Siroky	Water Operations Bureau Chief
State Agency	Montana DNRC Water Resources	Michele	Lemieux	Dam Safety Program
State Agency	Montana DNRC Water Resources	Chad	Newman	Dam Safety Program
State Agency	Montana DNRC Water Resources	Mary	Gibson	Map Modernization Coordinator
State Agency	Montana DNRC Water Resources	Brian	Shipman	Training Specialist
State Agency	Montana DNRC Water Resources	Traci	Sears	NFIP Specialist
State Agency	Montana DNRC Water Resources	Stephen	Story	State Floodplain Engineer
State Agency	Montana DNRC Water Resources	Jesse	Aber	Water Resource Planner
State Agency	Montana DNRC Water Resources	Sam	Johnson	Billings Regional Engineer
State Agency	Montana DNRC Water Resources	Marv	Cross	Civil Engineering Specialist
State Agency	Montana DNRC Water Resources	Chadrick	Hill	Dam Safety Program
State Agency	Montana DNRC Water Resources	Larry	Schock	Civil Engineering Specialist
State Agency	Montana DNRC Water Resources	Mary	Guokas	Floodplain Outreach Specialist
State Agency	Montana DNRC Water Resources	Marc	Pitman	Manager
State Agency	Montana DNRC Water Resources	Sterling	Sundheim	Regional Engineer Specialist
State Agency	Montana DNRC Water Resources	Jim	Robinson	Water Resources Planner
State Agency	Montana DNRC Water Resources	John	Connors	Regional Engineer
State Agency	Montana DNRC Water Resources	Mathew	Norberg	Drought Committee Member
State Agency	Montana DNRC	Alyssa	Stewart	
State Agency	Montana DNRC Forestry	Paula	Short	Planning & Public Affairs
State Agency	Montana DNRC Forestry	Sue	Clark	Wildfire Management
State Agency	Montana DNRC Forestry	Angela	Mallon	
State Agency	Montana DNRC Forestry	Ted	Mead	
State Agency	Montana DNRC Forestry	Bruce	Suenram	Deputy Chief Preparedness
State Agency	Montana DNRC Forestry	Cynthia	Super	Prevention Specialist
State Agency	Montana DNRC Forestry	Bob	Harrington	Montana State Forester
State Agency	Montana DNRC Forestry	Elaine	Huseby	Information Systems & Statistics
State Agency	Montana DNRC Forestry	Elizabeth	Hertz	GIS Specialist
State Agency	Montana DNRC	John	Monzie	Deputy Chief of Fire Operations
State Agency	Montana Dept. Public Health & Human Services	Delila	Bruno	Public Health Emergency Preparedness
State Agency	Montana Dept. Public Health & Human Services	Jim	Murphy	Supervisor
State Agency	Montana Office of Public Instruction	Denise	Juneau	Superintendent
State Agency	Montana Dept. of Revenue, Resource Management	Sandy	Lang	Statewide Facilities Officer
State Agency	Montana Department of Transportation	Dwane	Kailey	Chief Operations Officer
State Agency	Montana Department of Transportation	Jeffery	Ebert	Butte District
State Agency	Montana Department of Transportation	Tom	Gocksch	Helena Environmental
State Agency	Montana Department of Transportation	Michael	Johnson	Great Falls District
State Agency	Montana Department of Transportation	Shane	Mintz	Glendive District
State Agency	Montana Department of Transportation	Ed	Toavs	Missoula District
State Agency	Montana Department of Transportation	Stefan	Streeter	Billings District
State Agency	Montana Department of Transportation	Cheryl	Richman	Helena Equipment
Universities	MSU Billings	Eakle	Barfield	Facilities Services Director
Universities	MSU-Bozeman, Office of Facilities Services	Victoria	Drummond	Assistant Planner
Universities	MSU-Bozeman, Office of Facilities Services	Walter	Banziger	Assistant Planner
Universities	MSU-Bozeman, Safety & Risk Management	Jeff	Shada	Director
Universities	MSU Extension Service	Jill	Martz	Montana Wildfire & Drought Resources
Universities	MSU-Great Falls	Pam	Parsons	Administration & Finance
Universities	MSU-Northern	Sue	Ost	Director of Business Services
Universities	MSU-Northern	Dan	Ulmen	Director of Facilities
Universities	MT Tech	Marilyn	Cameron	Office of Environmental Health & Safety
Universities	UM-Helena	Russ	Fillner	Asst. Dean, Fiscal & Plant
Universities	UM-Missoula	Lt. Gary	Taylor	Office of Public Safety
Universities	UM-Western	Nicole	Hazelbaker	Assistant to the Dean
Universities	University of Montana	Kathy	Benson	Environmental Health
Universities	University of Montana	Danny	Corti	Research Administration
Utility	Beartooth Electric Cooperative	Roxie	Melton	President
Utility	Big Flat Electric	Jeanne	Barnard	Manager
Utility	Fall River Rural Electric Co-op	Clyde	Seely	Director
Utility	Flathead Electric Coop	Emery	Smith	Board Member
Utility	Glacier Electric Cooperative	Jasen	Bronec	Manager
Utility	Goldenwest Electric Cooperative	John	Sokoloski	Manager
Utility	Hill County Electric	Richard	Stevens	Manager
Utility	Libby Dam Project	Charlie	Comer	Safety Officer

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CATEGORY	AGENCY/ORGANIZATION	FIRST NAME	LAST NAME	POSITION
Utility	Lincoln Electric Cooperative	Ray	Ellis	Manager
Utility	Lower Yellowstone Rural Electric Co-op	Don	Prevost	Manager
Utility	McCone Electric Cooperative	Mike	Kays	Manager
Utility	Mid-Yellowstone Electric	Ted	Church	Manager
Utility	Mission Valley Power	Rex	Winebrenner	Manager
Utility	Missoula Electric Cooperative	Mark	Hayden	Manager
Utility	Nor-Val Electric Cooperative	CRAIG	Herbert	Manager
Utility	Northern Lights Inc.	Annie	Terracciano	Manager
Utility	Park Electric	Tim	Stephens	Manager
Utility	Ravalli Electric Cooperative	Ric	Brown	Manager
Utility	Sheridan Electric Cooperative	Rick	Knick	Manager
Utility	Southeast Electric	Jack	Hamblin	Manager
Utility	Sun River Electric Cooperative	Scott	Odegard	Manager
Utility	Tongue River Electric	Alan	See	Manager
Utility	Vigilante Electric	Dave	Alberi	Manager
Utility	Yellowstone Valley Electric Cooperative	Terry	Holzer	Manager

PLANNING TEAM - 2013 STATE PDM PLAN UPDATE				
CATEGORY	**AGENCY/ORGANIZATION**	**FIRST NAME**	**LAST NAME**	**DEPARTMENT/POSITION**
State Agency	Montana DNRC	Jesse	Aber	Water Resource Planner
State Agency	Montana DES	Kent	Atwood	State Hazard Mitigation Officer
State Agency	Montana Dept. Public Health & Human Services	Delila	Bruno	Public Health Emergency Preparedness
State Agency	Montana DOA / Risk Management	Aric	Curtiss	Risk Management Tort Defense
Federal Agency	National Weather Service - Great Falls	Chris	Foltz	Warning Coordinator Meteorologist
State Agency	Montana Dept. Military Affairs	Col. Theodore	Hull	National Guard
Non-Profit	FireSafe Montana	Rocky	Infanger	Wildfire Specialist
Federal Agency	National Weather Service - Great Falls	Gina	Loss	Senior Service Hydrologist
Non-Profit	FireSafe Montana	Pat	McKelvey	Wildfire Specialist
Federal Agency	USDA Forest Service	Marty	Mitzkus	Deputy Fire Management Officer Helena & Lewis & Clark National Forests
State Agency	Montana Department of Transportation	Cheryl	Richman	Helena Equipment
State Agency	Montana DNRC Water Resources	Laurence	Siroky	Water Operations Bureau Chief
DES District No. 3	Lewis and Clark County DES	Paul	Spengler	DES Coordinator
State Agency	Montana Bureau of Mines and Geology	Mike	Stickney	Earthquake Studies Office
State Agency	Montana DNRC	Bruce	Suenram	Deputy Chief of Fire and Aviation Management
State Agency	Montana Department of Administration	Jim	Whaley	Architecture & Engineering

STATE OF MONTANA CRITICAL FACILITIES (2013) E = Essential, V = Vulnerable, O = Other

AGENCY	NAME	CATEGORY	STREET ADDRESS	CITY	YR BUILT	HISTORICAL	SQUARE FT	SPRINKLERE	# BUILDINGS	OWNERSHIP	CONT_CD	CONC_CD	# STORIES	NUM_FTE	STRUCTURE VALUE	CONTENTS VALUE	ADDITIONAL CONTENTS	TOTAL	DESCRIPTION OF ADDITIONAL CONTENTS VALUE	DESCRIPTION OF OTHER
DEPARTMENT OF MILITARY AFFAIRS	ANACONDA ARMORY	E	101 N Polk	ANACONDA	1970	N	8,817	N	1	O	M	C	1	0	$1,280,292	$258,163	$0	$1,538,455		
DEPARTMENT OF JUSTICE	MHP-LOST CREEK MICROWAVE TOWER	E	923 W 5TH ST	ANACONDA	0	N	0	N	1	O	N	U	0	0	$56	$0	$197,563	$197,619	Other	Microwave Tower
MONTANA STATE UNIVERSITY - BILLINGS	ASHLAND TRANSLATOR	E	Home Creek Butte, 27KM E of Ashland	ASHLAND	0	N	1,400	N	1	L	M	U	1	0	$0	$16,509	$0	$16,509		
DEPARTMENT OF TRANSPORTATION	AERONAUTICS NDB - BAKER	E	101 Airport Road	BAKER	0	N	36	N	1	O	M	E	1	0	$2,254	$396	$13,000	$15,650	Other	Radio Transmitter
DEPARTMENT OF MILITARY AFFAIRS	GALLATIN READINESS CENTER	E	350 Airport Road	BELGRADE	2003	N	50,256	Y	1	O	M	C	1	2	$5,056,007	$1,406,229	$0	$6,462,236		
DEPARTMENT OF JUSTICE	MHP - JETTE LAKE COUNTY MICROWAVE TOWER	E	2 miles SE of Big Arm	BIG ARM	0	N	0	N	0	O	N	U	0	0	$0	$0	$58,064	$58,064	Other	microwave tower
MONTANA STATE UNIVERSITY - BILLINGS	BIG SKY TRANSLATOR	E	Andesite Peak - 45 16' 25	BIG SKY	0	N	800	N	1	L	M	U	0	0	$0	$9,434	$0	$9,434		
MONTANA STATE UNIVERSITY - BILLINGS	BIG TIMBER TRANSMITTER	E	5.5 Mile South of Big Timber	BIG TIMBER	0	N	0	N	1	L	N	U	0	0	$0	$0	$82,780	$82,780	Other	Transmitter
DEPARTMENT OF FISH, WILDLIFE & PARKS	5) HANGAR - AIRPORT	E	Logan Int'l Airport	BILLINGS	1988	N	2,792	N	1	O	L	U	1	1	$140,179	$0	$0	$140,179		
DEPARTMENT OF FISH, WILDLIFE & PARKS	5) REGIONAL HQ BUILDING	O	2300 Lake Elmo Dr	BILLINGS	1990	N	8,023	N	1	O	H	D	1	29	$1,170,951	$247,974	$728,764	$2,147,689	Other	FWP vehicles
DEPARTMENT OF MILITARY AFFAIRS	BILLINGS AFRC	E	2915 Gabel Road	BILLINGS	1999	N	129,940	Y	1	O	M	B	1	0	$10,467,614	$2,387,004	$0	$12,854,618		
DEPARTMENT OF TRANSPORTATION	BILLINGS OFFICE & SHOP	E	424 Morey Lane	BILLINGS	1981	N	21,267	N	1	O	H	C	2	20	$1,991,737	$657,371	$25,500	$2,674,608	Other	radio equipment
DEPARTMENT OF LABOR & INDUSTRY	BILLINGS UI PHONE CLAIMS	O	624 N 24th St	BILLINGS	1958	N	12,960	N	1	O	M	C	2	42	$1,500,584	$400,581	$193,930	$2,095,095	Telephone Systems, Other	Computers/Servers
MONTANA STATE UNIVERSITY - BILLINGS	KEMC RADIO STATION - 406 MARBARA LANE	E	406 Marbara Lane	BILLINGS	1970	N	3,489	N	1	O	M	D	2	16	$300,182	$457,939	$37,750	$795,871	Other	HD Radio Transmitter Equip
MONTANA STATE UNIVERSITY - BILLINGS	KEMC TRANSMITTER FACILITIES	E	6544 Keller Road, 6 miles S. of Billings	BILLINGS	0	N	4,736	N	1	L	M	U	1	0	$0	$237,076	$80,469	$317,545	Other	HD Radio Equipment
DEPT CORRECTIONS, MONTANA WOMEN'S PRISON	MONTANA WOMEN'S PRISON EXPANSION	E	701 27th Street S	BILLINGS	2002	N	42,635	Y	1	O	M	C	3	40	$4,559,459	$966,824	$0	$5,526,283		
DEPT CORRECTIONS, MONTANA WOMEN'S PRISON	MONTANA WOMEN'S PRISON MAIN BUILDING	E	701 27th St S.	BILLINGS	1985	N	32,440	Y	1	O	M	C	2	30	$20,284,553	$1,684,756	$0	$21,969,309		
MONTANA STATE UNIVERSITY - BILLINGS	PETRO/RIMROCK/SUB COMPLEX	E	1500 University Drive	BILLINGS	1962	N	281,996	Y	1	O	M	B	8	31	$35,249,862	$6,761,233	$620,000	$42,631,095	Other, Telephone Systems	Computer hardware
MONTANA STATE UNIVERSITY - BILLINGS	PHYS PLANT - 324 N RIM TERR	E	324 N. Rim Terrrace	BILLINGS	1979	N	16,384	N	1	O	M	B	1	45	$1,575,061	$516,326	$0	$2,091,387		
MONTANA STATE UNIVERSITY - BILLINGS	PHYSICAL ED BUILDING - BILLINGS	V	1500 University Drive	BILLINGS	1961	N	112,997	Y	1	O	M	B	3	36	$14,069,567	$977,698	$250,000	$15,297,265	Other	Comp Hardware 50,000 & Undgrd Tunnel 200,000
MONTANA STATE UNIVERSITY - BILLINGS	RENTAL HOUSE/MSUB DAYCARE - 2630 NORMAL	V	2630 Normal	BILLINGS	1936	N	4,000	Y	1	O	L	D	2	0	$156,201	$44,032	$0	$200,233		
MONTANA STATE UNIVERSITY - BILLINGS	SCIENCE HALL	O	1500 N. 30th St.	BILLINGS	1947	N	54,311	Y	1	O	M	C	3	20	$7,715,733	$4,152,263	$127,267	$11,995,263	Other	Computer hardware
DPHHS, MONTANA DEVELOPMENTAL CENTER	ADMINISTRATION	O	310 4th Avenue	BOULDER	1990	N	8,099	Y	1	O	M	D	1	20	$1,015,746	$244,105	$66,000	$1,325,851	Library Books, Mid-size and Mainframe Computer Systems, Other	FURNISHINGS
DPHHS, MONTANA DEVELOPMENTAL CENTER	ASU ADMINISTRATION	V	310 4TH AVENUE	BOULDER	2007	N	3,000	N	1	O	M	D	1	6	$752,410	$108,056	$20,000	$880,466	Other	FURNISHINGS
DPHHS, MONTANA DEVELOPMENTAL CENTER	HOME - 10/12 BED #1	V	310 4th Avenue	BOULDER	1996	N	4,653	Y	1	O	M	D	1	14	$188,968	$106,540	$25,000	$320,508	Other	FURNISHINGS
DPHHS, MONTANA DEVELOPMENTAL CENTER	HOME - 10/12 BED #2	V	310 4th Avenue	BOULDER	1996	N	4,653	Y	1	O	M	U	1	14	$188,968	$106,540	$34,700	$330,208	Other, Telephone Systems, Mid-size and Mainframe Computer Systems	FURNISHINGS
DPHHS, MONTANA DEVELOPMENTAL CENTER	HOME - 6 BED #1	V	310 4th Avenue	BOULDER	1996	N	3,362	Y	1	O	M	D	1	10	$136,538	$76,981	$8,500	$222,019	Other	FURNISHINGS
DPHHS, MONTANA DEVELOPMENTAL CENTER	HOME - 6 BED #2	V	310 4th Avenue	BOULDER	1996	N	3,362	Y	1	O	M	D	1	10	$136,538	$76,981	$8,500	$222,019	Other	FURNISHINGS
DPHHS, MONTANA DEVELOPMENTAL CENTER	HOME - 8/10 BED #1	V	310 4th Avenue	BOULDER	1996	N	4,041	Y	1	O	M	D	1	12	$164,113	$92,526	$9,500	$266,139	Other	FURNISHINGS
DPHHS, MONTANA DEVELOPMENTAL CENTER	HOME - 8/10 BED #2	V	310 4th Avenue	BOULDER	1996	N	4,041	Y	1	O	M	D	1	12	$164,113	$92,526	$9,500	$266,139	Other	FURNISHINGS
DPHHS, MONTANA DEVELOPMENTAL CENTER	HOME 4 BED ASU A	V	310 4TH AVENUE	BOULDER	2007	N	2,000	Y	1	O	M	D	1	11	$501,607	$44,032	$10,000	$555,639	Other	FURNISHINGS
DPHHS, MONTANA DEVELOPMENTAL CENTER	HOME 4 BED ASU B	V	310 4TH AVENUE	BOULDER	2007	N	2,000	Y	1	O	M	D	1	11	$501,607	$44,032	$10,000	$555,639	Other	FURNISHINGS
DPHHS, MONTANA DEVELOPMENTAL CENTER	HOME 4 BED ASU C	V	310 4TH AVENUE	BOULDER	2007	N	2,000	Y	1	O	M	D	1	12	$501,607	$44,032	$10,000	$555,639	Other	FURNISHINGS
DPHHS, MONTANA DEVELOPMENTAL CENTER	MAINTENANCE SHOP	O	310 4th Avenue	BOULDER	1980	N	7,668	Y	1	O	H	A	1	12	$613,995	$314,290	$125,000	$1,053,285	Other	SHOP EQUIPMENT
DPHHS, MONTANA DEVELOPMENTAL CENTER	OFFICES/VOCATIONAL	E	310 4th Avenue	BOULDER	1950	N	16,808	Y	1	O	H	B	1	10	$4,618,833	$1,249,598	$248,000	$6,116,431	Other, Telephone Systems, Mid-size and Mainframe Computer Systems	CAN BALER/PAPER BALER/FURNISHINGS
DEPT CORRECTIONS, RIVERSIDE YOUTH CORRECTIONAL	PROGRAMS BUILDING #15	O	2 Riverside Rd	BOULDER	1972	N	6,980	Y	1	O	M	U	1	6	$1,002,946	$187,658	$10,000	$1,200,604	Other	New Kitchen Equip
DEPARTMENT OF FISH, WILDLIFE & PARKS	3) REGIONAL HQ BUILDING	O	1400 S. 19th	BOZEMAN	1987	N	17,292	N	1	O	H	D	2	30	$1,207,755	$483,910	$1,073,968	$2,765,633	Other	FWP vehicles
MONTANA STATE UNIVERSITY - BOZEMAN	AJM JOHNSON HALL	O	Grant Street (no official address)	BOZEMAN	1954	N	41,333	N	1	O	H	B	2	69	$8,665,172	$4,572,509	$7,328,700	$20,566,381	Other	Lab Equipment
MONTANA STATE UNIVERSITY - BOZEMAN	ANIMAL BIOSCIENCE BUILDING	O	SOUTH 11TH AVENUE	BOZEMAN	2010	N	39,986	Y	1	O	H	C	5	32	$9,596,640	$8,140,350	$0	$17,736,990		
DEPARTMENT OF TRANSPORTATION	BOZEMAN OFFICE & SHOP	E	907 N. Rouse	BOZEMAN	1939	N	12,731	N	1	O	H	D	2	10	$1,012,016	$547,732	$20,000	$1,579,748	Other	radio equipment
MONTANA STATE UNIVERSITY - BILLINGS	BOZEMAN TRANSLATOR	E	113 Sourdough Ridge Road	BOZEMAN	0	N	1,150	N	1	L	M	U	0	0	$0	$13,561	$0	$13,561		
MONTANA STATE UNIVERSITY - BOZEMAN	BRICK BREEDEN FIELDHOUSE	E	South11th Avenue (no official address)	BOZEMAN	1958	N	189,376	Y	1	O	M	C	3	81	$33,809,212	$9,158,861	$0	$42,968,073		
MONTANA STATE UNIVERSITY - BOZEMAN	CFT BUILDING #4 SPECTRUM LAB LEASED	O	2310 UNIVERSITY WAY BUILDING 4	BOZEMAN	2005	N	4,654	Y	1	L	M	G	2	6	$0	$0	$0	$0		
MONTANA STATE UNIVERSITY - BOZEMAN	CHEEVER HALL	O	South 11th Avenue (no official address)	BOZEMAN	1974	N	63,806	N	1	O	M	B	2	37	$15,622,064	$7,058,526	$3,700,610	$26,381,200	Other, Library Books	kilns, pottery equipment, etc.
MONTANA STATE UNIVERSITY - BOZEMAN	CHEMISTRY BIOCHEMISTRY BIUILDING	O	Montana State University Campus	BOZEMAN	2007	N	89,613	Y	1	O	H	A	5	72	$21,743,861	$19,729,444	$0	$41,473,305		
MONTANA STATE UNIVERSITY - BOZEMAN	COBLEIGH HALL	O	South 7th Avenue (no official address)	BOZEMAN	1970	N	92,741	N	1	O	H	B	6	81	$22,706,490	$10,259,516	$6,180,000	$39,146,006	Other	Laboratory Equip & Mirage trailer research equip
MONTANA STATE UNIVERSITY - BOZEMAN	COOLEY LABORATORY	O	South11th Avenue (no official address)	BOZEMAN	1960	N	31,415	N	1	O	H	B	4	0	$6,266,969	$768,209	$2,500,000	$9,535,178	Other	Laboratory Equipment
MONTANA STATE UNIVERSITY - BOZEMAN	DAYCARE/COMMUNITY CENTER	V	1295 West Garfield	BOZEMAN	1987	N	3,962	N	1	O	M	D	1	6	$904,140	$64,229	$0	$968,369		
DEPARTMENT OF LIVESTOCK	DIAGNOSTIC LABORATORY BOZEMAN CONTENTS	E	S. 19th & Lincoln	BOZEMAN	0	N	4,889	N	1	L	M	U	1	19	$0	$503,743	$84,850	$588,593	Other	hematology analyzer
MONTANA STATE UNIVERSITY - BOZEMAN	ENGINEERING PHYSICAL SCIENCES BLDG	O	GRANT STREET	BOZEMAN	1996	N	150,730	Y	1	O	H	A	3	183	$38,581,845	$16,674,525	$5,500,000	$60,756,370	Other	Lab and Engin equip
MONTANA STATE UNIVERSITY - BOZEMAN	FACULTY COURT-11 (OPTEC EAST)	O	11 Faculty Court	BOZEMAN	1999	N	2,220	N	1	O	H	D	1	1	$214,331	$51,200	$250,000	$515,531	Other	Lab Equipment
MONTANA STATE UNIVERSITY - BOZEMAN	FACULTY COURT-13 (CHEMISTRY)	O	13 Faculty Court	BOZEMAN	1999	N	2,220	N	1	O	M	D	1	2	$229,477	$54,865	$0	$284,342		
MONTANA STATE UNIVERSITY - BOZEMAN	FACULTY COURT-15 (AQUATIC SCI)	O	15 Faculty Court	BOZEMAN	1996	N	2,195	N	1	O	M	D	1	1	$208,166	$412,717	$350,000	$970,883	Other	Lab Equip.
MONTANA STATE UNIVERSITY - BOZEMAN	FS HEAT PLANT GENERATOR BLDG	E	FS HEAT PLANT GENERATOR BLDG	BOZEMAN	1922	N	719	N	1	O	M	D	1	0	$68,282	$20,030	$76,500	$164,812	Other	Tools and Equip.
MONTANA STATE UNIVERSITY - BOZEMAN	GAINES HALL	O	Grant Street (no official address)	BOZEMAN	1961	N	96,993	Y	1	O	H	B	4	50	$23,278,320	$8,334,528	$0	$31,612,848		
MONTANA STATE UNIVERSITY - BOZEMAN	GRANT CHAMBERLAIN	O	101, 2, 3, 4, 5, 6 Grant Chamberlain Street	BOZEMAN	1975	N	118,062	N	6	O	M	C	3	0	$13,902,337	$0	$0	$13,902,337		
MONTANA STATE UNIVERSITY - BOZEMAN	HAMILTON HALL	O	South 7th Avenue (no official address)	BOZEMAN	1910	N	27,745	N	1	O	M	C	4	38	$6,322,254	$3,069,274	$0	$9,391,528		
MONTANA STATE UNIVERSITY - BOZEMAN	HANNON HALL	V	South 7th Avenue (no official address)	BOZEMAN	1955	N	85,669	Y	1	O	M	C	4	12	$13,315,202	$420,698	$0	$13,735,900		
MONTANA STATE UNIVERSITY - BOZEMAN	HAPNER HALL	V	West Cleveland	BOZEMAN	1959	N	94,612	Y	1	O	M	C	3	16	$14,862,880	$461,414	$800,000	$16,124,294	Other	Commercial Bakery Equipment
MONTANA STATE UNIVERSITY - BOZEMAN	HAYNES HALL	O	South 11th Avenue (no official address)	BOZEMAN	1974	N	42,104	N	1	O	M	B	2	25	$8,437,262	$4,657,809	$0	$13,095,071		
MONTANA STATE UNIVERSITY - BOZEMAN	MSU - HEATING PLANT	E	West Grant Street	BOZEMAN	1923	N	9,614	N	1	O	H	C	1	12	$1,817,326	$1,566,955	$0	$3,384,281		
MONTANA STATE UNIVERSITY - BOZEMAN	HOWARD HALL	O	South 11th Avenue	BOZEMAN	1974	N	29,102	N	1	O	M	B	2	35	$6,626,935	$3,219,414	$1,107,250	$10,953,599	Other	musical instuments
MONTANA STATE UNIVERSITY - BOZEMAN	HUFFMAN BUILDING	O	South 7th Avenue (no official address)	BOZEMAN	1969	N	8,675	N	1	O	M	C	1	29	$1,454,466	$205,514	$425,000	$2,084,980	Other	Laboratory Equipment, vehicles
MONTANA STATE UNIVERSITY - BOZEMAN	JOHNSON FAMILY LIVESTOCK (BLS2)	E	West of South 19th Avenue & Lincoln Street	BOZEMAN	2008	N	7,300	Y	1	O	M	H	1	0	$3,104,311	$1,574,751	$0	$4,679,062		
MONTANA STATE UNIVERSITY - BOZEMAN	JOHNSTONE CENTER	O	West Harrison Street (no official address)	BOZEMAN	1955	N	121,400	Y	1	O	M	B	4	17	$18,868,193	$488,490	$0	$19,356,683		
MONTANA STATE UNIVERSITY - BOZEMAN	JULIA MARTIN EAST 4-PLEX	O	102, 4, 6, 9, 10, 11 East Julia Martin Drive	BOZEMAN	1968	N	22,812	N	6	O	M	C	2	0	$2,341,539	$0	$0	$2,341,539		
MONTANA STATE UNIVERSITY - BOZEMAN	JULIA MARTIN EAST 8 PLEX	O	101, 3, 5, 7, 8 EAST JULIA MARTIN	BOZEMAN	1968	N	37,540	N	5	O	M	C	2	0	$3,902,565	$0	$0	$3,902,565		
MONTANA STATE UNIVERSITY - BOZEMAN	JULIA MARTIN WEST 8 PLEX	O	112, 3, 4, 5, 6, 7, 8, 9 West. Julia Martin Drive	BOZEMAN	1971	N	54,880	N	8	O	L	C	2	0	$6,244,105	$0	$0	$6,244,105		
MONTANA STATE UNIVERSITY - BOZEMAN	JUTILA RESEARCH LAB (BSL3)	E	West of South 19th & Lincoln Street	BOZEMAN	2007	N	3,563	Y	1	O	M	A	1	4	$2,730,323	$352,999	$0	$3,083,322		
MONTANA STATE UNIVERSITY - BOZEMAN	KBMC TRANSMITTER FACILITIES	E	High Flat, 11 miles W.S.W. of Bozeman	BOZEMAN	0	N	2,210	N	1	L	M	U	1	0	$0	$159,754	$61,989	$221,743	Other	HD Radio Transmitter Equip
MONTANA STATE UNIVERSITY - BOZEMAN	KOCH TOWER	V	101 Peter Koch Street	BOZEMAN	1968	N	38,917	Y	1	O	M	B	9	0	$6,371,878	$190,754	$0	$6,562,632		
MONTANA STATE UNIVERSITY - BOZEMAN	LANGFORD HALL	V	West Harrison Street (no official address)	BOZEMAN	1960	N	100,399	Y	1	O	M	C	4	2	$15,604,276	$490,628	$0	$16,094,904		
DEPARTMENT OF AGRICULTURE	LEASED - AG SCIENCES/BOZEMAN LABORATORY	E	MSU McCall Hall Rm 10	BOZEMAN	1952	N	10,448	N	1	L	H	C	1	9	$0	$2,392,271	$0	$2,392,271		
MONTANA STATE UNIVERSITY - BOZEMAN	LEON JOHNSON HALL	O	West Arthur St (northwest of Montana Hall-no offic	BOZEMAN	1973	N	112,011	Y	1	O	H	B	8	98	$28,671,107	$12,391,304	$6,000,000	$47,062,411	Other	Laboratory Equipment
MONTANA STATE UNIVERSITY - BOZEMAN	LEWIS HALL	O	West Garfield Street (no official address)	BOZEMAN	1923	N	45,450	Y	1	O	H	B	3	54	$10,361,440	$4,660,761	$2,250,000	$17,272,201	Other, Mid-size and Mainframe Computer Systems	Laboratory Equipment
MONTANA STATE UNIVERSITY - BOZEMAN	LINFIELD HALL	O	South 11th Avenue (no official address)	BOZEMAN	1909	N	65,563	N	1	O	H	C	3	93	$15,537,564	$7,252,945	$1,750,000	$24,540,509	Other	Laboratory Equipment
MONTANA STATE UNIVERSITY - BOZEMAN	MARSH LAB MODULAR # 1	O	1922 WEST LINCOLN STREET	BOZEMAN	1998	N	2,220	N	1	O	M	D	1	0	$210,537	$228,969	$175,000	$614,506	Other	Laboratory Equipment
MONTANA STATE UNIVERSITY - BOZEMAN	MARSH LAB MODULAR # 2	O	1922 WEST LINCOLN STREET	BOZEMAN	2001	N	2,220	N	1	O	M	D	1	4	$210,537	$400,695	$175,000	$786,232	Other	Laboratory Equipment
MONTANA STATE UNIVERSITY - BOZEMAN	MARSH LABORATORY	O	1911 WEST LINCOLN STREET	BOZEMAN	1961	N	31,198	N	1	O	H	C	1	45	$6,256,033	$3,451,292	$3,500,000	$13,207,325	Other	Laboratory Equipment
MONTANA STATE UNIVERSITY - BOZEMAN	MCCALL HALL	O	South11th Avenue (no official address)	BOZEMAN	1952	N	10,488	N	1	O	H	C	1	9	$2,045,758	$1,160,202	$900,000	$4,105,960	Other	Laboratory Equipment
MONTANA STATE UNIVERSITY - BOZEMAN	MCINTOSH COURT 5 APT.	O	101,3, 4, 5, 6, 9 Mcintosh Court	BOZEMAN	1996	N	33,354	Y	6	O	M	D	2	0	$4,759,912	$0	$0	$4,759,912		
MONTANA STATE UNIVERSITY - BOZEMAN	MCINTOSH COURT 6 APTS	O	102, 7, 8 MCINTOSH COURT	BOZEMAN	1996	N	21,297	Y	3	O	M	D	2	0	$2,226,759	$0	$0	$2,226,759		
MONTANA STATE UNIVERSITY - BOZEMAN	MILLER DINING (HEDGES FS)	E	West Grant (no official address)	BOZEMAN	1964	N	47,195	N	1	O	M	B	2	65	$9,856,947	$2,030,609	$750,000	$12,637,556	Other	appliances and vehicles
MONTANA STATE UNIVERSITY - BOZEMAN	MOLECULAR BEAM FACILITY	O	Montana State University Campus	BOZEMAN	1972	N	1,014	N	1	O	M	D	1	3	$96,164	$104,478	$250,000	$450,642	Other	Laboratory Equipment

STATE OF MONTANA CRITICAL FACILITIES (2013) E = Essential, V = Vulnerable, O = Other

AGENCY	NAME	CATEGORY	STREET ADDRESS	CITY	YR BUILT	HISTORICAL	SQUARE FT	SPRINKLERE	# BUILDINGS	OWNERSHIP	CONT_CD	CONC_CD	# STORIES	NUM_FTE	STRUCTURE VALUE	CONTENTS VALUE	ADDITIONAL CONTENTS	TOTAL	DESCRIPTION OF ADDITIONAL CONTENTS VALUE	DESCRIPTION OF OTHER
MONTANA STATE UNIVERSITY - BOZEMAN	MONTANA HALL	V	West Garfield (no official address)	BOZEMAN	1896	N	39,725	N	1	O	M	C	5	148	$9,776,416	$4,394,580	$0	$14,170,996		
MONTANA STATE UNIVERSITY - BOZEMAN	MUSEUM OF THE ROCKIES	E	600 KAGY BOULEVARD	BOZEMAN	1987	N	93,390	Y	1	O	H	A	2	33	$20,000,076	$4,910,859	$70,000	$24,980,935	Other	vehichles
MONTANA STATE UNIVERSITY - BOZEMAN	NORTH HEDGES HALL	V	West Grant Street	BOZEMAN	1965	N	134,127	Y	1	O	M	B	11	7	$21,635,251	$646,367	$0	$22,281,618		
MONTANA STATE UNIVERSITY - BOZEMAN	NORTH HEDGES SUITES #1	O	Montana State University Campus	BOZEMAN	1998	N	29,281	Y	1	O	M	D	3	0	$3,754,403	$0	$0	$3,754,403		
MONTANA STATE UNIVERSITY - BOZEMAN	NORTH HEDGES SUITES #2	O	Montana State University Campus	BOZEMAN	1998	N	29,211	Y	1	O	M	D	3	0	$3,754,403	$0	$0	$3,754,403		
MONTANA STATE UNIVERSITY - BOZEMAN	PAISLEY APARTMENTS	O	101, 2, 3, 4, 5, 6, 7, 8, 9 Paisley Court	BOZEMAN	1985	N	77,382	N	9	O	M	D	2	0	$9,666,722	$0	$0	$9,666,722		
MONTANA STATE UNIVERSITY - BOZEMAN	PLANT BIOSCIENCE BUILDING	V	Montana State University Campus	BOZEMAN	1999	N	40,480	Y	1	O	H	C	4	53	$9,955,338	$4,478,149	$1,300,000	$15,733,487	Other	Lab Equipment
MONTANA STATE UNIVERSITY - BOZEMAN	PLANT GROWTH CENTER	V	South 11th Avenue (no official address)	BOZEMAN	1986	N	64,958	Y	1	O	H	C	2	11	$15,975,314	$3,623,317	$1,500,000	$21,098,631	Other	Analytical/laboratory equipment
MONTANA STATE UNIVERSITY - BOZEMAN	PLEW BUILDING	O	West Grant	BOZEMAN	1952	N	18,500	N	1	O	M	C	2	44	$2,589,524	$388,838	$3,935,500	$6,913,862	Other	CAD system and records
MONTANA STATE UNIVERSITY - BOZEMAN	QUAD A	O	Montana State University Campus	BOZEMAN	1935	N	6,807	Y	1	O	M	C	3	0	$1,157,390	$0	$0	$1,157,390		
MONTANA STATE UNIVERSITY - BOZEMAN	QUAD B	O	Montana State University Campus	BOZEMAN	1935	N	6,807	Y	1	O	M	C	3	0	$1,157,390	$0	$0	$1,157,390		
MONTANA STATE UNIVERSITY - BOZEMAN	QUAD C	O	Montana State University Campus	BOZEMAN	1935	N	7,473	Y	1	O	M	C	3	0	$1,270,624	$0	$0	$1,270,624		
MONTANA STATE UNIVERSITY - BOZEMAN	QUAD D	O	Montana State University Campus	BOZEMAN	1935	N	7,473	Y	1	O	M	C	3	0	$1,270,624	$0	$0	$1,270,624		
MONTANA STATE UNIVERSITY - BOZEMAN	QUAD E	O	Montana State University Campus	BOZEMAN	1935	N	6,840	Y	1	O	M	C	3	0	$1,162,706	$0	$0	$1,162,706		
MONTANA STATE UNIVERSITY - BOZEMAN	QUAD F	O	Montana State University Campus	BOZEMAN	1935	N	6,840	Y	1	O	M	C	3	4	$118,206	$8,143	$0	$126,349		
MONTANA STATE UNIVERSITY - BOZEMAN	REID HALL	O	West Garfield Street (no official address)	BOZEMAN	1959	N	91,167	N	1	O	M	A	3	141	$23,335,697	$10,085,353	$800,500	$34,221,550	Other	Data/Audio/visual lab
MONTANA STATE UNIVERSITY - BOZEMAN	RENNE LIBRARY	O	West Garfield Street (no official address)	BOZEMAN	1949	N	163,069	Y	1	O	H	C	4	101	$34,229,727	$16,971,141	$117,866,324	$169,067,192	Other, Telephone Systems, Mid-size and Mainframe Computer Systems, Library Books	Special Collections
MONTANA STATE UNIVERSITY - BOZEMAN	ROBERTS HALL	O	West Garfield Street (no official address)	BOZEMAN	1922	N	49,395	N	1	O	H	C	3	48	$12,404,169	$2,726,649	$1,100,000	$16,230,818	Other	Computer and analytical equipment.
MONTANA STATE UNIVERSITY - BOZEMAN	ROMNEY GYMNASIUM	E	West Grant Street (no official address)	BOZEMAN	1922	N	53,074	N	1	O	M	B	4	17	$12,869,493	$507,321	$175,000	$13,551,814	Other	Analytical Equipment
MONTANA STATE UNIVERSITY - BOZEMAN	ROSKIE HALL	V	West Grant Street (no official address)	BOZEMAN	1966	N	90,200	Y	1	O	M	B	11	1	$14,537,508	$440,751	$0	$14,978,259		
MONTANA STATE UNIVERSITY - BOZEMAN	SAFETY RISK MGMT NOPPER BLDG LEASED	V	1160 Research Drive	BOZEMAN	1984	N	9,328	N	1	O	M	G	2	9	$1,263,240	$577,500	$100,000	$1,940,740	Other	Monitoring and Analytical Equipment
MONTANA STATE UNIVERSITY - BOZEMAN	SHERRICK HALL	O	West Garfield Street (no official address)	BOZEMAN	1973	N	18,298	N	1	O	M	A	2	34	$4,480,069	$2,024,196	$0	$6,504,265		
MONTANA STATE UNIVERSITY - BOZEMAN	SOUTH HEDGES HALL	V	West Grant Street	BOZEMAN	1965	N	134,127	Y	1	O	M	B	11	35	$21,635,251	$646,367	$0	$22,281,618		
MONTANA STATE UNIVERSITY - BOZEMAN	STORY TOWER	V	101 Nelson Story	BOZEMAN	1968	N	38,917	Y	1	O	M	B	9	0	$6,371,878	$190,754	$0	$6,562,632		
MONTANA STATE UNIVERSITY - BOZEMAN	STRAND UNION BUILDING	E	West Grant (no official address)	BOZEMAN	1939	N	191,407	Y	1	O	M	A	2	152	$46,198,235	$19,134,281	$0	$65,332,516		
MONTANA STATE UNIVERSITY - BOZEMAN	SWINGLE HEALTH CENTER	E	South 7th Avenue (no official address)	BOZEMAN	1957	N	21,400	N	1	O	M	C	2	57	$4,483,203	$2,367,432	$325,000	$7,175,635	Other	Medical/Diagnostic/Dental/Laboratory Equipment
MONTANA STATE UNIVERSITY - BOZEMAN	TAYLOR HALL	O	South 11th Avenue (no official address)	BOZEMAN	1896	N	9,197	Y	1	O	M	C	3	23	$2,095,685	$1,017,391	$0	$3,113,076		
MONTANA STATE UNIVERSITY - BOZEMAN	TIETZ HALL	O	East of South 11th Avenue (no official address)	BOZEMAN	1985	N	20,389	Y	1	O	H	C	1	8	$3,074,966	$82,857	$0	$3,157,823		
MONTANA STATE UNIVERSITY - BOZEMAN	TRAPHAGEN HALL	O	West of South 11th Avenue (no official address)	BOZEMAN	1920	N	37,014	N	1	O	M	C	4	31	$8,097,068	$4,094,706	$325,000	$12,516,774	Other	Geological maps/Phychological Testing equipment
MONTANA STATE UNIVERSITY - BOZEMAN	TUNNEL SYSTEM	E	Montana State University Campus	BOZEMAN	1995	N	61,350	N	1	O	H	B	1	0	$31,335,000	$0	$0	$31,335,000		
MONTANA STATE UNIVERSITY - BOZEMAN	VISUAL COMMUNICATIONS BUILDING	O	West Grant (no official address)	BOZEMAN	1983	N	41,495	N	1	O	H	A	2	53	$10,964,848	$4,359,767	$6,322,703	$21,647,318	Other	TV Station, Photography, Computer Graphics Equip.
MONTANA STATE UNIVERSITY - BOZEMAN	WILSON HALL	O	West Garfield Street (no official address)	BOZEMAN	1974	N	84,708	N	1	O	M	A	2	180	$20,739,801	$9,370,889	$0	$30,110,690		
DEPARTMENT OF TRANSPORTATION	AERONAUTICS BROADUS - NDB	E	3 miles South East of Broadus Airport	BROADUS	0	N	36	N	1	O	M	E	1	0	$2,254	$396	$13,000	$15,650	Other	Radio Transmitter
DEPARTMENT OF MILITARY AFFAIRS	BUTTE ARMORY	E	600 Gilman St	BUTTE	2000	N	12,873	N	1	O	L	C	1	0	$1,935,952	$376,914	$0	$2,312,866		
DEPARTMENT OF MILITARY AFFAIRS	BUTTE ARMORY ANNEX	E	600 Gilman St	BUTTE	2000	N	4,189	N	1	O	L	D	2	0	$513,082	$112,681	$0	$625,763		
DEPARTMENT OF TRANSPORTATION	BUTTE OFFICE & SHOP	E	3751 Wynne Avenue	BUTTE	1970	N	20,791	N	1	O	H	C	1	20	$2,199,592	$608,663	$18,000	$2,826,255	Other	radio equipment
MONTANA TECH OF THE UM	CENTENNIAL HALL (STUDENT RESIDENCE-EAST)	O	1225 Broadway	BUTTE	1999	N	33,879	Y	1	O	M	C	3	3	$4,385,445	$400,557	$592,000	$5,378,002	Telephone Systems	
MONTANA TECH OF THE UM	CHEMISTRY - BIOLOGY BUILDING (CBB) - H	O	1300 W. Park Street	BUTTE	1921	Y	44,966	N	1	O	M	B	3	50	$9,542,746	$3,087,782	$0	$12,630,528		
MONTANA TECH OF THE UM	COLLEGE OF TECHNOLOGY	O	25 Basin Creek Rd.	BUTTE	1983	N	93,807	Y	1	O	M	C	1	20	$14,207,290	$6,651,850	$56,000	$20,915,140	Telephone Systems	
MONTANA TECH OF THE UM	ENGINEERING HALL-H	O	1300 W. Park Street	BUTTE	1923	Y	13,727	N	1	O	M	H	2	0	$2,886,365	$856,434	$0	$3,742,799		
MONTANA TECH OF THE UM	ENGINEERING LABORATORY-CLASSROOM BUILDING	O	1300 W. Park Street	BUTTE	1984	N	60,779	Y	1	O	M	B	3	50	$12,671,319	$3,196,471	$0	$15,867,790		
MONTANA TECH OF THE UM	FAMILY STUDENT HOUSING - LEXINGTON APARTMENTS	O	1001 - 1039 Lexington Ave	BUTTE	1950	N	20,309	Y	1	O	M	D	2	0	$2,183,712	$0	$0	$2,183,712		
MONTANA TECH OF THE UM	FAMILY STUDENT HOUSING - MISSOULA APARTMENTS NO.	O	1001 - 1039 Missoula Ave	BUTTE	1950	N	20,309	Y	1	O	M	D	2	0	$2,183,712	$0	$0	$2,183,712		
MONTANA TECH OF THE UM	FAMILY STUDENT HOUSING - MISSOULA APARTMENTS SO.	O	1000 - 1038 Missoula Ave	BUTTE	1950	N	20,309	Y	1	O	M	D	2	0	$2,183,712	$0	$0	$2,183,712		
MONTANA TECH OF THE UM	HEALTH SCIENCES BUILDING (FORMER PETROLEUM BLDG)	O	1300 W. Park Street	BUTTE	1953	N	23,694	N	1	O	M	B	3	2	$3,792,200	$970,987	$2,839,683	$7,602,870	Other	Renovation 1/1/12
MONTANA TECH OF THE UM	HEALTH, PHYSICAL EDUCATION, & RECREATION BLDG	E	1300 W. Park Street	BUTTE	1980	N	86,975	N	1	O	M	B	2	20	$11,650,616	$784,926	$0	$12,435,542		
MONTANA TECH OF THE UM	HEATING PLANT BUILDING	E	1300 W. Park Street	BUTTE	1969	N	11,037	N	1	O	M	B	2	2	$1,176,551	$372,760	$0	$1,549,311		
UNIVERSITY OF MONTANA - MISSOULA	KUFM BUTTE	E	XL Heights	BUTTE	0	N	80	N	1	L	L	U	1	0	$0	$0	$50,000	$50,000	Other	Radio Tower Transmitter
MONTANA TECH OF THE UM	LIBRARY BUILDING & AUDITORIUM BUILDING (JOINED)	O	1300 W. Park Street	BUTTE	1977	N	39,611	Y	1	O	M	C	3	30	$6,922,570	$2,474,062	$28,984,068	$38,380,700	Library Books	
MONTANA TECH OF THE UM	MAIN HALL-H	E	1300 W. Park Street	BUTTE	1896	Y	38,083	N	1	O	M	H	3	0	$8,312,108	$2,574,802	$0	$10,886,910		
DEPARTMENT OF JUSTICE	MHP - FLEECER MICROWAVE TOWER	E	BUTTE SILVERBOW COUNTY	BUTTE	0	N	0	N	1	O	N	U	1	0	$0	$0	$185,000	$185,000	Other	MICROWAVE TOWER
MONTANA TECH OF THE UM	MILL BUILDING-H	O	1300 W. Park Street	BUTTE	1908	Y	16,813	Y	1	O	M	C	2	0	$3,611,583	$161,820	$0	$3,773,403		
MONTANA TECH OF THE UM	MINING GEOLOGY BUILDING (M&G)	O	1300 W. Park Street	BUTTE	1972	N	43,236	N	1	O	M	B	4	2	$7,146,020	$1,771,675	$206,000	$9,123,695	Other	
MONTANA TECH OF THE UM	MUSEUM BUILDING-H	E	1300 W. Park Street	BUTTE	1940	Y	36,394	N	1	O	M	B	3	0	$7,592,469	$778,275	$0	$8,370,744		
MONTANA TECH OF THE UM	NATURAL RESOURCES BUILDING	E	1505 W. Park Street	BUTTE	2009	N	59,967	Y	1	O	M	B	3	55	$18,174,300	$1,300,770	$0	$19,475,070		
MONTANA TECH OF THE UM	PHYSICAL PLANT BUILDING - BUTTE	E	1300 W. Park Street	BUTTE	1948	N	6,300	N	1	O	M	B	3	0	$246,353	$126,220	$0	$372,573		
MONTANA TECH OF THE UM	PROSPECTOR HALL (STUDENT RESIDENCE-WEST)-H	V	1301 W. Park Street	BUTTE	1935	Y	53,911	Y	1	O	M	B	4	20	$6,100,753	$396,293	$0	$6,497,046		
MONTANA TECH OF THE UM	SCIENCE & ENGINEERING BUILDING (S&E)-H	O	1300 W. Park Street	BUTTE	1925	Y	34,996	N	1	O	M	B	3	0	$6,412,038	$2,320,516	$0	$8,732,554		
MONTANA TECH OF THE UM	STUDENT UNION BUILDING - BUTTE	E	1300 W. Park Street	BUTTE	1960	N	42,940	N	1	O	M	B	2	20	$8,084,464	$1,347,581	$0	$9,432,045		
DEPARTMENT OF JUSTICE	MHP - SULLIVAN A MICROWAVE TOWER	E	15 miles W of Cascade	CASCADE	0	N	0	N	0	O	N	U	0	0	$0	$0	$59,304	$59,304	Other	microwave tower
DEPARTMENT OF TRANSPORTATION	AERONAUTICS NDB - CHESTER	E	Liberty County Airport	CHESTER	0	N	36	N	1	O	M	D	1	0	$2,254	$396	$13,000	$15,650	Other	Radio Transmitter
MONTANA STATE UNIVERSITY - BILLINGS	CHESTER MT TRANSLATOR	E	Royal Mountain	CHESTER	0	N	70	N	1	O	M	U	0	0	$78,893	$13,870	$0	$92,763		
DEPARTMENT OF MILITARY AFFAIRS	CHINOOK ARMORY	E	735 7th Street East	CHINOOK	1980	N	9,912	N	1	O	M	C	1	0	$993,617	$306,360	$0	$1,299,977		
DEPARTMENT OF JUSTICE	MHP - WAPA (BLAINE COUNTY) MICROWAVE TOWER	E	7 miles NW of Chinook	CHINOOK	0	N	0	N	0	O	N	U	0	0	$0	$0	$51,267	$51,267	Other	microwave tower
DEPARTMENT OF TRANSPORTATION	AERONAUTICS NDB - CHOTEAU	E	103 Airport Road	CHOTEAU	0	N	36	N	1	O	H	E	1	0	$2,254	$0	$13,000	$15,254	Other	Radio Equipment
DEPARTMENT OF TRANSPORTATION	AERONAUTICS NDB - CIRCLE	E	101 Airport Road	CIRCLE	0	N	36	N	1	O	H	E	1	0	$2,254	$0	$13,000	$15,254	Other	Radio Equipment
MONTANA STATE UNIVERSITY - BILLINGS	COLSTRIP TRANSLATOR	E	Little Wolf Mount, 13.5 miles W.S.W. of town	COLSTRIP	0	N	800	N	1	L	M	U	0	0	$0	$9,434	$105,307	$114,741	Other	HD Radio Install
DPHHS, VETERANS' HOME - COLUMBIA FALLS	NURSING HOME & DOM &SPECIAL CARE UNIT 69-73-84-02	E	400 Veterans Dr.	COLUMBIA FALLS	1970	N	60,000	Y	1	O	H	C	1	130	$12,450,273	$1,587,101	$350,000	$14,387,374	Other, Mid-size and Mainframe Computer Systems, Telephone Systems	office equipment, nursing furniture/equipment
MONTANA STATE UNIVERSITY - BILLINGS	COLUMBUS TRANSLATOR	E	2 miles W. of town	COLUMBUS	0	N	800	N	1	L	M	U	0	0	$0	$9,434	$0	$9,434		
DEPARTMENT OF JUSTICE	MHP-SHANE RIDGE MICROWAVE TOWER	E	15 miles SE of Columbus	COLUMBUS	0	N	0	N	1	O	N	U	0	0	$0	$0	$163,402	$163,402	Other	MICROWAVE TOWER
DEPARTMENT OF NATURAL RESOURCES	FIRE CACHE & SHOP	E	12 miles S of Swan Lake at MM 59, Hwy 83	CONDON	0	N	1,680	N	1	O	M	U	1	0	$70,236	$46,738	$0	$116,974		
DEPARTMENT OF TRANSPORTATION	AERONAUTICS NDB - CONRAD	E	48 deg - 11' - 18.0" N, 111 deg - 54' - 48.0" W	CONRAD	0	N	36	N	1	O	H	E	1	0	$2,254	$0	$13,000	$15,254	Other	Radio Equipment
DEPARTMENT OF MILITARY AFFAIRS	CULBERTSON ARMORY	E	819 6th Avenue East	CULBERTSON	1980	N	15,219	N	1	O	L	C	1	10	$1,573,171	$515,181	$0	$2,088,352		
DEPARTMENT OF JUSTICE	MHP - CULBERTSON MICROWAVE TOWER	E	3 miles NE of Culbertson	CULBERTSON	0	N	0	N	0	O	N	U	0	0	$0	$0	$40,871	$40,871	Other	microwave tower
MONTANA STATE UNIVERSITY - BILLINGS	CUT BANK TRANSLATOR	E	Tank Hill, 1/2 mile S.E. of Mem. Hospital	CUT BANK	0	N	940	N	1	L	M	U	0	0	$0	$11,084	$0	$11,084		
DEPARTMENT OF JUSTICE	MHP - SANTA RITA GLACIER COUNTY MICROWAVE TOWER	E	8 miles N of Santa Rita	CUT BANK	0	N	0	N	0	O	N	U	0	0	$0	$0	$102,260	$102,260	Other	microwave tower
DEPARTMENT OF CORRECTIONS, STATE PRISON	CLOSE UNIT I	E	400 Conley Lake Rd	DEER LODGE	1979	N	22,972	Y	1	O	M	B	2	6	$5,926,623	$27,520	$0	$5,954,143		
DEPARTMENT OF CORRECTIONS, STATE PRISON	CLOSE UNIT II	E	400 Conley Lake Rd	DEER LODGE	1979	N	22,972	Y	1	O	H	B	2	6	$5,926,623	$27,520	$0	$5,954,143		
DEPARTMENT OF CORRECTIONS, STATE PRISON	CLOSE UNIT III	E	400 Conley Lake Rd	DEER LODGE	1986	N	31,036	Y	1	O	H	B	2	9	$8,006,379	$27,520	$0	$8,033,899		
DEPARTMENT OF CORRECTIONS, PRISON INDUSTRIES	COOK CHILL (FOOD FACTORY)	E	600 Conley Lake Rd	DEER LODGE	2000	N	17,611	N	1	O	M	C	1	21	$4,332,773	$2,006,784	$0	$6,339,557		
DEPARTMENT OF CORRECTIONS, STATE PRISON	DOC TRAINING CENTER	E	442 Gulf Course Rd	DEER LODGE	1963	N	7,780	N	0	O	M	C	1	4	$573,639	$217,729	$0	$791,368		
DEPARTMENT OF CORRECTIONS, STATE PRISON	FIRE TRUCK GARAGE	E	400 Conley Lake Rd	DEER LODGE	1996	N	1,680	N	1	O	N	D	1	0	$70,236	$572	$0	$70,808		

STATE OF MONTANA CRITICAL FACILITIES (2013) E = Essential, V = Vulnerable, O = Other

AGENCY	NAME	CATEGORY	STREET ADDRESS	CITY	YR BUILT	HISTORICAL	SQUARE FT	SPRINKLERE	# BUILDINGS	OWNERSHIP	CONT_CD	CONC_CD	# STORIES	NUM_FTE	STRUCTURE VALUE	CONTENTS VALUE	ADDITIONAL CONTENTS	TOTAL	DESCRIPTION OF ADDITIONAL CONTENTS VALUE	DESCRIPTION OF OTHER
DEPARTMENT OF CORRECTIONS, STATE PRISON	GUARD STATION (REAR)	E	400 Conley Lake Rd	DEER LODGE	1976	N	355	N	1	O	M	C	1	2	$39,483	$8,373	$0	$47,856		
DEPARTMENT OF CORRECTIONS, STATE PRISON	GUARD TOWER #1	E	400 Conley Lake Rd	DEER LODGE	0	N	300	N	1	O	H	C	1	1	$26,008	$3,807	$0	$29,815		
DEPARTMENT OF CORRECTIONS, PRISON INDUSTRIES	H S LAUNDRY/EDUCATION	O	600 Conley Lake Rd	DEER LODGE	1995	N	18,800	N	1	O	M	C	2	9	$3,467,243	$1,376,018	$1,825,245	$6,668,506	Other	Misc Content
DEPARTMENT OF CORRECTIONS, STATE PRISON	HIGH SECURITY GYM	V	400 Conley Lake Rd	DEER LODGE	1950	N	11,900	N	1	O	M	C	1	6	$1,954,538	$132,098	$0	$2,086,636		
DEPARTMENT OF CORRECTIONS, STATE PRISON	HIGH SECURITY SUPPORT BUILDING	E	400 Conley Lake Rd	DEER LODGE	1982	N	13,248	Y	1	O	M	B	1	8	$2,840,621	$220,163	$0	$3,060,784		
DEPARTMENT OF CORRECTIONS, STATE PRISON	HIGH SIDE FOOD SERVICE BUILDING	E	400 Conley Lake Rd	DEER LODGE	1976	N	12,144	N	1	O	H	C	1	9	$2,292,647	$605,448	$0	$2,898,095		
DEPARTMENT OF CORRECTIONS, STATE PRISON	INFIRMARY BUILDING	E	400 Conley Lake Rd	DEER LODGE	1985	N	12,473	Y	1	O	M	C	1	31	$1,395,452	$279,210	$0	$1,674,662		
DEPARTMENT OF CORRECTIONS, PRISON INDUSTRIES	LAUNDRY	O	600 Conley Lake Rd	DEER LODGE	0	N	1,800	N	1	O	M	U	1	0	$181,857	$52,837	$0	$234,694		
DEPARTMENT OF CORRECTIONS, STATE PRISON	LOW SECURITY GYM	V	400 Conley Lake Rd	DEER LODGE	1984	N	9,816	Y	1	O	M	C	1	6	$1,622,780	$22,016	$0	$1,644,796		
DEPARTMENT OF CORRECTIONS, STATE PRISON	LOW SECURITY HOUSING UNIT D	E	400 Conley Lake Rd	DEER LODGE	1990	N	13,760	Y	1	O	M	B	1	4	$3,140,906	$60,545	$0	$3,201,451		
DEPARTMENT OF CORRECTIONS, STATE PRISON	LOW SECURITY SUPPORT (ROTHE)	E	400 Conley Lake Rd	DEER LODGE	1968	N	34,306	Y	1	O	H	C	2	27	$6,476,169	$275,204	$0	$6,751,373		
DEPARTMENT OF CORRECTIONS, STATE PRISON	MAIN PRISON WAREHOUSE	E	400 Conley Lake Rd	DEER LODGE	1988	N	23,490	N	1	O	H	E	1	9	$901,717	$1,221,480	$0	$2,123,197		
DEPARTMENT OF CORRECTIONS, STATE PRISON	MAINTENANCE COMPLEX	E	400 Conley Lake Rd	DEER LODGE	1965	N	22,000	Y	1	O	H	C	2	20	$1,384,273	$931,950	$0	$2,316,223		
DEPARTMENT OF CORRECTIONS, STATE PRISON	MARTZ DIAGNOSTIC AND INTAKE UNIT (MDIU)	E	400 Conley Lake Rd	DEER LODGE	2004	N	37,141	Y	1	O	H	C	1	16	$7,083,467	$1,356,202	$0	$8,439,669		
DEPARTMENT OF CORRECTIONS, STATE PRISON	MAXIMUM SECURITY BUILDING ADDITION	E	400 Conley Lake Road	DEER LODGE	2010	N	789	Y	1	O	H	B	1	0	$78,991	$25,869	$0	$104,860		
DEPARTMENT OF CORRECTIONS, STATE PRISON	MAXIMUM SECURITY UNIT	E	400 Conley Lake Rd	DEER LODGE	1986	N	31,716	Y	1	O	H	B	1	9	$8,948,849	$55,041	$0	$9,003,890		
DEPARTMENT OF CORRECTIONS, STATE PRISON	MSP ARMORY	E	400 Conley Lake Rd	DEER LODGE	1968	N	6,903	N	1	O	H	C	1	12	$914,711	$208,934	$1,098,000	$2,221,645	Telephone Systems, Other	
DEPARTMENT OF CORRECTIONS, PRISON INDUSTRIES	PARLOR	O	600 Conley Lake Rd	DEER LODGE	1949	N	42,324	N	1	O	H	C	2	5	$2,464,523	$1,431,057	$2,259,247	$6,154,827	Other	Equipment
DEPARTMENT OF CORRECTIONS, STATE PRISON	RECEPTION BUILDING	E	400 Conley Lake Rd	DEER LODGE	1968	N	10,160	Y	1	O	H	C	1	14	$2,397,558	$82,561	$0	$2,480,119		
DEPARTMENT OF CORRECTIONS, STATE PRISON	RELIGIOUS ACTIVITY CENTER	O	400 Conley Lake Rd	DEER LODGE	1979	N	4,956	N	1	O	M	C	1	4	$580,846	$35,376	$0	$616,222		
DEPARTMENT OF CORRECTIONS, PRISON INDUSTRIES	TAG PLANT	O	600 Conley Lake Rd	DEER LODGE	1975	N	14,250	N	1	O	H	E	1	4	$1,165,704	$830,344	$1,390,800	$3,386,848	Other	License plate equipment
DEPT CORRECTIONS, TREASURE STATE CORRECTION TC	TREASURE STATE CORRECTIONAL TRAINING CENTER	V	1100 Conley Lake Road	DEER LODGE	1998	N	22,436	N	1	O	M	D	1	27	$3,899,438	$495,366	$0	$4,394,804		
DEPARTMENT OF CORRECTIONS, STATE PRISON	UNIT A COMMONS	V	400 Conley Lake Rd	DEER LODGE	1974	N	4,096	N	1	O	M	C	1	8	$493,600	$47,168	$0	$540,768		
DEPARTMENT OF CORRECTIONS, STATE PRISON	UNIT A HOUSING	V	400 Conley Lake Rd	DEER LODGE	1976	N	19,415	N	1	O	M	B	3	0	$4,602,040	$110,082	$0	$4,712,122		
DEPARTMENT OF CORRECTIONS, STATE PRISON	UNIT B COMMONS	V	400 Conley Lake Rd	DEER LODGE	1974	N	4,096	N	1	O	M	C	1	9	$493,600	$47,168	$0	$540,768		
DEPARTMENT OF CORRECTIONS, STATE PRISON	UNIT B HOUSING	V	400 Conley Lake Rd	DEER LODGE	1976	N	19,415	N	1	O	M	B	3	0	$4,602,040	$110,082	$0	$4,712,122		
DEPARTMENT OF CORRECTIONS, STATE PRISON	UNIT C COMMONS	V	400 Conley Lake Rd	DEER LODGE	0	N	4,096	N	1	O	M	C	2	9	$493,600	$47,168	$0	$540,768		
DEPARTMENT OF CORRECTIONS, STATE PRISON	UNIT C HOUSING	V	400 Conley Lake Rd	DEER LODGE	1976	N	19,415	N	1	O	M	B	3	0	$4,602,040	$110,082	$0	$4,712,122		
DEPARTMENT OF CORRECTIONS, STATE PRISON	WALLACE ADMINISTRATION BUILDING	E	400 Conley Lake Rd	DEER LODGE	1979	N	23,906	Y	1	O	H	B	2	50	$6,207,025	$723,455	$0	$6,930,480		
DEPARTMENT OF CORRECTIONS, STATE PRISON	WAREHOUSE/CANTEEN	E	400 Conley Lake Rd	DEER LODGE	2009	N	9,957	N	1	O	M		1	4	$350,483	$177,367	$0	$527,850		
DEPARTMENT OF CORRECTIONS, STATE PRISON	WORK DORM/EXPANSION	E	400 Conley Lake Rd	DEER LODGE	1995	N	32,700	Y	1	O	M	D	2	10	$5,493,391	$306,851	$0	$5,800,242		
DEPARTMENT OF TRANSPORTATION	AERONAUTICS DELL ELECTRICAL BUILDING	E	1 mile northwest of Dell off Interstate 15	DELL	0	N	150	N	1	O	M	D	1	0	$9,194	$1,597	$15,000	$25,791	Other	runway light controller, runway light regulator
UNIVERSITY OF MONTANA - WESTERN	AUDITORIUM & SHOP	O	710 S. Atlantic	DILLON	1952	N	13,265	N	1	O	M	D	1	2	$2,250,223	$232,922	$0	$2,483,145		
UNIVERSITY OF MONTANA - WESTERN	BLOCK HALL	O	710 S. Atlantic	DILLON	1970	N	44,712	N	1	O	M	A	3	25	$7,114,349	$407,160	$885,800	$8,407,309	Other, Mid-size and Mainframe Computer Systems, Telephone Systems	Lab Equipment/Emergency Broadcast System
UNIVERSITY OF MONTANA - WESTERN	CENTENNIAL HALL	V	750 E. Cornell	DILLON	1964	N	23,252	Y	1	O	M	B	3	3	$2,986,973	$274,884	$0	$3,261,857		
UNIVERSITY OF MONTANA - WESTERN	CLARK HALL	V	750 E. Cornell	DILLON	1967	N	30,517	Y	1	O	M	B	3	110	$3,920,198	$360,725	$0	$4,280,923		
UNIVERSITY OF MONTANA - WESTERN	DAVIS HALL	V	710 S. Atlantic	DILLON	1959	N	14,388	N	1	O	N	C	2	6	$1,919,734	$1,700,851	$0	$3,620,585		
DEPARTMENT OF MILITARY AFFAIRS	DILLON READINESS CENTER	E	1070 Highway 41	DILLON	2000	N	28,152	Y	3	O	M	C	1	3	$4,088,899	$824,226	$60,000	$4,973,125	Telephone Systems, Mid-size and Mainframe Computer Systems	
UNIVERSITY OF MONTANA - WESTERN	ENGINEER'S COTTAGE	O	710 S. Atlantic	DILLON	1925	N	1,560	N	1	O	N	D	1	7	$63,355	$0	$0	$63,355		
UNIVERSITY OF MONTANA - WESTERN	FAMILY HOUSING	V	710 S. Atlantic	DILLON	1958	N	19,960	N	1	O	M	B	3	3	$1,455,152	$153,258	$0	$1,608,410		
UNIVERSITY OF MONTANA - WESTERN	HEATING PLANT & GARAGE	E	710 S. Atlantic	DILLON	1926	N	8,516	N	1	O	M	C	2	5	$991,719	$319,509	$149,697	$1,460,925	Other	Vehicles
UNIVERSITY OF MONTANA - WESTERN	JORDAN HALL	V	750 E. Cornell	DILLON	1958	N	10,172	Y	1	O	M	C	2	40	$472,122	$572	$0	$472,694		
UNIVERSITY OF MONTANA - MISSOULA	KUFM DILLON (WMC)	E	710 S Atlantic St. WMC Heating Plant	DILLON	0	N	80	N	1	L	L	C	1	0	$0	$0	$50,000	$50,000	Other	Radio Tower Transmitter
UNIVERSITY OF MONTANA - WESTERN	LIBRARY ADMINISTRATION	V	710 S. Atlantic	DILLON	1969	N	43,586	N	1	O	M	C	2	30	$7,069,167	$2,463,731	$2,987,559	$12,520,457	Library Books	
UNIVERSITY OF MONTANA - WESTERN	MAIN HALL BUILDING	O	710 S. Atlantic	DILLON	1896	Y	50,263	N	1	O	M	C	4	55	$20,090,958	$2,946,821	$0	$23,037,779		
UNIVERSITY OF MONTANA - WESTERN	MATHEWS HALL	E	710 S. Atlantic	DILLON	1919	Y	104,477	Y	1	O	M	B	3	135	$17,613,404	$822,463	$839,803	$19,275,670	Other	Food Service, L & C Room
UNIVERSITY OF MONTANA - WESTERN	OLD LIBRARY BUILDING	O	710 S. Atlantic	DILLON	1924	Y	19,292	N	1	O	M	B	3	10	$1,844,131	$477,573	$0	$2,321,704		
UNIVERSITY OF MONTANA - WESTERN	OSBORNE RESIDENCE (CURIOUS MINDS)	V	710 S. Atlantic	DILLON	1954	N	926	N	1	O	M	D	1	22	$82,735	$22,591	$0	$105,326		
UNIVERSITY OF MONTANA - WESTERN	PHYSICAL ED BUILDING - DILLON	E	710 S. Atlantic	DILLON	1975	N	94,398	N	1	O	M	C	2	13	$14,689,630	$859,585	$0	$15,549,215		
UNIVERSITY OF MONTANA - WESTERN	SOUTH CAMPUS HOUSING	V	434 E. Poindexter	DILLON	1954	N	3,940	N	1	O	M	U	1	24	$182,870	$572	$0	$183,442		
UNIVERSITY OF MONTANA - WESTERN	STUDENT UNION BUILDING - DILLON	E	710 S. Atlantic	DILLON	1958	N	15,530	N	1	O	M	B	1	6	$1,530,998	$484,648	$325,117	$2,340,763	Other	bookstore inventory, BB inventory, radio station
UNIVERSITY OF MONTANA - WESTERN	SWYSGOOD TECHNOLOGY CENTER (STC)	O	710 South Atlantic	DILLON	2002	N	25,209	Y	1	O	M	C	2	4	$5,003,633	$1,033,078	$0	$6,036,711		
DEPARTMENT OF JUSTICE	MHP - TETON MICROWAVE TOWER	E	2 miles S of Dutton	DUTTON	0	N	0	N	0	O	N	U	0	0	$0	$0	$58,540	$58,540	Other	microwave tower
DEPARTMENT OF TRANSPORTATION	AERONAUTICS NDB - ENNIS	E	#1 Airport Road	ENNIS	0	N	48	N	1	O	H	D	1	0	$3,005	$0	$13,000	$16,005	Other	Radio Equipment
DEPARTMENT OF TRANSPORTATION	AERONAUTICS NDB - EUREKA	E	48 deg - 58' - 13.9" N, 115 deg - 5' - 3.6" W	EUREKA	0	N	36	N	1	O	H	E	1	0	$2,254	$0	$13,000	$15,254	Other	Radio Equipment
DEPARTMENT OF TRANSPORTATION	AERONAUTICS NDB - FORSYTH	E	46 deg - 16' - 15.0" N, 106 deg - 40' - 25.1" W	FORSYTH	0	N	36	N	1	O	H	E	1	0	$2,254	$0	$13,000	$15,254	Other	Radio Equipment
MONTANA STATE UNIVERSITY - BILLINGS	FORSYTH TRANSLATOR	E	F. Hill, 46 15' 39	FORSYTH	0	N	808	N	1	L	M	U	1	0	$0	$9,528	$30,000	$39,528	Other	Radio and Transmitting Equipment
DEPARTMENT OF MILITARY AFFAIRS	DES MOBILE COMMAND POST STORAGE	E	1956 MT Majo Street	FORT HARRISON	2008	N	1,080	N	1	O	M	U	1	0	$205,637	$20,129	$0	$225,766		
DEPARTMENT OF JUSTICE	MHP - DEADMAN MCCONE CNTY MICROWAVE TOWER	E	8 miles NE of Fort Peck	FORT PECK	0	N	0	N	0	O	N	U	0	0	$0	$0	$43,943	$43,943	Other	microwave tower
DEPARTMENT OF JUSTICE	MHP - GARNEILL (PINKIM MOVED) MICROWAVE TOWER	E	2 miles NE Garneill	GARNEILL	0	N	0	N	0	O	N	U	0	0	$0	$0	$58,379	$58,379	Other	microwave tower
DEPARTMENT OF NATURAL RESOURCES	OFFICE & FIRE CACHE	E	321 HWY 12 East	GARRISON	0	N	2,100	N	1	O	M	U	1	1	$198,861	$78,664	$0	$277,525		
DEPARTMENT OF NATURAL RESOURCES	RADIO BLDG	E	Rocky Ridge	GARRISON	0	N	400	N	1	O	M	D	1	0	$26,048	$4,580	$0	$30,628		
DEPARTMENT OF FISH, WILDLIFE & PARKS	6) REGIONAL HQ BUILDING	O	Route 1 - 4210	GLASGOW	1986	N	3,642	N	1	O	H	D	1	19	$501,571	$109,448	$594,518	$1,205,537	Other	FWP vehicles
DEPARTMENT OF TRANSPORTATION	AERONAUTICS NDB - GLASGOW	E	100 Airport Road	GLASGOW	0	N	36	N	1	O	H	D	1	0	$2,254	$0	$13,000	$15,254	Other	Radio Equipment
DEPARTMENT OF MILITARY AFFAIRS	GLASGOW ARMORY	E	81 Airport Road	GLASGOW	1970	N	8,669	N	1	O	L	C	1	0	$812,244	$200,348	$0	$1,012,592		
MONTANA STATE UNIVERSITY - BILLINGS	GLASGOW TRANSLATOR	E	1.5 miles W. of city water tanks	GLASGOW	0	N	1,150	N	1	L	M	U	0	0	$0	$13,561	$0	$13,561		
DEPARTMENT OF JUSTICE	MHP - GIDEON (VALLEY COUNTY) MICROWAVE TOWER	E	4.8 miles SW of Glasgow	GLASGOW	0	N	0	N	0	O	N	U	0	0	$0	$0	$62,504	$62,504	Other	microwave tower
DEPARTMENT OF TRANSPORTATION	AERONAUTICS NDB - GLENDIVE	E	47 deg - 8' - 1.0" N, 104 deg - 48' - 15.0" W	GLENDIVE	0	N	36	N	1	O	H	D	1	0	$2,254	$0	$13,000	$15,254	Other	Radio Equipment
DPHHS, VETERANS' HOME - GLENDIVE	EASTERN MONTANA VETERAN'S HOME	E	2000 Montana Avenue	GLENDIVE	1995	N	49,482	Y	1	O	M	D	1	30	$7,092,184	$1,292,760	$28,000	$8,412,944	Telephone Systems	
DEPARTMENT OF TRANSPORTATION	GLENDIVE OFFICE/SHOP	E	503 N River Avenue	GLENDIVE	1946	N	23,691	N	1	O	H	C	1	5	$2,019,119	$705,226	$41,000	$2,765,345	Other	radio equipment
DEPARTMENT OF JUSTICE	MHP - HIGHWAY PATROL, GLENDIVE	E	76 Highway 16	GLENDIVE	1975	N	1,536	N	1	O	M	D	1	11	$155,184	$45,087	$7,000	$207,271	Telephone Systems	
DEPARTMENT OF JUSTICE	MHP-BELLE PRARIE MICROWAVE	E	207 W BELL ST	GLENDIVE	0	N	0	N	1	O	N	U	0	0	$0	$0	$272,820	$272,820	Other	MICROWAVE TOWER
DEPARTMENT OF FISH, WILDLIFE & PARKS	4) REGIONAL HQ BUILDING	O	4600 Giant Springs Road	GREAT FALLS	1987	N	8,667	N	1	O	H	D	1	31	$1,109,694	$330,244	$920,544	$2,360,482	Other	FFWP vehicles
BOARD OF PUBLIC EDUCATION, SCHOOL FOR DEAF & BLIND	BOILER HOUSE	E	3911 Central Ave.	GREAT FALLS	1952	N	3,000	N	1	O	M	C	1	0	$417,111	$17,688	$0	$434,799		
BOARD OF PUBLIC EDUCATION, SCHOOL FOR DEAF & BLIND	FOOD SERVICE BUILDING	V	3911 Central Ave.	GREAT FALLS	1983	N	5,603	Y	1	O	M	C	1	0	$682,262	$237,336	$0	$919,598		
DEPARTMENT OF TRANSPORTATION	GREAT FALLS OFFICE/SHOP	E	104 18th Avenue NE	GREAT FALLS	1963	N	18,024	N	1	O	H	C	2	20	$2,098,032	$439,839	$54,500	$2,592,371	Other	radio equipment
DEPARTMENT OF CORRECTIONS	LEASED - GT. FALLS YTC	V	4212 3rd Avenue S.	GREAT FALLS	0	N	3,600	N	1	L	M	U	2	13	$0	$62,233	$0	$62,233		
MSU COLLEGE OF TECHNOLOGY - GREAT FALLS	MAIN BUILDING	O	2100 16th Ave S	GREAT FALLS	1976	N	187,616	Y	1	O	M	A	2	120	$50,827,703	$4,842,149	$1,498,973	$57,168,825	Other, Mid-size and Mainframe Computer Systems, Library Books, Telephone Systems	vehicles
DEPARTMENT OF JUSTICE	MHP - FLYING J MICROWAVE TOWER	E	Great Falls	GREAT FALLS	0	N	0	N	0	O	N	U	0	0	$0	$0	$24,300	$24,300	Other	microwave tower
DEPARTMENT OF JUSTICE	MHP - GORE HILL MICROWAVE TOWER	E	Great Falls	GREAT FALLS	0	N	0	N	0	O	N	U	0	0	$0	$0	$10,970	$10,970	Other	microwave tower
DEPARTMENT OF AGRICULTURE	OWN - AG DEVELOPMENT/GRAIN INSPECTION LAB	E	821 17th St N.	GREAT FALLS	1935	N	7,888	N	1	O	M	D	1	7	$508,019	$413,895	$0	$921,914		
BOARD OF PUBLIC EDUCATION, SCHOOL FOR DEAF & BLIND	RESIDENTIAL COTTAGE II	V	3911 Central Ave.	GREAT FALLS	1983	N	20,699	Y	1	O	M	C	1	0	$3,572,143	$252,966	$0	$3,825,109		
BOARD OF PUBLIC EDUCATION, SCHOOL FOR DEAF & BLIND	RESIDENTIAL COTTAGES I	V	3911 Central Ave.	GREAT FALLS	1983	N	20,699	Y	1	O	M	C	1	0	$3,572,143	$252,966	$0	$3,825,109		
MSU COLLEGE OF TECHNOLOGY - GREAT FALLS	TRADES BUILDING	O	2100 16th Ave S	GREAT FALLS	2008	N	12,000	Y	1	O	M	A	2	6	$3,276,388	$271,326	$200,000	$3,747,714	Other	carpentry & welding equipment
DEPARTMENT OF NATURAL RESOURCES	GREENOUGH FIRE CACHE	E	48455 Sperry Grade Rd.	GREENOUGH	2007	N	2,775	N	1	O	M	D	1	0	$334,715	$53,940	$0	$388,655		
DEPARTMENT OF NATURAL RESOURCES	GREENOUGH FIRE CACHE WAREHOUSE	E	48455 N. Sperry Grade Rd.	GREENOUGH	2007	N	2,800	N	1	O	M	D	1	0	$105,279	$53,940	$0	$159,219		

STATE OF MONTANA CRITICAL FACILITIES (2013) E = Essential, V = Vulnerable, O = Other

AGENCY	NAME	CATEGORY	STREET ADDRESS	CITY	YR BUILT	HISTORICAL	SQUARE FT	SPRINKLERE	# BUILDINGS	OWNERSHIP	CONT_CD	CONC_CD	# STORIES	NUM_FTE	STRUCTURE VALUE	CONTENTS VALUE	ADDITIONAL CONTENTS	TOTAL	DESCRIPTION OF ADDITIONAL CONTENTS VALUE	DESCRIPTION OF OTHER
DEPARTMENT OF MILITARY AFFAIRS	HAMILTON ARMORY	E	910 West Main	HAMILTON	1965	N	9,492	N	1	O	M	C	1	0	$836,670	$114,484	$0	$951,154		
UNIVERSITY OF MONTANA - MISSOULA	KUFM HAMILTON (GRUBSTAKE)	E	1017 Grub Stake Rd (by)	HAMILTON	0	N	80	N	1	O	L	U	1	0	$4,490	$0	$50,000	$54,490	Other	Radio Tower/Transmitter
DEPARTMENT OF TRANSPORTATION	AERONAUTICS NDB - HARLOWTON	E	46 deg - 25' - 59.8" N, 109 deg - 40' - 25.1" W	HARLOWTON	0	N	36	N	1	O	H	E	1	0	$2,254	$0	$13,000	$15,254	Other	Radio Equipment
DEPARTMENT OF MILITARY AFFAIRS	HARLOWTON ARMORY	E	9895 Highway 12 West	HARLOWTON	1984	N	12,916	N	1	O	M	C	1	0	$1,621,196	$18,824	$0	$1,640,020		
DEPARTMENT OF JUSTICE	MHP - COONEY MICROWAVE TOWER	E	8.5 miles SE of Harlowtown	HARLOWTON	0	N	0	N	0	O	N	U	0	0	$0	$0	$55,781	$55,781	Other	microwave tower
MONTANA STATE UNIVERSITY - NORTHERN	FOOD SERVICE	E	MSU-Northern- 1150-B SUB Drive	HAVRE	1971	N	21,515	N	1	O	M	C	1	7	$2,591,704	$911,364	$0	$3,503,068		
MONTANA STATE UNIVERSITY - NORTHERN	GYMNASIUM	E	MSU-Northern 100 College Road West	HAVRE	1957	N	53,059	N	1	O	M	C	2	13	$5,764,576	$605,448	$0	$6,370,024		
DEPARTMENT OF MILITARY AFFAIRS	HAVRE ARMORY	E	1050 2nd St West	HAVRE	1970	N	12,780	N	1	O	M	C	1	0	$1,291,062	$395,087	$0	$1,686,149		
DEPARTMENT OF MILITARY AFFAIRS	HAVRE ARMORY ANNEX	O	1050 2nd St West	HAVRE	1985	N	4,159	N	1	O	M	D	1	0	$420,190	$122,082	$0	$542,272		
DEPARTMENT OF MILITARY AFFAIRS	HAVRE READINESS CENTER (ADD TO HAVRE ARMORY)	E	1050 2nd St W	HAVRE	2006	N	16,148	Y	1	O	M	C	1	3	$1,446,555	$88,880	$60,000	$1,595,435	Mid-size and Mainframe Computer Systems, Telephone Systems	
MONTANA STATE UNIVERSITY - BILLINGS	HAVRE, MT TRANSLATOR	E	800 Wilson Ave	HAVRE	0	N	1,400	N	1	L	M	U	0	0	$0	$16,028	$0	$16,028		
MONTANA STATE UNIVERSITY - NORTHERN	LIBRARY BUILDING	O	MSU-Northern 180 College Road West	HAVRE	1981	N	33,593	N	1	O	M	C	2	5	$6,136,657	$3,108,697	$599,805	$9,845,159	Library Books	
DEPARTMENT OF JUSTICE	MHP - HILL COUNTY SHERIFF'S OFFICE MICROWAVE TOWER	E	1.5 miles W of Havre	HAVRE	0	N	0	N	0	O	N	U	0	0	$0	$0	$91,086	$91,086	Other	microwave tower
MONTANA STATE UNIVERSITY - NORTHERN	MORGAN HALL	O	MSU-Northern - 1110 Buttrey Drive	HAVRE	1957	N	60,262	N	1	O	M	C	2	0	$7,384,164	$648,379	$0	$8,032,543		
MONTANA STATE UNIVERSITY - NORTHERN	PHYSICAL PLANT BUILDING - HAVRE	E	MSU-Northern - 300 13th Street West	HAVRE	1967	N	5,642	N	1	O	L	C	2	14	$474,478	$145,041	$0	$619,519		
MONTANA STATE UNIVERSITY - NORTHERN	STUDENT & FAMILY HOUSING 1210	O	1210 Bonine Drive	HAVRE	1960	N	6,912	N	1	O	M	C	1	3	$489,725	$16,716	$0	$506,441		
MONTANA STATE UNIVERSITY - NORTHERN	STUDENT & FAMILY HOUSING 1215	O	1215 Bonine Drive	HAVRE	1960	N	8,124	N	1	O	M	C	1	0	$575,561	$19,645	$0	$595,206		
MONTANA STATE UNIVERSITY - NORTHERN	STUDENT & FAMILY HOUSING 1220	O	1220 Bonine Drive	HAVRE	1960	N	3,840	N	1	O	M	C	1	0	$272,069	$9,286	$0	$281,355		
MONTANA STATE UNIVERSITY - NORTHERN	STUDENT & FAMILY HOUSING 1225	O	1225 Bonine Drive	HAVRE	1960	N	8,124	N	1	O	M	C	1	0	$575,561	$19,645	$0	$595,206		
MONTANA STATE UNIVERSITY - NORTHERN	STUDENT & FAMILY HOUSING 1230	O	1230 Bonine Drive	HAVRE	1960	N	11,692	N	1	O	M	C	1	0	$828,394	$28,275	$0	$856,669		
MONTANA STATE UNIVERSITY - NORTHERN	STUDENT HEALTH BUILDING	E	MSU-Northern 1129 Bonine Drive	HAVRE	1957	N	2,437	N	1	O	M	D	2	3	$158,694	$27,901	$0	$186,595		
MONTANA STATE UNIVERSITY - NORTHERN	STUDENT UNION	E	MSU-Northern 1150 - A SUB Drive	HAVRE	1960	N	29,323	Y	1	O	M	C	2	4	$4,130,760	$357,764	$75,000	$4,563,524	Other	See Comments
DEPARTMENT OF FISH, WILDLIFE & PARKS	8) HANGAR NO. 5 - AIRPORT	E	Airport Road	HELENA	1981	N	2,000	N	1	O	M	U	1	1	$104,431	$11,701	$0	$116,132		
DEPARTMENT OF FISH, WILDLIFE & PARKS	8) HANGAR NO. 6 - AIRPORT	E	Airport Road	HELENA	1987	N	3,600	N	1	O	M	U	1	1	$187,977	$21,061	$0	$209,038		
DEPARTMENT OF FISH, WILDLIFE & PARKS	8) REGIONAL HQ BUILDING - D OF A	O	1420 East 6th Ave	HELENA	1975	N	23,444	N	1	L	H	D	2	120	$0	$0	$268,490	$268,490	Other	FWP vehicles
DEPARTMENT OF TRANSPORTATION	AERONAUTICS SHOP	E	2630 Airport Road	HELENA	1958	N	2,187	N	1	O	H	C	1	0	$123,738	$89,675	$138,000	$351,413	Other	tractor & mower, invitory for airport resale progr
DEPARTMENT OF ADMINISTRATION	ARMORY PBX	E	1100 N. Last Chance Gulch	HELENA	1920	Y	56,251	Y	1	O	M	H	4	57	$10,096,080	$1,646,854	$110,000	$11,852,934	Telephone Systems	
DEPARTMENT OF MILITARY AFFAIRS	ARMY AVIATION SUPPORT FACILITY	E	3330 Skyway Drive	HELENA	2007	N	108,521	Y	1	O	M	C	1	80	$31,033,828	$610,448	$0	$31,644,276		
DEPARTMENT OF MILITARY AFFAIRS	ARMY AVIATION SUPPORT FACILITY FUEL FARM	E	3330 SkyWay Drive	HELENA	1998	N	144	N	1	O	M	U	1	0	$13,388	$1,585	$314,060	$329,033	Other	fuel tanks, pumps, piping & dispensing equipment
DEPARTMENT OF MILITARY AFFAIRS	ARMY AVIATION SUPPORT FACILITY OPEN STORAGE SHED	O	3330 Skyway Drive	HELENA	2007	N	3,681	N	1	O	H	C	1	0	$245,459	$82,663	$0	$328,122		
DEPARTMENT OF ADMINISTRATION	AVIATION & SUPPORT FACILITY-OFFICE	E	2800 Airport Rd	HELENA	1960	N	16,920	N	1	O	M	C	1	9	$2,421,546	$495,345	$101,000	$3,017,891	Telephone Systems	
DEPARTMENT OF ADMINISTRATION	AVIATION & SUPPORT FACILITY-SHOP	E	2800 Airport Rd	HELENA	1958	N	25,343	N	1	O	M	C	1	4	$3,086,969	$68,801	$0	$3,155,770		
DEPARTMENT OF MILITARY AFFAIRS	AVIATION ARMORY	E	3330 Skyway Dr	HELENA	1992	N	40,585	N	1	O	M	H	1	23	$10,003,701	$223,382	$0	$10,227,083		
DEPARTMENT OF ADMINISTRATION	BOARD OF HEALTH	O	1301 Lockey	HELENA	1919	N	7,852	N	1	O	M	B	3	19	$585,129	$219,765	$0	$804,894		
DEPARTMENT OF ADMINISTRATION	BOILER PLANT	E	120 N Roberts	HELENA	1968	Y	7,946	N	1	O	M	B	2	14	$1,283,230	$1,438,002	$0	$2,721,232		
DEPARTMENT OF LABOR & INDUSTRY	BSD WEIGHTS & MEASURES	O	2801 N. Cooke	HELENA	0	N	4,300	N	1	L	M		1	4	$0	$91,589	$150,000	$241,589	Other	Calibrating & volume measuring equipment
GOVERNOR'S OFFICE	CAPITOL	E	1625 6th Ave	HELENA	0	N	0	Y	0	O	M	U	0	0	$0	$0	$0	$0		
DEPARTMENT OF ADMINISTRATION	CAPITOL ANNEX	O	118 N Roberts	HELENA	0	Y	1,460	N	1	O	M	C	1	10	$188,470	$54,691	$0	$243,161		
DEPARTMENT OF ADMINISTRATION	CAPITOL BUILDING	E	1301 E 6th	HELENA	1889	Y	187,773	Y	1	O	M	B	4	274	$120,104,940	$7,985,302	$157,615	$128,247,857	Other	QuickCopy equipment
DEPARTMENT OF NATURAL RESOURCES	CENTRAL LAND OFFICE	O	8001 N Montana Avenue	HELENA	2010	N	7,790	Y	1	O	M	D	1	1	$1,402,433	$259,452	$0	$1,661,885		
DEPARTMENT OF ADMINISTRATION	COGSWELL BUILDING	E	1401 Lockey	HELENA	1955	N	108,868	Y	1	O	H	B	3	302	$20,117,326	$3,187,418	$0	$23,304,744		
DEPARTMENT OF COMMERCE	COLONIAL DRIVE BUILDING	O	2401 Colonial Drive	HELENA	1998	N	63,677	Y	1	O	M	A	3	35	$12,222,029	$513,272	$657,000	$13,392,301	Mid-size and Mainframe Computer Systems, Telephone Systems	
DEPARTMENT OF ADMINISTRATION	COMM POLITICAL PRACTICES	O	1205 8th	HELENA	0	N	2,004	N	1	O	M	C	2	4	$258,693	$75,068	$0	$333,761		
DEPARTMENT OF ADMINISTRATION	CORRECTIONS	O	1539 11th	HELENA	1937	N	27,790	N	1	O	M	B	4	0	$4,181,151	$0	$0	$4,181,151		
DEPARTMENT OF ADMINISTRATION	DIANNE BLDG.	O	1218 6th Ave.	HELENA	1954	N	5,780	N	1	O	M	D	3	20	$835,589	$169,233	$0	$1,004,822		
HELENA COLLEGE OF TECHNOLOGY OF UM	DONALDSON BUILDING	V	1115 North Roberts	HELENA	1967	N	89,460	Y	1	O	M	C	2	70	$16,177,383	$3,849,189	$353,090	$20,379,662	Telephone Systems, Library Books	
DEPARTMENT OF ADMINISTRATION	DPHHS HEADQUARTERS BUILDING	O	111 N Sanders	HELENA	1975	N	48,682	Y	1	O	H	A	4	201	$9,045,364	$1,425,328	$64,781	$10,535,473	Other	QuickCopy equipment
DEPARTMENT OF ADMINISTRATION	FEDERAL RESERVE BLDG TAPE BACK-UP ONLY LEASED	E	100 Neill Avenue	HELENA	0	N	0	Y	0	L	N	U	0	0	$0	$0	$2,136,000	$2,136,000	Other	ATL tape library, tapes & racks
DEPARTMENT OF NATURAL RESOURCES	FIRE MANAGEMENT BUILDING	E	8001 N Montana Ave	HELENA	1991	N	1,665	N	1	O	M	U	1	4	$157,668	$62,370	$18,000	$238,038	Telephone Systems	
DEPARTMENT OF ADMINISTRATION	FWP-1420 6TH AVE	O	1420 E 6th	HELENA	1965	N	22,966	N	1	O	M	D	2	120	$3,359,532	$672,352	$0	$4,031,884		
DEPARTMENT OF ADMINISTRATION	GENERATOR BUILDING (ITSD)	E	125 N Roberts	HELENA	2006	N	918	N	1	O	M	C	1	0	$118,081	$532,514	$880,000	$1,530,595	Other	2 generators ($480K) & transfer switches ($400K)
PUBLIC HEALTH & HUMAN SERVICES	HELENA - RENT TO OWN - COMMODITY WAREHOUSE	E	1400 Carter Drive	HELENA	1996	N	44,301	Y	1	O	M	C	2	17	$2,858,091	$912,090	$3,980,762	$7,750,943	Telephone Systems, Other	frozen food/perishables/Vehicles and Equipment
DEPARTMENT OF ADMINISTRATION	HELENA DATA CENTER (SMDC) BEHIND MDT	E	490 18th Street	HELENA	2010	N	15,024	Y	1	O	M	B	1	12	$1,278,625	$499,585	$16,825,026	$18,603,236	Telephone Systems, Other, Mid-size and Mainframe Computer Systems	switches, fiber optic cable
DEPARTMENT OF TRANSPORTATION	HELENA HANGER HELENA AIRPORT	E	2630 Airport Road	HELENA	0	N	6,800	N	1	O	M	E	1	1	$355,066	$39,781	$0	$394,847		
DEPARTMENT OF TRANSPORTATION	HELENA HQ OFFICE COMPLEX	E	2701 Prospect Avenue	HELENA	1978	N	189,821	Y	1	O	H	C	3	600	$29,734,386	$5,557,533	$1,503,000	$36,794,919	Telephone Systems, Mid-size and Mainframe Computer Systems, Library Books	
DEPARTMENT OF NATURAL RESOURCES	HELENA INTERAGENCY DISPATCH	E	8001 N. Montana Ave,	HELENA	2011	N	1,400	Y	1	O	M	U	1	1	$114,254	$68,362	$0	$182,616		
DEPARTMENT OF MILITARY AFFAIRS	HELENA OMS	O	2177 Williams Street	HELENA	1971	N	19,272	N	1	O	M	C	1	0	$1,436,188	$539,283	$0	$1,975,471		
MONTANA STATE UNIVERSITY - BILLINGS	HELENA TRANSMITTER	E	21 Miles SW of Helena (Legal Descrip Below)	HELENA	0	N	0	N	1	L	N	U	0	0	$0	$8,000	$27,586	$35,586	Other	Transmitter
DEPARTMENT OF LABOR & INDUSTRY	HELENA UI PHONE CLAIMS	O	100 N. Park	HELENA	0	N	8,470	Y	1	L	M		2	46	$0	$305,078	$59,600	$364,678	Telephone Systems, Mid-size and Mainframe Computer Systems	
DEPARTMENT OF LABOR & INDUSTRY	HELENA UI PHONE CLAIMS 2	O	910 Helena Avenue	HELENA	0	N	2,514	N	1	L	M	U	2	13	$0	$83,730	$25,000	$108,730	Other	Printer,Copier, Fax, Mod Furniture
DEPARTMENT OF NATURAL RESOURCES	HELENA UNIT OFFICE	O	8001 N Montana Ave	HELENA	1991	N	2,226	N	1	O	M	U	1	4	$210,794	$83,384	$4,000	$298,178	Telephone Systems	
DEPARTMENT OF NATURAL RESOURCES	HELITACK EQUIPMENT STORAGE	E	8001 N. Montana Ave.	HELENA	0	N	160	N	1	O	L	U	1	0	$5,392	$0	$0	$5,392		
DEPARTMENT OF NATURAL RESOURCES	HELITACK OPERATIONS MOBILE OFFICE	O	8001 N. Montana Ave.	HELENA	1998	N	320	N	1	O	M	D	1	1	$26,115	$10,470	$0	$36,585		
DEPARTMENT OF COMMERCE	IBM BUILDING	O	100 N. Park	HELENA	1984	N	49,523	Y	1	O	L	A	4	0	$9,300,233	$56,136	$0	$9,356,369		
DEPARTMENT OF JUSTICE	ITSD - HAFRC DOJ FUSION CENTER	E	1900 Williams St. / Fort Harrison	HELENA	0	N	700	Y	1	L	H	U	2	0	$0	$27,048	$2,854,400	$2,881,448	Telephone Systems, Other, Mid-size and Mainframe Computer Systems	Network Computer System
DEPARTMENT OF ADMINISTRATION	JUSTICE BUILDING	E	215 N Sanders	HELENA	1982	N	103,864	Y	1	O	H	A	4	179	$21,012,850	$10,946,792	$0	$31,959,642		
MONTANA STATE UNIVERSITY - BOZEMAN	KGLT RADIO TRANSLATOR - HELENA	E	20 MILES NE OF HELENA 46-49-32.0 N, 111-42-26.0 W	HELENA	2010	N	0	N	1	L	M	U	1	0	$0	$0	$5,000	$5,000	Other	radio equipment
UNIVERSITY OF MONTANA - MISSOULA	KUFM HELENA (N. HILLS)	E	N. Hills Seiban Ranch	HELENA	0	N	80	N	1	L	L	D	1	0	$0	$0	$50,000	$50,000	Other	Radio Tower Transmitter
DEPARTMENT OF ADMINISTRATION	LABOR & INDUSTRY (WALT SULLIVAN)	O	1315 Lockey	HELENA	1959	N	51,610	N	1	O	M	A	5	193	$9,535,991	$1,511,062	$0	$11,047,053		
DEPARTMENT OF ADMINISTRATION	MARGARET CONDON BUILDING (OLD STATE FUND)	O	5 S Last Chance Gulch	HELENA	1983	N	53,875	Y	1	O	M	E	3	298	$9,685,853	$1,549,570	$300,000	$11,535,423	Telephone Systems	
DEPARTMENT OF ADMINISTRATION	MDT HELENA HQ BUILDING (PBX) ONLY	O	2701 Prospect Avenue	HELENA	0	N	0	Y	0	O	N		0	0	$0	$0	$275,000	$275,000	Telephone Systems	
DEPARTMENT OF ADMINISTRATION	METCALF BUILDING	O	1520 E 6th	HELENA	1982	N	92,668	Y	1	O	H	B	3	297	$17,305,956	$274,139	$0	$17,580,095		
DEPARTMENT OF JUSTICE	MHP - COMM CENTER, HELENA	E	1900 WILLIAMS ST	HELENA	0	N	1,500	Y	1	L	H	U	2	33	$0	$44,030	$445,000	$489,030	Other, Mid-size and Mainframe Computer Systems	Comm System Radio
DEPARTMENT OF JUSTICE	MHP - FORT HARRIS MICROWAVE TOWER	E	Helena	HELENA	0	N	0	N	0	O	N	U	0	0	$0	$0	$26,970	$26,970	Other	microwave tower
DEPARTMENT OF JUSTICE	MHP - HANGAR, HELENA	E	27 AIRPORT RD (HANGAR B)	HELENA	0	N	2,412	N	1	L	M	U	1	0	$0	$6,144	$200,000	$206,144	Other	Tools, stands, parts, equipment
DEPARTMENT OF JUSTICE	MHP - HOGBACK MICROWAVE TOWER	E	13 miles NE of Helena	HELENA	0	N	0	N	0	O	N	U	0	0	$0	$0	$39,163	$39,163	Other	microwave tower

STATE OF MONTANA CRITICAL FACILITIES (2013) E = Essential, V = Vulnerable, O = Other

AGENCY	NAME	CATEGORY	STREET ADDRESS	CITY	YR BUILT	HISTORICAL	SQUARE FT	SPRINKLERE	# BUILDINGS	OWNERSHIP	CONT_CD	CONC_CD	# STORIES	NUM_FTE	STRUCTURE VALUE	CONTENTS VALUE	ADDITIONAL CONTENTS	TOTAL	DESCRIPTION OF ADDITIONAL CONTENTS VALUE	DESCRIPTION OF OTHER
DEPARTMENT OF JUSTICE	MHP/GCD-, HELENA	V	2550 Prospect	HELENA	0	N	22,678	N	1	L	H	U	1	40	$0	$1,219,255	$177,495	$1,396,750	Other, Telephone Systems	Vehicles & Shed & special contents for radio shop
DEPARTMENT OF ADMINISTRATION	MITCHELL BUILDING	V	125 N Roberts	HELENA	1949	N	126,175	Y	1	O	H	B	5	531	$23,299,724	$3,694,159	$5,040,000	$32,033,883	Other, Telephone Systems	Network equipment; SMDC equip
DEPARTMENT OF REVENUE	MITCHELL BUILDING (INCLUDES SPECIAL EQUIPMENT)	E	125 N Roberts	HELENA	0	N	0	N	0	L	M	B	4	0	$0	$0	$180,430	$180,430	Other	Vehicles, Video Conferencing Equipment
DEPARTMENT OF JUSTICE	MLEA - ASPEN COTTAGE	V	2260 Sierra Rd. East	HELENA	1926	N	7,888	N	1	O	L	D	3	0	$509,137	$41,272	$0	$550,409		
DEPARTMENT OF JUSTICE	MLEA - CAFETERIA	V	2260 Sierra Rd. East	HELENA	1960	N	3,650	N	1	O	H	C	1	0	$460,955	$149,636	$0	$610,591		
DEPARTMENT OF JUSTICE	MLEA - COTTONWOOD COTTAGE	V	2260 Sierra Rd. East	HELENA	1960	N	7,260	N	1	O	L	C	1	0	$574,871	$71,931	$0	$646,802		
DEPARTMENT OF JUSTICE	MLEA - GYMNASIUM	V	2260 Sierra Rd. East	HELENA	1926	N	8,764	N	1	O	L	D	1	0	$561,725	$51,885	$0	$613,610		
DEPARTMENT OF JUSTICE	MLEA - MAPLE COTTAGE NO. 2	V	2260 Sierra Rd. East	HELENA	1920	N	15,665	N	1	O	M	D	3	3	$1,865,466	$185,209	$0	$2,050,675		
DEPARTMENT OF JUSTICE	MLEA - PUMP HOUSE	E	2260 Sierra Rd. East	HELENA	1940	N	506	N	1	O	M	U	1	0	$52,132	$15,779	$0	$67,911		
DEPARTMENT OF JUSTICE	MLEA - SCHOOL BUILDING & ADMINISTRATION	V	2260 Sierra Rd. East	HELENA	1920	N	13,321	N	1	O	H	D	3	9	$1,644,747	$390,013	$20,000	$2,054,760	Telephone Systems	
DEPARTMENT OF JUSTICE	MLEA - SPRUCE COTTAGE	V	2260 Sierra Rd. East	HELENA	1920	N	12,932	N	1	O	M	D	2	0	$1,507,548	$160,421	$0	$1,667,969		
DEPARTMENT OF JUSTICE	MLEA - WATER TANK & TOWER	E	2260 Sierra Rd. East	HELENA	1950	N	0	N	1	O	L	U	0	0	$363,304	$0	$0	$363,304		
DEPARTMENT OF JUSTICE	MLEA TRAINING FACILITY	V	2260 SIERRA ROAD EAST	HELENA	2010	N	15,500	Y	1	O	M	B	2	3	$3,071,233	$292,835	$180,000	$3,544,068	Telephone Systems, Other	Audio Visual System, Firearms
STATE FUND	MONTANA STATE FUND BUILDING	O	855 Front Street	HELENA	2010	N	115,053	Y	1	O	M	C	4	287	$27,888,738	$3,831,919	$4,996,527	$36,717,184	Other, Telephone Systems, Mid-size and Mainframe Computer Systems	Audio Visual equipment
MONTANA STATE LIBRARY	MONTANA STATE LIBRARY (JUSTICE BUILDING)	O	1515 E. 6th Avenue	HELENA	1982	N	103,864	N	0	L	M	A	4	179	$0	$0	$1,824,533	$1,824,533	Mid-size and Mainframe Computer Systems, Library Books	
DEPARTMENT OF ADMINISTRATION	NATURAL RESOURCES	O	1424 9th	HELENA	1960	N	28,424	Y	1	O	M	B	2	67	$4,289,043	$818,688	$0	$5,107,731		
DEPARTMENT OF REVENUE	NEW LIQUOR WAREHOUSE	O	2517 Airport Road	HELENA	1977	N	107,122	Y	1	O	M	B	2	46	$6,415,058	$2,508,781	$12,256,381	$21,180,220	Telephone Systems, Other	$11M liq inv, $487,381 sp equp; $500K unc
DEPARTMENT OF ADMINISTRATION	OLD LIQUOR WAREHOUSE	O	920 Front	HELENA	1930	N	41,172	Y	1	O	M	B	3	32	$6,212,719	$1,766,776	$2,481,983	$10,461,478	Other	print/mail equipment
DEPARTMENT OF ADMINISTRATION	OLD LIVESTOCK BUILDING	O	1310 Lockey	HELENA	1919	Y	7,713	N	1	O	M	B	3	22	$995,661	$245,272	$0	$1,240,933		
DEPARTMENT OF ADMINISTRATION	OPI BUILDING	O	1227 11th Avenue	HELENA	1968	N	21,138	N	1	O	M	B	2	55	$3,190,317	$618,888	$0	$3,809,205		
DEPARTMENT OF ADMINISTRATION	ORIGINAL GOVERNORS MANSION	O	304 N Ewing	HELENA	1888	Y	9,371	N	1	O	M	C	3	2	$2,939,920	$1,708,463	$0	$4,648,383		
DEPARTMENT OF ADMINISTRATION	ORIGINAL GOVERNORS MANSION CARRIAGE	O	304 N Ewing	HELENA	1888	Y	2,764	N	1	O	M	C	2	0	$623,687	$335,748	$0	$959,435		
DEPARTMENT OF COMMERCE	PERD BUILDING, LEASED TO JUSTICE LEGAL SERVICES	O	1712 9th Avenue	HELENA	1971	N	7,200	N	1	O	M	A	1	0	$1,344,596	$0	$0	$1,344,596		
SECRETARY OF STATE	RECORDS MANAGEMENT CENTER WAREHOUSE	V	1320 Bozeman St	HELENA	0	N	0	Y	0	L	H	U	1	2	$0	$0	$12,000	$12,000	Other	Shredder
DEPARTMENT OF ADMINISTRATION	SCOTT HART BUILDING	E	302 N Roberts	HELENA	1936	N	81,383	N	1	O	H	B	6	223	$14,452,408	$2,382,682	$0	$16,835,090		
DEPARTMENT OF ADMINISTRATION	SEC. OF STATE RECORDS MGMT BUREAU BLDG 1	V	1320 Bozeman	HELENA	1960	N	19,800	Y	1	O	M	C	1	10	$1,639,969	$608,501	$0	$2,248,470		
DEPARTMENT OF ADMINISTRATION	SEC. OF STATE RECORDS MGMT BUREAU BLDG 2	V	1320 Bozeman	HELENA	1960	N	9,800	Y	1	O	M	C	1	10	$705,873	$301,197	$0	$1,007,070		
DEPARTMENT OF ADMINISTRATION	SUPERINTENDENT OF PUBLIC INSTRUCTION	O	1300 11th Ave.	HELENA	1970	N	20,125	N	1	O	M	D	2	115	$2,943,419	$589,174	$0	$3,532,593		
DEPARTMENT OF ADMINISTRATION	TAX APPEAL BOARD - 1209 8TH	O	1209 8th	HELENA	0	N	2,302	N	1	O	M	D	2	4	$297,163	$86,231	$0	$383,394		
DEPARTMENT OF ADMINISTRATION	TEACHERS RETIREMENT	O	1500 E 6th	HELENA	1968	N	6,486	N	1	O	M	C	2	17	$1,051,044	$204,592	$0	$1,255,636		
DEPARTMENT OF ADMINISTRATION	VETERANS & PIONEERS MEMORIAL BLDG.	E	225 N Roberts	HELENA	1952	Y	99,418	Y	1	O	M	B	4	65	$16,677,129	$4,980,714	$0	$21,657,843		
DEPARTMENT OF NATURAL RESOURCES	WELL & PUMP HOUSE	E	8001 N Montana Ave	HELENA	0	N	120	N	1	O	L	U	1	0	$4,693	$364	$0	$5,057		
DEPARTMENT OF MILITARY AFFAIRS	WOMACK ARMORY	E	Womack Bldg, Ft Harrison	HELENA	1971	N	20,982	N	1	O	M	C	2	0	$2,316,492	$644,738	$0	$2,961,230		
DEPARTMENT OF JUSTICE	MHP - HINSDALE/VALLEY COUNTY MICROWAVE TOWER	E	2.5 miles SW of Hinsdale	HINSDALE	0	N	0	N	0	O	N	U	0	0	$0	$0	$50,268	$50,268	Other	microwave tower
DEPARTMENT OF TRANSPORTATION	AERONAUTICS NDB - JORDAN	E	47 deg - 20' - 0.0" N, 106 deg - 56' - 15.0" W	JORDAN	0	N	36	N	1	O	H	E	1	0	$2,254	$0	$13,000	$15,254	Other	Radio Equipment
DEPARTMENT OF FISH, WILDLIFE & PARKS	1) REGION HQ BUILDLING	O	490 N Meridian	KALISPELL	1990	N	16,545	N	1	O	H	U	2	48	$1,646,747	$497,206	$978,078	$3,122,031	Other	FWP vehicles
DEPARTMENT OF MILITARY AFFAIRS	KALISPELL AFRC	E	2989 Hwy 93 North	KALISPELL	2005	N	49,500	Y	3	O	M	C	1	2	$10,287,645	$1,453,016	$0	$11,740,661		
DEPARTMENT OF MILITARY AFFAIRS	KALISPELL AFRC FIRE PUMP BUILDING	E	2989 Hwy 93 North	KALISPELL	2005	N	872	Y	1	O	M	C	1	0	$348,104	$27,193	$0	$375,297		
DEPARTMENT OF TRANSPORTATION	KALISPELL OFFICE & SHOP	E	85 5th Avenue EN	KALISPELL	1999	N	17,868	N	1	O	H	E	1	10	$1,787,263	$618,217	$113,500	$2,518,980	Other	radio tower and microwave
UNIVERSITY OF MONTANA - MISSOULA	KUFM KALISPELL	E	Lone Pine State Park	KALISPELL	0	N	80	N	1	L	L	D	1	0	$0	$0	$50,000	$50,000	Other	RAdio transmitter/tower
DEPARTMENT OF JUSTICE	MHP - KALISPELL DISPATCH MICROWAVE TOWER	E	3.5 miles NW of Kalispell	KALISPELL	0	N	0	N	0	O	N	U	0	0	$0	$0	$34,559	$34,559	Other	microwave tower
DEPARTMENT OF JUSTICE	MHP - KALISPELL WATER TOWER MICROWAVE TOWER	E	Kalispell	KALISPELL	0	N	0	N	0	O	N	U	0	0	$0	$0	$28,274	$28,274	Other	microwave tower
DEPARTMENT OF NATURAL RESOURCES	NWLO FIRE CACHE	E	655 Timberwolf Parkway	KALISPELL	2009	N	5,423	Y	1	O	M	D	1	0	$1,081,478	$96,601	$117,910	$1,295,989	Other	Fire Cache Inventory
DEPARTMENT OF NATURAL RESOURCES	RADIO TRANSMITTER CABIN (BIG MOUNTAIN)	E	Big Mountian	KALISPELL	0	N	120	N	1	O	M	U	1	0	$1,392	$378	$0	$1,770		
DEPARTMENT OF JUSTICE	MHP - BLACK TAIL MICROWAVE TOWER	E	5 miles E of Lakside	LAKESIDE	0	N	0	N	0	O	N	U	0	0	$0	$0	$102,091	$102,091	Other	microwave tower
DEPARTMENT OF NATURAL RESOURCES	100 PERSON CACHE	E	190 Terminal Dr	LEWISTOWN	0	N	1,834	N	1	L	M	U	1	0	$0	$68,700	$0	$68,700		
DEPARTMENT OF NATURAL RESOURCES	50 PERSON CACHE	E	190 Terminal Dr	LEWISTOWN	0	N	611	N	1	L	M	U	1	0	$0	$22,888	$0	$22,888		
DEPARTMENT OF NATURAL RESOURCES	FENCED COMPOUND CONTENTS	E	190 Terminal Dr	LEWISTOWN	0	N	1,222	N	1	L	M	U	0	0	$0	$45,775	$0	$45,775		
DEPARTMENT OF MILITARY AFFAIRS	LEWISTOWN ARMORY	E	190 Armory Road	LEWISTOWN	1960	N	9,664	N	1	O	M	C	1	0	$738,608	$205,180	$0	$943,788		
DEPARTMENT OF TRANSPORTATION	LEWISTOWN OFFICE/SHOP	E	1620 Airport Road	LEWISTOWN	1963	N	18,000	N	1	O	H	C	2	20	$1,452,945	$544,682	$40,000	$2,037,627	Telephone Systems	
MONTANA STATE UNIVERSITY - BILLINGS	LEWISTOWN TRANSLATOR/TRANSMITTER	E	S. Moccasin Mount, 9.5 miles N.N.W. of town	LEWISTOWN	0	N	800	N	1	L	M	U	0	0	$0	$9,434	$133,128	$142,562	Other	HD Radio Install
DPHHS, MENTAL HEALTH NURSING CARE CENTER	MAIN BUILDING & ADDITION	E	800 Casino Creek Drive	LEWISTOWN	1952	N	76,700	Y	1	O	M	C	1	123	$7,801,376	$2,088,904	$117,000	$10,007,280	Telephone Systems, Other	Vehicles
DEPARTMENT OF JUSTICE	MHP - SOUTH MOCCASIN (FERGUS) MICROWAVE TOWER	E	10 miles NW of Lewistown	LEWISTOWN	0	N	0	N	0	O	N	U	0	0	$0	$0	$23,750	$23,750	Other	microwave tower
DPHHS, MENTAL HEALTH NURSING CARE CENTER	THREE-STALL GARAGE	E	800 Casino Creek Drive	LEWISTOWN	0	N	864	N	1	O	M	C	1	123	$36,121	$572	$25,000	$61,693	Other	Vehicles
DEPARTMENT OF TRANSPORTATION	AERONAUTICS NDB - LIBBY	E	48 deg - 18' - 16.0" N, 115 deg - 29' - 43.0" W	LIBBY	0	N	36	N	1	O	H	E	1	0	$2,254	$0	$13,000	$15,254	Other	Radio Equipment
DEPARTMENT OF MILITARY AFFAIRS	LIBBY ARMORY	E	1004 Treasure Ave.	LIBBY	1990	N	20,762	N	1	O	M	B	1	0	$1,933,489	$567,272	$0	$2,500,761		
DEPARTMENT OF NATURAL RESOURCES	SHOP FIRE CACHE	E	177 State Lands Office Road	LIBBY	0	N	1,800	N	1	O	L	U	1	0	$70,387	$5,250	$0	$75,637		
DEPARTMENT OF TRANSPORTATION	AERONAUTICS LINCOLN ELECTRICAL BUILDING	E	1842 South Airport Road	LINCOLN	2006	N	225	N	1	O	M	F	1	0	$20,053	$7,841	$15,000	$42,894	Other	runway light contriller, runway light regulator
MONTANA STATE UNIVERSITY - BOZEMAN	KGLT RADIO TRANSLATOR - LIVINGSTON	E	15 MILES S OFLIVINGSTON 45-35-52.0 N,110-32-44 W	LIVINGSTON	2010	N	0	N	1	L	M	U	1	0	$0	$0	$5,000	$5,000	Other	RADIO EQUIPMENT
DEPARTMENT OF MILITARY AFFAIRS	LIVINGSTON ARMORY	E	24 Fleshman Creek Road	LIVINGSTON	1991	N	16,868	N	1	O	M	C	1	0	$1,721,903	$397,387	$0	$2,119,290		
MONTANA STATE UNIVERSITY - BILLINGS	LIVINGSTON TRANSLATOR	E	Quinn Peak, 10 miles W.N.W. of town	LIVINGSTON	0	N	800	N	1	L	M	U	0	0	$0	$9,434	$0	$9,434		
DEPARTMENT OF TRANSPORTATION	AERONAUTICS NDB - MALTA	E	48 deg - 22' - 43.0" N, 107 deg - 55' - 12.0" W	MALTA	0	N	36	N	1	O	H	E	1	0	$2,254	$0	$13,000	$15,254	Other	Radio Equipment
DEPARTMENT OF MILITARY AFFAIRS	MALTA ARMORY	E	HC 72, 1 Mile S. Hwy 191	MALTA	1965	N	9,176	N	1	O	M	C	1	0	$858,657	$211,796	$0	$1,070,453		
DEPARTMENT OF NATURAL RESOURCES	OFFICE FIRECACHE	E	1700 Pleasant Valley	MARION	0	N	2,016	N	1	O	L	U	1	1	$78,834	$6,117	$0	$84,951		
DEPARTMENT OF FISH, WILDLIFE & PARKS	7) REGIONAL HQ BUILDING	O	Industrial Site West	MILES CITY	1991	N	12,612	N	1	O	H	D	2	23	$1,166,656	$253,526	$709,581	$2,129,763	Other	FWP vehicles,
DEPT CORRECTIONS, PINE HILLS YOUTH CORRECTIONAL	HOUSING UNIT E	V	4 North Haynes Avenue	MILES CITY	2000	N	6,726	Y	1	O	M	C	1	12	$876,120	$160,279	$0	$1,036,399		
MONTANA STATE UNIVERSITY - BILLINGS	KYPR RADIO STATION/SIGNALS TO BUTTE	E	3.3 miles E/SE	MILES CITY	0	N	400	N	1	O	M	U	1	0	$26,048	$4,580	$12,500	$43,128	Other	New Transmitter & Satellite Receiver
DEPT CORRECTIONS, PINE HILLS YOUTH CORRECTIONAL	MAIN BUILDING/PHYCF	E	4 North Haynes Avenue	MILES CITY	2000	N	52,955	Y	1	O	H	C	1	98	$10,113,466	$812,463	$67,000	$10,992,929	Telephone Systems	
DEPARTMENT OF MILITARY AFFAIRS	MILES CITY ARMORY	E	2500 Main Street	MILES CITY	1957	N	8,277	N	1	O	M	C	1	0	$746,974	$4,304,050	$0	$5,051,024		
DEPARTMENT OF ADMINISTRATION	MILES CITY DATA CENTER (SMDC)	E	114 S Haynes Avenue	MILES CITY	2010	N	8,645	Y	1	O	M	B	1	1	$733,078	$286,429	$5,028,655	$6,048,162	Other	FAS3140 & switches
DEPARTMENT OF TRANSPORTATION	MILES CITY OFFICE/SHOP II	E	217 N. 4th Street	MILES CITY	1997	N	18,500	N	1	O	H	E	2	20	$1,613,407	$544,785	$110,000	$2,268,192	Other	radio equipment
UNIVERSITY OF MONTANA - MISSOULA	1000-1006 YREKA COURT	O	1000-1006 Yreka Court	MISSOULA	1967	N	1,968	N	1	O	M	D	2	0	$242,291	$551	$0	$242,842		
UNIVERSITY OF MONTANA - MISSOULA	100-106 HELENA COURT N	O	100-106 Helena Court N	MISSOULA	1966	N	2,502	N	1	O	M	D	2	0	$308,033	$551	$0	$308,584		
UNIVERSITY OF MONTANA - MISSOULA	1008-1014 YREKA COURT	O	1008-1014 Yreka Court	MISSOULA	1967	N	2,446	N	1	O	M	D	2	0	$301,140	$551	$0	$301,691		
UNIVERSITY OF MONTANA - MISSOULA	101-107 HELENA COURT N	O	101-107 Helena Court N	MISSOULA	1966	N	2,502	N	1	O	M	D	2	0	$308,033	$551	$0	$308,584		
UNIVERSITY OF MONTANA - MISSOULA	1016-1022 YREKA COURT	O	1016-1022 Yreka Court	MISSOULA	1967	N	1,942	N	1	O	M	D	2	0	$239,090	$551	$0	$239,641		
UNIVERSITY OF MONTANA - MISSOULA	1024-1030 YREKA COURT	O	1024-1030 Yreka Court	MISSOULA	1967	N	2,446	N	1	O	M	D	2	0	$301,140	$551	$0	$301,691		
UNIVERSITY OF MONTANA - MISSOULA	1032-1042 YREKA COURT	O	1032-1042 Yreka Court	MISSOULA	1967	N	6,024	N	1	O	M	D	2	0	$741,645	$551	$0	$742,196		
UNIVERSITY OF MONTANA - MISSOULA	1044-1050 YREKA COURT	O	1044-1050 Yreka Court	MISSOULA	1967	N	4,016	N	1	O	M	D	2	0	$494,431	$551	$0	$494,982		
UNIVERSITY OF MONTANA - MISSOULA	108-114 HELENA COURT N	O	108-114 Helena Court N	MISSOULA	1966	N	1,994	N	1	O	M	D	2	0	$245,492	$551	$0	$246,043		
UNIVERSITY OF MONTANA - MISSOULA	109-115 HELENA COURT N	O	109-115 Helena Court N	MISSOULA	1966	N	1,994	N	1	O	M	D	2	0	$245,492	$551	$0	$246,043		
UNIVERSITY OF MONTANA - MISSOULA	1101-1110 COLOMA DRIVE	O	1101-1110 Coloma Drive	MISSOULA	1996	N	9,404	N	1	O	M	D	2	0	$1,157,775	$551	$0	$1,158,326		
UNIVERSITY OF MONTANA - MISSOULA	1111-1115 COLOMA DRIVE	O	1111-1115 Coloma Drive	MISSOULA	1996	N	4,888	N	1	O	M	D	2	0	$601,787	$551	$0	$602,338		

STATE OF MONTANA CRITICAL FACILITIES (2013) E = Essential, V = Vulnerable, O = Other

AGENCY	NAME	CATEGORY	STREET ADDRESS	CITY	YR BUILT	HISTORICAL	SQUARE FT	SPRINKLERE	# BUILDINGS	OWNERSHIP	CONT_CD	CONC_CD	# STORIES	NUM_FTE	STRUCTURE VALUE	CONTENTS VALUE	ADDITIONAL CONTENTS	TOTAL	DESCRIPTION OF ADDITIONAL CONTENTS VALUE	DESCRIPTION OF OTHER
UNIVERSITY OF MONTANA - MISSOULA	116-122 HELENA COURT N	O	116-122 Helena Court N	MISSOULA	1966	N	2,502	N	1	O	M	D	2	0	$308,033	$551	$0	$308,584		
UNIVERSITY OF MONTANA - MISSOULA	117-123 HELENA COURT N	O	117-123 Helena Court N	MISSOULA	1966	N	2,502	N	1	O	M	D	2	0	$308,033	$551	$0	$308,584		
UNIVERSITY OF MONTANA - MISSOULA	1201-1204 COLOMA DRIVE	O	1201-1204 Coloma Drive	MISSOULA	1996	N	2,006	N	1	O	M	D	2	0	$246,969	$551	$0	$247,520		
UNIVERSITY OF MONTANA - MISSOULA	1205-1208 COLOMA DRIVE	O	1205-1208 Coloma Drive	MISSOULA	1996	N	2,006	N	1	O	M	D	2	0	$246,969	$551	$0	$247,520		
UNIVERSITY OF MONTANA - MISSOULA	1301-1304 GRANITE COURT	O	1301-1304 Granite Court	MISSOULA	1996	N	3,494	N	1	O	M	D	2	0	$430,165	$551	$0	$430,716		
UNIVERSITY OF MONTANA - MISSOULA	1305-1309 GRANITE COURT	O	1305-1309 Granite Court	MISSOULA	1996	N	4,888	N	1	O	M	D	2	0	$601,787	$526	$0	$602,313		
UNIVERSITY OF MONTANA - MISSOULA	1401-1407 GRANITE COURT	O	1305-1309 Granite Court	MISSOULA	1996	N	6,201	N	1	O	M	D	2	0	$763,438	$551	$0	$763,989		
UNIVERSITY OF MONTANA - MISSOULA	1408-1412 GRANITE COURT	O	1408-1412 Granite Court	MISSOULA	1996	N	4,888	N	1	O	M	D	2	0	$601,787	$551	$0	$602,338		
UNIVERSITY OF MONTANA - MISSOULA	1501-1504 CINNABAR DRIVE	O	1501-1504 Cinnabar Drive	MISSOULA	1996	N	2,006	N	1	O	M	D	2	0	$246,969	$551	$0	$247,520		
UNIVERSITY OF MONTANA - MISSOULA	1601-1608 CINNABAR DRIVE	O	1601-1608 Cinnabar Drive	MISSOULA	1996	N	7,530	N	1	O	M	D	2	0	$927,057	$551	$0	$927,608		
UNIVERSITY OF MONTANA - MISSOULA	1609-1613 CINNABAR DRIVE	O	1609-1613 Cinnabar Drive	MISSOULA	1996	N	4,888	N	1	O	M	D	2	0	$601,787	$551	$0	$602,338		
UNIVERSITY OF MONTANA - MISSOULA	1701-1704 CINNABAR DRIVE	O	1701-1704 Cinnabar Drive	MISSOULA	1996	N	2,996	N	1	O	M	D	2	0	$368,854	$526	$0	$369,380		
UNIVERSITY OF MONTANA - MISSOULA	1705-1713 CINNABAR DRIVE	O	1705-1713 Cinnabar Drive	MISSOULA	1996	N	5,746	N	1	O	M	D	2	0	$707,419	$551	$0	$707,970		
UNIVERSITY OF MONTANA - MISSOULA	1801-1808 EMIGRANT COURT	O	1801-1808 Emigrant Court	MISSOULA	1996	N	5,225	N	1	O	M	D	2	0	$643,277	$551	$0	$643,828		
UNIVERSITY OF MONTANA - MISSOULA	1809-1812 EMIGRANT COURT	O	1809-1812 Emigrant Court	MISSOULA	1996	N	3,747	N	1	O	M	D	2	0	$461,312	$551	$0	$461,863		
UNIVERSITY OF MONTANA - MISSOULA	1813-1820 EMIGRANT COURT	O	1813-1820 Emigrant Court	MISSOULA	1996	N	5,225	N	1	O	M	U	2	0	$643,277	$551	$0	$643,828		
UNIVERSITY OF MONTANA - MISSOULA	1901-1908 JARDINE COURT	O	1901-1908 Jardine Court	MISSOULA	1996	N	4,936	N	1	O	M	U	2	0	$607,696	$551	$0	$608,247		
UNIVERSITY OF MONTANA - MISSOULA	1909-1912 JARDINE COURT	O	1909-1912 Jardine Court	MISSOULA	1996	N	3,746	N	1	O	M	D	2	0	$461,189	$551	$0	$461,740		
UNIVERSITY OF MONTANA - MISSOULA	1913-1920 JARDINE COURT	O	1913-1920 Jardine Court	MISSOULA	1996	N	4,936	N	1	O	M	G	2	0	$607,696	$551	$0	$608,247		
DEPARTMENT OF FISH, WILDLIFE & PARKS	2) REGIONAL HQ BUILDING	O	3201 Spurgin Road	MISSOULA	1981	N	8,520	N	1	O	H	U	1	28	$1,035,843	$256,103	$901,366	$2,193,312	Other	FWP vehicles
UNIVERSITY OF MONTANA - MISSOULA	2001-2008 LAURIN COURT	O	2001-2008 Laurin Court	MISSOULA	1996	N	4,936	N	1	O	M	D	2	0	$607,696	$551	$0	$608,247		
UNIVERSITY OF MONTANA - MISSOULA	200-206 HELENA COURT N	O	200-206 Helena Court N	MISSOULA	1966	N	1,968	N	1	O	M	D	2	0	$242,291	$551	$0	$242,842		
UNIVERSITY OF MONTANA - MISSOULA	2009-2012 LAURIN COURT	O	2009-2012 Laurin Court	MISSOULA	1996	N	3,746	N	1	O	M	D	2	0	$461,189	$551	$0	$461,740		
UNIVERSITY OF MONTANA - MISSOULA	201-207 HELENA COURT N	O	201-207 Helena Court N	MISSOULA	1966	N	1,968	N	1	O	M	D	2	0	$242,291	$551	$0	$242,842		
UNIVERSITY OF MONTANA - MISSOULA	2013-2020 LAURIN COURT	O	2013-2020 Laurin Court	MISSOULA	1997	N	5,217	N	1	O	M	D	2	0	$642,292	$551	$0	$642,843		
UNIVERSITY OF MONTANA - MISSOULA	208-214 HELENA COURT N	O	208-214 Helena Court N	MISSOULA	1966	N	1,994	N	1	O	M	D	2	0	$245,492	$551	$0	$246,043		
UNIVERSITY OF MONTANA - MISSOULA	209-215 HELENA COURT N	O	209-215 Helena Court N	MISSOULA	1966	N	1,994	N	1	O	M	G	2	0	$245,492	$551	$0	$246,043		
UNIVERSITY OF MONTANA - MISSOULA	2101-2108 PARDEE COURT	O	2101-2108 Pardee Court	MISSOULA	1997	N	5,217	N	1	O	M	D	2	0	$642,292	$551	$0	$642,843		
UNIVERSITY OF MONTANA - MISSOULA	2109-2112 PARDEE COURT	O	2109-2112 Pardee Court	MISSOULA	1993	N	3,826	N	1	O	M	D	2	0	$471,038	$551	$0	$471,589		
UNIVERSITY OF MONTANA - MISSOULA	2113-2120 PARDEE COURT	O	2113-2120 Pardee Court	MISSOULA	1997	N	5,217	N	1	O	M	D	2	0	$642,292	$551	$0	$642,843		
UNIVERSITY OF MONTANA - MISSOULA	216-222 HELENA COURT N	O	216-222 Helena Court N	MISSOULA	1966	N	1,968	N	1	O	M	D	2	0	$242,291	$551	$0	$242,842		
UNIVERSITY OF MONTANA - MISSOULA	217-223 HELENA COURT N	O	217-223 Helena Court N	MISSOULA	1966	N	1,968	N	1	O	M	D	2	0	$242,291	$551	$0	$242,842		
UNIVERSITY OF MONTANA - MISSOULA	2201-2208 LANDUSKY COURT	O	2201-2208 Landusky Court	MISSOULA	1997	N	5,217	N	1	O	M	D	2	0	$642,292	$551	$0	$642,843		
UNIVERSITY OF MONTANA - MISSOULA	2209-2211 LANDUSKY COURT	O	2209-2211 Landusky Court	MISSOULA	1993	N	3,826	N	1	O	M	D	2	0	$471,038	$551	$0	$471,589		
UNIVERSITY OF MONTANA - MISSOULA	2213-2220 LANDUSKY COURT	O	2213-2220 Landusky Court	MISSOULA	1997	N	5,217	N	1	O	M	D	2	0	$642,292	$551	$0	$642,843		
UNIVERSITY OF MONTANA - MISSOULA	2301-2304 ROBAR COURT	O	2301-2304 Robar Court	MISSOULA	1993	N	3,826	N	1	O	M	D	2	0	$471,038	$551	$0	$471,589		
UNIVERSITY OF MONTANA - MISSOULA	2305-2307 ROBAR COURT	O	2305-2307 Robar Court	MISSOULA	1993	N	3,826	N	1	O	M	D	2	0	$471,038	$551	$0	$471,589		
UNIVERSITY OF MONTANA - MISSOULA	2309-2312 ROBAR COURT	O	2309-2312 Robar Court	MISSOULA	1993	N	3,826	N	1	O	M	D	2	0	$471,038	$551	$0	$471,589		
UNIVERSITY OF MONTANA - MISSOULA	300-306 BANNACK COURT N	O	300-306 Bannack Court N	MISSOULA	1966	N	2,502	N	1	O	M	D	2	0	$308,033	$551	$0	$308,584		
UNIVERSITY OF MONTANA - MISSOULA	301-307 BANNACK COURT N	O	301-307 Bannack Court N	MISSOULA	1966	N	2,502	N	1	O	M	D	2	0	$308,033	$551	$0	$308,584		
UNIVERSITY OF MONTANA - MISSOULA	308-314 BANNACK COURT N	O	308-314 Bannack Court N	MISSOULA	1966	N	1,994	N	1	O	M	D	2	0	$245,492	$551	$0	$246,043		
UNIVERSITY OF MONTANA - MISSOULA	309-315 BANNACK COURT N	O	309-315 Bannack Court N	MISSOULA	1966	N	1,994	N	1	O	M	D	2	0	$245,492	$551	$0	$246,043		
UNIVERSITY OF MONTANA - MISSOULA	316-322 BANNACK COURT N	O	316-322 Bannack Court N	MISSOULA	1966	N	2,502	N	1	O	M	D	2	0	$308,033	$551	$0	$308,584		
UNIVERSITY OF MONTANA - MISSOULA	317-323 BANNACK COURT N	O	317-323 Bannack Court N	MISSOULA	1966	N	2,502	N	1	O	M	D	2	0	$308,033	$551	$0	$308,584		
UNIVERSITY OF MONTANA - MISSOULA	324-334 BANNACK COURT N	O	324-334 Bannack Court N	MISSOULA	1966	N	6,024	N	1	O	M	D	2	0	$741,645	$551	$0	$742,196		
UNIVERSITY OF MONTANA - MISSOULA	400-406 BANNACK COURT N	O	400-406 Bannack Court N	MISSOULA	1966	N	2,502	N	1	O	M	D	2	0	$308,033	$551	$0	$308,584		
UNIVERSITY OF MONTANA - MISSOULA	401-407 BANNACK COURT N	O	401-407 Bannack Court N	MISSOULA	1966	N	2,502	N	1	O	M	D	2	0	$308,033	$551	$0	$308,584		
UNIVERSITY OF MONTANA - MISSOULA	408-414 BANNACK COURT N	O	408-414 Bannack Court N	MISSOULA	1966	N	2,502	N	1	O	M	D	2	0	$308,033	$551	$0	$308,584		
UNIVERSITY OF MONTANA - MISSOULA	409-415 BANNACK COURT N	O	409-415 Bannack Court N	MISSOULA	1966	N	2,502	N	1	O	M	D	2	0	$308,033	$551	$0	$308,584		
UNIVERSITY OF MONTANA - MISSOULA	417-423 BANNACK COURT N	O	417-423 Bannack Court N	MISSOULA	1966	N	2,476	N	1	O	M	D	2	0	$304,833	$551	$0	$305,384		
UNIVERSITY OF MONTANA - MISSOULA	424-430 BANNACK COURT N	O	424- 430 Bannack Court N	MISSOULA	1966	N	2,502	N	1	O	M	D	2	0	$308,033	$66,625	$0	$374,658		
UNIVERSITY OF MONTANA - MISSOULA	432-438 BANNACK COURT N	O	432-438 Bannack Court N	MISSOULA	1966	N	2,502	N	1	O	M	D	2	0	$308,033	$551	$0	$308,584		
UNIVERSITY OF MONTANA - MISSOULA	500-506 GARNET COURT	O	500-506 Garnet Court	MISSOULA	1966	N	2,502	N	1	O	M	D	2	0	$308,033	$551	$0	$308,584		
UNIVERSITY OF MONTANA - MISSOULA	508-514 GARNET COURT	O	508-514 Garnet Court	MISSOULA	1966	N	2,502	N	1	O	M	D	2	0	$308,033	$551	$0	$308,584		
UNIVERSITY OF MONTANA - MISSOULA	509-515 GARNET COURT	O	509-515 Garnet Court	MISSOULA	1966	N	2,476	N	1	O	M	D	2	0	$304,833	$551	$0	$305,384		
UNIVERSITY OF MONTANA - MISSOULA	516-526 GARNET COURT	O	516-526 Garnet Court	MISSOULA	1966	N	6,024	N	1	O	M	D	2	0	$741,645	$551	$0	$742,196		
UNIVERSITY OF MONTANA - MISSOULA	517-523 GARNET COURT	O	517-523 Garnet Court	MISSOULA	1966	N	2,502	N	1	O	M	D	2	0	$308,033	$551	$0	$308,584		
UNIVERSITY OF MONTANA - MISSOULA	525-531 GARNET COURT	O	525-531 Garnet Court	MISSOULA	1966	N	2,502	N	1	O	M	D	2	0	$308,033	$551	$0	$308,584		
UNIVERSITY OF MONTANA - MISSOULA	600-610 PIONEER COURT N	O	600-610 Pioneer Court N	MISSOULA	1966	N	6,024	N	1	O	M	D	2	0	$741,645	$551	$0	$742,196		
UNIVERSITY OF MONTANA - MISSOULA	601-607 PIONEER COURT N	O	601-607 Pioneer Court N	MISSOULA	1966	N	1,968	N	1	O	M	D	2	0	$242,291	$551	$0	$242,842		
UNIVERSITY OF MONTANA - MISSOULA	609-615 PIONEER COURT N	O	609-615 Pioneer Court N	MISSOULA	1966	N	1,968	N	1	O	M	D	2	0	$242,291	$551	$0	$242,842		
UNIVERSITY OF MONTANA - MISSOULA	612-618 PIONEER COURT N	O	612-618 Pioneer Court N	MISSOULA	1966	N	2,502	N	1	O	M	D	2	0	$308,033	$551	$0	$308,584		
UNIVERSITY OF MONTANA - MISSOULA	620-626 PIONEER COURT N	O	620-626 Pioneer Court N	MISSOULA	1966	N	1,968	N	1	O	M	D	2	0	$242,291	$551	$0	$242,842		
UNIVERSITY OF MONTANA - MISSOULA	700-706 PIONEER COURT S	O	700-706 Pioneer Court S	MISSOULA	1966	N	2,502	N	1	O	M	D	2	0	$308,033	$551	$0	$308,584		
UNIVERSITY OF MONTANA - MISSOULA	701-707 PIONEER COURT S	O	701-707 Pioneer Court S	MISSOULA	1966	N	2,476	N	1	O	M	D	2	0	$304,833	$551	$0	$305,384		
UNIVERSITY OF MONTANA - MISSOULA	708-714 PIONEER COURT S	O	708-714 Pioneer Court S	MISSOULA	1966	N	2,502	N	1	O	M	U	2	0	$308,033	$551	$0	$308,584		
UNIVERSITY OF MONTANA - MISSOULA	716-722 PIONEER COURT S	O	716-722 Pioneer Court S	MISSOULA	1966	N	2,502	N	1	O	M	D	2	0	$308,033	$551	$0	$308,584		
UNIVERSITY OF MONTANA - MISSOULA	724-730 PIONEER COURT S	O	724-730 Pioneer Court S	MISSOULA	1966	N	2,502	N	1	O	M	D	2	0	$308,033	$551	$0	$308,584		
UNIVERSITY OF MONTANA - MISSOULA	801-807 OPHIR COURT	O	801-807 Ophir Court	MISSOULA	1967	N	1,968	N	1	O	M	D	2	0	$242,291	$551	$0	$242,842		
UNIVERSITY OF MONTANA - MISSOULA	809-815 OPHIR COURT	O	809-815 Ophir Court	MISSOULA	1967	N	1,968	N	1	O	M	D	2	0	$242,291	$551	$0	$242,842		
UNIVERSITY OF MONTANA - MISSOULA	817-823 OPHIR COURT	O	817-823 Ophir Court	MISSOULA	1967	N	2,446	N	1	O	M	D	2	0	$301,140	$551	$0	$301,691		
UNIVERSITY OF MONTANA - MISSOULA	833-839 OPHIR COURT	O	833-839 Ophir Court	MISSOULA	1967	N	6,024	N	1	O	M	D	2	0	$741,645	$551	$0	$742,196		
UNIVERSITY OF MONTANA - MISSOULA	900-906 RIMINI COURT	O	900-906 Rimini Court	MISSOULA	1967	N	1,968	N	1	O	M	D	2	0	$242,291	$551	$0	$242,842		
UNIVERSITY OF MONTANA - MISSOULA	901-907 RIMINI COURT	O	901-907 Rimini Court	MISSOULA	1967	N	2,446	N	1	O	M	D	2	0	$301,140	$551	$0	$301,691		
UNIVERSITY OF MONTANA - MISSOULA	908-914 RIMINI COURT	O	908-914 Rimini Court	MISSOULA	1967	N	1,968	N	1	O	M	D	2	0	$242,291	$551	$0	$242,842		
UNIVERSITY OF MONTANA - MISSOULA	909-915 RIMINI COURT	O	909-915 Rimini Court	MISSOULA	1967	N	2,446	N	1	O	M	D	2	0	$301,140	$551	$0	$301,691		
UNIVERSITY OF MONTANA - MISSOULA	916-922 RIMINI COURT	O	916-922 Rimini Court	MISSOULA	1967	N	2,446	N	1	O	M	D	2	0	$301,140	$551	$0	$301,691		
UNIVERSITY OF MONTANA - MISSOULA	917-923 RIMINI COURT	O	917-923 Rimini Court	MISSOULA	1967	N	2,446	N	1	O	M	D	2	0	$301,140	$551	$0	$301,691		
UNIVERSITY OF MONTANA - MISSOULA	924-930 RIMINI COURT	O	924-930 Rimini Court	MISSOULA	1967	N	2,446	N	1	O	M	D	2	0	$301,140	$551	$0	$301,691		
UNIVERSITY OF MONTANA - MISSOULA	925-931 RIMINI COURT	O	925-931 Rimini Court	MISSOULA	1967	N	2,446	N	1	O	M	D	2	0	$301,140	$551	$0	$301,691		
UNIVERSITY OF MONTANA - MISSOULA	932-942 RIMINI COURT	O	932-942 Rimini Court	MISSOULA	1967	N	6,024	N	1	O	M	D	2	0	$741,645	$551	$0	$742,196		
UNIVERSITY OF MONTANA - MISSOULA	933-951 RIMINI COURT	O	933-951 Rimini Court	MISSOULA	1967	N	4,009	N	1	O	M	D	2	0	$493,568	$551	$0	$494,119		
UNIVERSITY OF MONTANA - MISSOULA	944-962 RIMINI COURT	O	944-962 Rimini Court	MISSOULA	1967	N	4,009	N	1	O	M	D	2	0	$493,568	$551	$0	$494,119		
UNIVERSITY OF MONTANA - MISSOULA	ABER HALL	V	844 Connell Avenue	MISSOULA	1967	N	87,950	Y	1	O	M	B	11	1	$14,894,405	$1,074,614	$0	$15,969,019		
UNIVERSITY OF MONTANA - MISSOULA	ADAMS CENTER (SHELTER)	E	800 Van Buren St.	MISSOULA	1953	N	176,427	Y	1	O	M	H	4	101	$41,621,245	$1,599,482	$803,900	$44,024,627	Other	Stage, AC Ticketing Sys.,Eqt., B-ball floor, other
UNIVERSITY OF MONTANA - MISSOULA	ADMINISTRATION BUILDING	O	909 S Ave W.	MISSOULA	1969	N	43,664	Y	1	O	M	C	1	74	$9,157,980	$1,651,221	$500,840	$11,310,041	Library Books, Telephone Systems	
UNIVERSITY OF MONTANA - MISSOULA	BIGSKY MOUNTAIN (KUFM TOP OF SNOWBOWL)	E	Big Sky Mountain (Top of Snowbowl)	MISSOULA	0	N	0	N	0	L	L	U	0	0	$0	$0	$130,000	$130,000	Other	KUFM Transmitter Tower, Antenanas
UNIVERSITY OF MONTANA - MISSOULA	BIO RESEARCH BUILDING	V	Bio Research Bldg access from Beckwith Ave.	MISSOULA	2004	N	10,260	Y	1	O	M	D	2	10	$2,090,651	$2,199,426	$215,283	$4,505,360	Other	Flour Image Sys(2), DNA Sequencer

STATE OF MONTANA CRITICAL FACILITIES (2013) E = Essential, V = Vulnerable, O = Other

AGENCY	NAME	CATEGORY	STREET ADDRESS	CITY	YR BUILT	HISTORICAL	SQUARE FT	SPRINKLERE	# BUILDINGS	OWNERSHIP	CONT_CD	CONC_CD	# STORIES	NUM_FTE	STRUCTURE VALUE	CONTENTS VALUE	ADDITIONAL CONTENTS	TOTAL	DESCRIPTION OF ADDITIONAL CONTENTS VALUE	DESCRIPTION OF OTHER
UNIVERSITY OF MONTANA - MISSOULA	CHEMISTRY/PHARMACY	V	1350 Mansfield Avenue	MISSOULA	1938	Y	54,184	Y	1	O	H	C	4	30	$13,189,374	$4,144,564	$2,924,646	$20,258,584	Other	NMR's, Spectrometers, Chirascan w/ SX20 Spectrmtrm
UNIVERSITY OF MONTANA - MISSOULA	CORBIN HALL	V	1025 Maurice Avenue	MISSOULA	1927	Y	23,190	N	1	O	M	C	4	21	$3,686,481	$725,436	$0	$4,411,917		
UNIVERSITY OF MONTANA - MISSOULA	CRAIG HALL	V	1301 Maurice Avenue	MISSOULA	1953	N	71,666	Y	1	O	M	B	4	3	$11,273,350	$875,697	$0	$12,149,047		
UNIVERSITY OF MONTANA - MISSOULA	CRAIGHEAD APARTMENTS	O	1900 Maurice Avenue	MISSOULA	1957	N	73,485	N	1	O	N	B	3	0	$8,089,232	$0	$0	$8,089,232		
UNIVERSITY OF MONTANA - MISSOULA	CURRY HEALTH CENTER	E	634 Eddy Avenue	MISSOULA	1956	N	56,061	Y	1	O	M	C	3	91	$15,471,332	$1,357,083	$306,988	$17,135,403	Other	Lab Equip.
UNIVERSITY OF MONTANA - MISSOULA	DAVIDSON HONORS COLLEGE	O	1235 Madeline Avenue	MISSOULA	1996	N	21,674	Y	1	O	M	C	2	9	$4,657,109	$876,798	$189,810	$5,723,717	Mid-size and Mainframe Computer Systems, Other	Network Storage CX300 Bundle Server
UNIVERSITY OF MONTANA - MISSOULA	DON ANDERSON HALL	E	800 Daly Ave	MISSOULA	2007	N	57,500	Y	1	O	M	A	4	20	$14,029,300	$1,342,709	$1,050,000	$16,422,009	Other, Telephone Systems	TV and Radio Equipment
UNIVERSITY OF MONTANA - MISSOULA	DUNIWAY HALL	O	635 McLeod Avenue	MISSOULA	1956	N	37,216	Y	1	O	M	B	4	1	$5,854,223	$474,561	$0	$6,328,784		
UNIVERSITY OF MONTANA - MISSOULA	ELROD HALL	V	640 Keith Avenue	MISSOULA	1923	Y	34,547	Y	1	O	M	C	4	1	$5,434,712	$422,163	$0	$5,856,875		
UNIVERSITY OF MONTANA - MISSOULA	EMMA B. LOMMASSON CENTER	E	625 University Avenue	MISSOULA	1955	N	110,669	Y	1	O	M	B	2	229	$19,150,672	$3,349,005	$353,002	$22,852,679	Other	Ding Svcs Washing Systems, Ovens
UNIVERSITY OF MONTANA - MISSOULA	FINE ARTS (INCLUDES 10/97 REMODEL)	O	715 Connell Avenue	MISSOULA	1935	Y	63,375	Y	1	O	M	D	3	17	$14,933,075	$1,700,757	$0	$16,633,832		
UNIVERSITY OF MONTANA - MISSOULA	FIRE AND AVIATION MANAGEMENT	E	2705 Spurgin Rd.	MISSOULA	1972	N	5,112	N	1	O	H	D	1	17	$430,258	$154,559	$10,000	$594,817	Telephone Systems	
UNIVERSITY OF MONTANA - MISSOULA	FORESTRY	O	1310 Madeline Avenue	MISSOULA	1921	Y	23,310	N	1	O	M	B	3	38	$5,060,255	$647,939	$29,757	$5,737,951	Other	Xerox CC65
DEPARTMENT OF NATURAL RESOURCES	FORESTRY DIVISION HEADQUARTERS BUILDING A	E	2705 Spurgin Road	MISSOULA	1964	N	13,354	N	1	O	H	U	3	45	$2,392,112	$148,830	$419,000	$2,959,942	Telephone Systems, Other	vehicles
DEPARTMENT OF JUSTICE	FSD - FORENSICS, MISSOULA	E	2679 Palmer Street	MISSOULA	2000	N	31,145	Y	1	O	H	D	1	33	$3,474,907	$3,434,539	$4,146,000	$11,055,446	Telephone Systems, Other	Lab Equipment
UNIVERSITY OF MONTANA - MISSOULA	GALLAGHER BUILDING	O	925 Maurice Avenue	MISSOULA	1996	N	130,491	Y	1	O	M	A	4	76	$28,038,702	$3,027,238	$376,835	$31,442,775	Other	Xerox DC480STC, Newworking Systems Eqpt.
UNIVERSITY OF MONTANA - MISSOULA	HEALTH & BUSINESS BLDG	O	909 S Ave W.	MISSOULA	1979	N	26,656	Y	1	O	M	C	2	15	$5,563,757	$740,958	$0	$6,304,715		
UNIVERSITY OF MONTANA - MISSOULA	HEALTH SCIENCES	O	720 Keith Avenue	MISSOULA	1962	N	62,964	N	1	O	M	B	5	108	$15,187,359	$5,624,277	$1,367,710	$22,179,346	Other	Electron Microscope, Spectrometers, other Equipt.
UNIVERSITY OF MONTANA - MISSOULA	UM - HEATING PLANT	E	840 Connell Avenue	MISSOULA	1923	Y	10,160	N	1	O	M	D	2	6	$2,607,258	$613,704	$30,884,464	$34,105,426	Other	17,140 ft of Steam Tunnels, Boiler Oxygen Analyzer
DEPARTMENT OF NATURAL RESOURCES	HELICOPTER HANGER	E	3150 Maverick Lane	MISSOULA	2010	N	3,024	N	1	O	M	U	1	0	$142,136	$0	$0	$142,136		
UNIVERSITY OF MONTANA - MISSOULA	INTERNATIONAL CENTER (FORMERLY LINGUISTICS)	O	700 McLeod Ave.	MISSOULA	1937	Y	6,853	N	1	O	M	C	1	11	$1,573,206	$200,652	$0	$1,773,858		
UNIVERSITY OF MONTANA - MISSOULA	JAMES E. TODD BUILDING	O	25 Campus Drive	MISSOULA	1998	N	32,625	Y	1	O	M	C	3	40	$7,010,160	$1,319,875	$1,163,808	$9,493,843	Other	Image Setter & Press Equipt., Platewriter
UNIVERSITY OF MONTANA - MISSOULA	JEANETTE RANKIN HALL	O	815 Daly Avenue	MISSOULA	1909	Y	16,532	N	1	O	M	C	4	26	$3,605,771	$459,480	$0	$4,065,251		
UNIVERSITY OF MONTANA - MISSOULA	JESSE HALL	V	610 Daly Avenue	MISSOULA	1967	N	87,950	Y	1	O	M	B	11	1	$14,894,405	$1,074,614	$0	$15,969,019		
UNIVERSITY OF MONTANA - MISSOULA	KNOWLES HALL	V	630 University Avenue	MISSOULA	1963	N	63,360	Y	1	O	M	C	4	1	$9,967,590	$774,203	$0	$10,741,793		
UNIVERSITY OF MONTANA - MISSOULA	KUFM PT. 6 (TOP OF SNOWBOWL)	E	TV Mountain Top of Snowbowl	MISSOULA	1973	N	607	N	1	O	M	C	1	0	$56,048	$6,681	$363,474	$426,203	Other	Transmitter on TV-MTN, Thales on Dean Stone
UNIVERSITY OF MONTANA - MISSOULA	LAW SCHOOL	O	715 S 6th St E	MISSOULA	1962	N	111,163	Y	1	O	M	C	2	41	$26,291,763	$3,193,571	$11,505,642	$40,990,976	Library Books	
UNIVERSITY OF MONTANA - MISSOULA	LEWIS AND CLARK VILLAGES UNIT A	O	3000 S. Higgins	MISSOULA	2004	N	18,215	Y	1	O	M	D	3	0	$1,055,882	$175,924	$0	$1,231,806		
UNIVERSITY OF MONTANA - MISSOULA	LEWIS AND CLARK VILLAGES UNIT B	O	3000 S. Higgins	MISSOULA	2004	N	18,215	Y	15	O	M	D	3	0	$1,055,875	$175,924	$0	$1,231,799		
UNIVERSITY OF MONTANA - MISSOULA	LEWIS AND CLARK VILLAGES UNIT C	O	3000 S. Higgins	MISSOULA	2004	N	18,215	Y	1	O	M	D	3	0	$1,055,875	$175,924	$0	$1,231,799		
UNIVERSITY OF MONTANA - MISSOULA	LEWIS AND CLARK VILLAGES UNIT D	O	3000 S Higgins	MISSOULA	2004	N	18,215	Y	1	O	M	D	3	0	$1,055,875	$175,924	$0	$1,231,799		
UNIVERSITY OF MONTANA - MISSOULA	LEWIS AND CLARK VILLAGES UNIT E	O	3000 S Higgins	MISSOULA	2004	N	18,215	Y	1	O	M	D	3	0	$1,055,875	$175,924	$0	$1,231,799		
UNIVERSITY OF MONTANA - MISSOULA	LEWIS AND CLARK VILLAGES UNIT F	O	3000 S. Higgins	MISSOULA	2004	N	18,215	Y	1	O	M	D	3	0	$1,055,875	$175,924	$0	$1,231,799		
UNIVERSITY OF MONTANA - MISSOULA	LEWIS AND CLARK VILLAGES UNIT G	O	3000 S. Higgins	MISSOULA	2004	N	18,215	Y	1	O	M	D	3	0	$1,055,875	$175,924	$0	$1,231,799		
UNIVERSITY OF MONTANA - MISSOULA	LEWIS AND CLARK VILLAGES UNIT H	O	3000 S. Higgins	MISSOULA	2004	N	18,215	Y	1	O	M	D	3	0	$1,055,875	$175,924	$0	$1,231,799		
UNIVERSITY OF MONTANA - MISSOULA	LEWIS AND CLARK VILLAGES UNIT I	O	3000 S. Higgins	MISSOULA	2004	N	18,215	Y	1	O	M	D	3	0	$1,055,875	$175,924	$0	$1,231,799		
UNIVERSITY OF MONTANA - MISSOULA	LEWIS AND CLARK VILLAGES UNIT J	O	3000 S. Higgins	MISSOULA	2004	N	18,215	Y	1	O	M	D	3	0	$1,055,875	$175,924	$0	$1,231,799		
UNIVERSITY OF MONTANA - MISSOULA	LEWIS AND CLARK VILLAGES UNIT K	O	3000 S. Higgins	MISSOULA	2004	N	18,215	Y	1	O	M	D	3	0	$1,055,875	$175,924	$0	$1,231,799		
UNIVERSITY OF MONTANA - MISSOULA	LIBERAL ARTS	O	725 Daly Avenue	MISSOULA	1954	N	100,713	Y	1	O	M	B	4	170	$21,863,823	$3,434,539	$2,091,125	$27,389,487	Telephone Systems, Mid-size and Mainframe Computer Systems	
UNIVERSITY OF MONTANA - MISSOULA	MANSFIELD CENTER AT PALMER STREET	O	2675 Palmer Street Suite E	MISSOULA	2003	N	3,403	Y	1	L	M	C	1	8	$0	$77,234	$0	$77,234		
UNIVERSITY OF MONTANA - MISSOULA	MANSFIELD LIBRARY	V	910 McLeod Avenue	MISSOULA	1973	N	220,075	Y	1	O	M	B	6	66	$52,129,860	$2,641,953	$33,495,325	$88,267,138	Library Books	
UNIVERSITY OF MONTANA - MISSOULA	MATHEMATICS	O	1255 Mansfield Avenue	MISSOULA	1903	Y	21,668	N	1	O	M	C	3	33	$5,025,482	$978,762	$78,638	$6,082,882	Other	Decsystem5500 W/3gb Discs
UNIVERSITY OF MONTANA - MISSOULA	MCGILL HALL	O	920 Van Buren Street	MISSOULA	1953	N	67,079	N	1	O	M	C	2	50	$12,751,030	$1,946,917	$146,857	$14,844,804	Other	Orthotrak Motion Analysis sys., Mass Spect.
UNIVERSITY OF MONTANA - MISSOULA	MILLER HALL	V	1330 Arthur Avenue	MISSOULA	1965	N	87,371	Y	1	O	M	B	5	1	$13,445,818	$935,691	$0	$14,381,509		
DEPARTMENT OF MILITARY AFFAIRS	MISSOULA ARMED FORCES RESERVE CENTER	E	9383 Running West Road	MISSOULA	2010	N	70,601	Y	1	O	M	A	2	15	$18,278,750	$359,324	$65,000	$18,703,074	Mid-size and Mainframe Computer Systems, Telephone Systems	
DEPARTMENT OF TRANSPORTATION	MISSOULA HEADQUARTERS OFFICE & SHOP	E	2100 West Broadway	MISSOULA	1968	N	18,177	N	1	O	H	C	2	20	$1,461,761	$572,423	$37,000	$2,071,184	Other	radio equipment
DEPARTMENT OF NATURAL RESOURCES	MISSOULA UNIT FIRE CACHE	E	1500 Tower Street	MISSOULA	0	N	1,192	N	1	O	M	U	1	0	$13,832	$3,753	$0	$17,585		
DEPARTMENT OF NATURAL RESOURCES	MISSOULA UNIT OFFICE	E	3206 Maverick Lane	MISSOULA	0	N	2,800	N	1	O	M	U	1	9	$170,453	$67,427	$0	$237,880		
UNIVERSITY OF MONTANA - MISSOULA	MUSIC HALL	O	930 Maurice Avenue	MISSOULA	1953	N	37,180	N	1	O	M	C	3	27	$8,515,136	$1,144,846	$240,000	$9,899,982	Other	Grand Piano and Pipe Organ and other musical instr
UNIVERSITY OF MONTANA - MISSOULA	NATIVE AMERICAN CENTER (PAYNE FAMILY)	O	1210 Maurice	MISSOULA	2009	N	29,259	Y	1	O	M	F	2	10	$8,947,883	$634,670	$0	$9,582,553		
UNIVERSITY OF MONTANA - MISSOULA	NATURAL SCIENCE ANNEX	O	1040 Madiline Ave.	MISSOULA	1938	Y	4,890	N	1	O	M	C	3	0	$1,216,101	$128,099	$159,090	$1,503,290	Other	M26 Stereomicroscope, cmptr. IBM RS6000, etc.
UNIVERSITY OF MONTANA - MISSOULA	NATURAL SCIENCES (BOTANY BUILDING)	O	1040 Madeline Avenue	MISSOULA	1919	Y	23,100	N	1	O	M	C	3	33	$5,015,202	$642,105	$236,865	$5,894,172	Other, Mid-size and Mainframe Computer Systems	Spectrometer, micorscopes, photosynthesis system,
UNIVERSITY OF MONTANA - MISSOULA	NORTH CORBIN	O	1025 Maurice Avenue	MISSOULA	1956	N	14,858	N	1	O	M	C	4	0	$2,361,576	$449,572	$0	$2,811,148		
UNIVERSITY OF MONTANA - MISSOULA	NORTH UNDERGROUND LECT. HALL	O	1340 Mansfield Ave.	MISSOULA	1999	N	9,260	Y	1	O	M	B	1	0	$2,111,164	$16,512	$0	$2,127,676		
UNIVERSITY OF MONTANA - MISSOULA	O'CONNER CENTER FOR ROCKY MOUNTAIN WEST (OLD NAS)	O	600 University	MISSOULA	1955	N	3,149	N	1	O	M	C	3	6	$387,690	$73,870	$0	$461,560		
DEPARTMENT OF ADMINISTRATION	PALMER COMPLEX PBX ONLY	E	2681 Palmer St	MISSOULA	0	N	0	N	1	L	M		0	0	$0	$0	$250,000	$250,000	Telephone Systems	
UNIVERSITY OF MONTANA - MISSOULA	PANTZER HALL DORMITORY	V	615 Keith Avenue	MISSOULA	1996	N	80,250	Y	1	O	N	A	4	1	$12,349,943	$880,651	$0	$13,230,594		
UNIVERSITY OF MONTANA - MISSOULA	PERFORMING ARTS & RADIO TELEVISION	E	735 S 6th Street East	MISSOULA	1985	N	71,125	Y	1	O	M	C	3	62	$17,338,455	$242,729	$3,882,793	$21,463,977	Other, Library Books	Digital Film Prod., Bexel HD Cam. Eqpt., transmtr
UNIVERSITY OF MONTANA - MISSOULA	PHYLLIS J. WASHINGTON EDUCATION CENTER	O	745 Eddy	MISSOULA	2009	N	69,661	Y	1	O	M	A	3	50	$21,767,636	$840,361	$178,773	$22,786,770	Other	Xerox, Omni Globe
UNIVERSITY OF MONTANA - MISSOULA	PHYSICAL PLANT BUILDING - MISSOULA	E	12 Campus Drive	MISSOULA	1967	N	50,968	Y	1	O	M	C	1	156	$5,731,382	$1,542,351	$0	$7,273,733		
DEPARTMENT OF NATURAL RESOURCES	RADIO BUILDING (MOUNT SENTINEL)	E	Mt. Sentinel	MISSOULA	0	N	200	N	1	O	M	U	1	0	$13,024	$2,290	$0	$15,314		
UNIVERSITY OF MONTANA - MISSOULA	SCHREIBER GYM (SHELTER)	E	950 Keith Avenue	MISSOULA	1922	Y	43,085	N	1	O	M	C	3	1	$9,133,478	$405,540	$0	$9,539,018		
UNIVERSITY OF MONTANA - MISSOULA	SCIENCE COMPLEX - CHARLES H. CLAPP BLDG.	O	845 Keith Avenue	MISSOULA	1971	N	99,726	N	1	O	M	A	5	116	$22,660,525	$6,220,698	$3,082,877	$31,964,100	Other, Mid-size and Mainframe Computer Systems	Specialized Sci./Lab Equipment
UNIVERSITY OF MONTANA - MISSOULA	SEISMOGRAPH STATION (PATTEE CANYON)	E	Pattee Canyon Rd.	MISSOULA	1972	N	200	N	1	O	M	C	1	0	$18,468	$2,202	$0	$20,670		
UNIVERSITY OF MONTANA - MISSOULA	SISSON APARTMENTS	O	1900 Maurice Avenue	MISSOULA	1957	N	73,485	N	1	O	N	B	3	0	$8,089,232	$0	$0	$8,089,232		
UNIVERSITY OF MONTANA - MISSOULA	SKAGGS BUILDING	O	1325 Mansfield Avenue	MISSOULA	1979	N	179,875	Y	1	O	M	B	5	178	$50,991,553	$5,907,502	$3,632,195	$60,531,250	Telephone Systems, Other	Cytometer, Laser/Imaging ept., Nikon E800, FV300..
UNIVERSITY OF MONTANA - MISSOULA	SOCIAL SCIENCE	O	1010 Mansfield Avenue	MISSOULA	192	Y	95,246	Y	1	O	M	C	4	127	$20,749,922	$387,817	$6,217,921	$27,355,660	Telephone Systems, Mid-size and Mainframe Computer Systems	
UNIVERSITY OF MONTANA - MISSOULA	STONE HALL (OLD JOURNALISM)	O	825 McLeod Avenue	MISSOULA	1937	Y	28,916	N	1	O	M	C	3	11	$6,246,466	$1,571,851	$55,000	$7,873,317	Other	Sattelite Signal Rec. Dish
UNIVERSITY OF MONTANA - MISSOULA	TRADE & TECHNOLOGY I	O	3639 S Ave W.	MISSOULA	1972	N	30,412	N	1	O	M	E	2	7	$3,257,275	$920,280	$0	$4,177,555		
UNIVERSITY OF MONTANA - MISSOULA	TRADE & TECHNOLOGY II	O	3639 S Ave W.	MISSOULA	1977	N	34,340	N	1	O	M	E	1	6	$3,678,102	$132,649	$96,155	$3,906,906	Telephone Systems, Other	Computer Ibm As400--10-20848
UNIVERSITY OF MONTANA - MISSOULA	TRADE & TECHNOLOGY III	O	3639 S Ave W.	MISSOULA	1973	N	2,880	N	1	O	M	E	1	6	$618,828	$67,560	$41,160	$727,548	Other	3 Caterpillar virtual simulators
UNIVERSITY OF MONTANA - MISSOULA	TURNER HALL	O	1105 Maurice Aveneu	MISSOULA	1938	Y	35,620	Y	1	O	M	C	3	10	$5,543,942	$435,261	$0	$5,979,203		
UNIVERSITY OF MONTANA - MISSOULA	UNIVERSITY CENTER	E	915 Daly Avenue	MISSOULA	1968	N	178,976	Y	1	O	M	B	3	53	$40,932,836	$4,403,255	$824,334	$46,160,425	Other, Library Books	Xerox 5390, Xerox 5100A, DS Washing Sys, KBGA inv
UNIVERSITY OF MONTANA - MISSOULA	UNIVERSITY HALL	O	900 University Avenue	MISSOULA	1898	Y	32,843	N	1	O	M	C	3	106	$11,959,339	$1,727,263	$0	$13,686,602		

STATE OF MONTANA CRITICAL FACILITIES (2013) E = Essential, V = Vulnerable, O = Other

AGENCY	NAME	CATEGORY	STREET ADDRESS	CITY	YR BUILT	HISTORICAL	SQUARE FT	SPRINKLERE	# BUILDINGS	OWNERSHIP	CONT_CD	CONC_CD	# STORIES	NUM_FTE	STRUCTURE VALUE	CONTENTS VALUE	ADDITIONAL CONTENTS	TOTAL	DESCRIPTION OF ADDITIONAL CONTENTS VALUE	DESCRIPTION OF OTHER
UNIVERSITY OF MONTANA - MISSOULA	UREY LECTURE HALL	O	1340 Mansfield Avenue	MISSOULA	1980	N	9,780	Y	1	O	M	B	1	0	$2,225,481	$16,512	$0	$2,241,993		
DEPARTMENT OF NATURAL RESOURCES	OLNEY FIRE CACHE	E	7425 Hwy 93 South	OLNEY	0	N	627	N	1	O	M	U	1	0	$7,276	$1,974	$0	$9,250		
DEPARTMENT OF TRANSPORTATION	AERONAUTICS NDB - PLENTYWOOD	E	48 deg - 47' - 42.0" N, 104 deg - 31' - 36.0" W	PLENTYWOOD	0	N	36	N	1	O	H	E	1	0	$2,254	$0	$13,000	$15,254	Other	Radio Equipment
DEPARTMENT OF JUSTICE	MHP - PLENTYWOOD (SHERIDAN CO) MICROWAVE TOWER	E	7 miles S of Plentywood	PLENTYWOOD	0	N	0	N	0	O	N	U	0	0	$0	$0	$57,579	$57,579	Other	microwave tower
UNIVERSITY OF MONTANA - MISSOULA	ELROD LABORATORY, YELLOWBAY	V	32125 Bio Station Lane	POLSON	1968	N	8,467	N	1	O	M	C	2	21	$2,050,580	$859,571	$268,769	$3,178,920	Other	Research Equipt., Ion Chromatograph
UNIVERSITY OF MONTANA - MISSOULA	FIRE HOUSE	E	32125 Bio Station Lane	POLSON	1951	N	606	N	1	O	M	D	1	0	$52,450	$11,295	$0	$63,745		
UNIVERSITY OF MONTANA - MISSOULA	FRESH WATER RESEARCH LAB	V	32125 Bio Station Lane	POLSON	1981	N	5,074	N	1	O	M	D	1	5	$1,283,303	$606,002	$0	$1,889,305		
UNIVERSITY OF MONTANA - MISSOULA	KUFM POLSON	E	Jette Mountain	POLSON	0	N	80	N	1	L	L	C	1	0	$0	$0	$50,000	$50,000	Other	Radio Tower/Transmitter
UNIVERSITY OF MONTANA - MISSOULA	LAKESIDE LABORATORY	V	32125 Bio Station Lane	POLSON	1968	N	4,860	N	1	O	M	D	1	5	$1,213,845	$485,965	$0	$1,699,810		
UNIVERSITY OF MONTANA - MISSOULA	LIFT STATION 1	V	32125 Bio Station Lane	POLSON	1979	N	116	N	1	O	M	C	1	0	$5,737	$0	$50,000	$55,737	Other	Pumps, machinery
UNIVERSITY OF MONTANA - MISSOULA	LIFT STATION 2	V	32125 Bio Station Lane	POLSON	1976	N	250	N	1	O	M	C	1	0	$12,364	$0	$50,000	$62,364	Other	Pumps and Machinery
UNIVERSITY OF MONTANA - MISSOULA	MUSEUM	E	32125 Bio Station Lane	POLSON	1968	N	416	N	1	O	M	D	1	0	$36,005	$2,659	$5,000	$43,664	Library Books	
UNIVERSITY OF MONTANA - MISSOULA	PRESCOTT CENTER CAFETERIA	V	32125 Bio Station Lane	POLSON	1985	N	6,113	N	1	O	M	D	2	0	$1,319,161	$138,924	$0	$1,458,085		
UNIVERSITY OF MONTANA - MISSOULA	PRESCOTT CENTER DORMITORY	V	32125 Bio Station Lane	POLSON	1985	N	6,154	N	1	O	M	D	2	0	$951,137	$61,657	$0	$1,012,794		
UNIVERSITY OF MONTANA - MISSOULA	WASTE WATER TREATMENT PLANT	V	32125 Bio Station Lane	POLSON	1976	N	3,198	N	1	O	M	U	3	0	$790,833	$68,162	$0	$858,995		
DEPARTMENT OF FISH, WILDLIFE & PARKS	5) CHIEF PLENTY COUPS SP-MEMORIAL MUSEUM	O	1 mile West of Pryor	PRYOR	1985	N	3,298	N	1	O	H	U	2	3	$363,548	$0	$86,365	$449,913	Other	FWP vehicles
DEPARTMENT OF FISH, WILDLIFE & PARKS	5) CHIEF PLENTY COUPS SP-MUSEUM RESIDENCE	O	1 mile West of Pryor	PRYOR	1971	Y	1,728	N	1	O	L	U	2	0	$190,482	$0	$16,000	$206,482	Other	playground equipment
DEPARTMENT OF TRANSPORTATION	AERONAUTICS NDB - ROUNDUP	E	#1 Roundup Airport Road	ROUNDUP	0	N	36	N	1	O	H	E	1	0	$2,254	$0	$13,000	$15,254	Other	Radio Equipment
DEPARTMENT OF JUSTICE	MHP - SACO PHILLIPS COUNTY MICROWAVE TOWER	E	6 miles E of Saco	SACO	0	N	0	N	0	O	N	U	0	0	$0	$0	$93,604	$93,604	Other	microwave tower
DEPARTMENT OF TRANSPORTATION	AERONAUTICS NDB - SCOBEY	E	48 deg - 48' - 25.1" N, 105 deg - 26' - 32.0" W	SCOBEY	0	N	36	N	1	O	H	E	1	0	$2,254	$0	$13,000	$15,254	Other	Radio Equipment
DEPARTMENT OF JUSTICE	MHP - SCOBEY MICROWAVE TOWER	E	4 miles E of Scobey	SCOBEY	0	N	0	N	0	O	N	U	0	0	$0	$0	$34,529	$34,529	Other	microwave tower
DEPARTMENT OF TRANSPORTATION	AERONAUTICS NDB - SHELBY	E	80 Airport Road	SHELBY	0	N	36	N	1	O	M	E	1	0	$2,254	$396	$13,000	$15,650	Other	Radio Transmitter
MONTANA STATE UNIVERSITY - BILLINGS	SHELBY TRANSLATOR	E	145 1st Ave SE Shelby - 48 30' 43	SHELBY	0	N	800	N	1	L	M	U	0	0	$0	$9,434	$0	$9,434		
DEPARTMENT OF TRANSPORTATION	AERONAUTICS NDB - SIDNEY	E	60 Airport Road	SIDNEY	0	N	36	N	1	O	H	E	1	0	$2,254	$0	$13,000	$15,254	Other	Radio Equipment
DEPARTMENT OF MILITARY AFFAIRS	SIDNEY ARMORY	E	2190 West Holly	SIDNEY	1957	N	9,562	N	1	O	M	C	1	0	$896,253	$171,728	$0	$1,067,981		
DEPARTMENT OF NATURAL RESOURCES	DAM SUB-STATION	E	Toston Dam Road	TOSTON	0	N	344	N	1	O	M	U	1	0	$426,022	$1,009,401	$0	$1,435,423		
DEPARTMENT OF NATURAL RESOURCES	POWER HOUSE	E	Toston Dam Road	TOSTON	1989	N	9,320	N	1	O	M	B	1	0	$11,912,913	$8,490,181	$0	$20,403,094		
DEPARTMENT OF NATURAL RESOURCES	RUBBER DAMS	E	Toston Dam Road	TOSTON	1989	N	10,309	N	1	O	M	U	0	0	$1,740,522	$114,484	$450,000	$2,305,006	Other	trash rake machine
DEPARTMENT OF NATURAL RESOURCES	TRANSMISSION LINE	E	Toston Dam Road	TOSTON	0	N	3,653	N	1	O	M	U	0	0	$337,356	$0	$0	$337,356		
DEPARTMENT OF JUSTICE	MHP - BELGIAN HILLS PONDERA CNTY MICROWAVE TOWER	E	10 NE Valier	VALIER	0	N	0	N	0	O	N	U	0	0	$0	$0	$58,540	$58,540	Other	MICROWAVE RADIO
MONTANA HERITAGE COMMISSION	MCFARLAND CURATORIAL CENTER	O	Curatorial Addition to Townsite	VIRGINIA CITY	1999	Y	6,630	Y	1	L	M	D	1	1	$0	$231,111	$0	$231,111		
PUBLIC HEALTH & HUMAN SERVICES, STATE HOSPITAL	ADMINISTRATION / PHARMACY (101)	O	58 Garnet Way	WARMSPRINGS	1919	N	5,214	N	1	O	M	D	1	1	$543,767	$128,154	$0	$671,921		
PUBLIC HEALTH & HUMAN SERVICES, STATE HOSPITAL	ADMINISTRATIVE ANNEX (113)	V	58 Garnet Way	WARMSPRINGS	1919	N	22,141	Y	1	O	H	E	2	29	$2,322,790	$389,133	$0	$2,711,923		
PUBLIC HEALTH & HUMAN SERVICES, STATE HOSPITAL	NEW HEATING PLANT (107)	O	203 Trapper Way	WARMSPRINGS	1970	N	5,040	N	1	O	M	C	1	6	$959,373	$957,437	$0	$1,916,810		
PUBLIC HEALTH & HUMAN SERVICES, STATE HOSPITAL	NEW HOSPITAL (220)	E	100 Garnet Way	WARMSPRINGS	2000	N	81,536	Y	1	O	M	C	1	282	$19,613,297	$4,500,848	$241,000	$24,355,145	Telephone Systems	
PUBLIC HEALTH & HUMAN SERVICES, STATE HOSPITAL	PINTLAR LODGE (546)	O	290 Oxbow Way	WARMSPRINGS	1970	N	6,547	N	1	O	M	C	1	0	$701,591	$65,553	$0	$767,144		
PUBLIC HEALTH & HUMAN SERVICES, STATE HOSPITAL	RECEIVING WAREHOUSE (305)	O	320 Trapper Way	WARMSPRINGS	1897	N	11,856	N	1	O	L	D	2	0	$517,748	$74,205	$0	$591,953		
PUBLIC HEALTH & HUMAN SERVICES, STATE HOSPITAL	RECOVERY CENTER	O	32 Trapper Way	WARMSPRINGS	1971	N	16,953	N	1	O	M	C	1	26	$2,102,746	$520,961	$60,000	$2,683,707	Other, Telephone Systems	Computer Lab
PUBLIC HEALTH & HUMAN SERVICES, STATE HOSPITAL	SPRATT BUILDING (219)	O	351 Fleecer Way	WARMSPRINGS	1976	N	19,061	Y	1	O	M	C	1	37	$2,940,278	$465,079	$0	$3,405,357		
DEPARTMENT OF CORRECTIONS	WARM SPRINGS BOILER PLANT (MECHANICS GARAGE)	E	Warm Springs	WARMSPRINGS	1909	N	7,140	N	1	O	L	C	1	0	$298,505	$160,297	$0	$458,802		
DEPARTMENT OF CORRECTIONS	WATCH WARM SPRINGS	E	PO Box G	WARMSPRINGS	0	N	59,567	Y	1	O	M	U	2	1	$5,963,570	$1,249,045	$0	$7,212,615		
DEPARTMENT OF TRANSPORTATION	AIRPORT CFR BUILDING	E	625 Yellowstone Airport Road	WEST YELLOWSTONE	1965	N	3,558	N	1	O	H	H	1	2	$143,030	$120,164	$200,000	$463,194	Other	Airport Fire Truck
DEPARTMENT OF TRANSPORTATION	AIRPORT TERMINAL, ADMINISTRATION BLDG	O	721 Yellowstone Airport Road	WEST YELLOWSTONE	1965	N	10,704	N	1	O	H	H	2	2	$1,555,399	$136,008	$210,000	$1,901,407	Other	crash fire rescue trucks, vehicles, equip
DEPARTMENT OF TRANSPORTATION	AIRPORT WYS - NDB SHACK	E	721 Yellowstone Airport Road	WEST YELLOWSTONE	1965	N	36	N	1	O	H	C	1	0	$2,254	$0	$13,000	$15,254	Other	transmitter
DEPARTMENT OF TRANSPORTATION	AIRPORT WYS GENERATOR SHACK	E	721 Yellowstone Airport Road	WEST YELLOWSTONE	0	N	126	N	1	O	H	H	1	0	$7,889	$0	$30,000	$37,889	Other	Generator
UNIVERSITY OF MONTANA - MISSOULA	KUFM FAA PEAK WHITEFISH	E	Big Mountain FAA Peak	WHITEFISH	0	N	80	N	1	L	L	D	3	0	$0	$0	$50,000	$50,000	Other	radio tower/transmitter
DEPARTMENT OF JUSTICE	MHP - BIG MOUNTAIN MICROWAVE TOWER	E	7 miles North of Whitefish	WHITEFISH	0	N	0	N	0	O	N	U	0	0	$0	$0	$36,176	$36,176	Other	microwave tower
DEPARTMENT OF JUSTICE	MHP - MT ROYAL (LEASED BY MDT) MICROWAVE TOWER	E	7 miles SE of Whitlash	WHITLASH	0	N	0	N	0	O	N	U	0	0	$0	$0	$88,223	$88,223	Other	microwave tower
DEPARTMENT OF JUSTICE	MHP - WIRTH RANCH MICROWAVE TOWER	E	1.5 miles W of Wolf Creek	WOLF CREEK	0	N	0	N	0	O	N	U	0	0	$0	$0	$34,526	$34,526	Other	microwave tower
DEPARTMENT OF TRANSPORTATION	AERONAUTICS NDB - WOLF POINT	E	48 deg - 6' - 16.0" N, 105 deg - 36' - 5.0" W	WOLF POINT	0	N	36	N	1	O	H	D	1	0	$2,254	$0	$13,000	$15,254	Other	Radio Equipment
DEPARTMENT OF TRANSPORTATION	WOLF POINT OFFICE & SHOP	E	200 E. HWY 25	WOLF POINT	1937	N	12,417	N	1	O	H	C	1	8	$947,806	$355,361	$63,500	$1,366,667	Other	radio equipment
DEPARTMENT OF JUSTICE	MHP - ANTONINE PHILLIPS CNTY MICROWAVE TOWER	E	17 km W of HWY 191	ZORTMAN	0	N	0	N	0	O	N	U	0	0	$0	$0	$66,449	$66,449	Other	MICROWAVE RADIO

MONTANA STATE HAZARD MITIGATION PLAN 2013 UPDATE
RISK ASSESSMENT TEMPLATE

The State of Montana Hazard Mitigation Plan and Statewide Hazard Assessment profiles a number of hazards that can impact the lives and property of Montana's residents. As a supplement to the 2013 Update of this Plan, a Template Risk Assessment Methodology using Geographic Information System (GIS) technology has been developed to calculate loss estimates. The purpose of this Risk Assessment Template is to provide local jurisdictions a standard methodology to build upon and improve data presented in their local plans. The objective is to allow local jurisdictions to produce standardized risk assessments and "apple to apple" comparison of hazard risks across the state. The Risk Assessment Template is presented in three parts. Start with Part 1 and progress through the methodology.

The Risk Assessment Template is designed to address hazards quantitatively. Some hazards can only be addressed qualitatively due to a lack of data (communicable disease, drought, severe winter weather, terrorism). Methodology for qualitative analysis is not described in this document. Hazards profiled in the 2013 State Plan which are addressed in this document are listed below with the source of data used to develop the hazard layer. Hazard layers are available from the Montana Natural Resource Information System (NRIS) in Helena.

- DAM FAILURE - A digital dam inundation hazard layer was developed by digitizing worst case inundation maps of high hazard dams, available in their Emergency Action Plans.
- EARTHQUAKE – A digital earthquake hazard layer was developed using the U.S. Geological Survey (USGS) Peak Ground Acceleration Maps depicting a 2 percent probability of exceedance in a 50 years period.
- FLOODING – A digital flood hazard layer was developed using Digital Flood Insurance Rate Maps (DFIRMS) and a flood model completed by the Federal Emergency Management Agency (FEMA) using their HAZUS-MH software.
- HAZARDOUS MATERIAL INCIDENTS – A digital hazardous material incident hazard layer was developed by buffering by 0.25 mile the highways, railroads, and toxic release inventory (TRI) facility listings from the U.S. Environmental Protection Agency (EPA).
- LANDSLIDE – A digital landslide hazard layer was developed using a USGS map of landslide susceptibility which included evaluating geologic formations as being of high, medium, or low susceptibility to landsliding. Susceptibility to landsliding was defined as the probable degree of response of the areal rocks and soils to natural or artificial cutting or loading of slopes or to anomalously high precipitation. Only the high and medium susceptibility formations were used in the PDM hazard layer.
- SEVERE SUMMER WEATHER – A digital severe summer weather hazard layer was developed by plotting tornados, hail events over 0.75 inch, and thunderstorm wind events over 58 mph for the period 1995 to 2012 available from the National Climatic Data Center.
- WILDFIRE AND RANGELAND FIRE – A digital map of wildland-urban interface areas compiled by the Montana Department of Natural Resources and Conservation (DNRC) from Community Wildfire Protection Plans (CWPPs) prepared by Montana counties was used to depict the wildfire hazard area.

PART 1 - ANNUALIZED PROPERTY LOSS CALCULATIONS

A1. HAZARD DATA – PROPERTY DAMAGE

SHELDUS (Spatial Hazard Events and Losses Database for the United States), data which can be found at: http://webra.cas.sc.edu/hvri/products/sheldus.aspx, provides data for the risk assessment for several hazards: severe winter weather, severe summer weather, and flooding. Go to "Data Downloads" and search by "Hazard Type, Location and Date" to download the data necessary for the risk assessment, as follows:

- Flooding hazard, search for: Flooding
- Severe Summer Weather hazard, search for: Hail, Severe Storm/Thunderstorm, Lightning, Tornado, Wind (between May and October)
- Severe Winter Weather hazard, search for: Avalanche, Winter Weather, and Wind events (between November and April)

Other sources of damage data include the following:

- Hazardous Material Incident hazard: Hazard frequency and damage data is available for Montana incidents (by county) from the U.S. Department of Transportation, Office of Hazardous Material Safety incident reports database at: https://hazmatonline.phmsa.dot.gov/IncidentReportsSearch/search.aspx
- Wildfire: Annualized loss for wildfire is computed using hazard frequency and suppression cost. Data is available by county from the Montana Department of Natural Resources-Fire in Missoula.

There may not be frequency or damage data for some hazards (i.e. dam failure, earthquake, landslide). In this case, annualized loss cannot be computed. However, number and value of building stock can be determined – go to Part 2 of the Risk Assessment Template for these hazards.

B1. FREQUENCY

For each hazard calculate the hazard frequency. This value is needed to determine annualized property loss. Frequency is:

- Number of Incidents / Period of Record

Determine your period of record. Count the number of incidents in each data set and divide by the period of record to establish the hazard frequency.

- Example: 80 incidents / 50 year record = 1.6 frequency

C1. MAGNITUDE

For each hazard where damage data exists, calculate the magnitude. Magnitude is:

- (Property Damage / Number of Incidents) / Total $ of Building Stock = Magnitude expressed as a percentage.

In SHELDUS property damage adjusted to current dollars can be downloaded. Total $ of building stock is from the Montana Department of Revenue's Cadastral Mapping Program [http://svc.mt.gov/msl/mtcadastral/].

- Example: ($1,026,785 property damage / 80 incidents) / $41,155,665,000 building stock
  12,834.8 / 41,155,665,000 = 0.0000003118
  Magnitude = 0.0000318%

D1. ANNUALIZED PROPERTY LOSS – BUILDING STOCK

For hazards like flooding, wildfire, hazardous material incidents, etc. that occur in specific areas within the jurisdiction, go to **Part 2**. For hazards that are considered uniform across the jurisdiction (i.e. there is no regional variation; severe winter weather, severe summer weather) follow the methodology presented below to determine annualized property loss.

- Total Building Stock x Frequency x Magnitude

- Example: $1,155,665,000 x 0.55 x 0.00224% (aka 0.0000224) = $14,279

The total building stock data is available from the Montana Department of Revenue's Cadastral Mapping Program for residential and "other" properties which would include commercial, agricultural, and industrial. The following equation is used to determine how many buildings would be affected by the hazard event:

- Total Number of Buildings x Frequency x Magnitude

- Example: 5,332 x 0.55 x 0.00224% (aka 0.0000224) = 0.07 buildings

E1. ANNUALIZED PROPERTY LOSS – CRITICAL FACILITIES

Values of critical facilities should be available from the jurisdiction or from HAZUS. Use the same methodology described in *Section D1*, above to calculate annualized loss for critical facilities.

F1. VULNERABLE POPULATIONS

The 2010 census data includes data that can be applied to societal risk. Since the hazard is uniform across the area, the entire population is at risk.

PART 2 – PROPERTY/POPULATION EXPOSURE FOR NON-UNIFORM HAZARDS

D2. BUILDING STOCK EXPOSURE

For hazards that are not uniform across the jurisdiction and instead occur in specific areas (e.g. flooding, wildfire, landslide, dam failure, hazardous material incidents, and possibly severe weather depending on the jurisdiction) the hazard risk area must factor into loss estimation calculations. Using GIS, the hazard risk area should be intersected with the parcel data available from the Montana Department of Revenue's Cadastral Mapping Program.

To calculate the building stock exposure in the jurisdiction that is exposed to the hazard, download the appropriate parcel data from the Cadastral Mapping Program and using GIS, intersect it with the hazard layer (available from NRIS – see Part 1). This methodology should be used to determine the number of buildings (residential or "other") within the hazard area.

Note: Because buildings are not geo-referenced within the parcel, you should assume that any parcel intersected by the hazard layer includes all the buildings located in that parcel. This is a data limitation of this methodology because number of and value of building stock at risk may be over-reported in counties with large parcel sizes.

E2. CRITICAL FACILITY VULNERABILITY

If the jurisdiction has spatial coordinates and values for its critical facilities then exposure can be determined for each hazard. Use the same methodology described in *Section D2*, above to intersect the critical facility locations with the hazard layer to determine exposure (value and number of critical facilities at risk).

For hazards without property damage, this is as far as you can go. Without hazard "magnitude" you are only able to determine building stock or population exposure. Annual loss estimates cannot be calculated without damage data using this approach. For hazards with property damage values, go to **Part 3**.

F2. VULNERABLE POPULATIONS

Data from the 2010 U.S. Census can be applied to societal risk. To calculate the population in the jurisdiction that is exposed to the hazard, download the appropriate census block data (listed below) and using GIS, intersect it with the hazard layer (available from NRIS – see Part 1). Download the census data from (ftp://ftp.gis.mt.gov/CensusData/CensusBlocks2010_ByCounty/Census2010_All_Montana_Blocks.zip).

Note: Because populations are not geo-referenced within the census blocks, you should assume that any census block intersected by the hazard layer includes all the people living in that census block. This is a data limitation of this methodology because number of people at risk may be over-reported in counties with large census blocks.

PART 3 - ANNUALIZED PROPERTY LOSS CALCULATIONS WHERE PROPERTY DAMAGE IS AVAILABLE

D3. ANNUALIZED PROPERTY LOSS – BUILDING STOCK

The following equation is used to develop annualized property loss for hazards where there is property damage that can be used to calculate magnitude. Apply the following formula:

- Building Stock value in hazard area x Frequency x Magnitude
- Example: $315,226,000 x 1.6 x 0.00318% (aka 0.0000318) = $1,604

E3. CRITICAL FACILITY VULNERABILITY

Critical facility data should be available from the jurisdiction and can be used to compute annualized loss using the same methodology described in *Section D3*, above.

DES District	Geography	Census 2000	Census 2010	2011	Original Local Plan FEMA Approval Date	Local Plan Update FEMA Approval Date	Estimated Building Loss/ Exposure from Local Plan	Estimated Societal Loss/ Exposure from Local Plan	Estimated Economic Loss from Local Plan	Reference	Estimated Building Loss/ Exposure from Local Plan	Estimated Societal Loss/ Exposure from Local Plan
	Montana	902,200	989,415	998,199								
3	**Beaverhead County**	9,192	9,246	9,198	2004	2010						
	Dillon city	3,752	4,134	4,113								
	Lima town	242	221	220								
	Balance of Beaverhead County	5,198	4,891	4,865								
5	**Big Horn County**	12,676	12,865	13,093	2006							
	Hardin city	3,384	3,505	3,567								
	Lodge Grass town	510	428	436								
	Balance of Big Horn County	8,782	8,932	9,090								
2	**Blaine County**	7,009	6,491	6,565	2006	2012						
	Chinook city	1,386	1,203	1,216								
	Harlem city	848	808	818								
	Balance of Blaine County	4,775	4,480	4,531								
3	**Broadwater County**	4,380	5,612	5,752	2004	2009						
	Townsend city	1,867	1,878	1,924								
	Balance of Broadwater County	2,513	3,734	3,828								
5	**Carbon County**	9,545	10,078	10,028	2006	2012						
	Bearcreek town	83	79	79								
	Bridger town	745	708	704								
	Fromberg town	486	438	436								
	Joliet town	575	595	593								
	Red Lodge city	2,177	2,125	2,114								
	Balance of Carbon County	5,479	6,133	6,102								
4	**Carter County**	1,358	1,160	1,152	2005	2012						
	Ekalaka town	410	332	329								
	Balance of Carter County	948	828	823								
2	**Cascade County**	80,356	81,327	81,837	2012							
	Belt city	633	597	600								
	Cascade town	819	685	690								
	Great Falls city	56,690	58,505	58,950								
	Neihart town	91	51	51								
	Balance of Cascade County	22,123	21,489	21,546								
2	**Chouteau County**	5,962	5,813	5,793	2010							
	Big Sandy town	703	598	595								
	Fort Benton city	1,594	1,464	1,460								
	Geraldine town	284	261	260								
	Balance of Chouteau County	3,381	3,490	3,478								
4	**Custer County**	11,694	11,699	11,752	2005	2012						
	Ismay town	26	19	19								
	Miles City city	8,487	8,410	8,438								
	Balance of Custer County	3,181	3,270	3,295								
6	**Daniels County**	2,017	1,751	1,763	2003	2008						
	Flaxville town	87	71	72								
	Scobey city	1,082	1,017	1,023								
	Balance of Daniels County	848	663	668								
4	**Dawson County**	9,059	8,966	8,989	2006							
	Glendive city	4,729	4,935	4,947								
	Richey town	189	177	178								
	Balance of Dawson County	4,141	3,854	3,864								
1	**Deer Lodge County**	9,416	9,298	9,299	2005							
	Anaconda-Deer Lodge County	9,416	9,298	9,299								
4	**Fallon County**	2,835	2,890	2,956	2006	2012						
	Baker city	1,695	1,741	1,780								
	Plevna town	138	162	166								
	Balance of Fallon County	1,002	987	1,010								
6	**Fergus County**	11,905	11,586	11,506	2008							
	Denton town	301	255	254								
	Grass Range town	149	110	109								
	Lewistown city	5,813	5,901	5,858								
	Moore town	186	193	191								
	Winifred town	156	208	208								
	Balance of Fergus County	5,300	4,919	4,886								
1	**Flathead County**	74,507	90,928	91,301	2009							
	Columbia Falls city	3,645	4,688	4,707								
	Kalispell city	14,223	19,927	20,008								
	Whitefish city	5,032	6,357	6,384								
	Balance of Flathead County	51,607	59,956	60,202								
3	**Gallatin County**	67,837	89,513	91,377	2006	2012						
	Belgrade city	5,728	7,389	7,549								
	Bozeman city	27,509	37,280	38,025								
	Manhattan town	1,396	1,520	1,553								
	Three Forks city	1,728	1,869	1,909								
	West Yellowstone town	1,177	1,271	1,298								
	Balance of Gallatin County	30,299	40,184	41,043								
4	**Garfield County**	1,279	1,206	1,251	2007							
	Jordan town	364	343	355								
	Balance of Garfield County	915	863	896								
2	**Glacier County**	13,240	13,399	13,624	2005	2012						
	Browning town	1,065	1,016	1,026								

Geography	Estimated Economic Loss from Local Plan	Reference	Estimate Building Loss/Exposure from 2010 State Plan	Estimated Societal Loss from 2010 State Plan - Below Poverty in Hazard Area	Estimated Societal Loss from 2010 State Plan - >65 in Hazard Area	Estimated Societal Loss from 2010 State Plan - <18 in Hazard Area	Estimate Building Loss/Exposure from 2013 State Plan	Estimated Societal Loss from 2013 State Plan - Total in Hazard Area	Estimated Societal Loss from 2013 State Plan - >65 in Hazard Area	Estimated Societal Loss from 2013 State Plan - <18 in Hazard Area
Montana										
Beaverhead County										
Dillon city										
Lima town										
Balance of Beaverhead County										
Big Horn County										
Hardin city										
Lodge Grass town										
Balance of Big Horn County										
Blaine County										
Chinook city										
Harlem city										
Balance of Blaine County										
Broadwater County										
Townsend city										
Balance of Broadwater County										
Carbon County										
Bearcreek town										
Bridger town										
Fromberg town										
Joliet town										
Red Lodge city										
Balance of Carbon County										
Carter County										
Ekalaka town										
Balance of Carter County										
Cascade County										
Belt city										
Cascade town										
Great Falls city										
Neihart town										
Balance of Cascade County										
Chouteau County										
Big Sandy town										
Fort Benton city										
Geraldine town										
Balance of Chouteau County										
Custer County										
Ismay town										
Miles City city										
Balance of Custer County										
Daniels County										
Flaxville town										
Scobey city										
Balance of Daniels County										
Dawson County										
Glendive city										
Richey town										
Balance of Dawson County										
Deer Lodge County										
Anaconda-Deer Lodge County										
Fallon County										
Baker city										
Plevna town										
Balance of Fallon County										
Fergus County										
Denton town										
Grass Range town										
Lewistown city										
Moore town										
Winifred town										
Balance of Fergus County										
Flathead County										
Columbia Falls city										
Kalispell city										
Whitefish city										
Balance of Flathead County										
Gallatin County										
Belgrade city										
Bozeman city										
Manhattan town										
Three Forks city										
West Yellowstone town										
Balance of Gallatin County										
Garfield County										
Jordan town										
Balance of Garfield County										
Glacier County										
Browning town										

	Cut Bank city	3,105	2,869	2,919								
	Balance of Glacier County	9,070	9,514	9,679								
5	**Golden Valley County**	1,040	884	865	2008							
	Lavina town	209	187	182								
	Ryegate town	268	245	240								
	Balance of Golden Valley County	563	452	443								
1	**Granite County**	2,841	3,079	3,068	2006							
	Drummond town	318	309	307								
	Philipsburg town	914	820	818								
	Balance of Granite County	1,609	1,950	1,943								
2	**Hill County**	16,671	16,096	16,397	2006	2012						
	Havre city	9,621	9,310	9,600								
	Hingham town	157	118	121								
	Balance of Hill County	6,893	6,668	6,676								
3	**Jefferson County**	10,034	11,406	11,381	2005	2011						
	Boulder town	1,300	1,183	1,181								
	Whitehall town	1,044	1,038	1,035								
	Balance of Jefferson County	7,690	9,185	9,165								
6	**Judith Basin County**	2,326	2,072	2,004	2008							
	Hobson town	244	215	208								
	Stanford town	454	401	389								
	Balance of Judith Basin County	1,628	1,456	1,407								
1	**Lake County**	26,482	28,746	28,947	2006	2012						
	Polson city	4,041	4,488	4,524								
	Ronan city	1,812	1,871	1,883								
	St. Ignatius town	788	842	849								
	Balance of Lake County	19,841	21,545	21,691								
3	**Lewis and Clark County**	55,716	63,395	64,318	2005	2011						
	East Helena town	1,642	1,984	2,041								
	Helena city	25,780	28,190	28,592								
	Balance of Lewis and Clark County	28,294	33,221	33,685								
2	**Liberty County**	2,158	2,339	2,402	2007							
	Chester town	871	847	874								
	Balance of Liberty County	1,287	1,492	1,528								
1	**Lincoln County**	18,820	19,687	19,566	2005	2012						
	Eureka town	1,017	1,037	1,031								
	Libby city	2,626	2,628	2,612								
	Rexford town	151	105	104								
	Troy city	957	938	933								
	Balance of Lincoln County	14,069	14,979	14,886								
3	**Madison County**	6,848	7,691	7,660	2004	2010						
	Ennis town	840	838	835								
	Sheridan town	659	642	639								
	Twin Bridges town	400	375	373								
	Virginia City town	130	190	190								
	Balance of Madison County	4,819	5,646	5,623								
4	**McCone County**	1,971	1,734	1,711	2006							
	Circle town	644	615	607								
	Balance of McCone County	1,327	1,119	1,104								
3	**Meagher County**	1,928	1,891	1,911								
	White Sulphur Springs city	984	939	950								
	Balance of Meagher County	944	952	961								
1	**Mineral County**	3,871	4,223	4,208	2005	2012						
	Alberton town	374	420	417								
	Superior town	893	812	810								
	Balance of Mineral County	2,604	2,991	2,981								
1	**Missoula County**	95,803	109,299	110,138	2004	2011						
	Missoula city	57,053	66,788	67,290								
	Balance of Missoula County	38,750	42,511	42,848								
5	**Musselshell County**	4,492	4,538	4,701	2008							
	Melstone town	136	96	99								
	Roundup city	1,931	1,788	1,853								
	Balance of Musselshell County	2,425	2,654	2,749								
3	**Park County**	15,694	15,636	15,469	2006	2012						
	Clyde Park town	310	288	286								
	Livingston city	6,851	7,044	6,969								
	Balance of Park County	8,533	8,304	8,214								
6	**Petroleum County**	493	494	491	2003	2008						
	Winnett town	185	182	181								
	Balance of Petroleum County	308	312	310								
6	**Phillips County**	4,601	4,253	4,250	2006	2012						
	Dodson town	122	124	123								
	Malta city	2,120	1,997	1,993								
	Saco town	224	197	197								
	Balance of Phillips County	2,135	1,935	1,937								
2	**Pondera County**	6,425	6,153	6,257	2005	2011						
	Conrad city	2,753	2,570	2,616								
	Valier town	498	509	518								
	Balance of Pondera County	3,174	3,074	3,123								
4	**Powder River County**	1,858	1,743	1,738	2007	2011						
	Broadus town	451	468	468								
	Balance of Powder River County	1,407	1,275	1,270								
1	**Powell County**	7,185	7,027	7,063	2004	2012						
	Deer Lodge city	3,421	3,111	3,130								
	Balance of Powell County	3,764	3,916	3,933								
4	**Prairie County**	1,199	1,179	1,159	2006							
	Terry town	611	605	594								
	Balance of Prairie County	588	574	565								

Cut Bank city										
Balance of Glacier County										
Golden Valley County										
Lavina town										
Ryegate town										
Balance of Golden Valley County										
Granite County										
Drummond town										
Philipsburg town										
Balance of Granite County										
Hill County										
Havre city										
Hingham town										
Balance of Hill County										
Jefferson County										
Boulder town										
Whitehall town										
Balance of Jefferson County										
Judith Basin County										
Hobson town										
Stanford town										
Balance of Judith Basin County										
Lake County										
Polson city										
Ronan city										
St. Ignatius town										
Balance of Lake County										
Lewis and Clark County										
East Helena town										
Helena city										
Balance of Lewis and Clark County										
Liberty County										
Chester town										
Balance of Liberty County										
Lincoln County										
Eureka town										
Libby city										
Rexford town										
Troy city										
Balance of Lincoln County										
Madison County										
Ennis town										
Sheridan town										
Twin Bridges town										
Virginia City town										
Balance of Madison County										
McCone County										
Circle town										
Balance of McCone County										
Meagher County										
White Sulphur Springs city										
Balance of Meagher County										
Mineral County										
Alberton town										
Superior town										
Balance of Mineral County										
Missoula County										
Missoula city										
Balance of Missoula County										
Musselshell County										
Melstone town										
Roundup city										
Balance of Musselshell County										
Park County										
Clyde Park town										
Livingston city										
Balance of Park County										
Petroleum County										
Winnett town										
Balance of Petroleum County										
Phillips County										
Dodson town										
Malta city										
Saco town										
Balance of Phillips County										
Pondera County										
Conrad city										
Valier town										
Balance of Pondera County										
Powder River County										
Broadus town										
Balance of Powder River County										
Powell County										
Deer Lodge city										
Balance of Powell County										
Prairie County										
Terry town										
Balance of Prairie County										

1	**Ravalli County**	36,093	40,212	40,450	2005	2012						
	Darby town	710	720	724								
	Hamilton city	3,705	4,348	4,374								
	Pinesdale town	742	917	924								
	Stevensville town	1,553	1,809	1,820								
	Balance of Ravalli County	29,383	32,418	32,608								
4	**Richland County**	9,666	9,746	10,128	2006							
	Fairview town	709	840	872								
	Sidney city	4,774	5,191	5,436								
	Balance of Richland County	4,183	3,715	3,820								
6	**Roosevelt County**	10,632	10,425	10,527	2004							
	Bainville town	153	208	210								
	Brockton town	245	255	258								
	Culbertson town	716	714	721								
	Froid town	195	185	187								
	Poplar city	911	810	819								
	Wolf Point city	2,663	2,621	2,646								
	Balance of Roosevelt County	5,749	5,632	5,686								
5	**Rosebud County**	9,389	9,233	9,379	2007							
	Colstrip city	2,346	2,214	2,248								
	Forsyth city	1,944	1,777	1,886								
	Balance of Rosebud County	5,099	5,242	5,245								
1	**Sanders County**	10,238	11,413	11,440	2012							
	Hot Springs town	531	544	545								
	Plains town	1,126	1,048	1,050								
	Thompson Falls city	1,321	1,313	1,317								
	Balance of Sanders County	7,260	8,508	8,528								
6	**Sheridan County**	4,105	3,384	3,460	2003	2008						
	Medicine Lake town	269	225	230								
	Outlook town	82	47	48								
	Plentywood city	2,061	1,734	1,772								
	Westby town	172	168	171								
	Balance of Sheridan County	1,521	1,210	1,239								
1	**Silver Bow County**	34,625	34,200	34,383	2004	2010						
	Butte-Silver Bow (remainder)	33,911	33,525	33,704								
	Walkerville town	714	675	679								
5	**Stillwater County**	8,221	9,117	9,131		2010						
	Columbus town	1,748	1,893	1,896								
	Balance of Stillwater County	6,473	7,224	7,235								
3	**Sweet Grass County**	3,601	3,651	3,623	2005	2010						
	Big Timber city	1,650	1,641	1,629								
	Balance of Sweet Grass County	1,951	2,010	1,994								
2	**Teton County**	6,449	6,073	6,091	2006							
	Choteau city	1,781	1,684	1,690								
	Dutton town	389	316	316								
	Fairfield town	659	708	710								
	Balance of Teton County	3,620	3,365	3,375								
2	**Toole County**	5,255	5,324	5,239	2007							
	Kevin town	178	154	151								
	Shelby city	3,216	3,376	3,326								
	Sunburst town	415	375	375								
	Balance of Toole County	1,446	1,419	1,387								
5	**Treasure County**	857	718	727	2007							
	Hysham town	330	312	316								
	Balance of Treasure County	527	406	411								
6	**Valley County**	7,673	7,369	7,487	2003	2008						
	Fort Peck town	240	233	237								
	Glasgow city	3,253	3,250	3,301								
	Nashua town	325	290	295								
	Opheim town	111	85	86								
	Balance of Valley County	3,744	3,511	3,568								
5	**Wheatland County**	2,259	2,168	2,140	2007							
	Harlowton city	1,062	997	984								
	Judith Gap city	164	126	124								
	Balance of Wheatland County	1,033	1,045	1,032								
4	**Wibaux County**	1,067	1,017	985	2006							
	Wibaux town	567	589	571								
	Balance of Wibaux County	500	428	414								
5	**Yellowstone County**	129,347	147,972	150,069	2005	2012						
	Billings city	89,847	104,170	105,636								
	Broadview town	150	192	194								
	Laurel city	6,255	6,718	6,814								
	Balance of Yellowstone County	33,095	36,892	37,425								
2	**Blackfeet Indian Reservation**				2008							
2	**Rocky Boy's Indian Reservation**				2008	2010						
2	**Fort Belknap Indian Reservation**				2007							
6	**Fort Peck Indian Reservation**				2004	2012						
5	**Crow Indian Reservation**				2008							
5	**Northern Cheyenne Indian Reservation**				2008							
1	**Flathead Indian Reservation**				2006							

Ravalli County										
Darby town										
Hamilton city										
Pinesdale town										
Stevensville town										
Balance of Ravalli County										
Richland County										
Fairview town										
Sidney city										
Balance of Richland County										
Roosevelt County										
Bainville town										
Brockton town										
Culbertson town										
Froid town										
Poplar city										
Wolf Point city										
Balance of Roosevelt County										
Rosebud County										
Colstrip city										
Forsyth city										
Balance of Rosebud County										
Sanders County										
Hot Springs town										
Plains town										
Thompson Falls city										
Balance of Sanders County										
Sheridan County										
Medicine Lake town										
Outlook town										
Plentywood city										
Westby town										
Balance of Sheridan County										
Silver Bow County										
Butte-Silver Bow (remainder)										
Walkerville town										
Stillwater County										
Columbus town										
Balance of Stillwater County										
Sweet Grass County										
Big Timber city										
Balance of Sweet Grass County										
Teton County										
Choteau city										
Dutton town										
Fairfield town										
Balance of Teton County										
Toole County										
Kevin town										
Shelby city										
Sunburst town										
Balance of Toole County										
Treasure County										
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Balance of Treasure County										
Valley County										
Fort Peck town										
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Wheatland County										
Harlowton city										
Judith Gap city										
Balance of Wheatland County										
Wibaux County										
Wibaux town										
Balance of Wibaux County										
Yellowstone County										
Billings city										
Broadview town										
Laurel city										
Balance of Yellowstone County										
Blackfeet Indian Reservation										
Rocky Boy's Indian Reservation										
Fort Belknap Indian Reservation										
Fort Peck Indian Reservation										
Crow Indian Reservation										
Northern Cheyenne Indian Reservation										
Flathead Indian Reservation										

DES District	Geography	Census 2000	Census 2010	% Change 2000 to 2010	# Building Permits (2002 to 2011)	2011
	Montana	902,200	989,415	9.67%		998,199
3	**Beaverhead County**	9,192	9,246	0.59%		9,198
	Dillon city	3,752	4,134	10.18%		4,113
	Lima town	242	221	-8.68%		220
	Balance of Beaverhead County	5,198	4,891	-5.91%		4,865
5	**Big Horn County**	12,676	12,865	1.49%		13,093
	Hardin city	3,384	3,505	3.58%		3,567
	Lodge Grass town	510	428	-16.08%		436
	Balance of Big Horn County	8,782	8,932	1.71%		9,090
2	**Blaine County**	7,009	6,491	-7.39%		6,565
	Chinook city	1,386	1,203	-13.20%		1,216
	Harlem city	848	808	-4.72%		818
	Balance of Blaine County	4,775	4,480	-6.18%		4,531
3	**Broadwater County**	4,380	5,612	28.13%		5,752
	Townsend city	1,867	1,878	0.59%		1,924
	Balance of Broadwater County	2,513	3,734	48.59%		3,828
5	**Carbon County**	9,545	10,078	5.58%		10,028
	Bearcreek town	83	79	-4.82%		79
	Bridger town	745	708	-4.97%		704
	Fromberg town	486	438	-9.88%		436
	Joliet town	575	595	3.48%		593
	Red Lodge city	2,177	2,125	-2.39%		2,114
	Balance of Carbon County	5,479	6,133	11.94%		6,102
4	**Carter County**	1,358	1,160	-14.58%		1,152
	Ekalaka town	410	332	-19.02%		329
	Balance of Carter County	948	828	-12.66%		823
2	**Cascade County**	80,356	81,327	1.21%		81,837
	Belt city	633	597	-5.69%		600
	Cascade town	819	685	-16.36%		690
	Great Falls city	56,690	58,505	3.20%		58,950
	Neihart town	91	51	-43.96%		51
	Balance of Cascade County	22,123	21,489	-2.87%		21,546
2	**Chouteau County**	5,962	5,813	-2.50%		5,793
	Big Sandy town	703	598	-14.94%		595

	Fort Benton city	1,594	1,464	-8.16%		1,460
	Geraldine town	284	261	-8.10%		260
	Balance of Chouteau County	3,381	3,490	3.22%		3,478
4	**Custer County**	11,694	11,699	0.04%		11,752
	Ismay town	26	19	-26.92%		19
	Miles City city	8,487	8,410	-0.91%		8,438
	Balance of Custer County	3,181	3,270	2.80%		3,295
6	**Daniels County**	2,017	1,751	-13.19%		1,763
	Flaxville town	87	71	-18.39%		72
	Scobey city	1,082	1,017	-6.01%		1,023
	Balance of Daniels County	848	663	-21.82%		668
4	**Dawson County**	9,059	8,966	-1.03%		8,989
	Glendive city	4,729	4,935	4.36%		4,947
	Richey town	189	177	-6.35%		178
	Balance of Dawson County	4,141	3,854	-6.93%		3,864
1	**Deer Lodge County**	9,416	9,298	-1.25%		9,299
	Anaconda-Deer Lodge County	9,416	9,298	-1.25%		9,299
4	**Fallon County**	2,835	2,890	1.94%		2,956
	Baker city	1,695	1,741	2.71%		1,780
	Plevna town	138	162	17.39%		166
	Balance of Fallon County	1,002	987	-1.50%		1,010
6	**Fergus County**	11,905	11,586	-2.68%		11,506
	Denton town	301	255	-15.28%		254
	Grass Range town	149	110	-26.17%		109
	Lewistown city	5,813	5,901	1.51%		5,858
	Moore town	186	193	3.76%		191
	Winifred town	156	208	33.33%		208
	Balance of Fergus County	5,300	4,919	-7.19%		4,886
1	**Flathead County**	74,507	90,928	22.04%		91,301
	Columbia Falls city	3,645	4,688	28.61%		4,707
	Kalispell city	14,223	19,927	40.10%		20,008
	Whitefish city	5,032	6,357	26.33%		6,384
	Balance of Flathead County	51,607	59,956	16.18%		60,202
3	**Gallatin County**	67,837	89,513	31.95%		91,377
	Belgrade city	5,728	7,389	29.00%		7,549
	Bozeman city	27,509	37,280	35.52%		38,025
	Manhattan town	1,396	1,520	8.88%		1,553
	Three Forks city	1,728	1,869	8.16%		1,909
	West Yellowstone town	1,177	1,271	7.99%		1,298
	Balance of Gallatin County	30,299	40,184	32.62%		41,043
4	**Garfield County**	1,279	1,206	-5.71%		1,251
	Jordan town	364	343	-5.77%		355
	Balance of Garfield County	915	863	-5.68%		896
2	**Glacier County**	13,240	13,399	1.20%		13,624
	Browning town	1,065	1,016	-4.60%		1,026
	Cut Bank city	3,105	2,869	-7.60%		2,919
	Balance of Glacier County	9,070	9,514	4.90%		9,679
5	**Golden Valley County**	1,040	884	-15.00%		865

	Lavina town	209	187	-10.53%		182
	Ryegate town	268	245	-8.58%		240
	Balance of Golden Valley County	563	452	-19.72%		443
1	**Granite County**	2,841	3,079	8.38%		3,068
	Drummond town	318	309	-2.83%		307
	Philipsburg town	914	820	-10.28%		818
	Balance of Granite County	1,609	1,950	21.19%		1,943
2	**Hill County**	16,671	16,096	-3.45%		16,397
	Havre city	9,621	9,310	-3.23%		9,600
	Hingham town	157	118	-24.84%		121
	Balance of Hill County	6,893	6,668	-3.26%		6,676
3	**Jefferson County**	10,034	11,406	13.67%		11,381
	Boulder town	1,300	1,183	-9.00%		1,181
	Whitehall town	1,044	1,038	-0.57%		1,035
	Balance of Jefferson County	7,690	9,185	19.44%		9,165
6	**Judith Basin County**	2,326	2,072	-10.92%		2,004
	Hobson town	244	215	-11.89%		208
	Stanford town	454	401	-11.67%		389
	Balance of Judith Basin County	1,628	1,456	-10.57%		1,407
1	**Lake County**	26,482	28,746	8.55%		28,947
	Polson city	4,041	4,488	11.06%		4,524
	Ronan city	1,812	1,871	3.26%		1,883
	St. Ignatius town	788	842	6.85%		849
	Balance of Lake County	19,841	21,545	8.59%		21,691
3	**Lewis and Clark County**	55,716	63,395	13.78%		64,318
	East Helena town	1,642	1,984	20.83%		2,041
	Helena city	25,780	28,190	9.35%		28,592
	Balance of Lewis and Clark County	28,294	33,221	17.41%		33,685
2	**Liberty County**	2,158	2,339	8.39%		2,402
	Chester town	871	847	-2.76%		874
	Balance of Liberty County	1,287	1,492	15.93%		1,528
1	**Lincoln County**	18,820	19,687	4.61%		19,566
	Eureka town	1,017	1,037	1.97%		1,031
	Libby city	2,626	2,628	0.08%		2,612

	Rexford town	151	105	-30.46%		104
	Troy city	957	938	-1.99%		933
	Balance of Lincoln County	14,069	14,979	6.47%		14,886
3	**Madison County**	6,848	7,691	12.31%		7,660
	Ennis town	840	838	-0.24%		835
	Sheridan town	659	642	-2.58%		639
	Twin Bridges town	400	375	-6.25%		373
	Virginia City town	130	190	46.15%		190
	Balance of Madison County	4,819	5,646	17.16%		5,623
4	**McCone County**	1,971	1,734	-12.02%		1,711
	Circle town	644	615	-4.50%		607
	Balance of McCone County	1,327	1,119	-15.67%		1,104
3	**Meagher County**	1,928	1,891	-1.92%		1,911
	White Sulphur Springs city	984	939	-4.57%		950
	Balance of Meagher County	944	952	0.85%		961
1	**Mineral County**	3,871	4,223	9.09%		4,208
	Alberton town	374	420	12.30%		417
	Superior town	893	812	-9.07%		810
	Balance of Mineral County	2,604	2,991	14.86%		2,981
1	**Missoula County**	95,803	109,299	14.09%		110,138
	Missoula city	57,053	66,788	17.06%		67,290
	Balance of Missoula County	38,750	42,511	9.71%		42,848
5	**Musselshell County**	4,492	4,538	1.02%		4,701
	Melstone town	136	96	-29.41%		99
	Roundup city	1,931	1,788	-7.41%		1,853
	Balance of Musselshell County	2,425	2,654	9.44%		2,749
3	**Park County**	15,694	15,636	-0.37%		15,469
	Clyde Park town	310	288	-7.10%		286
	Livingston city	6,851	7,044	2.82%		6,969
	Balance of Park County	8,533	8,304	-2.68%		8,214
6	**Petroleum County**	493	494	0.20%		491
	Winnett town	185	182	-1.62%		181
	Balance of Petroleum County	308	312	1.30%		310
6	**Phillips County**	4,601	4,253	-7.56%		4,250
	Dodson town	122	124	1.64%		123
	Malta city	2,120	1,997	-5.80%		1,993
	Saco town	224	197	-12.05%		197
	Balance of Phillips County	2,135	1,935	-9.37%		1,937
2	**Pondera County**	6,425	6,153	-4.23%		6,257
	Conrad city	2,753	2,570	-6.65%		2,616

	Valier town	498	509	2.21%		518
	Balance of Pondera County	3,174	3,074	-3.15%		3,123
4	**Powder River County**	1,858	1,743	-6.19%		1,738
	Broadus town	451	468	3.77%		468
	Balance of Powder River County	1,407	1,275	-9.38%		1,270
1	**Powell County**	7,185	7,027	-2.20%		7,063
	Deer Lodge city	3,421	3,111	-9.06%		3,130
	Balance of Powell County	3,764	3,916	4.04%		3,933
4	**Prairie County**	1,199	1,179	-1.67%		1,159
	Terry town	611	605	-0.98%		594
	Balance of Prairie County	588	574	-2.38%		565
1	**Ravalli County**	36,093	40,212	11.41%		40,450
	Darby town	710	720	1.41%		724
	Hamilton city	3,705	4,348	17.35%		4,374
	Pinesdale town	742	917	23.58%		924
	Stevensville town	1,553	1,809	16.48%		1,820
	Balance of Ravalli County	29,383	32,418	10.33%		32,608
4	**Richland County**	9,666	9,746	0.83%		10,128
	Fairview town	709	840	18.48%		872
	Sidney city	4,774	5,191	8.73%		5,436
	Balance of Richland County	4,183	3,715	-11.19%		3,820
6	**Roosevelt County**	10,632	10,425	-1.95%		10,527
	Bainville town	153	208	35.95%		210
	Brockton town	245	255	4.08%		258
	Culbertson town	716	714	-0.28%		721
	Froid town	195	185	-5.13%		187
	Poplar city	911	810	-11.09%		819
	Wolf Point city	2,663	2,621	-1.58%		2,646
	Balance of Roosevelt County	5,749	5,632	-2.04%		5,686
5	**Rosebud County**	9,389	9,233	-1.66%		9,379
	Colstrip city	2,346	2,214	-5.63%		2,248
	Forsyth city	1,944	1,777	-8.59%		1,886
	Balance of Rosebud County	5,099	5,242	2.80%		5,245
1	**Sanders County**	10,238	11,413	11.48%		11,440
	Hot Springs town	531	544	2.45%		545
	Plains town	1,126	1,048	-6.93%		1,050
	Thompson Falls city	1,321	1,313	-0.61%		1,317
	Balance of Sanders County	7,260	8,508	17.19%		8,528
6	**Sheridan County**	4,105	3,384	-17.56%		3,460
	Medicine Lake town	269	225	-16.36%		230
	Outlook town	82	47	-42.68%		48
	Plentywood city	2,061	1,734	-15.87%		1,772
	Westby town	172	168	-2.33%		171

	Balance of Sheridan County	1,521	1,210	-20.45%		1,239
1	**Silver Bow County**	34,625	34,200	-1.23%		34,383
	Butte-Silver Bow (remainder)	33,911	33,525	-1.14%		33,704
	Walkerville town	714	675	-5.46%		679
5	**Stillwater County**	8,221	9,117	10.90%		9,131
	Columbus town	1,748	1,893	8.30%		1,896
	Balance of Stillwater County	6,473	7,224	11.60%		7,235
3	**Sweet Grass County**	3,601	3,651	1.39%		3,623
	Big Timber city	1,650	1,641	-0.55%		1,629
	Balance of Sweet Grass County	1,951	2,010	3.02%		1,994
2	**Teton County**	6,449	6,073	-5.83%		6,091
	Choteau city	1,781	1,684	-5.45%		1,690
	Dutton town	389	316	-18.77%		316
	Fairfield town	659	708	7.44%		710
	Balance of Teton County	3,620	3,365	-7.04%		3,375
2	**Toole County**	5,255	5,324	1.31%		5,239
	Kevin town	178	154	-13.48%		151
	Shelby city	3,216	3,376	4.98%		3,326
	Sunburst town	415	375	-9.64%		375
	Balance of Toole County	1,446	1,419	-1.87%		1,387
5	**Treasure County**	857	718	-16.22%		727
	Hysham town	330	312	-5.45%		316
	Balance of Treasure County	527	406	-22.96%		411
6	**Valley County**	7,673	7,369	-3.96%		7,487
	Fort Peck town	240	233	-2.92%		237
	Glasgow city	3,253	3,250	-0.09%		3,301
	Nashua town	325	290	-10.77%		295
	Opheim town	111	85	-23.42%		86
	Balance of Valley County	3,744	3,511	-6.22%		3,568
5	**Wheatland County**	2,259	2,168	-4.03%		2,140
	Harlowton city	1,062	997	-6.12%		984
	Judith Gap city	164	126	-23.17%		124
	Balance of Wheatland County	1,033	1,045	1.16%		1,032
4	**Wibaux County**	1,067	1,017	-4.69%		985
	Wibaux town	567	589	3.88%		571
	Balance of Wibaux County	500	428	-14.40%		414
5	**Yellowstone County**	129,347	147,972	14.40%		150,069
	Billings city	89,847	104,170	15.94%		105,636
	Broadview town	150	192	28.00%		194
	Laurel city	6,255	6,718	7.40%		6,814
	Balance of Yellowstone County	33,095	36,892	11.47%		37,425
2	**Blackfeet Indian Reservation**	10,100	10,405	3.02%		

2	**Rocky Boy's Indian Reservation**	2,676	3,323	24.18%		
2	**Fort Belknap Indian Reservation**	2,959	2,851	-3.65%		
6	**Fort Peck Indian Reservation**	10,321	10,008	-3.03%		
5	**Crow Indian Reservation**	6,894	6,863	-0.45%		
5	**Northern Cheyenne Indian Reservation**	4,470	4,789	7.14%		
1	**Flathead Indian Reservation**	26,172	28,359	8.36%		

NOTES: R = Residential
C = Commercial/Agricultural/Industrial
CF = Critical Facilities
AL = Annual Loss
M = Million
K = Thousand
B = Billion

NA = Not Analyzed or Not Quantitied

Original Local Plan FEMA Approval Date	Local Plan Update FEMA Approval Date	Estimated Building Loss/ Exposure from Local Plan	Estimated Societal Loss/ Exposure from Local Plan	Estimated Economic Loss from Local Plan	Reference
2004	2010				
2006		NA	NA	NA	NA
2006	2012				
2004	2009				
2006	2012	$0	0	$716,476	2
2005	2012				
2012					
		R=$16,138,830 C=$5,425,834	597	NA	13
		R=$22,517,751 C=$10,051,395	685	NA	13
		R=$2,555,386,799 C=$3,670,964,476	58,505	NA	13
		R=$14,994,082 C=$1,380,923	51	NA	13
		R=$949,977,937 C=$164,230,650	19,968	NA	13
2010		$147M	NA	NA	5

2005	2012	Moderate	Moderate	NA	2
2003	2008				
2006					
2005		$29.6M; High	127; Moderate	Moderate	3
2006	2012				
2008					
2009		High	Moderate	NA	6
2006	2012	High	Moderate	Moderate	7
2007		$4.2M	228	Moderate-High	3
2005	2012	NA	NA	NA	NA
2008		NA	NA	NA	NA

2006		$8.2M	Moderate	$17.3M	3
2006	2012	$110.11M	NA	NA	13
2005	2011				
2008		NA	NA	NA	13
2006	2012				
2005	2011	$145M	NA	NA	
2007		Low	Low	NA	2
2005	2012	2	2	NA	

2004	2010				
2006		NA	NA	NA	NA
2005	2012				
2004	2011	$50M-$100M	High	NA	1
2008		NA	NA	NA	NA
2006	2012	$0	0	$983,230	
2003	2008				
2006	2012				
2005	2011				

2007	2011				
2004	2012				
2006					
2005	2012				
2006		NA	NA	NA	NA
2004					
		$5.3M	111	NA	13
		$458K	12	NA	13
		$4.66M	96	NA	13
		$2M	39	NA	13
		$6.2M	175	NA	13
		$10.1M	269	NA	13
		$165.1M	4,089	NA	13
2007		$44.5M	1,735	$42.3M	3
2012					
		R=$15,659,095 C=$7,776,054	544	NA	13
		R=$28,632,062 C=$24,082,081	1,048	NA	13
		R=$43,655,598 C=$21,722,279	1,313	NA	13
		R=$505,241,444 C=$69,662,352	8,508	NA	13
2003	2008	$16,527,416	214.9	NA	13

2004	2010				
2010		$10M	Moderate	NA	3
		Low-Moderate	Moderate	High	3
		Moderate-High	Moderate	High	3
2005	2010				
2006		NA	NA	NA	NA
2007		Low-Medium	Low	NA	2
2007		$451K	150	$20M	3
2003	2008				
2007		NA	NA	NA	NA
2006		NA	NA	NA	NA
2005	2012	NA	NA	NA	NA
2008		NA	NA	NA	NA

2008	2010				
2007		NA	NA	NA	NA
2004	2012				
2008		NA	NA	NA	NA
2008		NA	NA	NA	NA
2006		$301.4M	8,801	NA	8

REFERENCES:

1 = Atkins
2 = Beck Consulting
3 = Big Sky Hazard Management
4 = Cossitt Consulting
5 = Fire Logistics, Inc.
6 = Flathead County/Hydrometrics
7 = Gallatin County
8 = Rick Gould
9 = Morrison-Maierle
10 = Northwest Management Inc.
11 = Single Tree Consulting
12 = Sweet Grass County
13 = Tetra Tech

Estimated Building Loss/ Exposure from Local Plan	Estimated Societal Loss/ Exposure from Local Plan	Estimated Economic Loss from Local Plan	Reference	Estimate Building Loss/Exposure from 2010 State Plan	Estimated Societal Loss from 2010 State Plan - Below Poverty in Hazard Area	Estimated Societal Loss from 2010 State Plan - >65 in Hazard Area	Estimated Societal Loss from 2010 State Plan - <18 in Hazard Area
$24M	2,530	NA	3	#########	872	844	1,269
Low-Moderate	Moderate	Low-Moderate	3				
Low-Moderate	Moderate	Low-Moderate	3				
Moderate-High	Moderate	Moderate	3				
				#########	788	197	954
				#########	301	122	346
R=$34,265,641 C=$16,856,623	1,203	NA	13				
R=$11,123,951 C=$8,691,175	808	NA	13				
R=$41,990,458 C=$15,176,147	4,332	NA	13				
$99.3M	1,920	NA	3	#########	269	440	587
Moderate	Moderate	Moderate-High	3				
Moderate-High	Moderate	Moderate-High	3				
NA	NA	NA	Unknown	#########	577	923	1,228
High	Moderate	High	11	#########	21	21	31
				#########	9,517	10,232	18,678
				#########	451	120	478

$1.18M	0	NA	2	#########	1,493	1,760	2,537
$5.6M	300	NA	3	#########	31	44	42
Moderate	Low-Moderate	Moderate	3				
Low-Moderate	Low-Moderate	Moderate	3				
Moderate	Low-Moderate	Moderate	3				
NA	NA	NA	NA	#########	896	1,179	1,524
				#########	989	1,257	1,482
Moderate	NA	NA	11	#########	32	47	68
$37.1M	788	High	3	#########	1,020	1,668	1,800
				#########	8,131	8,641	16,801
High	High	Moderate	7	#########	7,110	4,483	10,955
				#########	21	19	24
				#########	2,371	612	2,782
R=$5,854,778 C=$8,321,712	1,016	NA	13				
R=$66,953,635 C=$31,515,389	2,869	NA	13				
R=$23,713,663 C=$12,423,029	944	NA	13				
				#########	35	24	40

				#########	179	168	262
				#########	2,498	1,662	3,606
R=$276,922,586 C=$95,882,412	9,310	NA	13				
R=$4,028,150 C=$1,503,363	118	NA	13				
R=$148,811,244 C=$99,826,454	6,882	NA	13				
				#########	421	562	1,724
R=$24,902,761 C=$7,775,364	1,183	NA	13				
R=$31,207,320 C=$8,389,386	1,038	NA	13				
R=$456,191,186 C=$32,280,874	10,760	NA	13				
				#########	72	59	92
				#########	3,386	2,467	5,055
R=$0; C=$0	0	NA	13				
R=$989,415; =$0	27	NA	13				
R=$0; C=$0	0	NA	13				
R=$1,239,691,127 C=$71,969,078	14,024	NA	13				
				#########	5,326	5,942	12,950
R=$57,693,923 C=$30,011,517	1,984	NA	13				
R=$1,055,814,324 C=$973,513,449	28,190	NA	13				
R=$1,233,951,621 C=$130,278,630	31,731	NA	13				
				#########	72	71	95
				#########	1,524	1,394	2,097
R=$31,994,452 C=$14,243,200	1,037	NA	13				
R=$91,407,855 C=$69,596,903	2,628	NA	13				

R=$2,799,110 C=$1,122,084	105	NA	13				
R=$22,091,420 C=$11,945,412	938	NA	13				
R=$627,506,102 C=$104,503,782	14,971	NA	13				
$2.9B	4,022	NA	3	#########	217	301	430
Low-Moderate	Moderate	Low-Moderate	3				
Moderate	Moderate	Moderate	3				
Low-Moderate	Moderate	Low-Moderate	3				
Moderate	Moderate	Moderate	3				
High	Moderate	Moderate	3				
				#########	46	52	68
				#########	56	55	76
				#########	278	240	423
Very High	High	NA	1				
Very High	High	NA	1				
Very High	High	NA	1				
$4.9M; AL=$197K	High	NA	1	#########	12,734	8,430	18,596
				#########	415	434	513
				#########	1,315	1,850	2,637
$3M; Moderate	Moderate	NA	3				
$500K; Low-Moderate	Low-Moderate	NA	3				
$3.2M; High	Moderate	Moderate-High	3				
$212K	189	NA	3	$1,871,615	4	3	5
Low-Moderate	Low-Moderate	Moderate	3				
Moderate	Low-Moderate	Moderate	3				
				#########	62	58	96
R=$1,584,670 C=$348,513	124	NA	13				
R=$54,166,275 C=$4,354	2,106	NA	13				
R=$5,163,951 C=$2,392,372	197	NA	13				
R=$36,318,253 C=$14,026,318	1,552	NA	13				
				#########	215	180	332
R=$79,257,595 C=$35,834,664	2,570	NA	13				

R=$15,978,735 C=$5,196,467	509	NA	13				
R=$61,675,038 C=$30,077,868	848	NA	13				
$16.1M	594	$29.50	3	#########	28	40	59
High	NA	NA	9	#########	191	298	429
Moderate	NA	NA	11	#########	25	36	28
$27.7M; AL=$550K	High	NA	1	#########	2,361	2,686	4,700
Very High	High	NA	1				
Very High	High	NA	1				
Very High	High	NA	1				
Very High	High	NA	1				
Very High	High	NA	1				
				#########	618	854	1,458
				#########	1,367	608	1,612
				#########	572	135	999
				#########	710	705	1,013
$1.1M	447	Moderate	3	#########	71	116	109
Moderate	Low-Moderate	Moderate	3				
Moderate	Low-Moderate	Moderate	3				
Moderate	Low-Moderate	Moderate	3				
Moderate	Low-Moderate	Moderate	3				

Moderate	Low-Moderate	Moderate	3				
				#########	4,835	5,258	7,555
$3,564,760,000	<18=8,017 >65=5,452 <Poverty=4,920	NA	13				
$7,844,025	<18=101 >65=52 <Poverty=47	NA	13				
				#########	332	513	912
NA	NA	NA	NA	#########	87	138	202
				#########	224	237	441
				#########	90	110	185
				$9,878,806	12	14	22
$19.5M	1,942	Moderate	3	#########	407	761	778
Moderate	Low-Moderate	Moderate	3				
Moderate	Low-Moderate	Moderate	3				
Moderate-High	Low-Moderate	Moderate	3				
Moderate	Low-Moderate	Moderate	3				
Moderate-High	Low-Moderate	Moderate	3				
				#########	60	59	82
				#########	14	20	24
$356K	Moderate	NA	1	#########	12,779	16,024	28,853

R=$106,458,496 CF=$59,106,372	<16=1,053 >64=132 <Poverty=1 .062	NA	13				
Moderate	NA	NA	9				

Estimate Building Loss/Exposure from 2013 State Plan	Estimated Societal Loss from 2013 State Plan - Total in Hazard Area	Estimated Societal Loss from 2013 State Plan - <18 in Hazard Area	# Incidents	Period of Record (1992 - 2012)	Suppression Cost
			48	21	$5,580,269
			11	21	$3,136,040
			8	21	$143,726
			21	21	#########
			15	21	$956,519
			18	21	$595,699
			40	21	$1,777,614
			15	21	$21,033

			70	21	$4,401,112
			1	21	$1,009
			5	21	$46,215
			26	21	$707,518
			2	21	$11,261
			11	21	$253,011
			280	21	#########
			13	21	$449,900
			6	21	$2,064,255
			10	21	$377,329

			80	21	#########
			2	21	$0
			55	21	$5,940,631
			2	21	$9,223
			35	21	$2,761,078
			271	21	$9,187,465
			1	21	$12,114
			98	21	#########

			21	21	$316,779
			4	21	$317,133
			22	21	$663,054
			273	21	#########
			26	21	$2,265,888
			14	21	$1,054,675
			8	21	$434,851
			3	21	$22,529

			44	21	$4,731,785
			81	21	$5,958,347
			3	21	$35,175
			15	21	#########
			3	21	$26,209
			77	21	$2,038,931
			103	21	#########
			2	21	$3,623

			9	21	$51,173
			22	21	$3,229,598
			17	21	#########
			9	21	$216,344
			17	21	$755,581
			3	21	$0
			2	21	$953
			41	21	$6,294,877

DES District	Geography	Census 2000	Census 2010	% Change 2000 to 2010	# Building Permits (2002 to 2011)	2011
	Montana	902,200	989,415	9.67%		998,199
3	**Beaverhead County**	9,192	9,246	0.59%		9,198
	Dillon city	3,752	4,134	10.18%		4,113
	Lima town	242	221	-8.68%		220
	Balance of Beaverhead County	5,198	4,891	-5.91%		4,865
5	**Big Horn County**	12,676	12,865	1.49%		13,093
	Hardin city	3,384	3,505	3.58%		3,567
	Lodge Grass town	510	428	-16.08%		436
	Balance of Big Horn County	8,782	8,932	1.71%		9,090
2	**Blaine County**	7,009	6,491	-7.39%		6,565
	Chinook city	1,386	1,203	-13.20%		1,216
	Harlem city	848	808	-4.72%		818
	Balance of Blaine County	4,775	4,480	-6.18%		4,531
3	**Broadwater County**	4,380	5,612	28.13%		5,752
	Townsend city	1,867	1,878	0.59%		1,924
	Balance of Broadwater County	2,513	3,734	48.59%		3,828
5	**Carbon County**	9,545	10,078	5.58%		10,028
	Bearcreek town	83	79	-4.82%		79
	Bridger town	745	708	-4.97%		704
	Fromberg town	486	438	-9.88%		436
	Joliet town	575	595	3.48%		593
	Red Lodge city	2,177	2,125	-2.39%		2,114
	Balance of Carbon County	5,479	6,133	11.94%		6,102
4	**Carter County**	1,358	1,160	-14.58%		1,152
	Ekalaka town	410	332	-19.02%		329
	Balance of Carter County	948	828	-12.66%		823
2	**Cascade County**	80,356	81,327	1.21%		81,837
	Belt city	633	597	-5.69%		600
	Cascade town	819	685	-16.36%		690
	Great Falls city	56,690	58,505	3.20%		58,950
	Neihart town	91	51	-43.96%		51
	Balance of Cascade County	22,123	21,489	-2.87%		21,546
2	**Chouteau County**	5,962	5,813	-2.50%		5,793
	Big Sandy town	703	598	-14.94%		595
	Fort Benton city	1,594	1,464	-8.16%		1,460
	Geraldine town	284	261	-8.10%		260
	Balance of Chouteau County	3,381	3,490	3.22%		3,478
4	**Custer County**	11,694	11,699	0.04%		11,752

	Ismay town	26	19	-26.92%		19
	Miles City city	8,487	8,410	-0.91%		8,438
	Balance of Custer County	3,181	3,270	2.80%		3,295
6	**Daniels County**	2,017	1,751	-13.19%		1,763
	Flaxville town	87	71	-18.39%		72
	Scobey city	1,082	1,017	-6.01%		1,023
	Balance of Daniels County	848	663	-21.82%		668
4	**Dawson County**	9,059	8,966	-1.03%		8,989
	Glendive city	4,729	4,935	4.36%		4,947
	Richey town	189	177	-6.35%		178
	Balance of Dawson County	4,141	3,854	-6.93%		3,864
1	**Deer Lodge County**	9,416	9,298	-1.25%		9,299
	Anaconda-Deer Lodge County	9,416	9,298	-1.25%		9,299
4	**Fallon County**	2,835	2,890	1.94%		2,956
	Baker city	1,695	1,741	2.71%		1,780
	Plevna town	138	162	17.39%		166
	Balance of Fallon County	1,002	987	-1.50%		1,010
6	**Fergus County**	11,905	11,586	-2.68%		11,506
	Denton town	301	255	-15.28%		254
	Grass Range town	149	110	-26.17%		109
	Lewistown city	5,813	5,901	1.51%		5,858
	Moore town	186	193	3.76%		191
	Winifred town	156	208	33.33%		208
	Balance of Fergus County	5,300	4,919	-7.19%		4,886
1	**Flathead County**	74,507	90,928	22.04%		91,301
	Columbia Falls city	3,645	4,688	28.61%		4,707
	Kalispell city	14,223	19,927	40.10%		20,008
	Whitefish city	5,032	6,357	26.33%		6,384
	Balance of Flathead County	51,607	59,956	16.18%		60,202
3	**Gallatin County**	67,837	89,513	31.95%		91,377
	Belgrade city	5,728	7,389	29.00%		7,549
	Bozeman city	27,509	37,280	35.52%		38,025
	Manhattan town	1,396	1,520	8.88%		1,553
	Three Forks city	1,728	1,869	8.16%		1,909
	West Yellowstone town	1,177	1,271	7.99%		1,298
	Balance of Gallatin County	30,299	40,184	32.62%		41,043
4	**Garfield County**	1,279	1,206	-5.71%		1,251
	Jordan town	364	343	-5.77%		355
	Balance of Garfield County	915	863	-5.68%		896
2	**Glacier County**	13,240	13,399	1.20%		13,624
	Browning town	1,065	1,016	-4.60%		1,026
	Cut Bank city	3,105	2,869	-7.60%		2,919
	Balance of Glacier County	9,070	9,514	4.90%		9,679
5	**Golden Valley County**	1,040	884	-15.00%		865
	Lavina town	209	187	-10.53%		182
	Ryegate town	268	245	-8.58%		240
	Balance of Golden Valley County	563	452	-19.72%		443
1	**Granite County**	2,841	3,079	8.38%		3,068
	Drummond town	318	309	-2.83%		307
	Philipsburg town	914	820	-10.28%		818
	Balance of Granite County	1,609	1,950	21.19%		1,943
2	**Hill County**	16,671	16,096	-3.45%		16,397

	Havre city	9,621	9,310	-3.23%		9,600
	Hingham town	157	118	-24.84%		121
	Balance of Hill County	6,893	6,668	-3.26%		6,676
3	**Jefferson County**	10,034	11,406	13.67%		11,381
	Boulder town	1,300	1,183	-9.00%		1,181
	Whitehall town	1,044	1,038	-0.57%		1,035
	Balance of Jefferson County	7,690	9,185	19.44%		9,165
6	**Judith Basin County**	2,326	2,072	-10.92%		2,004
	Hobson town	244	215	-11.89%		208
	Stanford town	454	401	-11.67%		389
	Balance of Judith Basin County	1,628	1,456	-10.57%		1,407
1	**Lake County**	26,482	28,746	8.55%		28,947
	Polson city	4,041	4,488	11.06%		4,524
	Ronan city	1,812	1,871	3.26%		1,883
	St. Ignatius town	788	842	6.85%		849
	Balance of Lake County	19,841	21,545	8.59%		21,691
3	**Lewis and Clark County**	55,716	63,395	13.78%		64,318
	East Helena town	1,642	1,984	20.83%		2,041
	Helena city	25,780	28,190	9.35%		28,592
	Balance of Lewis and Clark County	28,294	33,221	17.41%		33,685
2	**Liberty County**	2,158	2,339	8.39%		2,402
	Chester town	871	847	-2.76%		874
	Balance of Liberty County	1,287	1,492	15.93%		1,528
1	**Lincoln County**	18,820	19,687	4.61%		19,566
	Eureka town	1,017	1,037	1.97%		1,031
	Libby city	2,626	2,628	0.08%		2,612
	Rexford town	151	105	-30.46%		104
	Troy city	957	938	-1.99%		933
	Balance of Lincoln County	14,069	14,979	6.47%		14,886
3	**Madison County**	6,848	7,691	12.31%		7,660
	Ennis town	840	838	-0.24%		835
	Sheridan town	659	642	-2.58%		639
	Twin Bridges town	400	375	-6.25%		373
	Virginia City town	130	190	46.15%		190
	Balance of Madison County	4,819	5,646	17.16%		5,623
4	**McCone County**	1,971	1,734	-12.02%		1,711
	Circle town	644	615	-4.50%		607
	Balance of McCone County	1,327	1,119	-15.67%		1,104
3	**Meagher County**	1,928	1,891	-1.92%		1,911

	White Sulphur Springs city	984	939	-4.57%		950
	Balance of Meagher County	944	952	0.85%		961
1	**Mineral County**	3,871	4,223	9.09%		4,208
	Alberton town	374	420	12.30%		417
	Superior town	893	812	-9.07%		810
	Balance of Mineral County	2,604	2,991	14.86%		2,981
1	**Missoula County**	95,803	109,299	14.09%		110,138
	Missoula city	57,053	66,788	17.06%		67,290
	Balance of Missoula County	38,750	42,511	9.71%		42,848
5	**Musselshell County**	4,492	4,538	1.02%		4,701
	Melstone town	136	96	-29.41%		99
	Roundup city	1,931	1,788	-7.41%		1,853
	Balance of Musselshell County	2,425	2,654	9.44%		2,749
3	**Park County**	15,694	15,636	-0.37%		15,469
	Clyde Park town	310	288	-7.10%		286
	Livingston city	6,851	7,044	2.82%		6,969
	Balance of Park County	8,533	8,304	-2.68%		8,214
6	**Petroleum County**	493	494	0.20%		491
	Winnett town	185	182	-1.62%		181
	Balance of Petroleum County	308	312	1.30%		310
6	**Phillips County**	4,601	4,253	-7.56%		4,250
	Dodson town	122	124	1.64%		123
	Malta city	2,120	1,997	-5.80%		1,993
	Saco town	224	197	-12.05%		197
	Balance of Phillips County	2,135	1,935	-9.37%		1,937
2	**Pondera County**	6,425	6,153	-4.23%		6,257
	Conrad city	2,753	2,570	-6.65%		2,616
	Valier town	498	509	2.21%		518
	Balance of Pondera County	3,174	3,074	-3.15%		3,123
4	**Powder River County**	1,858	1,743	-6.19%		1,738
	Broadus town	451	468	3.77%		468
	Balance of Powder River County	1,407	1,275	-9.38%		1,270
1	**Powell County**	7,185	7,027	-2.20%		7,063
	Deer Lodge city	3,421	3,111	-9.06%		3,130
	Balance of Powell County	3,764	3,916	4.04%		3,933
4	**Prairie County**	1,199	1,179	-1.67%		1,159
	Terry town	611	605	-0.98%		594
	Balance of Prairie County	588	574	-2.38%		565
1	**Ravalli County**	36,093	40,212	11.41%		40,450
	Darby town	710	720	1.41%		724

	Hamilton city	3,705	4,348	17.35%		4,374
	Pinesdale town	742	917	23.58%		924
	Stevensville town	1,553	1,809	16.48%		1,820
	Balance of Ravalli County	29,383	32,418	10.33%		32,608
4	**Richland County**	9,666	9,746	0.83%		10,128
	Fairview town	709	840	18.48%		872
	Sidney city	4,774	5,191	8.73%		5,436
	Balance of Richland County	4,183	3,715	-11.19%		3,820
6	**Roosevelt County**	10,632	10,425	-1.95%		10,527
	Bainville town	153	208	35.95%		210
	Brockton town	245	255	4.08%		258
	Culbertson town	716	714	-0.28%		721
	Froid town	195	185	-5.13%		187
	Poplar city	911	810	-11.09%		819
	Wolf Point city	2,663	2,621	-1.58%		2,646
	Balance of Roosevelt County	5,749	5,632	-2.04%		5,686
5	**Rosebud County**	9,389	9,233	-1.66%		9,379
	Colstrip city	2,346	2,214	-5.63%		2,248
	Forsyth city	1,944	1,777	-8.59%		1,886
	Balance of Rosebud County	5,099	5,242	2.80%		5,245
1	**Sanders County**	10,238	11,413	11.48%		11,440
	Hot Springs town	531	544	2.45%		545
	Plains town	1,126	1,048	-6.93%		1,050
	Thompson Falls city	1,321	1,313	-0.61%		1,317
	Balance of Sanders County	7,260	8,508	17.19%		8,528
6	**Sheridan County**	4,105	3,384	-17.56%		3,460
	Medicine Lake town	269	225	-16.36%		230
	Outlook town	82	47	-42.68%		48
	Plentywood city	2,061	1,734	-15.87%		1,772
	Westby town	172	168	-2.33%		171
	Balance of Sheridan County	1,521	1,210	-20.45%		1,239
1	**Silver Bow County**	34,625	34,200	-1.23%		34,383
	Butte-Silver Bow (remainder)	33,911	33,525	-1.14%		33,704
	Walkerville town	714	675	-5.46%		679
5	**Stillwater County**	8,221	9,117	10.90%		9,131
	Columbus town	1,748	1,893	8.30%		1,896
	Balance of Stillwater County	6,473	7,224	11.60%		7,235
3	**Sweet Grass County**	3,601	3,651	1.39%		3,623
	Big Timber city	1,650	1,641	-0.55%		1,629
	Balance of Sweet Grass County	1,951	2,010	3.02%		1,994
2	**Teton County**	6,449	6,073	-5.83%		6,091
	Choteau city	1,781	1,684	-5.45%		1,690
	Dutton town	389	316	-18.77%		316
	Fairfield town	659	708	7.44%		710
	Balance of Teton County	3,620	3,365	-7.04%		3,375
2	**Toole County**	5,255	5,324	1.31%		5,239
	Kevin town	178	154	-13.48%		151
	Shelby city	3,216	3,376	4.98%		3,326
	Sunburst town	415	375	-9.64%		375

	Balance of Toole County	1,446	1,419	-1.87%		1,387
5	**Treasure County**	857	718	-16.22%		727
	Hysham town	330	312	-5.45%		316
	Balance of Treasure County	527	406	-22.96%		411
6	**Valley County**	7,673	7,369	-3.96%		7,487
	Fort Peck town	240	233	-2.92%		237
	Glasgow city	3,253	3,250	-0.09%		3,301
	Nashua town	325	290	-10.77%		295
	Opheim town	111	85	-23.42%		86
	Balance of Valley County	3,744	3,511	-6.22%		3,568
5	**Wheatland County**	2,259	2,168	-4.03%		2,140
	Harlowton city	1,062	997	-6.12%		984
	Judith Gap city	164	126	-23.17%		124
	Balance of Wheatland County	1,033	1,045	1.16%		1,032
4	**Wibaux County**	1,067	1,017	-4.69%		985
	Wibaux town	567	589	3.88%		571
	Balance of Wibaux County	500	428	-14.40%		414
5	**Yellowstone County**	129,347	147,972	14.40%		150,069
	Billings city	89,847	104,170	15.94%		105,636
	Broadview town	150	192	28.00%		194
	Laurel city	6,255	6,718	7.40%		6,814
	Balance of Yellowstone County	33,095	36,892	11.47%		37,425
2	**Blackfeet Indian Reservation**	10,100	10,405	3.02%		
2	**Rocky Boy's Indian Reservation**	2,676	3,323	24.18%		
2	**Fort Belknap Indian Reservation**	2,959	2,851	-3.65%		
6	**Fort Peck Indian Reservation**	10,321	10,008	-3.03%		
5	**Crow Indian Reservation**	6,894	6,863	-0.45%		
5	**Northern Cheyenne Indian Reservation**	4,470	4,789	7.14%		
1	**Flathead Indian Reservation**	26,172	28,359	8.36%		

NOTES:
R = Residential
C = Commercial/Agricultural/Industrial
CF = Critical Facilities
AL = Annual Loss
M = Million
K = Thousand
B = Billion

NA = Not Analyzed or Not Quantitied

Original Local Plan FEMA Approval Date	Local Plan Update FEMA Approval Date	Estimated Building Loss/ Exposure from Local Plan	Estimated Societal Loss/ Exposure from Local Plan	Estimated Economic Loss from Local Plan	Reference	Estimated Building Loss/ Exposure from Local Plan
2004	2010	$65.7M	NA	$20.2M	3	
		Moderate-High	Moderate	Moderate	3	
		Moderate-High	Moderate	Moderate	3	
		Moderate-High	Moderate	Moderate	3	
2006						
		$0	0	NA	2	
		$7.6M	NA	NA	2	
		Millions	652	$30.8M	2	
2006	2012					
						R=$1,742,396 C=$306,527
						R=$513,348 C=$694,485
						R=$22,672,057 C=$5,082,450
2004	2009					$5.2M
						Moderate-High
						Moderate-High
2006	2012					
						$875,807
						$0
						$6.7M
						$1M
						$31.5M
						$207M
2005	2012					High
2012						
		R = $8,865,776 C = $4,708,606	400	NA	13	
		R = $20,597,413 C = $9,012,735	685	NA	13	
		R = $123,710,664 C = $111,234,635	3,327	NA	13	
		R = $14,994,082 C = $1,380,923	51	NA	13	
		R = $270,556,020 C = $48,043,905	8,679	NA	13	
2010						
		$39M	NA	NA	5	
		$45M	NA	NA	5	
2005	2012	$5.7-$43.2M	Moderate	NA		

						$6M
						$1B
						$385M
2003	2008					$456K
						Low-Moderate
						Low-Moderate
						Low-Moderate
2006		$23M	NA	NA	2	
		$9.975M	NA	NA	2	
2005	2012	$2.6M; High	479	High	3	
2006	2012	$111,421-$557,102	NA	NA		$5.5M; Moderate
						$15.9M
2008		$33.2M	NA	NA	3	
		Moderate	NA	NA	3	
		Moderate-High	NA	NA	3	
		Moderate	NA	NA	3	
		Moderate	NA	NA	3	
		Low-Moderate	NA	NA	3	
2009		Very High	Moderate	NA	6	
2006	2012	Moderate	Moderate	Moderate	7	Moderate
2007		$2.4M	Moderate	$1.5M	3	
2005	2012					
						R=$2,285,076 C=$3,137,949
						R=$45,920 C=$21,817
						R=$8,603,777 C=$845,400
2008						
		$69K	1	NA	13	
		$659K	1	NA	13	
		$125K	3	NA	13	
2006		$11.5M	777	Moderate	3	
2006	2012	$15,808,021	339	NA	13	

						R=$154,111 C=$613,700
						R=$0; C=$0
						R=$26,001,147 C=$12,486,562
2005	2011					
						R=$4,804,520 C=$941,892
						R=$2,459,909 C=$325,218
						R=$56,580,143 C=$15,455,967
2008						
		$0	0	NA	13	
		$29M	0	NA	13	
		$20.8M	262	NA	13	
2006	2012	$73,171,600	603	NA	8	
2005	2011	$2M	NA	NA		
						R=$5,012,016 C=$3,861,424
						R=$1,749,553 C=$117,900
						R=$87,224,898 C=$20,723,657
2007		Medium-High	Medium	NA	2	
		$3,813,506			2	
		$281,361			2	
2005	2012	3	2	NA		
						R=$590,806 C=$1,462,671
						R=$11,206,490 C=$4,644,427
						R=$0 C=$0
						R=$1,214,815 C=$1,553,373
						R=$177,689,718 C=$22,808,645
2004	2010					$30.9M
						Low-Moderate
						Low-Moderate
						Moderate
						Low-Moderate
						Moderate
2006						
		$477K	NA	NA	4	

2005	2012					$18.3M AL=$182,628
						Riverine=Low Ice Jam=Very Low
						Riverine=High Ice Jam=Low
						Riverine=High Ice Jam=Low
2004	2011	$30M	Moderate	NA		Riverine=$41.4M; AL=$413,870 Ice Jam=$500K; AL=$20K
2008						
		$0	0	NA	13	
		$1.8M	33	NA	13	
		$1,642,170	50	NA	13	
2006	2012					
						$104K; Moderate
						$67K; Moderate
						$24.5M; Moderate-High
2003	2008					$990K
						Low-Moderate
						Moderate
2006	2012					
						R=$0; C=$0
						R=$19,180,048 C=$20,953,537
						R=$186,804 C=$2,094
						R=$26,147,719 C=$4,322,070
2005	2011					
						R=$154,888 C=$21,484,390
						R=$0; C=$0
						R=$16,634,015 C=$12,739,315
2007	2011	$8M	Moderate	$28K	3	High
2004	2012					
		$297M; Moderate	NA	NA	9	
		$64.7M	NA	$3M	9	
2006		NA	NA	NA	NA	
2005	2012	$5-$10M	High	NA	.	Flash/Regional AL=$267,760 IceJam AL=$28K
						High

						High
						Low
						High
						High
2006						
		$1.6M	NA	NA	4	
		$9.2M	NA	NA	4	
2004						
		$4.9M	102	NA	13	
		$3.7K	0	NA	13	
		$20.5M	427	NA	13	
		$3.86M	77	NA	13	
		$44.8M	1,269	NA	13	
		$44.5M	1,200	NA	13	
		$170M	4,326	NA	13	
2007		$37.3M	Moderate	$100M	3	
2012						
		R=$2,058,187 C=$1,562,883	148	NA	13	
		R=$3,609,661 C=$939,521	250	NA	13	
		R=$3,017,662 C=$238,310	0	NA	13	
		R=$108,705,347 C=$12,683,148	3,857	NA	13	
2003	2008	$7,142,582	98.6	NA	13	$575K
						Low-Moderate
						Low
						Low-Moderate
						Low
						Low-Moderate
2004	2010	$7M	Moderate	Moderate	3	
						$149,733,808
						0
2010		$11.4M	Moderate	$11.3M	3	
		Moderate	Moderate	NA	3	
		Moderate	Moderate	NA	3	
2005	2010					NA
2006						
		$16.3M	NA	NA	101	
		$35.9M	NA	NA	10	
2007		$222,544; Medium	Low	NA	2	

2007		$2M	Moderate	$990K	3	
2003	2008	$88,417.74	1319.7	NA	13	$10.75M
						Moderate
						$3.7M
						$473K
						Low-Moderate
						Moderate-High
2007						
		$288K	5	NA	13	
		$0	0	NA	13	
		$1.5M	11	NA	13	
2006		$2.5M	NA	NA	2	
2005	2012					$1.1M
2008		$13.2M	327	NA	13	
2008	2010					R=$2,679,638 CF=$0
2007		$721.4K	10	NA	13	
2004	2012					$133.6M
2008		NA	NA	NA	4	
2008		NA	NA	NA	4	
2006		$404.9M	1,462	NA	8	

REFERENCES:
1 = Atkins
2 = Beck Consulting
3 = Big Sky Hazard Management
4 = Cossitt Consulting
5 = Fire Logistics, Inc.
6 = Flathead County/Hydrometrics
7 = Gallatin County
8 = Rick Gould
9 = Morrison-Maierle
10 = Northwest Management Inc.
11 = Single Tree Consulting
12 = Sweet Grass County

Estimated Societal Loss/ Exposure from Local Plan	Estimated Economic Loss from Local Plan	Reference	Estimate Building Loss/Exposure from 2010 State Plan	Estimated Societal Loss from 2010 State Plan - Below Poverty in Hazard Area	Estimated Societal Loss from 2010 State Plan - >65 in Hazard Area	Estimated Societal Loss from 2010 State Plan - <18 in Hazard Area
			$24,233,000	159	159	227
			$31,116,000	113	35	148
			$15,168,000	81	35	97
127	NA	13				
151	NA	13				
1,455	NA	13				
NA	$10M	3	$11,064,000	96	164	197
Moderate	Moderate	3				
Moderate	Moderate	3				
			$26,928,000	37	51	76
NA	NA	2				
NA	NA	2				
NA	NA	2				
NA	NA	2				
NA	NA	2				
NA	NA	2				
Moderate	High	11	$3,001,000	0	0	0
			$244,744,000	1,798	1,699	2,802
			$14,825,000	33	33	51
			$16,381,000	123	127	193

26	NA	2				
8,492	NA	2				
3,178	NA	2				
0	$440K	3	$960,000	16	22	21
Moderate	Low-Moderate	3				
Moderate	Low-Moderate	3				
Moderate	Low-Moderate	3				
			$25,869,000	95	122	160
			$4,646,000	18	23	28
NA	$1.9M	11	$1,894,000	0	0	0
NA	NA	11				
			$18,834,000	59	87	101
			$327,831,000	1,412	1,396	3,164
Moderate	Moderate	7	$61,588,000	137	148	361
			$2,133,000	0	0	0
			$13,876,000	236	60	278
434	NA	13				
11	NA	13				
619	NA	13				
			$3,400,000	0	0	0
			$4,877,000	0	0	0
			$83,075,000	308	187	399

400	NA	13				
0	NA	13				
2,414	NA	13				
			$13,364,000	14	16	38
525	NA	13				
251	NA	13				
4,910	NA	13				
			$1,112,000	0	0	0
			$24,497,000	159	150	
			$97,409,000	212	266	763
242	NA	13				
923	NA	13				
8,423	NA	13				
			$4,646,000	0	0	0
			$30,036,000	105	111	149
137	NA	13				
669	NA	13				
0	NA	13				
181	NA	13				
8,284	NA	13				
NA	$18.7M	3	$27,905,000	19	25	38
Moderate	Moderate	3				
Low-Moderate	Moderate	3				
Moderate	Moderate-High	3				
Moderate	Moderate	3				
Moderate	Moderate	3				
			$5,767,000	0	0	0
			$2,918,000	0	0	0

		1	$17,813,000	6	5	9
Riverine=Low Ice Jam=Very Low	NA	1				
Riverine=High Ice Jam=Low	NA	1				
Riverine=High Ice Jam=Low	NA	1				
Flash/Region=High IceJam=Moderate	NA	1	$230,037,000	1,205	637	1,286
			$5,439,000	46	45	56
			$41,059,000	228	343	450
NA	NA	3				
NA	NA	3				
NA	NA	3				
NA	$500K	3	$816,000	0	0	0
Low-Moderate	Low-Moderate	3				
Moderate	Low-Moderate	3				
			$26,390,000	48	46	73
0	NA	13				
743	NA	13				
33	NA	13				
1,510	NA	13				
			$4,040,000	34	39	63
19	NA	13				
0	NA	13				
2,323	NA	13				
Moderate	Moderate	3	$6,746,000	0	0	0
			$70,393,000	15	21	32
			$405,000	0	0	0
Flash/Region=High IceJam=High			$67,825,000	118	138	252
High						

High						
Low						
High						
High						
			$23,264,000	134	181	312
			$10,039,000	318	114	347
			$26,049,000	45	25	75
			$58,146,000	47	42	60
Moderate	$1.5M	3	$14,478,000	34	55	53
Moderate	Low-Moderate	3				
Moderate	Low-Moderate	3				
Moderate	Low-Moderate	3				
Moderate	Low-Moderate	3				
Moderate	Low-Moderate	3				
			$21,142,000	123	236	311
<18=301 >65=247 <Poverty=120	NA	13				
0	NA	13				
			$26,344,000	26	35	67
NA	NA	NA	$6,287,000	0	0	0
			$6,963,000	39	40	68
			$17,936,000	24	34	54

			$3,262,000	0	0	0
NA	$1.9M	3	$12,173,000	191	336	357
Moderate	Moderate	3				
Moderate-High	Moderate	3				
Moderate-High	Moderate	3				
Low-Moderate	Moderate	3				
Moderate-High	Moderate	3				
			$4,100,000	0	0	0
			$2,547,000	0	0	0
High	NA	1	$178,047,000	2,077	1,440	3,344
<16=25 >64=4 <Poverty=25	NA	13				
622	$11.3M	9				

Estimate Building Loss/Exposure from 2013 State Plan	Estimated Societal Loss from 2013 State Plan - Total in Hazard Area	Estimated Societal Loss from 2013 State Plan - <18 in Hazard Area	# Incidents	Period of Record 1969-2011	Total Property Damage
			2	29	$973,464
			2	35	$5,931,960
			14	43	$3,332,144
			4	38	$3,600,485
			5	95	$7,204,611
			6	53	$286,424
			10	49	$73,534,612
			3	17	$2,858,766
			4	90	$3,232,387

			12	43	$1,072,178
			5	27	$1,695,400
			5	28	$37,500
			7	53	$6,333,859
			6	38	$2,799,868
			14	48	$22,800,000
			2	32	$760,056
			16	43	$1,090,422
			15	49	$55,443,999
			8	43	$1,027,522
			7	43	$837,013
			11	43	$13,940,592

			8	44	$3,347,513
			3	37	$1,492,165
			9	43	$145,314
R = $10,314,441 C = $1,322,741	337	Tt			
R = $615,416 C = $14,259,884	94	Tt			
R = $4,604,999 C = $181,280	251	Tt			
R = $608,995,285 C = $24,472,893	7,659	Tt			
			11	44	$4,398,411
			4	27	$281,361
			12	43	$5,002,034
R = $590,806 C = $1,462,671	137	Tt			
R = $11,206,490 C = $4,644,427	669	Tt			
R = $0; C = $0	0	Tt			
R = $1,214,815 C = $1,553,373	938	Tt			
R = 177,689,718 C = $22,808,645	8,284	Tt			
			2	29	$1,011,166
			12	43	$1,132,763
			5	43	$153,155

			2	18	$684,253
			3	39	$11,114,074
			2	16	$1,344,269
			16	119	$7,055,877
			5	35	$1,426,919
			16	61	$9,040,281
			9	49	$364,677
			7	43	$973,591
			4	37	$2,490,978
			3	17	$1,541,547
			3	17	$677,241

			5	44	$2,828,413
			22	43	$1,910,552
			2	27	$1,281,411
			13	43	$1,447,234
			10	43	$1,064,375
			6	43	$365,824
			3	35	$2,893,592
			1	16	$1,642,750
			1	49	$51,160,000
			7	35	$222,544

			3	35	$3,276,229
			6	61	$8,762,698
			3	38	$1,492,165
			8	43	$1,681,084
			17	76	$66,164,306
			2	49	$51,487,000
			3	5	$14,286,306
			3	14	$1,822,620
			11	53	$3,708,406
			11	53	$3,708,406

DES District	Geography	Census 2000	Census 2010	% Change 2000 to 2010	# Building Permits (2002 to 2011)	2011
	Montana	902,200	989,415	9.67%		998,199
3	**Beaverhead County**	9,192	9,246	0.59%		9,198
	Dillon city	3,752	4,134	10.18%		4,113
	Lima town	242	221	-8.68%		220
	Balance of Beaverhead County	5,198	4,891	-5.91%		4,865
5	**Big Horn County**	12,676	12,865	1.49%		13,093
	Hardin city	3,384	3,505	3.58%		3,567
	Lodge Grass town	510	428	-16.08%		436
	Balance of Big Horn County	8,782	8,932	1.71%		9,090
2	**Blaine County**	7,009	6,491	-7.39%		6,565
	Chinook city	1,386	1,203	-13.20%		1,216
	Harlem city	848	808	-4.72%		818
	Balance of Blaine County	4,775	4,480	-6.18%		4,531
3	**Broadwater County**	4,380	5,612	28.13%		5,752
	Townsend city	1,867	1,878	0.59%		1,924
	Balance of Broadwater County	2,513	3,734	48.59%		3,828
5	**Carbon County**	9,545	10,078	5.58%		10,028
	Bearcreek town	83	79	-4.82%		79
	Bridger town	745	708	-4.97%		704
	Fromberg town	486	438	-9.88%		436
	Joliet town	575	595	3.48%		593
	Red Lodge city	2,177	2,125	-2.39%		2,114
	Balance of Carbon County	5,479	6,133	11.94%		6,102
4	**Carter County**	1,358	1,160	-14.58%		1,152
	Ekalaka town	410	332	-19.02%		329
	Balance of Carter County	948	828	-12.66%		823
2	**Cascade County**	80,356	81,327	1.21%		81,837
	Belt city	633	597	-5.69%		600
	Cascade town	819	685	-16.36%		690
	Great Falls city	56,690	58,505	3.20%		58,950
	Neihart town	91	51	-43.96%		51
	Balance of Cascade County	22,123	21,489	-2.87%		21,546
2	**Chouteau County**	5,962	5,813	-2.50%		5,793
	Big Sandy town	703	598	-14.94%		595
	Fort Benton city	1,594	1,464	-8.16%		1,460
	Geraldine town	284	261	-8.10%		260
	Balance of Chouteau County	3,381	3,490	3.22%		3,478
4	**Custer County**	11,694	11,699	0.04%		11,752
	Ismay town	26	19	-26.92%		19
	Miles City city	8,487	8,410	-0.91%		8,438
	Balance of Custer County	3,181	3,270	2.80%		3,295
6	**Daniels County**	2,017	1,751	-13.19%		1,763
	Flaxville town	87	71	-18.39%		72
	Scobey city	1,082	1,017	-6.01%		1,023
	Balance of Daniels County	848	663	-21.82%		668
4	**Dawson County**	9,059	8,966	-1.03%		8,989

	Glendive city	4,729	4,935	4.36%		4,947
	Richey town	189	177	-6.35%		178
	Balance of Dawson County	4,141	3,854	-6.93%		3,864
1	**Deer Lodge County**	9,416	9,298	-1.25%		9,299
	Anaconda-Deer Lodge County	9,416	9,298	-1.25%		9,299
4	**Fallon County**	2,835	2,890	1.94%		2,956
	Baker city	1,695	1,741	2.71%		1,780
	Plevna town	138	162	17.39%		166
	Balance of Fallon County	1,002	987	-1.50%		1,010
6	**Fergus County**	11,905	11,586	-2.68%		11,506
	Denton town	301	255	-15.28%		254
	Grass Range town	149	110	-26.17%		109
	Lewistown city	5,813	5,901	1.51%		5,858
	Moore town	186	193	3.76%		191
	Winifred town	156	208	33.33%		208
	Balance of Fergus County	5,300	4,919	-7.19%		4,886
1	**Flathead County**	74,507	90,928	22.04%		91,301
	Columbia Falls city	3,645	4,688	28.61%		4,707
	Kalispell city	14,223	19,927	40.10%		20,008
	Whitefish city	5,032	6,357	26.33%		6,384
	Balance of Flathead County	51,607	59,956	16.18%		60,202
3	**Gallatin County**	67,837	89,513	31.95%		91,377
	Belgrade city	5,728	7,389	29.00%		7,549
	Bozeman city	27,509	37,280	35.52%		38,025
	Manhattan town	1,396	1,520	8.88%		1,553
	Three Forks city	1,728	1,869	8.16%		1,909
	West Yellowstone town	1,177	1,271	7.99%		1,298
	Balance of Gallatin County	30,299	40,184	32.62%		41,043
4	**Garfield County**	1,279	1,206	-5.71%		1,251
	Jordan town	364	343	-5.77%		355
	Balance of Garfield County	915	863	-5.68%		896
2	**Glacier County**	13,240	13,399	1.20%		13,624
	Browning town	1,065	1,016	-4.60%		1,026
	Cut Bank city	3,105	2,869	-7.60%		2,919
	Balance of Glacier County	9,070	9,514	4.90%		9,679
5	**Golden Valley County**	1,040	884	-15.00%		865
	Lavina town	209	187	-10.53%		182
	Ryegate town	268	245	-8.58%		240
	Balance of Golden Valley County	563	452	-19.72%		443
1	**Granite County**	2,841	3,079	8.38%		3,068
	Drummond town	318	309	-2.83%		307
	Philipsburg town	914	820	-10.28%		818
	Balance of Granite County	1,609	1,950	21.19%		1,943
2	**Hill County**	16,671	16,096	-3.45%		16,397
	Havre city	9,621	9,310	-3.23%		9,600
	Hingham town	157	118	-24.84%		121
	Balance of Hill County	6,893	6,668	-3.26%		6,676
3	**Jefferson County**	10,034	11,406	13.67%		11,381
	Boulder town	1,300	1,183	-9.00%		1,181
	Whitehall town	1,044	1,038	-0.57%		1,035

	Balance of Jefferson County	7,690	9,185	19.44%		9,165
6	**Judith Basin County**	2,326	2,072	-10.92%		2,004
	Hobson town	244	215	-11.89%		208
	Stanford town	454	401	-11.67%		389
	Balance of Judith Basin County	1,628	1,456	-10.57%		1,407
1	**Lake County**	26,482	28,746	8.55%		28,947
	Polson city	4,041	4,488	11.06%		4,524
	Ronan city	1,812	1,871	3.26%		1,883
	St. Ignatius town	788	842	6.85%		849
	Balance of Lake County	19,841	21,545	8.59%		21,691
3	**Lewis and Clark County**	55,716	63,395	13.78%		64,318
	East Helena town	1,642	1,984	20.83%		2,041
	Helena city	25,780	28,190	9.35%		28,592
	Balance of Lewis and Clark County	28,294	33,221	17.41%		33,685
2	**Liberty County**	2,158	2,339	8.39%		2,402
	Chester town	871	847	-2.76%		874
	Balance of Liberty County	1,287	1,492	15.93%		1,528
1	**Lincoln County**	18,820	19,687	4.61%		19,566
	Eureka town	1,017	1,037	1.97%		1,031
	Libby city	2,626	2,628	0.08%		2,612
	Rexford town	151	105	-30.46%		104
	Troy city	957	938	-1.99%		933
	Balance of Lincoln County	14,069	14,979	6.47%		14,886
3	**Madison County**	6,848	7,691	12.31%		7,660
	Ennis town	840	838	-0.24%		835
	Sheridan town	659	642	-2.58%		639
	Twin Bridges town	400	375	-6.25%		373
	Virginia City town	130	190	46.15%		190
	Balance of Madison County	4,819	5,646	17.16%		5,623
4	**McCone County**	1,971	1,734	-12.02%		1,711
	Circle town	644	615	-4.50%		607
	Balance of McCone County	1,327	1,119	-15.67%		1,104
3	**Meagher County**	1,928	1,891	-1.92%		1,911
	White Sulphur Springs city	984	939	-4.57%		950
	Balance of Meagher County	944	952	0.85%		961
1	**Mineral County**	3,871	4,223	9.09%		4,208
	Alberton town	374	420	12.30%		417
	Superior town	893	812	-9.07%		810
	Balance of Mineral County	2,604	2,991	14.86%		2,981
1	**Missoula County**	95,803	109,299	14.09%		110,138
	Missoula city	57,053	66,788	17.06%		67,290
	Balance of Missoula County	38,750	42,511	9.71%		42,848
5	**Musselshell County**	4,492	4,538	1.02%		4,701
	Melstone town	136	96	-29.41%		99
	Roundup city	1,931	1,788	-7.41%		1,853
	Balance of Musselshell County	2,425	2,654	9.44%		2,749
3	**Park County**	15,694	15,636	-0.37%		15,469
	Clyde Park town	310	288	-7.10%		286

	Livingston city	6,851	7,044	2.82%		6,969
	Balance of Park County	8,533	8,304	-2.68%		8,214
6	**Petroleum County**	493	494	0.20%		491
	Winnett town	185	182	-1.62%		181
	Balance of Petroleum County	308	312	1.30%		310
6	**Phillips County**	4,601	4,253	-7.56%		4,250
	Dodson town	122	124	1.64%		123
	Malta city	2,120	1,997	-5.80%		1,993
	Saco town	224	197	-12.05%		197
	Balance of Phillips County	2,135	1,935	-9.37%		1,937
2	**Pondera County**	6,425	6,153	-4.23%		6,257
	Conrad city	2,753	2,570	-6.65%		2,616
	Valier town	498	509	2.21%		518
	Balance of Pondera County	3,174	3,074	-3.15%		3,123
4	**Powder River County**	1,858	1,743	-6.19%		1,738
	Broadus town	451	468	3.77%		468
	Balance of Powder River County	1,407	1,275	-9.38%		1,270
1	**Powell County**	7,185	7,027	-2.20%		7,063
	Deer Lodge city	3,421	3,111	-9.06%		3,130
	Balance of Powell County	3,764	3,916	4.04%		3,933
4	**Prairie County**	1,199	1,179	-1.67%		1,159
	Terry town	611	605	-0.98%		594
	Balance of Prairie County	588	574	-2.38%		565
1	**Ravalli County**	36,093	40,212	11.41%		40,450
	Darby town	710	720	1.41%		724
	Hamilton city	3,705	4,348	17.35%		4,374
	Pinesdale town	742	917	23.58%		924
	Stevensville town	1,553	1,809	16.48%		1,820
	Balance of Ravalli County	29,383	32,418	10.33%		32,608
4	**Richland County**	9,666	9,746	0.83%		10,128
	Fairview town	709	840	18.48%		872
	Sidney city	4,774	5,191	8.73%		5,436
	Balance of Richland County	4,183	3,715	-11.19%		3,820
6	**Roosevelt County**	10,632	10,425	-1.95%		10,527
	Bainville town	153	208	35.95%		210
	Brockton town	245	255	4.08%		258
	Culbertson town	716	714	-0.28%		721
	Froid town	195	185	-5.13%		187
	Poplar city	911	810	-11.09%		819
	Wolf Point city	2,663	2,621	-1.58%		2,646
	Balance of Roosevelt County	5,749	5,632	-2.04%		5,686
5	**Rosebud County**	9,389	9,233	-1.66%		9,379
	Colstrip city	2,346	2,214	-5.63%		2,248
	Forsyth city	1,944	1,777	-8.59%		1,886
	Balance of Rosebud County	5,099	5,242	2.80%		5,245
1	**Sanders County**	10,238	11,413	11.48%		11,440
	Hot Springs town	531	544	2.45%		545
	Plains town	1,126	1,048	-6.93%		1,050
	Thompson Falls city	1,321	1,313	-0.61%		1,317
	Balance of Sanders County	7,260	8,508	17.19%		8,528
6	**Sheridan County**	4,105	3,384	-17.56%		3,460

	Medicine Lake town	269	225	-16.36%		230
	Outlook town	82	47	-42.68%		48
	Plentywood city	2,061	1,734	-15.87%		1,772
	Westby town	172	168	-2.33%		171
	Balance of Sheridan County	1,521	1,210	-20.45%		1,239
1	**Silver Bow County**	34,625	34,200	-1.23%		34,383
	Butte-Silver Bow (remainder)	33,911	33,525	-1.14%		33,704
	Walkerville town	714	675	-5.46%		679
5	**Stillwater County**	8,221	9,117	10.90%		9,131
	Columbus town	1,748	1,893	8.30%		1,896
	Balance of Stillwater County	6,473	7,224	11.60%		7,235
3	**Sweet Grass County**	3,601	3,651	1.39%		3,623
	Big Timber city	1,650	1,641	-0.55%		1,629
	Balance of Sweet Grass County	1,951	2,010	3.02%		1,994
2	**Teton County**	6,449	6,073	-5.83%		6,091
	Choteau city	1,781	1,684	-5.45%		1,690
	Dutton town	389	316	-18.77%		316
	Fairfield town	659	708	7.44%		710
	Balance of Teton County	3,620	3,365	-7.04%		3,375
2	**Toole County**	5,255	5,324	1.31%		5,239
	Kevin town	178	154	-13.48%		151
	Shelby city	3,216	3,376	4.98%		3,326
	Sunburst town	415	375	-9.64%		375
	Balance of Toole County	1,446	1,419	-1.87%		1,387
5	**Treasure County**	857	718	-16.22%		727
	Hysham town	330	312	-5.45%		316
	Balance of Treasure County	527	406	-22.96%		411
6	**Valley County**	7,673	7,369	-3.96%		7,487
	Fort Peck town	240	233	-2.92%		237
	Glasgow city	3,253	3,250	-0.09%		3,301
	Nashua town	325	290	-10.77%		295
	Opheim town	111	85	-23.42%		86
	Balance of Valley County	3,744	3,511	-6.22%		3,568
5	**Wheatland County**	2,259	2,168	-4.03%		2,140
	Harlowton city	1,062	997	-6.12%		984
	Judith Gap city	164	126	-23.17%		124
	Balance of Wheatland County	1,033	1,045	1.16%		1,032
4	**Wibaux County**	1,067	1,017	-4.69%		985
	Wibaux town	567	589	3.88%		571
	Balance of Wibaux County	500	428	-14.40%		414
5	**Yellowstone County**	129,347	147,972	14.40%		150,069
	Billings city	89,847	104,170	15.94%		105,636
	Broadview town	150	192	28.00%		194
	Laurel city	6,255	6,718	7.40%		6,814
	Balance of Yellowstone County	33,095	36,892	11.47%		37,425
2	**Blackfeet Indian Reservation**	10,100	10,405	3.02%		
2	**Rocky Boy's Indian Reservation**	2,676	3,323	24.18%		
2	**Fort Belknap Indian Reservation**	2,959	2,851	-3.65%		
6	**Fort Peck Indian Reservation**	10,321	10,008	-3.03%		
5	**Crow Indian Reservation**	6,894	6,863	-0.45%		
5	**Northern Cheyenne Indian Reservation**	4,470	4,789	7.14%		
1	**Flathead Indian Reservation**	26,172	28,359	8.36%		

NOTES: R = Residential
C = Commercial/Agricultural/Industrial

CF = Critical Facilities
AL = Annual Loss
M = Million
K = Thousand
B = Billion

NA = Not Analyzed or Not Quantitied

REFERENCES:
1 = Atkins
2 = Beck Consulting
3 = Big Sky Hazard Management
4 = Cossitt Consulting
5 = Fire Logistics, Inc.
6 = Flathead County/Hydrometrics
7 = Gallatin County
8 = Rick Gould
9 = Morrison-Maierle
10 = Northwest Management Inc.
11 = Single Tree Consulting
12 = Sweet Grass County
13 = Tetra Tech

Original Local Plan FEMA Approval Date	Local Plan Update FEMA Approval Date	Estimated Building Loss/ Exposure from Local Plan	Estimated Societal Loss/ Exposure from Local Plan	Estimated Economic Loss from Local Plan	Reference	Estimated Building Loss/ Exposure from Local Plan	Estimated Societal Loss/ Exposure from Local Plan
2004	2010	$20.2M	520,000	NA	3	$27.3M	1 fatality
						Moderate-High	Moderate
						Moderate-High	Moderate
						Moderate-High	Moderate
2006		NA	NA	NA	NA		
2006	2012					NA	NA
2004	2009	$50M	50-100	High	3	$25.22M	1 fatality
						Moderate-High	Moderate
						Moderate-High	Moderate
2006	2012					$32.8M	7
2005	2012					Low	Low
2012		NA	NA	NA	NA		
2010		NA	NA	NA	NA		
2005	2012					1 percent	0
2003	2008					8 structures	0
						Low-Moderate	Low
						Low-Moderate	Low
						Low-Moderate	Low
2006		NA	NA	NA	NA		

2005		$3.9K; High	Moderate	High	3		
2006	2012					NA	NA
2008						$1.2M	NA
						Low	Low
						Low	Low
						Low	Low
						Low	Low
						Low	Low
						Low	Low
2009		High	Moderate	NA	6		
2006	2012	High	Moderate	High	7	High	High
2007						7 structures	0
2005	2012						
						R=$5,854,778 C=$8,321,712	1,016
						R=$0; C=$0	0
						R=$122,399 C=$0	7
2008		NA	NA	NA	NA		
2006		$950K	882	$80K	3		
2006	2012					NA	NA
2005	2011	NA	NA	NA	NA		
						R=$24,902,761 C=$7,775,364	1,183
						R=$31,207,320 C=$8,389,386	1,038

						R=$498,105,303 C=$40,429,167	11,231
2008		NA	NA	NA	13		
2006	2012	$40.55K	1,586	NA	8		
						R=262,630,066 C=$186,321,779	4,471
						R=0; C=$0	0
						R=0; C=$0	0
						R=$623,671,365 C=$40,303,575	8,346
2005	2011	$400M	262	NA			
						R=$57,693,923 C=$30,011,517	1,984
						R=$1,055,814,324 C=$973,513,449	28,190
						R=$1,350,996,743 C=$127,364,582	33,440
2007		NA	NA	NA	NA		
2005	2012	2	1	NA			
						R=$0; C=$0	0
						R=$0; C=$0	0
						R=$0; C=$0	0
						R=$0; C=$0	0
						R=$31,386,736 C=$2,123,057	2,443
2004	2010	$4,747,416	NA	NA	3	$36.56M	1 fatality
						Moderate-High	Moderate
						Moderate-High	Moderate
						Moderate-High	Moderate
						Moderate-High	Moderate
						Moderate-High	Moderate
2006		NA	NA	NA	NA		
2005	2012	$20-$50K	Low	NA	1	Low	Low
2004	2011	$10-$15M	Low	NA	1	$2.32M	NA
2008		NA	NA	NA	NA		
2006	2012	$82.6M	Moderate	High	3	$8.2M	2
						Moderate	NA

						High	NA
						High	NA
2003	2008					2 structures	0
						Low	Low
						Low	Low
2006	2012					NA	NA
2005	2011					NA	NA
2007	2011					31 structures	Low
2004	2012	Low	Low	NA		$559M; High	High
2006						Low	NA
2005	2012	$1-$2M	Moderate	NA	1		
						Very Low	Very Low
						Very Low	Very Low
						Very Low	Very Low
						Very Low	Very Low
						Very Low	Very Low
2006		NA	NA	NA	NA		
2004		NA	NA	NA	13		
2007		86 structures	Low	Low	3		
2012							
		R=$15,659,095 C=$7,776,054	544	NA	13		
		R=$28,632,062 C=$24,082,081	1,048	NA	13		
		R=$43,655,598 C=$21,722,279	1,313	NA	13		
		R=$313,552,890 C=$40,004,572	6,507	NA	13		
2003	2008						

						Low-Moderate	Low
						Low-Moderate	Low
						Low-Moderate	Low
						Low-Moderate	Low
						Low-Moderate	Low
2004	2010	$300K	100-300	High	3		
						NA	457
						NA	0
2010		11 structures	2	$5.2M	3		
		Moderate	Moderate	NA	3		
		Moderate	Moderate	NA	3		
2005	2010					NA	NA
2006		NA	NA	NA	NA		
2007		High	High	NA	2		
2007		7 structures	Low	$20K	3		
2003	2008					18 structures	Low
						Low-Moderate	Low
						Low-Moderate	Low
						Low-Moderate	Low
						Low-Moderate	Low
						Low-Moderate	Low
2007		NA	NA	NA	NA		
2006		NA	NA	NA	NA		
2005	2012					$0	Low
2008		NA	NA	NA	NA		
2008	2010					NA	NA
2007						NA	NA
2004	2012	NA	NA	NA	NA	$409M	14
2008		NA	NA	NA	NA		
2008		NA	NA	NA	NA		
2006		$81.4M	3,911	NA	8		

Estimated Economic Loss from Local Plan	Reference	Estimate Building Loss/Exposure from 2010 State Plan	Estimated Societal Loss from 2010 State Plan - Below Poverty in Hazard Area	Estimated Societal Loss from 2010 State Plan - >65 in Hazard Area	Estimated Societal Loss from 2010 State Plan - <18 in Hazard Area	Estimate Building Loss/Exposure from 2013 State Plan	Estimated Societal Loss from 2013 State Plan - Total in Hazard Area	Estimated Societal Loss from 2013 State Plan - <18 in Hazard Area
NA	3							
Moderate-High	3							
Moderate-High	3							
Moderate-High	3							
NA	NA							
NA	3							
Moderate-High	3							
Moderate-High	3							
$34.14M	2							
Low	11							
$4.17M	2							
$70K	3							
Low-Moderate	3							
Low-Moderate	3							
Low-Moderate	3							

NA	NA							
NA	3							
Low	3							
Low	3							
Low	3							
Low	3							
Low	3							
Low	3							
		$1,858,440	NA	NA	NA			
Moderate	7	$2,322,340	NA	NA	NA			
Low	3							
NA	13							
NA	13							
NA	13							
NA	NA							
		$232,300	NA	NA	NA			
NA	13							
NA	13							

NA	13							
		$427,200	NA	NA	NA			
NA	13							
NA	13							
NA	13							
NA	13							
		$1,211,910.00	NA	NA	NA			
NA	13							
NA	13							
NA	13							
NA	13							
NA	13							
NA	13							
NA	13							
NA	13							
NA	3	$225,460	NA	NA	NA			
Moderate-High	3							
Moderate-High	3							
Moderate-High	3							
Moderate-High	3							
Moderate-High	3							
NA	1							
NA	1	$1,460,130	NA	NA	NA			
NA	3							
NA	3							

NA	3							
NA	3							
$10K	3							
Low-Moderate	3							
Low-Moderate	3							
NA	NA							
NA	NA							
$120K	3							
$7.1M	9							
NA	11							
		$315,920	NA	NA	NA			
NA	1							
NA	1							
NA	1							
NA	1							
NA	1							

Low-Moderate	3							
Low-Moderate	3							
Low-Moderate	3							
Low-Moderate	3							
Low-Moderate	3							
		$548,820	NA	NA	NA			
$645,113,110	13							
$3,371,707	13							
NA	NA							
$110K	3							
Low-Moderate	3							
Low-Moderate	3							
Low-Moderate	3							
Low-Moderate	3							
Low-Moderate	3							
NA	1							
NA	NA							
NA	NA							
NA	9							

DES District	Geography	Census 2000	Census 2010	% Change 2000 to 2010	# Building Permits (2002 to 2011)	2011
	Montana	902,200	989,415	9.67%		998,199
3	**Beaverhead County**	9,192	9,246	0.59%		9,198
	Dillon city	3,752	4,134	10.18%		4,113
	Lima town	242	221	-8.68%		220
	Balance of Beaverhead County	5,198	4,891	-5.91%		4,865
5	**Big Horn County**	12,676	12,865	1.49%		13,093
	Hardin city	3,384	3,505	3.58%		3,567
	Lodge Grass town	510	428	-16.08%		436
	Balance of Big Horn County	8,782	8,932	1.71%		9,090
2	**Blaine County**	7,009	6,491	-7.39%		6,565
	Chinook city	1,386	1,203	-13.20%		1,216
	Harlem city	848	808	-4.72%		818
	Balance of Blaine County	4,775	4,480	-6.18%		4,531
3	**Broadwater County**	4,380	5,612	28.13%		5,752
	Townsend city	1,867	1,878	0.59%		1,924
	Balance of Broadwater County	2,513	3,734	48.59%		3,828
5	**Carbon County**	9,545	10,078	5.58%		10,028
	Bearcreek town	83	79	-4.82%		79
	Bridger town	745	708	-4.97%		704
	Fromberg town	486	438	-9.88%		436
	Joliet town	575	595	3.48%		593
	Red Lodge city	2,177	2,125	-2.39%		2,114
	Balance of Carbon County	5,479	6,133	11.94%		6,102
4	**Carter County**	1,358	1,160	-14.58%		1,152
	Ekalaka town	410	332	-19.02%		329
	Balance of Carter County	948	828	-12.66%		823
2	**Cascade County**	80,356	81,327	1.21%		81,837
	Belt city	633	597	-5.69%		600
	Cascade town	819	685	-16.36%		690
	Great Falls city	56,690	58,505	3.20%		58,950
	Neihart town	91	51	-43.96%		51
	Balance of Cascade County	22,123	21,489	-2.87%		21,546
2	**Chouteau County**	5,962	5,813	-2.50%		5,793
	Big Sandy town	703	598	-14.94%		595
	Fort Benton city	1,594	1,464	-8.16%		1,460
	Geraldine town	284	261	-8.10%		260
	Balance of Chouteau County	3,381	3,490	3.22%		3,478

4	**Custer County**	11,694	11,699	0.04%		11,752
	Ismay town	26	19	-26.92%		19
	Miles City city	8,487	8,410	-0.91%		8,438
	Balance of Custer County	3,181	3,270	2.80%		3,295
6	**Daniels County**	2,017	1,751	-13.19%		1,763
	Flaxville town	87	71	-18.39%		72
	Scobey city	1,082	1,017	-6.01%		1,023
	Balance of Daniels County	848	663	-21.82%		668
4	**Dawson County**	9,059	8,966	-1.03%		8,989
	Glendive city	4,729	4,935	4.36%		4,947
	Richey town	189	177	-6.35%		178
	Balance of Dawson County	4,141	3,854	-6.93%		3,864
1	**Deer Lodge County**	9,416	9,298	-1.25%		9,299
	Anaconda-Deer Lodge County	9,416	9,298	-1.25%		9,299
4	**Fallon County**	2,835	2,890	1.94%		2,956
	Baker city	1,695	1,741	2.71%		1,780
	Plevna town	138	162	17.39%		166
	Balance of Fallon County	1,002	987	-1.50%		1,010
6	**Fergus County**	11,905	11,586	-2.68%		11,506
	Denton town	301	255	-15.28%		254
	Grass Range town	149	110	-26.17%		109
	Lewistown city	5,813	5,901	1.51%		5,858
	Moore town	186	193	3.76%		191
	Winifred town	156	208	33.33%		208
	Balance of Fergus County	5,300	4,919	-7.19%		4,886
1	**Flathead County**	74,507	90,928	22.04%		91,301
	Columbia Falls city	3,645	4,688	28.61%		4,707
	Kalispell city	14,223	19,927	40.10%		20,008
	Whitefish city	5,032	6,357	26.33%		6,384
	Balance of Flathead County	51,607	59,956	16.18%		60,202
3	**Gallatin County**	67,837	89,513	31.95%		91,377
	Belgrade city	5,728	7,389	29.00%		7,549
	Bozeman city	27,509	37,280	35.52%		38,025
	Manhattan town	1,396	1,520	8.88%		1,553
	Three Forks city	1,728	1,869	8.16%		1,909
	West Yellowstone town	1,177	1,271	7.99%		1,298
	Balance of Gallatin County	30,299	40,184	32.62%		41,043
4	**Garfield County**	1,279	1,206	-5.71%		1,251
	Jordan town	364	343	-5.77%		355
	Balance of Garfield County	915	863	-5.68%		896
2	**Glacier County**	13,240	13,399	1.20%		13,624
	Browning town	1,065	1,016	-4.60%		1,026
	Cut Bank city	3,105	2,869	-7.60%		2,919
	Balance of Glacier County	9,070	9,514	4.90%		9,679
5	**Golden Valley County**	1,040	884	-15.00%		865
	Lavina town	209	187	-10.53%		182
	Ryegate town	268	245	-8.58%		240
	Balance of Golden Valley County	563	452	-19.72%		443
1	**Granite County**	2,841	3,079	8.38%		3,068
	Drummond town	318	309	-2.83%		307
	Philipsburg town	914	820	-10.28%		818

	Balance of Granite County	1,609	1,950	21.19%		1,943
2	**Hill County**	16,671	16,096	-3.45%		16,397
	Havre city	9,621	9,310	-3.23%		9,600
	Hingham town	157	118	-24.84%		121
	Balance of Hill County	6,893	6,668	-3.26%		6,676
3	**Jefferson County**	10,034	11,406	13.67%		11,381
	Boulder town	1,300	1,183	-9.00%		1,181
	Whitehall town	1,044	1,038	-0.57%		1,035
	Balance of Jefferson County	7,690	9,185	19.44%		9,165
6	**Judith Basin County**	2,326	2,072	-10.92%		2,004
	Hobson town	244	215	-11.89%		208
	Stanford town	454	401	-11.67%		389
	Balance of Judith Basin County	1,628	1,456	-10.57%		1,407
1	**Lake County**	26,482	28,746	8.55%		28,947
	Polson city	4,041	4,488	11.06%		4,524
	Ronan city	1,812	1,871	3.26%		1,883
	St. Ignatius town	788	842	6.85%		849
	Balance of Lake County	19,841	21,545	8.59%		21,691
3	**Lewis and Clark County**	55,716	63,395	13.78%		64,318
	East Helena town	1,642	1,984	20.83%		2,041
	Helena city	25,780	28,190	9.35%		28,592
	Balance of Lewis and Clark County	28,294	33,221	17.41%		33,685
2	**Liberty County**	2,158	2,339	8.39%		2,402
	Chester town	871	847	-2.76%		874
	Balance of Liberty County	1,287	1,492	15.93%		1,528
1	**Lincoln County**	18,820	19,687	4.61%		19,566
	Eureka town	1,017	1,037	1.97%		1,031
	Libby city	2,626	2,628	0.08%		2,612
	Rexford town	151	105	-30.46%		104
	Troy city	957	938	-1.99%		933
	Balance of Lincoln County	14,069	14,979	6.47%		14,886
3	**Madison County**	6,848	7,691	12.31%		7,660
	Ennis town	840	838	-0.24%		835
	Sheridan town	659	642	-2.58%		639
	Twin Bridges town	400	375	-6.25%		373
	Virginia City town	130	190	46.15%		190
	Balance of Madison County	4,819	5,646	17.16%		5,623

4	**McCone County**	1,971	1,734	-12.02%		1,711
	Circle town	644	615	-4.50%		607
	Balance of McCone County	1,327	1,119	-15.67%		1,104
3	**Meagher County**	1,928	1,891	-1.92%		1,911
	White Sulphur Springs city	984	939	-4.57%		950
	Balance of Meagher County	944	952	0.85%		961
1	**Mineral County**	3,871	4,223	9.09%		4,208
	Alberton town	374	420	12.30%		417
	Superior town	893	812	-9.07%		810
	Balance of Mineral County	2,604	2,991	14.86%		2,981
1	**Missoula County**	95,803	109,299	14.09%		110,138
	Missoula city	57,053	66,788	17.06%		67,290
	Balance of Missoula County	38,750	42,511	9.71%		42,848
5	**Musselshell County**	4,492	4,538	1.02%		4,701
	Melstone town	136	96	-29.41%		99
	Roundup city	1,931	1,788	-7.41%		1,853
	Balance of Musselshell County	2,425	2,654	9.44%		2,749
3	**Park County**	15,694	15,636	-0.37%		15,469
	Clyde Park town	310	288	-7.10%		286
	Livingston city	6,851	7,044	2.82%		6,969
	Balance of Park County	8,533	8,304	-2.68%		8,214
6	**Petroleum County**	493	494	0.20%		491
	Winnett town	185	182	-1.62%		181
	Balance of Petroleum County	308	312	1.30%		310
6	**Phillips County**	4,601	4,253	-7.56%		4,250
	Dodson town	122	124	1.64%		123
	Malta city	2,120	1,997	-5.80%		1,993
	Saco town	224	197	-12.05%		197
	Balance of Phillips County	2,135	1,935	-9.37%		1,937
2	**Pondera County**	6,425	6,153	-4.23%		6,257
	Conrad city	2,753	2,570	-6.65%		2,616
	Valier town	498	509	2.21%		518
	Balance of Pondera County	3,174	3,074	-3.15%		3,123
4	**Powder River County**	1,858	1,743	-6.19%		1,738
	Broadus town	451	468	3.77%		468
	Balance of Powder River County	1,407	1,275	-9.38%		1,270
1	**Powell County**	7,185	7,027	-2.20%		7,063
	Deer Lodge city	3,421	3,111	-9.06%		3,130
	Balance of Powell County	3,764	3,916	4.04%		3,933
4	**Prairie County**	1,199	1,179	-1.67%		1,159
	Terry town	611	605	-0.98%		594
	Balance of Prairie County	588	574	-2.38%		565
1	**Ravalli County**	36,093	40,212	11.41%		40,450
	Darby town	710	720	1.41%		724
	Hamilton city	3,705	4,348	17.35%		4,374
	Pinesdale town	742	917	23.58%		924
	Stevensville town	1,553	1,809	16.48%		1,820

	Balance of Ravalli County	29,383	32,418	10.33%		32,608
4	**Richland County**	9,666	9,746	0.83%		10,128
	Fairview town	709	840	18.48%		872
	Sidney city	4,774	5,191	8.73%		5,436
	Balance of Richland County	4,183	3,715	-11.19%		3,820
6	**Roosevelt County**	10,632	10,425	-1.95%		10,527
	Bainville town	153	208	35.95%		210
	Brockton town	245	255	4.08%		258
	Culbertson town	716	714	-0.28%		721
	Froid town	195	185	-5.13%		187
	Poplar city	911	810	-11.09%		819
	Wolf Point city	2,663	2,621	-1.58%		2,646
	Balance of Roosevelt County	5,749	5,632	-2.04%		5,686
5	**Rosebud County**	9,389	9,233	-1.66%		9,379
	Colstrip city	2,346	2,214	-5.63%		2,248
	Forsyth city	1,944	1,777	-8.59%		1,886
	Balance of Rosebud County	5,099	5,242	2.80%		5,245
1	**Sanders County**	10,238	11,413	11.48%		11,440
	Hot Springs town	531	544	2.45%		545
	Plains town	1,126	1,048	-6.93%		1,050
	Thompson Falls city	1,321	1,313	-0.61%		1,317
	Balance of Sanders County	7,260	8,508	17.19%		8,528
6	**Sheridan County**	4,105	3,384	-17.56%		3,460
	Medicine Lake town	269	225	-16.36%		230
	Outlook town	82	47	-42.68%		48
	Plentywood city	2,061	1,734	-15.87%		1,772
	Westby town	172	168	-2.33%		171
	Balance of Sheridan County	1,521	1,210	-20.45%		1,239
1	**Silver Bow County**	34,625	34,200	-1.23%		34,383
	Butte-Silver Bow (remainder)	33,911	33,525	-1.14%		33,704
	Walkerville town	714	675	-5.46%		679
5	**Stillwater County**	8,221	9,117	10.90%		9,131
	Columbus town	1,748	1,893	8.30%		1,896
	Balance of Stillwater County	6,473	7,224	11.60%		7,235
3	**Sweet Grass County**	3,601	3,651	1.39%		3,623
	Big Timber city	1,650	1,641	-0.55%		1,629
	Balance of Sweet Grass County	1,951	2,010	3.02%		1,994
2	**Teton County**	6,449	6,073	-5.83%		6,091
	Choteau city	1,781	1,684	-5.45%		1,690
	Dutton town	389	316	-18.77%		316
	Fairfield town	659	708	7.44%		710
	Balance of Teton County	3,620	3,365	-7.04%		3,375
2	**Toole County**	5,255	5,324	1.31%		5,239
	Kevin town	178	154	-13.48%		151
	Shelby city	3,216	3,376	4.98%		3,326
	Sunburst town	415	375	-9.64%		375
	Balance of Toole County	1,446	1,419	-1.87%		1,387

5	**Treasure County**	857	718	-16.22%		727
	Hysham town	330	312	-5.45%		316
	Balance of Treasure County	527	406	-22.96%		411
6	**Valley County**	7,673	7,369	-3.96%		7,487
	Fort Peck town	240	233	-2.92%		237
	Glasgow city	3,253	3,250	-0.09%		3,301
	Nashua town	325	290	-10.77%		295
	Opheim town	111	85	-23.42%		86
	Balance of Valley County	3,744	3,511	-6.22%		3,568
5	**Wheatland County**	2,259	2,168	-4.03%		2,140
	Harlowton city	1,062	997	-6.12%		984
	Judith Gap city	164	126	-23.17%		124
	Balance of Wheatland County	1,033	1,045	1.16%		1,032
4	**Wibaux County**	1,067	1,017	-4.69%		985
	Wibaux town	567	589	3.88%		571
	Balance of Wibaux County	500	428	-14.40%		414
5	**Yellowstone County**	129,347	147,972	14.40%		150,069
	Billings city	89,847	104,170	15.94%		105,636
	Broadview town	150	192	28.00%		194
	Laurel city	6,255	6,718	7.40%		6,814
	Balance of Yellowstone County	33,095	36,892	11.47%		37,425
2	**Blackfeet Indian Reservation**	10,100	10,405	3.02%		
2	**Rocky Boy's Indian Reservation**	2,676	3,323	24.18%		
2	**Fort Belknap Indian Reservation**	2,959	2,851	-3.65%		
6	**Fort Peck Indian Reservation**	10,321	10,008	-3.03%		
5	**Crow Indian Reservation**	6,894	6,863	-0.45%		
5	**Northern Cheyenne Indian Reservation**	4,470	4,789	7.14%		
1	**Flathead Indian Reservation**	26,172	28,359	8.36%		

NOTES: R = Residential

C = Commercial/Agricultural/Industrial
CF = Critical Facilities
AL = Annual Loss
M = Million
K = Thousand
B = Billion

NA = Not Analyzed or Not Quantitied

R

Original Local Plan FEMA Approval Date	Local Plan Update FEMA Approval Date	Estimated Building Loss/ Exposure from Local Plan	Estimated Societal Loss/ Exposure from Local Plan	Estimated Economic Loss from Local Plan	Reference	Estimated Building Loss/ Exposure from Local Plan
2004	2010					826 mobile homes
						Moderate
						Moderate
						Moderate
2006		NA	NA	NA	NA	
2006	2012					
						RAL=$3,077 CAL=$1,514
						RAL=$999 CAL=$781
						RAL=$6,169 CAL=$1,654
2004	2009					$385,750
						Moderate
						Moderate
2006	2012					NA
2005	2012					Moderate
2012						
		RAL=$544 CAL=$1,622	597	NA	13	
		RAL=$759 CAL=$339	685	NA	13	
		RAL=$764,527 CAL=$123,801	58,505	NA	13	
		RAL=$508 CAL=$47	51	NA	13	
		RAL=$38,252 CAL=$6,358	21,670	NA	13	
2010		$191M	NA	$69.4M	5	

2005	2012	Moderate	Moderate	NA	2	NA
2003	2008					$203K
						Moderate-High
						Moderate-High
						Moderate-High
2006		NA	NA	NA	NA	
2005		$318K; Moderate	Moderate	Low	3	
2006	2012	$50K	NA	Millions	11	$2.5M; Moderate-High
2008						$4M
2009		Very High	Moderate	NA	6	
2006	2012	Moderate	Moderate	Moderate	7	Moderate
2007		$156K	396; Moderate-High	Moderate	3	
2005	2012	NA	NA	NA	NA	
						RAL=$3,771 CAL=$5,360
						RAL=$79,454 CAL=$37,399
						RAL=$18,894 CAL=$13,950
2008						
		$28K	<1	NA	13	
		$22.5K	<1	NA	13	
		$152K	83	NA	13	
2006		$352K	Low	Moderate	3	

2006	2012	$3,363,667	60	NA	13	
						RAL=$92,331 CAL=$31,969
						RAL=$1,343 CAL=$501
						RAL=$63,881 CAL=$35,691
2005	2011					
						RAL=$851 CAL=$266
						RAL=$1,066 CAL=$287
						RAL=$17,583 CAL=$1,390
2008						
		$13.2M	244	NA	13	
		$29M	454	NA	13	
		$148.8M	2,329	NA	13	
2006	2012					
						RAL=$5,871 CAL=$4,147
						RAL=$1,514 CAL=$2,472
						RAL=$623 CAL=$255
						RAL=$42,215 CAL=3,395
2005	2011	NA	NA	NA	NA	
						RAL=$1,954 CAL=$1,016
						RAL=$35,758 CAL=$32,971
						RAL=$51,405 CAL=$4,807
2007		Medium	Medium	NA	2	
2005	2012					
						RAL=$1,494 CAL=$665
						RAL=$4,268 CAL=$3,250
						RAL=$131 CAL=$52
						RAL=$1,032 CAL=$558
						RAL=38,405 CAL=4,950
2004	2010					$470K
						Moderate
						Moderate
						Moderate
						Moderate
						Moderate

2006		NA	NA	NA	NA	
2005	2012					
						Low
						Low
						Low
2004	2011					$1,88M; AL=$63K
2008						
		$30.5K	<1	NA	13	
		$561K	6	NA	13	
		$994K	18	NA	13	
2006	2012					$2.5M; Moderate-High
2003	2008					$262K
						Moderate-High
						Moderate-High
2006	2012					
						RAL=$14,933 CA=$3,284
						RAL=$510,440 CAL=$437,839
						RAL=$48,663 CAL=$22,545
						RAL=$624,474 CAL=$199,450
2005	2011					
						RAL=$45,705 CAL=$20,664
						RAL=$9,214 CAL=$2,997
						RAL=$56,226 CAL=$23,868
2007	2011					$269K
2004	2012					NA
2006						$70.6M; High
2005	2012	$500K-$1M	Moderate	NA	1	$2.3M; AL=$138K
						High
						High
						High
						High

						High
2006		NA	NA	NA	NA	
2004						
		$9.66M	201	NA	13	
		$11.5M	303	NA	13	
		$34.6M	717	NA	13	
		$10M	199	NA	13	
		$58.8M	1,734	NA	13	
		$138.5M	3,529	NA	13	
		$479.1M	12,578	NA	13	
2007		$300K	2,408	Moderate	3	
2012						
		RAL=$889 CAL=$442	544	NA	13	
		RAL=$1,626 CAL=$1,368	1,048	NA	13	
		RAL=$2,479 CAL=$1,234	1,313	NA	13	
		RAL=$29,166 CAL=$4,007	8,508	NA	13	
2003	2008					$206K
						Moderate-High
						Moderate-High
						Moderate-High
						Moderate-High
						Moderate-High
2004	2010	$337K	Low	Low	3	
						$4,330,461,000
						$14,070,000
2010		$460K	1,585	NA	3	
		Moderate-High	Moderate-High	NA	3	
		Moderate-High	Moderate-High	NA	3	
2005	2010					NA
2006		NA	NA	NA	NA	
2007		Medium	Low	NA	2	

2007		$183K	255	Moderate	3	
2003	2008					$267K
						Moderate-High
						Moderate-High
						Moderate-High
						Moderate-High
						Moderate-High
2007						
		$234.3K	4	NA	13	
		$30K	10	NA	13	
		$623K	8	NA	13	
2006		NA	NA	NA	NA	
2005	2012	NA	NA	NA	NA	$1.8M
2008		$2M	54	NA	13	
2008	2010					RAL=$6,446 CFAL=$3,829
2007		$299K	7	NA	13	
2004	2012					Moderate
2008		NA	NA	NA	NA	
2008		NA	NA	NA	NA	
2006		NA	NA	NA	NA	

:EFERENCES: 1 = Atkins
2 = Beck Consulting
3 = Big Sky Hazard Management
4 = Cossitt Consulting
5 = Fire Logistics, Inc.
6 = Flathead County/Hydrometrics
7 = Gallatin County
8 = Rick Gould
9 = Morrison-Maierle
10 = Northwest Management Inc.
11 = Single Tree Consulting
12 = Sweet Grass County

Estimated Societal Loss/ Exposure from Local Plan	Estimated Economic Loss from Local Plan	Reference	Estimate Building Loss/Exposure from 2010 State Plan	Estimated Societal Loss from 2010 State Plan - Below Poverty in Hazard Area	Estimated Societal Loss from 2010 State Plan - >65 in Hazard Area	Estimated Societal Loss from 2010 State Plan - <18 in Hazard Area
1900	NA	3	$691	1,491	1,232	2,257
Moderate	Moderate	3				
Moderate	Moderate	3				
Moderate	Moderate	3				
			$271,356	3,632	1,042	4,549
			$215,678	1,951	902	2,281
1,203	NA	13				
808	NA	13				
4,480	NA	13				
752	$19M	3	$1,551	466	720	1,108
Moderate	Moderate	3				
Moderate	Moderate	3				
NA	$20,000	2	$865	1,089	1,616	2,295
Low	Moderate	11	$8,908	242	242	359
			$33,434	10,605	11,313	20,857
			$339,833	1,191	1,039	1,721

NA	NA	2	$102,497	1,700	1,996	2,914
114	NA	3	$7,834	334	476	449
Moderate	Moderate	3				
Moderate	Moderate	3				
Moderate	Moderate	3				
			$13,618	1,285	1,597	2,114
			$20,955	1,451	1,775	2,090
0	NA	11	$6,217	349	509	728
NA	High	3	$29,751	1,767	2,370	2,913
			$111,730	9,489	9,618	19,238
Moderate	Moderate	7	$28,595	8,319	5,781	14,816
			$108,516	272	247	319
			$205,333	3,568	1,252	4,661
1,016	NA	13				
2,869	NA	13				
986	NA	13				
			$2,950	253	171	290
			$3,945	472	445	693

			$60,488	2,996	2,128	4,684
9,310	NA	13				
118	NA	13				
7,374	NA	13				
			$2,294	882	1,027	2,795
1,183	NA	13				
1,038	NA	13				
11,406	NA	13				
			$31,561	490	400	629
			$2,051	4,862	3,855	7,434
4,488	NA	13				
1,871	NA	13				
842	NA	13				
21,545	NA	13				
			$63,422	5,960	6,535	14,250
1,984	NA	13				
28,190	NA	13				
33,440	NA	13				
			$57,940	425	421	561
			$13,082	3,558	2,849	4,751
1,037	NA	13				
2,628	NA	13				
105	NA	13				
938	NA	13				
14,983	NA	13				
1,075	NA	3	$20,019	821	1,180	1,571
Moderate	Low-Moderate	3				
Moderate	Low-Moderate	3				
Moderate	Low-Moderate	3				
Moderate	Low-Moderate	3				
Moderate	Low-Moderate	3				

			$314,882	331	374	489
			$3,002	359	353	487
			$2,273	598	549	936
High	NA	1				
High	NA	1				
High	NA	1				
High	NA	1	$93,168	13,691	9,694	21,875
			$13,130	877	785	1,062
Moderate	Moderate-High	3	$36,891	1,780	2,329	3,665
95	NA	3	$4,120	114	81	127
Moderate-High	Moderate	3				
Moderate-High	Moderate	3				
			$187,305	828	801	1,248
124	NA	13				
1,997	NA	13				
197	NA	13				
2,062	NA	13				
			$39,841	1,194	1,037	1,898
2,570	NA	13				
509	NA	13				
3,672	NA	13				
614	Moderate	3	$42,427	235	340	498
NA	NA	NA	$4,007	719	1,030	1,526
NA	NA	11	$10,159	202	290	230
Moderate	NA	1	$2,323	4,927	5,557	9,287
Moderate	NA	1				
Moderate	NA	1				
Moderate	NA	1				
Moderate	NA	1				

Moderate	NA	1				
			$423,226	1,161	1,513	2,642
			$55,868	3,358	1,228	3,670
			$327,805	2,063	820	3,146
			$3,083	1,737	1,727	2,426
433	Moderate	3	$18,210	602	966	921
Moderate	Moderate	3				
Moderate	Moderate	3				
Moderate	Moderate	3				
Moderate	Moderate	3				
Moderate	Moderate	3				
			$14,660	5,005	5,499	8,198
<18=8,017 >65=5,452 <Poverty=4,920						
<18=8,017 >65=5,452 <Poverty=4,920						
			$2,557	791	1,187	2,062
NA	NA	NA	$4,812	403	634	931
			$60,721	1,056	1,087	1,758
			$72,279	624	826	1,347

			$1,595	125	144	236
530	Moderate	3	$191,469	1,026	1,459	1,937
Moderate	Moderate	3				
Moderate	Moderate	3				
Moderate	Moderate	3				
Moderate	Moderate	3				
Moderate	Moderate	3				
			$10,719	440	432	602
			$2,835	157	228	277
Very High	NA	1	$578,737	14,032	17,223	33,136
<16=1,059 >64=133 <Poverty=1,068	NA	13				
NA	NA	9				

Estimate Building Loss/Exposure from 2013 State Plan	Estimated Societal Loss from 2013 State Plan - Total in Hazard Area	Estimated Societal Loss from 2013 State Plan - <18 in Hazard Area	# Incidents	Period of Record 1960-2011	Total Property Damage
			24	52	$809,651
			41	52	$3,026,524
			41	52	$3,601,679
			26	52	$1,270,508
			29	52	$449,582
			29	52	$1,586,963
			74	52	$11,121,610
			61	52	$4,734,775

			61	52	$4,841,401
			47	52	$1,570,078
			66	52	$8,734,440
			26	52	$330,202
			33	52	$1,087,988
			77	52	$8,423,412
			55	52	$2,022,421
			37	52	$63,359,620
			53	52	$1,597,249
			50	52	$897,645
			19	52	$1,144,903
			26	52	$1,262,429

			64	52	$2,908,953
			20	52	$1,243,049
			44	52	$1,876,429
			37	52	$1,562,674
			56	52	$15,437,367
			47	52	$1,803,142
			26	52	$2,598,009
			20	52	$463,663

			68	52	$4,205,403
			29	52	$1,256,301
			15	52	$790,545
			42	52	$2,521,069
			26	52	$416,888
			28	52	$33,882,971
			26	52	$1,442,558
			71	52	$2,910,842
			47	52	$1,522,102
			38	52	$2,749,905
			23	52	$1,341,773
			47	52	$1,783,349
			35	52	$3,364,551

			74	52	$7,255,063
			81	52	$8,419,555
			45	52	$4,510,751
			23	52	$442,966
			52	52	$2,940,381
			62	52	$1,209,129
			18	52	$323,668
			19	52	$327,347
			59	52	$1,727,408
			50	52	$1,438,131

			27	52	$1,433,099
			126	52	$20,586,921
			25	52	$1,492,893
			47	52	$2,342,790
			64	52	$28,495,573

DES District	Geography	Census 2000	Census 2010	% Change 2000 to 2010	# Building Permits (2002 to 2011)	2011
	Montana	902,200	989,415	9.67%		998,199
3	**Beaverhead County**	9,192	9,246	0.59%		9,198
	Dillon city	3,752	4,134	10.18%		4,113
	Lima town	242	221	-8.68%		220
	Balance of Beaverhead County	5,198	4,891	-5.91%		4,865
5	**Big Horn County**	12,676	12,865	1.49%		13,093
	Hardin city	3,384	3,505	3.58%		3,567
	Lodge Grass town	510	428	-16.08%		436
	Balance of Big Horn County	8,782	8,932	1.71%		9,090
2	**Blaine County**	7,009	6,491	-7.39%		6,565
	Chinook city	1,386	1,203	-13.20%		1,216
	Harlem city	848	808	-4.72%		818
	Balance of Blaine County	4,775	4,480	-6.18%		4,531
3	**Broadwater County**	4,380	5,612	28.13%		5,752
	Townsend city	1,867	1,878	0.59%		1,924
	Balance of Broadwater County	2,513	3,734	48.59%		3,828
5	**Carbon County**	9,545	10,078	5.58%		10,028
	Bearcreek town	83	79	-4.82%		79
	Bridger town	745	708	-4.97%		704
	Fromberg town	486	438	-9.88%		436
	Joliet town	575	595	3.48%		593
	Red Lodge city	2,177	2,125	-2.39%		2,114
	Balance of Carbon County	5,479	6,133	11.94%		6,102
4	**Carter County**	1,358	1,160	-14.58%		1,152
	Ekalaka town	410	332	-19.02%		329
	Balance of Carter County	948	828	-12.66%		823
2	**Cascade County**	80,356	81,327	1.21%		81,837
	Belt city	633	597	-5.69%		600
	Cascade town	819	685	-16.36%		690
	Great Falls city	56,690	58,505	3.20%		58,950
	Neihart town	91	51	-43.96%		51
	Balance of Cascade County	22,123	21,489	-2.87%		21,546
2	**Chouteau County**	5,962	5,813	-2.50%		5,793
	Big Sandy town	703	598	-14.94%		595
	Fort Benton city	1,594	1,464	-8.16%		1,460
	Geraldine town	284	261	-8.10%		260
	Balance of Chouteau County	3,381	3,490	3.22%		3,478
4	**Custer County**	11,694	11,699	0.04%		11,752

	Ismay town	26	19	-26.92%		19
	Miles City city	8,487	8,410	-0.91%		8,438
	Balance of Custer County	3,181	3,270	2.80%		3,295
6	**Daniels County**	2,017	1,751	-13.19%		1,763
	Flaxville town	87	71	-18.39%		72
	Scobey city	1,082	1,017	-6.01%		1,023
	Balance of Daniels County	848	663	-21.82%		668
4	**Dawson County**	9,059	8,966	-1.03%		8,989
	Glendive city	4,729	4,935	4.36%		4,947
	Richey town	189	177	-6.35%		178
	Balance of Dawson County	4,141	3,854	-6.93%		3,864
1	**Deer Lodge County**	9,416	9,298	-1.25%		9,299
	Anaconda-Deer Lodge County	9,416	9,298	-1.25%		9,299
4	**Fallon County**	2,835	2,890	1.94%		2,956
	Baker city	1,695	1,741	2.71%		1,780
	Plevna town	138	162	17.39%		166
	Balance of Fallon County	1,002	987	-1.50%		1,010
6	**Fergus County**	11,905	11,586	-2.68%		11,506
	Denton town	301	255	-15.28%		254
	Grass Range town	149	110	-26.17%		109
	Lewistown city	5,813	5,901	1.51%		5,858
	Moore town	186	193	3.76%		191
	Winifred town	156	208	33.33%		208
	Balance of Fergus County	5,300	4,919	-7.19%		4,886
1	**Flathead County**	74,507	90,928	22.04%		91,301
	Columbia Falls city	3,645	4,688	28.61%		4,707
	Kalispell city	14,223	19,927	40.10%		20,008
	Whitefish city	5,032	6,357	26.33%		6,384
	Balance of Flathead County	51,607	59,956	16.18%		60,202
3	**Gallatin County**	67,837	89,513	31.95%		91,377
	Belgrade city	5,728	7,389	29.00%		7,549
	Bozeman city	27,509	37,280	35.52%		38,025
	Manhattan town	1,396	1,520	8.88%		1,553
	Three Forks city	1,728	1,869	8.16%		1,909
	West Yellowstone town	1,177	1,271	7.99%		1,298
	Balance of Gallatin County	30,299	40,184	32.62%		41,043
4	**Garfield County**	1,279	1,206	-5.71%		1,251
	Jordan town	364	343	-5.77%		355
	Balance of Garfield County	915	863	-5.68%		896
2	**Glacier County**	13,240	13,399	1.20%		13,624
	Browning town	1,065	1,016	-4.60%		1,026
	Cut Bank city	3,105	2,869	-7.60%		2,919
	Balance of Glacier County	9,070	9,514	4.90%		9,679
5	**Golden Valley County**	1,040	884	-15.00%		865
	Lavina town	209	187	-10.53%		182
	Ryegate town	268	245	-8.58%		240
	Balance of Golden Valley County	563	452	-19.72%		443
1	**Granite County**	2,841	3,079	8.38%		3,068
	Drummond town	318	309	-2.83%		307
	Philipsburg town	914	820	-10.28%		818
	Balance of Granite County	1,609	1,950	21.19%		1,943
2	**Hill County**	16,671	16,096	-3.45%		16,397

	Havre city	9,621	9,310	-3.23%		9,600
	Hingham town	157	118	-24.84%		121
	Balance of Hill County	6,893	6,668	-3.26%		6,676
3	**Jefferson County**	10,034	11,406	13.67%		11,381
	Boulder town	1,300	1,183	-9.00%		1,181
	Whitehall town	1,044	1,038	-0.57%		1,035
	Balance of Jefferson County	7,690	9,185	19.44%		9,165
6	**Judith Basin County**	2,326	2,072	-10.92%		2,004
	Hobson town	244	215	-11.89%		208
	Stanford town	454	401	-11.67%		389
	Balance of Judith Basin County	1,628	1,456	-10.57%		1,407
1	**Lake County**	26,482	28,746	8.55%		28,947
	Polson city	4,041	4,488	11.06%		4,524
	Ronan city	1,812	1,871	3.26%		1,883
	St. Ignatius town	788	842	6.85%		849
	Balance of Lake County	19,841	21,545	8.59%		21,691
3	**Lewis and Clark County**	55,716	63,395	13.78%		64,318
	East Helena town	1,642	1,984	20.83%		2,041
	Helena city	25,780	28,190	9.35%		28,592
	Balance of Lewis and Clark County	28,294	33,221	17.41%		33,685
2	**Liberty County**	2,158	2,339	8.39%		2,402
	Chester town	871	847	-2.76%		874
	Balance of Liberty County	1,287	1,492	15.93%		1,528
1	**Lincoln County**	18,820	19,687	4.61%		19,566
	Eureka town	1,017	1,037	1.97%		1,031
	Libby city	2,626	2,628	0.08%		2,612
	Rexford town	151	105	-30.46%		104
	Troy city	957	938	-1.99%		933
	Balance of Lincoln County	14,069	14,979	6.47%		14,886
3	**Madison County**	6,848	7,691	12.31%		7,660
	Ennis town	840	838	-0.24%		835
	Sheridan town	659	642	-2.58%		639
	Twin Bridges town	400	375	-6.25%		373
	Virginia City town	130	190	46.15%		190
	Balance of Madison County	4,819	5,646	17.16%		5,623
4	**McCone County**	1,971	1,734	-12.02%		1,711
	Circle town	644	615	-4.50%		607

	Balance of McCone County	1,327	1,119	-15.67%		1,104
3	**Meagher County**	1,928	1,891	-1.92%		1,911
	White Sulphur Springs city	984	939	-4.57%		950
	Balance of Meagher County	944	952	0.85%		961
1	**Mineral County**	3,871	4,223	9.09%		4,208
	Alberton town	374	420	12.30%		417
	Superior town	893	812	-9.07%		810
	Balance of Mineral County	2,604	2,991	14.86%		2,981
1	**Missoula County**	95,803	109,299	14.09%		110,138
	Missoula city	57,053	66,788	17.06%		67,290
	Balance of Missoula County	38,750	42,511	9.71%		42,848
5	**Musselshell County**	4,492	4,538	1.02%		4,701
	Melstone town	136	96	-29.41%		99
	Roundup city	1,931	1,788	-7.41%		1,853
	Balance of Musselshell County	2,425	2,654	9.44%		2,749
3	**Park County**	15,694	15,636	-0.37%		15,469
	Clyde Park town	310	288	-7.10%		286
	Livingston city	6,851	7,044	2.82%		6,969
	Balance of Park County	8,533	8,304	-2.68%		8,214
6	**Petroleum County**	493	494	0.20%		491
	Winnett town	185	182	-1.62%		181
	Balance of Petroleum County	308	312	1.30%		310
6	**Phillips County**	4,601	4,253	-7.56%		4,250
	Dodson town	122	124	1.64%		123
	Malta city	2,120	1,997	-5.80%		1,993
	Saco town	224	197	-12.05%		197
	Balance of Phillips County	2,135	1,935	-9.37%		1,937
2	**Pondera County**	6,425	6,153	-4.23%		6,257
	Conrad city	2,753	2,570	-6.65%		2,616
	Valier town	498	509	2.21%		518
	Balance of Pondera County	3,174	3,074	-3.15%		3,123
4	**Powder River County**	1,858	1,743	-6.19%		1,738
	Broadus town	451	468	3.77%		468
	Balance of Powder River County	1,407	1,275	-9.38%		1,270
1	**Powell County**	7,185	7,027	-2.20%		7,063
	Deer Lodge city	3,421	3,111	-9.06%		3,130
	Balance of Powell County	3,764	3,916	4.04%		3,933
4	**Prairie County**	1,199	1,179	-1.67%		1,159
	Terry town	611	605	-0.98%		594
	Balance of Prairie County	588	574	-2.38%		565
1	**Ravalli County**	36,093	40,212	11.41%		40,450
	Darby town	710	720	1.41%		724
	Hamilton city	3,705	4,348	17.35%		4,374
	Pinesdale town	742	917	23.58%		924
	Stevensville town	1,553	1,809	16.48%		1,820
	Balance of Ravalli County	29,383	32,418	10.33%		32,608
4	**Richland County**	9,666	9,746	0.83%		10,128
	Fairview town	709	840	18.48%		872

	Sidney city	4,774	5,191	8.73%		5,436
	Balance of Richland County	4,183	3,715	-11.19%		3,820
6	**Roosevelt County**	10,632	10,425	-1.95%		10,527
	Bainville town	153	208	35.95%		210
	Brockton town	245	255	4.08%		258
	Culbertson town	716	714	-0.28%		721
	Froid town	195	185	-5.13%		187
	Poplar city	911	810	-11.09%		819
	Wolf Point city	2,663	2,621	-1.58%		2,646
	Balance of Roosevelt County	5,749	5,632	-2.04%		5,686
5	**Rosebud County**	9,389	9,233	-1.66%		9,379
	Colstrip city	2,346	2,214	-5.63%		2,248
	Forsyth city	1,944	1,777	-8.59%		1,886
	Balance of Rosebud County	5,099	5,242	2.80%		5,245
1	**Sanders County**	10,238	11,413	11.48%		11,440
	Hot Springs town	531	544	2.45%		545
	Plains town	1,126	1,048	-6.93%		1,050
	Thompson Falls city	1,321	1,313	-0.61%		1,317
	Balance of Sanders County	7,260	8,508	17.19%		8,528
6	**Sheridan County**	4,105	3,384	-17.56%		3,460
	Medicine Lake town	269	225	-16.36%		230
	Outlook town	82	47	-42.68%		48
	Plentywood city	2,061	1,734	-15.87%		1,772
	Westby town	172	168	-2.33%		171
	Balance of Sheridan County	1,521	1,210	-20.45%		1,239
1	**Silver Bow County**	34,625	34,200	-1.23%		34,383
	Butte-Silver Bow (remainder)	33,911	33,525	-1.14%		33,704
	Walkerville town	714	675	-5.46%		679
5	**Stillwater County**	8,221	9,117	10.90%		9,131
	Columbus town	1,748	1,893	8.30%		1,896
	Balance of Stillwater County	6,473	7,224	11.60%		7,235
3	**Sweet Grass County**	3,601	3,651	1.39%		3,623
	Big Timber city	1,650	1,641	-0.55%		1,629
	Balance of Sweet Grass County	1,951	2,010	3.02%		1,994
2	**Teton County**	6,449	6,073	-5.83%		6,091
	Choteau city	1,781	1,684	-5.45%		1,690
	Dutton town	389	316	-18.77%		316
	Fairfield town	659	708	7.44%		710
	Balance of Teton County	3,620	3,365	-7.04%		3,375
2	**Toole County**	5,255	5,324	1.31%		5,239
	Kevin town	178	154	-13.48%		151
	Shelby city	3,216	3,376	4.98%		3,326
	Sunburst town	415	375	-9.64%		375
	Balance of Toole County	1,446	1,419	-1.87%		1,387
5	**Treasure County**	857	718	-16.22%		727
	Hysham town	330	312	-5.45%		316
	Balance of Treasure County	527	406	-22.96%		411

6	**Valley County**	7,673	7,369	-3.96%		7,487
	Fort Peck town	240	233	-2.92%		237
	Glasgow city	3,253	3,250	-0.09%		3,301
	Nashua town	325	290	-10.77%		295
	Opheim town	111	85	-23.42%		86
	Balance of Valley County	3,744	3,511	-6.22%		3,568
5	**Wheatland County**	2,259	2,168	-4.03%		2,140
	Harlowton city	1,062	997	-6.12%		984
	Judith Gap city	164	126	-23.17%		124
	Balance of Wheatland County	1,033	1,045	1.16%		1,032
4	**Wibaux County**	1,067	1,017	-4.69%		985
	Wibaux town	567	589	3.88%		571
	Balance of Wibaux County	500	428	-14.40%		414
5	**Yellowstone County**	129,347	147,972	14.40%		150,069
	Billings city	89,847	104,170	15.94%		105,636
	Broadview town	150	192	28.00%		194
	Laurel city	6,255	6,718	7.40%		6,814
	Balance of Yellowstone County	33,095	36,892	11.47%		37,425
2	**Blackfeet Indian Reservation**	10,100	10,405	3.02%		
2	**Rocky Boy's Indian Reservation**	2,676	3,323	24.18%		
2	**Fort Belknap Indian Reservation**	2,959	2,851	-3.65%		
6	**Fort Peck Indian Reservation**	10,321	10,008	-3.03%		
5	**Crow Indian Reservation**	6,894	6,863	-0.45%		
5	**Northern Cheyenne Indian Reservation**	4,470	4,789	7.14%		
1	**Flathead Indian Reservation**	26,172	28,359	8.36%		

NOTES: R = Residential R

C = Commercial/Agricultural/Industrial
CF = Critical Facilities
AL = Annual Loss
M = Million
K = Thousand
B = Billion

NA = Not Analyzed or Not Quantitied

Original Local Plan FEMA Approval Date	Local Plan Update FEMA Approval Date	Estimated Building Loss/ Exposure from Local Plan	Estimated Societal Loss/ Exposure from Local Plan	Estimated Economic Loss from Local Plan	Reference	Estimated Building Loss/ Exposure from Local Plan
2004	2010					
		Moderate	Moderate	Moderate	3	
		Moderate	Moderate	Moderate	3	
		Moderate	Moderate	Moderate	3	
2006		NA	NA	NA	NA	
2006	2012					
						RAL=$13,158 CAL=$6,473
						RAL=$4,272 CAL=$3,337
						RAL=$26,380 CAL=$7,071
2004	2009					
						Moderate
						Moderate
2006	2012					NA
2005	2012					High
2012						
		RAL=$240 CAL=$81	597	NA	13	
		RAL=$335 CAL=$150	685	NA	13	
		RAL=$38,090 CAL=$54,680	58,505	NA	13	
		RAL=$224 CAL=$21	51	NA	13	
		RAL=$16,895 CAL=$2,808	21,670	NA	13	
2010		$191M	NA	$69.4M	5	
2005	2012	Moderate	Moderate	NA	2	NA

2003	2008					
						Low
						Low
						Low
2006		NA	NA	NA	NA	
2005		Low	High	Moderate	3	
2006	2012					High
2008		NA	Moderate	NA	3	
2009		Very High	Moderate	NA	6	
2006	2012	Low	High	Moderate	7	Low
2007		Moderate	High	Moderate	3	
2005	2012	NA	NA	NA	NA	
						RAL=$6,948 CAL=$9,875
						RAL=$79,454 CAL=$37,399
						RAL=$34,811 CAL=$25,702
2008						
		$106K	2	NA	13	
		$142K	3	NA	13	
		$624K	12	NA	13	
2006		Low	High	Moderate	3	
2006	2012					

						RAL=$7,239 CAL=$8,308
						RAL=$105 CAL=$39
						RAL=$5,008 CAL=$2,798
2005	2011					
						RAL=$207 CAL=$64
						RAL=$259 CAL=$70
						RAL=$4,268 CAL=$337
2008						
		$13.2M	244	NA	13	
		$29M	454	NA	13	
		$148.8M	2,329	NA	13	
2006	2012	$41,591,600	1,343	NA	8	
						RAL=$1,099 CAL=$776
						RAL=$284 CAL=$463
						RAL=$117 CAL=$48
						RAL=$7,905 CAL=$636
2005	2011	NA	NA	NA	NA	
						RAL=$6,523 CAL=$3,393
						RAL=$119,375 CAL=$110,070
						RAL=$171,608 CAL=$16,049
2007		Medium	High	NA	2	
2005	2012	1	1	NA		
						RAL=$1,509 CAL=$672
						RAL=$4,311 CAL=$3,283
						RAL=$132 CAL=$53
						RAL=$1,042 CAL=$563
						RAL=$38,793 CAL=$4,950
2004	2010					
						Low
						Low
						Low
						Low
						Low
2006		NA	NA	NA	NA	

2005	2012	$500K-$1M	Moderate	NA	1	
						Low
						Low
						Low
2004	2011	$500K-$1M	High	NA	1	$530K; AL=$18K
2008						
		$252K	4	NA	13	
		$3.6M	63	NA	13	
		$8.2M	147	NA	13	
2006	2012	$500K	NA	NA	3	
		Low-Moderate	NA	NA	3	
		Moderate	NA	NA	3	
		Moderate	NA	NA	3	
2003	2008					
						Low
						Low
2006	2012					
						RAL=$4,241 CAL=$933
						RAL=$144,974 CAL=$124,354
						RAL= =$13,821 CAL=$6,403
						RAL=$177,362 CAL=$56,647
2005	2011					
						RAL=$17,821 CAL=$8,057
						RAL=$3,593 CAL=$3,702
						RAL=$21,923 CAL=$9,307
2007	2011					Moderate-High
2004	2012	Low	Medium	NA	9	
2006						NA
2005	2012	$500K-$1M	Moderate	NA	1	$343K; AL=$17K
						Low
						Low
						Low
						Low
						Low
2006		NA	NA	NA	NA	

2004						
		$9.66M	201	NA	13	
		$11.5M	303	NA	13	
		$34.6M	717	NA	13	
		$10M	199	NA	13	
		$58.8M	1,734	NA	13	
		$138.5M	3,529	NA	13	
		$479.1M	12,578	NA	13	
2007		Moderate	High	Moderate	3	
2012						
		RAL=$1,994 CAL=$990	544	NA	13	
		RAL=$3,645 CAL=$3,066	1,048	NA	13	
		RAL=$5,558 CAL=$2,765	1,313	NA	13	
		RAL=$65,387 CAL=$8,983	8,508	NA	13	
2003	2008	$10,880,198	160	NA	13	
						Low
						Low
						Low
						Low
						Low
2004	2010					
						$4,330,461,000
						$14,070,000
2010		Moderate	Moderate	NA	3	
		Moderate-High	Moderate-High	NA	3	
		Moderate-High	Moderate-High	NA	3	
2005	2010					NA
2006		NA	NA	NA	NA	
2007		Low-Medium	Low	NA	2	
2007		Moderate	High	Moderate-High	3	

2003	2008					
						Low
						Low
						Low
						Low
						Low
2007						
		$1.86M	31	NA	13	
		$238K	5	NA	13	
		$4.9M	66	NA	13	
2006		NA	NA	NA	NA	
2005	2012	NA	NA	NA	NA	$37K
2008		$16.4M	444	NA	13	
2008	2010					RAL=$998 CFAL=$593
2007		$2.2M	49	NA	13	
2004	2012					NA
2008		NA	NA	NA	NA	
2008		NA	NA	NA	NA	
2006		$126.5M	3,476	NA	8	

:EFERENCES: 1 = Atkins
2 = Beck Consulting
3 = Big Sky Hazard Management
4 = Cossitt Consulting
5 = Fire Logistics, Inc.
6 = Flathead County/Hydrometrics
7 = Gallatin County
8 = Rick Gould
9 = Morrison-Maierle
10 = Northwest Management Inc.
11 = Single Tree Consulting
12 = Sweet Grass County

Estimated Societal Loss/ Exposure from Local Plan	Estimated Economic Loss from Local Plan	Reference	Estimate Building Loss/Exposure from 2010 State Plan	Estimated Societal Loss from 2010 State Plan - Below Poverty in Hazard Area	Estimated Societal Loss from 2010 State Plan - >65 in Hazard Area	Estimated Societal Loss from 2010 State Plan - <18 in Hazard Area	Estimate Building Loss/Exposure from 2013 State Plan
			$8,414	1,491	1,232	2,257	
			$64,673	3,632	1,042	4,549	
			$13,761	1,951	902	2,281	
1,203	NA	13					
808	NA	13					
4,480	NA	13					
			$8,777	466	720	1,108	
Moderate	Moderate	3					
Moderate	Moderate	3					
NA	$36,800	2	$11,069	1,089	1,616	2,295	
High	High	11	$34,423	242	242	359	
			$12,402	10,605	11,313	20,857	
			$13,685	1,191	1,039	1,721	
NA	NA	2	$32,629	1,700	1,996	2,914	

			$23,078	334	476	449	
Moderate	Moderate	3					
Moderate	Moderate	3					
Moderate	Moderate	3					
			$37,615	1,285	1,597	2,114	
			$14,279	1,451	1,775	2,090	
NA	NA	11	$35,526	349	509	728	
			$15,275	1,767	2,370	2,913	
			$59,961	9,489	9,618	19,238	
Moderate	Moderate	7	$17,811	8,319	5,781	14,816	
			$22,516	272	247	319	
			$89,426	3,568	1,252	4,661	
1,016	NA	13					
2,869	NA	13					
986	NA	13					
			$9,342	253	171	290	
			$52,436	472	445	693	
			$12,894	2,996	2,128	4,684	

9,310	NA	13					
118	NA	13					
7,374	NA	13					
			$8,811	882	1,027	2,795	
1,183	NA	13					
1,038	NA	13					
11,406	NA	13					
			$14,743	490	400	629	
			$54,539	4,862	3,855	7,434	
4,488	NA	13					
1,871	NA	13					
842	NA	13					
21,545	NA	13					
			$74,044	5,960	6,535	14,250	
1,984	NA	13					
28,190	NA	13					
33,440	NA	13					
			$7,831	425	421	561	
			$49,105	3,558	2,849	4,751	
1,037	NA	13					
2,628	NA	13					
105	NA	13					
938	NA	13					
14,983	NA	13					
			$8,945	821	1,180	1,571	
Moderate	Moderate	3					
Moderate	Moderate	3					
Moderate	Moderate	3					
Moderate	Moderate	3					
Moderate	Moderate	3					
			$22,778	331	374	489	

			$13,819	359	353	487	
			$48,412	598	549	936	
High	NA	1					
High	NA	1					
High	NA	1					
High	NA	1	$52,616	13,691	9,694	21,875	
			$24,908	877	785	1,062	
			$12,364	1,780	2,329	3,665	
			$24,978	114	81	127	
Moderate	Moderate	3					
Moderate	Moderate	3					
			$29,422	828	801	1,248	
124	NA	13					
1,997	NA	13					
197	NA	13					
2,062	NA	13					
			$33,087	1,194	1,037	1,898	
2,570	NA	13					
509	NA	13					
3,672	NA	13					
High	Moderate	3	$35,661	235	340	498	
			$51,981	719	1,030	1,526	
NA	NA	11	$37,974	202	290	230	
Moderate	NA	1	$52,241	4,927	5,557	9,287	
Moderate	NA	1					
Moderate	NA	1					
Moderate	NA	1					
Moderate	NA	1					
Moderate	NA	1					
			$38,378	1,161	1,513	2,642	

			$36,591	3,358	1,228	3,670	
			$34,556	2,063	820	3,146	
			$51,067	1,737	1,727	2,426	
			$43,650	602	966	921	
Moderate-High	Moderate	3					
Moderate-High	Moderate	3					
Moderate-High	Moderate	3					
Moderate-High	Moderate	3					
Moderate-High	Moderate	3					
			$10,974	5,005	5,499	8,198	
<18=8,017 >65=5,452 <Poverty=4,920	NA	13					
<18=8,017 >65=5,452 <Poverty=4,920	NA	13					
			$8,073	791	1,187	2,062	
NA	NA	NA	$7,941	403	634	931	
			$32,046	1,056	1,087	1,758	
			$12,397	624	826	1,347	
			$31,488	125	144	236	

			$22,921	1,026	1,459	1,937	
Moderate	Moderate	3					
Moderate	Moderate	3					
Moderate	Moderate	3					
Moderate	Moderate	3					
Moderate	Moderate	3					
			$14,814	440	432	602	
			$40,273	157	228	277	
High	NA	1	$23,603	14,032	17,223	33,136	
<16=1,059 >64=133 <Poverty=1,068	NA	13					
NA	NA	9					

Estimated Societal Loss from 2013 State Plan - Total in Hazard Area	Estimated Societal Loss from 2013 State Plan - <18 in Hazard Area	# Incidents	Period of Record 1960 - 2011	Total Property Damage
		51	52	$624,282
		60	52	$3,640,284
		38	52	$831,632
		57	52	$572,226
		61	52	$884,048
		30	52	$1,924,123
		88	52	$1,046,760
		45	52	$799,414
		30	52	$1,719,313

		33	52	$1,230,388
		35	52	$1,962,362
		64	52	$886,053
		26	52	$1,861,992
		52	52	$787,900
		71	52	$3,497,787
		64	52	$1,152,834
		32	52	$1,333,405
		89	52	$5,263,452
		44	52	$451,870
		55	52	$2,841,778
		42	52	$734,494

		57	52	$580,575
		56	52	$819,700
		65	52	$3,214,832
		98	52	$4,275,474
		37	52	$457,204
		53	52	$2,651,721
		56	52	$649,596
		36	52	$1,355,988

		64	52	$958,255
		45	52	$2,559,884
		62	52	$3,060,265
		44	52	$1,254,623
		75	52	$1,187,055
		46	52	$1,429,222
		43	52	$1,710,200
		91	52	$2,233,117
		30	52	$1,988,121
		53	52	$2,814,603
		34	52	$2,141,265
		52	52	$2,817,544
		36	52	$2,024,612

		37	52	$1,932,836
		41	52	$1,819,095
		65	52	$2,785,988
		33	52	$1,932,027
		70	52	$719,069
		56	52	$611,373
		60	52	$632,328
		85	52	$2,229,319
		76	52	$986,825
		26	52	$1,656,587

		40	52	$1,450,646
		55	52	$812,987
		34	52	$2,085,727
		57	52	$1,585,479

DES District	Geography	Census 2000	Census 2010	% Change 2000 to 2010	# Building Permits (2002 to 2011)	2011
	Montana	902,200	989,415	9.67%		998,199
3	**Beaverhead County**	9,192	9,246	0.59%		9,198
	Dillon city	3,752	4,134	10.18%		4,113
	Lima town	242	221	-8.68%		220
	Balance of Beaverhead County	5,198	4,891	-5.91%		4,865
5	**Big Horn County**	12,676	12,865	1.49%		13,093
	Hardin city	3,384	3,505	3.58%		3,567
	Lodge Grass town	510	428	-16.08%		436
	Balance of Big Horn County	8,782	8,932	1.71%		9,090
2	**Blaine County**	7,009	6,491	-7.39%		6,565
	Chinook city	1,386	1,203	-13.20%		1,216
	Harlem city	848	808	-4.72%		818
	Balance of Blaine County	4,775	4,480	-6.18%		4,531
3	**Broadwater County**	4,380	5,612	28.13%		5,752
	Townsend city	1,867	1,878	0.59%		1,924
	Balance of Broadwater County	2,513	3,734	48.59%		3,828
5	**Carbon County**	9,545	10,078	5.58%		10,028
	Bearcreek town	83	79	-4.82%		79
	Bridger town	745	708	-4.97%		704
	Fromberg town	486	438	-9.88%		436
	Joliet town	575	595	3.48%		593
	Red Lodge city	2,177	2,125	-2.39%		2,114
	Balance of Carbon County	5,479	6,133	11.94%		6,102
4	**Carter County**	1,358	1,160	-14.58%		1,152
	Ekalaka town	410	332	-19.02%		329
	Balance of Carter County	948	828	-12.66%		823
2	**Cascade County**	80,356	81,327	1.21%		81,837
	Belt city	633	597	-5.69%		600
	Cascade town	819	685	-16.36%		690
	Great Falls city	56,690	58,505	3.20%		58,950
	Neihart town	91	51	-43.96%		51
	Balance of Cascade County	22,123	21,489	-2.87%		21,546
2	**Chouteau County**	5,962	5,813	-2.50%		5,793
	Big Sandy town	703	598	-14.94%		595
	Fort Benton city	1,594	1,464	-8.16%		1,460
	Geraldine town	284	261	-8.10%		260
	Balance of Chouteau County	3,381	3,490	3.22%		3,478
4	**Custer County**	11,694	11,699	0.04%		11,752
	Ismay town	26	19	-26.92%		19
	Miles City city	8,487	8,410	-0.91%		8,438
	Balance of Custer County	3,181	3,270	2.80%		3,295

6	**Daniels County**	2,017	1,751	-13.19%		1,763
	Flaxville town	87	71	-18.39%		72
	Scobey city	1,082	1,017	-6.01%		1,023
	Balance of Daniels County	848	663	-21.82%		668
4	**Dawson County**	9,059	8,966	-1.03%		8,989
	Glendive city	4,729	4,935	4.36%		4,947
	Richey town	189	177	-6.35%		178
	Balance of Dawson County	4,141	3,854	-6.93%		3,864
1	**Deer Lodge County**	9,416	9,298	-1.25%		9,299
	Anaconda-Deer Lodge County	9,416	9,298	-1.25%		9,299
4	**Fallon County**	2,835	2,890	1.94%		2,956
	Baker city	1,695	1,741	2.71%		1,780
	Plevna town	138	162	17.39%		166
	Balance of Fallon County	1,002	987	-1.50%		1,010
6	**Fergus County**	11,905	11,586	-2.68%		11,506
	Denton town	301	255	-15.28%		254
	Grass Range town	149	110	-26.17%		109
	Lewistown city	5,813	5,901	1.51%		5,858
	Moore town	186	193	3.76%		191
	Winifred town	156	208	33.33%		208
	Balance of Fergus County	5,300	4,919	-7.19%		4,886
1	**Flathead County**	74,507	90,928	22.04%		91,301
	Columbia Falls city	3,645	4,688	28.61%		4,707
	Kalispell city	14,223	19,927	40.10%		20,008
	Whitefish city	5,032	6,357	26.33%		6,384
	Balance of Flathead County	51,607	59,956	16.18%		60,202
3	**Gallatin County**	67,837	89,513	31.95%		91,377
	Belgrade city	5,728	7,389	29.00%		7,549
	Bozeman city	27,509	37,280	35.52%		38,025
	Manhattan town	1,396	1,520	8.88%		1,553
	Three Forks city	1,728	1,869	8.16%		1,909
	West Yellowstone town	1,177	1,271	7.99%		1,298
	Balance of Gallatin County	30,299	40,184	32.62%		41,043
4	**Garfield County**	1,279	1,206	-5.71%		1,251
	Jordan town	364	343	-5.77%		355
	Balance of Garfield County	915	863	-5.68%		896
2	**Glacier County**	13,240	13,399	1.20%		13,624
	Browning town	1,065	1,016	-4.60%		1,026
	Cut Bank city	3,105	2,869	-7.60%		2,919
	Balance of Glacier County	9,070	9,514	4.90%		9,679
5	**Golden Valley County**	1,040	884	-15.00%		865
	Lavina town	209	187	-10.53%		182
	Ryegate town	268	245	-8.58%		240
	Balance of Golden Valley County	563	452	-19.72%		443
1	**Granite County**	2,841	3,079	8.38%		3,068
	Drummond town	318	309	-2.83%		307
	Philipsburg town	914	820	-10.28%		818
	Balance of Granite County	1,609	1,950	21.19%		1,943
2	**Hill County**	16,671	16,096	-3.45%		16,397
	Havre city	9,621	9,310	-3.23%		9,600

	Hingham town	157	118	-24.84%		121
	Balance of Hill County	6,893	6,668	-3.26%		6,676
3	**Jefferson County**	10,034	11,406	13.67%		11,381
	Boulder town	1,300	1,183	-9.00%		1,181
	Whitehall town	1,044	1,038	-0.57%		1,035
	Balance of Jefferson County	7,690	9,185	19.44%		9,165
6	**Judith Basin County**	2,326	2,072	-10.92%		2,004
	Hobson town	244	215	-11.89%		208
	Stanford town	454	401	-11.67%		389
	Balance of Judith Basin County	1,628	1,456	-10.57%		1,407
1	**Lake County**	26,482	28,746	8.55%		28,947
	Polson city	4,041	4,488	11.06%		4,524
	Ronan city	1,812	1,871	3.26%		1,883
	St. Ignatius town	788	842	6.85%		849
	Balance of Lake County	19,841	21,545	8.59%		21,691
3	**Lewis and Clark County**	55,716	63,395	13.78%		64,318
	East Helena town	1,642	1,984	20.83%		2,041
	Helena city	25,780	28,190	9.35%		28,592
	Balance of Lewis and Clark County	28,294	33,221	17.41%		33,685
2	**Liberty County**	2,158	2,339	8.39%		2,402
	Chester town	871	847	-2.76%		874
	Balance of Liberty County	1,287	1,492	15.93%		1,528
1	**Lincoln County**	18,820	19,687	4.61%		19,566
	Eureka town	1,017	1,037	1.97%		1,031
	Libby city	2,626	2,628	0.08%		2,612
	Rexford town	151	105	-30.46%		104
	Troy city	957	938	-1.99%		933
	Balance of Lincoln County	14,069	14,979	6.47%		14,886
3	**Madison County**	6,848	7,691	12.31%		7,660
	Ennis town	840	838	-0.24%		835
	Sheridan town	659	642	-2.58%		639
	Twin Bridges town	400	375	-6.25%		373
	Virginia City town	130	190	46.15%		190
	Balance of Madison County	4,819	5,646	17.16%		5,623
4	**McCone County**	1,971	1,734	-12.02%		1,711
	Circle town	644	615	-4.50%		607
	Balance of McCone County	1,327	1,119	-15.67%		1,104
3	**Meagher County**	1,928	1,891	-1.92%		1,911

	White Sulphur Springs city	984	939	-4.57%		950
	Balance of Meagher County	944	952	0.85%		961
1	**Mineral County**	3,871	4,223	9.09%		4,208
	Alberton town	374	420	12.30%		417
	Superior town	893	812	-9.07%		810
	Balance of Mineral County	2,604	2,991	14.86%		2,981
1	**Missoula County**	95,803	109,299	14.09%		110,138
	Missoula city	57,053	66,788	17.06%		67,290
	Balance of Missoula County	38,750	42,511	9.71%		42,848
5	**Musselshell County**	4,492	4,538	1.02%		4,701
	Melstone town	136	96	-29.41%		99
	Roundup city	1,931	1,788	-7.41%		1,853
	Balance of Musselshell County	2,425	2,654	9.44%		2,749
3	**Park County**	15,694	15,636	-0.37%		15,469
	Clyde Park town	310	288	-7.10%		286
	Livingston city	6,851	7,044	2.82%		6,969
	Balance of Park County	8,533	8,304	-2.68%		8,214
6	**Petroleum County**	493	494	0.20%		491
	Winnett town	185	182	-1.62%		181
	Balance of Petroleum County	308	312	1.30%		310
6	**Phillips County**	4,601	4,253	-7.56%		4,250
	Dodson town	122	124	1.64%		123
	Malta city	2,120	1,997	-5.80%		1,993
	Saco town	224	197	-12.05%		197
	Balance of Phillips County	2,135	1,935	-9.37%		1,937
2	**Pondera County**	6,425	6,153	-4.23%		6,257
	Conrad city	2,753	2,570	-6.65%		2,616
	Valier town	498	509	2.21%		518
	Balance of Pondera County	3,174	3,074	-3.15%		3,123
4	**Powder River County**	1,858	1,743	-6.19%		1,738
	Broadus town	451	468	3.77%		468
	Balance of Powder River County	1,407	1,275	-9.38%		1,270
1	**Powell County**	7,185	7,027	-2.20%		7,063
	Deer Lodge city	3,421	3,111	-9.06%		3,130
	Balance of Powell County	3,764	3,916	4.04%		3,933
4	**Prairie County**	1,199	1,179	-1.67%		1,159
	Terry town	611	605	-0.98%		594
	Balance of Prairie County	588	574	-2.38%		565
1	**Ravalli County**	36,093	40,212	11.41%		40,450
	Darby town	710	720	1.41%		724
	Hamilton city	3,705	4,348	17.35%		4,374
	Pinesdale town	742	917	23.58%		924
	Stevensville town	1,553	1,809	16.48%		1,820
	Balance of Ravalli County	29,383	32,418	10.33%		32,608
4	**Richland County**	9,666	9,746	0.83%		10,128
	Fairview town	709	840	18.48%		872
	Sidney city	4,774	5,191	8.73%		5,436

	Balance of Richland County	4,183	3,715	-11.19%		3,820
6	**Roosevelt County**	10,632	10,425	-1.95%		10,527
	Bainville town	153	208	35.95%		210
	Brockton town	245	255	4.08%		258
	Culbertson town	716	714	-0.28%		721
	Froid town	195	185	-5.13%		187
	Poplar city	911	810	-11.09%		819
	Wolf Point city	2,663	2,621	-1.58%		2,646
	Balance of Roosevelt County	5,749	5,632	-2.04%		5,686
5	**Rosebud County**	9,389	9,233	-1.66%		9,379
	Colstrip city	2,346	2,214	-5.63%		2,248
	Forsyth city	1,944	1,777	-8.59%		1,886
	Balance of Rosebud County	5,099	5,242	2.80%		5,245
1	**Sanders County**	10,238	11,413	11.48%		11,440
	Hot Springs town	531	544	2.45%		545
	Plains town	1,126	1,048	-6.93%		1,050
	Thompson Falls city	1,321	1,313	-0.61%		1,317
	Balance of Sanders County	7,260	8,508	17.19%		8,528
6	**Sheridan County**	4,105	3,384	-17.56%		3,460
	Medicine Lake town	269	225	-16.36%		230
	Outlook town	82	47	-42.68%		48
	Plentywood city	2,061	1,734	-15.87%		1,772
	Westby town	172	168	-2.33%		171
	Balance of Sheridan County	1,521	1,210	-20.45%		1,239
1	**Silver Bow County**	34,625	34,200	-1.23%		34,383
	Butte-Silver Bow (remainder)	33,911	33,525	-1.14%		33,704
	Walkerville town	714	675	-5.46%		679
5	**Stillwater County**	8,221	9,117	10.90%		9,131
	Columbus town	1,748	1,893	8.30%		1,896
	Balance of Stillwater County	6,473	7,224	11.60%		7,235
3	**Sweet Grass County**	3,601	3,651	1.39%		3,623
	Big Timber city	1,650	1,641	-0.55%		1,629
	Balance of Sweet Grass County	1,951	2,010	3.02%		1,994
2	**Teton County**	6,449	6,073	-5.83%		6,091
	Choteau city	1,781	1,684	-5.45%		1,690
	Dutton town	389	316	-18.77%		316
	Fairfield town	659	708	7.44%		710
	Balance of Teton County	3,620	3,365	-7.04%		3,375
2	**Toole County**	5,255	5,324	1.31%		5,239
	Kevin town	178	154	-13.48%		151
	Shelby city	3,216	3,376	4.98%		3,326
	Sunburst town	415	375	-9.64%		375
	Balance of Toole County	1,446	1,419	-1.87%		1,387
5	**Treasure County**	857	718	-16.22%		727
	Hysham town	330	312	-5.45%		316
	Balance of Treasure County	527	406	-22.96%		411
6	**Valley County**	7,673	7,369	-3.96%		7,487

	Fort Peck town	240	233	-2.92%		237
	Glasgow city	3,253	3,250	-0.09%		3,301
	Nashua town	325	290	-10.77%		295
	Opheim town	111	85	-23.42%		86
	Balance of Valley County	3,744	3,511	-6.22%		3,568
5	**Wheatland County**	2,259	2,168	-4.03%		2,140
	Harlowton city	1,062	997	-6.12%		984
	Judith Gap city	164	126	-23.17%		124
	Balance of Wheatland County	1,033	1,045	1.16%		1,032
4	**Wibaux County**	1,067	1,017	-4.69%		985
	Wibaux town	567	589	3.88%		571
	Balance of Wibaux County	500	428	-14.40%		414
5	**Yellowstone County**	129,347	147,972	14.40%		150,069
	Billings city	89,847	104,170	15.94%		105,636
	Broadview town	150	192	28.00%		194
	Laurel city	6,255	6,718	7.40%		6,814
	Balance of Yellowstone County	33,095	36,892	11.47%		37,425
2	**Blackfeet Indian Reservation**	10,100	10,405	3.02%		
2	**Rocky Boy's Indian Reservation**	2,676	3,323	24.18%		
2	**Fort Belknap Indian Reservation**	2,959	2,851	-3.65%		
6	**Fort Peck Indian Reservation**	10,321	10,008	-3.03%		
5	**Crow Indian Reservation**	6,894	6,863	-0.45%		
5	**Northern Cheyenne Indian Reservation**	4,470	4,789	7.14%		
1	**Flathead Indian Reservation**	26,172	28,359	8.36%		

NOTES:
R = Residential
C = Commercial/Agricultural/Industrial
CF = Critical Facilities
AL = Annual Loss
M = Million
K = Thousand
B = Billion

NA = Not Analyzed or Not Quantitied

Original Local Plan FEMA Approval Date	Local Plan Update FEMA Approval Date	Estimated Building Loss/ Exposure from Local Plan	Estimated Societal Loss/ Exposure from Local Plan	Estimated Economic Loss from Local Plan	Reference
2004	2010				
2006		NA	NA	NA	NA
2006	2012				
2004	2009	$15M	High	High	3
2006	2012	$53K	NA	NA	2
2005	2012	Low	Moderate	Low	11
2012					
		R=$9,695,700 C=$4,249,098	515	NA	13
		R=$22,517,751 C=$10,051,395	685	NA	13
		R=$1,152,783,373 C=$2,640,876,194	35,602	NA	13
		R=$12,270,437 C=$1,380,023	51	NA	13
		R=$420,082,605 C=$122,729,395	14,176	NA	13
2010		>$1M	NA	NA	5
2005	2012				

2003	2008				
2006		NA	NA	NA	NA
2005		Low	5,022; Moderate	Moderate	3
2006	2012	Low	NA	NA	11
2008		211 structures	317	Low	3
2009		Low	Moderate	NA	6
2006	2012	Low	High	High	7
2007		273 structures; Moderate	519; Moderate-High	Moderate-High	3
2005	2012				
2008					
		$7M	154	NA	13
		$11.5M	245	NA	13
		$55.8M	1,042	NA	13
2006		Low	High	Moderate	3
2006	2012				
		R=$141,359,099 C=$83,501,796	6,560	NA	13

		R=$4,028,150 C=$1,503,363	118	NA	13
		R=$126,503,742 C=$97,033,913	6,571	NA	13
2005	2011	NA	NA	NA	NA
2008					
		$6.9M	122	NA	13
		$29M	454	NA	13
		$54.3M	928	NA	13
2006	2012	$25,934M	2002	NA	8
2005	2011	NA	NA	NA	NA
2007		High	Low-Medium	NA	2
2005	2012				
2004	2010				
2006		NA	NA	NA	NA

2005	2012				
2004	2011	NA	NA	NA	NA
2008					
		$7.1M	123	NA	13
		$102.6M	1,743	NA	13
		$130.7K	2,237	NA	13
2006	2012				
2003	2008				
2006	2012				
2005	2011	NA	NA	NA	NA
2007	2011				
2004	2012				
2006					
2005	2012				
2006		NA	NA	NA	NA

2004					
		$3.6M	75	NA	13
		$11.1M	293	NA	13
		$33M	683	NA	13
		$5.7M	114	NA	13
		$57.4M	1,734	NA	13
		$93.5M	30	NA	13
		$292.4M	7,895	NA	13
2007		1,036 structures	2,694	Moderate-High	3
2012					
		R=$8,110,906 C=$6,331,756	342	NA	13
		R=$22,733,636 C=$21,853,597	893	NA	13
		R=$27,709,971 C=$21,053,688	935	NA	13
		R=$263,989,581 C=$52,501,858	7,008	NA	13
2003	2008				
2004	2010	Low	100-1,000	Low	3
2010		951 structures	1,702	NA	3
		Moderate	Moderate	NA	3
		Moderate	Moderate	NA	3
2005	2010				
2006		NA	NA	NA	NA
2007		High	High	NA	2
2007		14 structures	40	Moderate-High	3
2003	2008				

2007					
		$50.6K	829	NA	13
		$8M	161	NA	13
		$84K	1,184	NA	13
2006		NA	NA	NA	NA
2005	2012	NA	NA	NA	NA
2008		$212K	5	NA	13
2008	2010				
2007		$6.9k	<1	NA	13
2004	2012				
2008		NA	NA	NA	NA
2008		NA	NA	NA	NA
2006		$104M	4,597	NA	8

REFERENCES: 1 = Atkins
2 = Beck Consulting
3 = Big Sky Hazard Management
4 = Cossitt Consulting
5 = Fire Logistics, Inc.
6 = Flathead County/Hydrometrics
7 = Gallatin County
8 = Rick Gould
9 = Morrison-Maierle
10 = Northwest Management Inc.
11 = Single Tree Consulting
12 = Sweet Grass County

Estimated Building Loss/ Exposure from Local Plan	Estimated Societal Loss/ Exposure from Local Plan	Estimated Economic Loss from Local Plan	Reference	Estimate Building Loss/Exposure from 2010 State Plan	Estimated Societal Loss from 2010 State Plan - Below Poverty in Hazard Area
17,121 structures	39,378	NA	3	$228,165,867	306
Low-Moderate	High	Moderate	3		
Low-Moderate	High	Moderate	3		
Low-Moderate	Moderate-High	Low-Moderate	3		
				$43,093,230	144
				$18,546,796	69
R=$25,007,789 C =$15,979,372	925	NA	13		
R=$11,123,951 C=$8,691,175	808	NA	13		
R=$23,747,210 C=$5,835,021	2,843	NA	13		
2,226 structures	3,673	NA	3	$57,846,412	60
Low-Moderate	High	Moderate	3		
Low-Moderate	Moderate	Low-Moderate	3		
NA	NA	NA	2	$126,344,550	108
				$2,339,759	4
				$4,740,072,899	6,277
				$24,892,955	25
NA	NA	NA	NA	$725,386,574	994

802 structures	1,043	NA	3	$16,050,593	17
Low	Moderat-High	Moderate	3		
Low	Moderat-High	Moderate	3		
Low	Moderate	Moderate	3		
				$185,390,499	205
				$140,888,009	199
				$19,814,585	17
				$348,622,438	390
				$2,047,901,459	2,070
Moderate	Moderate	Moderate	7	$2,228,366,408	2,724
				$2,012,954	3
				$124,191,220	688
R=$5,815,237 C=$8,321,209	1,016	NA	13		
R=$35,099,904 C=$29,971,011	2,072	NA	13		
R=$21,514,392 C=$11,623,740	907	NA	13		
				$4,695,292	10
				$13,643,798	16
				$283,231,090	505

				$80,208,066	66
R=$13,344,037 C=$7,775,364	1,183	NA	13		
R=$30,556,557 C=$8,389,386	1,038	NA	13		
R=$171,315,989 C=$28,704,113	8,429	NA	13		
				$11,657,135	21
				$161,208,365	251
R=$90,923,471 C=$149,850,759	2,721	NA	13		
R=$50,690,419 C=110,298,707	1,617	NA	13		
R=$11,038,483 C=$4,050,397	315	NA	13		
R=$852,497,082 C=$349,089,825	17,342	NA	13		
				$1,632,362,824	1,630
R=$48,846,778 C=$27,446,236	1,679	NA	13		
R=$503,214,546 C=$794,464,719	17,195	NA	13		
R=$509,274,350 C=$100,052,387	20,276	NA	13		
				$7,571,800	11
				$366,072,390	417
R=$23,598,999 C=$13,946,904	871	NA	13		
R=$58,307,517 C=$66,182,237	2,210	NA	13		
R=$2,018,852 C=$1,119,491	105	NA	13		
R=$22,091,420 C=$11,945,412	938	NA	13		
R=$291,706,234 C=$70,259,123	9,605	NA	13		
3,667 structures	3,859	NA	3	$31,079,378	25
Low-Moderate	High	Moderate-High	3		
Low-Moderate	Moderate-High	Moderate	3		
Low-Moderate	High	Moderate-High	3		
Low-Moderate	Moderate-High	Moderate	3		
Low-Moderate	Moderate-High	Moderate	3		
				$7,626,734	9
				$12,944,889	14

				$22,932,885	32
Low	Moderate	NA	1		
Low	Moderate	NA	1		
Low	Moderate	NA	1		
				$4,536,396,988	6,428
				$97,409,462	137
$500K; Low-Moderate	High	Moderate-High	3	$572,347,946	520
Moderate-High	NA	NA	3		
Moderate-High	NA	NA	3		
Moderate-High	NA	NA	3		
80 structures	112	NA	3	$879,287	2
Low	Moderate	Moderate	3		
Low	Moderate	Moderate	3		
				$14,447,735	21
R=$1,584,670 C=$348,513	124	NA	13		
R=$38,523,266 C=$44,037,100	1,564	NA	13		
R=$5,080,890 C=$2,392,372	197	NA	13		
R=$23,017,518 C=$11,214,577	1,372	NA	13		
				$43,167,823	48
R=$70,620,311 C=$34,482,683	2,292	NA	13		
R=$8,788,653 C=$4,936,196	353	NA	13		
R=$56,968,039 C=$21,807,744	2,575	NA	13		
436 structures	960	Moderate-High	3	$3,306,569	4
NA	NA	NA	NA	$35,680,709	27
Low	NA	NA	11	$4,345,588	7
NA	NA	NA	NA	$122,047,001	142
				$165,680,589	149

				$174,985,495	554
				$73,255,388	103
				$48,751,346	76
1,515 structures	2,879	Moderate	3	$38,504,255	35
Low-Moderate	Moderate	Moderate	3		
Low	Moderate	Moderate	3		
Low-Moderate	Moderate	Moderate	3		
Low-Moderate	Moderate	Moderate	3		
Low-Moderate	Moderate	Moderate	3		
				$2,179,750,275	2,875
$2,179,750,275	<18=3,970 <65=2,806 <Poverty=2,875				
$1,377,453	<18=1 <65=18 <Poverty=9				
				$43,452,929	38
NA	NA	NA	NA	$15,182,907	12
				$29,245,119	38
				$39,724,308	33
				$4,975,589	6
3,550 structures	5,694	Moderate	3	$200,529,358	174

Low	Moderate	Moderate	3		
Low-Moderate	Moderate-High	Moderate	3		
Low-Moderate	Moderate-High	Moderate	3		
Low	Moderate	Moderate	3		
Low-Moderate	Moderate-High	Moderate	3		
				$15,266,163	22
				$5,137,674	6
				$4,734,625,457	5,242
R=$52,134,707 CF=$29,082,176	<16=523 >64=65 <Poverty=294	NA	13		
NA	NA	NA	NA		

Estimated Societal Loss from 2010 State Plan - >65 in Hazard Area	Estimated Societal Loss from 2010 State Plan - <18 in Hazard Area	Estimate Building Loss/Exposure from 2013 State Plan	Estimated Societal Loss from 2013 State Plan - Total in Hazard Area	Estimated Societal Loss from 2013 State Plan - <18 in Hazard Area	# Incidents
310	436				0
45	183				3
23	82				1
100	130				0
179	225				3
4	5				0
5,477	9,683				6
35	45				1
1,059	1,509				1

25	24				0
260	351				2
215	258				0
25	35				2
650	693				4
2,343	3,761				1
1,549	2,986				4
3	4				0
140	760				1
6	11				0
15	23				1
280	504				1

81	209				3
17	26				0
194	375				2
1,588	2,881				3
11	15				0
522	621				1
35	53				0
10	14				1
14	19				0

29	50				5
2,726	5,450				5
149	171				1
839	1,025				0
2	2				0
20	32				0
58	91				1
5	8				2
40	58				0
10	8				1
175	285				1
202	348				5

242	651				0
38	260				1
73	102				1
57	54				0
2,806	3,970				2
51	103				0
19	27				0
39	72				1
46	74				0
7	11				0
324	321				0

22	31				1
9	11				1
3,952	8,612				10

Period of Record 1990 - 2012	Total Property Damage
23	$0
23	$85,065
23	$266,944
23	$0
23	$577,750
23	$0
23	$108,454
23	$8,900
23	$19,496

23	$0
23	$41,400
23	$0
23	$255,093
23	$401,212
23	$51,000
23	$423,932
23	$0
23	$4,600
23	$0
23	$126,556
23	$49,200

23	$315,715
23	$0
23	$1,074,650
23	$315,105
23	$0
23	$48,500
23	$0
23	$7,080
23	$0

23	$10,066,572
23	$465,955
23	$5,605
23	$0
23	$0
23	$0
23	$108,658
23	$63,700
23	$0
23	$20,800
23	$23,700
23	$773,879

23	$0
23	$28,000
23	$641,955
23	$0
23	$3,190
23	$0
23	$0
23	$1,022
23	$0
23	$0
23	$0

23	$72,250
23	$6,175
23	$383,503

DES District	Geography	Census 2000	Census 2010	% Change 2000 to 2010	# Building Permits (2002 to 2011)	2011
	Montana	902,200	989,415	9.67%		998,199
3	**Beaverhead County**	9,192	9,246	0.59%		9,198
	Dillon city	3,752	4,134	10.18%		4,113
	Lima town	242	221	-8.68%		220
	Balance of Beaverhead County	5,198	4,891	-5.91%		4,865
5	**Big Horn County**	12,676	12,865	1.49%		13,093
	Hardin city	3,384	3,505	3.58%		3,567
	Lodge Grass town	510	428	-16.08%		436
	Balance of Big Horn County	8,782	8,932	1.71%		9,090
2	**Blaine County**	7,009	6,491	-7.39%		6,565
	Chinook city	1,386	1,203	-13.20%		1,216
	Harlem city	848	808	-4.72%		818
	Balance of Blaine County	4,775	4,480	-6.18%		4,531
3	**Broadwater County**	4,380	5,612	28.13%		5,752
	Townsend city	1,867	1,878	0.59%		1,924
	Balance of Broadwater County	2,513	3,734	48.59%		3,828
5	**Carbon County**	9,545	10,078	5.58%		10,028
	Bearcreek town	83	79	-4.82%		79
	Bridger town	745	708	-4.97%		704
	Fromberg town	486	438	-9.88%		436
	Joliet town	575	595	3.48%		593
	Red Lodge city	2,177	2,125	-2.39%		2,114
	Balance of Carbon County	5,479	6,133	11.94%		6,102
4	**Carter County**	1,358	1,160	-14.58%		1,152
	Ekalaka town	410	332	-19.02%		329
	Balance of Carter County	948	828	-12.66%		823
2	**Cascade County**	80,356	81,327	1.21%		81,837
	Belt city	633	597	-5.69%		600
	Cascade town	819	685	-16.36%		690
	Great Falls city	56,690	58,505	3.20%		58,950
	Neihart town	91	51	-43.96%		51
	Balance of Cascade County	22,123	21,489	-2.87%		21,546
2	**Chouteau County**	5,962	5,813	-2.50%		5,793
	Big Sandy town	703	598	-14.94%		595
	Fort Benton city	1,594	1,464	-8.16%		1,460
	Geraldine town	284	261	-8.10%		260
	Balance of Chouteau County	3,381	3,490	3.22%		3,478
4	**Custer County**	11,694	11,699	0.04%		11,752
	Ismay town	26	19	-26.92%		19
	Miles City city	8,487	8,410	-0.91%		8,438
	Balance of Custer County	3,181	3,270	2.80%		3,295
6	**Daniels County**	2,017	1,751	-13.19%		1,763
	Flaxville town	87	71	-18.39%		72
	Scobey city	1,082	1,017	-6.01%		1,023
	Balance of Daniels County	848	663	-21.82%		668

4	**Dawson County**	9,059	8,966	-1.03%		8,989
	Glendive city	4,729	4,935	4.36%		4,947
	Richey town	189	177	-6.35%		178
	Balance of Dawson County	4,141	3,854	-6.93%		3,864
1	**Deer Lodge County**	9,416	9,298	-1.25%		9,299
	Anaconda-Deer Lodge County	9,416	9,298	-1.25%		9,299
4	**Fallon County**	2,835	2,890	1.94%		2,956
	Baker city	1,695	1,741	2.71%		1,780
	Plevna town	138	162	17.39%		166
	Balance of Fallon County	1,002	987	-1.50%		1,010
6	**Fergus County**	11,905	11,586	-2.68%		11,506
	Denton town	301	255	-15.28%		254
	Grass Range town	149	110	-26.17%		109
	Lewistown city	5,813	5,901	1.51%		5,858
	Moore town	186	193	3.76%		191
	Winifred town	156	208	33.33%		208
	Balance of Fergus County	5,300	4,919	-7.19%		4,886
1	**Flathead County**	74,507	90,928	22.04%		91,301
	Columbia Falls city	3,645	4,688	28.61%		4,707
	Kalispell city	14,223	19,927	40.10%		20,008
	Whitefish city	5,032	6,357	26.33%		6,384
	Balance of Flathead County	51,607	59,956	16.18%		60,202
3	**Gallatin County**	67,837	89,513	31.95%		91,377
	Belgrade city	5,728	7,389	29.00%		7,549
	Bozeman city	27,509	37,280	35.52%		38,025
	Manhattan town	1,396	1,520	8.88%		1,553
	Three Forks city	1,728	1,869	8.16%		1,909
	West Yellowstone town	1,177	1,271	7.99%		1,298
	Balance of Gallatin County	30,299	40,184	32.62%		41,043
4	**Garfield County**	1,279	1,206	-5.71%		1,251
	Jordan town	364	343	-5.77%		355
	Balance of Garfield County	915	863	-5.68%		896
2	**Glacier County**	13,240	13,399	1.20%		13,624
	Browning town	1,065	1,016	-4.60%		1,026
	Cut Bank city	3,105	2,869	-7.60%		2,919
	Balance of Glacier County	9,070	9,514	4.90%		9,679
5	**Golden Valley County**	1,040	884	-15.00%		865
	Lavina town	209	187	-10.53%		182
	Ryegate town	268	245	-8.58%		240
	Balance of Golden Valley County	563	452	-19.72%		443
1	**Granite County**	2,841	3,079	8.38%		3,068
	Drummond town	318	309	-2.83%		307
	Philipsburg town	914	820	-10.28%		818
	Balance of Granite County	1,609	1,950	21.19%		1,943
2	**Hill County**	16,671	16,096	-3.45%		16,397
	Havre city	9,621	9,310	-3.23%		9,600
	Hingham town	157	118	-24.84%		121
	Balance of Hill County	6,893	6,668	-3.26%		6,676
3	**Jefferson County**	10,034	11,406	13.67%		11,381
	Boulder town	1,300	1,183	-9.00%		1,181
	Whitehall town	1,044	1,038	-0.57%		1,035
	Balance of Jefferson County	7,690	9,185	19.44%		9,165
6	**Judith Basin County**	2,326	2,072	-10.92%		2,004
	Hobson town	244	215	-11.89%		208
	Stanford town	454	401	-11.67%		389

	Balance of Judith Basin County	1,628	1,456	-10.57%		1,407
1	**Lake County**	26,482	28,746	8.55%		28,947
	Polson city	4,041	4,488	11.06%		4,524
	Ronan city	1,812	1,871	3.26%		1,883
	St. Ignatius town	788	842	6.85%		849
	Balance of Lake County	19,841	21,545	8.59%		21,691
3	**Lewis and Clark County**	55,716	63,395	13.78%		64,318
	East Helena town	1,642	1,984	20.83%		2,041
	Helena city	25,780	28,190	9.35%		28,592
	Balance of Lewis and Clark County	28,294	33,221	17.41%		33,685
2	**Liberty County**	2,158	2,339	8.39%		2,402
	Chester town	871	847	-2.76%		874
	Balance of Liberty County	1,287	1,492	15.93%		1,528
1	**Lincoln County**	18,820	19,687	4.61%		19,566
	Eureka town	1,017	1,037	1.97%		1,031
	Libby city	2,626	2,628	0.08%		2,612
	Rexford town	151	105	-30.46%		104
	Troy city	957	938	-1.99%		933
	Balance of Lincoln County	14,069	14,979	6.47%		14,886
3	**Madison County**	6,848	7,691	12.31%		7,660
	Ennis town	840	838	-0.24%		835
	Sheridan town	659	642	-2.58%		639
	Twin Bridges town	400	375	-6.25%		373
	Virginia City town	130	190	46.15%		190
	Balance of Madison County	4,819	5,646	17.16%		5,623
4	**McCone County**	1,971	1,734	-12.02%		1,711
	Circle town	644	615	-4.50%		607
	Balance of McCone County	1,327	1,119	-15.67%		1,104
3	**Meagher County**	1,928	1,891	-1.92%		1,911
	White Sulphur Springs city	984	939	-4.57%		950
	Balance of Meagher County	944	952	0.85%		961
1	**Mineral County**	3,871	4,223	9.09%		4,208
	Alberton town	374	420	12.30%		417
	Superior town	893	812	-9.07%		810
	Balance of Mineral County	2,604	2,991	14.86%		2,981
1	**Missoula County**	95,803	109,299	14.09%		110,138
	Missoula city	57,053	66,788	17.06%		67,290
	Balance of Missoula County	38,750	42,511	9.71%		42,848
5	**Musselshell County**	4,492	4,538	1.02%		4,701
	Melstone town	136	96	-29.41%		99
	Roundup city	1,931	1,788	-7.41%		1,853
	Balance of Musselshell County	2,425	2,654	9.44%		2,749
3	**Park County**	15,694	15,636	-0.37%		15,469
	Clyde Park town	310	288	-7.10%		286
	Livingston city	6,851	7,044	2.82%		6,969
	Balance of Park County	8,533	8,304	-2.68%		8,214
6	**Petroleum County**	493	494	0.20%		491
	Winnett town	185	182	-1.62%		181
	Balance of Petroleum County	308	312	1.30%		310
6	**Phillips County**	4,601	4,253	-7.56%		4,250
	Dodson town	122	124	1.64%		123
	Malta city	2,120	1,997	-5.80%		1,993
	Saco town	224	197	-12.05%		197
	Balance of Phillips County	2,135	1,935	-9.37%		1,937
2	**Pondera County**	6,425	6,153	-4.23%		6,257

	Conrad city	2,753	2,570	-6.65%		2,616
	Valier town	498	509	2.21%		518
	Balance of Pondera County	3,174	3,074	-3.15%		3,123
4	**Powder River County**	1,858	1,743	-6.19%		1,738
	Broadus town	451	468	3.77%		468
	Balance of Powder River County	1,407	1,275	-9.38%		1,270
1	**Powell County**	7,185	7,027	-2.20%		7,063
	Deer Lodge city	3,421	3,111	-9.06%		3,130
	Balance of Powell County	3,764	3,916	4.04%		3,933
4	**Prairie County**	1,199	1,179	-1.67%		1,159
	Terry town	611	605	-0.98%		594
	Balance of Prairie County	588	574	-2.38%		565
1	**Ravalli County**	36,093	40,212	11.41%		40,450
	Darby town	710	720	1.41%		724
	Hamilton city	3,705	4,348	17.35%		4,374
	Pinesdale town	742	917	23.58%		924
	Stevensville town	1,553	1,809	16.48%		1,820
	Balance of Ravalli County	29,383	32,418	10.33%		32,608
4	**Richland County**	9,666	9,746	0.83%		10,128
	Fairview town	709	840	18.48%		872
	Sidney city	4,774	5,191	8.73%		5,436
	Balance of Richland County	4,183	3,715	-11.19%		3,820
6	**Roosevelt County**	10,632	10,425	-1.95%		10,527
	Bainville town	153	208	35.95%		210
	Brockton town	245	255	4.08%		258
	Culbertson town	716	714	-0.28%		721
	Froid town	195	185	-5.13%		187
	Poplar city	911	810	-11.09%		819
	Wolf Point city	2,663	2,621	-1.58%		2,646
	Balance of Roosevelt County	5,749	5,632	-2.04%		5,686
5	**Rosebud County**	9,389	9,233	-1.66%		9,379
	Colstrip city	2,346	2,214	-5.63%		2,248
	Forsyth city	1,944	1,777	-8.59%		1,886
	Balance of Rosebud County	5,099	5,242	2.80%		5,245
1	**Sanders County**	10,238	11,413	11.48%		11,440
	Hot Springs town	531	544	2.45%		545
	Plains town	1,126	1,048	-6.93%		1,050
	Thompson Falls city	1,321	1,313	-0.61%		1,317
	Balance of Sanders County	7,260	8,508	17.19%		8,528
6	**Sheridan County**	4,105	3,384	-17.56%		3,460
	Medicine Lake town	269	225	-16.36%		230
	Outlook town	82	47	-42.68%		48
	Plentywood city	2,061	1,734	-15.87%		1,772
	Westby town	172	168	-2.33%		171
	Balance of Sheridan County	1,521	1,210	-20.45%		1,239
1	**Silver Bow County**	34,625	34,200	-1.23%		34,383
	Butte-Silver Bow (remainder)	33,911	33,525	-1.14%		33,704
	Walkerville town	714	675	-5.46%		679
5	**Stillwater County**	8,221	9,117	10.90%		9,131
	Columbus town	1,748	1,893	8.30%		1,896
	Balance of Stillwater County	6,473	7,224	11.60%		7,235
3	**Sweet Grass County**	3,601	3,651	1.39%		3,623
	Big Timber city	1,650	1,641	-0.55%		1,629
	Balance of Sweet Grass County	1,951	2,010	3.02%		1,994
2	**Teton County**	6,449	6,073	-5.83%		6,091

	Choteau city	1,781	1,684	-5.45%		1,690
	Dutton town	389	316	-18.77%		316
	Fairfield town	659	708	7.44%		710
	Balance of Teton County	3,620	3,365	-7.04%		3,375
2	**Toole County**	5,255	5,324	1.31%		5,239
	Kevin town	178	154	-13.48%		151
	Shelby city	3,216	3,376	4.98%		3,326
	Sunburst town	415	375	-9.64%		375
	Balance of Toole County	1,446	1,419	-1.87%		1,387
5	**Treasure County**	857	718	-16.22%		727
	Hysham town	330	312	-5.45%		316
	Balance of Treasure County	527	406	-22.96%		411
6	**Valley County**	7,673	7,369	-3.96%		7,487
	Fort Peck town	240	233	-2.92%		237
	Glasgow city	3,253	3,250	-0.09%		3,301
	Nashua town	325	290	-10.77%		295
	Opheim town	111	85	-23.42%		86
	Balance of Valley County	3,744	3,511	-6.22%		3,568
5	**Wheatland County**	2,259	2,168	-4.03%		2,140
	Harlowton city	1,062	997	-6.12%		984
	Judith Gap city	164	126	-23.17%		124
	Balance of Wheatland County	1,033	1,045	1.16%		1,032
4	**Wibaux County**	1,067	1,017	-4.69%		985
	Wibaux town	567	589	3.88%		571
	Balance of Wibaux County	500	428	-14.40%		414
5	**Yellowstone County**	129,347	147,972	14.40%		150,069
	Billings city	89,847	104,170	15.94%		105,636
	Broadview town	150	192	28.00%		194
	Laurel city	6,255	6,718	7.40%		6,814
	Balance of Yellowstone County	33,095	36,892	11.47%		37,425
2	**Blackfeet Indian Reservation**	10,100	10,405	3.02%		
2	**Rocky Boy's Indian Reservation**	2,676	3,323	24.18%		
2	**Fort Belknap Indian Reservation**	2,959	2,851	-3.65%		
6	**Fort Peck Indian Reservation**	10,321	10,008	-3.03%		
5	**Crow Indian Reservation**	6,894	6,863	-0.45%		
5	**Northern Cheyenne Indian Reservation**	4,470	4,789	7.14%		
1	**Flathead Indian Reservation**	26,172	28,359	8.36%		

NOTES: R = Residential R

C = Commercial/Agricultural/Industrial

CF = Critical Facilities

AL = Annual Loss

M = Million

K = Thousand

B = Billion

NA = Not Analyzed or Not Quantitied

Original Local Plan FEMA Approval Date	Local Plan Update FEMA Approval Date	Estimated Building Loss/ Exposure from Local Plan	Estimated Societal Loss/ Exposure from Local Plan	Estimated Economic Loss from Local Plan	Reference	Estimated Building Loss/ Exposure from Local Plan
2004	2010					
		Low	High	Moderate-High	3	
		Low	High	Moderate-High	3	
		Low	High	Moderate-High	3	
2006		NA	NA	NA	NA	
2006	2012					NA
2004	2009	0	4,590	$19M	3	
		Low	High	Moderate-High	3	
		Low	High	Moderate-High	3	
2006	2012					NA
2005	2012					Low
2012		NA	NA	NA	NA	
2010		$0	High	Minor to Significant	5	
2005	2012					NA
2003	2008					$0
						Low
						Low
						Low

2006		NA	NA	NA	NA	
2005		Low	High	High	3	
2006	2012					NA
2008		$0	4,024	$61M	3	
		Moderate-High	NA	NA	3	
		Moderate-High	NA	NA	3	
		Moderate-High	NA	NA	3	
		Moderate-High	NA	NA	3	
		Moderate-High	NA	NA	3	
		Moderate-High	NA	NA	3	
2009		High	Moderate	NA	6	
2006	2012					Low
2007		Low-Moderate	1,279; High	$32M; High	3	
2005	2012					NA
2008		NA	NA	NA	NA	
2006		Low	2,830	High	3	
2006	2012					NA
2005	2011					NA
2008		NA	NA	NA	NA	

2006	2012					NA
2005	2011					NA
2007		NA	NA	NA	NA	
2005	2012					NA
2004	2010					$0
						Low
						Low
						Low
						Low
						Low
2006		NA	NA	NA	NA	
2005	2012					NA
2004	2011					NA
2008		NA	NA	NA	NA	
2006	2012					
						Moderate
						Moderate
						Moderate
2003	2008					$0
						Low
						Low
2006	2012					NA
2005	2011					NA

2007	2011					$0
2004	2012					NA
2006						Moderate
2005	2012					NA
2006		NA	NA	NA	NA	
2004		NA	NA	NA	NA	
2007		$0	9,383	$42M	3	
2012		NA	NA	NA	NA	
2003	2008					$0
						Low
						Low
						Low
						Low
						Low
2004	2010					NA
2010		$0	8,687	$34.4M	3	
		Moderate	Moderate	NA	3	
		Moderate	Moderate	NA	3	
2005	2010					NA
2006		NA	NA	NA	NA	

2007		NA	NA	NA	NA	
2007		$0	861	$20M	3	
2003	2008					$0
						Low
						Low
						Low
						Low
						Low
2007		NA	NA	NA	NA	
2006		NA	NA	NA	NA	
2005	2012					NA
2008		NA	NA	NA	NA	
2008	2010					NA
2007		NA	NA	NA	NA	
2004	2012					NA
2008		NA	NA	NA	NA	
2008		NA	NA	NA	NA	
2006		NA	NA	NA	NA	

:EFERENCES: 1 = Atkins
2 = Beck Consulting
3 = Big Sky Hazard Management
4 = Cossitt Consulting
5 = Fire Logistics, Inc.
6 = Flathead County/Hydrometrics
7 = Gallatin County
8 = Rick Gould
9 = Morrison-Maierle
10 = Northwest Management Inc.
11 = Single Tree Consulting
12 = Sweet Grass County

Estimated Societal Loss/ Exposure from Local Plan	Estimated Economic Loss from Local Plan	Reference	Estimate Building Loss/Exposure from 2010 State Plan	Estimated Societal Loss from 2010 State Plan - Below Poverty in Hazard Area	Estimated Societal Loss from 2010 State Plan - >65 in Hazard Area	Estimated Societal Loss from 2010 State Plan - <18 in Hazard Area	Estimate Building Loss/Exposure from 2013 State Plan
				1,491	1,232	2,257	
				3,632	1,042	4,549	
NA	NA	NA		1,951	902	2,281	
				466	720	1,108	
NA	NA	NA		1,089	1,616	2,295	
Moderate	Moderate	11		242	242	359	
				10,605	11,313	20,857	
				1,191	1,039	1,721	
NA	NA	NA		1,700	1,996	2,914	
2,017	$27M	3		334	476	449	
High	Moderate-High	3					
High	NA	3					
High	NA	3					

				1,285	1,597	2,114	
				1,451	1,775	2,090	
NA	NA	11		349	509	728	
				1,767	2,370	2,913	
				9,489	9,618	19,238	
High	High	7		8,319	5,781	14,816	
				272	247	319	
NA	NA	NA		3,568	1,252	4,661	
				253	171	290	
				472	445	693	
NA	NA	NA		2,996	2,128	4,684	
NA	NA	NA		882	1,027	2,795	
				490	400	629	

NA	NA	NA		4,862	3,855	7,434	
NA	NA	NA		5,960	6,535	14,250	
				425	421	561	
NA	NA	NA		3,558	2,849	4,751	
7,426	$37M	3		821	1,180	1,571	
High	Moderate-High	3					
High	Moderate-High	3					
High	Moderate-High	3					
High	Moderate-High	3					
High	Moderate-High	3					
				331	374	489	
				359	353	487	
NA	NA	NA		598	549	936	
NA	NA	NA		13,691	9,694	21,875	
				877	785	1,062	
				1,780	2,329	3,665	
NA	NA	3					
NA	NA	3					
NA	NA	3					
493	$9M	3		114	81	127	
High	Moderate-High	3					
High	Moderate-High	3					
NA	NA	NA		828	801	1,248	
NA	NA	NA		1,194	1,037	1,898	

1,858	$30M	3		235	340	498	
NA	NA	NA		719	1,030	1,526	
NA	NA	11		202	290	230	
NA	NA	NA		4,927	5,557	9,287	
				1,161	1,513	2,642	
				3,358	1,228	3,670	
				2,063	820	3,146	
				1,737	1,727	2,426	
4,105	$43M	3		602	966	921	
High	Moderate-High	3					
High	Moderate-High	3					
High	Moderate-High	3					
High	Moderate-High	3					
High	Moderate-High	3					
NA	NA	NA		5,005	5,499	8,198	
				791	1,187	2,062	
NA	NA	NA		403	634	931	
				1,056	1,087	1,758	

				624	826	1,347	
				125	144	236	
7,675	$67M	3		1,026	1,459	1,937	
High	Moderate-High	3					
High	Moderate-High	3					
High	Moderate-High	3					
High	Moderate-High	3					
High	Moderate-High	3					
				440	432	602	
				157	228	277	
NA	NA	NA		14,032	17,223	33,136	
NA	NA	NA					
NA	NA	NA					

Estimated Societal Loss from 2013 State Plan - Total in Hazard Area	Estimated Societal Loss from 2013 State Plan - <18 in Hazard Area

DES District	Geography	Census 2000	Census 2010	% Change 2000 to 2010	# Building Permits (2002 to 2011)	2011
	Montana	902,200	989,415	9.67%		998,199
3	**Beaverhead County**	9,192	9,246	0.59%		9,198
	Dillon city	3,752	4,134	10.18%		4,113
	Lima town	242	221	-8.68%		220
	Balance of Beaverhead County	5,198	4,891	-5.91%		4,865
5	**Big Horn County**	12,676	12,865	1.49%		13,093
	Hardin city	3,384	3,505	3.58%		3,567
	Lodge Grass town	510	428	-16.08%		436
	Balance of Big Horn County	8,782	8,932	1.71%		9,090
2	**Blaine County**	7,009	6,491	-7.39%		6,565
	Chinook city	1,386	1,203	-13.20%		1,216
	Harlem city	848	808	-4.72%		818
	Balance of Blaine County	4,775	4,480	-6.18%		4,531
3	**Broadwater County**	4,380	5,612	28.13%		5,752
	Townsend city	1,867	1,878	0.59%		1,924
	Balance of Broadwater County	2,513	3,734	48.59%		3,828
5	**Carbon County**	9,545	10,078	5.58%		10,028
	Bearcreek town	83	79	-4.82%		79
	Bridger town	745	708	-4.97%		704
	Fromberg town	486	438	-9.88%		436
	Joliet town	575	595	3.48%		593
	Red Lodge city	2,177	2,125	-2.39%		2,114
	Balance of Carbon County	5,479	6,133	11.94%		6,102
4	**Carter County**	1,358	1,160	-14.58%		1,152
	Ekalaka town	410	332	-19.02%		329
	Balance of Carter County	948	828	-12.66%		823
2	**Cascade County**	80,356	81,327	1.21%		81,837
	Belt city	633	597	-5.69%		600
	Cascade town	819	685	-16.36%		690
	Great Falls city	56,690	58,505	3.20%		58,950
	Neihart town	91	51	-43.96%		51
	Balance of Cascade County	22,123	21,489	-2.87%		21,546
2	**Chouteau County**	5,962	5,813	-2.50%		5,793
	Big Sandy town	703	598	-14.94%		595
	Fort Benton city	1,594	1,464	-8.16%		1,460
	Geraldine town	284	261	-8.10%		260
	Balance of Chouteau County	3,381	3,490	3.22%		3,478
4	**Custer County**	11,694	11,699	0.04%		11,752
	Ismay town	26	19	-26.92%		19
	Miles City city	8,487	8,410	-0.91%		8,438
	Balance of Custer County	3,181	3,270	2.80%		3,295
6	**Daniels County**	2,017	1,751	-13.19%		1,763
	Flaxville town	87	71	-18.39%		72
	Scobey city	1,082	1,017	-6.01%		1,023
	Balance of Daniels County	848	663	-21.82%		668
4	**Dawson County**	9,059	8,966	-1.03%		8,989

	Glendive city	4,729	4,935	4.36%		4,947
	Richey town	189	177	-6.35%		178
	Balance of Dawson County	4,141	3,854	-6.93%		3,864
1	**Deer Lodge County**	9,416	9,298	-1.25%		9,299
	Anaconda-Deer Lodge County	9,416	9,298	-1.25%		9,299
4	**Fallon County**	2,835	2,890	1.94%		2,956
	Baker city	1,695	1,741	2.71%		1,780
	Plevna town	138	162	17.39%		166
	Balance of Fallon County	1,002	987	-1.50%		1,010
6	**Fergus County**	11,905	11,586	-2.68%		11,506
	Denton town	301	255	-15.28%		254
	Grass Range town	149	110	-26.17%		109
	Lewistown city	5,813	5,901	1.51%		5,858
	Moore town	186	193	3.76%		191
	Winifred town	156	208	33.33%		208
	Balance of Fergus County	5,300	4,919	-7.19%		4,886
1	**Flathead County**	74,507	90,928	22.04%		91,301
	Columbia Falls city	3,645	4,688	28.61%		4,707
	Kalispell city	14,223	19,927	40.10%		20,008
	Whitefish city	5,032	6,357	26.33%		6,384
	Balance of Flathead County	51,607	59,956	16.18%		60,202
3	**Gallatin County**	67,837	89,513	31.95%		91,377
	Belgrade city	5,728	7,389	29.00%		7,549
	Bozeman city	27,509	37,280	35.52%		38,025
	Manhattan town	1,396	1,520	8.88%		1,553
	Three Forks city	1,728	1,869	8.16%		1,909
	West Yellowstone town	1,177	1,271	7.99%		1,298
	Balance of Gallatin County	30,299	40,184	32.62%		41,043
4	**Garfield County**	1,279	1,206	-5.71%		1,251
	Jordan town	364	343	-5.77%		355
	Balance of Garfield County	915	863	-5.68%		896
2	**Glacier County**	13,240	13,399	1.20%		13,624
	Browning town	1,065	1,016	-4.60%		1,026
	Cut Bank city	3,105	2,869	-7.60%		2,919
	Balance of Glacier County	9,070	9,514	4.90%		9,679
5	**Golden Valley County**	1,040	884	-15.00%		865
	Lavina town	209	187	-10.53%		182
	Ryegate town	268	245	-8.58%		240
	Balance of Golden Valley County	563	452	-19.72%		443
1	**Granite County**	2,841	3,079	8.38%		3,068
	Drummond town	318	309	-2.83%		307
	Philipsburg town	914	820	-10.28%		818
	Balance of Granite County	1,609	1,950	21.19%		1,943
2	**Hill County**	16,671	16,096	-3.45%		16,397
	Havre city	9,621	9,310	-3.23%		9,600
	Hingham town	157	118	-24.84%		121
	Balance of Hill County	6,893	6,668	-3.26%		6,676
3	**Jefferson County**	10,034	11,406	13.67%		11,381
	Boulder town	1,300	1,183	-9.00%		1,181
	Whitehall town	1,044	1,038	-0.57%		1,035
	Balance of Jefferson County	7,690	9,185	19.44%		9,165
6	**Judith Basin County**	2,326	2,072	-10.92%		2,004
	Hobson town	244	215	-11.89%		208
	Stanford town	454	401	-11.67%		389
	Balance of Judith Basin County	1,628	1,456	-10.57%		1,407

1	**Lake County**	26,482	28,746	8.55%		28,947
	Polson city	4,041	4,488	11.06%		4,524
	Ronan city	1,812	1,871	3.26%		1,883
	St. Ignatius town	788	842	6.85%		849
	Balance of Lake County	19,841	21,545	8.59%		21,691
3	**Lewis and Clark County**	55,716	63,395	13.78%		64,318
	East Helena town	1,642	1,984	20.83%		2,041
	Helena city	25,780	28,190	9.35%		28,592
	Balance of Lewis and Clark County	28,294	33,221	17.41%		33,685
2	**Liberty County**	2,158	2,339	8.39%		2,402
	Chester town	871	847	-2.76%		874
	Balance of Liberty County	1,287	1,492	15.93%		1,528
1	**Lincoln County**	18,820	19,687	4.61%		19,566
	Eureka town	1,017	1,037	1.97%		1,031
	Libby city	2,626	2,628	0.08%		2,612
	Rexford town	151	105	-30.46%		104
	Troy city	957	938	-1.99%		933
	Balance of Lincoln County	14,069	14,979	6.47%		14,886
3	**Madison County**	6,848	7,691	12.31%		7,660
	Ennis town	840	838	-0.24%		835
	Sheridan town	659	642	-2.58%		639
	Twin Bridges town	400	375	-6.25%		373
	Virginia City town	130	190	46.15%		190
	Balance of Madison County	4,819	5,646	17.16%		5,623
4	**McCone County**	1,971	1,734	-12.02%		1,711
	Circle town	644	615	-4.50%		607
	Balance of McCone County	1,327	1,119	-15.67%		1,104
3	**Meagher County**	1,928	1,891	-1.92%		1,911
	White Sulphur Springs city	984	939	-4.57%		950
	Balance of Meagher County	944	952	0.85%		961
1	**Mineral County**	3,871	4,223	9.09%		4,208
	Alberton town	374	420	12.30%		417
	Superior town	893	812	-9.07%		810
	Balance of Mineral County	2,604	2,991	14.86%		2,981
1	**Missoula County**	95,803	109,299	14.09%		110,138
	Missoula city	57,053	66,788	17.06%		67,290
	Balance of Missoula County	38,750	42,511	9.71%		42,848
5	**Musselshell County**	4,492	4,538	1.02%		4,701
	Melstone town	136	96	-29.41%		99
	Roundup city	1,931	1,788	-7.41%		1,853
	Balance of Musselshell County	2,425	2,654	9.44%		2,749
3	**Park County**	15,694	15,636	-0.37%		15,469
	Clyde Park town	310	288	-7.10%		286
	Livingston city	6,851	7,044	2.82%		6,969
	Balance of Park County	8,533	8,304	-2.68%		8,214
6	**Petroleum County**	493	494	0.20%		491
	Winnett town	185	182	-1.62%		181
	Balance of Petroleum County	308	312	1.30%		310
6	**Phillips County**	4,601	4,253	-7.56%		4,250
	Dodson town	122	124	1.64%		123
	Malta city	2,120	1,997	-5.80%		1,993
	Saco town	224	197	-12.05%		197
	Balance of Phillips County	2,135	1,935	-9.37%		1,937
2	**Pondera County**	6,425	6,153	-4.23%		6,257
	Conrad city	2,753	2,570	-6.65%		2,616

	Valier town	498	509	2.21%		518
	Balance of Pondera County	3,174	3,074	-3.15%		3,123
4	**Powder River County**	1,858	1,743	-6.19%		1,738
	Broadus town	451	468	3.77%		468
	Balance of Powder River County	1,407	1,275	-9.38%		1,270
1	**Powell County**	7,185	7,027	-2.20%		7,063
	Deer Lodge city	3,421	3,111	-9.06%		3,130
	Balance of Powell County	3,764	3,916	4.04%		3,933
4	**Prairie County**	1,199	1,179	-1.67%		1,159
	Terry town	611	605	-0.98%		594
	Balance of Prairie County	588	574	-2.38%		565
1	**Ravalli County**	36,093	40,212	11.41%		40,450
	Darby town	710	720	1.41%		724
	Hamilton city	3,705	4,348	17.35%		4,374
	Pinesdale town	742	917	23.58%		924
	Stevensville town	1,553	1,809	16.48%		1,820
	Balance of Ravalli County	29,383	32,418	10.33%		32,608
4	**Richland County**	9,666	9,746	0.83%		10,128
	Fairview town	709	840	18.48%		872
	Sidney city	4,774	5,191	8.73%		5,436
	Balance of Richland County	4,183	3,715	-11.19%		3,820
6	**Roosevelt County**	10,632	10,425	-1.95%		10,527
	Bainville town	153	208	35.95%		210
	Brockton town	245	255	4.08%		258
	Culbertson town	716	714	-0.28%		721
	Froid town	195	185	-5.13%		187
	Poplar city	911	810	-11.09%		819
	Wolf Point city	2,663	2,621	-1.58%		2,646
	Balance of Roosevelt County	5,749	5,632	-2.04%		5,686
5	**Rosebud County**	9,389	9,233	-1.66%		9,379
	Colstrip city	2,346	2,214	-5.63%		2,248
	Forsyth city	1,944	1,777	-8.59%		1,886
	Balance of Rosebud County	5,099	5,242	2.80%		5,245
1	**Sanders County**	10,238	11,413	11.48%		11,440
	Hot Springs town	531	544	2.45%		545
	Plains town	1,126	1,048	-6.93%		1,050
	Thompson Falls city	1,321	1,313	-0.61%		1,317
	Balance of Sanders County	7,260	8,508	17.19%		8,528
6	**Sheridan County**	4,105	3,384	-17.56%		3,460
	Medicine Lake town	269	225	-16.36%		230
	Outlook town	82	47	-42.68%		48
	Plentywood city	2,061	1,734	-15.87%		1,772
	Westby town	172	168	-2.33%		171
	Balance of Sheridan County	1,521	1,210	-20.45%		1,239
1	**Silver Bow County**	34,625	34,200	-1.23%		34,383
	Butte-Silver Bow (remainder)	33,911	33,525	-1.14%		33,704
	Walkerville town	714	675	-5.46%		679
5	**Stillwater County**	8,221	9,117	10.90%		9,131
	Columbus town	1,748	1,893	8.30%		1,896
	Balance of Stillwater County	6,473	7,224	11.60%		7,235
3	**Sweet Grass County**	3,601	3,651	1.39%		3,623
	Big Timber city	1,650	1,641	-0.55%		1,629
	Balance of Sweet Grass County	1,951	2,010	3.02%		1,994
2	**Teton County**	6,449	6,073	-5.83%		6,091
	Choteau city	1,781	1,684	-5.45%		1,690

	Dutton town	389	316	-18.77%		316
	Fairfield town	659	708	7.44%		710
	Balance of Teton County	3,620	3,365	-7.04%		3,375
2	**Toole County**	5,255	5,324	1.31%		5,239
	Kevin town	178	154	-13.48%		151
	Shelby city	3,216	3,376	4.98%		3,326
	Sunburst town	415	375	-9.64%		375
	Balance of Toole County	1,446	1,419	-1.87%		1,387
5	**Treasure County**	857	718	-16.22%		727
	Hysham town	330	312	-5.45%		316
	Balance of Treasure County	527	406	-22.96%		411
6	**Valley County**	7,673	7,369	-3.96%		7,487
	Fort Peck town	240	233	-2.92%		237
	Glasgow city	3,253	3,250	-0.09%		3,301
	Nashua town	325	290	-10.77%		295
	Opheim town	111	85	-23.42%		86
	Balance of Valley County	3,744	3,511	-6.22%		3,568
5	**Wheatland County**	2,259	2,168	-4.03%		2,140
	Harlowton city	1,062	997	-6.12%		984
	Judith Gap city	164	126	-23.17%		124
	Balance of Wheatland County	1,033	1,045	1.16%		1,032
4	**Wibaux County**	1,067	1,017	-4.69%		985
	Wibaux town	567	589	3.88%		571
	Balance of Wibaux County	500	428	-14.40%		414
5	**Yellowstone County**	129,347	147,972	14.40%		150,069
	Billings city	89,847	104,170	15.94%		105,636
	Broadview town	150	192	28.00%		194
	Laurel city	6,255	6,718	7.40%		6,814
	Balance of Yellowstone County	33,095	36,892	11.47%		37,425
2	**Blackfeet Indian Reservation**	10,100	10,405	3.02%		
2	**Rocky Boy's Indian Reservation**	2,676	3,323	24.18%		
2	**Fort Belknap Indian Reservation**	2,959	2,851	-3.65%		
6	**Fort Peck Indian Reservation**	10,321	10,008	-3.03%		
5	**Crow Indian Reservation**	6,894	6,863	-0.45%		
5	**Northern Cheyenne Indian Reservation**	4,470	4,789	7.14%		
1	**Flathead Indian Reservation**	26,172	28,359	8.36%		

NOTES: R = Residential R

C = Commercial/Agricultural/Industrial

CF = Critical Facilities

AL = Annual Loss

M = Million

K = Thousand

B = Billion

NA = Not Analyzed or Not Quantitied

Original Local Plan FEMA Approval Date	Local Plan Update FEMA Approval Date	Estimated Building Loss/ Exposure from Local Plan	Estimated Societal Loss/ Exposure from Local Plan	Estimated Economic Loss from Local Plan	Reference	Estimated Building Loss/ Exposure from Local Plan
2004	2010					
		Low	Low-Moderate	Moderate-High	3	
		Low	Low-Moderate	Moderate-High	3	
		Low	Low	Moderate	3	
2006		NA	NA	NA	NA	
2006	2012					NA
2004	2009	NA	NA	NA	NA	
2006	2012					NA
2005	2012					High
2012		NA	NA	NA	NA	
2010		NA	NA	NA	NA	
2005	2012					NA
2003	2008					$0
						Low
						Low
						Low
2006		NA	NA	NA	NA	

2005		$0; Low	0; Low	$800K; High	3	
2006	2012	Moderate	NA	NA	11	
2008		$0	0	$61M	3	
		NA	NA	Moderate-High	3	
		NA	NA	Moderate-High	3	
		NA	NA	Moderate-High	3	
		NA	NA	Moderate-High	3	
		NA	NA	Moderate-High	3	
		NA	NA	Moderate-High	3	
2009		NA	NA	NA	NA	
2006	2012					Low
2007		NA	NA	NA	NA	
2005	2012					NA
2008		NA	NA	NA	NA	
2006		Low	Low	$8M	3	
2006	2012					NA
2005	2011					NA
2008		NA	NA	NA	NA	

2006	2012					NA
2005	2011					NA
2007		Very High	High	NA	2	
2005	2012					NA
2004	2010					$0
						Low
						Low
						Low
						Low
						Low
2006		NA	NA	NA	NA	
2005	2012					NA
2004	2011					NA
2008		NA	NA	NA	NA	
2006	2012					
						Moderate
						Low-Moderate
						Low-Moderate
2003	2008					$0
						Low
						Low
2006	2012					NA
2005	2011					NA

2007	2011					NA
2004	2012					NA
2006						Low
2005	2012					NA
2006		NA	NA	NA	NA	
2004		NA	NA	NA	NA	
2007		NA	NA	NA	NA	
2012		NA	NA	NA	NA	
2003	2008					$0
						Low
						Low
						Low
						Low
						Low
2004	2010					NA
2010		$0	Low	$34.4M	3	
		Low-Moderate	Low-Moderate	NA	3	
		Low-Moderate	Low-Moderate	NA	3	
2005	2010					NA
2006		NA	NA	NA	NA	

2007		NA	High	Very High	2	
2007		NA	NA	NA	NA	
2003	2008					$0
						Low
						Low
						Low
						Low
						Low
2007		NA	NA	NA	NA	
2006		NA	NA	NA	NA	
2005	2012					NA
2008		NA	NA	NA	NA	
2008	2010					NA
2007		NA	NA	NA	NA	
2004	2012					NA
2008		NA	NA	NA	NA	
2008		NA	NA	NA	NA	
2006		NA	NA	NA	NA	

EFERENCES: 1 = Atkins
2 = Beck Consulting
3 = Big Sky Hazard Management
4 = Cossitt Consulting
5 = Fire Logistics, Inc.
6 = Flathead County/Hydrometrics
7 = Gallatin County
8 = Rick Gould
9 = Morrison-Maierle
10 = Northwest Management Inc.
11 = Single Tree Consulting
12 = Sweet Grass County

Estimated Societal Loss/ Exposure from Local Plan	Estimated Economic Loss from Local Plan	Reference	Estimate Building Loss/Exposure from 2010 State Plan	Estimated Societal Loss from 2010 State Plan - Below Poverty in Hazard Area	Estimated Societal Loss from 2010 State Plan - >65 in Hazard Area	Estimated Societal Loss from 2010 State Plan - <18 in Hazard Area	Estimate Building Loss/Exposure from 2013 State Plan
				1,491	1,232	2,257	
				3,632	1,042	4,549	
NA	NA	NA		1,951	902	2,281	
				466	720	1,108	
NA	NA	2		1,089	1,616	2,295	
Moderate	High	11		242	242	359	
				10,605	11,313	20,857	
				1,191	1,039	1,721	
NA	$8.2M	2		1,700	1,996	2,914	
0	$27M	3		334	476	449	
Low-Moderate	Moderate-High	3					
Low-Moderate	Moderate-High	3					
Low-Moderate	High	3					
				1,285	1,597	2,114	

				1,451	1,775	2,090	
				349	509	728	
				1,767	2,370	2,913	
				9,489	9,618	19,238	
High	High	7		8,319	5,781	14,816	
				272	247	319	
NA	NA	NA		3,568	1,252	4,661	
				253	171	290	
				472	445	693	
NA	NA	NA		2,996	2,128	4,684	
NA	NA	NA		882	1,027	2,795	
				490	400	629	

NA	NA	NA		4,862	3,855	7,434	
NA	NA	NA		5,960	6,535	14,250	
				425	421	561	
NA	NA	NA		3,558	2,849	4,751	
0	$37M	3		821	1,180	1,571	
Low-Moderate	Moderate-High	3					
Low-Moderate	Moderate-High	3					
Low-Moderate	Moderate-High	3					
Low-Moderate	Moderate-High	3					
Low-Moderate	Moderate-High	3					
				331	374	489	
				359	353	487	
NA	NA	NA		598	549	936	
NA	NA	NA		13,691	9,694	21,875	
				877	785	1,062	
				1,780	2,329	3,665	
NA	NA	3					
NA	NA	3					
NA	NA	3					
0	$9M	3		114	81	127	
Low	High	3					
Low-Moderate	High	3					
NA	NA	NA		828	801	1,248	
NA	NA	NA		1,194	1,037	1,898	

NA	NA	NA		235	340	498	
NA	NA	NA		719	1,030	1,526	
NA	NA	11		202	290	230	
NA	NA	NA		4,927	5,557	9,287	
				1,161	1,513	2,642	
				3,358	1,228	3,670	
				2,063	820	3,146	
				1,737	1,727	2,426	
Low-Moderate	$43M	3		602	966	921	
Low-Moderate	Moderate-High	3					
Low-Moderate	Moderate-High	3					
Low-Moderate	Moderate-High	3					
Low-Moderate	Moderate-High	3					
Low-Moderate	High	3					
NA	NA	NA		5,005	5,499	8,198	
				791	1,187	2,062	
NA	NA	NA		403	634	931	
				1,056	1,087	1,758	

				624	826	1,347	
				125	144	236	
Low-Moderate	$67M	3		1,026	1,459	1,937	
Low-Moderate	Moderate-High	3					
Low-Moderate	Moderate-High	3					
Low-Moderate	Moderate-High	3					
Low-Moderate	Moderate-High	3					
Low-Moderate	High	3					
				440	432	602	
				157	228	277	
Very Low	NA	1		14,032	17,223	33,136	
NA	NA	NA					
NA	Moderate	9					

Estimated Societal Loss from 2013 State Plan - Total in Hazard Area	Estimated Societal Loss from 2013 State Plan - <18 in Hazard Area

DES District	Geography	Census 2000	Census 2010	% Change 2000 to 2010	# Building Permits (2002 to 2011)	2011
	Montana	902,200	989,415	9.67%		998,199
3	**Beaverhead County**	9,192	9,246	0.59%		9,198
	Dillon city	3,752	4,134	10.18%		4,113
	Lima town	242	221	-8.68%		220
	Balance of Beaverhead County	5,198	4,891	-5.91%		4,865
5	**Big Horn County**	12,676	12,865	1.49%		13,093
	Hardin city	3,384	3,505	3.58%		3,567
	Lodge Grass town	510	428	-16.08%		436
	Balance of Big Horn County	8,782	8,932	1.71%		9,090
2	**Blaine County**	7,009	6,491	-7.39%		6,565
	Chinook city	1,386	1,203	-13.20%		1,216
	Harlem city	848	808	-4.72%		818
	Balance of Blaine County	4,775	4,480	-6.18%		4,531
3	**Broadwater County**	4,380	5,612	28.13%		5,752
	Townsend city	1,867	1,878	0.59%		1,924
	Balance of Broadwater County	2,513	3,734	48.59%		3,828
5	**Carbon County**	9,545	10,078	5.58%		10,028
	Bearcreek town	83	79	-4.82%		79
	Bridger town	745	708	-4.97%		704
	Fromberg town	486	438	-9.88%		436
	Joliet town	575	595	3.48%		593
	Red Lodge city	2,177	2,125	-2.39%		2,114
	Balance of Carbon County	5,479	6,133	11.94%		6,102
4	**Carter County**	1,358	1,160	-14.58%		1,152
	Ekalaka town	410	332	-19.02%		329
	Balance of Carter County	948	828	-12.66%		823
2	**Cascade County**	80,356	81,327	1.21%		81,837
	Belt city	633	597	-5.69%		600
	Cascade town	819	685	-16.36%		690
	Great Falls city	56,690	58,505	3.20%		58,950
	Neihart town	91	51	-43.96%		51
	Balance of Cascade County	22,123	21,489	-2.87%		21,546
2	**Chouteau County**	5,962	5,813	-2.50%		5,793
	Big Sandy town	703	598	-14.94%		595
	Fort Benton city	1,594	1,464	-8.16%		1,460
	Geraldine town	284	261	-8.10%		260
	Balance of Chouteau County	3,381	3,490	3.22%		3,478
4	**Custer County**	11,694	11,699	0.04%		11,752
	Ismay town	26	19	-26.92%		19
	Miles City city	8,487	8,410	-0.91%		8,438
	Balance of Custer County	3,181	3,270	2.80%		3,295

6	**Daniels County**	2,017	1,751	-13.19%		1,763
	Flaxville town	87	71	-18.39%		72
	Scobey city	1,082	1,017	-6.01%		1,023
	Balance of Daniels County	848	663	-21.82%		668
4	**Dawson County**	9,059	8,966	-1.03%		8,989
	Glendive city	4,729	4,935	4.36%		4,947
	Richey town	189	177	-6.35%		178
	Balance of Dawson County	4,141	3,854	-6.93%		3,864
1	**Deer Lodge County**	9,416	9,298	-1.25%		9,299
	Anaconda-Deer Lodge County	9,416	9,298	-1.25%		9,299
4	**Fallon County**	2,835	2,890	1.94%		2,956
	Baker city	1,695	1,741	2.71%		1,780
	Plevna town	138	162	17.39%		166
	Balance of Fallon County	1,002	987	-1.50%		1,010
6	**Fergus County**	11,905	11,586	-2.68%		11,506
	Denton town	301	255	-15.28%		254
	Grass Range town	149	110	-26.17%		109
	Lewistown city	5,813	5,901	1.51%		5,858
	Moore town	186	193	3.76%		191
	Winifred town	156	208	33.33%		208
	Balance of Fergus County	5,300	4,919	-7.19%		4,886
1	**Flathead County**	74,507	90,928	22.04%		91,301
	Columbia Falls city	3,645	4,688	28.61%		4,707
	Kalispell city	14,223	19,927	40.10%		20,008
	Whitefish city	5,032	6,357	26.33%		6,384
	Balance of Flathead County	51,607	59,956	16.18%		60,202
3	**Gallatin County**	67,837	89,513	31.95%		91,377
	Belgrade city	5,728	7,389	29.00%		7,549
	Bozeman city	27,509	37,280	35.52%		38,025
	Manhattan town	1,396	1,520	8.88%		1,553
	Three Forks city	1,728	1,869	8.16%		1,909
	West Yellowstone town	1,177	1,271	7.99%		1,298
	Balance of Gallatin County	30,299	40,184	32.62%		41,043
4	**Garfield County**	1,279	1,206	-5.71%		1,251
	Jordan town	364	343	-5.77%		355
	Balance of Garfield County	915	863	-5.68%		896
2	**Glacier County**	13,240	13,399	1.20%		13,624
	Browning town	1,065	1,016	-4.60%		1,026
	Cut Bank city	3,105	2,869	-7.60%		2,919
	Balance of Glacier County	9,070	9,514	4.90%		9,679
5	**Golden Valley County**	1,040	884	-15.00%		865
	Lavina town	209	187	-10.53%		182
	Ryegate town	268	245	-8.58%		240
	Balance of Golden Valley County	563	452	-19.72%		443
1	**Granite County**	2,841	3,079	8.38%		3,068
	Drummond town	318	309	-2.83%		307
	Philipsburg town	914	820	-10.28%		818
	Balance of Granite County	1,609	1,950	21.19%		1,943
2	**Hill County**	16,671	16,096	-3.45%		16,397
	Havre city	9,621	9,310	-3.23%		9,600
	Hingham town	157	118	-24.84%		121
	Balance of Hill County	6,893	6,668	-3.26%		6,676

3	**Jefferson County**	10,034	11,406	13.67%		11,381
	Boulder town	1,300	1,183	-9.00%		1,181
	Whitehall town	1,044	1,038	-0.57%		1,035
	Balance of Jefferson County	7,690	9,185	19.44%		9,165
6	**Judith Basin County**	2,326	2,072	-10.92%		2,004
	Hobson town	244	215	-11.89%		208
	Stanford town	454	401	-11.67%		389
	Balance of Judith Basin County	1,628	1,456	-10.57%		1,407
1	**Lake County**	26,482	28,746	8.55%		28,947
	Polson city	4,041	4,488	11.06%		4,524
	Ronan city	1,812	1,871	3.26%		1,883
	St. Ignatius town	788	842	6.85%		849
	Balance of Lake County	19,841	21,545	8.59%		21,691
3	**Lewis and Clark County**	55,716	63,395	13.78%		64,318
	East Helena town	1,642	1,984	20.83%		2,041
	Helena city	25,780	28,190	9.35%		28,592
	Balance of Lewis and Clark County	28,294	33,221	17.41%		33,685
2	**Liberty County**	2,158	2,339	8.39%		2,402
	Chester town	871	847	-2.76%		874
	Balance of Liberty County	1,287	1,492	15.93%		1,528
1	**Lincoln County**	18,820	19,687	4.61%		19,566
	Eureka town	1,017	1,037	1.97%		1,031
	Libby city	2,626	2,628	0.08%		2,612
	Rexford town	151	105	-30.46%		104
	Troy city	957	938	-1.99%		933
	Balance of Lincoln County	14,069	14,979	6.47%		14,886
3	**Madison County**	6,848	7,691	12.31%		7,660
	Ennis town	840	838	-0.24%		835
	Sheridan town	659	642	-2.58%		639
	Twin Bridges town	400	375	-6.25%		373
	Virginia City town	130	190	46.15%		190
	Balance of Madison County	4,819	5,646	17.16%		5,623
4	**McCone County**	1,971	1,734	-12.02%		1,711
	Circle town	644	615	-4.50%		607
	Balance of McCone County	1,327	1,119	-15.67%		1,104
3	**Meagher County**	1,928	1,891	-1.92%		1,911
	White Sulphur Springs city	984	939	-4.57%		950
	Balance of Meagher County	944	952	0.85%		961
1	**Mineral County**	3,871	4,223	9.09%		4,208
	Alberton town	374	420	12.30%		417
	Superior town	893	812	-9.07%		810
	Balance of Mineral County	2,604	2,991	14.86%		2,981
1	**Missoula County**	95,803	109,299	14.09%		110,138
	Missoula city	57,053	66,788	17.06%		67,290

	Balance of Missoula County	38,750	42,511	9.71%		42,848
5	**Musselshell County**	4,492	4,538	1.02%		4,701
	Melstone town	136	96	-29.41%		99
	Roundup city	1,931	1,788	-7.41%		1,853
	Balance of Musselshell County	2,425	2,654	9.44%		2,749
3	**Park County**	15,694	15,636	-0.37%		15,469
	Clyde Park town	310	288	-7.10%		286
	Livingston city	6,851	7,044	2.82%		6,969
	Balance of Park County	8,533	8,304	-2.68%		8,214
6	**Petroleum County**	493	494	0.20%		491
	Winnett town	185	182	-1.62%		181
	Balance of Petroleum County	308	312	1.30%		310
6	**Phillips County**	4,601	4,253	-7.56%		4,250
	Dodson town	122	124	1.64%		123
	Malta city	2,120	1,997	-5.80%		1,993
	Saco town	224	197	-12.05%		197
	Balance of Phillips County	2,135	1,935	-9.37%		1,937
2	**Pondera County**	6,425	6,153	-4.23%		6,257
	Conrad city	2,753	2,570	-6.65%		2,616
	Valier town	498	509	2.21%		518
	Balance of Pondera County	3,174	3,074	-3.15%		3,123
4	**Powder River County**	1,858	1,743	-6.19%		1,738
	Broadus town	451	468	3.77%		468
	Balance of Powder River County	1,407	1,275	-9.38%		1,270
1	**Powell County**	7,185	7,027	-2.20%		7,063
	Deer Lodge city	3,421	3,111	-9.06%		3,130
	Balance of Powell County	3,764	3,916	4.04%		3,933
4	**Prairie County**	1,199	1,179	-1.67%		1,159
	Terry town	611	605	-0.98%		594
	Balance of Prairie County	588	574	-2.38%		565
1	**Ravalli County**	36,093	40,212	11.41%		40,450
	Darby town	710	720	1.41%		724
	Hamilton city	3,705	4,348	17.35%		4,374
	Pinesdale town	742	917	23.58%		924
	Stevensville town	1,553	1,809	16.48%		1,820
	Balance of Ravalli County	29,383	32,418	10.33%		32,608
4	**Richland County**	9,666	9,746	0.83%		10,128
	Fairview town	709	840	18.48%		872
	Sidney city	4,774	5,191	8.73%		5,436
	Balance of Richland County	4,183	3,715	-11.19%		3,820
6	**Roosevelt County**	10,632	10,425	-1.95%		10,527
	Bainville town	153	208	35.95%		210
	Brockton town	245	255	4.08%		258
	Culbertson town	716	714	-0.28%		721
	Froid town	195	185	-5.13%		187
	Poplar city	911	810	-11.09%		819
	Wolf Point city	2,663	2,621	-1.58%		2,646
	Balance of Roosevelt County	5,749	5,632	-2.04%		5,686
5	**Rosebud County**	9,389	9,233	-1.66%		9,379
	Colstrip city	2,346	2,214	-5.63%		2,248
	Forsyth city	1,944	1,777	-8.59%		1,886
	Balance of Rosebud County	5,099	5,242	2.80%		5,245

1	**Sanders County**	10,238	11,413	11.48%		11,440
	Hot Springs town	531	544	2.45%		545
	Plains town	1,126	1,048	-6.93%		1,050
	Thompson Falls city	1,321	1,313	-0.61%		1,317
	Balance of Sanders County	7,260	8,508	17.19%		8,528
6	**Sheridan County**	4,105	3,384	-17.56%		3,460
	Medicine Lake town	269	225	-16.36%		230
	Outlook town	82	47	-42.68%		48
	Plentywood city	2,061	1,734	-15.87%		1,772
	Westby town	172	168	-2.33%		171
	Balance of Sheridan County	1,521	1,210	-20.45%		1,239
1	**Silver Bow County**	34,625	34,200	-1.23%		34,383
	Butte-Silver Bow (remainder)	33,911	33,525	-1.14%		33,704
	Walkerville town	714	675	-5.46%		679
5	**Stillwater County**	8,221	9,117	10.90%		9,131
	Columbus town	1,748	1,893	8.30%		1,896
	Balance of Stillwater County	6,473	7,224	11.60%		7,235
3	**Sweet Grass County**	3,601	3,651	1.39%		3,623
	Big Timber city	1,650	1,641	-0.55%		1,629
	Balance of Sweet Grass County	1,951	2,010	3.02%		1,994
2	**Teton County**	6,449	6,073	-5.83%		6,091
	Choteau city	1,781	1,684	-5.45%		1,690
	Dutton town	389	316	-18.77%		316
	Fairfield town	659	708	7.44%		710
	Balance of Teton County	3,620	3,365	-7.04%		3,375
2	**Toole County**	5,255	5,324	1.31%		5,239
	Kevin town	178	154	-13.48%		151
	Shelby city	3,216	3,376	4.98%		3,326
	Sunburst town	415	375	-9.64%		375
	Balance of Toole County	1,446	1,419	-1.87%		1,387
5	**Treasure County**	857	718	-16.22%		727
	Hysham town	330	312	-5.45%		316
	Balance of Treasure County	527	406	-22.96%		411
6	**Valley County**	7,673	7,369	-3.96%		7,487
	Fort Peck town	240	233	-2.92%		237
	Glasgow city	3,253	3,250	-0.09%		3,301
	Nashua town	325	290	-10.77%		295
	Opheim town	111	85	-23.42%		86
	Balance of Valley County	3,744	3,511	-6.22%		3,568
5	**Wheatland County**	2,259	2,168	-4.03%		2,140
	Harlowton city	1,062	997	-6.12%		984
	Judith Gap city	164	126	-23.17%		124
	Balance of Wheatland County	1,033	1,045	1.16%		1,032
4	**Wibaux County**	1,067	1,017	-4.69%		985
	Wibaux town	567	589	3.88%		571
	Balance of Wibaux County	500	428	-14.40%		414
5	**Yellowstone County**	129,347	147,972	14.40%		150,069

	Billings city	89,847	104,170	15.94%		105,636
	Broadview town	150	192	28.00%		194
	Laurel city	6,255	6,718	7.40%		6,814
	Balance of Yellowstone County	33,095	36,892	11.47%		37,425
2	**Blackfeet Indian Reservation**	10,100	10,405	3.02%		
2	**Rocky Boy's Indian Reservation**	2,676	3,323	24.18%		
2	**Fort Belknap Indian Reservation**	2,959	2,851	-3.65%		
6	**Fort Peck Indian Reservation**	10,321	10,008	-3.03%		
5	**Crow Indian Reservation**	6,894	6,863	-0.45%		
5	**Northern Cheyenne Indian Reservation**	4,470	4,789	7.14%		
1	**Flathead Indian Reservation**	26,172	28,359	8.36%		

NOTES: R = Residential R

C = Commercial/Agricultural/Industrial

CF = Critical Facilities

AL = Annual Loss

M = Million

K = Thousand

B = Billion

NA = Not Analyzed or Not Quantitied

Original Local Plan FEMA Approval Date	Local Plan Update FEMA Approval Date	Estimated Building Loss/ Exposure from Local Plan	Estimated Societal Loss/ Exposure from Local Plan	Estimated Economic Loss from Local Plan	Reference	Estimated Building Loss/ Exposure from Local Plan
2004	2010					NA
2006		NA	NA	NA	NA	
2006	2012					
						R=$34,265,641 C=$16,856,623
						R=$0; C=$0
						R=$16,011,716 C=$3,559,705
2004	2009	$30M	Moderate	Moderate	3	$50.5M
2006	2012	NA	NA	NA	NA	$47.4M
2005	2012					Moderate
2012						
		R=$0; C=$0	0	NA	13	
		R=$11,876,609 C=$3,979,380	685	NA	13	
		R=$429,570,429 C=$991,632,500	12,786	NA	13	
		R=$0; C=$0	0	NA	13	
		R=$421,269,022 C=$48,043,905	8,679	NA	13	
2010		NA	NA	NA	NA	
2005	2012	NA	NA	NA	NA	

2003	2008					NA
2006		NA	NA	NA	NA	
2005		$3M	448	Moderate	3	Low
2006	2012					NA
2008		NA	NA	NA	NA	
2009		Very High	High	NA	6	
2006	2012	NA	NA	NA	NA	Moderate
2007		NA	NA	NA	NA	
2005	2012					
						R=$0; C=$0
						R=$0; C=$0
						R=$229,983 C=$2,509
2008		NA	NA	NA	NA	
2006		$11.3M	724	Moderate	3	
2006	2012					
						R=$126,761,511 C=$77,733,647
						R=$0; C=$0
						R=$18,372,673 C=$17,756,167

2005	2011	NA	NA	NA	NA	
						R=$0; C=$0
						R=$16,920,906 C=$6,152,428
						R=$41,209,943 C=$12,678,157
2008		NA	NA	NA	13	
2006	2012					
						R=$27,392,343 C=$31,785,452
						R=$0; C=$0
						R=$4,577,891 C=$480,338
						R=$603,058,548 C=$58,782,990
2005	2011	NA	NA	NA	NA	
						R=$13,751,775 C=$8,113,311
						R=$0; C=$0
						R=$113,428,353 C=$174,436,839
2007		NA	NA	NA	NA	
2005	2012					
						R=$1,630,629 C=$2,368,872
						R=$80,355,061 C=$65,113,936
						R=$0; C=$0
						R=$22,091,420 C=$11,945,412
						R=$182,781,250 C=104,503,782
2004	2010	NA	NA	NA	NA	$1.2B
2006		NA	NA	NA	NA	
2005	2012					NA
2004	2011	$5M-$10M	Moderate	NA	1	$5M; AL=$10K

2008		NA	NA	NA	NA	
2006	2012					$792,750
						Moderate
						NA
						Moderate
2003	2008					$709K
2006	2012					
						R=$0; C=$0
						R=$0; C=$0
						R=$5,163,951 C=$2,392,372
						R=$4,030,952 C=$519,248
2005	2011	NA	NA	NA	NA	
						R=$0; C=$0
						R=$0; C=$0
						R=$5,212,653 C=$1,757,441
2007	2011					NA
2004	2012					NA
2006						Low
2005	2012	$500M-$1B	Very High	NA	1	$2M
						Very High
						Very High
						Low
						Very High
2006		NA	NA	NA	NA	
2004		NA	NA	NA	13	
2007		NA	NA	NA	NA	

2012						
		R=$0; C=$0	0	NA	13	
		R=$28,632,062 C=$24,082,081	1,048	NA	13	
		R=$2,120,145 C=$1,192,540	107	NA	13	
		R=$156,106,384 C=$21,153,224	4,652	NA	13	
2003	2008					1,000 structures
2004	2010	$9M	Moderate	Moderate	3	
						$732,145,971
						$229,341
2010		$34M	1,190	NA	3	
		Low-Moderate	Low-Moderate	NA	3	
		High	High	NA	3	
2005	2010					NA
2006		NA	NA	NA	NA	
2007		NA	NA	NA	NA	
2007		NA	NA	NA	NA	
2003	2008					NA
2007		combined w/ flooding	combined w/ flooding	combined w/ flooding		
2006		NA	NA	NA	NA	
2005	2012	NA	NA	NA	NA	<$250K

2008		NA	NA	NA	NA	
2008	2010					R=$9,222,388 CF=$16,610+
2007		NA	NA	NA	NA	
2004	2012					High
2008		NA	NA	NA	NA	
2008		NA	NA	NA	NA	
2006		NA	NA	NA	NA	

:EFERENCES: 1 = Atkins
2 = Beck Consulting
3 = Big Sky Hazard Management
4 = Cossitt Consulting
5 = Fire Logistics, Inc.
6 = Flathead County/Hydrometrics
7 = Gallatin County
8 = Rick Gould
9 = Morrison-Maierle
10 = Northwest Management Inc.
11 = Single Tree Consulting
12 = Sweet Grass County

Estimated Societal Loss/ Exposure from Local Plan	Estimated Economic Loss from Local Plan	Reference	Estimate Building Loss/Exposure from 2010 State Plan	Estimated Societal Loss from 2010 State Plan - Below Poverty in Hazard Area	Estimated Societal Loss from 2010 State Plan - >65 in Hazard Area	Estimated Societal Loss from 2010 State Plan - <18 in Hazard Area	Estimate Building Loss/Exposure from 2013 State Plan
NA	NA	NA	$1,460,288	2	1	3	
			$61,070	0	0	0	
			$2,078,320	3	3	4	
1,203	NA	13					
0	NA	13					
911	NA	13					
Moderate	Moderate	3	$130,784,929	170	296	338	
NA	NA	2	$47,361,568	47	73	100	
Low	Moderate	11	$0	0	0	0	
			$62,258,788	42	59	134	
			$6,570,258	6	11	12	
			$927,501,497	1,267	1,382	2,053	

NA	NA	NA	$0	0	0	0	
			$0	0	0	0	
Low	NA	9	$30,694,067	30	45	55	
NA	NA	NA	$392,166	0	0	1	
			$99,057,535	110	188	197	
			$14,078,273	20	15	40	
Moderate	Moderate	7	$314,719,653	204	219	777	
			$36,477	0	0	0	
			$1,480,779	2	2	4	
0	NA	13					
0	NA	13					
30	NA	13					
			$1,799,485	4	2	4	
			$11,617,722	13	13	20	
			$224,581,258	327	224	486	
6,113	NA	13					
0	NA	13					
1,426	NA	13					

			$22,308,444	21	26	58	
0	NA	13					
961	NA	13					
3,550	NA	13					
			$671,091	1	1	2	
			$0	0	0	0	
543	NA	13					
0	NA	13					
149	NA	13					
7,422	NA	13					
			$94,319,875	57	78	235	
671	NA	13					
0	NA	13					
6,791	NA	13					
			$0	0	0	0	
			$366,366,078	366	527	562	
173	NA	13					
2,550	NA	13					
0	NA	13					
938	NA	13					
6,330	NA	13					
NA	NA	3	$19,546,368	21	24	40	
			$0	0	0	0	
			$5,267,035	6	6	8	
NA	NA	NA	$0	0	0	0	
Low	NA	1	$594,054,696	387	523	1,253	

			$44,624,340	62	68	78	
25 residences	NA	3	$2,324,799	2	3	5	
NA	NA	3					
NA	NA	3					
NA	NA	3					
NA	NA	NA	$430,265	1	1	1	
			$0	0	0	0	
0	NA	13					
0	NA	13					
197	NA	13					
138	NA	13					
			$18,010,801	52	24	64	
0	NA	13					
0	NA	13					
660	NA	13					
NA	NA	NA	$0	0	0	0	
NA	NA	NA	$17,156,564	10	19	27	
NA	NA	11	$0	0	0	0	
	NA	1	$195,967,355	224	261	482	
High	NA	1					
High	NA	1					
Low	NA	1					
High	NA	1					
			$134,530	0	0	0	
			$0	0	0	0	
			$9,519,805	43	6	44	

			$0	0	0	0	
NA	NA	NA	$8,495,478	8	12	12	
			$727,287,437	618	1,195	1,463	
<18=620 >65=1,199 <Poverty=1,473	NA	13					
<18=1 >65=2 <Poverty=3	NA	13					
			$0	0	0	0	
NA	NA	NA	$579,186	0	1	1	
			$29,211,189	42	40	69	
			$9,349,670	6	11	16	
			$0	0	0	0	
NA	NA	NA	$0	0	0	0	
			$8,145,918	12	12	16	
			$0	0	0	0	
Moderate	NA	1	$1,378,598,392	2,601	1,265	3,294	

<16=98 >64=12 <Poverty=98	NA	13					
High	NA	9					

Estimated Societal Loss from 2013 State Plan - Total in Hazard Area	Estimated Societal Loss from 2013 State Plan - <18 in Hazard Area

DES District	Geography	Census 2000	Census 2010	% Change 2000 to 2010	# Building Permits (2002 to 2011)	2011
	Montana	902,200	989,415	9.67%		998,199
3	**Beaverhead County**	9,192	9,246	0.59%		9,198
	Dillon city	3,752	4,134	10.18%		4,113
	Lima town	242	221	-8.68%		220
	Balance of Beaverhead County	5,198	4,891	-5.91%		4,865
5	**Big Horn County**	12,676	12,865	1.49%		13,093
	Hardin city	3,384	3,505	3.58%		3,567
	Lodge Grass town	510	428	-16.08%		436
	Balance of Big Horn County	8,782	8,932	1.71%		9,090
2	**Blaine County**	7,009	6,491	-7.39%		6,565
	Chinook city	1,386	1,203	-13.20%		1,216
	Harlem city	848	808	-4.72%		818
	Balance of Blaine County	4,775	4,480	-6.18%		4,531
3	**Broadwater County**	4,380	5,612	28.13%		5,752
	Townsend city	1,867	1,878	0.59%		1,924
	Balance of Broadwater County	2,513	3,734	48.59%		3,828
5	**Carbon County**	9,545	10,078	5.58%		10,028
	Bearcreek town	83	79	-4.82%		79
	Bridger town	745	708	-4.97%		704
	Fromberg town	486	438	-9.88%		436
	Joliet town	575	595	3.48%		593
	Red Lodge city	2,177	2,125	-2.39%		2,114
	Balance of Carbon County	5,479	6,133	11.94%		6,102
4	**Carter County**	1,358	1,160	-14.58%		1,152
	Ekalaka town	410	332	-19.02%		329
	Balance of Carter County	948	828	-12.66%		823
2	**Cascade County**	80,356	81,327	1.21%		81,837
	Belt city	633	597	-5.69%		600
	Cascade town	819	685	-16.36%		690
	Great Falls city	56,690	58,505	3.20%		58,950
	Neihart town	91	51	-43.96%		51
	Balance of Cascade County	22,123	21,489	-2.87%		21,546
2	**Chouteau County**	5,962	5,813	-2.50%		5,793
	Big Sandy town	703	598	-14.94%		595
	Fort Benton city	1,594	1,464	-8.16%		1,460
	Geraldine town	284	261	-8.10%		260
	Balance of Chouteau County	3,381	3,490	3.22%		3,478
4	**Custer County**	11,694	11,699	0.04%		11,752
	Ismay town	26	19	-26.92%		19
	Miles City city	8,487	8,410	-0.91%		8,438
	Balance of Custer County	3,181	3,270	2.80%		3,295
6	**Daniels County**	2,017	1,751	-13.19%		1,763
	Flaxville town	87	71	-18.39%		72
	Scobey city	1,082	1,017	-6.01%		1,023
	Balance of Daniels County	848	663	-21.82%		668
4	**Dawson County**	9,059	8,966	-1.03%		8,989

	Glendive city	4,729	4,935	4.36%		4,947
	Richey town	189	177	-6.35%		178
	Balance of Dawson County	4,141	3,854	-6.93%		3,864
1	**Deer Lodge County**	9,416	9,298	-1.25%		9,299
	Anaconda-Deer Lodge County	9,416	9,298	-1.25%		9,299
4	**Fallon County**	2,835	2,890	1.94%		2,956
	Baker city	1,695	1,741	2.71%		1,780
	Plevna town	138	162	17.39%		166
	Balance of Fallon County	1,002	987	-1.50%		1,010
6	**Fergus County**	11,905	11,586	-2.68%		11,506
	Denton town	301	255	-15.28%		254
	Grass Range town	149	110	-26.17%		109
	Lewistown city	5,813	5,901	1.51%		5,858
	Moore town	186	193	3.76%		191
	Winifred town	156	208	33.33%		208
	Balance of Fergus County	5,300	4,919	-7.19%		4,886
1	**Flathead County**	74,507	90,928	22.04%		91,301
	Columbia Falls city	3,645	4,688	28.61%		4,707
	Kalispell city	14,223	19,927	40.10%		20,008
	Whitefish city	5,032	6,357	26.33%		6,384
	Balance of Flathead County	51,607	59,956	16.18%		60,202
3	**Gallatin County**	67,837	89,513	31.95%		91,377
	Belgrade city	5,728	7,389	29.00%		7,549
	Bozeman city	27,509	37,280	35.52%		38,025
	Manhattan town	1,396	1,520	8.88%		1,553
	Three Forks city	1,728	1,869	8.16%		1,909
	West Yellowstone town	1,177	1,271	7.99%		1,298
	Balance of Gallatin County	30,299	40,184	32.62%		41,043
4	**Garfield County**	1,279	1,206	-5.71%		1,251
	Jordan town	364	343	-5.77%		355
	Balance of Garfield County	915	863	-5.68%		896
2	**Glacier County**	13,240	13,399	1.20%		13,624
	Browning town	1,065	1,016	-4.60%		1,026
	Cut Bank city	3,105	2,869	-7.60%		2,919
	Balance of Glacier County	9,070	9,514	4.90%		9,679
5	**Golden Valley County**	1,040	884	-15.00%		865
	Lavina town	209	187	-10.53%		182
	Ryegate town	268	245	-8.58%		240
	Balance of Golden Valley County	563	452	-19.72%		443
1	**Granite County**	2,841	3,079	8.38%		3,068
	Drummond town	318	309	-2.83%		307
	Philipsburg town	914	820	-10.28%		818
	Balance of Granite County	1,609	1,950	21.19%		1,943
2	**Hill County**	16,671	16,096	-3.45%		16,397
	Havre city	9,621	9,310	-3.23%		9,600
	Hingham town	157	118	-24.84%		121
	Balance of Hill County	6,893	6,668	-3.26%		6,676
3	**Jefferson County**	10,034	11,406	13.67%		11,381
	Boulder town	1,300	1,183	-9.00%		1,181
	Whitehall town	1,044	1,038	-0.57%		1,035
	Balance of Jefferson County	7,690	9,185	19.44%		9,165
6	**Judith Basin County**	2,326	2,072	-10.92%		2,004
	Hobson town	244	215	-11.89%		208

	Stanford town	454	401	-11.67%		389
	Balance of Judith Basin County	1,628	1,456	-10.57%		1,407
1	**Lake County**	26,482	28,746	8.55%		28,947
	Polson city	4,041	4,488	11.06%		4,524
	Ronan city	1,812	1,871	3.26%		1,883
	St. Ignatius town	788	842	6.85%		849
	Balance of Lake County	19,841	21,545	8.59%		21,691
3	**Lewis and Clark County**	55,716	63,395	13.78%		64,318
	East Helena town	1,642	1,984	20.83%		2,041
	Helena city	25,780	28,190	9.35%		28,592
	Balance of Lewis and Clark County	28,294	33,221	17.41%		33,685
2	**Liberty County**	2,158	2,339	8.39%		2,402
	Chester town	871	847	-2.76%		874
	Balance of Liberty County	1,287	1,492	15.93%		1,528
1	**Lincoln County**	18,820	19,687	4.61%		19,566
	Eureka town	1,017	1,037	1.97%		1,031
	Libby city	2,626	2,628	0.08%		2,612
	Rexford town	151	105	-30.46%		104
	Troy city	957	938	-1.99%		933
	Balance of Lincoln County	14,069	14,979	6.47%		14,886
3	**Madison County**	6,848	7,691	12.31%		7,660
	Ennis town	840	838	-0.24%		835
	Sheridan town	659	642	-2.58%		639
	Twin Bridges town	400	375	-6.25%		373
	Virginia City town	130	190	46.15%		190
	Balance of Madison County	4,819	5,646	17.16%		5,623
4	**McCone County**	1,971	1,734	-12.02%		1,711
	Circle town	644	615	-4.50%		607
	Balance of McCone County	1,327	1,119	-15.67%		1,104
3	**Meagher County**	1,928	1,891	-1.92%		1,911
	White Sulphur Springs city	984	939	-4.57%		950
	Balance of Meagher County	944	952	0.85%		961
1	**Mineral County**	3,871	4,223	9.09%		4,208
	Alberton town	374	420	12.30%		417
	Superior town	893	812	-9.07%		810
	Balance of Mineral County	2,604	2,991	14.86%		2,981
1	**Missoula County**	95,803	109,299	14.09%		110,138
	Missoula city	57,053	66,788	17.06%		67,290
	Balance of Missoula County	38,750	42,511	9.71%		42,848
5	**Musselshell County**	4,492	4,538	1.02%		4,701
	Melstone town	136	96	-29.41%		99
	Roundup city	1,931	1,788	-7.41%		1,853
	Balance of Musselshell County	2,425	2,654	9.44%		2,749
3	**Park County**	15,694	15,636	-0.37%		15,469
	Clyde Park town	310	288	-7.10%		286
	Livingston city	6,851	7,044	2.82%		6,969
	Balance of Park County	8,533	8,304	-2.68%		8,214
6	**Petroleum County**	493	494	0.20%		491
	Winnett town	185	182	-1.62%		181
	Balance of Petroleum County	308	312	1.30%		310
6	**Phillips County**	4,601	4,253	-7.56%		4,250
	Dodson town	122	124	1.64%		123
	Malta city	2,120	1,997	-5.80%		1,993

	Saco town	224	197	-12.05%		197
	Balance of Phillips County	2,135	1,935	-9.37%		1,937
2	**Pondera County**	6,425	6,153	-4.23%		6,257
	Conrad city	2,753	2,570	-6.65%		2,616
	Valier town	498	509	2.21%		518
	Balance of Pondera County	3,174	3,074	-3.15%		3,123
4	**Powder River County**	1,858	1,743	-6.19%		1,738
	Broadus town	451	468	3.77%		468
	Balance of Powder River County	1,407	1,275	-9.38%		1,270
1	**Powell County**	7,185	7,027	-2.20%		7,063
	Deer Lodge city	3,421	3,111	-9.06%		3,130
	Balance of Powell County	3,764	3,916	4.04%		3,933
4	**Prairie County**	1,199	1,179	-1.67%		1,159
	Terry town	611	605	-0.98%		594
	Balance of Prairie County	588	574	-2.38%		565
1	**Ravalli County**	36,093	40,212	11.41%		40,450
	Darby town	710	720	1.41%		724
	Hamilton city	3,705	4,348	17.35%		4,374
	Pinesdale town	742	917	23.58%		924
	Stevensville town	1,553	1,809	16.48%		1,820
	Balance of Ravalli County	29,383	32,418	10.33%		32,608
4	**Richland County**	9,666	9,746	0.83%		10,128
	Fairview town	709	840	18.48%		872
	Sidney city	4,774	5,191	8.73%		5,436
	Balance of Richland County	4,183	3,715	-11.19%		3,820
6	**Roosevelt County**	10,632	10,425	-1.95%		10,527
	Bainville town	153	208	35.95%		210
	Brockton town	245	255	4.08%		258
	Culbertson town	716	714	-0.28%		721
	Froid town	195	185	-5.13%		187
	Poplar city	911	810	-11.09%		819
	Wolf Point city	2,663	2,621	-1.58%		2,646
	Balance of Roosevelt County	5,749	5,632	-2.04%		5,686
5	**Rosebud County**	9,389	9,233	-1.66%		9,379
	Colstrip city	2,346	2,214	-5.63%		2,248
	Forsyth city	1,944	1,777	-8.59%		1,886
	Balance of Rosebud County	5,099	5,242	2.80%		5,245
1	**Sanders County**	10,238	11,413	11.48%		11,440
	Hot Springs town	531	544	2.45%		545
	Plains town	1,126	1,048	-6.93%		1,050
	Thompson Falls city	1,321	1,313	-0.61%		1,317
	Balance of Sanders County	7,260	8,508	17.19%		8,528
6	**Sheridan County**	4,105	3,384	-17.56%		3,460
	Medicine Lake town	269	225	-16.36%		230
	Outlook town	82	47	-42.68%		48
	Plentywood city	2,061	1,734	-15.87%		1,772
	Westby town	172	168	-2.33%		171
	Balance of Sheridan County	1,521	1,210	-20.45%		1,239
1	**Silver Bow County**	34,625	34,200	-1.23%		34,383
	Butte-Silver Bow (remainder)	33,911	33,525	-1.14%		33,704

	Walkerville town	714	675	-5.46%		679
5	**Stillwater County**	8,221	9,117	10.90%		9,131
	Columbus town	1,748	1,893	8.30%		1,896
	Balance of Stillwater County	6,473	7,224	11.60%		7,235
3	**Sweet Grass County**	3,601	3,651	1.39%		3,623
	Big Timber city	1,650	1,641	-0.55%		1,629
	Balance of Sweet Grass County	1,951	2,010	3.02%		1,994
2	**Teton County**	6,449	6,073	-5.83%		6,091
	Choteau city	1,781	1,684	-5.45%		1,690
	Dutton town	389	316	-18.77%		316
	Fairfield town	659	708	7.44%		710
	Balance of Teton County	3,620	3,365	-7.04%		3,375
2	**Toole County**	5,255	5,324	1.31%		5,239
	Kevin town	178	154	-13.48%		151
	Shelby city	3,216	3,376	4.98%		3,326
	Sunburst town	415	375	-9.64%		375
	Balance of Toole County	1,446	1,419	-1.87%		1,387
5	**Treasure County**	857	718	-16.22%		727
	Hysham town	330	312	-5.45%		316
	Balance of Treasure County	527	406	-22.96%		411
6	**Valley County**	7,673	7,369	-3.96%		7,487
	Fort Peck town	240	233	-2.92%		237
	Glasgow city	3,253	3,250	-0.09%		3,301
	Nashua town	325	290	-10.77%		295
	Opheim town	111	85	-23.42%		86
	Balance of Valley County	3,744	3,511	-6.22%		3,568
5	**Wheatland County**	2,259	2,168	-4.03%		2,140
	Harlowton city	1,062	997	-6.12%		984
	Judith Gap city	164	126	-23.17%		124
	Balance of Wheatland County	1,033	1,045	1.16%		1,032
4	**Wibaux County**	1,067	1,017	-4.69%		985
	Wibaux town	567	589	3.88%		571
	Balance of Wibaux County	500	428	-14.40%		414
5	**Yellowstone County**	129,347	147,972	14.40%		150,069
	Billings city	89,847	104,170	15.94%		105,636
	Broadview town	150	192	28.00%		194
	Laurel city	6,255	6,718	7.40%		6,814
	Balance of Yellowstone County	33,095	36,892	11.47%		37,425
2	**Blackfeet Indian Reservation**	10,100	10,405	3.02%		
2	**Rocky Boy's Indian Reservation**	2,676	3,323	24.18%		
2	**Fort Belknap Indian Reservation**	2,959	2,851	-3.65%		
6	**Fort Peck Indian Reservation**	10,321	10,008	-3.03%		
5	**Crow Indian Reservation**	6,894	6,863	-0.45%		
5	**Northern Cheyenne Indian Reservation**	4,470	4,789	7.14%		
1	**Flathead Indian Reservation**	26,172	28,359	8.36%		

NOTES: R = Residential

C = Commercial/Agricultural/Industrial

CF = Critical Facilities

AL = Annual Loss

M = Million

R

K = Thousand
B = Billion

NA = Not Analyzed or Not Quantitied

Original Local Plan FEMA Approval Date	Local Plan Update FEMA Approval Date	Estimated Building Loss/ Exposure from Local Plan	Estimated Societal Loss/ Exposure from Local Plan	Estimated Economic Loss from Local Plan	Reference	Estimated Building Loss/ Exposure from Local Plan
2004	2010	NA	NA	NA	NA	
2006		NA	NA	NA	NA	
2006	2012					NA
2004	2009					
						Low
						Low
2006	2012	$20M	NA	High	2	NA
2005	2012					Low
2012		NA	NA	NA	NA	
2010		NA	NA	NA	NA	
2005	2012					NA
2003	2008					NA
2006		NA	NA	NA	NA	

2005		Low	Low	Low	3	
2006	2012					NA
2008		NA	NA	NA	NA	
2009		NA	NA	NA	NA	
2006	2012	Low	Low	Low	7	Low
2007		NA	NA	NA	NA	
2005	2012	NA	NA	NA	NA	
2008		NA	NA	NA	NA	
2006		Low	Low	Low	3	
2006	2012					
						R=$0; C=$0
						R=$0; C=$0
						R=$90,538 C=$10,314,672
2005	2011					
						R=$0; C=$0
						R=$0; C=$0
						R=$898,348 C=$637,332
2008		NA	NA	NA	NA	

2006	2012	NA	NA	NA	NA	
						R=$0; C=$0
						R=$0; C=$0
						R=$0; C=$0
						R=$65,526,956 C=$10,389,748
2005	2011	NA	NA	NA	NA	
2007		NA	NA	NA	NA	
2005	2012	1	1	NA		
						R=$0; C=$0
						R=$0; C=$0
						R=$0; C=$0
						R=$0; C=$0
						R=$16,386,123 C=$1,493,890
2004	2010	NA	NA	NA	NA	
						Low
						Low
						Low
						Low
						Low
2006		NA	NA	NA	NA	
2005	2012	$500K-$1M	Low	NA	1	
						Low
						Low
						Low
2004	2011	$500K-$1M	Low	NA	1	$500K; AL=$20K
2008		NA	NA	NA	NA	
2006	2012	NA	NA	NA	NA	
						NA
						NA
						Low
2003	2008					
2006	2012					NA

2005	2011					NA
2007	2011					NA
2004	2012	Low	Low	NA	9	
2006		NA	NA	NA	NA	
2005	2012	$500K-$1M	Low	NA	1	$0
						Low
						Low
						Low
						Low
						Low
2006		NA	NA	NA	NA	
2004		NA	NA	NA	13	
2007		NA	NA	NA	NA	
2012						
		R=$0; C=$0	0	NA	13	
		R=$0; C=$0	0	NA	13	
		R=$0; C=$0	0	NA	13	
		R=$17,799,744 C=$4,184,608	2,288	NA	13	
2003	2008					NA
2004	2010	Low	Low	Low	3	
						$8,030,857

						$147,735
2010		Low-Moderate	Low-Moderate	NA	3	
		NA	NA	NA	3	
		Low	Low	NA	3	
2005	2010					NA
2006		NA	NA	NA	NA	
2007		NA	NA	NA	NA	
2007		Moderate	Moderate	Low-Moderate	3	
2003	2008					NA
2007		NA	NA	NA	NA	
2006		NA	NA	NA	NA	
2005	2012					$50K
2008		NA	NA	NA	NA	
2008	2010					R=$83,643 CF=$0
2007		NA	NA	NA	NA	
2004	2012					NA
2008		NA	NA	NA	NA	
2008		NA	NA	NA	NA	
2006		NA	NA	NA	NA	

EFERENCES: 1 = Atkins
2 = Beck Consulting
3 = Big Sky Hazard Management
4 = Cossitt Consulting
5 = Fire Logistics, Inc.

6 = Flathead County/Hydrometrics
7 = Gallatin County
8 = Rick Gould
9 = Morrison-Maierle
10 = Northwest Management Inc.
11 = Single Tree Consulting
12 = Sweet Grass County

Estimated Societal Loss/ Exposure from Local Plan	Estimated Economic Loss from Local Plan	Reference	Estimate Building Loss/Exposure from 2010 State Plan	Estimated Societal Loss from 2010 State Plan - Below Poverty in Hazard Area	Estimated Societal Loss from 2010 State Plan - >65 in Hazard Area	Estimated Societal Loss from 2010 State Plan - <18 in Hazard Area	Estimate Building Loss/Exposure from 2013 State Plan	Estimated Societal Loss from 2013 State Plan - Total in Hazard Area
			$14,780,173	21	13	31		
			$8,544,638	49	11	57		
NA	NA	NA	$786,534	1	1	2		
			$3,986,382	352	615	693		
Low	Low	3						
Moderate-Low	Low	3						
NA	NA	2	$38,832,480	12	27	41		
Low	Low	11	$1,173,563	2	2	3		
			$36,246,157	39	43	74		
			$4,085,258	0	0	0		
NA	NA	NA	$11,500	0	0	0		
NA	NA	NA	$0	0	0	0		
			$0	0	0	0		

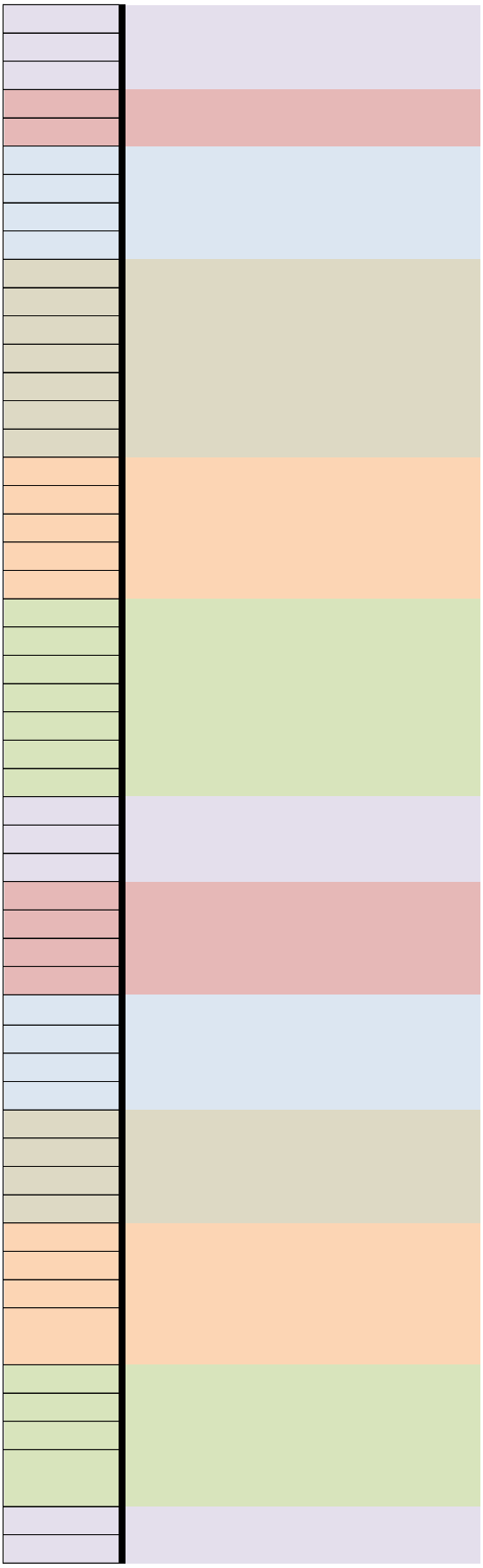
			$15,047,419	20	22	24		
NA	NA	NA	$110,171	0	0	0		
			$13,623,093	18	17	27		
			$172,656,986	190	139	342		
Moderate	Moderate	7	$224,256,707	83	84	241		
			$4,893,658	0	0	0		
			$6,837,089	0	0	0		
			$883,960	0	0	0		
			$18,884,635	0	0	0		
			$477,670	0	0	0		
0	NA	13						
0	NA	13						
608	NA	13						
			$3,342,109	0	0	0		
0	NA	13						
0	NA	13						
1,117	NA	13						
			$7,744,113	0	0	0		

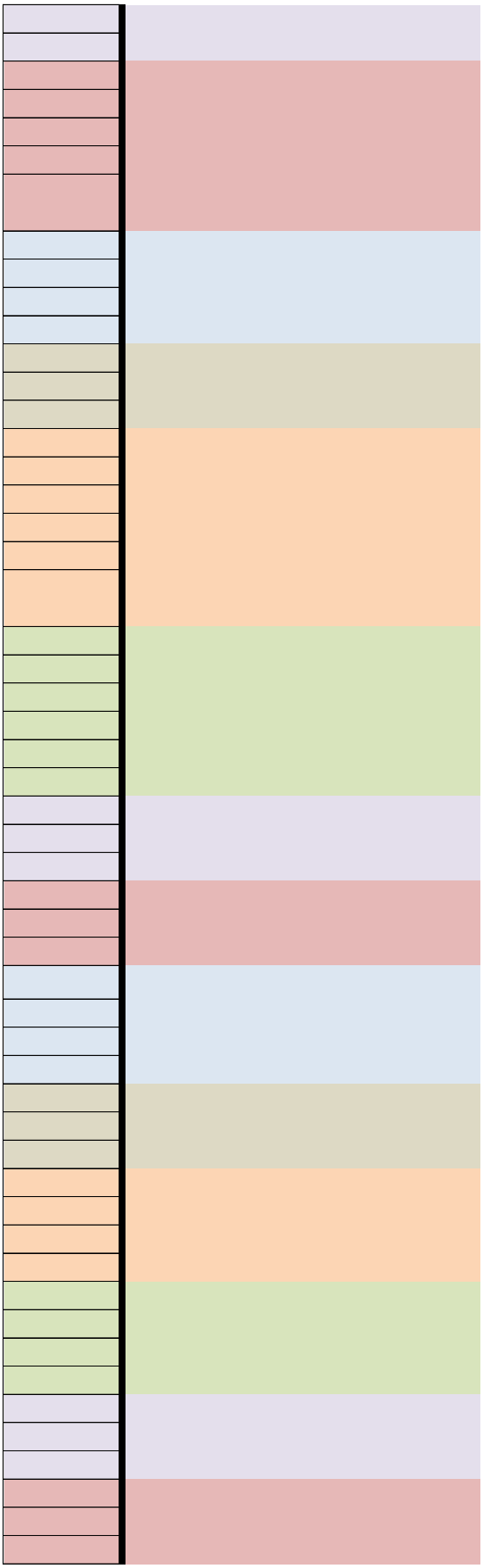
			$139,652,169	0	0	0		
0	NA	13						
0	NA	13						
0	NA	13						
2,266	NA	13						
			$34,628,655	0	0	0		
			$304,073	0	0	0		
			$67,904,537	129	93	169		
0	NA	13						
0	NA	13						
0	NA	13						
0	NA	13						
2,443	NA	13						
			$71,923,433	50	81	96		
Low	Low	3						
Low	Low	3						
Low	Low	3						
Low-Moderate	Low	3						
Low-Moderate	Low	3						
			$1,698,954	0	0	0		
			$2,680,566	3	3	4		
			$35,803,158	49	45	77		
Very Low	NA	1						
Very Low	NA	1						
Very Low	NA	1						
Low	NA	1	$250,462,833	188	217	581		
			$33,023	0	0	0		
			$72,233,529	59	58	125		
NA	NA	3						
NA	NA	3						
NA	NA	3						
			$101,619	0	0	0		
NA	NA	NA	$8,968,532	13	13	19		

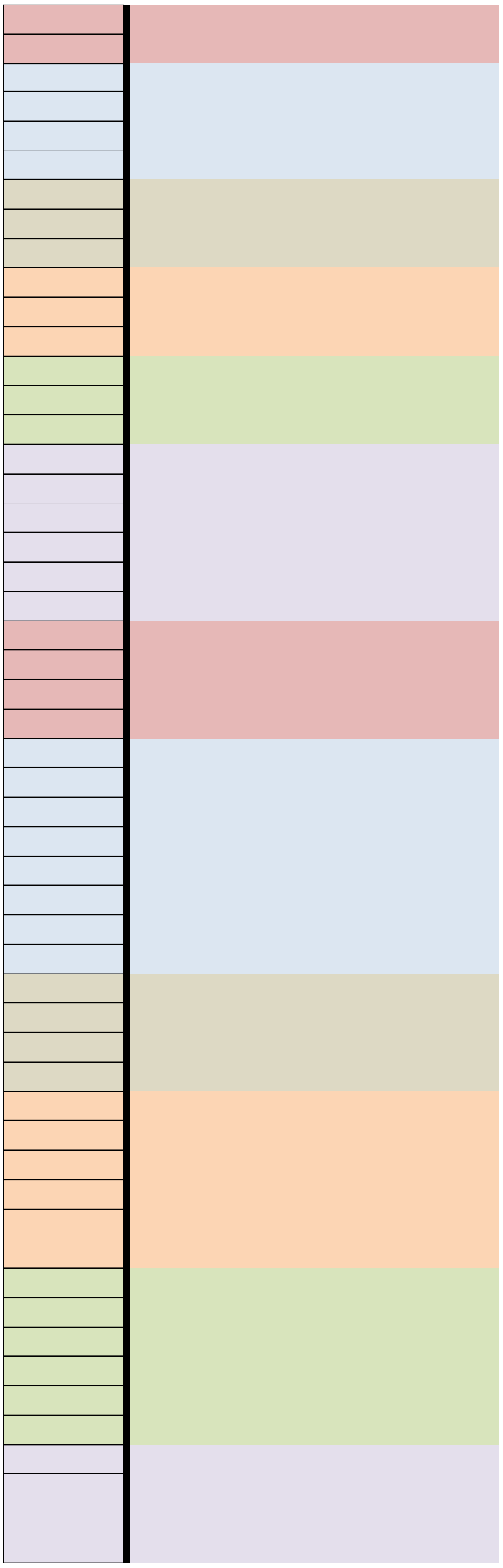
NA	NA	NA	$4,328,032	12	7	13		
NA	NA	NA	$2,996	2	2	3		
			$22,341,187	21	25	39		
			$47,572	0	0	0		
Very Low	NA	1	$399,736,578	466	551	880		
Very Low	NA	1						
Very Low	NA	1						
Very Low	NA	1						
Very Low	NA	1						
Very Low	NA	1						
			$0	0	0	0		
			$0	0	0	0		
			$48,854	0	0	0		
			$85,710,907	107	113	170		
NA	NA	NA	$0	0	0	0		
			$8,030,857	4	6	15		
<18=15 >65=6 <Poverty=4								

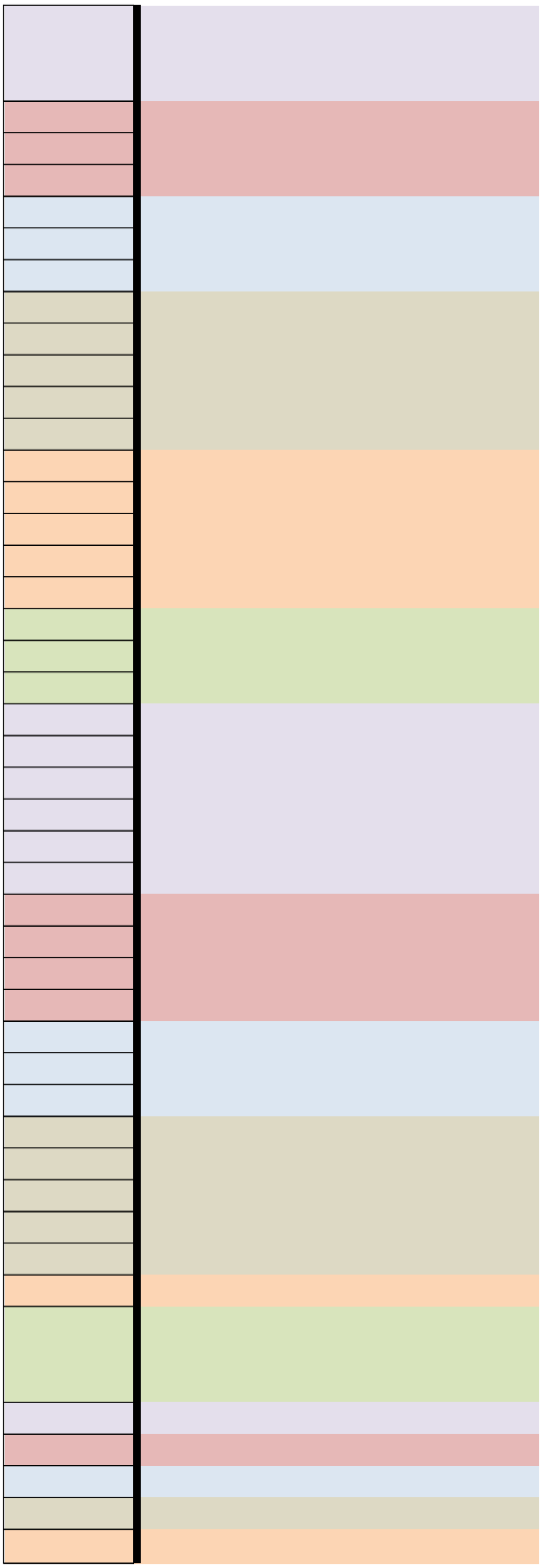
<18=7 >65=2 <Poverty=1								
			$42,582,536	16	39	49		
NA	NA	NA	$17,201,530	13	21	31		
			$18,343,290	30	32	39		
			$721,636	1	1	2		
			$0	0	0	0		
NA	NA	NA	$10,161,469	8	14	16		
			$1,244,585	2	2	2		
			$0	0	0	0		
Low	NA	1	$159,044,858	122	165	218		
<16=0 >64=0 <Poverty=0	NA	13						
NA	NA	NA						

Estimated Societal Loss from 2013 State Plan - <18 in Hazard Area









DES District	Geography	Census 2000	Census 2010	% Change 2000 to 2010	# Building Permits (2002 to 2011)	2011
	Montana	902,200	989,415	9.67%		998,199
3	**Beaverhead County**	9,192	9,246	0.59%		9,198
	Dillon city	3,752	4,134	10.18%		4,113
	Lima town	242	221	-8.68%		220
	Balance of Beaverhead County	5,198	4,891	-5.91%		4,865
5	**Big Horn County**	12,676	12,865	1.49%		13,093
	Hardin city	3,384	3,505	3.58%		3,567
	Lodge Grass town	510	428	-16.08%		436
	Balance of Big Horn County	8,782	8,932	1.71%		9,090
2	**Blaine County**	7,009	6,491	-7.39%		6,565
	Chinook city	1,386	1,203	-13.20%		1,216
	Harlem city	848	808	-4.72%		818
	Balance of Blaine County	4,775	4,480	-6.18%		4,531
3	**Broadwater County**	4,380	5,612	28.13%		5,752
	Townsend city	1,867	1,878	0.59%		1,924
	Balance of Broadwater County	2,513	3,734	48.59%		3,828
5	**Carbon County**	9,545	10,078	5.58%		10,028
	Bearcreek town	83	79	-4.82%		79
	Bridger town	745	708	-4.97%		704
	Fromberg town	486	438	-9.88%		436
	Joliet town	575	595	3.48%		593
	Red Lodge city	2,177	2,125	-2.39%		2,114
	Balance of Carbon County	5,479	6,133	11.94%		6,102
4	**Carter County**	1,358	1,160	-14.58%		1,152
	Ekalaka town	410	332	-19.02%		329
	Balance of Carter County	948	828	-12.66%		823
2	**Cascade County**	80,356	81,327	1.21%		81,837
	Belt city	633	597	-5.69%		600
	Cascade town	819	685	-16.36%		690
	Great Falls city	56,690	58,505	3.20%		58,950
	Neihart town	91	51	-43.96%		51
	Balance of Cascade County	22,123	21,489	-2.87%		21,546
2	**Chouteau County**	5,962	5,813	-2.50%		5,793
	Big Sandy town	703	598	-14.94%		595
	Fort Benton city	1,594	1,464	-8.16%		1,460
	Geraldine town	284	261	-8.10%		260
	Balance of Chouteau County	3,381	3,490	3.22%		3,478
4	**Custer County**	11,694	11,699	0.04%		11,752
	Ismay town	26	19	-26.92%		19
	Miles City city	8,487	8,410	-0.91%		8,438
	Balance of Custer County	3,181	3,270	2.80%		3,295
6	**Daniels County**	2,017	1,751	-13.19%		1,763
	Flaxville town	87	71	-18.39%		72
	Scobey city	1,082	1,017	-6.01%		1,023
	Balance of Daniels County	848	663	-21.82%		668
4	**Dawson County**	9,059	8,966	-1.03%		8,989

	Glendive city	4,729	4,935	4.36%		4,947
	Richey town	189	177	-6.35%		178
	Balance of Dawson County	4,141	3,854	-6.93%		3,864
1	**Deer Lodge County**	9,416	9,298	-1.25%		9,299
	Anaconda-Deer Lodge County	9,416	9,298	-1.25%		9,299
4	**Fallon County**	2,835	2,890	1.94%		2,956
	Baker city	1,695	1,741	2.71%		1,780
	Plevna town	138	162	17.39%		166
	Balance of Fallon County	1,002	987	-1.50%		1,010
6	**Fergus County**	11,905	11,586	-2.68%		11,506
	Denton town	301	255	-15.28%		254
	Grass Range town	149	110	-26.17%		109
	Lewistown city	5,813	5,901	1.51%		5,858
	Moore town	186	193	3.76%		191
	Winifred town	156	208	33.33%		208
	Balance of Fergus County	5,300	4,919	-7.19%		4,886
1	**Flathead County**	74,507	90,928	22.04%		91,301
	Columbia Falls city	3,645	4,688	28.61%		4,707
	Kalispell city	14,223	19,927	40.10%		20,008
	Whitefish city	5,032	6,357	26.33%		6,384
	Balance of Flathead County	51,607	59,956	16.18%		60,202
3	**Gallatin County**	67,837	89,513	31.95%		91,377
	Belgrade city	5,728	7,389	29.00%		7,549
	Bozeman city	27,509	37,280	35.52%		38,025
	Manhattan town	1,396	1,520	8.88%		1,553
	Three Forks city	1,728	1,869	8.16%		1,909
	West Yellowstone town	1,177	1,271	7.99%		1,298
	Balance of Gallatin County	30,299	40,184	32.62%		41,043
4	**Garfield County**	1,279	1,206	-5.71%		1,251
	Jordan town	364	343	-5.77%		355
	Balance of Garfield County	915	863	-5.68%		896
2	**Glacier County**	13,240	13,399	1.20%		13,624
	Browning town	1,065	1,016	-4.60%		1,026
	Cut Bank city	3,105	2,869	-7.60%		2,919
	Balance of Glacier County	9,070	9,514	4.90%		9,679
5	**Golden Valley County**	1,040	884	-15.00%		865
	Lavina town	209	187	-10.53%		182
	Ryegate town	268	245	-8.58%		240
	Balance of Golden Valley County	563	452	-19.72%		443
1	**Granite County**	2,841	3,079	8.38%		3,068
	Drummond town	318	309	-2.83%		307
	Philipsburg town	914	820	-10.28%		818
	Balance of Granite County	1,609	1,950	21.19%		1,943
2	**Hill County**	16,671	16,096	-3.45%		16,397
	Havre city	9,621	9,310	-3.23%		9,600
	Hingham town	157	118	-24.84%		121
	Balance of Hill County	6,893	6,668	-3.26%		6,676
3	**Jefferson County**	10,034	11,406	13.67%		11,381
	Boulder town	1,300	1,183	-9.00%		1,181
	Whitehall town	1,044	1,038	-0.57%		1,035
	Balance of Jefferson County	7,690	9,185	19.44%		9,165
6	**Judith Basin County**	2,326	2,072	-10.92%		2,004
	Hobson town	244	215	-11.89%		208
	Stanford town	454	401	-11.67%		389
	Balance of Judith Basin County	1,628	1,456	-10.57%		1,407

1	**Lake County**	26,482	28,746	8.55%		28,947
	Polson city	4,041	4,488	11.06%		4,524
	Ronan city	1,812	1,871	3.26%		1,883
	St. Ignatius town	788	842	6.85%		849
	Balance of Lake County	19,841	21,545	8.59%		21,691
3	**Lewis and Clark County**	55,716	63,395	13.78%		64,318
	East Helena town	1,642	1,984	20.83%		2,041
	Helena city	25,780	28,190	9.35%		28,592
	Balance of Lewis and Clark County	28,294	33,221	17.41%		33,685
2	**Liberty County**	2,158	2,339	8.39%		2,402
	Chester town	871	847	-2.76%		874
	Balance of Liberty County	1,287	1,492	15.93%		1,528
1	**Lincoln County**	18,820	19,687	4.61%		19,566
	Eureka town	1,017	1,037	1.97%		1,031
	Libby city	2,626	2,628	0.08%		2,612
	Rexford town	151	105	-30.46%		104
	Troy city	957	938	-1.99%		933
	Balance of Lincoln County	14,069	14,979	6.47%		14,886
3	**Madison County**	6,848	7,691	12.31%		7,660
	Ennis town	840	838	-0.24%		835
	Sheridan town	659	642	-2.58%		639
	Twin Bridges town	400	375	-6.25%		373
	Virginia City town	130	190	46.15%		190
	Balance of Madison County	4,819	5,646	17.16%		5,623
4	**McCone County**	1,971	1,734	-12.02%		1,711
	Circle town	644	615	-4.50%		607
	Balance of McCone County	1,327	1,119	-15.67%		1,104
3	**Meagher County**	1,928	1,891	-1.92%		1,911
	White Sulphur Springs city	984	939	-4.57%		950
	Balance of Meagher County	944	952	0.85%		961
1	**Mineral County**	3,871	4,223	9.09%		4,208
	Alberton town	374	420	12.30%		417
	Superior town	893	812	-9.07%		810
	Balance of Mineral County	2,604	2,991	14.86%		2,981
1	**Missoula County**	95,803	109,299	14.09%		110,138
	Missoula city	57,053	66,788	17.06%		67,290
	Balance of Missoula County	38,750	42,511	9.71%		42,848
5	**Musselshell County**	4,492	4,538	1.02%		4,701
	Melstone town	136	96	-29.41%		99
	Roundup city	1,931	1,788	-7.41%		1,853
	Balance of Musselshell County	2,425	2,654	9.44%		2,749
3	**Park County**	15,694	15,636	-0.37%		15,469
	Clyde Park town	310	288	-7.10%		286
	Livingston city	6,851	7,044	2.82%		6,969
	Balance of Park County	8,533	8,304	-2.68%		8,214
6	**Petroleum County**	493	494	0.20%		491
	Winnett town	185	182	-1.62%		181
	Balance of Petroleum County	308	312	1.30%		310
6	**Phillips County**	4,601	4,253	-7.56%		4,250
	Dodson town	122	124	1.64%		123
	Malta city	2,120	1,997	-5.80%		1,993
	Saco town	224	197	-12.05%		197
	Balance of Phillips County	2,135	1,935	-9.37%		1,937
2	**Pondera County**	6,425	6,153	-4.23%		6,257
	Conrad city	2,753	2,570	-6.65%		2,616

	Valier town	498	509	2.21%		518
	Balance of Pondera County	3,174	3,074	-3.15%		3,123
4	**Powder River County**	1,858	1,743	-6.19%		1,738
	Broadus town	451	468	3.77%		468
	Balance of Powder River County	1,407	1,275	-9.38%		1,270
1	**Powell County**	7,185	7,027	-2.20%		7,063
	Deer Lodge city	3,421	3,111	-9.06%		3,130
	Balance of Powell County	3,764	3,916	4.04%		3,933
4	**Prairie County**	1,199	1,179	-1.67%		1,159
	Terry town	611	605	-0.98%		594
	Balance of Prairie County	588	574	-2.38%		565
1	**Ravalli County**	36,093	40,212	11.41%		40,450
	Darby town	710	720	1.41%		724
	Hamilton city	3,705	4,348	17.35%		4,374
	Pinesdale town	742	917	23.58%		924
	Stevensville town	1,553	1,809	16.48%		1,820
	Balance of Ravalli County	29,383	32,418	10.33%		32,608
4	**Richland County**	9,666	9,746	0.83%		10,128
	Fairview town	709	840	18.48%		872
	Sidney city	4,774	5,191	8.73%		5,436
	Balance of Richland County	4,183	3,715	-11.19%		3,820
6	**Roosevelt County**	10,632	10,425	-1.95%		10,527
	Bainville town	153	208	35.95%		210
	Brockton town	245	255	4.08%		258
	Culbertson town	716	714	-0.28%		721
	Froid town	195	185	-5.13%		187
	Poplar city	911	810	-11.09%		819
	Wolf Point city	2,663	2,621	-1.58%		2,646
	Balance of Roosevelt County	5,749	5,632	-2.04%		5,686
5	**Rosebud County**	9,389	9,233	-1.66%		9,379
	Colstrip city	2,346	2,214	-5.63%		2,248
	Forsyth city	1,944	1,777	-8.59%		1,886
	Balance of Rosebud County	5,099	5,242	2.80%		5,245
1	**Sanders County**	10,238	11,413	11.48%		11,440
	Hot Springs town	531	544	2.45%		545
	Plains town	1,126	1,048	-6.93%		1,050
	Thompson Falls city	1,321	1,313	-0.61%		1,317
	Balance of Sanders County	7,260	8,508	17.19%		8,528
6	**Sheridan County**	4,105	3,384	-17.56%		3,460
	Medicine Lake town	269	225	-16.36%		230
	Outlook town	82	47	-42.68%		48
	Plentywood city	2,061	1,734	-15.87%		1,772
	Westby town	172	168	-2.33%		171
	Balance of Sheridan County	1,521	1,210	-20.45%		1,239
1	**Silver Bow County**	34,625	34,200	-1.23%		34,383
	Butte-Silver Bow (remainder)	33,911	33,525	-1.14%		33,704
	Walkerville town	714	675	-5.46%		679
5	**Stillwater County**	8,221	9,117	10.90%		9,131
	Columbus town	1,748	1,893	8.30%		1,896
	Balance of Stillwater County	6,473	7,224	11.60%		7,235
3	**Sweet Grass County**	3,601	3,651	1.39%		3,623
	Big Timber city	1,650	1,641	-0.55%		1,629
	Balance of Sweet Grass County	1,951	2,010	3.02%		1,994
2	**Teton County**	6,449	6,073	-5.83%		6,091
	Choteau city	1,781	1,684	-5.45%		1,690

	Dutton town	389	316	-18.77%		316
	Fairfield town	659	708	7.44%		710
	Balance of Teton County	3,620	3,365	-7.04%		3,375
2	**Toole County**	5,255	5,324	1.31%		5,239
	Kevin town	178	154	-13.48%		151
	Shelby city	3,216	3,376	4.98%		3,326
	Sunburst town	415	375	-9.64%		375
	Balance of Toole County	1,446	1,419	-1.87%		1,387
5	**Treasure County**	857	718	-16.22%		727
	Hysham town	330	312	-5.45%		316
	Balance of Treasure County	527	406	-22.96%		411
6	**Valley County**	7,673	7,369	-3.96%		7,487
	Fort Peck town	240	233	-2.92%		237
	Glasgow city	3,253	3,250	-0.09%		3,301
	Nashua town	325	290	-10.77%		295
	Opheim town	111	85	-23.42%		86
	Balance of Valley County	3,744	3,511	-6.22%		3,568
5	**Wheatland County**	2,259	2,168	-4.03%		2,140
	Harlowton city	1,062	997	-6.12%		984
	Judith Gap city	164	126	-23.17%		124
	Balance of Wheatland County	1,033	1,045	1.16%		1,032
4	**Wibaux County**	1,067	1,017	-4.69%		985
	Wibaux town	567	589	3.88%		571
	Balance of Wibaux County	500	428	-14.40%		414
5	**Yellowstone County**	129,347	147,972	14.40%		150,069
	Billings city	89,847	104,170	15.94%		105,636
	Broadview town	150	192	28.00%		194
	Laurel city	6,255	6,718	7.40%		6,814
	Balance of Yellowstone County	33,095	36,892	11.47%		37,425
2	**Blackfeet Indian Reservation**	10,100	10,405	3.02%		
2	**Rocky Boy's Indian Reservation**	2,676	3,323	24.18%		
2	**Fort Belknap Indian Reservation**	2,959	2,851	-3.65%		
6	**Fort Peck Indian Reservation**	10,321	10,008	-3.03%		
5	**Crow Indian Reservation**	6,894	6,863	-0.45%		
5	**Northern Cheyenne Indian Reservation**	4,470	4,789	7.14%		
1	**Flathead Indian Reservation**	26,172	28,359	8.36%		

NOTES: R = Residential R

C = Commercial/Agricultural/Industrial

CF = Critical Facilities

AL = Annual Loss

M = Million

K = Thousand

B = Billion

NA = Not Analyzed or Not Quantitied

Original Local Plan FEMA Approval Date	Local Plan Update FEMA Approval Date	Estimated Building Loss/ Exposure from Local Plan	Estimated Societal Loss/ Exposure from Local Plan	Estimated Economic Loss from Local Plan	Reference	Estimated Building Loss/ Exposure from Local Plan
2004	2010	NA	NA	NA	NA	
2006		NA	NA	NA	NA	
2006	2012					NA
2004	2009					
						Low
						Low
2006	2012					NA
2005	2012					Low
2012		NA	NA	NA	NA	
2010		NA	NA	NA	NA	
2005	2012					NA
2003	2008					
						Low
						Low
						Low
2006		NA	NA	NA	NA	

2005		Low	High	Moderate	3	
2006	2012					NA
2008		Low	Low to High	Low-Moderate	3	
2009		Low	Low	NA	6	
2006	2012					Moderate
2007		Moderate-High	Moderate-High	High	3	
2005	2012					NA
2008		NA	NA	NA	NA	
2006		Low	High	Moderate	3	
2006	2012					NA
2005	2011					NA
2008		NA	NA	NA	NA	

2006	2012					NA
2005	2011					NA
2007		NA	NA	NA	NA	
2005	2012					NA
2004	2010					
						Low
						Low
						Low
						Low
						Low
2006		NA	NA	NA	NA	
2005	2012					NA
2004	2011					NA
2008		NA	NA	NA	NA	
2006	2012					
						Low
						Moderate
						Low-Moderate
2003	2008					
						Low
						Low
2006	2012					NA
2005	2011					NA

2007	2011					Low
2004	2012					NA
2006						Low
2005	2012					NA
2006		NA	NA	NA	NA	
2004		NA	NA	NA	NA	
2007		Low	Moderate-High	High	3	
2012		NA	NA	NA	NA	
2003	2008					
						Low
						Low
						Low
						Low
						Low
2004	2010					NA
2010		Low-Moderate	High	NA	3	
		Moderate-High	Moderate-High	NA	3	
		Moderate-High	Moderate-High	NA	3	
2005	2010					NA
2006		NA	NA	NA	NA	

2007		NA	NA	NA	NA	
2007		Low	Moderate-High	Moderate-High	3	
2003	2008					
						Low
						Low
						Low
						Low
						Low
2007		NA	NA	NA	NA	
2006		NA	NA	NA	NA	
2005	2012					NA
2008		NA	NA	NA	NA	
2008	2010					NA
2007		NA	NA	NA	NA	
2004	2012					Low
2008		NA	NA	NA	NA	
2008		NA	NA	NA	NA	
2006		NA	NA	NA	NA	

EFERENCES: 1 = Atkins
2 = Beck Consulting
3 = Big Sky Hazard Management
4 = Cossitt Consulting
5 = Fire Logistics, Inc.
6 = Flathead County/Hydrometrics
7 = Gallatin County
8 = Rick Gould
9 = Morrison-Maierle
10 = Northwest Management Inc.
11 = Single Tree Consulting
12 = Sweet Grass County

Estimated Societal Loss/ Exposure from Local Plan	Estimated Economic Loss from Local Plan	Reference	Estimate Building Loss/Exposure from 2010 State Plan	Estimated Societal Loss from 2010 State Plan - Below Poverty in Hazard Area	Estimated Societal Loss from 2010 State Plan - >65 in Hazard Area	Estimated Societal Loss from 2010 State Plan - <18 in Hazard Area	Estimate Building Loss/Exposure from 2013 State Plan
				1,491	1,232	2,257	
				3,632	1,042	4,549	
NA	NA	NA		1,951	902	2,281	
				466	720	1,108	
Moderate-High	Moderate	3					
Moderate-High	Moderate	3					
NA	NA	NA		1,089	1,616	2,295	
Low	Low	11		242	242	359	
				10,605	11,313	20,857	
				1,191	1,039	1,721	
NA	NA	NA		1,700	1,996	2,914	
				334	476	449	
Moderate	Low-Moderate	3					
Moderate	Low-Moderate	3					
Moderate	Low-Moderate	3					
				1,285	1,597	2,114	

				1,451	1,775	2,090	
NA	NA	NA		349	509	728	
				1,767	2,370	2,913	
				9,489	9,618	19,238	
Moderate	Moderate	7		8,319	5,781	14,816	
				272	247	319	
NA	NA	NA		3,568	1,252	4,661	
				253	171	290	
				472	445	693	
NA	NA	NA		2,996	2,128	4,684	
NA	NA	NA		882	1,027	2,795	
				490	400	629	

NA	NA	NA		4,862	3,855	7,434	
NA	NA	NA		5,960	6,535	14,250	
				425	421	561	
NA	NA	NA		3,558	2,849	4,751	
				821	1,180	1,571	
Moderate-High	Moderate	3					
Moderate-High	Moderate	3					
Moderate-High	Moderate	3					
Moderate-High	Moderate	3					
Moderate-High	Moderate	3					
				331	374	489	
				359	353	487	
NA	NA	NA		598	549	936	
NA	NA	NA		13,691	9,694	21,875	
				877	785	1,062	
				1,780	2,329	3,665	
NA	NA	3					
NA	NA	3					
NA	NA	3					
				114	81	127	
Moderate	Low-Moderate	3					
Moderate	Low-Moderate	3					
NA	NA	NA		828	801	1,248	
NA	NA	NA		1,194	1,037	1,898	

Moderate-High	High	3		235	340	498	
NA	NA	NA		719	1,030	1,526	
NA	NA	11		202	290	230	
NA	NA	NA		4,927	5,557	9,287	
				1,161	1,513	2,642	
				3,358	1,228	3,670	
				2,063	820	3,146	
				1,737	1,727	2,426	
				602	966	921	
Moderate	Low-Moderate	3					
Moderate	Low-Moderate	3					
Moderate	Low-Moderate	3					
Moderate	Low-Moderate	3					
Moderate	Low-Moderate	3					
NA	NA	NA		5,005	5,499	8,198	
				791	1,187	2,062	
NA	NA	NA		403	634	931	
				1,056	1,087	1,758	

				624	826	1,347	
				125	144	236	
				1,026	1,459	1,937	
Moderate	Low-Moderate	3					
Moderate	Low-Moderate	3					
Moderate	Low-Moderate	3					
Moderate	Low-Moderate	3					
Moderate	Low-Moderate	3					
				440	432	602	
				157	228	277	
NA	NA	NA		14,032	17,223	33,136	
NA	NA	NA					
Low	NA	MM					

Estimated Societal Loss from 2013 State Plan - Total in Hazard Area	Estimated Societal Loss from 2013 State Plan - <18 in Hazard Area	

DES District	Geography	Census 2000	Census 2010	% Change 2000 to 2010	# Building Permits (2002 to 2011)	2011
	Montana	902,200	989,415	9.67%		998,199
3	**Beaverhead County**	9,192	9,246	0.59%		9,198
	Dillon city	3,752	4,134	10.18%		4,113
	Lima town	242	221	-8.68%		220
	Balance of Beaverhead County	5,198	4,891	-5.91%		4,865
5	**Big Horn County**	12,676	12,865	1.49%		13,093
	Hardin city	3,384	3,505	3.58%		3,567
	Lodge Grass town	510	428	-16.08%		436
	Balance of Big Horn County	8,782	8,932	1.71%		9,090
2	**Blaine County**	7,009	6,491	-7.39%		6,565
	Chinook city	1,386	1,203	-13.20%		1,216
	Harlem city	848	808	-4.72%		818
	Balance of Blaine County	4,775	4,480	-6.18%		4,531
3	**Broadwater County**	4,380	5,612	28.13%		5,752
	Townsend city	1,867	1,878	0.59%		1,924
	Balance of Broadwater County	2,513	3,734	48.59%		3,828
5	**Carbon County**	9,545	10,078	5.58%		10,028
	Bearcreek town	83	79	-4.82%		79
	Bridger town	745	708	-4.97%		704
	Fromberg town	486	438	-9.88%		436
	Joliet town	575	595	3.48%		593
	Red Lodge city	2,177	2,125	-2.39%		2,114
	Balance of Carbon County	5,479	6,133	11.94%		6,102
4	**Carter County**	1,358	1,160	-14.58%		1,152
	Ekalaka town	410	332	-19.02%		329
	Balance of Carter County	948	828	-12.66%		823
2	**Cascade County**	80,356	81,327	1.21%		81,837
	Belt city	633	597	-5.69%		600
	Cascade town	819	685	-16.36%		690
	Great Falls city	56,690	58,505	3.20%		58,950
	Neihart town	91	51	-43.96%		51
	Balance of Cascade County	22,123	21,489	-2.87%		21,546
2	**Chouteau County**	5,962	5,813	-2.50%		5,793
	Big Sandy town	703	598	-14.94%		595
	Fort Benton city	1,594	1,464	-8.16%		1,460
	Geraldine town	284	261	-8.10%		260
	Balance of Chouteau County	3,381	3,490	3.22%		3,478
4	**Custer County**	11,694	11,699	0.04%		11,752
	Ismay town	26	19	-26.92%		19
	Miles City city	8,487	8,410	-0.91%		8,438
	Balance of Custer County	3,181	3,270	2.80%		3,295
6	**Daniels County**	2,017	1,751	-13.19%		1,763
	Flaxville town	87	71	-18.39%		72
	Scobey city	1,082	1,017	-6.01%		1,023
	Balance of Daniels County	848	663	-21.82%		668
4	**Dawson County**	9,059	8,966	-1.03%		8,989
	Glendive city	4,729	4,935	4.36%		4,947

	Richey town	189	177	-6.35%		178
	Balance of Dawson County	4,141	3,854	-6.93%		3,864
1	**Deer Lodge County**	9,416	9,298	-1.25%		9,299
	Anaconda-Deer Lodge County	9,416	9,298	-1.25%		9,299
4	**Fallon County**	2,835	2,890	1.94%		2,956
	Baker city	1,695	1,741	2.71%		1,780
	Plevna town	138	162	17.39%		166
	Balance of Fallon County	1,002	987	-1.50%		1,010
6	**Fergus County**	11,905	11,586	-2.68%		11,506
	Denton town	301	255	-15.28%		254
	Grass Range town	149	110	-26.17%		109
	Lewistown city	5,813	5,901	1.51%		5,858
	Moore town	186	193	3.76%		191
	Winifred town	156	208	33.33%		208
	Balance of Fergus County	5,300	4,919	-7.19%		4,886
1	**Flathead County**	74,507	90,928	22.04%		91,301
	Columbia Falls city	3,645	4,688	28.61%		4,707
	Kalispell city	14,223	19,927	40.10%		20,008
	Whitefish city	5,032	6,357	26.33%		6,384
	Balance of Flathead County	51,607	59,956	16.18%		60,202
3	**Gallatin County**	67,837	89,513	31.95%		91,377
	Belgrade city	5,728	7,389	29.00%		7,549
	Bozeman city	27,509	37,280	35.52%		38,025
	Manhattan town	1,396	1,520	8.88%		1,553
	Three Forks city	1,728	1,869	8.16%		1,909
	West Yellowstone town	1,177	1,271	7.99%		1,298
	Balance of Gallatin County	30,299	40,184	32.62%		41,043
4	**Garfield County**	1,279	1,206	-5.71%		1,251
	Jordan town	364	343	-5.77%		355
	Balance of Garfield County	915	863	-5.68%		896
2	**Glacier County**	13,240	13,399	1.20%		13,624
	Browning town	1,065	1,016	-4.60%		1,026
	Cut Bank city	3,105	2,869	-7.60%		2,919
	Balance of Glacier County	9,070	9,514	4.90%		9,679
5	**Golden Valley County**	1,040	884	-15.00%		865
	Lavina town	209	187	-10.53%		182
	Ryegate town	268	245	-8.58%		240
	Balance of Golden Valley County	563	452	-19.72%		443
1	**Granite County**	2,841	3,079	8.38%		3,068
	Drummond town	318	309	-2.83%		307
	Philipsburg town	914	820	-10.28%		818
	Balance of Granite County	1,609	1,950	21.19%		1,943
2	**Hill County**	16,671	16,096	-3.45%		16,397
	Havre city	9,621	9,310	-3.23%		9,600
	Hingham town	157	118	-24.84%		121
	Balance of Hill County	6,893	6,668	-3.26%		6,676
3	**Jefferson County**	10,034	11,406	13.67%		11,381
	Boulder town	1,300	1,183	-9.00%		1,181
	Whitehall town	1,044	1,038	-0.57%		1,035
	Balance of Jefferson County	7,690	9,185	19.44%		9,165
6	**Judith Basin County**	2,326	2,072	-10.92%		2,004
	Hobson town	244	215	-11.89%		208
	Stanford town	454	401	-11.67%		389
	Balance of Judith Basin County	1,628	1,456	-10.57%		1,407
1	**Lake County**	26,482	28,746	8.55%		28,947

	Polson city	4,041	4,488	11.06%		4,524
	Ronan city	1,812	1,871	3.26%		1,883
	St. Ignatius town	788	842	6.85%		849
	Balance of Lake County	19,841	21,545	8.59%		21,691
3	**Lewis and Clark County**	55,716	63,395	13.78%		64,318
	East Helena town	1,642	1,984	20.83%		2,041
	Helena city	25,780	28,190	9.35%		28,592
	Balance of Lewis and Clark County	28,294	33,221	17.41%		33,685
2	**Liberty County**	2,158	2,339	8.39%		2,402
	Chester town	871	847	-2.76%		874
	Balance of Liberty County	1,287	1,492	15.93%		1,528
1	**Lincoln County**	18,820	19,687	4.61%		19,566
	Eureka town	1,017	1,037	1.97%		1,031
	Libby city	2,626	2,628	0.08%		2,612
	Rexford town	151	105	-30.46%		104
	Troy city	957	938	-1.99%		933
	Balance of Lincoln County	14,069	14,979	6.47%		14,886
3	**Madison County**	6,848	7,691	12.31%		7,660
	Ennis town	840	838	-0.24%		835
	Sheridan town	659	642	-2.58%		639
	Twin Bridges town	400	375	-6.25%		373
	Virginia City town	130	190	46.15%		190
	Balance of Madison County	4,819	5,646	17.16%		5,623
4	**McCone County**	1,971	1,734	-12.02%		1,711
	Circle town	644	615	-4.50%		607
	Balance of McCone County	1,327	1,119	-15.67%		1,104
3	**Meagher County**	1,928	1,891	-1.92%		1,911
	White Sulphur Springs city	984	939	-4.57%		950
	Balance of Meagher County	944	952	0.85%		961
1	**Mineral County**	3,871	4,223	9.09%		4,208
	Alberton town	374	420	12.30%		417
	Superior town	893	812	-9.07%		810
	Balance of Mineral County	2,604	2,991	14.86%		2,981
1	**Missoula County**	95,803	109,299	14.09%		110,138
	Missoula city	57,053	66,788	17.06%		67,290
	Balance of Missoula County	38,750	42,511	9.71%		42,848
5	**Musselshell County**	4,492	4,538	1.02%		4,701
	Melstone town	136	96	-29.41%		99
	Roundup city	1,931	1,788	-7.41%		1,853
	Balance of Musselshell County	2,425	2,654	9.44%		2,749
3	**Park County**	15,694	15,636	-0.37%		15,469
	Clyde Park town	310	288	-7.10%		286
	Livingston city	6,851	7,044	2.82%		6,969
	Balance of Park County	8,533	8,304	-2.68%		8,214
6	**Petroleum County**	493	494	0.20%		491
	Winnett town	185	182	-1.62%		181
	Balance of Petroleum County	308	312	1.30%		310
6	**Phillips County**	4,601	4,253	-7.56%		4,250
	Dodson town	122	124	1.64%		123
	Malta city	2,120	1,997	-5.80%		1,993
	Saco town	224	197	-12.05%		197
	Balance of Phillips County	2,135	1,935	-9.37%		1,937
2	**Pondera County**	6,425	6,153	-4.23%		6,257
	Conrad city	2,753	2,570	-6.65%		2,616

	Valier town	498	509	2.21%		518
	Balance of Pondera County	3,174	3,074	-3.15%		3,123
4	**Powder River County**	1,858	1,743	-6.19%		1,738
	Broadus town	451	468	3.77%		468
	Balance of Powder River County	1,407	1,275	-9.38%		1,270
1	**Powell County**	7,185	7,027	-2.20%		7,063
	Deer Lodge city	3,421	3,111	-9.06%		3,130
	Balance of Powell County	3,764	3,916	4.04%		3,933
4	**Prairie County**	1,199	1,179	-1.67%		1,159
	Terry town	611	605	-0.98%		594
	Balance of Prairie County	588	574	-2.38%		565
1	**Ravalli County**	36,093	40,212	11.41%		40,450
	Darby town	710	720	1.41%		724
	Hamilton city	3,705	4,348	17.35%		4,374
	Pinesdale town	742	917	23.58%		924
	Stevensville town	1,553	1,809	16.48%		1,820
	Balance of Ravalli County	29,383	32,418	10.33%		32,608
4	**Richland County**	9,666	9,746	0.83%		10,128
	Fairview town	709	840	18.48%		872
	Sidney city	4,774	5,191	8.73%		5,436
	Balance of Richland County	4,183	3,715	-11.19%		3,820
6	**Roosevelt County**	10,632	10,425	-1.95%		10,527
	Bainville town	153	208	35.95%		210
	Brockton town	245	255	4.08%		258
	Culbertson town	716	714	-0.28%		721
	Froid town	195	185	-5.13%		187
	Poplar city	911	810	-11.09%		819
	Wolf Point city	2,663	2,621	-1.58%		2,646
	Balance of Roosevelt County	5,749	5,632	-2.04%		5,686
5	**Rosebud County**	9,389	9,233	-1.66%		9,379
	Colstrip city	2,346	2,214	-5.63%		2,248
	Forsyth city	1,944	1,777	-8.59%		1,886
	Balance of Rosebud County	5,099	5,242	2.80%		5,245
1	**Sanders County**	10,238	11,413	11.48%		11,440
	Hot Springs town	531	544	2.45%		545
	Plains town	1,126	1,048	-6.93%		1,050
	Thompson Falls city	1,321	1,313	-0.61%		1,317
	Balance of Sanders County	7,260	8,508	17.19%		8,528
6	**Sheridan County**	4,105	3,384	-17.56%		3,460
	Medicine Lake town	269	225	-16.36%		230
	Outlook town	82	47	-42.68%		48
	Plentywood city	2,061	1,734	-15.87%		1,772
	Westby town	172	168	-2.33%		171
	Balance of Sheridan County	1,521	1,210	-20.45%		1,239
1	**Silver Bow County**	34,625	34,200	-1.23%		34,383
	Butte-Silver Bow (remainder)	33,911	33,525	-1.14%		33,704
	Walkerville town	714	675	-5.46%		679
5	**Stillwater County**	8,221	9,117	10.90%		9,131
	Columbus town	1,748	1,893	8.30%		1,896
	Balance of Stillwater County	6,473	7,224	11.60%		7,235
3	**Sweet Grass County**	3,601	3,651	1.39%		3,623
	Big Timber city	1,650	1,641	-0.55%		1,629
	Balance of Sweet Grass County	1,951	2,010	3.02%		1,994
2	**Teton County**	6,449	6,073	-5.83%		6,091
	Choteau city	1,781	1,684	-5.45%		1,690

	Dutton town	389	316	-18.77%		316
	Fairfield town	659	708	7.44%		710
	Balance of Teton County	3,620	3,365	-7.04%		3,375
2	**Toole County**	5,255	5,324	1.31%		5,239
	Kevin town	178	154	-13.48%		151
	Shelby city	3,216	3,376	4.98%		3,326
	Sunburst town	415	375	-9.64%		375
	Balance of Toole County	1,446	1,419	-1.87%		1,387
5	**Treasure County**	857	718	-16.22%		727
	Hysham town	330	312	-5.45%		316
	Balance of Treasure County	527	406	-22.96%		411
6	**Valley County**	7,673	7,369	-3.96%		7,487
	Fort Peck town	240	233	-2.92%		237
	Glasgow city	3,253	3,250	-0.09%		3,301
	Nashua town	325	290	-10.77%		295
	Opheim town	111	85	-23.42%		86
	Balance of Valley County	3,744	3,511	-6.22%		3,568
5	**Wheatland County**	2,259	2,168	-4.03%		2,140
	Harlowton city	1,062	997	-6.12%		984
	Judith Gap city	164	126	-23.17%		124
	Balance of Wheatland County	1,033	1,045	1.16%		1,032
4	**Wibaux County**	1,067	1,017	-4.69%		985
	Wibaux town	567	589	3.88%		571
	Balance of Wibaux County	500	428	-14.40%		414
5	**Yellowstone County**	129,347	147,972	14.40%		150,069
	Billings city	89,847	104,170	15.94%		105,636
	Broadview town	150	192	28.00%		194
	Laurel city	6,255	6,718	7.40%		6,814
	Balance of Yellowstone County	33,095	36,892	11.47%		37,425
2	**Blackfeet Indian Reservation**	10,100	10,405	3.02%		
2	**Rocky Boy's Indian Reservation**	2,676	3,323	24.18%		
2	**Fort Belknap Indian Reservation**	2,959	2,851	-3.65%		
6	**Fort Peck Indian Reservation**	10,321	10,008	-3.03%		
5	**Crow Indian Reservation**	6,894	6,863	-0.45%		
5	**Northern Cheyenne Indian Reservation**	4,470	4,789	7.14%		
1	**Flathead Indian Reservation**	26,172	28,359	8.36%		

NOTES: R = Residential R

C = Commercial/Agricultural/Industrial

CF = Critical Facilities

AL = Annual Loss

M = Million

K = Thousand

B = Billion

NA = Not Analyzed or Not Quantitied

Original Local Plan FEMA Approval Date	Local Plan Update FEMA Approval Date	Estimated Building Loss/ Exposure from Local Plan	Estimated Societal Loss/ Exposure from Local Plan	Estimated Economic Loss from Local Plan	Reference	Estimated Building Loss/ Exposure from Local Plan	Estimated Societal Loss/ Exposure from Local Plan
2004	2010						
		Low-Moderate	Moderate	Low-Moderate	3		
		Low-Moderate	Moderate	Low-Moderate	3		
		Low-Moderate	Moderate	Low-Moderate	3		
2006		NA	NA	NA	NA		
2006	2012					NA	NA
2004	2009						
						Low-Moderate	Moderate
						Low-Moderate	Moderate
2006	2012					NA	NA
2005	2012					NA	NA
2012		NA	NA	NA	NA		
2010		NA	NA	NA	NA		
2005	2012					NA	NA
2003	2008					NA	NA
2006		NA	NA	NA	NA		

2005		Moderate	Moderate	Low	3		
2006	2012					NA	NA
2008		NA	Low	Low	3		
2009		NA	NA	NA	NA		
2006	2012					Moderate	Moderate
2007		Low-Moderate	Low	Low-Moderate	3		
2005	2012					NA	NA
2008		NA	NA	NA	NA		
2006		Moderate	Low	Moderate	3		
2006	2012					NA	NA
2005	2011					NA	NA
2008		NA	NA	NA	NA		
2006	2012					NA	NA

2005	2011					NA	NA
2007		NA	NA	NA	NA		
2005	2012					NA	NA
2004	2010						
						Low-Moderate	Moderate
						Low-Moderate	Moderate
						Low-Moderate	Moderate
						Low-Moderate	Moderate
						Low-Moderate	Moderate
2006		NA	NA	NA	NA		
2005	2012						
						Low	Low
						Low	Low
						Low	Low
2004	2011					NA	Low
2008		NA	NA	NA	NA		
2006	2012						
						Low-Moderate	NA
						Low	NA
						Low	NA
2003	2008						
						Low	Low-Moderate
						Low	Low-Moderate
2006	2012					NA	NA
2005	2011					NA	NA

2007	2011					Low-Moderate	Low
2004	2012					NA	NA
2006						Low	NA
2005	2012					AL=$12K	Low
						Low	Low
						Low	Low
						Low	Low
						Low	Low
						Low	Low
2006		NA	NA	NA	NA		
2004		NA	NA	NA	NA		
2007		Low-Moderate	Low	Low-Moderate	3		
2012		NA	NA	NA	NA		
2003	2008					NA	NA
2004	2010					NA	NA
2010		Low-Moderate	Moderate	NA	3		
		Moderate	Moderate	NA	3		
		Moderate	Moderate	NA	3		
2005	2010					NA	NA
2006		NA	NA	NA	NA		

2007		High	High	NA	2		
2007		Low-Moderate	Low	Low-Moderate	3		
2003	2008					NA	NA
2007		NA	NA	NA	NA		
2006		NA	NA	NA	NA		
2005	2012					$5K	Very Low
2008		NA	NA	NA	NA		
2008	2010					NA	NA
2007		NA	NA	NA	NA		
2004	2012					NA	NA
2008		NA	NA	NA	NA		
2008		NA	NA	NA	NA		
2006							

:EFERENCES: 1 = Atkins
2 = Beck Consulting
3 = Big Sky Hazard Management
4 = Cossitt Consulting
5 = Fire Logistics, Inc.
6 = Flathead County/Hydrometrics
7 = Gallatin County
8 = Rick Gould
9 = Morrison-Maierle
10 = Northwest Management Inc.
11 = Single Tree Consulting
12 = Sweet Grass County

Estimated Economic Loss from Local Plan	Reference	Building Loss from 2010 State Plan	Societal Loss from 2010 State Plan - Below Poverty in Hazard Area	Societal Loss from 2010 State Plan - >65 in Hazard Area	Societal Loss from 2010 State Plan - <18 in Hazard Area	Building Loss from 2013 State Plan	Societal Loss from 2013 State Plan - Total in Hazard Area
			1,491	1,232	2,257		
			3,632	1,042	4,549		
NA	NA		1,951	902	2,281		
			466	720	1,108		
Low-Moderate	3						
Low-Moderate	3						
NA	2		1,089	1,616	2,295		
NA	NA		242	242	359		
			10,605	11,313	20,857		
			1,191	1,039	1,721		
NA	NA		1,700	1,996	2,914		
NA	NA		334	476	449		
			1,285	1,597	2,114		

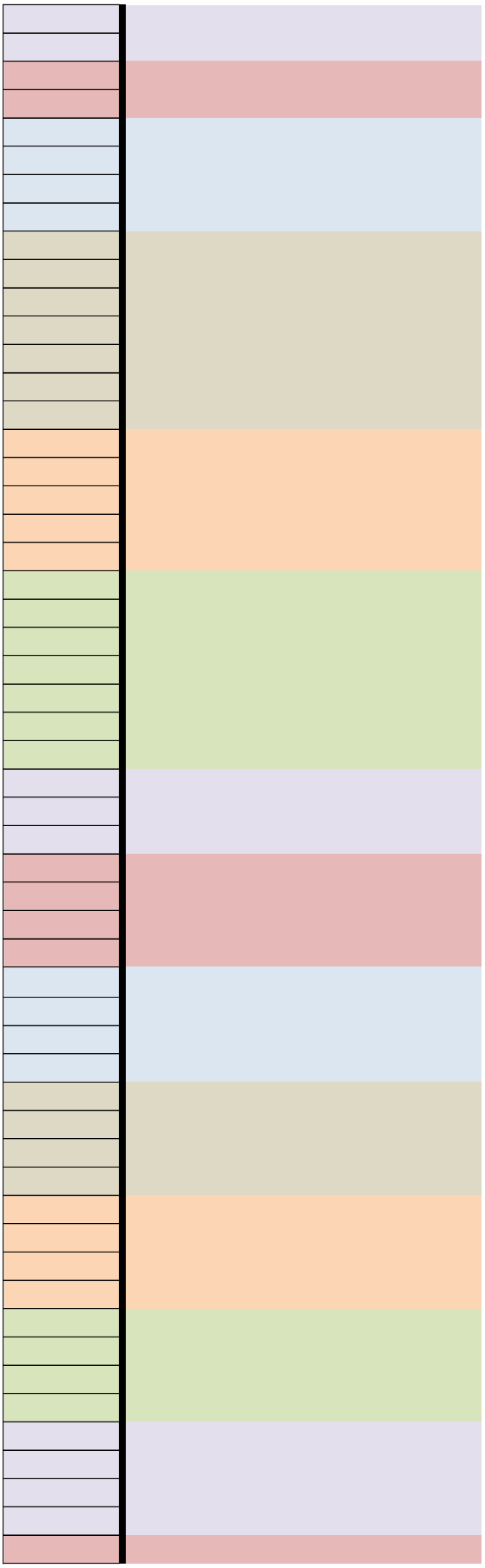
			1,451	1,775	2,090		
NA	NA		349	509	728		
			1,767	2,370	2,913		
			9,489	9,618	19,238		
Moderate	7		8,319	5,781	14,816		
			272	247	319		
NA	NA		3,568	1,252	4,661		
			253	171	290		
			472	445	693		
NA	NA		2,996	2,128	4,684		
NA	NA		882	1,027	2,795		
			490	400	629		
NA	NA		4,862	3,855	7,434		

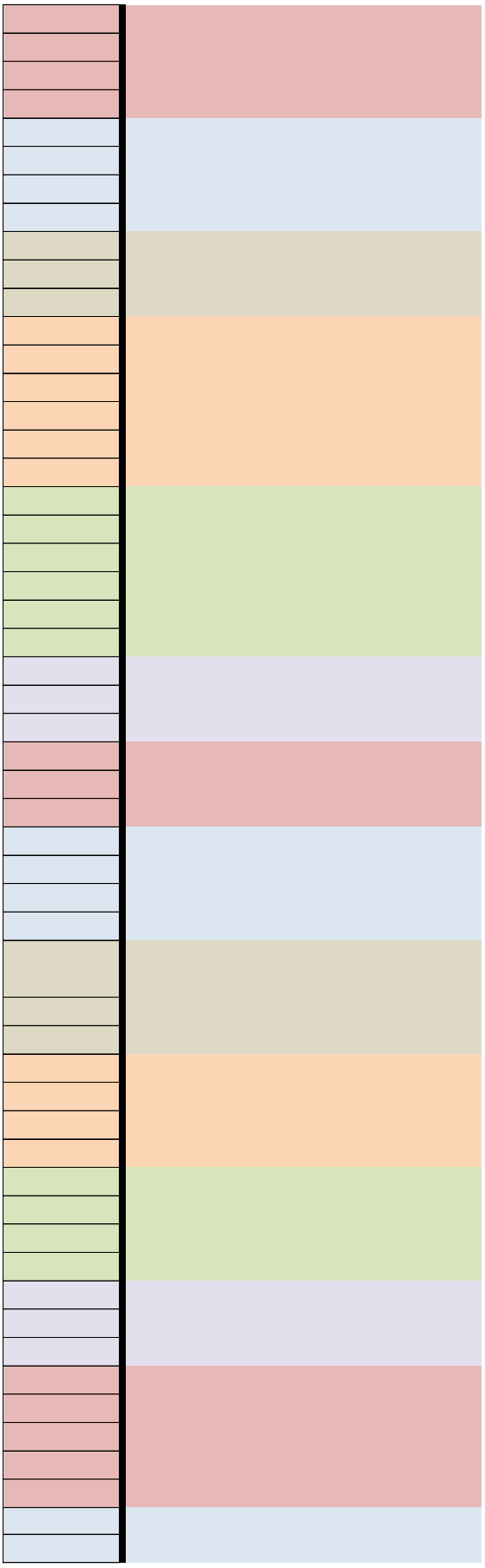
NA	NA		5,960	6,535	14,250		
			425	421	561		
NA	NA		3,558	2,849	4,751		
			821	1,180	1,571		
Low-Moderate	3						
Low-Moderate	3						
Low-Moderate	3						
Low-Moderate	3						
Low-Moderate	3						
			331	374	489		
			359	353	487		
			598	549	936		
NA	1						
NA	1						
NA	1						
$1.62M; AL = $16K	1		13,691	9,694	21,875		
			877	785	1,062		
			1,780	2,329	3,665		
NA	3						
NA	3						
NA	3						
			114	81	127		
Low-Moderate	3						
Low-Moderate	3						
NA	NA		828	801	1,248		
NA	NA		1,194	1,037	1,898		

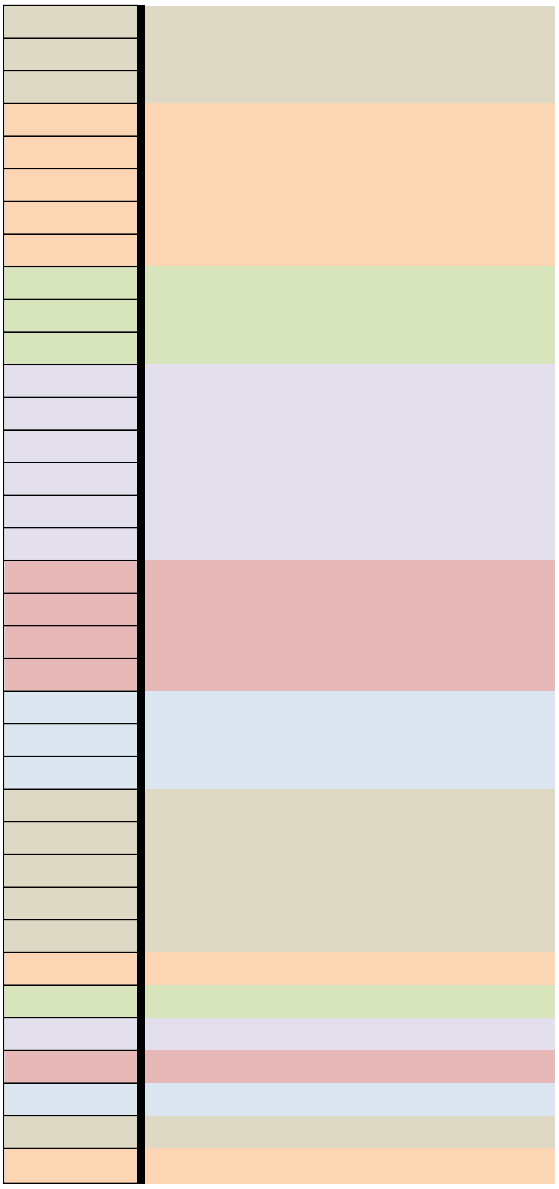
Low-Moderate	3		235	340	498		
NA	NA		719	1,030	1,526		
NA	11		202	290	230		
NA	1		4,927	5,557	9,287		
NA	1						
NA	1						
NA	1						
NA	1						
NA	1						
			1,161	1,513	2,642		
			3,358	1,228	3,670		
			2,063	820	3,146		
			1,737	1,727	2,426		
NA	NA		602	966	921		
NA	NA		5,005	5,499	8,198		
			791	1,187	2,062		
NA	NA		403	634	931		
			1,056	1,087	1,758		

			624	826	1,347		
			125	144	236		
NA	NA		1,026	1,459	1,937		
			440	432	602		
			157	228	277		
NA	1		14,032	17,223	33,136		
NA	NA						
NA	NA						

Societal Loss from 2013 State Plan - <18 in Hazard Area	







State of Montana Mitigation Action Plan
2010 Update - Non-Planning Project Scoring Matrix

Goal	Goal		
Objective	*Objective*		
Project	**Project**		
Hazard(s) Addressed			
DES District(s)			
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)		
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)		
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)		
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)		
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)		
	Project is effective but not sustainable (1 point)		
Hazard Frequency	Project mitigates common hazard; occurs more than once a year (3 points)		
	Project mitigates a frequent hazard; occurs less than once a year but more than once a decade (2 points)		
	Project mitigates an Infrequent hazard; occurs less than once a decade (1 point)		
Hazard Magnitude	Hazard has high damage and loss of life (3 points)		
	Hazard causes moderage damage and occassionally life is lost (2 points)		
	Hazard causes minor damage and rarely loss of life (1 point)		
SU BTOTAL	ADD SCORE FROM CATEGORIES ABOVE		
Base Plus Risk Weighting Factor	Project located in high population density area (Score X 3)		
	Project located in moderate population density area (Score X 2)		
	Project specific to rural location (Score X 1)		
TOTAL SCORE	High = 57 - 81		
	Medium = 32 - 56		
	Low = 9 - 31		
State Priority	High, Medium, Low		
Responsible Agency			
Potential Funding Source(s)			
Implementation Schedule			
Progress Made			
Planned Activities			

State of Montana Mitigation Action Plan
2013 Update - Non-Planning Project Scoring Matrix

Goal	Goal 1: Maximize the Use of Mitigation Actions that Prevent Losses from all Hazards		
Objective	*Objective 1.1: Increase capability for continuity of government*		
Project	**Project 1.1.1 Migrate IT systems to central disaster resiliant facilities.**		
Hazard(s) Addressed	All Hazards		
DES District(s)	Statewide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)	X	4
	Very Low = < $100,000 (5 points)		
Population Benefit	Very High = 100% of State residents (5 points)	X	5
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)		
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)	X	4
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)		
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)	X	3
	Project is effective but moderately sustainable (2 points)		
	Project is effective but not sustainable (1 point)		
Hazard Frequency	Project mitigates common hazard; occurs more than once a year (3 points)		
	Project mitigates a frequent hazard; occurs less than once a year but more than once a decade (2 points)		
	Project mitigates an Infrequent hazard; occurs less than once a decade (1 point)	x	1
Hazard Magnitude	Hazard has high damage and loss of life (3 points)		
	Hazard causes moderage damage and occassionally life is lost (2 points)		
	Hazard causes minor damage and rarely loss of life (1 point)	X	1
SU BTOTAL	ADD SCORE FROM CATEGORIES ABOVE		21
Base Plus Risk Weighting Factor	Project located in high population density area (Score X 3)	X	63
	Project located in moderate population density area (Score X 2)		
	Project specific to rural location (Score X 1)		
TOTAL SCORE	High = 57 - 81	X	63
	Medium = 32 - 56		
	Low = 9 - 31		
State Priority	High, Medium, Low	High	
Responsible Agency	All State Agencies		
Potential Funding Source(s)	State General Fund		
Implementation Schedule	Short Range		
Progress Made	New data center behind MDT and redundant system in Miles City		
Planned Activities	THIS PROJECT IS COMPLETE		

State of Montana Mitigation Action Plan
2013 Update - Non-Planning Project Scoring Matrix

Goal	Goal 1: Maximize the Use of Mitigation Actions that Prevent Losses from all Hazards		
Objective	*Objective 1.1: Increase capability for continuity of government*		
Project	**Project 1.1.2 Identify and protect essential government records in appropriate facilities.**		
Hazard(s) Addressed	All Hazards		
DES District(s)	Statewide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)	X	4
	Very Low = < $100,000 (5 points)		
Population Benefit	Very High = 100% of State residents (5 points)	X	5
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)		
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)	X	3
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)		
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)	X	3
	Project is effective but moderately sustainable (2 points)		
	Project is effective but not sustainable (1 point)		
Hazard Frequency	Project mitigates common hazard; occurs more than once a year (3 points)		
	Project mitigates a frequent hazard; occurs less than once a year but more than once a decade (2 points)		
	Project mitigates an Infrequent hazard; occurs less than once a decade (1 point)	X	1
Hazard Magnitude	Hazard has high damage and loss of life (3 points)		
	Hazard causes moderage damage and occassionally life is lost (2 points)		
	Hazard causes minor damage and rarely loss of life (1 point)	X	1
SU BTOTAL	ADD SCORE FROM CATEGORIES ABOVE		22
Base Plus Risk Weighting Factor	Project located in high population density area (Score X 3)	X	66
	Project located in moderate population density area (Score X 2)		
	Project specific to rural location (Score X 1)		
TOTAL SCORE	High = 57 - 81	X	66
	Medium = 32 - 56		
	Low = 9 - 31		
State Priority	High, Medium, Low	Medium	
Responsible Agency	Secretary of State		
Potential Funding Source(s)	State General Fund		
Implementation Schedule	Mid-Range		
Progress Made	No progress to report		
Planned Activities	TBD		

State of Montana Mitigation Action Plan
2013 Update - Non-Planning Project Scoring Matrix

Goal	Goal 1: Maximize the Use of Mitigation Actions that Prevent Losses from all Hazards		
Objective	*Objective 1.2: Enhance warning capabilities*		
Project	**Project 1.2.1 Place NOAA weather radios in all state government offices.**		
Hazard(s) Addressed	All Hazards		
DES District(s)	Statewide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)	X	5
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)	X	1
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)	X	1
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
Hazard Frequency	Project mitigates common hazard; occurs more than once a year (3 points)	X	3
	Project mitigates a frequent hazard; occurs less than once a year but more than once a decade (2 points)		
	Project mitigates an Infrequent hazard; occurs less than once a decade (1 point)		
Hazard Magnitude	Hazard has high damage and loss of life (3 points)		
	Hazard causes moderage damage and occassionally life is lost (2 points)	X	2
	Hazard causes minor damage and rarely loss of life (1 point)		
SU BTOTAL	ADD SCORE FROM CATEGORIES ABOVE		17
Base Plus Risk Weighting Factor	Project located in high population density area (Score X 3)		
	Project located in moderate population density area (Score X 2)	X	34
	Project specific to rural location (Score X 1)		
TOTAL SCORE	High = 57 - 81		
	Medium = 32 - 56	X	34
	Low = 9 - 31		
State Priority	High, Medium, Low	Low	
Responsible Agency	All State Agencies		
Potential Funding Source(s)	State General Fund		
Implementation Schedule	Ongoing; partially complete		
Progress Made	Purchased 100 radios; 70 go to locals/tribes and 30 for state agencies		
Planned Activities	Distribute weather radios to government offices		

State of Montana Mitigation Action Plan

2013 Update - Non-Planning Project Scoring Matrix

Goal	Goal 3: Reduce Impacts of Wildland and Rangeland Fires		
Objective	*Objective 3.1: Reduce fuels in the WUI*		
Project	**Project 3.1.1 Conduct wildland fuel reduction on state property including parks, day-use facilities and highway rights-of-way.**		
Hazard(s) Addressed	Wildfire		
DES District(s)	Statewide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)	X	1
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)		
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)	X	2
	Very Low = < 20% State residents (1 points)		
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)	X	3
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)		
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
Hazard Frequency	Project mitigates common hazard; occurs more than once a year (3 points)		
	Project mitigates a frequent hazard; occurs less than once a year but more than once a decade (2 points)	X	2
	Project mitigates an Infrequent hazard; occurs less than once a decade (1 point)		
Hazard Magnitude	Hazard has high damage and loss of life (3 points)		
	Hazard causes moderage damage and occassionally life is lost (2 points)	X	2
	Hazard causes minor damage and rarely loss of life (1 point)		
SU BTOTAL	ADD SCORE FROM CATEGORIES ABOVE		15
Base Plus Risk Weighting Factor	Project located in high population density area (Score X 3)		
	Project located in moderate population density area (Score X 2)	X	30
	Project specific to rural location (Score X 1)		
TOTAL SCORE	High = 57 - 81		
	Medium = 32 - 56		
	Low = 9 - 31	X	30
State Priority	High, Medium, Low	High	
Responsible Agency	DNRC-Trust Lands, FWP, MDT		
Potential Funding Source(s)	State, FEMA		
Implementation Schedule	Ongoing		
Progress Made	FWP has completed fuel mitigation at several Wildlife Management Areas and Fishing Access sites across the State including Painted Rock State Park (Ravalli Co.) and Mt. Haggin Game Range. MDT has completed fuel mitigation on McDonald Pass, around Bernice, and around Main Street in Jefferson City. Dept. Corrections has performed fuel mitigation around the Prison Industries facilities.		
Planned Activities	DNRC is planning a prescribed burn at the Beartooth Game Range to mitigate the wildfire hazard. Right-of-way projects include Highway 200 near Greenough, Dry Creek Road near Ovando, and highway east of Miles City containing a major power line.		

State of Montana Mitigation Action Plan
2013 Update - Non-Planning Project Scoring Matrix

Goal	Goal 3: Reduce Impacts of Wildland and Rangeland Fires
Objective	*Objective 3.1: Reduce fuels in the WUI*
Project	**Project 3.1.2 Encourage fuel reduction in the WUI and along evacuation routes on local jurisdication, Tribal Nation, and privately owned lands.**
Hazard(s) Addressed	Wildfire
DES District(s)	Statewide

Benefit-Cost Ranking	Options	Selection	Score
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)	X	3
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)		
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)	X	3
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)		
Property Benefit	Very High = > $5,000,000 (5 points)	X	5
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)		
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
Hazard Frequency	Project mitigates common hazard; occurs more than once a year (3 points)		
	Project mitigates a frequent hazard; occurs less than once a year but more than once a decade (2 points)	X	2
	Project mitigates an Infrequent hazard; occurs less than once a decade (1 point)		
Hazard Magnitude	Hazard has high damage and loss of life (3 points)		
	Hazard causes moderage damage and occassionally life is lost (2 points)	X	2
	Hazard causes minor damage and rarely loss of life (1 point)		
SU BTOTAL	ADD SCORE FROM CATEGORIES ABOVE		20
Base Plus Risk Weighting Factor	Project located in high population density area (Score X 3)		
	Project located in moderate population density area (Score X 2)	X	40
	Project specific to rural location (Score X 1)		
TOTAL SCORE	High = 57 - 81		
	Medium = 32 - 56	X	40
	Low = 9 - 31		
State Priority	High, Medium, Low	High	

Responsible Agency	DNRC-Fire and Foresty Assistance, DES, FireSafe Montana, RC&Ds, BIA, Local and Tribal Jurisdictions
Potential Funding Source(s)	FEMA, USFS, BLM, State
Implementation Schedule	Ongoing
Progress Made	The Northern Rockies Coordinating Group (DNRC Fire Management offices and all Federal agencies) has established two committees to do this: the Fire Prevention Committee and the Fuels Committee.
Planned Activities	More of the same too numerous to mention. FireSafe Montana is planning to establish two new councils to rail awareness, involve insurance agencies, and continue to hold workshops for the public. They are also looking at studies on saving structures from other states to apply in Montana.

State of Montana Mitigation Action Plan
2013 Update - Non-Planning Project Scoring Matrix

Goal	Goal 3: Reduce Impacts of Wildland and Rangeland Fires
Objective	*Objective 3.1: Reduce fuels in the WUI*
Project	**Project 3.1.3 Encourage utilities, local jurisdictions, and private entities to conduct fuel reduction in right-of-ways along powerlines and radio sites.**
Hazard(s) Addressed	Wildfire
DES District(s)	Statewide

Benefit-Cost Ranking	Options	Selection	Score
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)	X	4
	Very Low = < $100,000 (5 points)		
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)	X	3
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)		
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)	X	1
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
Hazard Frequency	Project mitigates common hazard; occurs more than once a year (3 points)		
	Project mitigates a frequent hazard; occurs less than once a year but more than once a decade (2 points)	X	2
	Project mitigates an Infrequent hazard; occurs less than once a decade (1 point)		
Hazard Magnitude	Hazard has high damage and loss of life (3 points)		
	Hazard causes moderage damage and occassionally life is lost (2 points)	X	2
	Hazard causes minor damage and rarely loss of life (1 point)		
SU BTOTAL	ADD SCORE FROM CATEGORIES ABOVE		17
Base Plus Risk Weighting Factor	Project located in high population density area (Score X 3)		
	Project located in moderate population density area (Score X 2)	X	34
	Project specific to rural location (Score X 1)		
TOTAL SCORE	High = 57 - 81		
	Medium = 32 - 56	X	34
	Low = 9 - 31		
State Priority	High, Medium, Low	High	

Responsible Agency	Utility Companies, DNRC-Fire, FireSafe Montana, State Fire Marshall, DES, Keep Montana Green
Potential Funding Source(s)	Private, FEMA, BLM, USFS
Implementation Schedule	Ongoing
Progress Made	Fuel mitigation project was completed by NorthWestern Energy from Bernice south to Butte along major transmission line. Park Electric and Glacier Electric (rural electric cooperatives) have also engaged in fuel mitigation activities. The Stillwater Mine has performed fuel mitigation along the transmission line along the Boulder River that feeds their mine.
Planned Activities	SHMO to present at annual convention of rural electric co-ops and will discuss fuel mitigation.

State of Montana Mitigation Action Plan
2013 Update - Non-Planning Project Scoring Matrix

Goal	Goal 3: Reduce Impacts of Wildland and Rangeland Fires
Objective	*Objective 3.1: Reduce fuels in the WUI*
Project	**Project 3.1.4 Participate in the coordination of mitigation projects on federal lands adjacent to state/private holdings.**
Hazard(s) Addressed	Wildfire
DES District(s)	Statewide

Benefit-Cost Ranking	Options	Selection	Score
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)	X	2
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)		
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)	X	3
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)		
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)	X	1
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)		
	Medium = Technology available/legislative support difficult/implementation possible (2 points)	X	2
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
Hazard Frequency	Project mitigates common hazard; occurs more than once a year (3 points)		
	Project mitigates a frequent hazard; occurs less than once a year but more than once a decade (2 points)	X	2
	Project mitigates an Infrequent hazard; occurs less than once a decade (1 point)		
Hazard Magnitude	Hazard has high damage and loss of life (3 points)		
	Hazard causes moderage damage and occassionally life is lost (2 points)	X	2
	Hazard causes minor damage and rarely loss of life (1 point)		
SU BTOTAL	ADD SCORE FROM CATEGORIES ABOVE		14
Base Plus Risk Weighting Factor	Project located in high population density area (Score X 3)		
	Project located in moderate population density area (Score X 2)	X	28
	Project specific to rural location (Score X 1)		
TOTAL SCORE	High = 57 - 81		
	Medium = 32 - 56		
	Low = 9 - 31	X	28
State Priority	High, Medium, Low	High	
Responsible Agency	USFS, Dept. of Interior (BLM & BuRec), DES, DNRC-Fire and Forestry Assistance, Fire Safe Montana, Tribal Nations		
Potential Funding Source(s)	BLM, USFS, BuRec		
Implementation Schedule	Ongoing		
Progress Made	Hauser Dam Road (BLM) including powerline and along road. Scratchgravel Hills (BLM) and Unionville (USFS) in Lewis and Clark County. Clancy Creek (BLM) above town. Too many projects to mention.		

Planned Activities	Seeley Lake (USFS): Horsehoe West, Colts Summit, Auggie Fuels. This is an on-going effort with too many projects to mention.

State of Montana Mitigation Action Plan

2013 Update - Non-Planning Project Scoring Matrix

Goal	Goal 3: Reduce Impacts of Wildland and Rangeland Fires		
Objective	*Objective 3.1: Reduce fuels in the WUI*		
Project	**Project 3.1.6 Protect state structures in WUI via fuel reduction.**		
Hazard(s) Addressed	Wildfire		
DES District(s)	Statewide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)	X	2
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)		
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)	X	3
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)		
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)	X	4
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)		
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)		
	Medium = Technology available/legislative support difficult/implementation possible (2 points)	X	2
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
Hazard Frequency	Project mitigates common hazard; occurs more than once a year (3 points)		
	Project mitigates a frequent hazard; occurs less than once a year but more than once a decade (2 points)	X	2
	Project mitigates an Infrequent hazard; occurs less than once a decade (1 point)		
Hazard Magnitude	Hazard has high damage and loss of life (3 points)		
	Hazard causes moderage damage and occassionally life is lost (2 points)	X	2
	Hazard causes minor damage and rarely loss of life (1 point)		
SU BTOTAL	ADD SCORE FROM CATEGORIES ABOVE		17
Base Plus Risk Weighting Factor	Project located in high population density area (Score X 3)		
	Project located in moderate population density area (Score X 2)	X	34
	Project specific to rural location (Score X 1)		
TOTAL SCORE	High = 57 - 81		
	Medium = 32 - 56	X	34
	Low = 9 - 31		
State Priority	High, Medium, Low	High	
Responsible Agency	DNRC-Fire, FWP		
Potential Funding Source(s)	State resources		
Implementation Schedule	Ongoing		
Progress Made	New project for 2013		
Planned Activities	Identify State structures in WUI and determine where fuel mitigation is needed. Secure funding for mitigation activities. Implement by hiring contractor to do work.		

State of Montana Mitigation Action Plan
2013 Update - Non-Planning Project Scoring Matrix

Goal	Goal 3: Reduce Impacts of Wildland and Rangeland Fires		
Objective	*Objective 3.3: Establish mapping or record keeping practices to support fuel management strategies*		
Project	**Project 3.3.1 Develop fire/fuel GIS layer for state lands.**		
Hazard(s) Addressed	Wildfire		
DES District(s)	Statewide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)	X	4
	Very Low = < $100,000 (5 points)		
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)	X	1
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)	X	1
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)		
	Project is effective but not sustainable (1 point)	X	1
Hazard Frequency	Project mitigates common hazard; occurs more than once a year (3 points)		
	Project mitigates a frequent hazard; occurs less than once a year but more than once a decade (2 points)	X	2
	Project mitigates an Infrequent hazard; occurs less than once a decade (1 point)		
Hazard Magnitude	Hazard has high damage and loss of life (3 points)		
	Hazard causes moderage damage and occassionally life is lost (2 points)	X	2
	Hazard causes minor damage and rarely loss of life (1 point)		
SU BTOTAL	ADD SCORE FROM CATEGORIES ABOVE		14
Base Plus Risk Weighting Factor	Project located in high population density area (Score X 3)		
	Project located in moderate population density area (Score X 2)	X	28
	Project specific to rural location (Score X 1)		
TOTAL SCORE	High = 57 - 81		
	Medium = 32 - 56		
	Low = 9 - 31	X	28
State Priority	High, Medium, Low	Medium	
Responsible Agency	DNRC-Fire		
Potential Funding Source(s)	State		
Implementation Schedule	Complete - Refer to Land Fire Project		
Progress Made	Veg layers from DNRC and USFS were combined to create the Land Fire Project which was used in the West-wide Assessment.		
Planned Activities	GIS layer will be continuously refreshed.		

State of Montana Mitigation Action Plan
2013 Update - Non-Planning Project Scoring Matrix

Goal	Goal 3: Reduce Impacts of Wildland and Rangeland Fires		
Objective	*Objective 3.3: Establish mapping or record keeping practices to support fuel management strategies*		
Project	**Project 3.3.2 Compile WUI GIS layer from CWPPs**		
Hazard(s) Addressed	Wildfire		
DES District(s)	Statewide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)	X	5
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)	X	1
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)	X	1
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
Hazard Frequency	Project mitigates common hazard; occurs more than once a year (3 points)		
	Project mitigates a frequent hazard; occurs less than once a year but more than once a decade (2 points)	X	2
	Project mitigates an Infrequent hazard; occurs less than once a decade (1 point)		
Hazard Magnitude	Hazard has high damage and loss of life (3 points)		
	Hazard causes moderage damage and occassionally life is lost (2 points)	X	2
	Hazard causes minor damage and rarely loss of life (1 point)		
SU BTOTAL	ADD SCORE FROM CATEGORIES ABOVE		16
Base Plus Risk Weighting Factor	Project located in high population density area (Score X 3)		
	Project located in moderate population density area (Score X 2)	X	32
	Project specific to rural location (Score X 1)		
TOTAL SCORE	High = 57 - 81		
	Medium = 32 - 56	X	32
	Low = 9 - 31		
State Priority	High, Medium, Low	High	
Responsible Agency	DNRC-Fire		
Potential Funding Source(s)	State		
Implementation Schedule	Project is complete		
Progress Made	CWPPs exist for all Montana counties and reservations with the exception of one county in the northeastern part of the state. Will be used in the wildfire analysis for the State PDM 2013 Update.		
Planned Activities	Parcel lines will be used in future updates so WUI layers are more consistent between the counties.		

State of Montana Mitigation Action Plan
2013 Update - Non-Planning Project Scoring Matrix

Goal	Goal 3: Reduce Impacts of Wildland and Rangeland Fires
Objective	*Objective 3.3: Establish mapping or record keeping practices to support fuel management strategies*
Project	**Project 3.3.3 Compile coordinated database of structures lost and saved from wildfire for use in future risk and damage assessments**
Hazard(s) Addressed	Wildfire
DES District(s)	Statewide

Benefit-Cost Ranking	Options	Selection	Score
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)	X	5
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)	X	3
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)		
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)	X	1
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)	X	3
	Project is effective but moderately sustainable (2 points)		
	Project is effective but not sustainable (1 point)		
Hazard Frequency	Project mitigates common hazard; occurs more than once a year (3 points)		
	Project mitigates a frequent hazard; occurs less than once a year but more than once a decade (2 points)	X	2
	Project mitigates an Infrequent hazard; occurs less than once a decade (1 point)		
Hazard Magnitude	Hazard has high damage and loss of life (3 points)		
	Hazard causes moderage damage and occassionally life is lost (2 points)	X	2
	Hazard causes minor damage and rarely loss of life (1 point)		
SU BTOTAL	ADD SCORE FROM CATEGORIES ABOVE		19
Base Plus Risk Weighting Factor	Project located in high population density area (Score X 3)		
	Project located in moderate population density area (Score X 2)	X	38
	Project specific to rural location (Score X 1)		
TOTAL SCORE	High = 57 - 81		
	Medium = 32 - 56	X	38
	Low = 9 - 31		
State Priority	High, Medium, Low	Medium	

Responsible Agency	DNRC-Fire, Dept Justice-State Fire Marshall, Coordinating agencies (BLM, USFS, BIA)
Potential Funding Source(s)	FEMA
Implementation Schedule	Short - Range
Progress Made	Data on structures lost to wildfire is being compiled.
Planned Activities	Add information on what types of structures (i.e. garages, homes, etc.) and how many structures were saved as a results of firefighting efforts.

State of Montana Mitigation Action Plan
2013 Update - Non-Planning Project Scoring Matrix

Goal	Goal 4: Mitigate the Potential Loss of Life and Property from Flooding
Objective	*Objective 4.1: Reduce the number of current and future structures in the floodplain.*
Project	**Project 4.1.1 Encourage jurisdictions to pursue mitigation projects for repetitive loss structures or any severe repetitive loss properties identified in the future**
Hazard(s) Addressed	Flooding
DES District(s)	Statewide

Benefit-Cost Ranking	Options	Selection	Score
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)	X	2
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)		
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)	X	1
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)	X	1
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)		
	Medium = Technology available/legislative support difficult/implementation possible (2 points)	X	2
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)	X	3
	Project is effective but moderately sustainable (2 points)		
	Project is effective but not sustainable (1 point)		
Hazard Frequency	Project mitigates common hazard; occurs more than once a year (3 points)		
	Project mitigates a frequent hazard; occurs less than once a year but more than once a decade (2 points)	X	2
	Project mitigates an Infrequent hazard; occurs less than once a decade (1 point)		
Hazard Magnitude	Hazard has high damage and loss of life (3 points)		
	Hazard causes moderage damage and occassionally life is lost (2 points)	X	2
	Hazard causes minor damage and rarely loss of life (1 point)		
SU BTOTAL	ADD SCORE FROM CATEGORIES ABOVE		13
Base Plus Risk Weighting Factor	Project located in high population density area (Score X 3)		
	Project located in moderate population density area (Score X 2)	X	26
	Project specific to rural location (Score X 1)		
TOTAL SCORE	High = 57 - 81		
	Medium = 32 - 56		
	Low = 9 - 31	X	26
State Priority	High, Medium, Low	High	

Responsible Agency	DES, DNRC-Water
Potential Funding Source(s)	FEMA
Implementation Schedule	Ongoing
Progress Made	Deer Lodge and Missoula Counties have HMGP acquisition projects through DR-1996.
Planned Activities	Acquisitions planned in Musselshell County and Harlem/Blaine County.

State of Montana Mitigation Action Plan
2013 Update - Non-Planning Project Scoring Matrix

Goal	Goal 4: Mitigate the Potential Loss of Life and Property from Flooding
Objective	*Objective 4.2: Mitigate flooding of structures and infrastructure.*
Project	**Project 4.2.1 Encourage mitigation projects that upgrade undersized bridges that inhibit water flow or those with scour potential.**
Hazard(s) Addressed	Flooding
DES District(s)	Statewide

Benefit-Cost Ranking	Options	Selection	Score
Estimated Cost	Very High = > $5,000,000 (1 point)	X	1
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)		
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)	X	1
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)	X	4
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)		
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)	X	3
	Project is effective but moderately sustainable (2 points)		
	Project is effective but not sustainable (1 point)		
Hazard Frequency	Project mitigates common hazard; occurs more than once a year (3 points)		
	Project mitigates a frequent hazard; occurs less than once a year but more than once a decade (2 points)	X	2
	Project mitigates an Infrequent hazard; occurs less than once a decade (1 point)		
Hazard Magnitude	Hazard has high damage and loss of life (3 points)		
	Hazard causes moderage damage and occassionally life is lost (2 points)	X	2
	Hazard causes minor damage and rarely loss of life (1 point)		
SU BTOTAL	ADD SCORE FROM CATEGORIES ABOVE		16
Base Plus Risk Weighting Factor	Project located in high population density area (Score X 3)		
	Project located in moderate population density area (Score X 2)	X	32
	Project specific to rural location (Score X 1)		
TOTAL SCORE	High = 57 - 81		
	Medium = 32 - 56	X	32
	Low = 9 - 31		
State Priority	High, Medium, Low	High	

Responsible Agency	DES, MDT, DNRC-Water
Potential Funding Source(s)	FEMA, State, Federal Highway Administration
Implementation Schedule	Ongoing
Progress Made	Kearny Lane Bridge/Madison Co. HMGP project through DR-1996 and Main Street Bridge/Deer Lodge PDMC Project (2010).
Planned Activities	Potentially some for DR-4074.

State of Montana Mitigation Action Plan
2013 Update - Non-Planning Project Scoring Matrix

Goal	Goal 4: Mitigate the Potential Loss of Life and Property from Flooding		
Objective	*Objective 4.2: Mitigate flooding of structures and infrastructure.*		
Project	**Project 4.2.2 Encourage communities at risk from ice jam flooding to apply for mitigation grants to install ice jam mitigation systems.**		
Hazard(s) Addressed	Flooding		
DES District(s)	Statewide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)	X	X
	Very Low = < $100,000 (5 points)		
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)	X	1
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)	X	4
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)		
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
Hazard Frequency	Project mitigates common hazard; occurs more than once a year (3 points)		
	Project mitigates a frequent hazard; occurs less than once a year but more than once a decade (2 points)	X	2
	Project mitigates an Infrequent hazard; occurs less than once a decade (1 point)		
Hazard Magnitude	Hazard has high damage and loss of life (3 points)		
	Hazard causes moderage damage and occassionally life is lost (2 points)	X	2
	Hazard causes minor damage and rarely loss of life (1 point)		
SU BTOTAL	ADD SCORE FROM CATEGORIES ABOVE		18
Base Plus Risk Weighting Factor	Project located in high population density area (Score X 3)		
	Project located in moderate population density area (Score X 2)	X	36
	Project specific to rural location (Score X 1)		
TOTAL SCORE	High = 57 - 81		
	Medium = 32 - 56	X	36
	Low = 9 - 31		
State Priority	High, Medium, Low	High	
Responsible Agency	DES, Corps of Engineers		
Potential Funding Source(s)	FEMA		
Implementation Schedule	On-going		
Progress Made	SHMO has promoted this but has been unsuccessful so far.		
Planned Activities	Trying to get Ennis and Twin Bridges to apply and possibly Townsend.		

State of Montana Mitigation Action Plan
2013 Update - Non-Planning Project Scoring Matrix

Goal	Goal 4: Mitigate the Potential Loss of Life and Property from Flooding		
Objective	*Objective 4.4: Improve the effectiveness of flood insurance programs.*		
Project	**Project 4.4.2 Develop mapping for flood prone areas without maps**		
Hazard(s) Addressed	Flooding		
DES District(s)	Statewide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)	X	1
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)		
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)	X	1
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)	X	3
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)		
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)		
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)	X	1
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)	X	3
	Project is effective but moderately sustainable (2 points)		
	Project is effective but not sustainable (1 point)		
Hazard Frequency	Project mitigates common hazard; occurs more than once a year (3 points)		
	Project mitigates a frequent hazard; occurs less than once a year but more than once a decade (2 points)	X	2
	Project mitigates an Infrequent hazard; occurs less than once a decade (1 point)		
Hazard Magnitude	Hazard has high damage and loss of life (3 points)		
	Hazard causes moderage damage and occassionally life is lost (2 points)	X	2
	Hazard causes minor damage and rarely loss of life (1 point)		
SU BTOTAL	ADD SCORE FROM CATEGORIES ABOVE		13
Base Plus Risk Weighting Factor	Project located in high population density area (Score X 3)		
	Project located in moderate population density area (Score X 2)	X	26
	Project specific to rural location (Score X 1)		
TOTAL SCORE	High = 57 - 81		
	Medium = 32 - 56		
	Low = 9 - 31	X	26
State Priority	High, Medium, Low	High	
Responsible Agency	DNRC-Water		
Potential Funding Source(s)	FEMA, Local Jurisdictions		
Implementation Schedule	On-going		
Progress Made	DNRC has received funding for comprehensive mapping program that identifies areas subject to flooding.		
Planned Activities	Will continue as funding allows		

State of Montana Mitigation Action Plan
2013 Update - Non-Planning Project Scoring Matrix

Goal	Goal 4: Mitigate the Potential Loss of Life and Property from Flooding		
Objective	*Objective 4.4: Improve the effectiveness of flood insurance programs.*		
Project	**Project 4.4.3 Update floodplain mapping from approximate to detailed maps.**		
Hazard(s) Addressed	Flooding		
DES District(s)	Statewide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)	X	3
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)		
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)	X	1
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)	X	3
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)		
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)	X	3
	Project is effective but moderately sustainable (2 points)		
	Project is effective but not sustainable (1 point)		
Hazard Frequency	Project mitigates common hazard; occurs more than once a year (3 points)		
	Project mitigates a frequent hazard; occurs less than once a year but more than once a decade (2 points)	X	2
	Project mitigates an Infrequent hazard; occurs less than once a decade (1 point)		
Hazard Magnitude	Hazard has high damage and loss of life (3 points)		
	Hazard causes moderage damage and occassionally life is lost (2 points)	X	2
	Hazard causes minor damage and rarely loss of life (1 point)		
SU BTOTAL	ADD SCORE FROM CATEGORIES ABOVE		17
Base Plus Risk Weighting Factor	Project located in high population density area (Score X 3)		
	Project located in moderate population density area (Score X 2)	X	34
	Project specific to rural location (Score X 1)		
TOTAL SCORE	High = 57 - 81		
	Medium = 32 - 56	X	34
	Low = 9 - 31		
State Priority	High, Medium, Low	High	
Responsible Agency	DNRC-Water		
Potential Funding Source(s)	FEMA		
Implementation Schedule	Ongoing		
Progress Made	Working on Big Hole River now (FEMA/State/Local cooperative project).		
Planned Activities	There is money in the budget office ($100,000 per year for two years) for cost share to match FEMA. West Gallatin River will be mapped next.		

State of Montana Mitigation Action Plan
2013 Update - Non-Planning Project Scoring Matrix

Goal	Goal 5: Reduce Potential Earthquake Losses in Seismically Prone Areas		
Objective	*Objective 5.1 Provide for earthquake resistance in new construction*		
Project	**Project 5.1.1 Integrate seismic resillience into significant building retrofits.**		
Hazard(s) Addressed	Earthquake		
DES District(s)	1, 3 - Intermountain Seismic Belt		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)	**X**	**5**
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)		
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)	X	1
Property Benefit	Very High = > $5,000,000 (5 points)	X	5
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)		
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)	X	3
	Project is effective but moderately sustainable (2 points)		
	Project is effective but not sustainable (1 point)		
Hazard Frequency	Project mitigates common hazard; occurs more than once a year (3 points)		
	Project mitigates a frequent hazard; occurs less than once a year but more than once a decade (2 points)		
	Project mitigates an Infrequent hazard; occurs less than once a decade (1 point)	X	1
Hazard Magnitude	Hazard has high damage and loss of life (3 points)	X	3
	Hazard causes moderage damage and occassionally life is lost (2 points)		
	Hazard causes minor damage and rarely loss of life (1 point)		
SU BTOTAL	ADD SCORE FROM CATEGORIES ABOVE		21
Base Plus Risk Weighting Factor	Project located in high population density area (Score X 3)		
	Project located in moderate population density area (Score X 2)		
	Project specific to rural location (Score X 1)	X	63
TOTAL SCORE	High = 57 - 81	X	63
	Medium = 32 - 56		
	Low = 9 - 31		
State Priority	High, Medium, Low	High	
Responsible Agency	Dept. Administration		
Potential Funding Source(s)	FEMA, State		
Implementation Schedule	Ongoing		
Progress Made	Mathews Hall at UM-Western, Creative Arts Center at MSU-Bozeman, and Montana Law Enforcement Academy		
Planned Activities	High performance building standards are being developed.		

State of Montana Mitigation Action Plan
2013 Update - Non-Planning Project Scoring Matrix

Goal	Goal 5: Reduce Potential Earthquake Losses in Seismically Prone Areas
Objective	*Objective 5.2: Educate the public in earthquake mitigation and readiness.*
Project	**Project 5.2.3 Expand and upgrade the earthquake monitoring network and information reporting capabilities in high hazard areas.**
Hazard(s) Addressed	Earthquake
DES District(s)	1,3

Benefit-Cost Ranking	Options	Selection	Score
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)	X	4
	Very Low = < $100,000 (5 points)		
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)	X	3
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)		
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)	X	1
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
Hazard Frequency	Project mitigates common hazard; occurs more than once a year (3 points)		
	Project mitigates a frequent hazard; occurs less than once a year but more than once a decade (2 points)		
	Project mitigates an Infrequent hazard; occurs less than once a decade (1 point)	X	1
Hazard Magnitude	Hazard has high damage and loss of life (3 points)	X	3
	Hazard causes moderage damage and occassionally life is lost (2 points)		
	Hazard causes minor damage and rarely loss of life (1 point)		
SU BTOTAL	ADD SCORE FROM CATEGORIES ABOVE		
Base Plus Risk Weighting Factor	Project located in high population density area (Score X 3)		
	Project located in moderate population density area (Score X 2)	X	34
	Project specific to rural location (Score X 1)		
TOTAL SCORE	High = 57 - 81		
	Medium = 32 - 56	X	34
	Low = 9 - 31		
State Priority	High, Medium, Low	Medium	

Responsible Agency	MBMG
Potential Funding Source(s)	FEMA, State
Implementation Schedule	Mid-Range
Progress Made	Received funding and upgraded three stations to digital.
Planned Activities	Continue as funding allows.

State of Montana Mitigation Action Plan
2013 Update - Non-Planning Project Scoring Matrix

Goal	Goal 5: Reduce Potential Earthquake Losses in Seismically Prone Areas		
Objective	*Objective 5.2: Educate the public in earthquake mitigation and readiness.*		
Project	**Project 5.2.4 Quantify seismic hazards posed by faults.**		
Hazard(s) Addressed	Earthquake		
DES District(s)	1,3		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)	X	
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)		
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)	X	3
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)		
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)	X	1
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
Hazard Frequency	Project mitigates common hazard; occurs more than once a year (3 points)		
	Project mitigates a frequent hazard; occurs less than once a year but more than once a decade (2 points)		
	Project mitigates an Infrequent hazard; occurs less than once a decade (1 point)	X	1
Hazard Magnitude	Hazard has high damage and loss of life (3 points)	X	3
	Hazard causes moderage damage and occassionally life is lost (2 points)		
	Hazard causes minor damage and rarely loss of life (1 point)		
SU BTOTAL	ADD SCORE FROM CATEGORIES ABOVE		16
Base Plus Risk Weighting Factor	Project located in high population density area (Score X 3)		
	Project located in moderate population density area (Score X 2)	X	32
	Project specific to rural location (Score X 1)		
TOTAL SCORE	High = 57 - 81		
	Medium = 32 - 56	X	32
	Low = 9 - 31		
State Priority	High, Medium, Low	Medium	
Responsible Agency	MBMG		
Potential Funding Source(s)	FEMA, State		
Implementation Schedule	On-going		
Progress Made	None		
Planned Activities	Pull together coalition and determine where maps exist. Acquire LiDAR data.		

State of Montana Mitigation Action Plan
2013 Update - Non-Planning Project Scoring Matrix

Goal	Goal 5: Reduce Potential Earthquake Losses in Seismically Prone Areas
Objective	*Objective 5.3: Seismically retrofit existing critical facilities/infrastructure and government assets.*
Project	**Project 5.3.1 Survey and install utility shut-off valves at all state buildings in the intermountain seismic belt.**
Hazard(s) Addressed	Earthquake
DES District(s)	1,3

Benefit-Cost Ranking	Options	Selection	Score
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)	X	5
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)	X	1
Property Benefit	Very High = > $5,000,000 (5 points)	X	5
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)		
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
Hazard Frequency	Project mitigates common hazard; occurs more than once a year (3 points)		
	Project mitigates a frequent hazard; occurs less than once a year but more than once a decade (2 points)		
	Project mitigates an Infrequent hazard; occurs less than once a decade (1 point)	X	1
Hazard Magnitude	Hazard has high damage and loss of life (3 points)	X	3
	Hazard causes moderage damage and occassionally life is lost (2 points)		
	Hazard causes minor damage and rarely loss of life (1 point)		
SU BTOTAL	ADD SCORE FROM CATEGORIES ABOVE		20
Base Plus Risk Weighting Factor	Project located in high population density area (Score X 3)	X	60
	Project located in moderate population density area (Score X 2)		
	Project specific to rural location (Score X 1)		
TOTAL SCORE	High = 57 - 81	X	60
	Medium = 32 - 56		
	Low = 9 - 31		
State Priority	High, Medium, Low	High	

Responsible Agency	DOA-General Services, DOA-A&E
Potential Funding Source(s)	FEMA, State
Implementation Schedule	Ongoing
Progress Made	Utility shut-off valves are part of the projects at Montana Law Enforcement Academy in Helena and Creative Arts Center at MSU-Bozeman.
Planned Activities	City of Helena Seismic Shut-off Valves, and Mathews Hall retrofit at UM-Western.

State of Montana Mitigation Action Plan
2013 Update - Non-Planning Project Scoring Matrix

Goal	Goal 5: Reduce Potential Earthquake Losses in Seismically Prone Areas
Objective	*Objective 5.3: Seismically retrofit existing critical facilities/infrastructure and government assets.*
Project	**Project 5.3.2 At the Capitol Complex in Helena, seismically retrofit buildings with most vulnerability and highest occupancy to mitigate loss.**
Hazard(s) Addressed	Earthquake
DES District(s)	3

Benefit-Cost Ranking	Options	Selection	Score
Estimated Cost	Very High = > $5,000,000 (1 point)	**X**	**5**
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)		
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)	X	1
Property Benefit	Very High = > $5,000,000 (5 points)	X	5
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)		
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
Hazard Frequency	Project mitigates common hazard; occurs more than once a year (3 points)	1	1
	Project mitigates a frequent hazard; occurs less than once a year but more than once a decade (2 points)		
	Project mitigates an Infrequent hazard; occurs less than once a decade (1 point)		
Hazard Magnitude	Hazard has high damage and loss of life (3 points)	3	3
	Hazard causes moderage damage and occassionally life is lost (2 points)		
	Hazard causes minor damage and rarely loss of life (1 point)		
SU BTOTAL	ADD SCORE FROM CATEGORIES ABOVE		16
Base Plus Risk Weighting Factor	Project located in high population density area (Score X 3)	X	48
	Project located in moderate population density area (Score X 2)		
	Project specific to rural location (Score X 1)		
TOTAL SCORE	High = 57 - 81		
	Medium = 32 - 56	X	48
	Low = 9 - 31		
State Priority	High, Medium, Low	High	

Responsible Agency	Dept. Administration
Potential Funding Source(s)	FEMA, State
Implementation Schedule	Ongoing
Progress Made	Completed Tier 1 seismic evaluations of Capitol Complex buildings and identified structural and non-structural vulnerabilities.
Planned Activities	Seismic resilience will be integrated into future building retrofits. Highest priority is hangar housing Governor's plane at Helena airport.

State of Montana Mitigation Action Plan
2013 Update - Non-Planning Project Scoring Matrix

Goal	Goal 5: Reduce Potential Earthquake Losses in Seismically Prone Areas
Objective	*Objective 5.3: Seismically retrofit existing critical facilities/infrastructure and government assets.*
Project	**Project 5.3.3 At Montana University System campuses in the intermountain seismic belt, seismically retrofit most vulnerable and highest occupancy buildings.**
Hazard(s) Addressed	Earthquake
DES District(s)	3

Benefit-Cost Ranking	Options	Selection	Score
Estimated Cost	Very High = > $5,000,000 (1 point)	**X**	**1**
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)		
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)	X	1
Property Benefit	Very High = > $5,000,000 (5 points)	X	5
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)		
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
Hazard Frequency	Project mitigates common hazard; occurs more than once a year (3 points)		
	Project mitigates a frequent hazard; occurs less than once a year but more than once a decade (2 points)		
	Project mitigates an Infrequent hazard; occurs less than once a decade (1 point)	X	1
Hazard Magnitude	Hazard has high damage and loss of life (3 points)	X	3
	Hazard causes moderage damage and occassionally life is lost (2 points)		
	Hazard causes minor damage and rarely loss of life (1 point)		
SU BTOTAL	ADD SCORE FROM CATEGORIES ABOVE		16
Base Plus Risk Weighting Factor	Project located in high population density area (Score X 3)	X	48
	Project located in moderate population density area (Score X 2)		
	Project specific to rural location (Score X 1)		
TOTAL SCORE	High = 57 - 81		
	Medium = 32 - 56	X	48
	Low = 9 - 31		
State Priority	High, Medium, Low	High	

Responsible Agency	Dept. Administration, University System
Potential Funding Source(s)	FEMA, State
Implementation Schedule	Ongoing
Progress Made	Completed Tier 1 seismic evaluations of University buildings and identified structural and non-structural vulnerabilities. Received PDMC grant to seismically retrofit Creative Arts Center at MSU-Bozeman.
Planned Activities	Have pending HMGP project through DR-1996 to seismically retrofit Mathews Hall at UM-Western.

State of Montana Mitigation Action Plan
2013 Update - Non-Planning Project Scoring Matrix

Goal	Goal 5: Reduce Potential Earthquake Losses in Seismically Prone Areas		
Objective	*Objective 5.3: Seismically retrofit existing critical facilities/infrastructure and government assets.*		
Project	**Project 5.3.4 At the Department of Corrections facilities in Deer Lodge, improve support systems and implement seismic upgrades to ensure security and maintain operation.**		
Hazard(s) Addressed	Earthquake		
DES District(s)	1		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)	x	2
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)		
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)	x	1
Property Benefit	Very High = > $5,000,000 (5 points)	x	5
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)		
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	x	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	x	2
	Project is effective but not sustainable (1 point)		
Hazard Frequency	Project mitigates common hazard; occurs more than once a year (3 points)		
	Project mitigates a frequent hazard; occurs less than once a year but more than once a decade (2 points)		
	Project mitigates an Infrequent hazard; occurs less than once a decade (1 point)	x	1
Hazard Magnitude	Hazard has high damage and loss of life (3 points)	x	3
	Hazard causes moderage damage and occassionally life is lost (2 points)		
	Hazard causes minor damage and rarely loss of life (1 point)		
SU BTOTAL	ADD SCORE FROM CATEGORIES ABOVE		17
Base Plus Risk Weighting Factor	Project located in high population density area (Score X 3)		
	Project located in moderate population density area (Score X 2)		
	Project specific to rural location (Score X 1)	x	17
TOTAL SCORE	High = 57 - 81		
	Medium = 32 - 56		
	Low = 9 - 31	x	17
State Priority	High, Medium, Low	High	
Responsible Agency	Dept. Administration, Dept. Corrections		
Potential Funding Source(s)	FEMA, State		
Implementation Schedule	Mid-Range		
Progress Made	Completed Tier 1 seismic evaluations of Dept. Correction buildings and identified structural and non-structural vulnerabilities.		
Planned Activities	Seismic resilience will be integrated into future building retrofits.		

State of Montana Mitigation Action Plan
2013 Update - Non-Planning Project Scoring Matrix

Goal	Goal 5: Reduce Potential Earthquake Losses in Seismically Prone Areas		
Objective	*Objective 5.3: Seismically retrofit existing critical facilities/infrastructure and government assets.*		
Project	**Project 5.3.5 At the Montana State Hospital in Warm Springs, seismically harden buildings and expand support systems to assure continued operation and meet medical needs.**		
Hazard(s) Addressed	Earthquake		
DES District(s)	1		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)	X	4
	Very Low = < $100,000 (5 points)		
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)	X	1
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)	X	4
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)		
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
Hazard Frequency	Project mitigates common hazard; occurs more than once a year (3 points)		
	Project mitigates a frequent hazard; occurs less than once a year but more than once a decade (2 points)		
	Project mitigates an Infrequent hazard; occurs less than once a decade (1 point)	X	1
Hazard Magnitude	Hazard has high damage and loss of life (3 points)	X	3
	Hazard causes moderage damage and occassionally life is lost (2 points)		
	Hazard causes minor damage and rarely loss of life (1 point)		
SU BTOTAL	ADD SCORE FROM CATEGORIES ABOVE		18
Base Plus Risk Weighting Factor	Project located in high population density area (Score X 3)		
	Project located in moderate population density area (Score X 2)		
	Project specific to rural location (Score X 1)	X	18
TOTAL SCORE	High = 57 - 81		
	Medium = 32 - 56		
	Low = 9 - 31	X	18
State Priority	High, Medium, Low	High	
Responsible Agency	Dept. Administration		
Potential Funding Source(s)	FEMA, State		
Implementation Schedule	Mid-Range		
Progress Made	Completed Tier 1 seismic evaluations of Montana State Hospital buildings and identified structural and non-structural vulnerabilities.		
Planned Activities	Seismic resilience will be integrated into future building retrofits.		

State of Montana Mitigation Action Plan
2013 Update - Non-Planning Project Scoring Matrix

Goal	Goal 5: Reduce Potential Earthquake Losses in Seismically Prone Areas
Objective	*Objective 5.3: Seismically retrofit existing critical facilities/infrastructure and government assets.*
Project	**Project 5.3.6 At the Montana Developmental Center and Riverside in Boulder, implement seismic upgrades.**
Hazard(s) Addressed	Earthquake
DES District(s)	3

Benefit-Cost Ranking	Options	Selection	Score
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)	X	2
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)		
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)	X	1
Property Benefit	Very High = > $5,000,000 (5 points)	X	5
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)		
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
Hazard Frequency	Project mitigates common hazard; occurs more than once a year (3 points)		
	Project mitigates a frequent hazard; occurs less than once a year but more than once a decade (2 points)		
	Project mitigates an Infrequent hazard; occurs less than once a decade (1 point)	X	1
Hazard Magnitude	Hazard has high damage and loss of life (3 points)	X	3
	Hazard causes moderage damage and occassionally life is lost (2 points)		
	Hazard causes minor damage and rarely loss of life (1 point)		
SU BTOTAL	ADD SCORE FROM CATEGORIES ABOVE		17
Base Plus Risk Weighting Factor	Project located in high population density area (Score X 3)		
	Project located in moderate population density area (Score X 2)		
	Project specific to rural location (Score X 1)	X	17
TOTAL SCORE	High = 57 - 81		
	Medium = 32 - 56		
	Low = 9 - 31	X	17
State Priority	High, Medium, Low	High	
Responsible Agency	Dept. Administration, Dept. Corrections, DPHHS		
Potential Funding Source(s)	FEMA, State		
Implementation Schedule	Mid-Range		
Progress Made	Completed Tier 1 seismic evaluations of several MDC buildings and identified structural and non-structural vulnerabilities.		
Planned Activities	Seismic resilience will be integrated into future building retrofits. State legislature is determining whether this facility will remain open.		

State of Montana Mitigation Action Plan
2013 Update - Non-Planning Project Scoring Matrix

Goal	Goal 5: Reduce Potential Earthquake Losses in Seismically Prone Areas
Objective	*Objective 5.3: Seismically retrofit existing critical facilities/infrastructure and government assets.*
Project	**Project 5.3.7 Conduct seismic evaluations of state-owned buildings in the intermountain seismic belt (including utility tunnels and infrastructure systems) to identify where seismic retrofits are necessary.**
Hazard(s) Addressed	Earthquake
DES District(s)	1,3

Benefit-Cost Ranking	Options	Selection	Score
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)	X	4
	Very Low = < $100,000 (5 points)		
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)	X	1
Property Benefit	Very High = > $5,000,000 (5 points)	X	5
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)		
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
Hazard Frequency	Project mitigates common hazard; occurs more than once a year (3 points)		
	Project mitigates a frequent hazard; occurs less than once a year but more than once a decade (2 points)		
	Project mitigates an Infrequent hazard; occurs less than once a decade (1 point)	X	1
Hazard Magnitude	Hazard has high damage and loss of life (3 points)	X	3
	Hazard causes moderage damage and occassionally life is lost (2 points)		
	Hazard causes minor damage and rarely loss of life (1 point)		
SU BTOTAL	ADD SCORE FROM CATEGORIES ABOVE		19
Base Plus Risk Weighting Factor	Project located in high population density area (Score X 3)		
	Project located in moderate population density area (Score X 2)	X	38
	Project specific to rural location (Score X 1)		
TOTAL SCORE	High = 57 - 81		
	Medium = 32 - 56	X	38
	Low = 9 - 31		
State Priority	High, Medium, Low	High	
Responsible Agency	Dept. Administration		
Potential Funding Source(s)	FEMA, State		
Implementation Schedule	Project is complete		
Progress Made	Completed Tier 1 seismic evaluations of 114 state-owned buildings at 15 campus/locations and identified structural and non-structural vulnerabilities.		
Planned Activities	Project is complete		

State of Montana Mitigation Action Plan
2013 Update - Non-Planning Project Scoring Matrix

Goal	Goal 5: Reduce Potential Earthquake Losses in Seismically Prone Areas		
Objective	*Objective 5.3: Seismically retrofit existing critical facilities/infrastructure and government assets.*		
Project	**Project 5.3.8 Encourage local jurisdictions and Tribal Nations in the intermountain seismic belt to conduct seismic evaluations of their critical facilities**		
Hazard(s) Addressed	Earthquake		
DES District(s)	1,3		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)	X	4
	Very Low = < $100,000 (5 points)		
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)	X	3
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)		
Property Benefit	Very High = > $5,000,000 (5 points)	X	5
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)		
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
Hazard Frequency	Project mitigates common hazard; occurs more than once a year (3 points)		
	Project mitigates a frequent hazard; occurs less than once a year but more than once a decade (2 points)		
	Project mitigates an Infrequent hazard; occurs less than once a decade (1 point)	X	1
Hazard Magnitude	Hazard has high damage and loss of life (3 points)	X	3
	Hazard causes moderage damage and occassionally life is lost (2 points)		
	Hazard causes minor damage and rarely loss of life (1 point)		
SU BTOTAL	ADD SCORE FROM CATEGORIES ABOVE		21
Base Plus Risk Weighting Factor	Project located in high population density area (Score X 3)	X	63
	Project located in moderate population density area (Score X 2)		
	Project specific to rural location (Score X 1)		
TOTAL SCORE	High = 57 - 81	X	63
	Medium = 32 - 56		
	Low = 9 - 31		
State Priority	High, Medium, Low	High	
Responsible Agency	DES, Local Jurisdictions, Tribal Nations		
Potential Funding Source(s)	DHS/FEMA, Local Jurisdictions		
Implementation Schedule	Ongoing		
Progress Made	Local PDM Plan updates have identified this as a mitigation project. Without funding, implementation uncertain.		
Planned Activities	SHMO will continue to do this		

State of Montana Mitigation Action Plan
2013 Update - Non-Planning Project Scoring Matrix

Goal	Goal 5: Reduce Potential Earthquake Losses in Seismically Prone Areas
Objective	*Objective 5.3: Seismically retrofit existing critical facilities/infrastructure and government assets.*
Project	**Project 5.3.10 Encourage private utiliities in intermountain seismic belt to retrofit their systems for seismic stability**
Hazard(s) Addressed	Earthquake
DES District(s)	1,3

Benefit-Cost Ranking	Options	Selection	Score
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)	X	3
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)		
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)	X	3
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)		
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)	X	1
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
Hazard Frequency	Project mitigates common hazard; occurs more than once a year (3 points)		
	Project mitigates a frequent hazard; occurs less than once a year but more than once a decade (2 points)		
	Project mitigates an Infrequent hazard; occurs less than once a decade (1 point)	X	1
Hazard Magnitude	Hazard has high damage and loss of life (3 points)	X	3
	Hazard causes moderage damage and occassionally life is lost (2 points)		
	Hazard causes minor damage and rarely loss of life (1 point)		
SU BTOTAL	ADD SCORE FROM CATEGORIES ABOVE		13
Base Plus Risk Weighting Factor	Project located in high population density area (Score X 3)		
	Project located in moderate population density area (Score X 2)	X	26
	Project specific to rural location (Score X 1)		
TOTAL SCORE	High = 57 - 81		
	Medium = 32 - 56		
	Low = 9 - 31	X	26
State Priority	High, Medium, Low	High	

Responsible Agency	DES, Utilities
Potential Funding Source(s)	FEMA, Utilities
Implementation Schedule	Ongoing
Progress Made	No progress to report
Planned Activities	SHMO plans to make presentation at annual meeting of rural electric cooperatives in October 2013 and encourage them to bury their transmission lines in vulnerable areas.

State of Montana Mitigation Action Plan

2013 Update - Non-Planning Project Scoring Matrix

Goal	Goal 5: Reduce Potential Earthquake Losses in Seismically Prone Areas		
Objective	*Objective 5.4: Implement non-structural mitigation projects to harden State and community assets and infrastructure from seismic hazards*		
Project	**Project 5.4.1 Implement non-structural projects at state buildings in the intermountain seismic belt such as anchoring utilities.**		
Hazard(s) Addressed	Earthquake		
DES District(s)	1,3		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)	X	5
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)	X	1
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)	X	3
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)		
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)	X	3
	Project is effective but moderately sustainable (2 points)		
	Project is effective but not sustainable (1 point)		
Hazard Frequency	Project mitigates common hazard; occurs more than once a year (3 points)		
	Project mitigates a frequent hazard; occurs less than once a year but more than once a decade (2 points)		
	Project mitigates an Infrequent hazard; occurs less than once a decade (1 point)	X	1
Hazard Magnitude	Hazard has high damage and loss of life (3 points)	X	3
	Hazard causes moderage damage and occassionally life is lost (2 points)		
	Hazard causes minor damage and rarely loss of life (1 point)		
SU BTOTAL	ADD SCORE FROM CATEGORIES ABOVE		19
Base Plus Risk Weighting Factor	Project located in high population density area (Score X 3)		
	Project located in moderate population density area (Score X 2)		
	Project specific to rural location (Score X 1)	X	19
TOTAL SCORE	High = 57 - 81		
	Medium = 32 - 56		
	Low = 9 - 31	X	19
State Priority	High, Medium, Low	High	
Responsible Agency	All State Agencies, University System		
Potential Funding Source(s)	FEMA, State		
Implementation Schedule	Mid-Range		
Progress Made	Completed Tier 1 seismic evaluations of 114 state-owned buildings at 15 campus/locations and identified non-structural deficiencies. Received PDMC grant to seismically retrofit (including non-structural elements) Creative Arts Center at MSU-Bozeman. Have pending HMGP projects through DR-1996 to seismically retrofit (including non-structural elements) Mathews Hall at UM-Western and Montana Law Enforcement Academy in Helena (non-structural only).		
Planned Activities	General Services Administration will implement non-structural projects as part of building maintenance.		

State of Montana Mitigation Action Plan
2013 Update - Non-Planning Project Scoring Matrix

Goal	Goal 6: Reduce Impacts from Severe Summer Weather (Hail, Wind, Tornadoes)
Objective	*Objective 6.1: Increase community capabilities to mitigate summer weather hazards.*
Project	**Project 6.1.1 Encourage utilities to bury electric lines that could blow down to improve reliability.**
Hazard(s) Addressed	Severe Summer Weather
DES District(s)	Statewide

Benefit-Cost Ranking	Options	Selection	Score
Estimated Cost	Very High = > $5,000,000 (1 point)	**X**	**1**
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)		
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)	X	1
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)	X	3
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)		
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)		
	Medium = Technology available/legislative support difficult/implementation possible (2 points)	X	2
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)	X	3
	Project is effective but moderately sustainable (2 points)		
	Project is effective but not sustainable (1 point)		
Hazard Frequency	Project mitigates common hazard; occurs more than once a year (3 points)	X	3
	Project mitigates a frequent hazard; occurs less than once a year but more than once a decade (2 points)		
	Project mitigates an Infrequent hazard; occurs less than once a decade (1 point)		
Hazard Magnitude	Hazard has high damage and loss of life (3 points)		
	Hazard causes moderage damage and occassionally life is lost (2 points)	X	2
	Hazard causes minor damage and rarely loss of life (1 point)		
SU BTOTAL	ADD SCORE FROM CATEGORIES ABOVE		15
Base Plus Risk Weighting Factor	Project located in high population density area (Score X 3)		
	Project located in moderate population density area (Score X 2)	X	30
	Project specific to rural location (Score X 1)		
TOTAL SCORE	High = 57 - 81		
	Medium = 32 - 56		
	Low = 9 - 31	X	30
State Priority	High, Medium, Low	High	

Responsible Agency	Utilities, Local Jurisdictions, Tribal Nations, DES, Public Service Commission
Potential Funding Source(s)	FEMA
Implementation Schedule	Ongoing
Progress Made	SHMO has met with rural electric cooperatives in southeast Montana.
Planned Activities	SHMO plans to make presentation at annual meeting of rural electric cooperatives to encourage them to bury transmission lines.

State of Montana Mitigation Action Plan
2013 Update - Non-Planning Project Scoring Matrix

Goal	Goal 6: Reduce Impacts from Severe Summer Weather (Hail, Wind, Tornadoes)		
Objective	*Objective 6.1: Increase community capabilities to mitigate summer weather hazards.*		
Project	**Project 6.1.2: Modify vulnerable buildings to resist water penetration and wind damage**		
Hazard(s) Addressed	Severe Summer Weather		
DES District(s)	State-wide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)	X	2
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)		
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)	X	1
Property Benefit	Very High = > $5,000,000 (5 points)	X	5
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)		
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
Hazard Frequency	Project mitigates common hazard; occurs more than once a year (3 points)	X	3
	Project mitigates a frequent hazard; occurs less than once a year but more than once a decade (2 points)		
	Project mitigates an Infrequent hazard; occurs less than once a decade (1 point)		
Hazard Magnitude	Hazard has high damage and loss of life (3 points)		
	Hazard causes moderage damage and occassionally life is lost (2 points)	X	2
	Hazard causes minor damage and rarely loss of life (1 point)		
SU BTOTAL	ADD SCORE FROM CATEGORIES ABOVE		18
Base Plus Risk Weighting Factor	Project located in high population density area (Score X 3)		
	Project located in moderate population density area (Score X 2)	X	36
	Project specific to rural location (Score X 1)		
TOTAL SCORE	High = 57 - 81		
	Medium = 32 - 56	X	36
	Low = 9 - 31		
State Priority	High, Medium, Low	High	
Responsible Agency	Dept. Administration, University System		
Potential Funding Source(s)	State, FEMA		
Implementation Schedule	Ongoing		
Progress Made	No progress to report		
Planned Activities	High performance building standards are being developed to address this project.		

State of Montana Mitigation Action Plan
2013 Update - Non-Planning Project Scoring Matrix

Goal	Goal 7: Reduce Impacts from Severe Winter Weather
Objective	*Objective 7.2: Increase public awareness of winter weather hazards.*
Project	**Project 7.1.1 Encourage utilities to put their equipment underground in areas that are hit by extreme weather.**
Hazard(s) Addressed	Severe Winter Weather
DES District(s)	All

Benefit-Cost Ranking	Options	Selection	Score
Estimated Cost	Very High = > $5,000,000 (1 point)	**X**	**1**
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)		
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)	X	3
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)		
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)	X	4
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)		
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)	X	3
	Project is effective but moderately sustainable (2 points)		
	Project is effective but not sustainable (1 point)		
Hazard Frequency	Project mitigates common hazard; occurs more than once a year (3 points)		
	Project mitigates a frequent hazard; occurs less than once a year but more than once a decade (2 points)	X	2
	Project mitigates an Infrequent hazard; occurs less than once a decade (1 point)		
Hazard Magnitude	Hazard has high damage and loss of life (3 points)		
	Hazard causes moderage damage and occassionally life is lost (2 points)	X	2
	Hazard causes minor damage and rarely loss of life (1 point)		
SU BTOTAL	ADD SCORE FROM CATEGORIES ABOVE		18
Base Plus Risk Weighting Factor	Project located in high population density area (Score X 3)		
	Project located in moderate population density area (Score X 2)	X	36
	Project specific to rural location (Score X 1)		
TOTAL SCORE	High = 57 - 81		
	Medium = 32 - 56	X	36
	Low = 9 - 31		
State Priority	High, Medium, Low	High	

Responsible Agency	Utilities, Local Jurisdictions, Tribal Nations, DES, Public Service Commission
Potential Funding Source(s)	FEMA
Implementation Schedule	Ongoing
Progress Made	SHMO has met with rural electric cooperatives in southeast Montana.
Planned Activities	SHMO plans to make presentation at annual meeting of rural electric cooperatives to encourage them to bury transmission lines.

State of Montana Mitigation Action Plan
2013 Update - Non-Planning Project Scoring Matrix

Goal	Goal 7: Reduce Impacts from Severe Winter Weather
Objective	*Objective 7.1: Increase community capabilities to mitigate winter weather hazards*
Project	**Project 7.1.2 Encourage utilities to apply for mitigation grants to install air flow spoilers on above ground utility lines**
Hazard(s) Addressed	Severe Winter Weather
DES District(s)	Statewide

Benefit-Cost Ranking	Options	Selection	Score
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)	X	5
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)	X	3
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)		
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)	X	3
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)		
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)	X	3
	Project is effective but moderately sustainable (2 points)		
	Project is effective but not sustainable (1 point)		
Hazard Frequency	Project mitigates common hazard; occurs more than once a year (3 points)		
	Project mitigates a frequent hazard; occurs less than once a year but more than once a decade (2 points)	X	2
	Project mitigates an Infrequent hazard; occurs less than once a decade (1 point)		
Hazard Magnitude	Hazard has high damage and loss of life (3 points)		
	Hazard causes moderage damage and occassionally life is lost (2 points)	X	2
	Hazard causes minor damage and rarely loss of life (1 point)		
SU BTOTAL	ADD SCORE FROM CATEGORIES ABOVE		21
Base Plus Risk Weighting Factor	Project located in high population density area (Score X 3)		
	Project located in moderate population density area (Score X 2)	X	42
	Project specific to rural location (Score X 1)		
TOTAL SCORE	High = 57 - 81		
	Medium = 32 - 56	X	42
	Low = 9 - 31		
State Priority	High, Medium, Low	High	

Responsible Agency	Utilities, Local Jurisdictions, Tribal Nations, DES, Public Service Commission
Potential Funding Source(s)	FEMA
Implementation Schedule	Ongoing
Progress Made	No progress to report
Planned Activities	Trying to get electric Co-ops to apply under DR-4074.

State of Montana Mitigation Action Plan			
2013 Update - Non-Planning Project Scoring Matrix			
Goal	Goal 7: Reduce Impacts from Severe Winter Weather		
Objective	*Objective 7.3: Implement actions to enhance reliability of power supply.*		
Project	**Project 7.3.2 Encourage backup power at state, local, and tribal critical facilities.**		
Hazard(s) Addressed	Severe Winter Weather		
DES District(s)	Statewide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)	X	4
	Very Low = < $100,000 (5 points)		
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)	X	1
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)	X	2
	Very Low = < $100,000 (1 points)		
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)	X	3
	Project is effective but moderately sustainable (2 points)		
	Project is effective but not sustainable (1 point)		
Hazard Frequency	Project mitigates common hazard; occurs more than once a year (3 points)	X	3
	Project mitigates a frequent hazard; occurs less than once a year but more than once a decade (2 points)		
	Project mitigates an Infrequent hazard; occurs less than once a decade (1 point)		
Hazard Magnitude	Hazard has high damage and loss of life (3 points)		
	Hazard causes moderage damage and occassionally life is lost (2 points)	X	2
	Hazard causes minor damage and rarely loss of life (1 point)		
SU BTOTAL	ADD SCORE FROM CATEGORIES ABOVE		18
Base Plus Risk Weighting Factor	Project located in high population density area (Score X 3)		
	Project located in moderate population density area (Score X 2)	X	36
	Project specific to rural location (Score X 1)		
TOTAL SCORE	High = 57 - 81		
	Medium = 32 - 56	X	36
	Low = 9 - 31		
State Priority	High, Medium, Low	Medium	
Responsible Agency	DES		
Potential Funding Source(s)	FEMA		
Implementation Schedule	Ongoing		
Progress Made	New project for 2013		
Planned Activities	Apply for based upon availability of disaster and non-disaster grant funds from FEMA.		

State of Montana Mitigation Action Plan
2013 Update - Non-Planning Project Scoring Matrix

Goal	Goal 9: Reduce Losses from Hazardous Material Incidents		
Objective	*Objective 9.1 Collect data to support mitigation projects*		
Project	**Project 9.1.1 Complete hazmat flow studies at highly vulnerable locations**		
Hazard(s) Addressed	Hazardous Material Incidents		
DES District(s)	Statewide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)	X	4
	Very Low = < $100,000 (5 points)		
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)	X	4
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)		
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)	X	3
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)		
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)		
	Project is effective but not sustainable (1 point)	X	1
Hazard Frequency	Project mitigates common hazard; occurs more than once a year (3 points)	X	3
	Project mitigates a frequent hazard; occurs less than once a year but more than once a decade (2 points)		
	Project mitigates an Infrequent hazard; occurs less than once a decade (1 point)		
Hazard Magnitude	Hazard has high damage and loss of life (3 points)		
	Hazard causes moderage damage and occassionally life is lost (2 points)	X	2
	Hazard causes minor damage and rarely loss of life (1 point)		
SU BTOTAL	ADD SCORE FROM CATEGORIES ABOVE		20
Base Plus Risk Weighting Factor	Project located in high population density area (Score X 3)		
	Project located in moderate population density area (Score X 2)	X	40
	Project specific to rural location (Score X 1)		
TOTAL SCORE	High = 57 - 81		
	Medium = 32 - 56	X	40
	Low = 9 - 31		
State Priority	High, Medium, Low	Medium	
Responsible Agency	DES, MDT		
Potential Funding Source(s)	DHS, Federal Highway Administration		
Implementation Schedule	Mid-Range		
Progress Made	No activities to report		
Planned Activities	MDT will plan for this as funding allows.		

State of Montana Mitigation Action Plan

2013 Update - Non-Planning Project Scoring Matrix

Goal	Goal 10: Reduce Impacts from Drought		
Objective	*Objective 10.1 Enhance planning efforts, public information, and education regarding drought*		
Project	**Project 10.1.4 Encourage system of soil moisutre gauges to monitor drought.**		
Hazard(s) Addressed	Drought		
DES District(s)	Statewide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)	X	5
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)	X	2
	Very Low = < 20% State residents (1 points)		
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)	X	1
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)		
	Project is effective but not sustainable (1 point)	X	1
Hazard Frequency	Project mitigates common hazard; occurs more than once a year (3 points)		
	Project mitigates a frequent hazard; occurs less than once a year but more than once a decade (2 points)	X	2
	Project mitigates an Infrequent hazard; occurs less than once a decade (1 point)		
Hazard Magnitude	Hazard has high damage and loss of life (3 points)		
	Hazard causes moderage damage and occassionally life is lost (2 points)		
	Hazard causes minor damage and rarely loss of life (1 point)	X	1
SUBTOTAL	ADD SCORE FROM CATEGORIES ABOVE		15
Base Plus Risk Weighting Factor	Project located in high population density area (Score X 3)		
	Project located in moderate population density area (Score X 2)		
	Project specific to rural location (Score X 1)	X	1
TOTAL SCORE	High = 57 - 81		
	Medium = 32 - 56		
	Low = 9 - 31	X	15
State Priority	High, Medium, Low	Medium	
Responsible Agency	DNR-Water		
Potential Funding Source(s)	State Resources		
Implementation Schedule	Mid-Range		
Progress Made	New project for 2013 State PDM Plan		
Planned Activities	Request DNRC and Agriculture Dept. fund or request FEMA HMGP 5% project funding for system of soil gauges.		

State of Montana Mitigation Action Plan			
2013 Update - Non-Planning Project Scoring Matrix			
Goal	Goal 10: Reduce Impacts from Drought		
Objective	*Objective 10.4 Enhance water storage capacity and irrigation conveyance.*		
Project	**Project 10.4.1 Consider feasible water storage where it will increase water supply security such as development of catchment basins with wells and storage capacity and or percolation ponds.**		
Hazard(s) Addressed	Drought		
DES District(s)	Statewide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)	X	4
	Very Low = < $100,000 (5 points)		
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)	X	2
	Very Low = < 20% State residents (1 points)		
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)	X	1
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)		
	Medium = Technology available/legislative support difficult/implementation possible (2 points)	X	2
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)	X	3
	Project is effective but moderately sustainable (2 points)		
	Project is effective but not sustainable (1 point)		
Hazard Frequency	Project mitigates common hazard; occurs more than once a year (3 points)		
	Project mitigates a frequent hazard; occurs less than once a year but more than once a decade (2 points)	X	2
	Project mitigates an Infrequent hazard; occurs less than once a decade (1 point)		
Hazard Magnitude	Hazard has high damage and loss of life (3 points)		
	Hazard causes moderage damage and occassionally life is lost (2 points)		
	Hazard causes minor damage and rarely loss of life (1 point)	X	1
SUBTOTAL	ADD SCORE FROM CATEGORIES ABOVE		15
Base Plus Risk Weighting Factor	Project located in high population density area (Score X 3)		
	Project located in moderate population density area (Score X 2)		
	Project specific to rural location (Score X 1)	X	15
TOTAL SCORE	High = 57 - 81		
	Medium = 32 - 56		
	Low = 9 - 31	X	15
State Priority	High, Medium, Low	High	
Responsible Agency	DNRC-Water		
Potential Funding Source(s)	State Resources		
Implementation Schedule	Mid-Range		
Progress Made	New project for 2013 State PDM Plan		
Planned Activities	DNRC apply for FEMA mitigation grants for a catchment basin with well head.		

State of Montana Mitigation Action Plan

2013 Update - Non-Planning Project Scoring Matrix

Goal	Goal 10: Reduce Impacts from Drought		
Objective	*Objective 10.4 Enhance water storage capacity and irrigation conveyance.*		
Project	**Project 10.4.2 Improve water conveyance efficiencies in agricultural, municipal, and industrial uses.**		
Hazard(s) Addressed	Drought		
DES District(s)	Statewide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)	X	3
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)		
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)	X	2
	Very Low = < 20% State residents (1 points)		
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)	X	1
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)		
	Medium = Technology available/legislative support difficult/implementation possible (2 points)	X	2
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)	X	3
	Project is effective but moderately sustainable (2 points)		
	Project is effective but not sustainable (1 point)		
Hazard Frequency	Project mitigates common hazard; occurs more than once a year (3 points)		
	Project mitigates a frequent hazard; occurs less than once a year but more than once a decade (2 points)	X	2
	Project mitigates an Infrequent hazard; occurs less than once a decade (1 point)		
Hazard Magnitude	Hazard has high damage and loss of life (3 points)		
	Hazard causes moderage damage and occassionally life is lost (2 points)		
	Hazard causes minor damage and rarely loss of life (1 point)	X	1
SUBTOTAL	ADD SCORE FROM CATEGORIES ABOVE		14
Base Plus Risk Weighting Factor	Project located in high population density area (Score X 3)		
	Project located in moderate population density area (Score X 2)		
	Project specific to rural location (Score X 1)	X	14
TOTAL SCORE	High = 57 - 81		
	Medium = 32 - 56		
	Low = 9 - 31	X	14
State Priority	High, Medium, Low	Medium	
Responsible Agency	DNR-Water		
Potential Funding Source(s)	State Resources		
Implementation Schedule	Mid-Range		
Progress Made	New project for 2013 State PDM Plan		
Planned Activities	Request DNRC funding for pass through to local jurisdicitons to implement in the field		

State of Montana Mitigation Action Plan
2013 Update - Non-Planning Project Scoring Matrix

Goal	Goal 11: Reduce Impacts from Dam Failure Hazard		
Objective	*Objective 11.1 Reduce the risk of dam failure*		
Project	**Project 11.1.2 Repair State high hazard dams with deficiencies.**		
Hazard(s) Addressed	Dam Failure		
DES District(s)	Statewide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)	X	4
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)		
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)	X	3
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)		
Property Benefit	Very High = > $5,000,000 (5 points)	X	5
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)		
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
Hazard Frequency	Project mitigates common hazard; occurs more than once a year (3 points)		
	Project mitigates a frequent hazard; occurs less than once a year but more than once a decade (2 points)		
	Project mitigates an Infrequent hazard; occurs less than once a decade (1 point)	X	1
Hazard Magnitude	Hazard has high damage and loss of life (3 points)	X	3
	Hazard causes moderage damage and occassionally life is lost (2 points)		
	Hazard causes minor damage and rarely loss of life (1 point)		
SU BTOTAL	ADD SCORE FROM CATEGORIES ABOVE		21
Base Plus Risk Weighting Factor	Project located in high population density area (Score X 3)		
	Project located in moderate population density area (Score X 2)	X	42
	Project specific to rural location (Score X 1)		
TOTAL SCORE	High = 57 - 81		
	Medium = 32 - 56	X	42
	Low = 9 - 31		
State Priority	High, Medium, Low	High	
Responsible Agency	DNRC-Water, MFWP, Dept. Corrections, Montana Heritage Commission		
Potential Funding Source(s)	State		
Implementation Schedule	Ongoing		
Progress Made	TSEP funds were secured for repair of the Flower Creek Dam in Libby.		
Planned Activities	Agencies will continue this activity as funding allows.		

State of Montana Mitigation Action Plan
2013 Update - Non-Planning Project Scoring Matrix

Goal	Goal 11: Reduce Impacts from Dam Failure Hazard		
Objective	*Objective 11.1 Reduce the risk of dam failure*		
Project	**Project 11.1.3: Evaluate existing dams for hazard classification.**		
Hazard(s) Addressed	Dam Failure		
DES District(s)	All		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)	X	5
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)	X	2
	Very Low = < 20% State residents (1 points)		
Property Benefit	Very High = > $5,000,000 (5 points)	X	5
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)		
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)		
	Medium = Technology available/legislative support difficult/implementation possible (2 points)	X	2
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
Hazard Frequency	Project mitigates common hazard; occurs more than once a year (3 points)		
	Project mitigates a frequent hazard; occurs less than once a year but more than once a decade (2 points)		
	Project mitigates an Infrequent hazard; occurs less than once a decade (1 point)	X	1
Hazard Magnitude	Hazard has high damage and loss of life (3 points)	X	3
	Hazard causes moderage damage and occassionally life is lost (2 points)		
	Hazard causes minor damage and rarely loss of life (1 point)		
SU BTOTAL	ADD SCORE FROM CATEGORIES ABOVE		20
Base Plus Risk Weighting Factor	Project located in high population density area (Score X 3)		
	Project located in moderate population density area (Score X 2)	X	40
	Project specific to rural location (Score X 1)		
TOTAL SCORE	High = 57 - 81		
	Medium = 32 - 56	X	40
	Low = 9 - 31		
State Priority	High, Medium, Low	High	
Responsible Agency	DNRC-Water, DES, FWP, Dept. Corrections-Montana Heritage Commission		
Potential Funding Source(s)	State		
Implementation Schedule	Short Range		
Progress Made	This has been done in Hamilton/Ravalli County and in Lincoln County.		
Planned Activities	Done as needed on an application basis.		

State of Montana Mitigation Action Plan
2013 Update - Non-Planning Project Scoring Matrix

Goal	Goal 11: Reduce Impacts from Dam Failure Hazard		
Objective	*Objective 11.1 Reduce the risk of dam failure*		
Project	**Project 11.1.4: Keep Emergency Action Plans current.**		
Hazard(s) Addressed	Dam Failure		
DES District(s)	All		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)	X	5
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)	X	1
Property Benefit	Very High = > $5,000,000 (5 points)	X	5
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)		
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
Hazard Frequency	Project mitigates common hazard; occurs more than once a year (3 points)		
	Project mitigates a frequent hazard; occurs less than once a year but more than once a decade (2 points)		
	Project mitigates an Infrequent hazard; occurs less than once a decade (1 point)	X	1
Hazard Magnitude	Hazard has high damage and loss of life (3 points)	X	3
	Hazard causes moderage damage and occassionally life is lost (2 points)		
	Hazard causes minor damage and rarely loss of life (1 point)		
SU BTOTAL	ADD SCORE FROM CATEGORIES ABOVE		20
Base Plus Risk Weighting Factor	Project located in high population density area (Score X 3)		
	Project located in moderate population density area (Score X 2)	X	40
	Project specific to rural location (Score X 1)		
TOTAL SCORE	High = 57 - 81		
	Medium = 32 - 56	X	40
	Low = 9 - 31		
State Priority	High, Medium, Low	High	
Responsible Agency	Dept. Corrections, DNRC-Water, Montana Heritage Commission, FWP		
Potential Funding Source(s)	State		
Implementation Schedule	Ongoing		
Progress Made	EAPs are required to be updated on an annual basis. DNRC has system that tracks status.		
Planned Activities	Continue updating EAPs for State-owned dams.		

State of Montana Mitigation Action Plan
2013 Update - Non-Planning Project Scoring Matrix

Goal	Goal 11: Reduce Impacts from Dam Failure Hazard
Objective	*Objective 11.1 Reduce the risk of dam failure*
Project	**Project 11.1.5: Exercise Emergency Action Plans every five years.**
Hazard(s) Addressed	Dam Failure
DES District(s)	All

Benefit-Cost Ranking	Options	Selection	Score
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)	X	4
	Very Low = < $100,000 (5 points)		
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)	X	1
Property Benefit	Very High = > $5,000,000 (5 points)	X	5
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)		
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
Hazard Frequency	Project mitigates common hazard; occurs more than once a year (3 points)		
	Project mitigates a frequent hazard; occurs less than once a year but more than once a decade (2 points)		
	Project mitigates an Infrequent hazard; occurs less than once a decade (1 point)	X	1
Hazard Magnitude	Hazard has high damage and loss of life (3 points)		
	Hazard causes moderage damage and occassionally life is lost (2 points)		
	Hazard causes minor damage and rarely loss of life (1 point)	X	1
SU BTOTAL	ADD SCORE FROM CATEGORIES ABOVE		17
Base Plus Risk Weighting Factor	Project located in high population density area (Score X 3)		
	Project located in moderate population density area (Score X 2)	X	34
	Project specific to rural location (Score X 1)		
TOTAL SCORE	High = 57 - 81		
	Medium = 32 - 56	X	34
	Low = 9 - 31		
State Priority	High, Medium, Low	High	

Responsible Agency	DNRC-Water, Dept. Corrections, MFWP, Dept. Commerce-Montana Heritage Commission
Potential Funding Source(s)	State
Implementation Schedule	On-going
Progress Made	2012 Tabletop Exercises (conducted): Pondera County - Lake Francis; Toole County - Cowpath and Sullivan; Powell County - Prison Ranch Dams (Upper Taylor, Tin Cup, Kerns, Mud Lake, and Powell) and Miller Creek Dam Lewis and Clark County - ASARCO (Smelter) Dam. 2008 - 2011: Fallon County - Baker Dam, Ackley; Hill County - Bearpaw Dam, Beaver Creek Reservoir, Scott Coulee, and Bull Hook dams; Park County - Cottonwood and Crazy Mountain Dams; Meagher County - Newlan Creek Dam, Jackson Lake Dam, and Doggett Reservoir; Lewis and Clark County - Northern Pacific Dam; Fergus County - East Fork, Big Casino Creek, Hanson Creek, and Pike Creek Dams; Judith Basin County - Wilson (Surprise Creek) Reservoir; Gallatin County - Big Sky Dam, Big Sky Wastewater Ponds; Beaverhead County - Lima Dam; Granite County - Georgetown Lake (Flint Creek Dam); Wheatland and Golden Valley Counties - Bair, Martinsdale, Lebo 1,2 & 3, Deadmans Basin, Voldseth, and Jawbone Dam; Ravalli County - Tamarack Lake Dam; Lincoln County - Flower Creek Dam; Teton County - Eureka Dam; Deer Lodge County - Warm Springs Ponds
Planned Activities	Deer Lodge County - Warm Springs Ponds; Silver Bow County - Basin Creek; Carbon County - Cooney; Jefferson County - Delmoe; Big Horn County - Tongue River; Madison County - Cataract, Ruby, or Willow Creek; Rosebud County - Castle Rock/Colstrip)

State of Montana Mitigation Action Plan
2013 Update - Non-Planning Project Scoring Matrix

Goal	Goal 12: Reduce Impacts from Landslides		
Objective	*Objective 12.1: Reduce the risk that landslides will damage public property.*		
Project	**Project 12.1.1 Conduct proactive scaling and reducing of back slopes along highways**		
Hazard(s) Addressed	Landslides		
DES District(s)	Statewide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)	X	2
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)		
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)	X	1
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)	X	1
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)		
	Project is effective but not sustainable (1 point)	X	1
Hazard Frequency	Project mitigates common hazard; occurs more than once a year (3 points)		
	Project mitigates a frequent hazard; occurs less than once a year but more than once a decade (2 points)		
	Project mitigates an Infrequent hazard; occurs less than once a decade (1 point)	X	1
Hazard Magnitude	Hazard has high damage and loss of life (3 points)		
	Hazard causes moderage damage and occassionally life is lost (2 points)	X	2
	Hazard causes minor damage and rarely loss of life (1 point)		
SU BTOTAL	ADD SCORE FROM CATEGORIES ABOVE		13
Base Plus Risk Weighting Factor	Project located in high population density area (Score X 3)		
	Project located in moderate population density area (Score X 2)		
	Project specific to rural location (Score X 1)	X	13
TOTAL SCORE	High = 57 - 81		
	Medium = 32 - 56		
	Low = 9 - 31	X	13
State Priority	High, Medium, Low	Medium	
Responsible Agency	MDT		
Potential Funding Source(s)	State		
Implementation Schedule	Ongoing		
Progress Made	No specific activity to report		
Planned Activities	MDT will continue this as needed		

State of Montana Mitigation Action Plan
2013 Update - Non-Planning Project Scoring Matrix

Goal	Goal	
Objective	*Objective*	
Project	**Project**	
Hazard(s) Addressed		
DES District(s)		
Benefit-Cost Ranking	**Options**	**Selection**
Estimated Cost	Very High = > $5,000,000 (1 point)	
	High = $1,000,000 to $5,000,000 (2 points)	
	Medium = $500,000 to $1,000,000 (3 points)	
	Low = $100,000 to $500,000 (4 points)	
	Very Low = < $100,000 (5 points)	
Population Benefit	Very High = 100% of State residents (5 points)	
	High = 60% to 80% of State residents (4 points)	
	Medium = 40% to 60% of State residents (3 points)	
	Low = 20% to 40% of State residents (2 points)	
	Very Low = < 20% State residents (1 points)	
Property Benefit	Very High = > $5,000,000 (5 points)	
	High = $1,000,000 to $5,000,000 (4 points)	
	Medium = $500,000 to $1,000,000 (3 points)	
	Low = $100,000 to $500,000 (2 points)	
	Very Low = < $100,000 (1 points)	
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	
	Medium = Technology available/legislative support difficult/implementation possible (2 points)	
	Low = No technology available/legislative support or implementation highly unlikely (1 point)	
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)	
	Project is effective but moderately sustainable (2 points)	
	Project is effective but not sustainable (1 point)	
Hazard Frequency	Project mitigates common hazard; occurs more than once a year (3 points)	
	Project mitigates a frequent hazard; occurs less than once a year but more than once a decade (2 points)	
	Project mitigates an Infrequent hazard; occurs less than once a decade (1 point)	
Hazard Magnitude	Hazard has high damage and loss of life (3 points)	
	Hazard causes moderage damage and occassionally life is lost (2 points)	
	Hazard causes minor damage and rarely loss of life (1 point)	
SU BTOTAL	ADD SCORE FROM CATEGORIES ABOVE	
Base Plus Risk Weighting Factor	Project located in high population density area (Score X 3)	
	Project located in moderate population density area (Score X 2)	
	Project specific to rural location (Score X 1)	
TOTAL SCORE	High = 57 - 81	
	Medium = 32 - 56	
	Low = 9 - 31	
State Priority	High, Medium, Low	
Responsible Agency		
Potential Funding Source(s)		
Implementation Schedule		
Progress Made		
Planned Activities		

Score

State of Montana Mitigation Action Plan
2013 Update - Non-Planning Project Scoring Matrix

Goal	Goal	
Objective	*Objective*	
Project	**Project**	
Hazard(s) Addressed		
DES District(s)		
Benefit-Cost Ranking	**Options**	**Selection**
Estimated Cost	Very High = > $5,000,000 (1 point)	
	High = $1,000,000 to $5,000,000 (2 points)	
	Medium = $500,000 to $1,000,000 (3 points)	
	Low = $100,000 to $500,000 (4 points)	
	Very Low = < $100,000 (5 points)	
Population Benefit	Very High = 100% of State residents (5 points)	
	High = 60% to 80% of State residents (4 points)	
	Medium = 40% to 60% of State residents (3 points)	
	Low = 20% to 40% of State residents (2 points)	
	Very Low = < 20% State residents (1 points)	
Property Benefit	Very High = > $5,000,000 (5 points)	
	High = $1,000,000 to $5,000,000 (4 points)	
	Medium = $500,000 to $1,000,000 (3 points)	
	Low = $100,000 to $500,000 (2 points)	
	Very Low = < $100,000 (1 points)	
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	
	Medium = Technology available/legislative support difficult/implementation possible (2 points)	
	Low = No technology available/legislative support or implementation highly unlikely (1 point)	
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)	
	Project is effective but moderately sustainable (2 points)	
	Project is effective but not sustainable (1 point)	
Hazard Frequency	Project mitigates common hazard; occurs more than once a year (3 points)	
	Project mitigates a frequent hazard; occurs less than once a year but more than once a decade (2 points)	
	Project mitigates an Infrequent hazard; occurs less than once a decade (1 point)	
Hazard Magnitude	Hazard has high damage and loss of life (3 points)	
	Hazard causes moderage damage and occassionally life is lost (2 points)	
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SU BTOTAL	ADD SCORE FROM CATEGORIES ABOVE	
Base Plus Risk Weighting Factor	Project located in high population density area (Score X 3)	
	Project located in moderate population density area (Score X 2)	
	Project specific to rural location (Score X 1)	
TOTAL SCORE	High = 57 - 81	
	Medium = 32 - 56	
	Low = 9 - 31	
State Priority	High, Medium, Low	
Responsible Agency		
Potential Funding Source(s)		
Implementation Schedule		
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Score

State of Montana Mitigation Action Plan
2013 Update - Non-Planning Project Scoring Matrix

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Hazard(s) Addressed		
DES District(s)		
Benefit-Cost Ranking	**Options**	**Selection**
Estimated Cost	Very High = > $5,000,000 (1 point)	
	High = $1,000,000 to $5,000,000 (2 points)	
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Population Benefit	Very High = 100% of State residents (5 points)	
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Property Benefit	Very High = > $5,000,000 (5 points)	
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State of Montana Mitigation Action Plan
2010 Update - Planning Project Scoring Matrix

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Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)		
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)		
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)		
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)		
	Project is effective but not sustainable (1 point)		
TOTAL SCORE	High = 16 - 21		
	Medium = 10 - 15		
	Low = 5 - 9		
State Priority	High, Medium, Low		
Responsible Agency			
Potential Funding Source(s)			
Implementation Schedule			
Progress Made			
Planned Activities			

State of Montana Mitigation Action Plan
2013 Update - Planning Project Scoring Matrix

Goal	Goal 1: Maximize the Use of Mitigation Actions that Prevent Losses from all Hazards		
Objective	*Objective 1.2: Enhance warning capabilities*		
Project	**Project 1.2.2 Promote use of NOAA weather radios in homes and when recreating (battery operated).**		
Hazard(s) Addressed	All Hazards		
DES District(s)	Statewide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)	X	5
Population Benefit	Very High = 100% of State residents (5 points)	X	5
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)		
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)	X	1
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)		
	Project is effective but not sustainable (1 point)	X	1
TOTAL SCORE	High = 16 - 21		
	Medium = 10 - 15	X	15
	Low = 5 - 9		
State Priority	High, Medium, Low	Low	
Responsible Agency	National Weather Service		
Potential Funding Source(s)	National Weather Service		
Implementation Schedule	Ongoing		
Progress Made	NWS is doing this.		
Planned Activities	NWS to continue to promote use.		

State of Montana Mitigation Action Plan			
2013 Update - Planning Project Scoring Matrix			
Goal	Goal 1: Maximize the Use of Mitigation Actions that Prevent Losses from all Hazards		
Objective	*Objective 1.2: Enhance warning capabilities*		
Project	**Project 1.2.3 Recommend voluntary placement of NOAA weather radios in restaurants, gas stations, stores, day cares, movie theaters, baseball fields, and/or golf courses.**		
Hazard(s) Addressed	All Hazards		
DES District(s)	Statewide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)	X	5
Population Benefit	Very High = 100% of State residents (5 points)	X	5
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)		
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)	X	1
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)		
	Project is effective but not sustainable (1 point)	X	1
TOTAL SCORE	High = 16 - 21		
	Medium = 10 - 15	X	15
	Low = 5 - 9		
State Priority	High, Medium, Low	Low	
Responsible Agency	National Weather Service		
Potential Funding Source(s)	National Weather Service		
Implementation Schedule	Ongoing		
Progress Made	NWS is doing this. It is rolled into all their products.		
Planned Activities	Continue to promote voluntary placement of weather radios.		

State of Montana Mitigation Action Plan
2013 Update - Planning Project Scoring Matrix

Goal	Goal 1: Maximize the Use of Mitigation Actions that Prevent Losses from all Hazards		
Objective	*Objective 1.3: Increase the public awareness of hazards.*		
Project	**Project 1.3.1 Educate all K-12 school students in preparedness activities including the American Red Cross "Masters of Disaster" curriculum.**		
Hazard(s) Addressed	All Hazards		
DES District(s)	Statewise		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)	X	5
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)	X	2
	Very Low = < 20% State residents (1 points)		
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)	X	1
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
TOTAL SCORE	High = 16 - 21		
	Medium = 10 - 15	X	13
	Low = 5 - 9		
State Priority	High, Medium, Low	Medium	
Responsible Agency	OPI, Red Cross, Governor's Office of Community Service		
Potential Funding Source(s)	State		
Implementation Schedule	DELETED; Project is already established and implented by others		
Progress Made	The 2013 Montana State PDM Plan Update includes development of an educational curriculum for high school students on hazard mitigation which will be presented to the Montana Teacher's convention with a pilot program at the Helena Project of Alternative Learning in 2013.		
Planned Activities	Coordinate with Governor's Office of Community Service on elementary curriculum.		

State of Montana Mitigation Action Plan			
2013 Update - Planning Project Scoring Matrix			
Goal	Goal 1: Maximize the Use of Mitigation Actions that Prevent Losses from all Hazards		
Objective	*Objective 1.3: Increase the public awareness of hazards.*		
Project	**Project 1.3.2 Promote hazard mitigation education in schools.**		
Hazard(s) Addressed	All Hazards		
DES District(s)	Statewide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)	X	5
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)	X	2
	Very Low = < 20% State residents (1 points)		
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)	X	1
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
TOTAL SCORE	High = 16 - 21		
	Medium = 10 - 15	X	13
	Low = 5 - 9		
State Priority	High, Medium, Low	High	
Responsible Agency	Governor's Office of Community Service, DES		
Potential Funding Source(s)	State		
Implementation Schedule	Ongoing		
Progress Made	The 2013 Montana State PDM Plan Update includes development of an educational curriculum for high school students on hazard mitigation which will be presented to the Montana Teacher's convention with a pilot program at the Helena Project of Alternative Learning in 2013.		
Planned Activities	Post curriculum on project website and promote availability to all school districts in Montana.		

State of Montana Mitigation Action Plan
2013 Update - Planning Project Scoring Matrix

Goal	Goal 1: Maximize the Use of Mitigation Actions that Prevent Losses from all Hazards		
Objective	*Objective 1.4: Continuously improve hazard assessments*		
Project	**Project 1.4.1 Determine GPS locations of all State buildings and infrastructure for detailed analysis.**		
Hazard(s) Addressed	All Hazards		
DES District(s)	Statewide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)	X	5
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)	X	1
Property Benefit	Very High = > $5,000,000 (5 points)	X	5
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)		
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
TOTAL SCORE	High = 16 - 21	X	16
	Medium = 10 - 15		
	Low = 5 - 9		
State Priority	High, Medium, Low	High	
Responsible Agency	All State Agencies, University System		
Potential Funding Source(s)	State		
Implementation Schedule	Short Range		
Progress Made	Spatial coordinates of selected state buildings (critical facilities) have been determined as part of 2013 State PDM Plan update. MDT has coordinates for bridges.		
Planned Activities	Determine spatial coordinates for remaining state-owned buidlings for use in future risk assessments.		

State of Montana Mitigation Action Plan
2013 Update - Planning Project Scoring Matrix

Goal	Goal 1: Maximize the Use of Mitigation Actions that Prevent Losses from all Hazards		
Objective	*Objective 1.4: Continuously improve hazard assessments*		
Project	**Project 1.4.2 Conduct a risk assessment that utilizes specific State building locations and infrastructure locations to be used for mitigation strategy**		
Hazard(s) Addressed	All Hazards		
DES District(s)	Statewide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)	X	5
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)	X	1
Property Benefit	Very High = > $5,000,000 (5 points)	X	5
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)		
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)		
	Medium = Technology available/legislative support difficult/implementation possible (2 points)	X	2
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
TOTAL SCORE	High = 16 - 21		
	Medium = 10 - 15	X	15
	Low = 5 - 9		
State Priority	High, Medium, Low	High	
Responsible Agency	Dept. Administration, DES		
Potential Funding Source(s)	FEMA		
Implementation Schedule	Short Range		
Progress Made	Spatial coordinates of selected state buildings (critical facilities) have been determined as part of 2013 State PDM Plan update. MDT has coordinates for bridges.		
Planned Activities	Determine spatial coordinates for remaining state-owned buidlings for use in future risk assessments.		

State of Montana Mitigation Action Plan			
2013 Update - Planning Project Scoring Matrix			
Goal	Goal 1: Maximize the Use of Mitigation Actions that Prevent Losses from all Hazards		
Objective	*Objective 1.4: Continuously improve hazard assessments*		
Project	**Project 1.4.3 Encourage local jurisdictions and Tribal Nations to geo-locate their critical facilities for use in risk assessment.**		
Hazard(s) Addressed	All Hazards		
DES District(s)	Statewide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)	X	5
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)	X	1
Property Benefit	Very High = > $5,000,000 (5 points)	X	5
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)		
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
TOTAL SCORE	High = 16 - 21	X	16
	Medium = 10 - 15		
	Low = 5 - 9		
State Priority	High, Medium, Low	High	
Responsible Agency	DES		
Potential Funding Source(s)	FEMA		
Implementation Schedule	Ongoing		
Progress Made	Updated local PDM plans have done this. NRIS has some spatial coordinates available for local critical facilities with more accurate locations than HAZUS.		
Planned Activities	SHMO will continue to do this as applications come in to fund PDM updates.		

State of Montana Mitigation Action Plan			
2013 Update - Planning Project Scoring Matrix			
Goal	Goal 1: Maximize the Use of Mitigation Actions that Prevent Losses from all Hazards		
Objective	*Objective 1.4: Continuously improve hazard assessments*		
Project	**Project 1.4.4 Recommend that local and Tribal PDM Plans conduct Level 2 HAZUS analysis for critical facilities**		
Hazard(s) Addressed	All Hazards		
DES District(s)	Statewide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)	X	4
	Very Low = < $100,000 (5 points)		
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)	X	1
Property Benefit	Very High = > $5,000,000 (5 points)	X	5
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)		
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)		
	Medium = Technology available/legislative support difficult/implementation possible (2 points)	X	2
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
TOTAL SCORE	High = 16 - 21		
	Medium = 10 - 15	X	14
	Low = 5 - 9		
State Priority	High, Medium, Low	Medium	
Responsible Agency	DES		
Potential Funding Source(s)	FEMA		
Implementation Schedule	Ongoing		
Progress Made	Some updated local PDM plans in the Intermountain Seismic Belt have done this.		
Planned Activities	SHMO will continue to recommend that this be part of scope of work when plans are updated.		

State of Montana Mitigation Action Plan
2013 Update - Planning Project Scoring Matrix

Goal	Goal 1: Maximize the Use of Mitigation Actions that Prevent Losses from all Hazards
Objective	*Objective 1.4: Continuously improve hazard assessments*
Project	**Project 1.4.5 Coordinate with NRIS to provide GIS layers for hazard mitigation planning that Counties and Tribal Nations can use.**
Hazard(s) Addressed	All Hazards
DES District(s)	Statewide

Benefit-Cost Ranking	Options	Selection	Score
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)	X	5
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)	X	1
Property Benefit	Very High = > $5,000,000 (5 points)	X	5
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)		
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
TOTAL SCORE	High = 16 - 21	X	16
	Medium = 10 - 15		
	Low = 5 - 9		
State Priority	High, Medium, Low	High	

Responsible Agency	DES
Potential Funding Source(s)	FEMA
Implementation Schedule	Short Range
Progress Made	NRIS currently has DFIRM maps available.
Planned Activities	Provide NRIS with GIS hazard layers used in 2013 State PDM analysis; i.e. dam inundation, flood, wildfire, earthquake, hazardous materials, landslide.

State of Montana Mitigation Action Plan
2013 Update - Planning Project Scoring Matrix

Goal	Goal 1: Maximize the Use of Mitigation Actions that Prevent Losses from all Hazards		
Objective	*Objective 1.5 Protect cultural resources*		
Project	**Project 1.5.1 Plan for the protection of historic and cultural properties in hazard prone areas**		
Hazard(s) Addressed	All Hazards		
DES District(s)	Statewide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)	X	5
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)	X	1
Property Benefit	Very High = > $5,000,000 (5 points)	X	5
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)		
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
TOTAL SCORE	High = 16 - 21	X	16
	Medium = 10 - 15		
	Low = 5 - 9		
State Priority	High, Medium, Low	Low	
Responsible Agency	Dept. Commerce-Montana Heritage Commission, FWP, Historical Society, Dept. Administration, University System, Governor's Office of Indian Affairs, Arts Council		
Potential Funding Source(s)	State, FMEA		
Implementation Schedule	Ongoing		
Progress Made	Upgraded Main Hall at UM-Western.		
Planned Activities	TBD		

State of Montana Mitigation Action Plan			
2013 Update - Planning Project Scoring Matrix			
Goal	Goal 2: Increase the State's Capability to Provide and Assist Local Jurisdictions and Tribal Nations with Mitigation Opportunities		
Objective	*Objective 2.1: Support mitigation planning at all levels.*		
Project	**Project 2.1.1 Provide mitigation benefit-costanalysis (BCA) training courses.**		
Hazard(s) Addressed	All Hazards		
DES District(s)	Statewide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)	X	5
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)	X	1
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)	X	1
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
TOTAL SCORE	High = 16 - 21		
	Medium = 10 - 15	X	12
	Low = 5 - 9		
State Priority	High, Medium, Low	High	
Responsible Agency	DES		
Potential Funding Source(s)	FEMA		
Implementation Schedule	Ongoing		
Progress Made	Since 2010, SHMO has offered BCA training in Coeur D'Alene (2010) a Dillon (2011), Billings (2012) and Missoula (2013) with about 70 in attendance.		
Planned Activities	SHMO is planning another BCA training in 2014.		

State of Montana Mitigation Action Plan			
2013 Update - Planning Project Scoring Matrix			
Goal	Goal 2: Increase the State's Capability to Provide and Assist Local Jurisdictions and Tribal Nations with Mitigation Opportunities		
Objective	*Objective 2.1: Support mitigation planning at all levels.*		
Project	**Project 2.1.2 Coordinate Local and Tribal PDM Plan Updates**		
Hazard(s) Addressed	All Hazards		
DES District(s)	Statewide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)	X	5
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)	X	1
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)	X	1
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
TOTAL SCORE	High = 16 - 21		
	Medium = 10 - 15	X	12
	Low = 5 - 9		
State Priority	High, Medium, Low	High	
Responsible Agency	DES		
Potential Funding Source(s)	DHS/FEMA		
Implementation Schedule	Ongoing		
Progress Made	Since 2009, PDMC funded the completion of 19 PDM plans (17 updates and 2 original plans).		
Planned Activities	DR-1996 HMGP funding will likely fund completion of PDM Updates for two universities, three Tribes, and 12 counties.		

State of Montana Mitigation Action Plan
2013 Update - Planning Project Scoring Matrix

Goal	Goal 2: Increase the State's Capability to Provide and Assist Local Jurisdictions and Tribal Nations with Mitigation Opportunities		
Objective	*Objective 2.1: Support mitigation planning at all levels.*		
Project	**Project 2.1.3 Assist local jurisdictions and Tribal Nations fill out FEMA mitigation grant applications.**		
Hazard(s) Addressed	All Hazards		
DES District(s)	Statewide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)	X	5
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)	X	1
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)	X	1
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
TOTAL SCORE	High = 16 - 21		
	Medium = 10 - 15	X	12
	Low = 5 - 9		
State Priority	High, Medium, Low	High	
Responsible Agency	DES		
Potential Funding Source(s)	DHS/FEMA		
Implementation Schedule	Ongoing		
Progress Made	Since 2009, the SHMO and staff have assisted with PDMC grant applications for 12 planning projects and 3 non-planning projects. They have also assisted local and tribal nations with HMGP grants for 10 planning projects, 16 non-planning projects, and 40 five percent projects.		
Planned Activities	Continue to assist counties and tribes as availability of funding permits.		

State of Montana Mitigation Action Plan
2013 Update - Planning Project Scoring Matrix

Goal	Goal 2: Increase the State's Capability to Provide and Assist Local Jurisdictions and Tribal Nations with Mitigation Opportunities		
Objective	*Objective 2.1: Support mitigation planning at all levels.*		
Project	**Project 2.1.4 Encourage DES staff to assist local and Tribal DES coordinators to develop plan of action to complete their more feasible and cost effective mitigation projects**		
Hazard(s) Addressed	All Hazards		
DES District(s)	Statewide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)	X	5
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)	X	1
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)	X	1
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
TOTAL SCORE	High = 16 - 21		
	Medium = 10 - 15	X	12
	Low = 5 - 9		
State Priority	High, Medium, Low	High	
Responsible Agency	DES		
Potential Funding Source(s)	DHS/FEMA		
Implementation Schedule	Ongoing		
Progress Made	SHMO does this as part of his job.		
Planned Activities	Continue as time permits.		

State of Montana Mitigation Action Plan
2013 Update - Planning Project Scoring Matrix

Goal	Goal 2: Increase the State's Capability to Provide and Assist Local Jurisdictions and Tribal Nations with Mitigation Opportunities		
Objective	*Objective 2.1: Support mitigation planning at all levels.*		
Project	**Project 2.1.5 Negotiate with FEMA to unify and simplify HMA grant process.**		
Hazard(s) Addressed	All Hazards		
DES District(s)	Statewide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)	X	5
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)	X	1
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)	X	1
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
TOTAL SCORE	High = 16 - 21		
	Medium = 10 - 15	X	12
	Low = 5 - 9		
State Priority	High, Medium, Low	High	
Responsible Agency	DES		
Potential Funding Source(s)	FEMA		
Implementation Schedule	Ongoing		
Progress Made	FMA/RFC/SRL grants are merging into one.		
Planned Activities	With each new disaster declaration state desires to do 406 mitigation on largest number of projects possible.		

State of Montana Mitigation Action Plan
2013 Update - Planning Project Scoring Matrix

Goal	Goal 2: Increase the State's Capability to Provide and Assist Local Jurisdictions and Tribal Nations with Mitigation Opportunities		
Objective	*Objective 2.1: Support mitigation planning at all levels.*		
Project	**Project 2.1.6 Encourage HMA applicants to work more closely with federal counterparts and utilize their expertise and training relative to hazard mitigation.**		
Hazard(s) Addressed	All Hazards		
DES District(s)	Statewide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)	X	5
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)	X	1
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)	X	1
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
TOTAL SCORE	High = 16 - 21		
	Medium = 10 - 15	X	12
	Low = 5 - 9		
State Priority	High, Medium, Low	Medium	
Responsible Agency	DES		
Potential Funding Source(s)	DHS/FEMA		
Implementation Schedule	Ongoing		
Progress Made	No progress to report.		
Planned Activities	SHMO works on this as part of his job.		

State of Montana Mitigation Action Plan
2013 Update - Planning Project Scoring Matrix

Goal	Goal 2: Increase the State's Capability to Provide and Assist Local Jurisdictions and Tribal Nations with Mitigation Opportunities		
Objective	*Objective 2.2: Promote mitigation through supportive legislation and funding.*		
Project	**Project 2.2.1 Create a State-funded grant program to assist with the 25 percent PDM-C match for local and Tribal governments.**		
Hazard(s) Addressed	All Hazards		
DES District(s)	Statewide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)	X	3
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)		
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)	X	1
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)	X	5
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)		
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)		
	Medium = Technology available/legislative support difficult/implementation possible (2 points)	X	2
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
TOTAL SCORE	High = 16 - 21		
	Medium = 10 - 15	X	12
	Low = 5 - 9		
State Priority	High, Medium, Low	High	
Responsible Agency	DES		
Potential Funding Source(s)	State		
Implementation Schedule	Ongoing		
Progress Made	Introduced but failed in 2009 Montana legislature		
Planned Activities	Identify bill sponsor in nex legislature. Dept. Administration has $300,000 for mitigation and $5 million spending authority for mitigation projects.		

State of Montana Mitigation Action Plan			
2013 Update - Planning Project Scoring Matrix			
Goal	Goal 2: Increase the State's Capability to Provide and Assist Local Jurisdictions and Tribal Nations with Mitigation Opportunities		
Objective	*Objective 2.2: Promote mitigation through supportive legislation and funding.*		
Project	**Project 2.2.2 Promote State programs that receive adequate funding to engage in mitigation planning and project implementation.**		
Hazard(s) Addressed	All Hazards		
DES District(s)	Statewide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)	X	5
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)	X	1
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)	X	1
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
TOTAL SCORE	High = 16 - 21		
	Medium = 10 - 15	X	12
	Low = 5 - 9		
State Priority	High, Medium, Low	High	
Responsible Agency	DES, Dept. Administration		
Potential Funding Source(s)	DHS/FEMA		
Implementation Schedule	Ongoing		
Progress Made	SHMO does this as part of his job.		
Planned Activities	Hold mitigation workshops with state agencies during next PDM update.		

State of Montana Mitigation Action Plan			
2013 Update - Planning Project Scoring Matrix			
Goal	Goal 2: Increase the State's Capability to Provide and Assist Local Jurisdictions and Tribal Nations with Mitigation Opportunities		
Objective	*Objective 2.2: Promote mitigation through supportive legislation and funding.*		
Project	**Project 2.2.3 Encourage local and Tribal growth policies to consider natural and man-made hazards**		
Hazard(s) Addressed	All Hazards		
DES District(s)	Statewide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)	X	5
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)	X	1
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)	X	1
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
TOTAL SCORE	High = 16 - 21		
	Medium = 10 - 15	X	12
	Low = 5 - 9		
State Priority	High, Medium, Low	Low	
Responsible Agency	DES		
Potential Funding Source(s)	DHS/FEMA		
Implementation Schedule	Mid-Range		
Progress Made	No progress to report.		
Planned Activities	TBD		

State of Montana Mitigation Action Plan
2013 Update - Planning Project Scoring Matrix

Goal	Goal 2: Increase the State's Capability to Provide and Assist Local Jurisdictions and Tribal Nations with Mitigation Opportunities		
Objective	*Objective 2.2: Promote mitigation through supportive legislation and funding.*		
Project	**Project 2.2.4 Promote mitigation awareness**		
Hazard(s) Addressed	All Hazards		
DES District(s)	Statewide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)	X	5
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)	X	1
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)	X	1
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
TOTAL SCORE	High = 16 - 21		
	Medium = 10 - 15	X	12
	Low = 5 - 9		
State Priority	High, Medium, Low	High	
Responsible Agency	DES, All State Agencies		
Potential Funding Source(s)	DHS/FEMA		
Implementation Schedule	Ongoing		
Progress Made	DES has developed a website (LetsMitigateMontana.com)and Facebook page to promote mitigation awareness		
Planned Activities	SHMO will continue to blog on mitigation and post to project website and Facebook.		

State of Montana Mitigation Action Plan
2013 Update - Planning Project Scoring Matrix

Goal	Goal 2: Increase the State's Capability to Provide and Assist Local Jurisdictions and Tribal Nations with Mitigation Opportunities
Objective	*Objective 2.2: Promote mitigation through supportive legislation and funding.*
Project	**Project 2.2.5 Explore economic incentives for mitigation (i.e. insurance premium discounts, state tax credits, etc.).**
Hazard(s) Addressed	All Hazards
DES District(s)	Statewide

Benefit-Cost Ranking	Options	Selection	Score
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)	X	5
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)	X	1
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)	X	1
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)		
	Medium = Technology available/legislative support difficult/implementation possible (2 points)	X	2
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
TOTAL SCORE	High = 16 - 21		
	Medium = 10 - 15	X	11
	Low = 5 - 9		
State Priority	High, Medium, Low	Medium	

Responsible Agency	DNRC-Fire, DES, FireSafe Montana
Potential Funding Source(s)	State, DHS/FEMA
Implementation Schedule	Mid-Range
Progress Made	FireSafe Montana has been talking to insurance companies regarding discounts for landowners who do fuel mitigation.
Planned Activities	SHMO will find an insurance conference to present at.

State of Montana Mitigation Action Plan
2013 Update - Planning Project Scoring Matrix

Goal	Goal 2: Increase the State's Capability to Provide and Assist Local Jurisdictions and Tribal Nations with Mitigation Opportunities		
Objective	*Objective 2.3: Coordinate and establish priorities for hazard mitigation projects at all levels in the State of Montana.*		
Project	**Project 2.3.1 Continue outreach of mitigation project funding opportunities.**		
Hazard(s) Addressed	All Hazards		
DES District(s)	Statewide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)	X	5
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)	X	1
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)	X	3
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)		
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
TOTAL SCORE	High = 16 - 21		
	Medium = 10 - 15	X	14
	Low = 5 - 9		
State Priority	High, Medium, Low	High	
Responsible Agency	DES		
Potential Funding Source(s)	DHS/FEMA		
Implementation Schedule	On-going		
Progress Made	SHMO sent out letter out state-wide when DR-1996 HMGP funds became available encouraging Counties, Tribes, Cities and Towns, and Universities to take advantage of the funding opportunity to implement their mitigation projects. Applicant briefing on DR-4074 in Rosebud County and No. Cheyenne Nation.		
Planned Activities	SHMP intends to publicize future mitigation funding opportunities.		

State of Montana Mitigation Action Plan
2013 Update - Planning Project Scoring Matrix

Goal	Goal 2: Increase the State's Capability to Provide and Assist Local Jurisdictions and Tribal Nations with Mitigation Opportunities		
Objective	*Objective 2.3: Coordinate and establish priorities for hazard mitigation projects at all levels in the State of Montana.*		
Project	**Project 2.3.2 Document mitigation successes**		
Hazard(s) Addressed	All Hazards		
DES District(s)	Statewide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)	X	5
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)	X	1
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)	X	1
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
TOTAL SCORE	High = 16 - 21		
	Medium = 10 - 15	X	12
	Low = 5 - 9		
State Priority	High, Medium, Low	High	
Responsible Agency	DES		
Potential Funding Source(s)	DHS/FEMA		
Implementation Schedule	Ongoing		
Progress Made	DES has developed a website (LetsMitigateMontana.com) and Facebook page to promote mitigation success stories.		
Planned Activities	SHMO will continue to promote mitigation successes through blog posts on project website and Facebook. Add "best practices" portfolio to website.		

State of Montana Mitigation Action Plan
2013 Update - Planning Project Scoring Matrix

Goal	Goal 2: Increase the State's Capability to Provide and Assist Local Jurisdictions and Tribal Nations with Mitigation Opportunities		
Objective	*Objective 2.3: Coordinate and establish priorities for hazard mitigation projects at all levels in the State of Montana.*		
Project	**Project 2.3.3 Continue to engage State agencies such as DMA, DOA, MDT, FWP and DNRC in the mitigation planning process.**		
Hazard(s) Addressed	All Hazards		
DES District(s)	Statewide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)	X	5
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)	X	1
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)	X	1
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
TOTAL SCORE	High = 16 - 21		
	Medium = 10 - 15	X	12
	Low = 5 - 9		
State Priority	High, Medium, Low	High	
Responsible Agency	DES		
Potential Funding Source(s)	DHS/FEMA		
Implementation Schedule	Ongoing		
Progress Made	MDT and DOA-A&E have applied for several sub-grants.		
Planned Activities	DES desires to brief cabinet members of new Montana administration. Hold mitigation workshops with state agencies.		

State of Montana Mitigation Action Plan
2013 Update - Planning Project Scoring Matrix

Goal	Goal 2: Increase the State's Capability to Provide and Assist Local Jurisdictions and Tribal Nations with Mitigation Opportunities		
Objective	*Objective 2.3: Coordinate and establish priorities for hazard mitigation projects at all levels in the State of Montana.*		
Project	**Project 2.3.4 Increase the scope and participation of the State Planning Team during State PDM updates**		
Hazard(s) Addressed	All Hazards		
DES District(s)	Statewide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)	X	5
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)	X	1
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)	X	1
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)		
	Medium = Technology available/legislative support difficult/implementation possible (2 points)	X	2
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)	X	3
	Project is effective but moderately sustainable (2 points)		
	Project is effective but not sustainable (1 point)		
TOTAL SCORE	High = 16 - 21		
	Medium = 10 - 15	X	12
	Low = 5 - 9		
State Priority	High, Medium, Low	High	
Responsible Agency	DES		
Potential Funding Source(s)	DHS/FEMA		
Implementation Schedule	Ongoing		
Progress Made	SHMO and contractor met with Dept. of Administration staff to identify state-owned and -leased facilities that are essential or house vulnerable populations for analysis in 2013 State Plan Update.		
Planned Activities	SHMO and contractor will meet individually with State agencies represented on the PDM Planning Team to work on mitigation strategy during 2013 update.		

State of Montana Mitigation Action Plan

2013 Update - Planning Project Scoring Matrix

Goal	Goal 3: Reduce Impacts of Wildland and Rangeland Fires		
Objective	*Objective 3.1: Reduce fuels in the WUI*		
Project	**Project 3.1.5 Encourage biomass utilization from wildland fuel mitigation projects.**		
Hazard(s) Addressed	Wildfire		
DES District(s)	1,3		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)	X	5
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)	X	1
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)	X	1
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)		
	Medium = Technology available/legislative support difficult/implementation possible (2 points)	X	2
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
TOTAL SCORE	High = 16 - 21		
	Medium = 10 - 15	X	11
	Low = 5 - 9		
State Priority	High, Medium, Low	High	
Responsible Agency	DNRC-Fire, DNR -Forestry Assistance, FWP, State Fire Marshall, FireSafe Montana, DES		
Potential Funding Source(s)	State		
Implementation Schedule	Ongoing		
Progress Made	Biomass boilers have been installed at the following facilities as part of the Fuels for Schools Programs: Darby, Victor, Thompson Falls, Philipsburg, Troy, Kalispell, Townsend and Eureka, the University of Montana-Western campus in Dillon and Deer Ldoge Elementary Central Park Center. Also at the following private facilities: Stoltz Lumber in Columbia Falls and Boise Inc. in Bonner.		
Planned Activities	Biomass projects are being planned at the following private faiclities: Silver City Sawmill in Lewis & Clark County, Columbia Falls Aluminum Plant in Flathead County, and the Correctional Enterprises Work Center in Deer Lodge.		

State of Montana Mitigation Action Plan
2013 Update - Planning Project Scoring Matrix

Goal	Goal 3: Reduce Impacts of Wildland and Rangeland Fires		
Objective	*Objective 3.2: Enhance community awareness of wildfires through education*		
Project	**Project 3.2.1 Promote public responsibility for defensible/survivable space in the WUI**		
Hazard(s) Addressed	Wildfire		
DES District(s)	Statewide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)	X	5
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)	X	3
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)		
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)	X	4
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)		
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
TOTAL SCORE	High = 16 - 21	X	17
	Medium = 10 - 15		
	Low = 5 - 9		
State Priority	High, Medium, Low	High	
Responsible Agency	DNRC-Fire, FWP, State Fire Marshall, FireSafe Montana, Keep Montana Green, Governor's Office of Community Service, Local and Tribal Jurisdictions, RC&Ds		
Potential Funding Source(s)	DNRC, FEMA, BLM, USFS, RC&Ds, Northern Rockies Fire Prevention and Education Committee		
Implementation Schedule	Ongoing		
Progress Made	FireSafe Montana has informative website and brochures. They hold a conference every other year promoting responsibility for defensible/survivable space in the WUI . Northern Rocky Coordinating Group also has had conferences on this topic. Fire Teams consistently promote this during the fire season.		
Planned Activities	FireSafe Montana 2013 Conference in Libby, Helena, Miles City and Hamilton. On-going activities.		

State of Montana Mitigation Action Plan
2013 Update - Planning Project Scoring Matrix

Goal	Goal 3: Reduce Impacts of Wildland and Rangeland Fires		
Objective	*Objective 3.2: Enhance community awareness of wildfires through education*		
Project	**Project 3.2.2 Continue to support and fund the statewide Firesafe Montana organization that gathers, disseminates and assists counties and other political subdivisions with grant information, project development and operations**		
Hazard(s) Addressed	Wildfire		
DES District(s)	Statewide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)	X	5
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)	X	3
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)		
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)	X	1
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
TOTAL SCORE	High = 16 - 21		
	Medium = 10 - 15	X	14
	Low = 5 - 9		
State Priority	High, Medium, Low	Medium	
Responsible Agency	DNRC-Fire, USFS, BLM		
Potential Funding Source(s)	BIA, USFS, BLM, DNRC		
Implementation Schedule	Ongoing		
Progress Made	FireSafe Montana has successfully engaged the insurance companies and is now getting support from State Farm and Farmers.		
Planned Activities	FireSafe Montana has organized an fund raising committee and will be targeting the railroads and oil companies during the next year for support. They plan to create a website that's a clearing house of all the other organizations sharing their same goals of wildfire prevention, preparedness, and mitigation.		

State of Montana Mitigation Action Plan
2013 Update - Planning Project Scoring Matrix

Goal	Goal 4: Mitigate the Potential Loss of Life and Property from Flooding		
Objective	*Objective 4.1: Reduce the number of current and future structures in the floodplain.*		
Project	**Project 4.1.2 Develop and improve upon model floodplain ordinances for local and Tribal governments**		
Hazard(s) Addressed	Flooding		
DES District(s)	Statewide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)	X	5
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)	X	2
	Very Low = < 20% State residents (1 points)		
Property Benefit	Very High = > $5,000,000 (5 points)	X	5
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)		
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)	X	3
	Project is effective but moderately sustainable (2 points)		
	Project is effective but not sustainable (1 point)		
TOTAL SCORE	High = 16 - 21	X	18
	Medium = 10 - 15		
	Low = 5 - 9		
State Priority	High, Medium, Low	High	
Responsible Agency	DNRC-Water		
Potential Funding Source(s)	State		
Implementation Schedule	Project is Complete		
Progress Made	Rolled out in September 2012.		
Planned Activities	Annual updates are planned.		

State of Montana Mitigation Action Plan
2013 Update - Planning Project Scoring Matrix

Goal	Goal 4: Mitigate the Potential Loss of Life and Property from Flooding
Objective	*Objective 4.1: Reduce the number of current and future structures in the floodplain.*
Project	**Project 4.1.3: Encourage appropriate entities to obtain conservation easements for land in the floodplain**
Hazard(s) Addressed	Flooding
DES District(s)	State-wide

Benefit-Cost Ranking	Options	Selection	Score
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)	X	5
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)	X	1
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)	X	4
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)		
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)		
	Medium = Technology available/legislative support difficult/implementation possible (2 points)	X	2
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)	X	3
	Project is effective but moderately sustainable (2 points)		
	Project is effective but not sustainable (1 point)		
TOTAL SCORE	High = 16 - 21		
	Medium = 10 - 15	X	15
	Low = 5 - 9		
State Priority	High, Medium, Low	Medium	

Responsible Agency	DNRC-Water
Potential Funding Source(s)	MDT, FWP, DES, DNRC-Water, Conservation Districts
Implementation Schedule	Mid-Range
Progress Made	NRCS made acquisitions around Roundup/Musselshell County.
Planned Activities	Check into FWP acquisitions.

State of Montana Mitigation Action Plan			
2013 Update - Planning Project Scoring Matrix			
Goal	Goal 4: Mitigate the Potential Loss of Life and Property from Flooding		
Objective	*Objective 4.3: Increase public awareness of flood mitigation.*		
Project	**Project 4.3.1 Continue to provide flood insurance education.**		
Hazard(s) Addressed	Flooding		
DES District(s)	Statewide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)	X	5
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)	X	2
	Very Low = < 20% State residents (1 points)		
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)	X	1
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
TOTAL SCORE	High = 16 - 21		
	Medium = 10 - 15	X	13
	Low = 5 - 9		
State Priority	High, Medium, Low	High	
Responsible Agency	DNRC-Water, National Weather Service		
Potential Funding Source(s)	FEMA, State		
Implementation Schedule	Ongoing		
Progress Made	DNRC has public service announcement annually. NWS promotes NFIP on its website during fllod awareness week and ice jam awareness day.		
Planned Activities	Continue these activities.		

State of Montana Mitigation Action Plan			
2013 Update - Planning Project Scoring Matrix			
Goal	Goal 4: Mitigate the Potential Loss of Life and Property from Flooding		
Objective	*Objective 4.3: Increase public awareness of flood mitigation.*		
Project	**Project 4.3.2 Educate public on need to limit future development in the floodplain.**		
Hazard(s) Addressed	Flooding		
DES District(s)	Statewide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)	X	5
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)	X	2
	Very Low = < 20% State residents (1 points)		
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)	X	4
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)		
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
TOTAL SCORE	High = 16 - 21	X	16
	Medium = 10 - 15		
	Low = 5 - 9		
State Priority	High, Medium, Low	High	
Responsible Agency	DNRC-Water		
Potential Funding Source(s)	FEMA		
Implementation Schedule	Ongoing		
Progress Made	State is accomplishing this through ordinances and mapping.		
Planned Activities	Continue as funding allows.		

State of Montana Mitigation Action Plan
2013 Update - Planning Project Scoring Matrix

Goal	Goal 4: Mitigate the Potential Loss of Life and Property from Flooding		
Objective	*Objective 4.3: Increase public awareness of flood mitigation.*		
Project	**Project 4.3.3 Educate home and business owners on utility tie-downs.**		
Hazard(s) Addressed	Flooding		
DES District(s)	Statewide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)	X	5
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)	X	1
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)	X	2
	Very Low = < $100,000 (1 points)		
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)	X	3
	Project is effective but moderately sustainable (2 points)		
	Project is effective but not sustainable (1 point)		
TOTAL SCORE	High = 16 - 21		
	Medium = 10 - 15	X	14
	Low = 5 - 9		
State Priority	High, Medium, Low	Medium	
Responsible Agency	DES, DNRC-Water, Dept. Labor & Industry Building Codes		
Potential Funding Source(s)	FEMA		
Implementation Schedule	Mid-Range		
Progress Made	No progress to report		
Planned Activities	Part of NFIP outreach		

State of Montana Mitigation Action Plan			
2013 Update - Planning Project Scoring Matrix			
Goal	Goal 4: Mitigate the Potential Loss of Life and Property from Flooding		
Objective	*Objective 4.4: Improve the effectiveness of flood insurance programs.*		
Project	**Project 4.4.1 Provide outreach and technical assistance in joining the NFIP Community Rating System for reducing flood insurance premiums.**		
Hazard(s) Addressed	Flooding		
DES District(s)	Statewide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)	X	5
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)	X	2
	Very Low = < 20% State residents (1 points)		
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)	X	1
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
TOTAL SCORE	High = 16 - 21		
	Medium = 10 - 15	X	13
	Low = 5 - 9		
State Priority	High, Medium, Low	High	
Responsible Agency	DNRC-Water		
Potential Funding Source(s)	FEMA		
Implementation Schedule	Ongoing		
Progress Made	A couple of Montana communities have been downgraded in CRS Program.		
Planned Activities	Future of progrm is unknown. May be a casualty of the fiscal cliff.		

State of Montana Mitigation Action Plan
2013 Update - Planning Project Scoring Matrix

Goal	Goal 4: Mitigate the Potential Loss of Life and Property from Flooding		
Objective	*Objective 4.4: Improve the effectiveness of flood insurance programs.*		
Project	**Project 4.4.4 Establish a schedule for National Flood Insurance Program map review and updates.**		
Hazard(s) Addressed	Flooding		
DES District(s)	Statewide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)	X	5
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)	X	1
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)	X	1
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
TOTAL SCORE	High = 16 - 21		
	Medium = 10 - 15	X	12
	Low = 5 - 9		
State Priority	High, Medium, Low	High	
Responsible Agency	DNRC-Water		
Potential Funding Source(s)	FEMA		
Implementation Schedule	Ongoing		
Progress Made	DFIRMS have been completed or underway for 13 counties where 70% of the State's population reside.		
Planned Activities	Funding has been reduced to $300,000. Update DNRC schedule based on funding.		

State of Montana Mitigation Action Plan
2013 Update - Planning Project Scoring Matrix

Goal	Goal 4: Mitigate the Potential Loss of Life and Property from Flooding		
Objective	*Objective 4.4: Improve the effectiveness of flood insurance programs.*		
Project	**Project 4.4.5: Encourage coordination between DES coordinators, floodplain managers and land use planners.**		
Hazard(s) Addressed	Flooding		
DES District(s)	State-wide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)	X	5
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)	X	1
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)	X	1
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
TOTAL SCORE	High = 16 - 21		
	Medium = 10 - 15	X	12
	Low = 5 - 9		
State Priority	High, Medium, Low	High	
Responsible Agency	DES, DNRC-Water, Local Jurisdictions and Tribal Nations		
Potential Funding Source(s)	State, Local, Tribal		
Implementation Schedule	Ongoing		
Progress Made	Local workshops have been held to get local planners, floodplain administrators and DES coordinators to know each other. DES participates in the Assoc. of MT Floodplain Managers. A resource seminar was held in July 2012 for County Commissioners and Floodplain Administrators. Missoula and Lincoln County floodplain managers received mitigation awards and have completed projects.		
Planned Activities	Continue these activities.		

State of Montana Mitigation Action Plan
2013 Update - Planning Project Scoring Matrix

Goal	Goal 5: Reduce Potential Earthquake Losses in Seismically Prone Areas		
Objective	*Objective 5.1 Provide for earthquake resistance in new construction*		
Project	**Project 5.1.2 Adopt seismic requirements of updated International Code Council.**		
Hazard(s) Addressed	Earthquake		
DES District(s)	1,3 Intermountain Seismic Belt		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)	X	5
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)	X	3
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)		
Property Benefit	Very High = > $5,000,000 (5 points)	X	5
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)		
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
TOTAL SCORE	High = 16 - 21	X	18
	Medium = 10 - 15		
	Low = 5 - 9		
State Priority	High, Medium, Low	Medium	
Responsible Agency	Dept. Labor & Industry-Building Codes		
Potential Funding Source(s)	State		
Implementation Schedule	Ongoing		
Progress Made	2009 IBC adopted		
Planned Activities	2011 IBC will be adopted		

State of Montana Mitigation Action Plan
2013 Update - Planning Project Scoring Matrix

Goal	Goal 5: Reduce Potential Earthquake Losses in Seismically Prone Areas		
Objective	*Objective 5.2: Educate the public in earthquake mitigation and readiness.*		
Project	**Project 5.2.1 Continue "Earthquake Preparedness Month" outreach activities during the month of October.**		
Hazard(s) Addressed	Earthquake		
DES District(s)	1,3 Intermountain Seismic Belt		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)	X	5
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)	X	1
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)	X	1
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)		
	Project is effective but not sustainable (1 point)	X	1
TOTAL SCORE	High = 16 - 21		
	Medium = 10 - 15	X	11
	Low = 5 - 9		
State Priority	High, Medium, Low	High	
Responsible Agency	DES, Governor's Office of Community Service		
Potential Funding Source(s)	State		
Implementation Schedule	Ongoing		
Progress Made	DES did not conduct earthquake outreach during 2012. Governor's Office of Community Service (OCS) is engaged in earthquake outreach.		
Planned Activities	DES will conduct earthquake preparedness outreach during October 2013. MBMG and OCS will participate in the "Rocky Mountain Shake Out" including outreach activities and information distribution.		

State of Montana Mitigation Action Plan
2013 Update - Planning Project Scoring Matrix

Goal	Goal 5: Reduce Potential Earthquake Losses in Seismically Prone Areas		
Objective	*Objective 5.2: Educate the public in earthquake mitigation and readiness.*		
Project	**Project 5.2.2 Continue presentations and distribution of earthquake preparedness materials including encouraging steps such as anchoring hot water heaters.**		
Hazard(s) Addressed	Earthquake		
DES District(s)	1,3 Intermountain Seismic Belt		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)	X	5
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)	X	1
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)	X	1
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)		
	Project is effective but not sustainable (1 point)	X	1
TOTAL SCORE	High = 16 - 21		
	Medium = 10 - 15	X	11
	Low = 5 - 9		
State Priority	High, Medium, Low	High	
Responsible Agency	DES, Governor's Office of Community Service		
Potential Funding Source(s)	State		
Implementation Schedule	Ongoing		
Progress Made	SHMO has been designated the Montana Earthquake Program Manager. Governor's Office of Community Service (OCS) is engaged in earthquake preparedness outreach.		
Planned Activities	DES to develop earthquake awareness program. OCS will participate in the "Rocky Mountain Shake Out" including outreach activities and information distribution.		

State of Montana Mitigation Action Plan
2013 Update - Planning Project Scoring Matrix

Goal	Goal 5: Reduce Potential Earthquake Losses in Seismically Prone Areas		
Objective	*Objective 5.3: Seismically retrofit existing critical facilities/infrastructure and government assets.*		
Project	**Project 5.3.9 Encourage and educate homeowners and businesses in the intermountain seismic belt to implement seismic retrofit projects.**		
Hazard(s) Addressed	Earthquake		
DES District(s)	1,3		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		4
	Very Low = < $100,000 (5 points)		
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)	X	3
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)		
Property Benefit	Very High = > $5,000,000 (5 points)	X	5
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)		
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
TOTAL SCORE	High = 16 - 21	X	17
	Medium = 10 - 15		
	Low = 5 - 9		
State Priority	High, Medium, Low	Medium	
Responsible Agency	DES		
Potential Funding Source(s)	DHS, FEMA, State		
Implementation Schedule	Ongoing		
Progress Made	No progress to report.		
Planned Activities	TBD		

State of Montana Mitigation Action Plan
2013 Update - Planning Project Scoring Matrix

Goal	Goal 6: Reduce Impacts from Severe Summer Weather (Hail, Wind, Tornadoes)		
Objective	*Objective 6.2: Increase public awareness of ways to mitigate summer weather hazards.*		
Project	**Project 6.2.1 Maintain partnership with National Weather Service and media to publicize Severe Weather Awareness Week to help educate public on preparedness and what to do when the warnings are issued.**		
Hazard(s) Addressed	Severe Summer Weather		
DES District(s)	Statewide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)	X	5
Population Benefit	Very High = 100% of State residents (5 points)	X	5
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)		
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)	X	1
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
TOTAL SCORE	High = 16 - 21	X	16
	Medium = 10 - 15		
	Low = 5 - 9		
State Priority	High, Medium, Low	Medium	
Responsible Agency	DES, National Weather Service, Governor's Office of Community Service		
Potential Funding Source(s)	National Weather Service		
Implementation Schedule	Mid-Range		
Progress Made	NWS conducts media outreadh (websie, social media) on an annual basis. They have been doing local presentations and have posted YouTube videos and provide INWS text messages to cell phones. The Governor's Office of Community Service (OCS) helps to publicize Severe Weather Awareness week in conjunction iwth the NWS via social medial.		
Planned Activities	NWS and OCS will continue outreach. April 15-19 are the dates in 2013 for Severe Weather Awareness Week. The NWS also have Lightning Awareness Week where similar outreach is completed.		

State of Montana Mitigation Action Plan
2013 Update - Planning Project Scoring Matrix

Goal	Goal 7: Reduce Impacts from Severe Winter Weather		
Objective	*Objective 7.2: Increase public awareness of winter weather hazards.*		
Project	**Project 7.2.1 Promote partnership with National Weather Service and media to publicize Winter Weather Hazards Awareness Week to help educate public on preparedness**		
Hazard(s) Addressed	Severe Winter Weather		
DES District(s)	Statewide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)	X	5
Population Benefit	Very High = 100% of State residents (5 points)	X	5
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)		
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)	X	1
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
TOTAL SCORE	High = 16 - 21	X	16
	Medium = 10 - 15		
	Low = 5 - 9		
State Priority	High, Medium, Low	Ongoing	
Responsible Agency	National Weather Service, MDT, Governor's Office of Community Service		
Potential Funding Source(s)	National Weather Service, MDT		
Implementation Schedule	Mid-Range		
Progress Made	NWS conducts media outreadh (websie, social media) on an annual basis. They have been doing local presentations and have posted YouTube videos and provide INWS text messages to cell phones. Governor's Office of Community Service (OCS) coordinates the Winter Ready Montana call-to-service initiative, which includes winter hazard awareness outreach and information distribution.		
Planned Activities	NWS and OCS will continue outreach. Winter Weather Hazards Awareness Week is the second week in October. The NWS also have Ice Jam Awareness Day where similar outreach is completed.		

State of Montana Mitigation Action Plan
2013 Update - Planning Project Scoring Matrix

Goal	Goal 7: Reduce Impacts from Severe Winter Weather		
Objective	*Objective 7.2: Increase public awareness of winter weather hazards.*		
Project	**Project 7.2.2 Encourage local jurisdictions and tribal nations to create partnerships with a private company (such as Wal-Mart, Home Depot, www.getreadygear.com) for winter survival kits already put together that can be sold to the public at a reasonable price.**		
Hazard(s) Addressed	Severe Winter Weather		
DES District(s)	Statewide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)	X	5
Population Benefit	Very High = 100% of State residents (5 points)	X	5
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)		
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)	X	1
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
TOTAL SCORE	High = 16 - 21	X	16
	Medium = 10 - 15		
	Low = 5 - 9		
State Priority	High, Medium, Low	Medium	
Responsible Agency	Local Jurisdications, Tribal Nations, MDT		
Potential Funding Source(s)	National Weather Service		
Implementation Schedule	Mid-Range		
Progress Made	Governor's Office of Community Service encourages Montanas to build emergency preparedness kits for both their home and car. In addition, the OCS has supported Winter Ready projects with organizations, mainly Senior Corps programs, across the state. These programs have then worked with local partners to build emergency preparedness kits for their funcitonal needs populations.		
Planned Activities	TBD		

State of Montana Mitigation Action Plan
2013 Update - Planning Project Scoring Matrix

Goal	Goal 7: Reduce Impacts from Severe Winter Weather		
Objective	*Objective 7.3: Implement actions to enhance reliability of power supply.*		
Project	**Project 7.3.1: Publicize demonstrated ability of airflow spoilers to reduce power line failure.**		
Hazard(s) Addressed	Winter Storms		
DES District(s)	State-wide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)	X	5
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)	X	2
	Very Low = < 20% State residents (1 points)		
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)	X	4
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)		
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
TOTAL SCORE	High = 16 - 21	X	16
	Medium = 10 - 15		
	Low = 5 - 9		
State Priority	High, Medium, Low	High	
Responsible Agency	DES, Public Service Commission, Utilities		
Potential Funding Source(s)	State, FEMA		
Implementation Schedule	Short Range		
Progress Made	No progress to report		
Planned Activities	SHMO to attend next rural electric co-op annual meeting and make presentation.		

State of Montana Mitigation Action Plan

2013 Update - Planning Project Scoring Matrix

Goal	Goal 8: Minimize the Impacts from Communicable Disease Outbreaks		
Objective	*Objective 8.1: Minimize the impacts communicable disease events have on public health*		
Project	**Project 8.1.1 - Conduct public health surveillance, disease investigations, and provide mitigation strategies**		
Hazard(s) Addressed	Communicable Disease		
DES District(s)	State-wide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)	x	5
Population Benefit	Very High = 100% of State residents (5 points)	x	5
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)		
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)	x	1
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	x	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	x	2
	Project is effective but not sustainable (1 point)		
TOTAL SCORE	High = 16 - 21	x	16
	Medium = 10 - 15		
	Low = 5 - 9		
State Priority	High, Medium, Low	High	
Responsible Agency	Dept. Public Health and Human Services		
Potential Funding Source(s)	State		
Implementation Schedule	Ongoing		
Progress Made	New project for 2013		
Planned Activities	Increase the percentage of communicable diseases reported to local health departments within 24 hours. Review inspections of licensed food establishments and provide each with educational material on food safety. Increase age-appropriate immunizations rates for vaccine preventable communicable diseases.		

State of Montana Mitigation Action Plan

2010 Update - Planning Project Scoring Matrix

Goal	Goal 8: Minimize the Impacts from Communicable Disease Outbreaks		
Objective	*Objective 8.1: Minimize the impacts communicable disease events have on public health*		
Project	**Project 8.1.2 - Improve the timeliness and completeness of disease reporting.**		
Hazard(s) Addressed	Commicable Disease		
DES District(s)	State-wide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)	x	5
Population Benefit	Very High = 100% of State residents (5 points)	x	5
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)		
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)	x	1
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	x	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	x	2
	Project is effective but not sustainable (1 point)		
TOTAL SCORE	High = 16 - 21	x	16
	Medium = 10 - 15		
	Low = 5 - 9		
State Priority	High, Medium, Low	High	
Responsible Agency	Dept. Public Health and Human Services		
Potential Funding Source(s)	State		
Implementation Schedule	Ongoing		
Progress Made	New project for 2013		
Planned Activities	All local health departments will use the Montana Infectious Disease Information System (MIDIS)		

State of Montana Mitigation Action Plan

2010 Update - Planning Project Scoring Matrix

Goal	Goal 8: Minimize the Impacts from Communicable Disease Outbreaks		
Objective	*Objective 8.1: Minimize the impacts communicable disease events have on public health*		
Project	**Project 8.1.3 - Ensure Department Emergency Operations Plans (EOPs) and all associated annexes and procedures are current and complete.**		
Hazard(s) Addressed	Commicable Disease		
DES District(s)	State-wide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)	x	5
Population Benefit	Very High = 100% of State residents (5 points)	x	5
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)		
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)	x	1
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	x	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	x	2
	Project is effective but not sustainable (1 point)		
TOTAL SCORE	High = 16 - 21	x	16
	Medium = 10 - 15		
	Low = 5 - 9		
State Priority	High, Medium, Low	High	
Responsible Agency	Dept. Public Health and Human Services		
Potential Funding Source(s)	State		
Implementation Schedule	Ongoing		
Progress Made	New project for 2013		
Planned Activities	Develop a Medical Surge Annex to the EOP which includes provider Crisis Standards of Care, hospital bed availability reporting procedures, and procedures for sharing clinical hospital staff. Incorporate the Communicable Disease Epidemiological Annex into the EOP which includes an Outbreak Response Protocol.		

State of Montana Mitigation Action Plan

2010 Update - Planning Project Scoring Matrix

Goal	Goal 8: Minimize the Impacts from Communicable Disease Outbreaks		
Objective	*Objective 8.1: Minimize the impacts communicable disease events have on public health*		
Project	**Project 8.1.4 - Test and evaluate public health response plans**		
Hazard(s) Addressed	Commicable Disease		
DES District(s)	State-wide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)	x	5
Population Benefit	Very High = 100% of State residents (5 points)	x	5
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)		
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)	x	1
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	x	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	x	2
	Project is effective but not sustainable (1 point)		
TOTAL SCORE	High = 16 - 21	x	16
	Medium = 10 - 15		
	Low = 5 - 9		
State Priority	High, Medium, Low	High	
Responsible Agency	Dept. Public Health and Human Services		
Potential Funding Source(s)	State		
Implementation Schedule	Ongoing		
Progress Made	New project for 2013		
Planned Activities	Establish and maintain a training and exercise calendar. Complete After Action Reports and Corrective Action Plans for all exercises. Utilize the Health Alert Network (HAN) notification system to verify our ability to contact all health jurisdictions within 24 hours of releasing a significant message.		

State of Montana Mitigation Action Plan
2013 Update - Planning Project Scoring Matrix

Goal	Goal 9: Reduce Losses from Hazardous Material Incidents		
Objective	*Objective 9.1 Collect data to support mitigation projects*		
Project	**Project 9.1.2 Obtain hazmat incident property damage for use in future risk assessments**		
Hazard(s) Addressed	Hazardous Material Incidents		
DES District(s)	Statewide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)	X	1
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)	X	1
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)	X	1
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)		
	Medium = Technology available/legislative support difficult/implementation possible (2 points)	X	2
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
TOTAL SCORE	High = 16 - 21		
	Medium = 10 - 15	X	11
	Low = 5 - 9		
State Priority	High, Medium, Low	Medium	
Responsible Agency	DES, MDT, State Auditor (Insurance Commission)		
Potential Funding Source(s)	State		
Implementation Schedule	Short Range		
Progress Made	Researched available data and found source with haz-mat damage data.		
Planned Activities	Used data from U.S. Dept Transportation Hazardous Materials Safety is PDM risk assessment.		

State of Montana Mitigation Action Plan

2013 Update - Planning Project Scoring Matrix

Goal	Goal 10: Reduce Impacts from Drought		
Objective	*Objective 10.1 Enhance planning efforts, public information, and education regarding drought*		
Project	**Project 10.1.1 Increase the educational emphasis given to forest and range management practices for the minimizing of drought impacts.**		
Hazard(s) Addressed	Drought		
DES District(s)	Statewide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)	X	4
	Very Low = < $100,000 (5 points)		
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)	X	2
	Very Low = < 20% State residents (1 points)		
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)	X	1
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
TOTAL SCORE	High = 16 - 21		
	Medium = 10 - 15	X	12
	Low = 5 - 9		
State Priority	High, Medium, Low	Medium	
Responsible Agency	DNRC-Water		
Potential Funding Source(s)	State Resources		
Implementation Schedule	Long-Range		
Progress Made	New project for 2013 State PDM Plan		
Planned Activities	Request DNRC establish budget for education and outreach		

State of Montana Mitigation Action Plan

2013 Update - Planning Project Scoring Matrix

Goal	Goal 10: Reduce Impacts from Drought		
Objective	*Objective 10.1 Enhance planning efforts, public information, and education regarding drought*		
Project	**Project 10.1.2 Inventory operating plans of reservoirs to ensure drought contingency plans.**		
Hazard(s) Addressed	Drought		
DES District(s)	Statewide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)	X	5
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)	X	2
	Very Low = < 20% State residents (1 points)		
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)	X	1
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)		
	Project is effective but not sustainable (1 point)	X	1
TOTAL SCORE	High = 16 - 21		
	Medium = 10 - 15	X	12
	Low = 5 - 9		
State Priority	High, Medium, Low	Medium	
Responsible Agency	DNRC-Water		
Potential Funding Source(s)	State Resources		
Implementation Schedule	Long-Range		
Progress Made	New project for 2013 State PDM Plan		
Planned Activities	Request DNRC Dam Safety hold and review dam plans for this data.		

State of Montana Mitigation Action Plan

2013 Update - Planning Project Scoring Matrix

Goal	Goal 10: Reduce Impacts from Drought		
Objective	*Objective 10.1 Enhance planning efforts, public information, and education regarding drought*		
Project	**Project 10.1.3 Develop and implement drought plans for state-funded reservoirs.**		
Hazard(s) Addressed	Drought		
DES District(s)	Statewide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)	X	4
	Very Low = < $100,000 (5 points)		
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)	X	2
	Very Low = < 20% State residents (1 points)		
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)	X	1
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)		
	Project is effective but not sustainable (1 point)	X	1
TOTAL SCORE	High = 16 - 21		
	Medium = 10 - 15	X	11
	Low = 5 - 9		
State Priority	High, Medium, Low	Medium	
Responsible Agency	DNRC-Water		
Potential Funding Source(s)	State Resources		
Implementation Schedule	Long-Range		
Progress Made	New project for 2013 State PDM Plan		
Planned Activities	Request DNRC Dam Safety integrate this data into their plans.		

State of Montana Mitigation Action Plan

2013 Update - Planning Project Scoring Matrix

Goal	Goal 10: Reduce Impacts from Drought		
Objective	*Objective 10.2 Implement economic incentives to mitigate drought.*		
Project	**Project 10.2.1 Establish stronger economic and other incentives for private investments in water conservation.**		
Hazard(s) Addressed	Drought		
DES District(s)	Statewide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)	X	4
	Very Low = < $100,000 (5 points)		
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)	X	2
	Very Low = < 20% State residents (1 points)		
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)	X	1
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)		
	Medium = Technology available/legislative support difficult/implementation possible (2 points)	X	2
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
TOTAL SCORE	High = 16 - 21		
	Medium = 10 - 15	X	11
	Low = 5 - 9		
State Priority	High, Medium, Low	Medium	
Responsible Agency	DNRC-Water		
Potential Funding Source(s)	State Resources		
Implementation Schedule	Long-Range		
Progress Made	New project for 2013 State PDM Plan		
Planned Activities	Request assistance from commercial insurance companies		

State of Montana Mitigation Action Plan

2013 Update - Planning Project Scoring Matrix

Goal	Goal 10: Reduce Impacts from Drought		
Objective	*Objective 10.3 Implement actions to ensure water conservation during drought.*		
Project	**Project 10.3.1 Encourage voluntary water conservation by domestic, municipal, and industrial users.**		
Hazard(s) Addressed	Drought		
DES District(s)	Statewide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)	X	5
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)	X	2
	Very Low = < 20% State residents (1 points)		
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)	X	1
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
TOTAL SCORE	High = 16 - 21		
	Medium = 10 - 15	X	13
	Low = 5 - 9		
State Priority	High, Medium, Low	Medium	
Responsible Agency	DNRC-Water		
Potential Funding Source(s)	State Resources		
Implementation Schedule	Long-Range		
Progress Made	New project for 2013 State PDM Plan		
Planned Activities	Request DNRC budget, fund and conduct public education and outreach		

State of Montana Mitigation Action Plan

2013 Update - Planning Project Scoring Matrix

Goal	Goal 10: Reduce Impacts from Drought		
Objective	*Objective 10.3 Implement actions to ensure water conservation during drought.*		
Project	**Project 10.3.2 Clarify state law so that water rights holders who conserve water are clearly allowed to sell or lease salvaged water in a manner that does not adversely affect water rights.**		
Hazard(s) Addressed	Drought		
DES District(s)	Statewide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)	X	4
	Very Low = < $100,000 (5 points)		
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)	X	2
	Very Low = < 20% State residents (1 points)		
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)	X	1
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)		
	Medium = Technology available/legislative support difficult/implementation possible (2 points)	X	2
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
TOTAL SCORE	High = 16 - 21		
	Medium = 10 - 15	X	11
	Low = 5 - 9		
State Priority	High, Medium, Low	Medium	
Responsible Agency	DNRC-Water		
Potential Funding Source(s)	State Resources		
Implementation Schedule	Long-Range		
Progress Made	New project for 2013 State PDM Plan		
Planned Activities	DNRC conduct legislative groundwork for 2015 legislative session with willing Legislator		

State of Montana Mitigation Action Plan			
2013 Update - Planning Project Scoring Matrix			
Goal	Goal 10: Reduce Impacts from Drought		
Objective	*Objective 10.4 Enhance water storage capacity and irrigation conveyance.*		
Project	**Project 10.4.3 Urge DNRC to adopt rules for irrigation water metering devices to resolve conflict on water short drainages.**		
Hazard(s) Addressed	Drought		
DES District(s)	Statewide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)	X	5
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)	X	2
	Very Low = < 20% State residents (1 points)		
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)	X	1
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)		
	Medium = Technology available/legislative support difficult/implementation possible (2 points)	X	2
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
TOTAL SCORE	High = 16 - 21		
	Medium = 10 - 15	X	12
	Low = 5 - 9		
State Priority	High, Medium, Low	Medium	
Responsible Agency	DNRC-Water		
Potential Funding Source(s)	State Resources		
Implementation Schedule	Long-Range		
Progress Made	New project for 2013 State PDM Plan		
Planned Activities	Request DNRC to create and implement		

State of Montana Mitigation Action Plan			
2013 Update - Planning Project Scoring Matrix			
Goal	Goal 10: Reduce Impacts from Drought		
Objective	*Objective 10.4 Enhance water storage capacity and irrigation conveyance.*		
Project	**Project 10.4.4 Find ways to better expedite the resolution of water use conflicts and water rights enforcement during drought.**		
Hazard(s) Addressed	Drought		
DES District(s)	Statewide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)	X	4
	Very Low = < $100,000 (5 points)		
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)	X	2
	Very Low = < 20% State residents (1 points)		
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)	X	1
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)		
	Medium = Technology available/legislative support difficult/implementation possible (2 points)	X	2
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
TOTAL SCORE	High = 16 - 21		
	Medium = 10 - 15	X	11
	Low = 5 - 9		
State Priority	High, Medium, Low	Medium	
Responsible Agency	DNRC-Water		
Potential Funding Source(s)	State Resources		
Implementation Schedule	Long-Range		
Progress Made	New project for 2013 State PDM Plan		
Planned Activities	DNRC to request Attorney General's office assistance in development		

State of Montana Mitigation Action Plan			
2013 Update - Planning Project Scoring Matrix			
Goal	Goal 10: Reduce Impacts from Drought		
Objective	*Objective 10.5 Implement appropriate regulations to mitigate drought.*		
Project	**Project 10.5.1 Develop a model water conservation ordinance and funding of residential metering for use by municipalities and rural domestic water suppliers.**		
Hazard(s) Addressed	Drought		
DES District(s)	Statewide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)	X	4
	Very Low = < $100,000 (5 points)		
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)	X	2
	Very Low = < 20% State residents (1 points)		
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)	X	1
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)		
	Medium = Technology available/legislative support difficult/implementation possible (2 points)	X	2
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
TOTAL SCORE	High = 16 - 21		
	Medium = 10 - 15	X	11
	Low = 5 - 9		
State Priority	High, Medium, Low	Medium	
Responsible Agency	DNRC-Water		
Potential Funding Source(s)	State Resources		
Implementation Schedule	Long-Range		
Progress Made	New project for 2013 State PDM Plan		
Planned Activities	Request DNRC, Dept. Agriculture and NRCS form working group to create and implement		

State of Montana Mitigation Action Plan			
2013 Update - Planning Project Scoring Matrix			
Goal	Goal 10: Reduce Impacts from Drought		
Objective	*Objective 10.5 Implement appropriate regulations to mitigate drought.*		
Project	**Project 10.5.2 Establish a legal mechanism and process for expediting temporary changes in points of diversion and places of use to address exigencies caused by drought.**		
Hazard(s) Addressed	Drought		
DES District(s)	Statewide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)	X	4
	Very Low = < $100,000 (5 points)		
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)	X	2
	Very Low = < 20% State residents (1 points)		
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)	X	1
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)		
	Medium = Technology available/legislative support difficult/implementation possible (2 points)	X	2
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
TOTAL SCORE	High = 16 - 21		
	Medium = 10 - 15	X	11
	Low = 5 - 9		
State Priority	High, Medium, Low	Medium	
Responsible Agency	DNRC-Water		
Potential Funding Source(s)	State Resources		
Implementation Schedule	Long-Range		
Progress Made	New project for 2013 State PDM Plan		
Planned Activities	DNRC to request Attorney General's office assistance.		

State of Montana Mitigation Action Plan
2013 Update - Planning Project Scoring Matrix

Goal	Goal 11: Reduce Impacts from Dam Failure Hazard		
Objective	*Objective 11.1 Reduce the risk of dam failure*		
Project	**Project 11.1.1 Obtain digitized inundation maps for federally-regulated high hazard dams for risk assessment.**		
Hazard(s) Addressed	Dam Failure		
DES District(s)	Statewide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)	X	5
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)	X	3
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)		
Property Benefit	Very High = > $5,000,000 (5 points)	X	5
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)		
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)	X	3
	Project is effective but moderately sustainable (2 points)		
	Project is effective but not sustainable (1 point)		
TOTAL SCORE	High = 16 - 21	X	19
	Medium = 10 - 15		
	Low = 5 - 9		
State Priority	High, Medium, Low	High	
Responsible Agency	DES		
Potential Funding Source(s)	FEMA		
Implementation Schedule	Project is complete		
Progress Made	Was completed as part of 2013 State PDM Plan Update.		
Planned Activities	None - Project is complete		

State of Montana Mitigation Action Plan
2013 Update - Planning Project Scoring Matrix

Goal	Goal 11: Reduce Impacts from Dam Failure Hazard		
Objective	*Objective 11.1 Reduce the risk of dam failure*		
Project	**Project 11.1.6: Encourage continued participation of local and Tribal DES in DNRC dam safety table top exercises.**		
Hazard(s) Addressed	Dam Failure		
DES District(s)	State-wide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)	X	5
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)	X	2
	Very Low = < 20% State residents (1 points)		
Property Benefit	Very High = > $5,000,000 (5 points)	X	5
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)		
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)		
	Project is effective but not sustainable (1 point)	X	1
TOTAL SCORE	High = 16 - 21	X	16
	Medium = 10 - 15		
	Low = 5 - 9		
State Priority	High, Medium, Low	High	
Responsible Agency	DNRC-Water, DES		
Potential Funding Source(s)	State		
Implementation Schedule	Ongoing		
Progress Made	DES and DNRC have promoted exercising EAPs for high hazard dams. 2012 Tabletop Exercises (conducted): Pondera County - Lake Francis; Toole County - Cowpath and Sullivan; Powell County - Prison Ranch Dams (Upper Taylor, Tin Cup, Kerns, Mud Lake, and Powell) and Miller Creek Dam Lewis and Clark County - ASARCO (Smelter) Dam. 2008 - 2011: Fallon County - Baker Dam, Ackley; Hill County - Bearpaw Dam, Beaver Creek Reservoir, Scott Coulee, and Bull Hook dams; Park County - Cottonwood and Crazy Mountain Dams; Meagher County - Newlan Creek Dam, Jackson Lake Dam, and Doggett Reservoir; Lewis and Clark County - Northern Pacific Dam; Fergus County - East Fork, Big Casino Creek, Hanson Creek, and Pike Creek Dams; Judith Basin County - Wilson (Surprise Creek) Reservoir; Gallatin County - Big Sky Dam, Big Sky Wastewater Ponds; Beaverhead County - Lima Dam; Granite County - Georgetown Lake (Flint Creek Dam); Wheatland and Golden Valley Counties - Bair, Martinsdale, Lebo 1,2 & 3, Deadmans Basin, Voldseth, and Jawbone Dam; Ravalli County - Tamarack Lake Dam; Lincoln County - Flower Creek Dam; Teton County - Eureka Dam; Deer Lodge County - Warm Springs Ponds		
Planned Activities	DES and DNRC will continue to promote exercising EAPs for high hazard dams. Deer Lodge County - Warm Springs Ponds; Silver Bow County - Basin Creek; Carbon County - Cooney; Jefferson County - Delmoe; Big Horn County - Tongue River; Madison County - Cataract, Ruby, or Willow Creek; Rosebud County - Castle Rock/Colstrip)		

State of Montana Mitigation Action Plan

2013 Update - Planning Project Scoring Matrix

Goal	Goal 12: Reduce Impacts from Landslides		
Objective	*Objective 12.1: Reduce the risk that landslides will damage public property.*		
Project	**Project 12.1.2: Create a GIS layer of areas vulnerable to landslides using geology, soil type, slope and past occurrence.**		
Hazard(s) Addressed	Landslide		
DES District(s)	State-wide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)	X	5
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)	X	1
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)	X	4
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)		
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)	X	3
	Project is effective but moderately sustainable (2 points)		
	Project is effective but not sustainable (1 point)		
TOTAL SCORE	High = 16 - 21	X	16
	Medium = 10 - 15		
	Low = 5 - 9		
State Priority	High, Medium, Low	Medium	
Responsible Agency	DES, MBMG		
Potential Funding Source(s)	FEMA, DES		
Implementation Schedule	Project is complete		
Progress Made	Landslide layer of this type was available from USGS and was used to complete the risk assessment for the 2013 State PDM Plan Update.		
Planned Activities	None - Project is complete		

State of Montana Mitigation Action Plan

2013 Update - Planning Project Scoring Matrix

Goal	Goal 13: Minimize Impacts from Terrorism		
Objective	*Objective13.1: Prevent losses from acts of terrorism, violence, and civil unrest.*		
Project	**Project 13.1.1 - Support mitigation-related goals, objectives, and actions of the Montana Homeland Security Strategic Plan.**		
Hazard(s) Addressed	Terrorism		
DES District(s)	State-wide		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)	X	5
Population Benefit	Very High = 100% of State residents (5 points)	X	5
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)		
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)		
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)		
	Very Low = < $100,000 (1 points)	X	1
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
TOTAL SCORE	High = 16 - 21	X	16
	Medium = 10 - 15		
	Low = 5 - 9		
State Priority	High, Medium, Low	Medium	
Responsible Agency	DES		
Potential Funding Source(s)	DES, Dept. Homeland Security		
Implementation Schedule	Ongoing		
Progress Made	New project for 2013		
Planned Activities	TBD		

State of Montana Mitigation Action Plan

2013 Update - Planning Project Scoring Matrix

Goal	Goal 14: Minimize the Impacts from Volcanic Eruptions		
Objective	*Objective 14.1: Identify and reduce losses from volcanic activity.*		
Project	**Project 14.1.1 - Educate the public on how to respond to volcanic ash fall-out.**		
Hazard(s) Addressed	Volcanic Eruptions		
DES District(s)	1, 3		
Benefit-Cost Ranking	**Options**	**Selection**	**Score**
Estimated Cost	Very High = > $5,000,000 (1 point)		
	High = $1,000,000 to $5,000,000 (2 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (4 points)		
	Very Low = < $100,000 (5 points)	X	5
Population Benefit	Very High = 100% of State residents (5 points)		
	High = 60% to 80% of State residents (4 points)		
	Medium = 40% to 60% of State residents (3 points)	X	3
	Low = 20% to 40% of State residents (2 points)		
	Very Low = < 20% State residents (1 points)		
Property Benefit	Very High = > $5,000,000 (5 points)		
	High = $1,000,000 to $5,000,000 (4 points)		
	Medium = $500,000 to $1,000,000 (3 points)		
	Low = $100,000 to $500,000 (2 points)	X	2
	Very Low = < $100,000 (1 points)		
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	X	3
	Medium = Technology available/legislative support difficult/implementation possible (2 points)		
	Low = No technology available/legislative support or implementation highly unlikely (1 point)		
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)		
	Project is effective but moderately sustainable (2 points)	X	2
	Project is effective but not sustainable (1 point)		
TOTAL SCORE	High = 16 - 21		
	Medium = 10 - 15	X	15
	Low = 5 - 9		
State Priority	High, Medium, Low	Low	
Responsible Agency	DES		
Potential Funding Source(s)	DES, FEMA		
Implementation Schedule	Long-Range		
Progress Made	New project for 2013		
Planned Activities	TBD		

State of Montana Mitigation Action Plan
2013 Update - Planning Project Scoring Matrix

Goal	Goal	
Objective	*Objective*	
Project	**Project**	
Hazard(s) Addressed		
DES District(s)		
Benefit-Cost Ranking	**Options**	**Selection**
Estimated Cost	Very High = > $5,000,000 (1 point)	
	High = $1,000,000 to $5,000,000 (2 points)	
	Medium = $500,000 to $1,000,000 (3 points)	
	Low = $100,000 to $500,000 (4 points)	
	Very Low = < $100,000 (5 points)	
Population Benefit	Very High = 100% of State residents (5 points)	
	High = 60% to 80% of State residents (4 points)	
	Medium = 40% to 60% of State residents (3 points)	
	Low = 20% to 40% of State residents (2 points)	
	Very Low = < 20% State residents (1 points)	
Property Benefit	Very High = > $5,000,000 (5 points)	
	High = $1,000,000 to $5,000,000 (4 points)	
	Medium = $500,000 to $1,000,000 (3 points)	
	Low = $100,000 to $500,000 (2 points)	
	Very Low = < $100,000 (1 points)	
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	
	Medium = Technology available/legislative support difficult/implementation possible (2 points)	
	Low = No technology available/legislative support or implementation highly unlikely (1 point)	
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)	
	Project is effective but moderately sustainable (2 points)	
	Project is effective but not sustainable (1 point)	
TOTAL SCORE	High = 16 - 21	
	Medium = 10 - 15	
	Low = 5 - 9	
State Priority	High, Medium, Low	
Responsible Agency		
Potential Funding Source(s)		
Implementation Schedule		
Progress Made		
Planned Activities		

Score

State of Montana Mitigation Action Plan
2013 Update - Planning Project Scoring Matrix

Goal	Goal	
Objective	*Objective*	
Project	**Project**	
Hazard(s) Addressed		
DES District(s)		
Benefit-Cost Ranking	**Options**	**Selection**
Estimated Cost	Very High = > $5,000,000 (1 point)	
	High = $1,000,000 to $5,000,000 (2 points)	
	Medium = $500,000 to $1,000,000 (3 points)	
	Low = $100,000 to $500,000 (4 points)	
	Very Low = < $100,000 (5 points)	
Population Benefit	Very High = 100% of State residents (5 points)	
	High = 60% to 80% of State residents (4 points)	
	Medium = 40% to 60% of State residents (3 points)	
	Low = 20% to 40% of State residents (2 points)	
	Very Low = < 20% State residents (1 points)	
Property Benefit	Very High = > $5,000,000 (5 points)	
	High = $1,000,000 to $5,000,000 (4 points)	
	Medium = $500,000 to $1,000,000 (3 points)	
	Low = $100,000 to $500,000 (2 points)	
	Very Low = < $100,000 (1 points)	
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	
	Medium = Technology available/legislative support difficult/implementation possible (2 points)	
	Low = No technology available/legislative support or implementation highly unlikely (1 point)	
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)	
	Project is effective but moderately sustainable (2 points)	
	Project is effective but not sustainable (1 point)	
TOTAL SCORE	High = 16 - 21	
	Medium = 10 - 15	
	Low = 5 - 9	
State Priority	High, Medium, Low	
Responsible Agency		
Potential Funding Source(s)		
Implementation Schedule		
Progress Made		
Planned Activities		

Score

State of Montana Mitigation Action Plan
2013 Update - Planning Project Scoring Matrix

Goal	Goal	
Objective	*Objective*	
Project	**Project**	
Hazard(s) Addressed		
DES District(s)		
Benefit-Cost Ranking	**Options**	**Selection**
Estimated Cost	Very High = > $5,000,000 (1 point)	
	High = $1,000,000 to $5,000,000 (2 points)	
	Medium = $500,000 to $1,000,000 (3 points)	
	Low = $100,000 to $500,000 (4 points)	
	Very Low = < $100,000 (5 points)	
Population Benefit	Very High = 100% of State residents (5 points)	
	High = 60% to 80% of State residents (4 points)	
	Medium = 40% to 60% of State residents (3 points)	
	Low = 20% to 40% of State residents (2 points)	
	Very Low = < 20% State residents (1 points)	
Property Benefit	Very High = > $5,000,000 (5 points)	
	High = $1,000,000 to $5,000,000 (4 points)	
	Medium = $500,000 to $1,000,000 (3 points)	
	Low = $100,000 to $500,000 (2 points)	
	Very Low = < $100,000 (1 points)	
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	
	Medium = Technology available/legislative support difficult/implementation possible (2 points)	
	Low = No technology available/legislative support or implementation highly unlikely (1 point)	
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)	
	Project is effective but moderately sustainable (2 points)	
	Project is effective but not sustainable (1 point)	
TOTAL SCORE	High = 16 - 21	
	Medium = 10 - 15	
	Low = 5 - 9	
State Priority	High, Medium, Low	
Responsible Agency		
Potential Funding Source(s)		
Implementation Schedule		
Progress Made		
Planned Activities		

Score

State of Montana Mitigation Action Plan
2013 Update - Planning Project Scoring Matrix

Goal	Goal	
Objective	*Objective*	
Project	**Project**	
Hazard(s) Addressed		
DES District(s)		
Benefit-Cost Ranking	**Options**	**Selection**
Estimated Cost	Very High = > $5,000,000 (1 point)	
	High = $1,000,000 to $5,000,000 (2 points)	
	Medium = $500,000 to $1,000,000 (3 points)	
	Low = $100,000 to $500,000 (4 points)	
	Very Low = < $100,000 (5 points)	
Population Benefit	Very High = 100% of State residents (5 points)	
	High = 60% to 80% of State residents (4 points)	
	Medium = 40% to 60% of State residents (3 points)	
	Low = 20% to 40% of State residents (2 points)	
	Very Low = < 20% State residents (1 points)	
Property Benefit	Very High = > $5,000,000 (5 points)	
	High = $1,000,000 to $5,000,000 (4 points)	
	Medium = $500,000 to $1,000,000 (3 points)	
	Low = $100,000 to $500,000 (2 points)	
	Very Low = < $100,000 (1 points)	
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	
	Medium = Technology available/legislative support difficult/implementation possible (2 points)	
	Low = No technology available/legislative support or implementation highly unlikely (1 point)	
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)	
	Project is effective but moderately sustainable (2 points)	
	Project is effective but not sustainable (1 point)	
TOTAL SCORE	High = 16 - 21	
	Medium = 10 - 15	
	Low = 5 - 9	
State Priority	High, Medium, Low	
Responsible Agency		
Potential Funding Source(s)		
Implementation Schedule		
Progress Made		
Planned Activities		

Score

State of Montana Mitigation Action Plan
2013 Update - Planning Project Scoring Matrix

Goal	Goal	
Objective	*Objective*	
Project	**Project**	
Hazard(s) Addressed		
DES District(s)		
Benefit-Cost Ranking	**Options**	**Selection**
Estimated Cost	Very High = > $5,000,000 (1 point)	
	High = $1,000,000 to $5,000,000 (2 points)	
	Medium = $500,000 to $1,000,000 (3 points)	
	Low = $100,000 to $500,000 (4 points)	
	Very Low = < $100,000 (5 points)	
Population Benefit	Very High = 100% of State residents (5 points)	
	High = 60% to 80% of State residents (4 points)	
	Medium = 40% to 60% of State residents (3 points)	
	Low = 20% to 40% of State residents (2 points)	
	Very Low = < 20% State residents (1 points)	
Property Benefit	Very High = > $5,000,000 (5 points)	
	High = $1,000,000 to $5,000,000 (4 points)	
	Medium = $500,000 to $1,000,000 (3 points)	
	Low = $100,000 to $500,000 (2 points)	
	Very Low = < $100,000 (1 points)	
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	
	Medium = Technology available/legislative support difficult/implementation possible (2 points)	
	Low = No technology available/legislative support or implementation highly unlikely (1 point)	
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)	
	Project is effective but moderately sustainable (2 points)	
	Project is effective but not sustainable (1 point)	
TOTAL SCORE	High = 16 - 21	
	Medium = 10 - 15	
	Low = 5 - 9	
State Priority	High, Medium, Low	
Responsible Agency		
Potential Funding Source(s)		
Implementation Schedule		
Progress Made		
Planned Activities		

Score

State of Montana Mitigation Action Plan
2013 Update - Planning Project Scoring Matrix

Goal	Goal	
Objective	*Objective*	
Project	**Project**	
Hazard(s) Addressed		
DES District(s)		
Benefit-Cost Ranking	**Options**	**Selection**
Estimated Cost	Very High = > $5,000,000 (1 point)	
	High = $1,000,000 to $5,000,000 (2 points)	
	Medium = $500,000 to $1,000,000 (3 points)	
	Low = $100,000 to $500,000 (4 points)	
	Very Low = < $100,000 (5 points)	
Population Benefit	Very High = 100% of State residents (5 points)	
	High = 60% to 80% of State residents (4 points)	
	Medium = 40% to 60% of State residents (3 points)	
	Low = 20% to 40% of State residents (2 points)	
	Very Low = < 20% State residents (1 points)	
Property Benefit	Very High = > $5,000,000 (5 points)	
	High = $1,000,000 to $5,000,000 (4 points)	
	Medium = $500,000 to $1,000,000 (3 points)	
	Low = $100,000 to $500,000 (2 points)	
	Very Low = < $100,000 (1 points)	
Feasibility	High = Technology available/legislative support or implementation very likely (3 points)	
	Medium = Technology available/legislative support difficult/implementation possible (2 points)	
	Low = No technology available/legislative support or implementation highly unlikely (1 point)	
Effectiveness/Sustainability	Project eliminates repetitive loss (3 points)	
	Project is effective but moderately sustainable (2 points)	
	Project is effective but not sustainable (1 point)	
TOTAL SCORE	High = 16 - 21	
	Medium = 10 - 15	
	Low = 5 - 9	
State Priority	High, Medium, Low	
Responsible Agency		
Potential Funding Source(s)		
Implementation Schedule		
Progress Made		
Planned Activities		

Score

APPENDIX C - COMPLETED/ONGOING MITIGATION PROJECTS FROM LOCAL PDM PLANS/UPDATES							
District	**County**	**Hazard**	**Mitigation Project**	**Funding Source**	**Details**	**State Mitigation Goal**	**State Mitigation Objective**
1	Anaconda-Deer Lodge	2005 PLAN - NO UPDATE AVAILABLE	Completed projects not identified.			N/A	N/A
1	Butte-Silver Bow	Earthquake	Provide educational awareness for students and the general public on earthquake safety.	County Resources	Ongoing	Goal 5	Objective 5.2
1	Butte-Silver Bow	Earthquake	Use shatter-proofing techniques to strengthen windows in schools.	School District Resources	Completed in two schools	Goal 5	Objective 5.3
1	Butte-Silver Bow	Earthquake	Tie down/secure objects in critical facilities and schools that could fall during an earthquake.	County/School District Resources	Ongoing	Goal 5	Objective 5.4
1	Butte-Silver Bow	Wildfire	Promote coordination with Forest Service regarding fuels reduction in the Basin Creek watershed to protect water supply	National Fire Plan Grants	Mostly complete	Goal 3	Objective 3.1
1	Butte-Silver Bow	Wildfire/Structure Fire	Promote public education on the benefit of smoke detectors and BSB Fire Department's Smoke Detector Program	County Resources	Ongoing	N/A	N/A
1	Confederated Salish & Kootenai Tribes	2005 PLAN - NO UPDATE AVAILABLE	Completed projects not identified.			N/A	N/A
1	Flathead	Wildfire	Homeowner fuel reduction	RC&D Grants ?	In progress	Goal 3	Objective 3.1
1	Flathead	Wildfire	Landowner fuel reduction	RC&D Grants ?	In progress	Goal 3	Objective 3.1
	Flathead	Wildfire	Multiple access to subdivisions.	County Resources	In progress	N/A	N/A
	Flathead	Wildfire	Promote fire resistant building materials	County Resources	Annually	N/A	N/A
1	Flathead	Wildfire	Subdivision requirement to provide fire water storage	County Resources	In progress	N/A	N/A
	Flathead	Weather	Public education.	County Resources	Annually	Goal 3	Objective 3.2
	Flathead	Flooding	Restrict/regulate development in 100-year floodplain.	County Resources	In progress	Goal 4	Objective 4.1
	Flathead	Flooding	Restrict/regulate development in 500-year floodplain.	County Resources	In progress	Goal 4	Objective 4.2
	Flathead	Flooding	Promote NOAA weather radios.	County Resources	Ongoing	Goal 1	Objective 1.2
	Flathead	Earthquake	Public education.	County Resources	Annually	Goal 5	Objective 5.2
	Flathead	Earthquake	Enforcement of building code.	County Resources	Ongoing	Goal 5	Objective 5.1
	Flathead	Earthquake	Continue earthquake preparedness month.	County Resources	Annually	Goal 5	Objective 5.2
	Flathead	Human Caused	Update GIS mapping of critical facilities.	County Resources	In progress	Goal 1	Objective 1.4
	Flathead	Human Caused	Coordinate emergency procedures with Bureau of Reclamation.	County Resources	In progress	Goal 11	Objective 11.1
	Granite	2005 PLAN - NO UPDATE	Completed projects not identified.				
1	Lake	All Hazards	Buy weather radios for various critical facilities.	State Program	State program provided weather radios to all the schools. Tribal council and chief elected officials also have them now.	Goal 1	Objective 1.2
1	Lake	All Hazards	Provide public broadcasting station with information on dangers or critical information.	Emergency Alert System	This activity is ongoing through the Emergency Alert System.	Goal 1	Objective 1.2
1	Lake	Communicable Disease	Investigate mitigation options for West Nile Virus.	County Resources	This is being done by the Lake County Health Department through public awareness.	Goal 8	Objective 8.1
1	Lake	Flooding	GPS all homes along waterways.	County Resources	Rural addressing is up to date and can be intersected with the floodplain when DFIRMs are adopted.	Goal 4	Objective 4.4
1	Lake	Flooding	Educate homeowners on flood concerns.	County Resources	Lake County Planning Department is doing this by consulting with developers and having FEMA brochures available.	Goal 4	Objective 4.3
1	Lake	Flooding	Publish and distribute floodplain maps to homeowners.	County Resources	DFIRMs are being reviewed at this time and will be made available once adopted.	Goal 4	Objective 4.4
1	Lake	Wildfire	Identify risk areas and homes to develop pre-attack plans.	CSKT Resources	Tribe finished a project mapping risk areas and evacuation at Rocky Point, Wilderness Valley, and Finley Point.	Goal 3	Objective 3.3
1	Lake	Wildfire	Provide wildfire mitigation information to urban interface landowners.	CSKT Resources/County Fuel Reduction Program	Some door-to-door communication has been done with the Tribe and through the County's Fuel Reduction Program.	Goal 3	Objective 3.2
1	Lake	Wildfire	Provide additional training to firefighters.	County Resources	Various training opportunities have been made available to volunteer firefighters.	Goal 3	N/A
1	Lincoln	Wildfire	Instituting fuel control activities, such as thinning and fire breaks, particularly near more highly populated areas.	County/State/FS Resources - National Fire Plan Grants		Goal 3	Objective 3.1
1	Lincoln	Wildfire	Supporting alternative methods to burning when reducing fuel hazards.	County Resources		Goal 3	N/A
1	Lincoln	Wildfire	Educating landowners about alternatives to burning slash.	County Resources		Goal 3	Objective 3.2
1	Lincoln	Wildfire	Promoting "fire wise" education efforts in communities and schools.	County Resources		Goal 3	Objective 3.2
1	Lincoln	Wildfire	Developing water storage capacity and water supply sites to enhance fire-fighting capability.	County/State/FS Resources		Goal 3	N/A
1	Lincoln	Wildfire	Improving fire agency infrastructure (training facility, additional fire suppression equipment and storage, enhanced communications systems).	County Resources		Goal 3	N/A

APPENDIX C - COMPLETED/ONGOING MITIGATION PROJECTS FROM LOCAL PDM PLANS/UPDATES							
District	**County**	**Hazard**	**Mitigation Project**	**Funding Source**	**Details**	**State Mitigation Goal**	**State Mitigation Objective**
1	Lincoln	Wildfire	Providing for a shared database between fire suppression agencies on road closures, water sources, fuel ratings, district boundaries, ignition hazards and railroads.	County Resources		Goal 3	Objective 3.3
1	Lincoln	Flooding	Obtaining and disseminating revised floodplain maps to increase knowledge of flood prone areas.	County Resources		Goal 4	Objective 4.3
1	Lincoln	Flooding	Evaluating bridges and culverts at risk from flooding and developing a schedule and funding to replace or upgrade as necessary.	County Resources		Goal 4	Objective 4.2
1	Lincoln	Flooding	Improving roads and road drainage to withstand flood flows in selected areas.	County Resources		Goal 4	Objective 4.2
1	Lincoln	Hazardous Material	Improving training for first responders.	County Resources		Goal 9	N/A
1	Lincoln	Hazardous Material	Improving emergency communications network throughout the county.	County Resources		Goal 9	N/A
1	Mineral	Wildfire	Map/locate structures within WUI.	County Resources		Goal 3	Objective 3.3
1	Mineral	All Hazards	Evaluation of possible communication systems that can effectively reach all portions of the county.	County Resources		Goal 1	N/A
1	Mineral	All Hazards	Mapping locations of all residences within the County.	Dept. Revenue/Cadastral		Goal 1	Objective 1.2
1	Mineral	All Hazards	Additional cell towers to improve cellular communication.	Cell Companies	Two cell towers completed; three more planned.	Goal 1	N/A
1	Mineral	Hazardous Material Incidents	Conduct training exercises for hazardous material spills from both railroad and highway transport.	County Resources	Completed through regular response exercises.	Goal 9	N/A
1	Mineral	All Hazards	Provide generators for essential facilities to ensure operations during power disruption.	County Resources		Goal 1	Objective 1.1
1	Mineral	All Hazards	Develop program for affected communities/vulnerable populations to acquire generataors during power failures.	County Resources	Small portable generators are available.	Goal 1	N/A
1	Mineral	All Hazards	Mapping and location of each residence within the County	Dept. Revenue/Cadastral	Near completion	Goal 1	Objective 1.2
1	Mineral	Winter Weather	Develop educational materials regarding snow loads and safe removal.	County Resources	Ongoing	Goal 7	Objective 7.2
1	Mineral	All Hazards	Information about the potential hazards that can affect the community	County Resources	Ongoing	Goal 1	Objective 1.3
1	Mineral	All Hazards	Education on safe egress from communities during disasters.	County Resources	Ongoing	Goal 1	N/A
1	Missoula	Wildfire	Develop guidance/rules for maintaining defensible space around existing structures in WUI.	County Resources	Requirement in place.	Goal 3	Objective 3.3
1	Missoula	Wildfire	Revise subdivision regulations to require sufficient fire suppression water supplies for subdivisions in WUI	County Resources	Requirement in place.	Goal 3	N/A
1	Missoula	Flooding	Revise subdivision regulations to access groundwater flooding potential.	County Resources		Goal 4	N/A
1	Missoula	Flooding	Improve dike system along the Clark Fork River near 3rd and Tower Street.	County Resources	Ongoing	Goal 4	Objective 4.2
1	Missoula	Flooding	Improve the dike system along the Bitterrot River near Lolo.	County Resources	Ongoing	Goal 4	Objective 4.2
1	Missoula	Flooding	Complete structural analysis of bridges in County that have a low scour potential index.	County Resources	Ongoing	Goal 4	Objective 4.2
1	Missoula	Flooding	Identify critical access bridges and evaluate potential for damage from debris.	County Resources	Ongoing	Goal 4	Objective 4.2
1	Missoula	All Hazards	Upgrade EAS System for all hazard warning/communication by installing EAS encoder/decoder in 911 dispatch.	County Resources		Goal 1	Objective 1.2
1	Missoula	All Hazards	Install weather stations on Deer Mountain and Point 118.	County Resources		Goal 1	Objective 1.2
1	Missoula	All Hazards	Implement Reverse 911 capabilities.	County Resources		Goal 1	Objective 1.2
1	Missoula	All Hazards	Implement Enhanced 911 capabilities.	County Resources		Goal 1	Objective 1.2
1	Missoula	Flooding	Encourage use of NOAA weather radios to residences in hazardous areas subject to flooding or mudslides.	County Resources		Goal 1	Objective 1.2
1	Missoula	Weather	NWS to provide weather education presentations and tours to educate the public on weather hazards.	NWS		Goal 6 & 7	Objective 6.2 & 7.2
1	Missoula	Wildfire	Targeted education and information to public officials on fuel mitigation and general hazard mitigation.	County Resources		Goal 3	Objective 3.2
1	Powell	Flooding	Replaced two bridges on Cottonwood Creek with structures having a capacity of 950 CFS	PDMC		Goal 4	Objective 4.2
1	Powell	Flooding	Acquire 6-8 structures to accommodate the Cottonwood Creek channel expansion.	County Resources	Have acquired some of the buildings and are in litigation for others.	Goal 4	Objective 4.1
1	Powell	All Hazard	Provide back-up power generation for Powell County Sheriff's Office and County Jail	County Resources		Goal 1	Objective 1.1
1	Powell	All Hazard	Upgrade back-up power generation for Powell County Hospital and Nuring Home.	County Resources	Nursing Home is completed. A new hospital is under construction with appropriate backup power capabilities.	Goal 1	Objective 1.1
1	Powell	Wildfire	Construct additional 15 dry fire hydrants in the County.	County Resources	Up to two have been completed.	Goal 3	N/A
1	Powell	Wildfire	Realign fire district boundaries the entire County is covered by a Fire District.	County Resources	One has been changed (Rock Creek Cattle Company District)	Goal 3	N/A

APPENDIX C - COMPLETED/ONGOING MITIGATION PROJECTS FROM LOCAL PDM PLANS/UPDATES							
District	**County**	**Hazard**	**Mitigation Project**	**Funding Source**	**Details**	**State Mitigation Goal**	**State Mitigation Objective**
1	Powell	Wildfire	Participate with the BLM (through the Headwaters RC&D) to provide cost-share funds to residents to fire proof their homes.	County Resources	Some has been done in Little Blackfoot.	Goal 3	Objective 3.1
1	Powell	Flooding	Replace nine County bridges which have a hydraulic sufficiency rating of 4 or less.	County Resources	Seven have been completed.	Goal 4	Objective 4.2
1	Powell	Flooding	Reshape and provide drainage structures on Bismark Hill Road to prevent water from running down the road and cause flooding along Taylor Creek	County Resources		Goal 4	Objective 4.2
1	Ravalli	Wildfire	Develop guidance/rules for maintaining defensible space around existing structures in WUI.	RC&D Resources	In progress	Goal 3	Objective 3.3
1	Ravalli	Wildfire	Revise subdivision regulations to require sufficient fire suppression water supplies for subdivisions in WUI.	RC&D Resources	In progress	Goal 3	N/A
1	Ravalli	Wildfire	Complete fuel mitigation projects as identified and prioritized in CWPP.	RC&D Resources	In progress	Goal 3	Objective 3.1
1	Ravalli	Flooding	Complete floodplain/flood prone area delineation on all urban/developed streams.	FEMA/DNRC	Three Mile and Eight Mile mapping is underway	Goal 4	Objective 4.4
1	Ravalli	Flooding	Complete structural analysis of bridges in County that have a low scour potential index.	County Resources	Ongoing - Road & Bridge Department	Goal 4	Objective 4.2
1	Ravalli	Flooding	Indentify critical access bridges and evaluate potential for damage from debris.	County Resources	Ongoing - Road & Bridge Department	Goal 4	Objective 4.2
1	Ravalli	Flooding	Revise Probably Maximum Flood projections for Painted Rocks and Lake Como based on enhanced digital elevation models and improved flood modeling softwared.	DNRC/BOR	Aerial LiDar mapping ongoing.	Goal 4	Objective 4.4
1	Ravalli	All Hazards	Implement Reverse 911 and Enhanced 911 capabilities.	County Resources		Goal 1	Objective 1.2
1	Ravalli	All Hazards	NWS to provide weather education presentations and tours to educate the public on weather hazards.	NWS	Ongoing	Goal 1	Objective 1.3
1	Ravalli	All Hazards	Assess Countywide ingress/egress conflicts related to hazard responsiveness and evacuations.	County Resources	Countywise GIS addresses conflicts	Goal 1	N/A
2	Blackfeet Reservation	2007 PLAN - NO UPDATE AVAILABLE	Completed projects not identified.				
2	Blaine	Wildfire	Obtain larger fire response vehicles to accommodate mobile generators.	Grants	Turner, Hogeland, Chinook and Harlem all have new fire tenders.	Goal 3	N/A
2	Blaine	Wildfire	Improve communication amongst volunteer fire fighters.	Northern Tier	Fire fighters now have P-25 compliant radios and cell phone service has improved.	Goal 3	N/A
2	Blaine	Wildfire	Obtain a temporary water bladder(s) of 5,000 to 10,000 gallons for Turner and Hogeland.	County Resources	Have bladders until permanent water storage facilities are constructed.	Goal 3	N/A
2	Blaine	Wildfire	Obtain mobile generators for response vehicles to pump water from hydrants and/or bladders.	Grants	Two mobile generators have been purchased	Goal 3	N/A
2	Blaine	Wildfire	Reduce number of abandoned wood buildings in towns.	County Resources	A few buildings have been burned for fire fighter training.	Goal 3	Objective 3.1
2	Blaine	Wildfire	Utilize and enforce Blaine County burning permits. Examine adjacent County's Burning Permits and standardize requirements.	County Resources	Have had meeting with other agencies to standardize burn permits.	Goal 3	N/A
2	Blaine	Wildfire	Implement fuel reduction measures along highways, communication sites, around perimeter and within communities by cutting or mowing where feasible.	County Resources	County does this as needed.	Goal 3	Objective 3.1
2	Blaine	Wildfire	With cooperators, provide classroom or video fire suppression training for rural area citizens and County employees who will respond to wildland fires.	County Resources	Trainings have been going on for the past 2 years.	Goal 3	Objective 3.2
2	Blaine	Flooding	Install culverts on sections of road impacted by flooding.	County Resources	At least 10 culverts were installed on sections of road impacted by flooding; three on Prairie Road, five along Savoy Road; one on Bagen Road, and one on Haldem Road.	Goal 4	Objective 4.2
2	Blaine	Flooding	Consider mitigation projects for homes repeatedly flooded in Harlem.	HMGP	An HMGP project was submitted for acquisition of homes in north Harlem that have been repeatedly flooded.	Goal 4	Objective 4.1
2	Blaine	All Hazard	Map areas within the county that do not have communications.	Northern Tier	Mapping has been completed by Northern Tier.	Goal 1	Objective 1.2
2	Blaine	All Hazard	Obtain mobile generators for emergency shelters.	County Resources	Two generators have been purchased and an engineer has been hired to determine where to put them.	Goal 1	N/A
2	Blaine	All Hazard	Obtain satellite phones to enhance communication in southern part of County.	County Resources	One satellite phone has been obtained and is kept at dispatch. Southern portion of County has less population so dedicated phone isn't needed.	Goal 1	N/A
2	Cascade	NEW PLAN - 2011	No completed projects identified.				

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District	**County**	**Hazard**	**Mitigation Project**	**Funding Source**	**Details**	**State Mitigation Goal**	**State Mitigation Objective**
2	Chouteau	NEW PLAN - 2010	No completed projects identified.				
2	Glacier	All Hazards	Review of existing laws, building codes and/or land development ordinances to determine if new legislation or amendments were needed.	County Resources		Goal 4	Objective 4.1
2	Glacier	All Hazards	Development of the Glacier County Growth Policy and new land use policies.	County Resources		N/A	N/A
2	Glacier	Severe Weather	Conduct educational awareness on severe weather.	County Resources		Goal 6 & 7	Objective 6.2 & 7.2
2	Glacier	All Hazards	Promote development of family disaster plans.	County Resources		Goal 1	N/A
2	Glacier	All Hazards	Promote preparing disaster supply kits.	County Resources		Goal 1	N/A
2	Glacier	All Hazards	Obtain NOAA weather radios for critical facilities.	County Resources		Goal 1	Objective 1.2
2	Glacier	Flooding	Promote participation in the NFIP.	County Resources		Goal 4	Objective 4.4
2	Glacier	Wildfire	Promote FireWise principles.	County Resources		Goal 3	Objective 3.2
2	Glacier	Flooding	Install culverts in locations prone to flooding.	County Resources		Goal 4	Objective 4.2
2	Glacier	Wildfire	Assist the public in creating defensible space around their structures and dwellings.	National Fire Plan Grants		Goal 3	Objective 3.1
2	Hill	Wildfire	Utilize and enforce Hill County Burning Permit requirements. Compare and review neighboring county burn permits for selection of standardized burn permits.	County Resources	Have permit requirements and enforcement is ongoing. Have reached across county lines to Liberty and Blaine County and are aware that information can be posted on county website.	Goal 3	N/A
2	Hill	Wildfire	Locate and identify roads that have wooden bridges within the County. Plan protection measures and alternate routes in the event of a wildfire compromising or burning these bridges.	County Resources	Location of wood bridges known. Evacuation addressed in Emergency Operation Plan annex.	Goal 3	N/A
2	Hill	Wildfire	Utilize standard fire protection guidelines for residential development in the WUI as identified in NFPA 1144 Standard for Protection.	County Resources	Addressed in new subdivision regulations.	Goal 3	N/A
2	Hill	Wildfire	Update and replace FM radios for Fire Departments.	Grant	Received grant and obtained P-25 compliant radios. Still need more radios for emergency responders.	Goal 3	N/A
2	Hill	Wildfire	Continue grazing in sustainable areas with wild and domestic ungulates to reduce fuel loading and decrease potential wildfire intensity.	County Resources	County leases Beaver Creek Park land to ranchers for grazing.	Goal 3	Objective 3.1
2	Hill	Wildfire	Update Volunteer Fire Department PPE (turnouts) and obtain SCBA's.	Title 10 Grants	Have purchased some equipment with Title 10 grant funds.	Goal 3	N/A
2	Hill	Wildfire	Develop GPS database of water sources for distribution and inclusion in County and municipality fire apparatus.	County Resources	Completed rural addressing and mosquito district mapping. Water supply database will utilize these resources for development.	Goal 3	N/A
2	Hill	Wildfire	Implement fuel reduction measures along highways, at communication sites, and on the perimeter and within communities by cutting or mowing where feasible.	County Resources	County and state road departments are doing this.	Goal 3	Objective 3.1
2	Hill	Wildfire	With cooperators, provide classroom or video fire suppression training for rural area citizens and County employees who will respond to wildland fires.	County Resources	On 2/4/2012 training was held in Rudyard and Gildford with 70 participants.	Goal 3	Objective 3.2
2	Hill	Wildfire	Utilize County and cooperators expertise for GPS training. Provide incentive for fire fighters and emergency services personnel to attend this training. Practice until proficient with County GPS units.	County Resources	Some GPS units are now available. More training needed.	Goal 3	Objective 3.3
2	Hill	Wildfire	Construct fast fill water station north of Kremlin to reduce distance trucks have to travel to fill during fires.	County Resources	Stand pipes associated with the new water system provide adequate supplies for firefighting.	Goal 3	N/A
2	Hill	Flooding	Replace culverts with bridges to mitigate impacts from spring runoff.	County Resources	Replaced DeMontiney Bridge on Box Elder Creek with a new bridge.	Goal 4	Objective 4.2
2	Hill	Dam Failure	Investigate ways to mitigate spring leak at Beaver Creek Dam.	County Resources	The County has put in a berm on the face of the dam and monitoring wells. The guardian gate has been fixed.	Goal 11	Objective 11.1
2	Hill	All Hazards	Designate emergency shelters and increase public awareness on shelters.	Salvation Army	Salvation Army has identified additional facilities.	Goal 1	N/A
2	Hill	All Hazards	Coordinate with State Regional DES and Federal partners for scheduling and attendance at Incident Command System (ICS) 100/200 and/or IS 700 or State of Montana DES training.	County Resources	Annual training offered and attendance encouraged.	Goal 1	N/A
2	Hill	All Hazards	Upgrade sirens in Havre and Hingham.	County Resources	Repaired, maintained, and tested sirens. Still need to coordinate with secondary dispatch for activation.	Goal 1	Objective 1.2
2	Hill	All Hazards	Obtain portable repeaters to use during emergencies.	County Resources	Replaced several repeaters but still need to obtain a mobile unit.	Goal 1	N/A
2	Liberty	2007 PLAN - NO UPDATE	Completed projects not identified.				
2	Pondera	All-Hazards	Completed Pondera County Growth Policy which included land use policies.	County Resources		N/A	N/A

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District	**County**	**Hazard**	**Mitigation Project**	**Funding Source**	**Details**	**State Mitigation Goal**	**State Mitigation Objective**
2	Pondera	Drought	Secure potable water supplies for the communities of Conrad and Valier.	County.City Resources		Goal 10	N/A
2	Rocky Boys Reservation	Dam Failure	Agency Dam removed	Tribal Resources		Goal 11	Objective 11.1
2	Teton	2006 PLAN - NO UPDATE	Completed projects not identified.				
2	Toole	2007 PLAN - NO UPDATE	Completed projects not identified.				
3	Beaverhead	All Hazard	Beaverhead County has taken an active role in the 15-90 Consortium and Interoperability Montana Project.	County Resources		Goal 1	
3	Beaverhead	All Hazard	Enhanced 911 was implemented in the county and addressing continues.	County Resources		Goal 1	Objective 1.2
3	Beaverhead	All Hazard	The City of Dillon became a National Weather Service Storm Ready community.	City of Dillon Resources		Goal 1	Objective 1.1
3	Beaverhead	All Hazard	NOAA Weather Radios were promoted in the county. Each school received a radio.	County Resources/School District		Goal 1	Objective 1.2
3	Beaverhead	Flooding	Bridges and culverts at risk from flooding are being upgraded in Dillon.	PDMC	Engineering work is completed, and construction on two bridges a nd the stream bed will begin in the fall of 2009. The total project c osts are projected at $2 million.	Goal 4	Objective 4.2
3	Beaverhead	Flooding	An automatic stream gauge was installed on Grasshopper Creek.	US BOR/Montana FWP		Goal 4	Objective 4.2
3	Beaverhead	Flooding	In 2005, Beaverhead County, in coordination with the three other counties of the Big Hole Watershed, conducted a study called the BIg Hole River Inundation Potential Mapping and Channel Migration Zone Deliniation Report.	County Resources	This report is now a floodplain guiding document for the County	Goal 4	Objective 4.1
3	Beaverhead	Flooding	The 3rd Avenue bridge in Lima prone to flood damages is being replaced.	Treasure State Endowment Program Grant		Goal 4	Objective 4.2
3	Beaverhead	Wildfire	A countywide CWPP was completed in 2005. Specific plans for the Wise River area were a dded by the US Forest Service in 2007.	U.S. Forest Service		Goal 3	Objective 3.3
3	Beaverhead	Wildfire	Wildland urban interface plans are being developed.	BLM		Goal 3	Objective 3.3
3	Beaverhead	Wildfire	Fuel mitigation work has been done by the US Bureau of Land Management.	BLM		Goal 3	Objective 3.1
3	Beaverhead	Wildfire	A cost share program was made available for fuel reducgtions by private landowners.		2005 = 1 project completed, 2006 = 6 projects completed, 2007 = 2 projects completed, 2008 = 26 projects completed, 2009 = 2 projects completed (as of 7.2009). In total, about $75,000 has been spent on these fuel reduction projects.	Goal 3	Objective 3.1
3	Beaverhead	Drought	Beaverhead County has established a Drought Task Force that meets monthly (except Nov-Feb).			Goal 10	Objective 10.1
3	Broadwater	Wildfire	Continued participation in Tri-County Fire Safe Working Group and residents eligible for fuels reduction grant funds (50% cost share).	Landowners/National Fire Plan & BLM Grants		Goal 3	Objective 3.1
3	Broadwater	Wildfire	Missouri River Resource Advisory Committee has conducted, through the Helena National Forest, several fuel reduction and management projects to reduce the wildfire hazard in and around the Helena National Forest.	U.S. Forest Service/National Fire Plan Grants		Goal 3	Objective 3.1
3	Broadwater	Weather	Broadwater School received a NOAA Weather Radio	School District Resources		Goal 6 & 7	Objective 1.2
3	Broadwater	Flooding	County floodplain ordinance was updated in 2006 and now permits are being issued and enforced.	County Resources		Goal 4	Objective 4.4
3	Broadwater	All Hazards	A local radio station (KDGZ) can now provide emergency information to residents.	County Resources		Goal 1	Objective 1.2
3	Broadwater	All Hazards	Significant work has been done in developing GIS data and improving rural addressing	County Resources		Goal 1	Objective 1.2
3	Gallatin	Dam Failure	Early warning on Hyalite Dam	County Resources	Completed in 2011.	Goal 1	Objective 1.2
3	Gallatin	Earthquake	Anchor transformers and generators.		Projects currently underway.	Goal 5	Objective 5.4
3	Gallatin	Earthquake	Earthquake retrofit education.	County Resources	Currently part of education campaign.	Goal 5	Objective 5.3
3	Gallatin	Flooding	Flood insurance education.	County Resources	Currently part of education campaign.	Goal 4	Objective 4.4
3	Gallatin	All Hazards	Critical infrastructure backup system/generators for critical facilities.	County Resources/HMGP	Many sites have been upgraded, some are currently being addressed with HMGP.	Goal 1	Objective 1.1
3	Gallatin	All Hazards	NWS Storm Ready Community	County Resources	Currently in place and expanding Sky Warn training.	Goal 1	Objective 1.1
3	Gallatin	All Hazards	Emergency Alert System Plan.	County Resources	Completed and will be ready for revision soon.	Goal 1	Objective 1.2
3	Gallatin	All Hazards	NOAA weather radios in critical facilities, West	County Resources.	Currently underway.	Goal 1	Objective 1.2
3	Jefferson	All Hazards	Development of a public alert FM radio system that can be used to reach all citizens during a hazard event.	County Resources		Goal 1	Objective 1.2
3	Jefferson	Wildfire	Various fuel reduction projects to protect infrastructure and create survivable space.	National Fire Plan Grants		Goal 3	Objective 3.1

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3	Jefferson	Wildfire	Public education program on wildfire mitigation.	Tri-County FireSafe Working Group		Goal 3	Objective 3.2
3	Lewis & Clark	Earthquake	Installed 3-mil shatterproof film on windows in the schools.	School District Resources		Goal 5	Objective 5.4
3	Lewis & Clark	Earthquake	Continued education program in the schools and communities on earthquake safety.	County Resources		Goal 5	Objective 5.2
3	Lewis & Clark	Wildfire	Completed numerous fuel reduction projects to protect infrastructure and create survivable space.	National Fire Plan/PDMC Grants		Goal 3	Objective 3.1
3	Lewis & Clark	Wildfire	Continued public education program on wildfire mitigation.	Tri-County FireSafe Working Group		Goal 3	Objective 3.2
3	Lewis & Clark	Flooding	Constructed new bridge in East Helena (Wylie Drive).	County Resources		Goal 4	Objective 4.2
3	Lewis & Clark	Flooding	Installation of larger culverts at several locations.	County Resources		Goal 4	Objective 4.2
3	Lewis & Clark	Flooding	Completed revision to the 1985 floodplains in the Helena Valley.	FEMA/DNRC		Goal 4	Objective 4.4
3	Lewis & Clark	All Hazards	Obtained status as a NWS Storm Ready Community.	County Resources		Goal 1	Objective 1.1
3	Lewis & Clark	Flooding	Enrollment in the NFIP Community Rating System.	County Resources		Goal 4	Objective 4.4
3	Madison	All Hazards	DES position was upgraded to a full-time position.	County/EMPG funding		Goal 2	Objective 2.1
3	Madison	All Hazards	Public education is regularly conducted through the county website and the weekly FireLine section in The Madisonian.	County Resources		Goal 1	Objective 1.3
3	Madison	Earthquake	Response procedures were outlined in the Disaster and Emergency Plan, Earthquake Annex, including self-mobilization.	Homeland Security/Counthy Resources		Goal 5	N/A
3	Madison	Hazardous Material	A Reverse-911 early warning system was purchased and implemented.	County Resources		Goal 1	Objective 1.2
3	Madison	Hazardous Material	Hospital staff were trained in reading hazaroud material placards.	Hospital Resources		Goal 1	Objective 1.3
3	Madison	Bio-Terrorism	County hired a full-time Public Health Department Administrator.	County Resources		Goal 8	Objective 8.1
3	Madison	Bio-Terrorism	County Public Health developed a database of providers with the ability to track weekly reports.	County Resources		Goal 8	Objective 8.1
3	Madison	Bio-Terrorism	County Public Health has a fully functional Health Alert Network.	County Resources		Goal 8	Objective 8.1
3	Madison	Bio-Terrorism	County Public Health developed MOUs with healthcare providers and institutions.	County Resources		Goal 8	Objective 8.1
3	Madison	Severe Weather	Phone trees were created for severe weather.	County Resources		Goal 1	Objective 1.2
3	Madison	Severe Weather	Emergency dispatch now broadcasts severe weather warnings to emergency responders.	County Resources		Goal 1	Objective 1.2
3	Madison	Severe Weather	A new emergency website was established.	County Resources		Goal 6 & 7	Objective 6.2 & 7.2
3	Madison	Flooding	In 2005, the Big Hole Planning Group (a 4 county group) developed 100-year flood inundation potential mapping and channel migration zone delineation for the Big Hole River.	Big Hole Planning Group		Goal 4	Objective 4.4
3	Madison	Wildfire	Work was done with the ranchlands group regarding living with wildfire.	County Resources		Goal 3	Objective 3.3
3	Madison	Wildfire	The U.S. Forest Service has done numerous fuels reduction and mitigaiton projects for wildfire.	National Fire Plan		Goal 3	Objective 3.1
3	Park	Flooding	Fleshman Creek Improvement Project: This project will increase channel capacity of a two-mile stretch of Fleshman Creek through Livingstone while rehabilitating the creek channel and riparian zone. Specifics include the upgrade of six culverts at stree/road crossings, installation of hydrodynamic separators at storm water outfalls, creation of wetlands along the creek channels, and relocation of water main, sewer, and electric overhead utilities. The project is designed to protect areas threatened by the 25-year flood.	PDMC Grant/DNRC R&D Grant/MFWP Future Fisheries Grant/National Fish & Wildfire Foundation Grant.	This project has brought together partners such as Trout Unlimited, National Fish and Wildlife Foundation, U.S. Fish and Wildfire Service, BLM, U.S. Forest Service. Although construction on this projegt has not started, final design work is expected soon.	Goal 4	Objective 4.2
3	Park	Flooding	The new Ninth Street Island Bridge was constructed in 2010.	PDMC/City-County Resources	Project has much improved water flow and flood conveyance.	Goal 4	Objective 4.2
3	Park	Flooding	Letters were sent to Ninth Street Island owners regarding acquisition opportunities and some interest was generated, but ultimate project implementation did not occur.			Goal 4	Objective 4.1
3	Park	Flooding	Conduct floodplain studies.	U.S. Army Corps of Engineers/ City of Livingston	Will be effective in October 2011.	Goal 4	Objective 4.4
3	Park	Flooding	The floodplain was mapped for the Town of Clyde Park and the town will be joining the National Flood Insurance Program in the spring of 2012.	FEMA/DNRC	Mapping will be effective October 18, 2011	Goal 4	Objective 4.4
3	Park	Flooding	New floodplain maps were created for Park County.	FEMA/DNRC	Mapping will be effective October 2011	Goal 4	Objective 4.4
3	Park	Flooding	Park County Floodplain Regulations were updated.	County Resources	Regulations were last updated in 1991.	Goal 4	Objective 4.4
3	Park	Flooding	The U.S. Army Corps of Engineers creased a Special Area Management Plan for the Upper Yellowstone River in April 2011. This plan addresses the cumulative effects of anthropogenic bank stabilization and flood confinement on the Upper Yellowstone River.	USACE	Will result in improvements to the USACE permitting process.	Goal 4	N/A

APPENDIX C - COMPLETED/ONGOING MITIGATION PROJECTS FROM LOCAL PDM PLANS/UPDATES							
District	**County**	**Hazard**	**Mitigation Project**	**Funding Source**	**Details**	**State Mitigation Goal**	**State Mitigation Objective**
3	Park	Flooding	In FY2009, the Yellowstone River Conservation District Council published a report entitles Yellowstone River Channel Mgration Zone, created associated mapping, and conducted workshops throughout the basin. The Council followed up with two more workshops and a BMP example.	Yellowstone River Conservation District Council		Goal 4	Objective 4.4
3	Park	Wildfire	CWPP completed in 2006 and updated in 2009.	BLM/County Resources		Goal 3	Objective 3.3
3	Park	Wildfire	Wildfire improvements to the Park County Subdivision Regulations made in 2007 and are being updated again.			Goal 3	N/A
3	Park	Wildfire	County created a FireSafe Coalition that promoted wildfire mitigation strategies at public events and developed public-private partnerships with insurance, real estate, construction, landscapers, and firefighters.	County Resources		Goal 3	Objective 3.2
3	Park	Wildfire	Over 39 fuels reduction projects were accomplished from 2006-2009, treating almost 97 acres (mostly residential and camp properties).	NRMRCD/MSU Extension		Goal 3	Objective 3.1
3	Park	Wildfire	U.S. Forest Service (Big Timer, Gardiner, Livingston RDs) accomplished over 3,000 acres of fuels reductions projects from 2006-2009.	U.S. Forest Service		Goal 3	Objective 3.1
3	Park	Wildfire	County Commissioner's authorized the hire of a temporary fire planner to "raise community awareness of the issues and solutions of living in the WUI" and deployed a website.	County Resources		Goal 3	Objective 3.2
3	Park	Earthquakes	As interstate and highway bridges have been and are being replace, MDT is constructing bridges to meet eartquake standards.	MDT		Goal 3	Objective 5.1
3	Park	Hazardous Material Incidents	Additional railroad crossing was studied and now funding is being generated for construction.	City of Livingston		Goal 9	Objective 9.1
3	Park	Communicable Disease	Disease public education campaigns have been conducted.	County Resources		Goal 8	Objective 8.1
3	Park	Communicable Disease	Local and regional healthcare groups established.	County Resources		Goal 8	Objective 8.1
3	Park	Communicable Disease	City-County Complex ventillation system was upgraded in 2010.	County Resources		Goal 8	Objective 8.1
3	Park	All Hazards	Risk assessment tool created for county website.	County Resources		Goal 1	Objective 1.3
3	Park	All Hazards	Back-up systems were created for emergency communications.	County Resources		Goal 1	Objective 1.1
3	Park	All Hazards	The North Repeater was protected from vandals.	County Resources		Goal 1	Objective 1.1
3	Park	All Hazards	A NOAA Weather Radio transmitter was installed in Livingston.	County Resources		Goal 1	Objective 1.2
3	Park	All Hazards	State of Montana developed a statewise Emergency Alert System Plan.	County Resources		Goal 1	Objective 1.2
3	Park	All Hazards	All schools in the county received NOAA weather radios.	County Resources		Goal 1	Objective 1.2
3	Park	All Hazards	GIS data has improved significantly since 2005.	County Resources		Goal 1	Objective 1.4
3	Sweetgrass	2007 PLAN - NO UPDATE	Completed projects not identified.				
4	Carter	All Hazard	Radios needed for all responders.	Grants	Implemented	Goal 1	N/A
4	Carter	All Hazard	Additional repeater towers.	Grants	Partially implemented.	Goal 1	Objective 1.2
4	Carter	All Hazard	Install booster repeaters.	Grants	Ongoing	Goal 1	Objective 1.2
4	Carter	All Hazard	Provide weather radios.	County Resources	Implemented	Goal 1	Objective 1.2
4	Carter	All Hazard	Use weather radio all hazard alert system.	County Resources	Implemented	Goal 1	Objective 1.2
4	Carter	All Hazard	Educate public on use of weather radio.	County Resources	Implemented	Goal 1	Objective 1.3
4	Carter	Wildfire	Provide education on defensible space.	County Resources	Partially implemented.	Goal 3	Objective 3.2
4	Carter	Wildfire	Educate the public of the value of the Fire Mitigation Plan.	County Resources	Implemented	Goal 3	Objective 3.2
4	Carter	Wildfire	Implement the Fire Mitigation Plan.	County Resources	Implemented	Goal 3	Objective 3.3
4	Carter	Winter Weather	Provide education for winter survival.	County Resources	Implemented	Goal 7	Objective 7.2
4	Carter	Winter Weather	Provide education on power outage survival.	County Resources	Partially implemented.	Goal 7	Objective 7.3
4	Carter	Summer Weather	Provide lightning storm education.	County Resources	Partially implemented.	Goal 6	Objective 6.2
4	Carter	Severe Weather	Provide basic weather observation.	County Resources	Implemented	Goal 6 & 7	Objective 6.2 & 7.2
4	Carter	Unknown	Upgrade water and sewer in Town of Ekalaka.	Grants?	Implemented	N/A	N/A
4	Carter	Unknown	Install sidewalks on east side of Main Street in Ekalaka.	Grants?	Implemented	N/A	N/A
4	Carter	All Hazard	Provide training room for First Responders.	County Resources	Implemented	Goal 1	N/A
4	Carter	Transportation Accidents	Pave remander of Highway 323.	Grants?	Implemented	N/A	N/A
4	Carter	Transportation Accidents	Develop a plan to improve all roads in County.	County Resources	Partially implemented.	N/A	N/A
4	Carter	Transportation Accidents	Procure more suitable gravel for roads.	County Resources	Partially implemented.	N/A	N/A
4	Carter	Transportation Accidents	Continue efforts to improve all weather travel in County.	County Resources	Partially implemented.	N/A	N/A
4	Custer	Flooding	Develop projects to address vulnerabilities.	City-County Resources	DFIRM adopted by Miles City.	Goal 4	Objective 4.4
4	Custer	Flooding	Implement actions to address problems.	City-County Resources	Miles City floodplain code updated in 2008.	Goal 4	Objective 4.4
4	Custer	Flooding	Clean out storm water system.	City-County Resources	Ongoing, Miles City.	Goal 4	Objective 4.2
4	Custer	Flooding	Determine ways to reduce flood insurance premiums.	City-County Resources	DFIRM adopted by Miles City.	Goal 4	Objective 4.4
4	Custer	Flooding	Public education about flood safety.	City-County Resources	Education during map adoption process.	Goal 4	Objective 4.3
4	Custer	Drought	Purchase drought monitoirng equipment.	City-County Resources	Participating in state monitoring.	Goal 10	Objective 10.1
4	Custer	Drought	Purchase soil moisture monitoring equipment.	City-County Resources	Participating in state monitoring.	Goal 10	Objective 10.1
4	Custer	Drought	Cooperate with agencies for education.	City-County Resources	Participating in state monitoring.	Goal 10	Objective 10.1
4	Custer	Winter Weather	Media spot for winter survival.	City-County Resources	On radio.	Goal 7	Objective 7.2

APPENDIX C - COMPLETED/ONGOING MITIGATION PROJECTS FROM LOCAL PDM PLANS/UPDATES							
District	County	Hazard	Mitigation Project	Funding Source	Details	State Mitigation Goal	State Mitigation Objective
4	Custer	Winter Weather	Print materials on winter survivial.	State Resources	Have state materials available.	Goal 7	Objective 7.2
4	Custer	Winter Weather	Winter survivial materials to care-givers.	State Resources	Have state materials available.	Goal 7	Objective 7.2
4	Custer	Severe Weather	Dispatch broadcast weather warnings.	City-County Resources	Periodically, ongoing.	Goal 6 & 7	Objective 6.2 & 7.2
4	Custer	Severe Weather	Weather radio purchase.	City-County Resources	County is storm ready.	Goal 1	Objective 1.2
4	Custer	Severe Weather	Broadcast weather warnings.	City-County Resources	As part of EAS.	Goal 1	Objective 1.2
4	Custer	Severe Weather	Weather spotter training.	NWS	Ongoing annually	Goal 1	Objective 1.3
4	Custer	Winter Weather	Identify and mark snow routes in Miles City.	City Resources	Priorities are designated.	Goal 7	Objective 7.1
4	Custer	Winter Weather	Public county snow removal priorities.	County Resources	County has policy for after storm priorities.	Goal 7	Objective 7.1
4	Custer	Hazardous Material	Work with BNSF on training opportunities.	BNSF Railroad	Ongoing, railroad safety program for locals.	Goal 9	N/A
4	Custer	All Hazards	Review existing agreements.	County Resources	Using state mutal aid agreement.	Goal 1	N/A
4	Custer	All Hazards	Offer training in after-action reports.	State Resources	DES exercises this.	Goal 1	N/A
4	Custer	All Hazards	Inventory communications systems.	County Resources	County has resource list. Consortium has addressed, but is outdated.	Goal 1	N/A
4	Custer	All Hazards	Implement actions to address problems in communications.	County Resources	Executed agreement to share frequencies.	Goal 1	N/A
4	Custer	All Hazards	Develop list of search and rescue resources.	County Resources	Covered in EOP.	Goal 1	N/A
4	Custer	All Hazards	Install communications.	County Resources	Initiated with purchase of mobile data terminals.	Goal 1	N/A
4	Custer	All Hazards	Plan for contintuity of government.	County Resources	Covered in EOP.	Goal 1	Objective 1.1
4	Custer	Wildfire	Complete fuel modification projects in subdivisions.	BLM	Partially done with BLM fuel mitigation grants.	Goal 3	Objective 3.3
4	Custer	Wildfire	Maintain fuel treatments	BLM	Ongoing	Goal 3	Objective 3.1
4	Custer	Wildfire	Explore opportunities to use prescribed fire.	County/State/BLM	Ongoing	Goal 3	Objective 3.1
4	Custer	Structure Fire	Cooperations between city and county to provide structural fire protection.	County Resources	Fire protection reorganized and now providing.	N/A	N/A
4	Custer	Structure Fire	Additional fire training.	County Resources	Have trained, need to stay current.	N/A	N/A
4	Custer	Structure Fire	Encourage firefighters to meet requirements.	County Resources	Need to stay current.	N/A	N/A
4	Custer	Wildfire	Improve lightning detection and GIS/GPS capability.	BLM	Ongoing	Goal 3	Objective 3.3
4	Custer	Wildfire	GPS fire perimeters.	County Resources	Done as needed.	Goal 3	Objective 3.3
4	Custer	Wildfire	Order County Assistance Team	County Resources	Done as needed.	Goal 3	N/A
4	Custer	All Hazards	Address addressing and signing issues.	County Resources	System in place.	Goal 1	Objective 1.2
4	Custer	All Hazards	Land use plans, regulations, and ordinances.	City-County Resources	County growth policy drafted.	Goal 1	N/A
4	Custer	Wildfire	Update agreements with cooperators.	County Resources	Fire protection reorganized.	Goal 3	N/A
4	Custer	Wildfire	Address wildland fire concerns in proposed subdivisions.	County Resources	Required for new subdivisions as per state law.	Goal 3	Objective 3.3
4	Dawson	2005 PLAN - NO UPDATE	Completed projects not identified.				
4	Fallon	Flooding	Enforce floodplain regulations.	County Resources	Ongoing	Goal 4	Objective 4.1
4	Fallon	Flooding	Floodplain information to the public.	County Resources	Ongoing	Goal 4	Objective 4.3
4	Fallon	Flooding	Develop floodplain policy.	County Resources	Ongoing	Goal 4	Objective 4.1
4	Fallon	Dam Failure	Develop Baker Lake spillway Maintenance Plan.	County Resources	Implemented	Goal 11	Objective 11.1
4	Fallon	Flooding	Replace City Shop bridge.	City Resources/Grant?	Implemented	Goal 4	Objective 4.2
4	Fallon	Flooding	Coordinate Highway 7 drainage project.	County Resources	Ongoing	Goal 4	Objective 4.2
4	Fallon	All Hazards	Install siren in Plevna.	County Resources	Implemented	Goal 1	Objective 1.2
4	Fallon	All Hazards	Install additional sirens in Baker.	County Resources	Implemented	Goal 1	Objective 1.2
4	Fallon	All Hazards	Purchase additional weather radios.	County Resources	Implemented	Goal 1	Objective 1.2
4	Fallon	Severe Weather	Education about severe weather.	County Resources	Implemented	Goal 6 & 7	Objective 6.2 & 7.2
4	Fallon	Severe Weather	Obtain better weather coverage.	County Resources	Implemented	Goal 6 & 7	Objective 6.1 & 7.1
4	Fallon	All Hazards	Back-up power for Plevna.	County Resources	Implemented	Goal 1	Objective 1.1
4	Fallon	Drought	Monitor drought conditions.	County Resources	Ongoing	Goal 10	Objective 10.1
4	Fallon	All Hazards	All hazards training facility.	County Resources	Partially implemented	Goal 1	N/A
4	Fallon	Wildfire	Coordination with oil companies.	County Resources	Partially implemented	Goal 3	N/A
4	Fallon	Wildfire	Additional monitor guns.	City Resources	Implemented in Plevna.	Goal 3	N/A
4	Fallon	Wildfire	Switch to DNRC standards.	County Resources	Implemented	Goal 3	N/A
4	Fallon	Wildfire	SCBA training and discipline.	County Resources	Partially implemented	Goal 3	N/A
4	Fallon	Wildfire	Implement E-911 reverse call-up.	County Resources	Implemented	Goal 1	Objective 1.2
4	Fallon	Wildfire	Annual recritment plan.	County Resources	Ongoing	Goal 1	N/A
4	Fallon	Wildfire	Firefighter recognition.	County Resources	Implemented	Goal 3	N/A
4	Fallon	Wildfire	Increase water storage.	County Resources	Implemented	Goal 3	N/A
4	Fallon	Wildfire	Install dry hydrants.	County Resources	Implemented	Goal 3	N/A
4	Fallon	Wildfire	Maintain remote water.	County Resources	Implemented	Goal 3	N/A
4	Fallon	Wildfire	Locate and construct Baker Fire Hall.	City Resources/Grant?	Implemented	Goal 3	N/A
4	Fallon	Wildfire	Fire danger signs.	County Resources	Partially implemented	Goal 3	Objective 3.2
4	Fallon	Wildfire	Recharage fire extinguishers/education.	County Resources	Implemented	Goal 3	Objective 3.2
4	Fallon	Wildfire	Assign reporting responsibility.	County Resources	Implemented	Goal 3	N/A
4	Fallon	Wildfire	Analyze data.	County Resources	Implemented	Goal 3	Objective 3.3
4	Fallon	Wildfire	Develop GIS capability.	County Resources	Implemented	Goal 3	Objective 3.3

APPENDIX C - COMPLETED/ONGOING MITIGATION PROJECTS FROM LOCAL PDM PLANS/UPDATES							
District	County	Hazard	Mitigation Project	Funding Source	Details	State Mitigation Goal	State Mitigation Objective
4	Fallon	Wildfire	Obtain handheld GPS units.	County Resources	Implemented	Goal 3	Objective 3.3
4	Fallon	Wildfire	Navigation systems for ambulances	County Resources	Implemented	Goal 3	N/A
4	Garfield	2007 PLAN - NO UPDATE	Completed projects not identified.				
4	McCone	2005 PLAN - NO UPDATE	Completed projects not identified.				
4	Powder River	2006 PLAN - NO UPDATE	Completed projects not identified.				
4	Prairie	Drought	Participate in Governor's Drought Advisory Committee	County Resources	Implemented	Goal 10	Objective 10.1
4	Prairie	Drought	Coordinate with major water suppliers, managers, and users to share information and plans for drought.	County Resources	Implemented	Goal 10	Objective 10.1
4	Prairie	Drought	Encourage and support efforts to increase efficiency of water distribution and water conservation (emphasis on agricultural use).	County Resources	Ongoing	Goal 10	Objective 10.3
4	Prairie	Drought	Provide education on water conservation measures to residents of the county and Town of Terry.	County Resources	Ongoing	Goal 10	Objective 10.3
4	Prairie	Winter Weather	Enforce road closures sooner so therre are few weather-related accidents and stranded travelers.	County Resources	Partially implemented	Goal 7	Objective 7.2
4	Prairie	Flooding	Initate steps to enter in the National Flood Insurance Program. Prairie County has been mapped, Town of Terry has not.	County Resources/DNRC/FEMA	Partially implemented	Goal 4	Objective 4.4
4	Prairie	All Hazards	Work with critical facilities and public building occupants to ensure each has working NOAA weather radios.	County Resources	Implemented	Goal 1	Objective 1.2
4	Prairie	All Hazards	Provide public education on various disaster, how to prepare and respone.	County Resources	Implemented	Goal 1	Objective 1.3
4	Prairie	All Hazards	Develop and EOC/disaster shelter at the new fire facility in Terry with its own water supply and back-up power.	County/City Resources	Partially implemented	Goal 1	N/A
4	Prairie	All Hazards	Improve ability to respond to disasters of all types by sharing issues with other counties in Montana.	County Resources	Implemented	Goal 1	N/A
4	Prairie	All Hazards	Conduct training exercises.	County Resources	Implemented	Goal 1	N/A
4	Prairie	All Hazards	Develop and practice evacuation plans.	County Resources	Implemented	Goal 1	N/A
4	Prairie	All Hazards	Consider continuity of important records and assess need to address problems associated with interruption of access to records.	County Resources	Implemented	Goal 1	Objective 1.1
4	Prairie	All Hazards	Inventory various equipment needed for emergencies.	County Resources	Implemented	Goal 1	N/A
4	Prairie	All Hazards	Assess emergency telecommunications capabilities.	County Resources	Implemented	Goal 1	N/A
4	Prairie	All Hazards	Provide generators where needed.	County Resources	Partially implemented	Goal 1	Objective 1.1
4	Prairie	All Hazards	Continue to improve communication among emergency providers.	County Resources	Implemented	Goal 1	N/A
4	Prairie	All Hazards	Work with cell phone providers to provide more cell phone service county-wide.	County Resources	Ongoing	Goal 1	N/A
4	Prairie	All Hazards	Update emergency services communications to digital sources.	County Resources	Partially implemented	Goal 1	N/A
4	Prairie	All Hazards	Continue to work on sirens.	County Resources	Partially implemented	Goal 1	Objective 1.2
4	Prairie	Communicable Disease	Examine need to expand the existing mosquito control area and consider need for a similar area around Prairie.	County Resources	Implemented	Goal 8	Objective 8.1
4	Prairie	Severe Weather	Work with electric cooperatives to install mechanisms to reduce line damage caused by undulating lines.	County Resources	Ongoing	Goal 6 & 7	Objective 6.1 & 7.1
4	Prairie	All Hazards	Identify and inventory back-up power sources for key facilities.	County Resources	Implemented	Goal 1	Objective 1.1
4	Prairie	All Hazards	Identify mechanisms to reduce health-related effects of power outages for especially vulnerable populations.	County Resources	Implemented	Goal 6 & 7	Objective 6.1 & 7.1
4	Prairie	All Hazards	Consider options for ensuring continued business operations for critical businesses.	County Resources	Implemented	Goal 1	Objective 1.1
4	Prairie	All Hazards	Consider options for using public facilities to temporarily house critical and vital business operatations.	County Resources	Implemented	Goal 1	N/A
4	Prairie	Wildfire	Continue the permit process for open burning.	County Resources	Implemented	Goal 3	N/A
4	Prairie	Wildfire	Continue to notify the public of fire dangers.	County Resources	Implemented	Goal 3	Objective 3.2
4	Prairie	Wildfire	Continue to recruit new volunteer fire members, as needed.	County Resources	Implemented	Goal 3	N/A
4	Richland	2005 PLAN - NO UPDATE	Completed projects not identified.				
4	Wibaux	2005 PLAN - NO UPDATE	Completed projects not identified.				
5	Big Horn	Drought	Identify options/mechanisms for improving supply.	County Resources	Crow Water Settlement	Goal 10	Objective 10.4
5	Big Horn	All Hazards	Qualify the county as a NOAA storm-ready community.	County Resources	Ongoing	Goal 1	Objective 1.1
5	Big Horn	All Hazards	Public education on preparing and responding to disasters.	County Resources	Ongoing-CERT	Goal 1	Objective 1.3
5	Big Horn	All Hazards	Regularly release information about disaster warning systems.	County Resources	Ongoing	Goal 1	Objective 1.3
5	Big Horn	All Hazards	Identify mechanism for safety response at major events, like Crow Fair.	County Resources	Yearly	Goal 1	N/A
5	Big Horn	All Hazards	Work with school systems on disaster prevention and education projects.	County Resources	Ongoing	Goal 1	Objective 1.3
5	Big Horn	All Hazards	Continue to use and consult other disaster plans and programs in area.	County Resources	Ongoing-EOP revised	Goal 1	Objective 1.4
5	Big Horn	All Hazards	Continue to coordinate with other agencies on rare but potentially catastrophic events (e.g., earthquake, volcanic events, dam failure, etc.).	County Resources	Ongoing	Goal 1	Objective 1.3

APPENDIX C - COMPLETED/ONGOING MITIGATION PROJECTS FROM LOCAL PDM PLANS/UPDATES							
District	**County**	**Hazard**	**Mitigation Project**	**Funding Source**	**Details**	**State Mitigation Goal**	**State Mitigation Objective**
5	Big Horn	All Hazards	Public information on importance of NOAA weather radios.	County Resources	Ongoing	Goal 1	Objective 1.3
5	Big Horn	All Hazards	Identify sources of assistance for NOAA weather radio acquisition, as necessary.	County Resources	Ongoing	Goal 1	Objective 1.2
5	Big Horn	All Hazards	Ensure critical facilities have working NOAA radios.	County Resources	In place, but not often used.	Goal 1	Objective 1.2
5	Big Horn	All Hazards	NOAA radio coverage to all Big Horn County communities.	County Resources	Completed	Goal 1	Objective 1.2
5	Big Horn	All Hazards	Continue to update emergency resource guide and inventory	County Resources	Ongoing	Goal 1	N/A
5	Big Horn	All Hazards	Develop an updatable GIS system	County Resources	Complete and ongoing	Goal 1	Objective 1.4
5	Big Horn	All Hazards	Evaluate county evacuation plan and update as necessary	County Resources	Complete-EOP revised	Goal 1	N/A
5	Big Horn	All Hazards	Regularly assess communications capabilities and address needed changes/improvements, as necessary.	County Resources	Ongoing, major investments	Goal 1	N/A
5	Big Horn	All Hazards	Review and update as necessary emergency response procedures for various disasters in public places.	County Resources	Complete-EOP revised	Goal 1	N/A
5	Big Horn	All Hazards	Create Community Emergency Response Teams.	County Resources	Completed, ongoing	Goal 1	N/A
5	Big Horn	Winter Weather	Identify and publicize snow routes.	County Resources	Roads all signed	Goal 7	Objective 7.2
5	Big Horn	Winter Weather	Information to potential and existing homeowners about winter road conditions and other factors that can affect disaster response in winter storm conditions.	County Resources	Ongoing	Goal 7	Objective 7.2
5	Big Horn		Continue to provide for livestock and animals in emergency response plans	County Resources	Revised EOP, ESF 11	Goal 1	N/A
5	Big Horn	Flooding	Work to complete the FEMA FIRM floodplain maps for the entire county.	DNRC/FEMA	Not complete on Reservation.	Goal 4	Objective 4.4
5	Big Horn	Flooding	Examine potential impacts of flushing flows to existing and future development along the Big Horn River.	County/Bureau of Reclamation	Ongoing with BOR	Goal 4	N/A
5	Big Horn	Flooding	Identify and implement options to reduce impacts to new and existing development in high hazard flood areas.	County Resources	Ongoing. Case by case.	Goal 4	Objective 4.1
5	Big Horn	Flooding	Identify and address potential impacts of flooding on water supply and waste water systems.	County Resources	Identified by flooding.	Goal 4	Objective 4.2
5	Big Horn	Flooding	Assess and address storm drainage issues in Hardin.	City/County Resources	Identified - not mitigated.	Goal 4	Objective 4.2
5	Big Horn	Flooding	Assess and address storm drainage issues in Lodge Grass	City/County Resources	Project in planning stages.	Goal 4	Objective 4.2
5	Big Horn	Flooding	Assess and address storm drainage and flood issues along roadways in the county.	FEMA	FEMA mitigation projects.	Goal 4	Objective 4.2
5	Big Horn	Dam Failure	Continue to test emergency response for dam failure.	County Resources	Better communication with BOR, but no test.	Goal 11	Objective 11.1
5	Big Horn	All Hazards	Identify naturally occurring high hazard areas.	County Resources	Not addresses except case by case.	Goal 1	Objective 1.4
5	Big Horn	All Hazards	Identify back-up power for critical facilities.	County Resources	Ongoing in county facilities.	Goal 1	Objective 1.1
5	Big Horn	All Hazards	Maintain inventory of portable generators.	County Resources	One trailer mount. Several small generators. Strategic plans for updating communications sites.	Goal 1	Objective 1.1
5	Big Horn	Wildfire	Involve public and private (e.g., coal mines, oil and gas) in stakeholder groups and planning for response.	County Resources	County meets informally with land owners on an ongoing basis. This is an ongoing project.	Goal 3	N/A
5	Big Horn	Wildfire	Hold an annual workshop.	County Resources	This occurs informally. This is an ongoing project.	Goal 3	N/A
5	Big Horn	Wildfire	Secure adequate public water supplies, including hydrants. Address specific needs of Lodge Grass, Fort Smith, Busby, Muddy Cluster, Rosebud, Eagle Feather, Wyola, Pryor, Crow Agency, St. Xavier.	County Resources	Ft. Smith is getting a new water system. Hydrants are checked annually in Hardin. Muddy Cluster has new water piped from Lame Deer. Pryor hydrants are checked and are functioning. DES has a map of all hydrants. Ongoing project.	Goal 3	N/A
5	Big Horn	Wildfire	Equip water supplies with standardized connections.	County Resources	Hardin and Crow Reservation are OK. Need to monitor. This is an ongoing project.	Goal 3	N/A
5	Big Horn	Wildfire	Provide information on the access requirements for firefighting equipment to homeowners throughout the county.	County Resources	Ongoing project with DES and Beartooth RC&D.	Goal 3	N/A
5	Big Horn	Wildfire	Encourage homeowners to work with fire departments to provide adequate access.	County Resources	There are some subdivisions within the reservations that the county does not hear about or review. County and tribes need to work together. Ongoing project.	Goal 3	N/A
5	Big Horn	Wildfire	Annually review equipment and identify gaps.	County Resources	Accomplished during annual interagency meetings. Ongoing.	Goal 3	N/A
5	Big Horn	Wildfire	Continue to work to identify funding sources.	County Resources	Ongoing. Need funding for apparatus.	Goal 3	N/A
5	Big Horn	Wildfire	Continue to provide training.	County Resources	Turnover means that new employees are always in need of training. Ongoing project.	Goal 3	N/A
5	Big Horn	Wildfire	Continue to assure adequate gear and communications upgrades as necessary.	County Resources	Narrow band required 1/1/2013. Need funding. County participating in MT Interoperability Comm program. Plan under development. Ongoing project.	Goal 3	N/A
5	Big Horn	Wildfire	Develop a detailed map of critical infrastructure and other information for firefighting.	County Resources	Study completed. Mapping ongoing. Need new project to upgrade radio towers/sites and plan for replacement of repeaters.	Goal 3	N/A

APPENDIX C - COMPLETED/ONGOING MITIGATION PROJECTS FROM LOCAL PDM PLANS/UPDATES							
District	**County**	**Hazard**	**Mitigation Project**	**Funding Source**	**Details**	**State Mitigation Goal**	**State Mitigation Objective**
5	Big Horn	Wildfire	Information and education about personal safety in wildfire situation.	State/Federal Agencies	Done by state and federal entities. Ongoing project..	Goal 3	Objective 3.2
5	Big Horn	Wildfire	Make sure steps to report a fire are clear to the public.	County Resources	County provides info with burn permits. Ongoing.	Goal 3	Objective 3.2
5	Big Horn	Wildfire	Annually provide a workshop for individuals who may find themselves as first responders to fire.	County Resources	This is done on an "as requested" basis. Ongoing.	Goal 3	N/A
5	Big Horn	Wildfire	Continue to mow and/or plow firebreaks around communities at risk.	County Resources	Ongoing. Lodge Grass has used grazing effectively for this.	Goal 3	Objective 3.1
5	Big Horn	Wildfire	Continue to mow along roads.	County Resources	Ongoing.	Goal 3	Objective 3.1
5	Big Horn	Wildfire	Assess need for fire breaks around communication facilities and implement as necessary.	County Resources	Ongoing annually.	Goal 3	N/A
5	Big Horn	Wildfire	Continue to implement actions for Muddy Cluster in the Northern Cheyenne Hazard Mitigation Plan.	Northern Cheyene Tribe/ County	Northern Cheyenne the lead on this. Continue to work with them.	Goal 3	N/A
5	Big Horn	Wildfire	Continue to implement actions in Crow Fire Management Plan.	Crow Tribe/County	Crow Tribe the lead on this. Continue to work with them.	Goal 3	Objective 3.1
5	Big Horn	Wildfire	Address fuel build-up and un-managed fuels in Lodge Grass.	County Resources	Ongoing. Lodge Grass has used grazing to manage fuels.	Goal 3	Objective 3.1
5	Big Horn	Wildfire	Identify and address hazard areas along the Big Horn River.	County Resources	Ongoing for Rainbow Subdivision.	Goal 3	Objective 3.1
5	Big Horn	Wildfire	Work with landowners and residents in other areas of the county to identify other specific areas of fuel build-up and means to address.	County Resources	Ongoing, include Pine Ridge and Sarpy areas.	Goal 3	Objective 3.1
5	Big Horn	Wildfire	Work with BNSF to mow or reduce fuel-build up with prescribed burns.	County Resources	Ongoing as able.	Goal 3	Objective 3.1
5	Big Horn	Wildfire	Programs for school-age children to prevent fire experimentation and arson.	County Resources	Hardin F.D. does this. Ongoing.	Goal 3	Objective 3.2
5	Big Horn	Wildfire	Education to make properties defensible, and on understanding wildfire, and role of wildfire (or other disturbance) in long-term land health/productivity.	County Resources	Articles and handouts. Ongoing.	Goal 3	Objective 3.2
5	Big Horn	Wildfire	Sponsor community clean up day or other special events.	County Resources	Community clean-up days in Lodge Grass and Crow Agency. Ongoing.	Goal 3	Objective 3.1
5	Big Horn	Wildfire	Review subdivision applications to make sure they meet fire requirements.	County Resources	Ongoing.	Goal 3	N/A
5	Big Horn	Wildfire	Publication informing new and existing residents about wildfire issues and response times.	County Resources	Completed. Placed information on county website.	Goal 3	Objective 3.2
5	Big Horn	Wildfire	Continue to work with landowners and others on incident basis to protect sites.	County Resources	Ongoing	Goal 3	Objective 3.1
5	Carbon	Winter Weather	Assist utilities in snow removal to restore power.	County Resources	Ongoing	Goal 7	Objective 7.1
5	Carbon	Winter Weather	Support preparation of utility Emergency Restoration plans	Utilities	Plans have been done by utilities	Goal 7	N/A
5	Carbon	Winter Weather	Utilize new communications trailer	County Resources	Trailer was used for Cascade Fire and law enforcement incident	Goal 7	N/A
5	Carbon	Winter Weather	Pursue improved cellular communications in Clarks Fork Valley	Cell Phone Providers	Completed. Three new towers have been erected	Goal 7	N/A
5	Carbon	Winter Weather	Continue to issue storm warnings	County Resources	Ongoing	Goal 7	Objective 7.2
5	Carbon	Winter Weather	Add a repeater at Bridger	County Resources	Completed	Goal 7	N/A
5	Carbon	Winter Weather	Distribute winter storm information to new residents	County Resources	Initiated. County working on emergency notification system.	Goal 7	Objective 7.2
5	Carbon	Winter Weather	Publish county snow removal priorities annually	County Resources	Ongoing. County has developed and posted a map.	Goal 7	Objective 7.2
5	Carbon	Summer Weather	Assess tree hazards and contract a faller	County Resources	City of Red Lodge has completed hazard tree inventory for public ROWs.	Goal 6	Objective 6.1
5	Carbon	Summer Weather	Educate the public to report trees down on power lines	County Resources	Ongoing by Northwestern Energy.	Goal 6	Objective 6.2
5	Carbon	Summer Weather	Brochures for building material and practices to avoid wind damage	County Resources	Ongoing in Red Lodge through building inspector	Goal 6	Objective 6.2
5	Carbon	Summer Weather	Sponsor weather spotter training	County Resources	Ongoing. Annually	Goal 6	Objective 6.2
5	Carbon	Summer Weather	Enforce Red Lodge building codes	County Resources	Ongoing	Goal 6	N/A
5	Carbon	Hazardous Material	Obtain hazmat training	County Resources	Completed. Several classes	Goal 9	N/A
5	Carbon	Hazardous Material	Review agreements for hazmat response	County Resources	Ongoing	Goal 9	N/A
5	Carbon	Hazardous Material	Update/execute new hazmat response agreements as needed	County Resources	Ongoing	Goal 9	N/A
5	Carbon	Dam Failure	Educate citizens about dam failure warning system	County Resources	Completed for Glacier Lake Dam	Goal 1	Objective 1.2
5	Carbon	Flooding	Provide information about building in the flood plain	FEMA/County	Ongoing by county floodplain administrator	Goal 4	Objective 4.3
5	Carbon	Flooding	Invite the NWS to make a presentation on flooding	NWS	Completed. Presentation in Joliet, spring 2011 flooding.	Goal 4	Objective 4.3
5	Carbon	Flooding	Maintain network of flood watchers	County Resources	Ongoing. County purchased monitoring equipment.	Goal 1	Objective 1.2
5	Carbon	Flooding	Broadcast weather warnings through dispatch	County Resources	Ongoing as conditions dictate	Goal 1	Objective 1.2
5	Carbon	Flooding	Develop a storm drainage plan for Red Lodge	County Resources	Ongoing with City and MDT	Goal 4	Objective 4.2
5	Carbon	Flooding	Address drainage problem at Cedarwood Villa Nursing Home	County Resources	New sidewalk. Problem not solved.	Goal 4	Objective 4.2
5	Carbon	Flooding	Work with FEMA to study floodplain delineations	DNRC/FEMA	Ongoing. Draft DFIRMS prepared, published in Federal Register.	Goal 4	Objective 4.4

APPENDIX C - COMPLETED/ONGOING MITIGATION PROJECTS FROM LOCAL PDM PLANS/UPDATES							
District	**County**	**Hazard**	**Mitigation Project**	**Funding Source**	**Details**	**State Mitigation Goal**	**State Mitigation Objective**
5	Carbon	Flooding	Produce maps of revised floodplains as appropriate	DNRC/FEMA	Ongoing	Goal 4	Objective 4.4
5	Carbon	All Hazards	Implement E-911, reverse calling	County Resources	Ongoing	Goal 1	Objective 1.2
5	Carbon	Dam Failure	Devise warning system for failure of Glacier Lake Dam	County Resources	Ongoing. County purchased equipment.	Goal 1	Objective 1.2
5	Carbon	Dam Failure	Devise warning system for failure of Cooney Reservoir	County Resources	Completed. Evacuation plan written, distributed.	Goal 1	Objective 1.2
5	Carbon	Flooding	Maintain sand bag supplies	County Resources	Ongoing	Goal 4	N/A
5	Crow Reservation	2007 PLAN - NO UPDATE AVAILABLE	Completed projects not identified.				
5	Golden Valley	2007 PLAN - NO UPDATE	Completed projects not identified.				
5	Musselshell	2007 PLAN - NO UPDATE	Completed projects not identified.				
5	No. Cheyene Reservation	2006 PLAN - NO UPDATE AVAILABLE	Completed projects not identified.				
5	Rosebud		Not included in PDF version of final Plan; however, cover sheet indicates that Appendix H contains this information				
5	Stillwater		Not included in PDF version of final Plan; however, cover sheet indicates that Appendix H contains this information				
5	Treasure		Not included in PDF version of final Plan; however, cover sheet indicates that Appendix H contains this information				
5	Wheatland	2007 PLAN - NO UPDATE	Completed projects not identified.				
5	Yellowstone	Flooding	Floodplain Awareness	County Resources	Ongoing education	Goal 4	Objective 4.3
5	Yellowstone	Wildfire	Firewise	County Resources	Ongoing Fire Council Project Activities	Goal 3	Objective 3.2
5	Yellowstone	Severe Weather	High Winds Awareness	County Resources	Ongoing education	Goal 6 & 7	Objective 6.2 & 7.2
5	Yellowstone	Severe Weather	Weather Awareness	County Resources	Ongoing education	Goal 6 & 7	Objective 6.2 & 7.2
5	Yellowstone	Flooding	Highway 87/Alkali Creek Crossing Improvement	County Resources	Project Completed: New pedestrian underpass addresses flooding problems	Goal 4	Objective 4.2
5	Yellowstone	Flooding	Storm Drain-Laurel	County Resources	2002 Mitigation Plan addressed problems	Goal 4	Objective 4.2
5	Yellowstone	Wildfire	Rural Dry Hydrants	County Resources	County Subdivision regulations modified to require dry hydrants in areas lacking central water systems with fire pressure	Goal 3	N/A
5	Yellowstone	Wildfire	Wildland Fire Mapping	BLM/County Resources	Addressed in CWPP, continues to monitor development and new areas of risk	Goal 3	Objective 3.3
5	Yellowstone	Wildfire	Firewise Demonstration Houses	County Resources	Three Firewise Demonstration Homes completed, none scheduled for work at this time	Goal 3	Objective 3.2
5	Yellowstone	Wildfire	Wise Building Practices	County Resources	Literature available in Big Sky Economic Development Business Library, and Public Library	Goal 3	Objective 3.2
5	Yellowstone	Flooding	Resolution of Clarks Camp problem	County Resources	Completed	Goal 4	Objective 4.2
5	Yellowstone	Flooding	Floodplain Mapping	County Resources	Map Modernization Complete, being adopted	Goal 4	Objective 4.4
5	Yellowstone	Flooding	New Floodplain Regulations	County Resources	Map Modernization Complete, being adopted	Goal 4	Objective 4.4
5	Yellowstone	Wildfire	Subdivision Disaster Planning	County Resources	Subdivision Regulations have been modified to address ingress/egress issues.		N/A
5	Yellowstone	All Hazards	School Safety Education	County Resources	Ongoing Education: School district participate in table top and full scale disaster drills with LEPC	Goal 1	Objective 1.3
5	Yellowstone	All Hazards	School Violence Prevention	County Resources	Ongoing Education	Goal 1	Objective 1.3
5	Yellowstone	All Hazards	Wise Building Practices	County Resources	Literature available in Big Sky Economic Development Business Library, and Public Library	Goal 1	Objective 1.3
5	Yellowstone	All Hazards	Hazard Identification/Comprehensive Planning/GIS	County Resources	PDM plan, review yearly, update as needed.	Goal 1	Objective 1.4
5	Yellowstone	All Hazards	Emergency Shelters	County Resources	Mapping shelters is complete.	Goal 1	N/A
6	Daniels	All Hazards	Daniels County is part of the Northern Tier emergency communications group.	County Resources	Completed between 2003 and 2008.	Goal 1	Objective 1.2
6	Daniels	All Hazards	Public health and the hospital are working on contingency plans for medical patients.	County Resources	Completed between 2003 and 2008.	Goal 1	N/A
6	Daniels	All Hazards	A medical cache for the region has been developed in Glasgow.	County Resources	Completed between 2003 and 2008.	Goal 1	N/A
6	Daniels	Flooding	The Montana Department of Transportation replaced two culverts between Opheim and S cobey.	County Resources	Completed between 2003 and 2008.	Goal 4	Objective 4.2
6	Daniels	All Hazards	Daniels County is working on Enhanced 911.	County Resources	Completed between 2003 and 2008.	Goal 1	Objective 1.2
6	Daniels	All Hazards	NOAA Weather Radios have been placed in all of the schools.	County Resources	Completed between 2003 and 2008.	Goal 1	Objective 1.2
6	Daniels	All Hazards	The Community Collaborative Rain, Hail and Snow program was implemented.	County Resources	Completed between 2003 and 2008.	Goal 6 & 7	Objective 6.2 & 7.2
6	Daniels	All Hazards	The Emergency Alert System is being expanded for more all-hazard capabilities, including A mber Alerts, Missing Person's Alerts, and many other non-weather related hazard alerts.	County Resources	Completed between 2003 and 2008.	Goal 1	Objective 1.2

APPENDIX C - COMPLETED/ONGOING MITIGATION PROJECTS FROM LOCAL PDM PLANS/UPDATES							
District	County	Hazard	Mitigation Project	Funding Source	Details	State Mitigation Goal	State Mitigation Objective
6	Daniels	Wildfire	The City of Scobey is implementing a zoning ordinance requiring residents to cut grass on t heir property to reduce the wildfire hazard.	County Resources	Completed between 2003 and 2008.	Goal 3	Objective 3.1
6	Daniels	Hazardous Material Incidents	The US Border Patrol has built a new facility and increased capabilities along the Canadian border.	County Resources	Completed between 2003 and 2008.	Goal 9	N/A
6	Daniels	Communicable Disease	Public health now has active disease surveillance.	County Resources	Completed between 2003 and 2008.	Goal 8	Objective 8.1
6	Daniels	Communicable Disease	Public health has developed and implemented policies and procedures to reduce disease o utbreaks.	County Resources	Completed between 2003 and 2008.	Goal 8	Objective 8.1
6	Fergus		Not included in PDF version of final Plan; however, cover sheet indicates that Appendix H contains this information				
6	Fort Peck Reservation	All Hazards	Purchase mobile generators	Tribal Resources	Completed In 2009	Goal 1	Objective 1.1
6	Fort Peck Reservation	All Hazards	Provide training for first responders	Tribal Resources	Completed on a yearly basis	Goal 1	N/A
6	Fort Peck Reservation	Flooding	Improve storm water system along Hwy 2 in Wolf Point and south side of town (wolf point)	Tribal Resources	Completed in 2011	Goal 4	Objective 4.2
6	Fort Peck Reservation	Flooding	Perform floodplain mapping (Reserve)	Tribal Resources	Completed in 2011	Goal 4	Objective 4.4
6	Fort Peck Reservation	All Hazards	Upgrade siren systems in all communities	Tribal Resources	Completed in 2005	Goal 1	N/A
6	Fort Peck Reservation	All Hazards	Purchase weather radios for critical facilities and provide at discount to rural residents	Tribal Resources	Completed in 2005	Goal 1	Objective 1.2
6	Fort Peck Reservation	All Hazards	Become a StormReady Community	Tribal Resources	Completed in 2005	Goal 1	Objective 1.1
6	Fort Peck Reservation	Terrorism	Install fencing and alarm system at water treatment plant and water supply wells.	Tribal Resources	Completed in 2010	Goal 13	Objective 13.1
6	Fort Peck Reservation	Wildfire	Institute weed control measures (mowing) along railroad.	Tribal Resources	Completed on a yearly basis	Goal 3	Objective 3.1
6	Fort Peck Reservation	Wildfire	Negotiate over haying on CRP land	Tribal Resources	Completed on a yearly basis	Goal 3	Objective 3.1
6	Judith Basin	2007 PLAN - NO UPDATE	Completed projects not identified.				
6	Petroleum	Wildfire	A comprehensive Wildland Urban Interface Wildfire Mitigation Plan was developed in 2004 .	County Resources	Completed between 2003 and 2008.	Goal 3	Objective 3.3
6	Petroleum	Wildfire	The Winnett Volunteer Fire Department provided wildfire defensible space and smoke alar m education to the public.	County Resources	Completed between 2003 and 2008.	Goal 3	Objective 3.2
6	Petroleum	Wildfire	Fire department training and recruitment was increased substantially.	County Resources	Completed between 2003 and 2008.	Goal 3	N/A
6	Petroleum	Wildfire	A new Montana Department of Natural Resources and Conservation (DNRC) fire engine wa s placed in the county.	County Resources	Completed between 2003 and 2008.	Goal 3	N/A
6	Petroleum	Severe Weather	A generator and shelter were installed at the County Courthouse/EOC/Sheriff's Office in 20 05.	County Resources	Completed between 2003 and 2008.	Goal 1	Objective 1.1
6	Petroleum	Severe Weather	A NOAA Weather Radio transmitter was placed in Winnett.	County Resources	Completed between 2003 and 2008.	Goal 6 & 7	Objective 1.2
6	Petroleum	Severe Weather	Petroleum County was designated a National Weather Service StormReady community.	County Resources	Completed between 2003 and 2008.	Goal 6 & 7	Objective 1.1
6	Petroleum	Severe Weather	A NOAA Weather Radio has been placed in the school.	County Resources	Completed between 2003 and 2008.	Goal 6 & 7	Objective 1.2
6	Petroleum	Severe Weather	The Town of Winnett Director of Public Works has coordinated efforts with the Petroleum County Road Department for snow and debris management during severe weather. The di rectors will continue to develop cooperative working relations with local utilities for debris management during severe weather.	County Resources	Completed between 2003 and 2008.	Goal 6 & 7	Objective 6.1 & 7.1
6	Petroleum	Severe Weather	The Town of Winnett Director of Public Works is gathering current information and require ments from the Montana Department of Environmental Quality to upgrade the town's chl orination system that is currently at risk from severe weather conditions.	County Resources	Completed between 2003 and 2008.	Goal 6 & 7	Objective 6.1 & 7.1
6	Petroleum	Severe Weather	Petroleum County and the Local Emergency Planning Committee conducted a Storm Warni ng School on April 26, 2005 in Winnett. The school certified 'storm watchers" and taught s evere weather mitigation to class participants and the public.	County Resources	Completed between 2003 and 2008.	Goal 6 & 7	Objective 6.2 & 7.2
6	Petroleum	Severe Weather	Petroleum County received 35 NOAA Weather Radios for emergency crews.	County Resources	Completed between 2003 and 2008.	Goal 6 & 7	Objective 1.2

APPENDIX C - COMPLETED/ONGOING MITIGATION PROJECTS FROM LOCAL PDM PLANS/UPDATES							
District	**County**	**Hazard**	**Mitigation Project**	**Funding Source**	**Details**	**State Mitigation Goal**	**State Mitigation Objective**
6	Petroleum	Severe Weather	Petroleum County received the original air strip from the town. The air strip was revitalized and is recognized as an Established Air Port. The 'north county' airstrip has been re-graded to accommodate emergency landings for search and rescue.	County Resources	Completed between 2003 and 2008.	Goal 7	N/A
6	Petroleum	Severe Weather	A garage was built behind the courthouse to house emergency vehicles.	County Resources	Completed between 2003 and 2008.	Goal 6 & 7	N/A
6	Petroleum	Severe Weather	A new ambulance was purchased using a variety of funding sources.	County Resources	Completed between 2003 and 2008.	Goal 6 & 7	N/A
6	Petroleum	Drought	The local Montana Department of Natural Resources and Conservation (DNRC) and the Petroleum County Conservation District have assumed the responsibilities of tracking drought conditions and formulating mitigation strategies in Petroleum County.	County Resources	Completed between 2003 and 2008.	Goal 10	Objective 10.1
6	Petroleum	Drought	The Town of Winnett Director of Public Works has developed a water resources mitigation plan for the town. The town has installed an underground sprinkler system for the town park and town hall lawn.	County Resources	Completed between 2003 and 2008.	Goal 10	Objective 10.3
6	Phillips	Wildfire	Obtain digital radios for fire fighters.	County Resources	Several digital radios have been acquired for fire fighters but more are needed.	Goal 3	N/A
6	Phillips	Wildfire	Provide training to farmers and ranchers on firefighting techniques.	County Resources	Training was held during March 2012 for farmers and ranchers on firefighting techniques.	Goal 3	N/A
6	Phillips	Wildfire	Obtain firefighting equipment (including SCBAs) for fire departments.	Grants	Grants helped fund the acquisition of some firefighting equipment.	Goal 3	N/A
6	Phillips	Wildfire	Coordinate with cooperators and employ fuel reduction treatments on CRP and other lands, as needed.	BLM Resources	BLM has completed fuel treatments in the Little Rocky Mountain area of Phillips County.	Goal 3	Objective 3.1
6	Phillips	Wildfire	Locate and identify roads that have wooden bridges within the County. Plan protection measures and alternate routes in the event of a wildfire compromising or burning these bridges.	County Resources	Phillips County addressed evacuation as part of their Emergency Operations Plan Update in 2010 and identified the location of wooden bridges in the county.	Goal 3	N/A
6	Phillips	All Hazard	Develop map of ranch roads to enhance response efforts.	County Resources	Rural addressing in the county has been completed.	Goal 1	Objective 1.2
6	Phillips	All Hazard	Coordinate with State Regional DES and Federal partners to attend for scheduling and attendance at Incident Command System (ICS) 100/200 and/or IS 700 or State of Montana DES training requirement.	County Resources	The Phillips County DES Coordinator has attended some Incident Command System training.	Goal 1	N/A
6	Phillips	All Hazard	Obtain NOAA weather radios for critical facilities.	County Resources	NOAA weather radios were purchased for the Phillips County Dispatch Center.	Goal 1	Objective 1.2
6	Roosevelt	2003 PLAN - NO UPDATE	Completed projects not identified.				
6	Sheridan	All Hazard	The Sheridan County Local Emergency Planning Committee has mapped out the fairgrounds for evacuations.	County Resources	Completed between 2003 and 2008	N/A	N/A
6	Sheridan	All Hazard	Phase 2 of Enhanced 911 to locate cell phone calls is completed.	County Resources	Completed between 2003 and 2009	Goal 1	Objective 1.2
6	Sheridan	Flooding	Three bridges have been replaced in flood prone areas. One more is in progress.	County Resources	Completed between 2003 and 2010	Goal 4	Objective 4.2
6	Sheridan	Flooding	The Fort Peck Tribes completed new floodplain mapping.	County Resources	Completed between 2003 and 2011	Goal 4	Objective 4.4
6	Sheridan	Flooding	A gate was placed on the dike in Reserve.	County Resources	Completed between 2003 and 2012	Goal 4	Objective 4.2
6	Sheridan	All Hazard	Sheridan County received the National Weather Service StormReady designation.	County Resources	Completed between 2003 and 2013	Goal 1	Objective 1.1
6	Sheridan	All Hazard	Reverse 911 capabilities have been installed.	County Resources	Completed between 2003 and 2014	Goal 1	Objective 1.2
6	Sheridan	All Hazard	NOAA Weather Radios have been placed in all of the schools.	County Resources	Completed between 2003 and 2015	Goal 1	Objective 1.2
6	Sheridan	Severe Weather	The Community Collaborative Rain, Hail and Snow program was implemented.	County Resources	Completed between 2003 and 2016	Goal 6 & 7	Objective 6.2 & 7.2
6	Sheridan	All Hazard	The Emergency Alert System is being expanded for more all-hazard capabilities, including Amber Alerts, Missing Person's Alerts, and many other non-weather related hazard alerts.	County Resources	Completed between 2003 and 2017	Goal 1	Objective 1.2
6	Sheridan	Wildfire	The Town of Outlook and the City of Plentywood have implemented mowing ordinances to reduce the wildfire hazard.	County Resources	Completed between 2003 and 2018	Goal 3	Objective 3.1
6	Sheridan	Wildfire	The City of Plentywood made water main improvements to increase water pressure.	County Resources	Completed between 2003 and 2019	Goal 3	N/A
6	Sheridan	Wildfire	Hazardous housing rehabilitation and demolition has taken place.	County Resources	Completed between 2003 and 2020	Goal 3	Objective 3.1
6	Sheridan	Wildfire	Water storage tanks have been placed around Outlook.	County Resources	Completed between 2003 and 2021	Goal 3	N/A
6	Sheridan	Wildfire	The City of Plentywood has adopted fire codes.	County Resources	Completed between 2003 and 2022	Goal 3	N/A
6	Sheridan	Hazardous Material Incidents	The Montana Department of Transportation has changed roadways to reduce the number of accidents at curves.	County Resources	Completed between 2003 and 2023	Goal 9	Objective 9.1
6	Sheridan	Communicable Disease	The Sheridan County Health Department has done planning for disease outbreaks.	County Resources	Completed between 2003 and 2024	Goal 8	Objective 8.1
6	Valley	Flooding	The county road department has changed the type of culvert it uses and typically uses flared ends to reduce road washouts.	County Resources	Completed between 2003 and 2024	Goal 4	Objective 4.2

APPENDIX C - COMPLETED/ONGOING MITIGATION PROJECTS FROM LOCAL PDM PLANS/UPDATES							
District	**County**	**Hazard**	**Mitigation Project**	**Funding Source**	**Details**	**State Mitigation Goal**	**State Mitigation Objective**
	Valley	Flooding	Valley County replaced at least 56 culverts since 2003.	County Resources	Completed between 2003 and 2024	Goal 4	Objective 4.2
	Valley	Flooding	Water equivalent measurements are included in routine weekly cooperative observations.	County Resources	Completed between 2003 and 2024	Goal 4	N/A
	Valley	Flooding	Gravel has been placed on Willow Creek Road, improving its condition and reducing washo uts.	County Resources	Completed between 2003 and 2024	Goal 4	Objective 4.2
	Valley	Flooding	Rip rap has been placed along many county roads to reduce erosion.	County Resources	Completed between 2003 and 2024	Goal 4	Objective 4.2
	Valley	Flooding	The county has started using crushed gravel rather than pit gravel on roads to improve the ir conditions.	County Resources	Completed between 2003 and 2024	Goal 4	Objective 4.2
	Valley	Flooding	Improvements were made to the Glasgow storm sewers.	County Resources	Completed between 2003 and 2024	Goal 4	Objective 4.2
	Valley	Flooding	Improvements were made to the Glasgow dikes.	County Resources	Completed between 2003 and 2024	Goal 4	Objective 4.2
	Valley	All Hazard	A new NOAA Weather Radio transmitter and generator were installed at the Signal/Tower Hill transmitter site.	County Resources	Completed between 2003 and 2024	Goal 1	Objective 1.2
	Valley	All Hazard	A new NOAA Weather Radio exciter was installed for the Opheim/Glentana area.	County Resources	Completed between 2003 and 2024	Goal 1	Objective 1.2
	Valley	All Hazard	The National Weather Service partnered with Albertson's grocery and Midland Radio to off er discounted NOAA Weather Radios in the fall of 2007.	County Resources	Completed between 2003 and 2024	Goal 1	Objective 1.2
	Valley	All Hazard	The City of Glasgow and the Fort Peck Reservation were certified StormReady by the Natio nal Weather Service	County Resources	Completed between 2003 and 2024	Goal 1	Objective 1.1
	Valley	All Hazard	Valley County increased the number of weather spotters. Currently, Valley County has 20 5 spotters.	County Resources	Completed between 2003 and 2024	Goal 1	Objective 1.2
	Valley	Severe Summer Weather	A webcam was installed at Fort Peck Dam, including a weather sensor.	County Resources	Completed between 2003 and 2024	Goal 6	N/A
	Valley	All Hazard	NOAA Weather Radios have been placed in all of the schools.	County Resources	Completed between 2003 and 2024	Goal 1	Objective 1.2
	Valley	All Hazard	The Community Collaborative Rain, Hail and Snow program was implemented.	County Resources	Completed between 2003 and 2024	Goal 6 & 7	Objective 6.2 & 7.2
	Valley	All Hazard	The Emergency Alert System is being expanded for more all-hazard capabilities, including A mber Alerts, Missing Person's Alerts, and many other non-weather related hazard alerts.	County Resources	Completed between 2003 and 2024	Goal 1	Objective 1.2
	Valley	Wildfire & Structure Fire	The county burn permit process has changed, and as a result, more residents are being ed ucated in wildfire prevention.	County Resources	Completed between 2003 and 2024	Goal 3	Objective 3.2
	Valley	Wildfire & Structure Fire	The Town of Opheim annually mows around the airport, essentially creating a fire break th at may protect the town from wildfires coming from that direction.	County Resources	Completed between 2003 and 2024	Goal 3	Objective 3.1
	Valley	Wildfire & Structure Fire	The City of Glasgow has increased water pressure and flow in its system.	County Resources	Completed between 2003 and 2024	Goal 3	N/A
	Valley	Wildfire & Structure Fire	The Dry Prairie Rural Water program to bring municipal water to some county residents is being implemented.	County Resources	Completed between 2003 and 2024	Goal 3	N/A
	Valley	Wildfire & Structure Fire	Wooden shakes were replaced with asphalt shingles on the Fort Peck Theater.	County Resources	Completed between 2003 and 2024	Goal 3	N/A
	Valley	All Hazard	Cattle guards have been upgraded to allow emergency vehicles through.	County Resources	Completed between 2003 and 2024	N/A	N/A
	Valley	All Hazard	Emergency radios have been updated and the county is continuing with NIMS compliance.	County Resources	Completed between 2003 and 2024	Goal 1	Objective 1.2
	Valley	Water Supply	The community of St. Marie fenced its water supply to protect it from malicious acts.	County Resources	Completed between 2003 and 2024	Goal 13	Objective 13.1
	Valley	Water Supply	The City of Glasgow has booms in place to protect its water supply.	County Resources	Completed between 2003 and 2024	Goal 13	Objective 13.1

FORMER GOAL #
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GOAL
Goal 1: Maximize the Use of Mitigation Actions that Prevent Losses from all Hazards
Goal 1: Maximize the Use of Mitigation Actions that Prevent Losses from all Hazards
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Goal 2: Increase the State's Capability to Provide and Assist Local Jurisdictions and Tribal Nations with Mitigation
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Goal 3: Reduce Impacts of Wildland and Rangeland Fires
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Goal 3: Reduce Impacts of Wildland and Rangeland Fires
Goal 4: Mitigate the Potential Loss of Life and Property from Flooding
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Goal 5: Reduce Potential Earthquake Losses in Seismically Prone Areas
Goal 5: Reduce Potential Earthquake Losses in Seismically Prone Areas
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Goal 5: Reduce Potential Earthquake Losses in Seismically Prone Areas
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Goal 5: Reduce Potential Earthquake Losses in Seismically Prone Areas
Goal 6: Reduce Impacts from Severe Summer Weather
Goal 6: Reduce Impacts from Severe Summer Weather
Goal 6: Reduce Impacts from Severe Summer Weather
Goal 7: Reduce Impacts from Severe Winter Weather
Goal 7: Reduce Impacts from Severe Winter Weather
Goal 7: Reduce Impacts from Severe Winter Weather
Goal 7: Reduce Impacts from Severe Winter Weather
Goal 7: Reduce Impacts from Severe Winter Weather
Goal 8: Minimize Impacts from Communicable Disease Outbreaks
Goal 8: Minimize Impacts from Communicable Disease Outbreaks
Goal 8: Minimize Impacts from Communicable Disease Outbreaks
Goal 8: Minimize Impacts from Communicable Disease Outbreaks
Goal 9: Reduce Losses from Hazardous Material Incidents
Goal 9: Reduce Losses from Hazardous Material Incidents
Goal 10: Reduce the Impacts from Drought

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Goal 11: Reduce Impacts from Dam Failure Hazard
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Goal 11: Reduce Impacts from Dam Failure Hazard
Goal 12: Reduce Impacts from Landslides
Goal 12: Reduce Impacts from Landslides
Goal 13: Minimize Impacts from Terrorism
Goal 14: Minimize Impacts from Volcanic Ash

FORMER OBJECTIVE #
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OBJECTIVE
Objective 1.1: Increase capability for continuity of government
Objective 1.1: Increase capability for continuity of government
Objective 1.2: Enhance warning capabilities
Objective 1.2: Enhance warning capabilities
Objective 1.2: Enhance warning capabilities
Objective 1.3: Increase public awareness of hazards.
Objective 1.3: Increase public awareness of hazards.
Objective 1.4: Continuously improve hazard assessments
Objective 1.4: Continuously improve hazard assessments
Objective 1.4: Continuously improve hazard assessments
Objective 1.4: Continuously improve hazard assessments
Objective 1.4: Continuously improve hazard assessments
Objective 1.5 Protect cultural resources
Objective 2.1: Support mitigation planning at all levels.
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Objective 2.2: Promote mitigation through supportive legislation and funding.
Objective 2.2: Promote mitigation through supportive legislation and funding.
Objective 2.2: Promote mitigation through supportive legislation and funding.
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Objective 2.3: Coordinate and establish priorities for hazard mitigation projects at all levels in the State of Montana.
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Objective 3.1: Reduce fuels in the WUI
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Objective 3.2: Enhance community awareness of wildfires through education
Objective 3.2: Enhance community awareness of wildfires through education
Objective 3.2: Enhance community awareness of wildfires through education
Objective 3.2: Enhance community awareness of wildfires through education
Objective 3.3: Establish mapping or record keeping practices to support fuel management strategies
Objective 3.3: Establish mapping or record keeping practices to support fuel management strategies
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Objective 3.3: Establish mapping or record keeping practices to support fuel management strategies
Objective 4.1: Reduce the number of current and future structures in the floodplain.
Objective 4.1: Reduce the number of current and future structures in the floodplain.
Objective 4.1: Reduce the number of current and future structures in the floodplain.
Objective 4.2: Mitigate flooding of structures and infrastructure.
Objective 4.2: Mitigate flooding of structures and infrastructure.
Objective 4.3: Increase public awareness of flood mitigation.
Objective 4.3: Increase public awareness of flood mitigation.
Objective 4.3: Increase public awareness of flood mitigation.
Objective 4.4: Improve the effectiveness of flood insurance programs.
Objective 4.4: Improve the effectiveness of flood insurance programs.
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Objective 4.4: Improve the effectiveness of flood insurance programs.
Objective 5.1 Provide for earthquake resistance in new construction
Objective 5.1 Provide for earthquake resistance in new construction
Objective 5.2: Educate the public in earthquake mitigation and readiness.
Objective 5.2: Educate the public in earthquake mitigation and readiness.
Objective 5.2: Educate the public in earthquake mitigation and readiness.
Objective 5.2: Educate the public in earthquake mitigation and readiness.
Objective 5.3: Seismically retrofit existing critical facilities/infrastructure and government assets.
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Objective 5.4: Implement non-structural mitigation projects to harden State and community assets and infrastructure from
Objective 6.1: Increase community capabilities to mitigate summer weather hazards.
Objective 6.1: Increase community capabilities to mitigate summer weather hazards.
Objective 6.2: Increase public awareness of ways to mitigate summer weather hazards.
Objective 7.1: Increase community capabilities to mitigate winter weather hazards.
Objective 7.1: Increase community capabilities to mitigate winter weather hazards.
Objective 7.2: Increase public awareness of winter weather hazards.
Objective 7.2: Increase public awareness of winter weather hazards.
Objective 7.3: Implement actions to enhance reliability of power supply.
Objective 8.1: Minimize the impacts communicable disease events have on public health.
Objective 8.1: Minimize the impacts communicable disease events have on public health.
Objective 8.1: Minimize the impacts communicable disease events have on public health.
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Objective 9.1 Collect data to support mitigation projects
Objective 9.1 Collect data to support mitigation projects
Objective 10.1 Enhance planning efforts, public information, and education regarding drought

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Objective 10.1 Enhance planning efforts, public information, and education regarding drought
Objective 10.1 Enhance planning efforts, public information, and education regarding drought
Objective 10.2 Implement economic incentives to mitigate drought
Objective 10.3 Implement actions to ensure water conservation during drought
Objective 10.3 Implement actions to ensure water conservation during drought
Objective 10.4 Enhance water storage capacity and irrigation conveyance.
Objective 10.4 Enhance water storage capacity and irrigation conveyance.
Objective 10.4 Enhance water storage capacity and irrigation conveyance.
Objective 10.4 Enhance water storage capacity and irrigation conveyance.
Objective 10.5 Implement appropriate regulations to mitigate drought.
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Objective 11.1 Reduce the risk of dam failure
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Objective 11.1 Reduce the risk of dam failure
Objective 12.1: Reduce the risk that landslides will damage public property.
Objective 12.1: Reduce the risk that landslides will damage public property.
Objective 13.1: Prevent losses from acts f terrorism, violence, and civil unrest.
Objective 14.1: Identify and reduce losses from volcanic activitity.

FORMER PROJECT #
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PROJECT
Project 1.1.1 Migrate IT systems to central disaster resilient facilities.
Project 1.1.2 Identify and protect essential government records in appropriate facilities.
Project 1.2.1 Place NOAA weather radios in all state government offices.
Project 1.2.2 Promote use of NOAA weather radios in homes and when recreating (battery operated).
Project 1.2.3 Recommend voluntary placement of NOAA weather radios in restaurants, gas stations, stores, day cares, movie
Project 1.3.1 DELETED - ALREADY ESTABLISHED AND IMPLEMENTED BY OTHERS
Project 1.3.2 Promote hazard mitigation education in schools.
Project 1.4.1 Determine GPS locations of all State buildings and infrastructure for detailed analysis.
Project 1.4.2 Conduct a risk assessment that utilizes specific State building locations and infrastructure locations to be used
Project 1.4.3 Encourage local jurisdictions and Tribal Nations to geo-locate their critical facilities for use in risk assessment.
Project 1.4.4 Recommend that local and Tribal PDM Plans conduct Level 2 HAZUS analysis for critical facilities
Project 1.4.5 Coordinate with NRIS to provide GIS layers for hazard mitigation planning that Counties and Tribal Nations can
Project 1.5.1 Plan for the protection of historic and cultural properties in hazard prone areas
Project 2.1.1 Provide mitigation benefit-costanalysis (BCA) training courses.
Project 2.1.2 Coordinate Local and Tribal PDM Plan Updates
Project 2.1.3 Assist local jurisdictions and Tribal Nations fill out FEMA mitigation grant applications.
Project 2.1.4 Encourage DES staff to assist local and Tribal DES coordinators to develop a plan of action to complete their
Project 2.1.5 Negotiate with FEMA to unify and simplify HMA grant process.
Project 2.1.6 Encourage HMA applicants to work more closely with federal counterparts and utilize their expertise and training
Project 2.2.1 Create a State-funded grant program to assist with the 25 percent PDM-C match for local and Tribal
Project 2.2.2 Promote State programs that receive adequate funding to engage in mitigation planning and project
Project 2.2.3 Encourage local and Tribal growth policies to consider natural and man-made hazards
Project 2.2.4 Promote mitigation awareness
Project 2.2.5 Explore economic incentives for mitigation (i.e. insurance premium discounts, state tax credits, etc.).
Project 2.3.1 Continue outreach of mitigation project funding opportunities.
Project 2.3.2 Document mitigation successes
Project 2.3.3 Continue to engage State agencies such as DMA, DOA, MDT, MFWP and DNRC in the mitigation planning
Project 2.3.4 Increase the scope and participation of the State Planning Team during State PDM updates
Project 3.1.1 Conduct wildland fuel reduction on state property including parks, day-use facilities and highway rights-of-way.
Project 3.1.2 Encourage fuel reduction in the WUI and evaculation routes on local jurisdiction, tribal nation, and privately
Project 3.1.3 Encourage utilities and private landowners to conduct fuel reduction in right-of-ways.
Project 3.1.4 Participate in the coordination of mitigation projects on federal lands adjacent to state/private holdings.
Project 3.1.5 Encourage biomass utilization from wildland fuel mitigation projects.
Project 3.1.6 Protect state structures in WUI via fuel reduction.
Project 3.2.1 Promote public responsibility for defensible/survivable space in the WUI
Project 3.2.2 DELETED/REDUNDANT w/ 3.1.2
Project 3.2.2 Continue to support and fund the statewide FireSafe Montana organization that gathers, disseminates and
Project 3.2.4 DELETED/REDUNDANT w/ 3.2.1
Project 3.3.1 Develop fire/fuel GIS layer for state lands
Project 3.3.2 Compile WUI GIS layer from CWPPs
Project 3.3.3 Compile database of structure damage from wildfire for use in future risk and damage assessments

Project 3.3.4 DELETED. State has no authority to do this.
Project 4.1.1 Encourage jurisdictions to pursue mitigation projects for repetitive loss structures or any severe repetitive loss
Project 4.1.2 Develop and improve upon model floodplain ordinances for local and Tribal governments
Project 4.1.3 Encourage appropriate entities to obtain conservation easements for land in the floodplain.
Project 4.2.1 Encourage mitigation projects that upgrade undersized bridges that inhibit water flow or those with scour
Project 4.2.2 Encourage communities at risk from ice jam flooding to apply for mitigation grants to install ice jam mitigation
Project 4.3.1 Continue to provide flood insurance education.
Project 4.3.2 Educate public on need to limit future development in the floodplain.
Project 4.3.3 Educate home and business owners on utility tie-downs.
Project 4.4.1 Provide outreach and technical assistance in joining the NFIP Community Rating System for reducing flood
Project 4.4.2 Develop mapping for flood prone areas without maps
Project 4.4.3 Update floodplain mapping from approximate to detailed maps.
Project 4.4.4 Establish a schedule for National Flood Insurance Program map review and updates.
Project 4.4.5 Encourage coordination between DES Coordinators, floodplain managers and land use planners.
Project 5.1.1 Integrate seismic resilience into significant building retrofits.
Project 5.1.2 Adopt seismic requirements of updated International Code Council.
Project 5.2.1 Continue “Earthquake Preparedness Month” outreach activities during the month of October.
Project 5.2.2 Continue presentations and distribution of earthquake preparedness materials incluidlng encouraging steps such
Project 5.2.3 Expand and upgrade the earthquake monitoring network and information reporting capabilities in high hazard
Project 5.2.4 Quantify seismic hazards posed by faults.
Project 5.3.1 Survey and install utility shut-off valves at all state buildings in the intermountain seismic belt.
Project 5.3.2 At the Capitol Complex in Helena, seismically retrofit buildings with most vulnerability and highest occupancy to
Project 5.3.3 At Montana University System campuses in the intermountain seismic belt, seismically retrofit most vulnerable
Project 5.3.4 At the Department of Corrections facilities in Deer Lodge, improve support systems and implement seismic
Project 5.3.5 At the Montana State Hospital in Warm Springs, seismically harden buildings and expand support systems to
Project 5.3.6 At the Montana Developmental Center and Riverside in Boulder, implement seismic upgrades.
Project 5.3.7 Conduct seismic evaluations of state-owned buildings in the intermountain seismic belt (including utility tunnels
Project 5.3.8 Encourage local jurisdictions and tribal nations in the intermountain seismic belt to conduct seismic evaluations
Project 5.3.9 Encourage and educate home owners and businesses in the intermountain seismic belt to implement seismic
Project 5.3.10 Encourage private utilities in intermountain seismic belt to retrofit their systems for seismic stability
Project 5.4.1 Implement non-structural projects at state buildings in the intermountain seismic belt such as anchoring utilities.
Project 6.1.1 Encourage utilities to bury electric lines that could blow down to improve reliability.
Project 6.1.2 Modify vulnerable buildings to resist water penetration and wind damage.
Project 6.2.1 Maintain partnership with National Weather Service and media to publicize Severe Weather Awareness Week to
Project 7.1.1 Encourage utilities to put their equipment underground in areas that are hit by extreme weather.
Project 7.1.2 Encourage utilities to apply for mitigation grants to install air flow spoilers on above ground utility lines
Project 7.2.1 Promote partnership with National Weather Service and media to publicize Winter Weather Hazards Awareness
Project 7.2.2 Encourage local jurisdictions and tribal nations to create partnerships with a private company for winter survival
Project 7.3.1 Publicize demonstrated ability of airflow spoilers to reduce powerline failure.
Project 8.1.1 Conduct public health surveillance, disease investigations, and provide mitigation strategies
Project 8.1.2 Improve the timeliness and completeness of disease reporting.
Project 8.1.3 Ensure Department Emergency Operations Plans (EOPs) and all associated annexes and procedures are current
Project 8.1.4 Test and evaluate public health response plans
Project 9.1.1 Complete hazmat flow studies at highly vulnerable locations
Project 9.1.2 Obtain hazmat incident property damage for use in future risk assessments
Project 10.1.1 Increase the educational emphasis given to forest and range management practices for the minimizing of

Project 10.1.2 Inventory operating plans of reservoirs to ensure drought contingency plans.
Project 10.1.3 Develop and implement drought plans for state-funded reservoirs.
Project 10.1.4 Encourage system of soil moisture gauges to monitor drought
Project 10.2.1 Establish stronger economic and other incentives for private investments in water conservation.
Project 10.3.1 Encourage voluntary water conservation by domestic, municipal, and industrial users.
Project 10.3.2 Clarify state law so that water rights holders who conserve water are clearly allowed to sell or lease salvaged
Project 10.4.1 Consider feasible water storage where it will increase water supply security such as development of catchment
Project 10.4.2 Improve water conveyance efficiencies in agricultural, municipal, and industrial uses.
Project 10.4.3 Urge the Board of Natural Resources and Conservation to adopt rules for the installation of water metering
Project 10.4.4 Find ways to expedite the resolution of water use conflicts and water rights enforcement during drought.
Project 10.5.1 Develop a model water conservation ordinance for use by municipalities and rural domestic water suppliers.
Project 10.5.2 Clarify state law to allow voluntary, temporary changes of water rights and contract water exchanges.
Project 11.1.1 Obtain digitized inundation maps for federally-regulated high hazard dams for risk assessment.
Project 11.1.2 Repair state high hazard dams with deficiencies.
Project 11.1.3 Evaluate existing state dams for hazard classification.
Project 11.1.4 Keep Emergency Action Plans current.
Project 11.1.5 Exercise Emergency Action Plans every five years.
Project 11.1.6 Encourage continued participation of local and tribal DES in DNRC dam safety table top exercises.
Project 12.1.1 Conduct proactive scaling and reducing of back slopes along highways
Project 12.1.2 Create a GIS layer of areas vulnerable to landslides using geology, soil type, slope and past occurrence.
Project 13.1.1 Support mitigation-related goals, objectives, and actions of the Montana Homeland Security Security Strategic
Project 14.1.1 Educate the public on how to respond to volcanic ash fall-out.

PROJECT TYPE	HML - SCORE	NUMERIC SCORE	STATE PRIORITY	SCHEDULE
Non-Planning	High	63	High	Short Range
Non-Planning	High	66	Medium	Mid-Range
Non-Planning	Medium	34	Low	Ongoing; Partially complete
Planning	Medium	15	Low	Mid-Range
Planning	Medium	15	Low	Mid-Range
Planning	Medium	13	High	Ongoing
Planning	High	16	High	Ongoing; Complete for essential facilities
Planning	Medium	15	High	Short Range
Planning	High	16	High	Ongoing
Planning	Medium	14	Medium	Ongoing
Planning	High	16	High	Short Range
Planning	High	16	Low	Ongoing
Planning	Medium	12	High	Ongoing
Planning	Medium	12	High	Ongoing
Planning	Medium	12	High	Ongoing
Planning	Medium	12	High	Ongoing
Planning	Medium	12	High	Ongoing
Planning	Medium	12	Medium	Ongoing
Planning	Medium	12	High	Ongoing
Planning	Medium	12	High	Ongoing
Planning	Medium	12	Low	Ongoing
Planning	Medium	12	High	Ongoing
Planning	Medium	11	Medium	Mid-Range
Planning	Medium	14	High	Ongoing
Planning	Medium	12	High	Ongoing
Planning	Medium	12	High	Ongoing
Planning	Medium	12	High	Mid-Range
Non-Planning	Medium	36	High	Ongoing
Non-Planning	Medium	40	High	Ongoing
Non-Planning	Medium	34	High	Ongoing
Non-Planning	Low	28	High	Ongoing
Planning	Medium	11	High	Ongoing
Non-Planning			High	
Planning	High	17	High	Ongoing
Planning	Medium	12	High	Ongoing
Planning	Medium	14	Medium	Ongoing
Planning	High	17	High	Ongoing
Non-Planning	Low	28	Medium	Short Range
Non-Planning	Medium	32	High	Short Range
Non-Planning	Medium	34	Medium	Short Range

Planning	Low	9	Medium	Short Range
Non-Planning	Low	26	High	Ongoing
Planning	High	18	High	Complete; annual updates
Planning	Medium	15	Medium	Mid-Range
Non-Planning	Medium	32	High	Ongoing
Non-Planning	Medium	36	High	Ongoing
Planning	Medium	13	High	Ongoing
Planning	High	16	High	Ongoing
Planning	Medium	14	Medium	Mid-Range
Planning	Medium	13	High	Ongoing
Non-Planning	MeLow	26	High	Ongoing
Non-Planning	Medium	34	High	Ongoing
Planning	Medium	12	High	Ongoing
Planning	Medium	12	High	Ongoing
Non-Planning	High	63	High	Ongoing
Planning	High	18	Medium	Ongoing
Planning	Medium	11	High	Ongoing
Planning	Medium	11	High	Ongoing
Non-Planning	Medium	34	Medium	Mid-Range
Non-Planning	Medium	32	Medium	Ongoing
Non-Planning	High	60	High	Ongoing
Non-Planning	Medium	48	High	Ongoing
Non-Planning	Medium	48	High	Ongoing
Non-Planning	Low	17	High	Mid-Range
Non-Planning	Low	18	High	Mid-Range
Non-Planning	Low	17	High	Mid-Range
Non-Planning	Medium	38	High	Completed
Non-Planning	High	63	High	Ongoing
Planning	High	17	Medium	Ongoing
Non-Planning	Low	26	High	Ongoing
Non-Planning	Low	19	High	Mid-Range
Non-Planning	Low	30	High	Ongoing
Non-Planning	Medium	36	High	Ongoing
Planning	High	16	Medium	Mid-Range
Non-Planning	Medium	36	High	Ongoing
Non-Planning	Medium	42	High	Ongoing
Planning	High	16	Medium	Ongoing
Planning	High	16	Medium	Mid-Range
Planning	High	16	High	Short Range
Planning	High	16	High	Ongoing
Planning	High	16	High	Ongoing
Planning	High	16	High	Ongoing
Planning	High	16	High	Ongoing
Non-Planning	Medium	40	Medium	Mid-Range
Planning	Medium	11	Medium	Short Range
Planning			Medium	

Planning			Medium	
Planning			Medium	
Non-Planning			Medium	
Planning			Medium	
Planning			Medium	
Planning			Medium	
Non-Planning			High	
Non-Planning			Medium	
Planning			Medium	
Planning			Medium	
Planning			Medium	
Planning				
Planning	High	19	High	Short Range
Non-Planning	Medium	42	High	Ongoing
Non-Planning	Medium	40	High	Short Range
Non-Planning	Medium	40	High	Ongoing
Non-Planning	Medium	34	High	Ongoing
Planning	High	16	High	Ongoing
Non-Planning	Low	13	Medium	Ongoing
Planning	High	16	Medium	Short-Range
Planning	High	16	Medium	Ongoing
Planning	Medium	15	Low	Long-Range

AGENCY
All State Agencies
Secretary of State
All State Agencies
National Weather Service
National Weather Service
DES, Governor's Office of Community Service
All State Agencies, University System
Dept. Administration, DES
DES
DES
DES
Dept. Commerce-Montana Heritage Commission, Historical Society, Dept. Administration, Arts Council, Governor's
DES
DES
DES
DES
DES
DES
DES, DNRC
DES, Dept. Administration
DES
All State Agencies, DES
DES, DNRC-Fire
DES
DES
DES
DES
DNRC - Trust Lands, MFWP, MDT
DNRC - Fire, DES, FireSafe Montana, RC&Ds, BIA, Local Jurisdictions, Tribal Nations
Utilities, FireSafe Montana, DNRC - Fire, DES, Keep Montana Green, State Fire Marshall
DNRC - Fire, USFS, Dept. Interior, DES, Tribal Nations, FireSafe Montana
DES, FireSafe Montana, DNRC - Fire, DNRC-Forestry Assistance
DNRC
DNRC - Fire, FireSafe Montana, Keep Montana Green, Governor's Office of Community Service, MFWP, State Fire
DNRC - Fire, FireSafe Montana, Keep Montana Green
BLM, DNRC - Fire, USFS
DES, DNRC - Fire, FireSafe Montana
DNRC - Fire
DNRC - Fire
DNRC - Fire, Dept. Justice-State Fire Marshall

DES, DNRC - Fire
DES, DNRC-Water
DNRC - Water
MDT, MFWP, DNRC-Water, DES, Conservation Districts
DES, MDT, DNRC-Water
DES, Corps of Engineers
DNRC - Water, National Weather Service
DNRC - Water
DNRC - Water, DES, Dept. Labor & Industry-Building Codes
DNRC - Water
DNRC - Water
DNRC - Water
DNRC - Water
DES, DNRC-Water, Local Jurisdictions, Tribal Nations
Dept. Administration
Dept. Labor & Industry-Building Codes
DES, Governor's Office of Community Service
DES, Governor's Office of Community Service
Montana Bureau Mines & Geology
Montana Bureau Mines & Geology
DOA-General Services
Dept. Administration
Dept. Administration, University System
Dept. Administration, Dept. Corrections
Dept. Administration
Dept. Administration, Dept. Corrections, DPHHS
Dept. Administration
DES, Local Jurisdictions, Tribal Nations
DES
DES, Utilities
All State Agencies, University System
DES, Local Jurisdictions, Tribal Nations
Dept. Administration, University System
National Weather Service, DES, Governor's Office of Community Service
Utilities, Local Jurisdictions, Tribal Nations, Public Service Commission, DES
Utilities, Local Jurisdictions, Tribal Nations, Public Service Commission, DES
National Weather Service, MDT
Local Jurisdictions, Tribal Nations, DES
DES, Public Service Commission, Utilities
DPHHS
DPHHS
DPHHS
DPHHS
DES, MDT
DES, MDT, State Auditor-Insurance Commission
DNRC - Water

DNRC - Water
DNRC - Water
DNRC - Water
DNRC - Water
DNRC - Water
DNRC - Water
DNRC - Water
DNRC - Water
DNRC - Water
DNRC - Water
DES
DNRC - Water, MFWP, Dept. Corrections, Dept. Commerce-Montana Heritage Commission
DNRC - Water, MFWP, Dept. Corrections, Dept. Commerce-Montana Heritage Commission
DNRC - Water, MFWP, Dept. Corrections, Dept. Commerce-Montana Heritage Commission
DNRC - Water, MFWP, Dept. Corrections, Dept. Commerce-Montana Heritage Commission
DNRC - Water, DES
MDT
DES
DES
DES

OTHER AGENCIES
All State Agencies
Secretary of State
All State Agencies
National Weather Service
National Weather Service
DES, Governor's Office of Community Service
All State Agencies, University System
Dept. Administration, DES
DES
DES
DES
Dept. Commerce-Montana Heritage Commission, Historical Society, Dept. Administration, Arts Council, Governor's
DES
DES
DES
DES
DES
DES
DES, DNRC
DES, Dept. Administration
DES
All State Agencies, DES
DES, DNRC-Fire
DES
DES
DES
DES
DNRC - Trust Lands, MFWP, MDT
DNRC - Fire, DES, FireSafe Montana, RC&Ds, BIA, Local Jurisdictions, Tribal Nations
Utilities, FireSafe Montana, DNRC - Fire, DES, Keep Montana Green, State Fire Marshall
DNRC - Fire, USFS, Dept. Interior, DES, Tribal Nations, FireSafe Montana
DES, FireSafe Montana, DNRC - Fire, DNRC-Forestry Assistance
FWP
DNRC - Fire, FireSafe Montana, Keep Montana Green, Governor's Office of Community Service, MFWP, State Fire
DNRC - Fire, FireSafe Montana, Keep Montana Green
BLM, DNRC - Fire, USFS
DES, DNRC - Fire, FireSafe Montana
DNRC - Fire
DNRC - Fire
DNRC - Fire, Dept. Justice-State Fire Marshall

DES, DNRC - Fire
DES, DNRC-Water
DNRC - Water
MDT, MFWP, DNRC-Water, DES, Conservation Districts
DES, MDT, DNRC-Water
DES, Corps of Engineers
DNRC - Water, National Weather Service
DNRC - Water
DNRC - Water, DES, Dept. Labor & Industry-Building Codes
DNRC - Water
DNRC - Water
DNRC - Water
DNRC - Water
DES, DNRC-Water, Local Jurisdictions, Tribal Nations
Dept. Administration
Dept. Labor & Industry-Building Codes
DES
DES
Montana Bureau Mines & Geology
Montana Bureau Mines & Geology
DOA-A&E
Dept. Administration
Dept. Administration, University System
Dept. Administration, Dept. Corrections
Dept. Administration
Dept. Administration, Dept. Corrections, DPHHS
Dept. Administration
DES, Local Jurisdictions, Tribal Nations
DES
DES, Utilities
All State Agencies, University System
DES, Local Jurisdictions, Tribal Nations
Dept. Administration, University System
National Weather Service, DES
Utilities, Local Jurisdictions, Tribal Nations, Public Service Commission, DES
Utilities, Local Jurisdictions, Tribal Nations, Public Service Commission, DES
National Weather Service, MDT
Local Jurisdictions, Tribal Nations, DES, Governor's Office of Community Service
DES, Public Service Commission, Utilities
DPHHS
DPHHS
DPHHS
DPHHS
DES, MDT
DES, MDT, State Auditor-Insurance Commission

DES
DNRC - Water, MFWP, Dept. Corrections, Dept. Commerce-Montana Heritage Commission
DNRC - Water, MFWP, Dept. Corrections, Dept. Commerce-Montana Heritage Commission
DNRC - Water, MFWP, Dept. Corrections, Dept. Commerce-Montana Heritage Commission
DNRC - Water, MFWP, Dept. Corrections, Dept. Commerce-Montana Heritage Commission
DNRC - Water, DES
MDT
DES
DES
DES

RESPONSIBLE AGENCY 2
Governor's Office of Community Service
University System
DES
Historical Society
FireSafe Montana
DNRC
Dept. Administration
DES
DNRC-Fire
MFWP
DES
FireSafe Montana
USFS
FireSafe Montana
FireSafe Montana
FireSafe Montana
DNRC - Fire
DNRC - Fire
Dept. Justice-State Fire Marshall

DNRC - Fire
DNRC-Water
MFWP
MDT
Corps of Engineers
National Weather Service
DES
DNRC-Water
Governor's Office of Community Service
Governor's Office of Community Service
University System
Dept. Corrections
Dept. Corrections
Local Jurisdictions
Utilities
University System
Local Jurisdictions
University System
DES
Local Jurisdictions
Local Jurisdictions
MDT
Tribal Nations
Public Service Commission
MDT
MDT

MFWP
MFWP
MFWP
MFWP
DES

RESPONSIBLE AGENCY 3
Dept. Administration
MDT
FireSafe Montana
DNRC - Fire
Dept. Interior
DNRC - Fire
Keep Montana Green
Keep Montana Green
USFS
FireSafe Montana

DNRC-Water
DNRC-Water

Dept. Labor & Industry-Building Codes

Local Jurisdictions

DPHHS

Tribal Nations

Tribal Nations

Governor's Office of Community Service
Tribal Nations
Tribal Nations

DES
Utilities

State Auditor-Insurance Commission

Dept. Corrections
Dept. Corrections
Dept. Corrections
Dept. Corrections

RESPONSIBLE AGENCY 4
Arts Council
RC&Ds
DES
DES
DNRC-Forestry Assistance
Governor's Office of Community Service

DES

Tribal Nations

Public Service Commission

Public Service Commission

Public Service Commission

Dept. Commerce-Montana Heritage Commission
Dept. Commerce-Montana Heritage Commission
Dept. Commerce-Montana Heritage Commission
Dept. Commerce-Montana Heritage Commission

RESPONSIBLE AGENCY 5
Governor's Office of Indian Affairs
BIA
Keep Montana Green
Tribal Nations
MFWP

Conservation Districts

Utilities

DES

DES

RESPONSIBLE AGENCY 6
University System
Local Jurisdictions
State Fire Marshall
FireSafe Montana
State Fire Marshall

RESPONSIBLE AGENCY 7
MFWP
Tribal Nations
Local Jurisdictions & Tribes

STATE OF MONTANA MITIGATION STRATEGY - 2013 UPDATE

GOAL	OBJECTIVE	PROJECT
Goal 1: Maximize the Use of Mitigation Actions that Prevent Losses from all Hazards	Objective 1.1: Increase capability for continuity of government	Project 1.1.1 Migrate IT systems to central disaster resilient facilities.
		Project 1.1.2 Identify and protect essential government records in appropriate facilities.
	Objective 1.2: Enhance warning capabilities	Project 1.2.1 Place NOAA weather radios in all state government offices.
		Project 1.2.2 Promote use of NOAA weather radios in homes and when recreating (battery operated).
		Project 1.2.3 Recommend voluntary placement of NOAA weather radios in restaurants, gas stations, stores, day cares, movie theaters, baseball fields, and/or golf
	Objective 1.3: Increase the public awareness of hazards.	Project 1.3.1 Educate all K-12 school students in preparedness activities including the American Red Cross "Masters of Disaster" curriculum.
		Project 1.3.2 Promote hazard mitigation education in schools.
	Objective 1.4: Continuously improve hazard assessments	Project 1.4.1 Determine GPS locations of all State buildings and infrastructure for detailed analysis.
		Project 1.4.2 Conduct a risk assessment that utilizes specific State building locations and infrastructure locations to be used for mitigation strategy
		Project 1.4.3 Encourage local jurisdictions and Tribal Nations to geo-locate their critical facilities for use in risk assessment.
		Project 1.4.4 Recommend that local and Tribal PDM Plans conduct Level 2 HAZUS analysis for critical facilities
		Project 1.4.5 Coordinate with NRIS to provide GIS layers for hazard mitigation planning that Counties and Tribal Nations can use.
	Objective 1.5 Protect cultural resources	Project 1.5.1 Plan for the protection of historic and cultural properties in hazard prone areas
Goal 2: Increase the State's Capability to Provide and Assist Local Jurisdictions and Tribal Nations with Mitigation Opportunities	Objective 2.1: Support mitigation planning at all levels.	Project 2.1.1 Provide mitigation benefit-costanalysis (BCA) training courses.
		Project 2.1.2 Coordinate Local and Tribal PDM Plan Updates
		Project 2.1.3 Assist local jurisdictions and Tribal Nations fill out FEMA PDM-C grant applications.
		Project 2.1.4 Encourage DES staff to assist local and Tribal DES coordinators to develop a plan of action to complete their more feasible mitigation projects
		Project 2.1.5 Negotiate with FEMA to unify and simplify HMA grant process.
		Project 2.1.6 Encourage HMA applicants to work more closely with federal counterparts and utilize their expertise and training relative to hazard mitigation.
	Objective 2.2: Promote mitigation through supportive legislation and funding.	Project 2.2.1 Create a State-funded grant program to assist with the 25 percent PDM-C match for local and Tribal governments.
		Project 2.2.2 Promote State programs that receive adequate funding to engage in mitigation planning and project implementation.
		Project 2.2.3 Encourage local and Tribal growth policies to consider natural and man-made hazards
		Project 2.2.4 Promote mitigation awareness
		Project 2.2.5 Explore economic incentives for mitigation (i.e. insurance premium discounts, state tax credits, etc.).
	Objective 2.3: Coordinate and establish priorities for hazard mitigation projects at all levels in the State of Montana.	Project 2.3.1 Continue outreach of mitigation project funding opportunities.
		Project 2.3.2 Document mitigation successes
		Project 2.3.3 Continue to engage State agencies such as DMA, DOA, MDT, MFWP and DNRC in the mitigation planning process.
		Project 2.3.4 Increase the scope and participation of the State Planning Team during State PDM updates
Goal 3: Reduce Impacts of Wildland and Rangeland Fires	Objective 3.1: Reduce fuels in the WUI	Project 3.1.1 Conduct wildland fuel reduction on state property including parks, day-use facilities and highway rights-of-way.
		Project 3.1.2 Encourage fuel reduction in the WUI and evaculation routes on local jurisdiction, tribal nation, and privately owned lands.
		Project 3.1.3 Encourage utilities and private landowners to conduct fuel reduction in right-of-ways.
		Project 3.1.4 Participate in the coordination of mitigation projects on federal lands adjacent to state/private holdings.
		Project 3.1.5 Encourage biomass utilization from wildland fuel mitigation projects.
	Objective 3.2: Enhance community awareness of wildfires through education	Project 3.2.1 Promote public responsibility for defensible/survivable space in the WUI
		Project 3.2.2 Continue to support and fund the statewide FireSafe Montana organization that gathers, disseminates and assists counties and other political subdivisions with grant information, project development and operations.
Goal 3: Reduce Impacts of Wildland and Rangeland Fires	Objective 3.3: Establish mapping or record keeping practices to support fuel management strategies	Project 3.3.1 Develop fire/fuel GIS layer for state lands
		Project 3.3.2 Compile WUI GIS layer from CWPPs
		Project 3.3.3 Compile database of structure damage from wildfire for use in future risk and damage assessments

STATE OF MONTANA MITIGATION STRATEGY - 2013 UPDATE

GOAL	OBJECTIVE	PROJECT
Goal 4: Mitigate the Potential Loss of Life and Property from Flooding	Objective 4.1: Reduce the number of current and future structures in the floodplain.	Project 4.1.1 Encourage jurisdictions to pursue mitigation projects for repetitive loss structures or any severe repetitive loss properties identified in the future.
		Project 4.1.2 Develop and improve upon model floodplain ordinances for local and Tribal governments
		Project 4.1.3 Encourage appropriate entities to obtain conservation easements for land in the floodplain.
	Objective 4.2: Mitigate flooding of structures and infrastructure.	Project 4.2.1 Encourage mitigation projects that upgrade undersized bridges that inhibit water flow or those with scour potential.
		Project 4.2.2 Encourage communities at risk from ice jam flooding to apply for mitigation grants to install ice jam mitigation systems.
	Objective 4.3: Increase public awareness of flood mitigation.	Project 4.3.1 Continue to provide flood insurance education.
		Project 4.3.2 Educate public on need to limit future development in the floodplain.
		Project 4.3.3 Educate home and business owners on utility tie-downs.
	Objective 4.4: Improve the effectiveness of flood insurance programs.	Project 4.4.1 Provide outreach and technical assistance in joining the NFIP Community Rating System for reducing flood insurance premiums.
		Project 4.4.2 Develop mapping for flood prone areas without maps
		Project 4.4.3 Update floodplain mapping from approximate to detailed maps.
		Project 4.4.4 Establish a schedule for National Flood Insurance Program map review and updates.
		Project 4.4.5 Encourage coordination between DES Coordinators, floodplain managers and land use planners.
Goal 5: Reduce Potential Earthquake Losses in Seismically Prone Areas	Objective 5.1 Provide for earthquake resistance in new construction	Project 5.1.1 Integrate seismic resilience into significant building retrofits.
		Project 5.1.2 Adopt seismic requirements of updated International Code Council.
	Objective 5.2: Educate the public in earthquake mitigation and readiness.	Project 5.2.1 Continue “Earthquake Preparedness Month” outreach activities during the month of October.
		Project 5.2.2 Continue presentations and distribution of earthquake awareness materials.
		Project 5.2.3 Expand and upgrade the earthquake monitoring network and information reporting capabilities in high hazard areas.
		Project 5.2.4 Quantify seismic hazards posed by faults.
	Objective 5.3: Seismically retrofit existing critical facilities/infrastructure and government assets.	Project 5.3.1 Survey and install utility shut-off valves at all state buildings in the intermountain seismic belt.
		Project 5.3.2 At the Capitol Complex in Helena, seismically retrofit buildings with most vulnerability and highest occupancy to mitigate loss.
		Project 5.3.3 At Montana University System campuses in the intermountain seismic belt, seismically retrofit most vulnerable and highest occupancy buildings.
		Project 5.3.4 At the Department of Corrections facilities in Deer Lodge, improve support systems and implement seismic upgrades to ensure security and maintain operation.
		Project 5.3.5 At the Montana State Hospital in Warm Springs, seismically harden buildings and expand support systems to assure continued operation and meet medical needs.
		Project 5.3.6 At the Montana Developmental Center and Riverside in Boulder, implement seismic upgrades.
		Project 5.3.7 Conduct seismic evaluations of state-owned buildings in the intermountain seismic belt (including utility tunnels and infrastructure systems) to identify where seismic retrofits are necessary.
		Project 5.3.8 Encourage local jurisdictions and tribal nations in the intermountain seismic belt to conduct seismic evaluations of their critical facilities
		Project 5.3.9 Encourage and educate businesses in the intermountain seismic belt to implement seismic retrofit projects.
		Project 5.3.10 Encourage private utilities in intermountain seismic belt to retrofit their systems for seismic stability
	Objective 5.4: Implement non-structural mitigation projects to harden State and community assets and infrastructure from seismic hazards	Project 5.4.1 Implement non-structural projects at state buildings in the intermountain seismic belt

STATE OF MONTANA MITIGATION STRATEGY - 2013 UPDATE

GOAL	OBJECTIVE	PROJECT
Goal 6: Reduce Impacts from Severe Summer Weather	Objective 6.1: Increase community capabilities to mitigate summer weather hazards.	Project 6.1.1 Encourage utilities to bury electric lines that could blow down to improve reliability.
		Project 6.1.2 Modify vulnerable buildings to resist water penetration and wind damage.
	Objective 6.2: Increase public awareness of ways to mitigate summer weather hazards.	Project 6.2.1 Maintain partnership with National Weather Service and media to publicize Severe Weather Awareness Week to help educate public on preparedness and what to do when the warnings are issued.
Goal 7: Reduce Impacts from Severe Winter Weather	Objective 7.1: Increase community capabilities to mitigate winter weather hazards.	Project 7.1.1 Encourage utilities to put their equipment underground in areas that are hit by extreme weather.
		Project 7.1.2 Encourage utilities to apply for mitigation grants to install air flow spoilers on above ground utility lines
	Objective 7.2: Increase public awareness of winter weather hazards.	Project 7.2.1 Promote partnership with National Weather Service and media to publicize Winter Weather Hazards Awareness Week to help educate public on preparedness
		Project 7.2.2 Encourage local jurisdictions and tribal nations to create partnerships with a private company for winter survival kits already put together that can be sold to the public at a reasonable price.
	Objective 7.3: Implement actions to enhance reliability of power supply.	Project 7.3.1 Publicize demonstrated ability of airflow spoilers to reduce powerline failure.
Goal 8: Minimize Impacts from Communicable Disease Outbreaks	Objective 8.1: Minimize the impacts communicable disease events have on public health.	Project 8.1.1 Conduct public health surveillance, disease investigations, and provide mitigation strategies
		Project 8.1.2 Improve the timeliness and completeness of disease reporting.
		Project 8.1.3 Ensure Department Emergency Operations Plans (EOPs) and all associated annexes and procedures are current and complete.
		Project 8.1.4 Test and evaluate public health response plans
Goal 9: Reduce Losses from Hazardous Material Incidents	Objective 9.1 Collect data to support mitigation projects	Project 9.1.1 Complete hazmat flow studies at highly vulnerable locations
		Project 9.1.2 Obtain hazmat incident property damage for use in future risk assessments
Goal 10: Reduce the Impacts from Drought	Objective 10.1 Enhance planning efforts, public information, and education regarding drought	10.1.1 Increase the educational emphasis given to forest and range management practices for the minimizing of drought impacts.
		10.1.2 Inventory operating plans of reservoirs to ensure drought contingency plans.
		10.1.3 Develop and implement drought plans for state-funded reservoirs.
	Objective 10.2 Implement economic incentives to mitigate drought	10.2.1 Establish stronger economic and other incentives for private investments in water conservation.
	Objective 10.3 Implement actions to ensure water conservation during drought	10.3.1 Encourage voluntary water conservation by domestic, municipal, and industrial users.
		10.3.2 Clarify state law so that water rights holders who conserve water are clearly allowed to sell or lease salvaged water in a manner that does not adversely affect water rights.
	Objective 10.4 Enhance water storage capacity and irrigation conveyance.	10.4.1 Consider feasible water storage where it will increase water supply security such as development of catchment basins with wells and storage capacity and/or percolation ponds.
		10.4.2 Improve water conveyance efficiencies in agricultural, municipal, and industrial uses.
		10.4.3 Urge the Board of Natural Resources and Conservation to adopt rules for the installation of water metering devices to resolve conflict on water short drainages.
		10.4.4 Find ways to expedite the resolution of water use conflicts and water rights enforcement during drought.
	Objective 10.5 Implement appropriate regulations to mitigate drought.	10.5.1 Develop a model water conservation ordinance for use by municipalities and rural domestic water suppliers.
		10.5.2 Clarify state law to allow voluntary, temporary changes of water rights and contract water exchanges.
Goal 11: Reduce Impacts from Dam Failure Hazard	Objective 11.1 Reduce the risk of dam failure	Project 11.1.1 Obtain digitized inundation maps for federally-regulated high hazard dams for risk assessment.
		Project 11.1.2 Repair State high hazard dams with deficiencies.
		Project 11.1.3 Evaluate existing dams for hazard classification.
		Project 11.1.4 Keep Emergency Action Plans current.
		Project 11.1.5 Exercise Emergency Action Plans every five years.
		Project 11.1.6 Encourage continued participation of local and tribal DES in DNRC dam safety table top exercises.
Goal 12: Reduce Impacts from Landslides	Objective 12.1: Reduce the risk that landslides will damage public property.	Project 12.1.1 Conduct proactive scaling and reducing of back slopes along highways
		Project 12.1.2 Create a GIS layer of areas vulnerable to landslides using geology, soil type, slope and past occurrence.
Goal 13: Minimize Impacts from Terrorism	Objective 13.1: Prevent losses from acts f terrorism, violence, and civil unrest.	Project 13.1.1 Support mitigation-related goals, objectives, and actions of the Montana Homeland Security Security Strategic Plan.
Goal 14: Minimize Impacts from Volcanic Eruptions	Objective 14.1: Identify and reduce losses from volcanic activitity.	Project 14.1.1 Educate the public on how to respond to volcanic ash fall-out.

APPENDIX C - RECONCILIATION OF MITIGATION STRATEGY; 2010 TO 2013

STATUS	FORMER GOAL #	GOAL	FORMER OBJECTIVE #	OBJECTIVE	FORMER PROJECT #
Completed	1	Goal 1: Maximize the Use of Mitigation Actions that Prevent Losses from all Hazards	1.2	Objective 1.1: Increase capability for continuity of government	1.1.1
	1	Goal 1: Maximize the Use of Mitigation Actions that Prevent Losses from all Hazards	1.2	Objective 1.1: Increase capability for continuity of government	1.1.2
Partially Complete	1	Goal 1: Maximize the Use of Mitigation Actions that Prevent Losses from all Hazards	1.2	Objective 1.2: Enhance warning capabilities	1.2.1
	1	Goal 1: Maximize the Use of Mitigation Actions that Prevent Losses from all Hazards	1.2	Objective 1.2: Enhance warning capabilities	1.2.2
	1	Goal 1: Maximize the Use of Mitigation Actions that Prevent Losses from all Hazards	1.2	Objective 1.2: Enhance warning capabilities	1.2.3
Deleted	1	Goal 1: Maximize the Use of Mitigation Actions that Prevent Losses from all Hazards	1.3	Objective 1.3: Increase the public awareness of hazards.	1.3.1
	1	Goal 1: Maximize the Use of Mitigation Actions that Prevent Losses from all Hazards	1.3	Objective 1.3: Increase public awareness of hazards.	1.3.2
Complete for essential facilities	1	Goal 1: Maximize the Use of Mitigation Actions that Prevent Losses from all Hazards	1.4	Objective 1.4: Continuously improve hazard assessments	1.4.1
Completed	1	Goal 1: Maximize the Use of Mitigation Actions that Prevent Losses from all Hazards	1.4	Objective 1.4: Continuously improve hazard assessments	1.4.2
	1	Goal 1: Maximize the Use of Mitigation Actions that Prevent Losses from all Hazards	1.4	Objective 1.4: Continuously improve hazard assessments	1.4.3
	1	Goal 1: Maximize the Use of Mitigation Actions that Prevent Losses from all Hazards	1.4	Objective 1.4: Continuously improve hazard assessments	1.4.4
Completed	1	Goal 1: Maximize the Use of Mitigation Actions that Prevent Losses from all Hazards	1.4	Objective 1.4: Continuously improve hazard assessments	1.4.5
	1	Goal 1: Maximize the Use of Mitigation Actions that Prevent Losses from all Hazards	1.5	Objective 1.5 Protect cultural resources	1.5.1
	2	Goal 2: Increase the State's Capability to Provide and Assist Local Jurisdictions and Tribal Nations with Mitigation Opportunities	2.1	Objective 2.1: Support mitigation planning at all levels.	2.1.1
	2	Goal 2: Increase the State's Capability to Provide and Assist Local Jurisdictions and Tribal Nations with Mitigation Opportunities	2.1	Objective 2.1: Support mitigation planning at all levels.	2.1.2
	2	Goal 2: Increase the State's Capability to Provide and Assist Local Jurisdictions and Tribal Nations with Mitigation Opportunities	2.1	Objective 2.1: Support mitigation planning at all levels.	2.1.3
	2	Goal 2: Increase the State's Capability to Provide and Assist Local Jurisdictions and Tribal Nations with Mitigation Opportunities	2.1	Objective 2.1: Support mitigation planning at all levels.	2.1.4
	2	Goal 2: Increase the State's Capability to Provide and Assist Local Jurisdictions and Tribal Nations with Mitigation Opportunities	2.1	Objective 2.1: Support mitigation planning at all levels.	2.1.5
	2	Goal 2: Increase the State's Capability to Provide and Assist Local Jurisdictions and Tribal Nations with Mitigation Opportunities	2.1	Objective 2.1: Support mitigation planning at all levels.	2.1.6
	2	Goal 2: Increase the State's Capability to Provide and Assist Local Jurisdictions and Tribal Nations with Mitigation Opportunities	2.2	Objective 2.2: Promote mitigation through supportive legislation and funding.	2.2.1
	2	Goal 2: Increase the State's Capability to Provide and Assist Local Jurisdictions and Tribal Nations with Mitigation Opportunities	2.2	Objective 2.2: Promote mitigation through supportive legislation and funding.	2.2.2
	2	Goal 2: Increase the State's Capability to Provide and Assist Local Jurisdictions and Tribal Nations with Mitigation Opportunities	2.2	Objective 2.2: Promote mitigation through supportive legislation and funding.	2.2.3
	2	Goal 2: Increase the State's Capability to Provide and Assist Local Jurisdictions and Tribal Nations with Mitigation Opportunities	2.2	Objective 2.2: Promote mitigation through supportive legislation and funding.	2.2.4

APPENDIX C - RECONCILIATION OF MITIGATION STRATEGY; 2010 TO 2013					
STATUS	FORMER GOAL #	GOAL	FORMER OBJECTIVE #	OBJECTIVE	FORMER PROJECT #
	2	Goal 2: Increase the State's Capability to Provide and Assist Local Jurisdictions and Tribal Nations with Mitigation Opportunities	2.2	Objective 2.2: Promote mitigation through supportive legislation and funding.	2.2.5
	2	Goal 2: Increase the State's Capability to Provide and Assist Local Jurisdictions and Tribal Nations with Mitigation Opportunities	2.3	Objective 2.3: Coordinate and establish priorities for hazard mitigation projects at all levels in the State of Montana.	2.3.1
	2	Goal 2: Increase the State's Capability to Provide and Assist Local Jurisdictions and Tribal Nations with Mitigation Opportunities	2.3	Objective 2.3: Coordinate and establish priorities for hazard mitigation projects at all levels in the State of Montana.	2.3.2
	2	Goal 2: Increase the State's Capability to Provide and Assist Local Jurisdictions and Tribal Nations with Mitigation Opportunities	2.3	Objective 2.3: Coordinate and establish priorities for hazard mitigation projects at all levels in the State of Montana.	2.3.3
	2	Goal 2: Increase the State's Capability to Provide and Assist Local Jurisdictions and Tribal Nations with Mitigation Opportunities	2.3	Objective 2.3: Coordinate and establish priorities for hazard mitigation projects at all levels in the State of Montana.	2.3.4
	9	Goal 3: Reduce Impacts of Wildland and Rangeland Fires	9.1	Objective 3.1: Reduce fuels in the WUI	9.1.1
	9	Goal 3: Reduce Impacts of Wildland and Rangeland Fires	9.1	Objective 3.1: Reduce fuels in the WUI	9.1.2
	9	Goal 3: Reduce Impacts of Wildland and Rangeland Fires	9.1	Objective 3.1: Reduce fuels in the WUI	9.1.3
	9	Goal 3: Reduce Impacts of Wildland and Rangeland Fires	9.1	Objective 3.1: Reduce fuels in the WUI	9.1.4
	9	Goal 3: Reduce Impacts of Wildland and Rangeland Fires	9.1	Objective 3.1: Reduce fuels in the WUI	9.1.5
New	N/A	Goal 3: Reduce Impacts of Wildland and Rangeland Fires	N/A	Objective 3.1: Reduce fuels in the WUI	NEW for 2013
	9	Goal 3: Reduce Impacts of Wildland and Rangeland Fires	9.2	Objective 3.2: Enhance community awareness of wildfires through education	9.2.1
Deleted	9	Goal 3: Reduce Impacts of Wildland and Rangeland Fires	9.2	Objective 3.2: Enhance community awareness of wildfires through education	9.2.2
	9	Goal 3: Reduce Impacts of Wildland and Rangeland Fires	9.2	Objective 3.2: Enhance community awareness of wildfires through education	9.2.3
Deleted	9	Goal 3: Reduce Impacts of Wildland and Rangeland Fires	9.2	Objective 3.2: Enhance community awareness of wildfires through education	9.2.4
Completed	9	Goal 3: Reduce Impacts of Wildland and Rangeland Fires	9.3	Objective 3.3: Establish mapping or record keeping practices to support fuel management strategies	9.3.1
Completed	9	Goal 3: Reduce Impacts of Wildland and Rangeland Fires	9.3	Objective 3.3: Establish mapping or record keeping practices to support fuel management strategies	9.3.2
	9	Goal 3: Reduce Impacts of Wildland and Rangeland Fires	9.3	Objective 3.3: Establish mapping or record keeping practices to support fuel management strategies	9.3.3
Deleted	9	Goal 3: Reduce Impacts of Wildland and Rangeland Fires	9.3	Objective 3.3: Establish mapping or record keeping practices to support fuel management strategies	9.3.4
	5	Goal 4: Mitigate the Potential Loss of Life and Property from Flooding	5.1	Objective 4.1: Reduce the number of current and future structures in the floodplain.	5.1.1
Completed	5	Goal 4: Mitigate the Potential Loss of Life and Property from Flooding	5.1	Objective 4.1: Reduce the number of current and future structures in the floodplain.	5.1.2
	5	Goal 4: Mitigate the Potential Loss of Life and Property from Flooding	5.1	Objective 4.1: Reduce the number of current and future structures in the floodplain.	5.1.3
	5	Goal 4: Mitigate the Potential Loss of Life and Property from Flooding	5.2	Objective 4.2: Mitigate flooding of structures and infrastructure.	5.2.1
	5	Goal 4: Mitigate the Potential Loss of Life and Property from Flooding	5.2	Objective 4.2: Mitigate flooding of structures and infrastructure.	5.2.2
	5	Goal 4: Mitigate the Potential Loss of Life and Property from Flooding	5.3	Objective 4.3: Increase public awareness of flood mitigation.	5.3.1
	5	Goal 4: Mitigate the Potential Loss of Life and Property from Flooding	5.3	Objective 4.3: Increase public awareness of flood mitigation.	5.3.2
	5	Goal 4: Mitigate the Potential Loss of Life and Property from Flooding	5.3	Objective 4.3: Increase public awareness of flood mitigation.	5.3.3

APPENDIX C - RECONCILIATION OF MITIGATION STRATEGY; 2010 TO 2013					
STATUS	**FORMER GOAL #**	**GOAL**	**FORMER OBJECTIVE #**	**OBJECTIVE**	**FORMER PROJECT #**
	5	Goal 4: Mitigate the Potential Loss of Life and Property from Flooding	5.4	Objective 4.4: Improve the effectiveness of flood insurance programs.	5.4.1
	5	Goal 4: Mitigate the Potential Loss of Life and Property from Flooding	5.4	Objective 4.4: Improve the effectiveness of flood insurance programs.	5.4.2
	5	Goal 4: Mitigate the Potential Loss of Life and Property from Flooding	5.4	Objective 4.4: Improve the effectiveness of flood insurance programs.	5.4.3
	5	Goal 4: Mitigate the Potential Loss of Life and Property from Flooding	5.4	Objective 4.4: Improve the effectiveness of flood insurance programs.	5.4.4
	5	Goal 4: Mitigate the Potential Loss of Life and Property from Flooding	5.4	Objective 4.4: Improve the effectiveness of flood insurance programs.	5.4.5
	4	Goal 5: Reduce Potential Earthquake Losses in Seismically Prone Areas	4.1	Objective 5.1 Provide for earthquake resistance in new construction	4.1.1
	4	Goal 5: Reduce Potential Earthquake Losses in Seismically Prone Areas	4.1	Objective 5.1 Provide for earthquake resistance in new construction	4.1.2
	4	Goal 5: Reduce Potential Earthquake Losses in Seismically Prone Areas	4.2	Objective 5.2: Educate the public in earthquake mitigation and readiness.	4.2.1
	4	Goal 5: Reduce Potential Earthquake Losses in Seismically Prone Areas	4.2	Objective 5.2: Educate the public in earthquake mitigation and readiness.	4.2.2
	4	Goal 5: Reduce Potential Earthquake Losses in Seismically Prone Areas	4.2	Objective 5.2: Educate the public in earthquake mitigation and readiness.	4.2.3
	4	Goal 5: Reduce Potential Earthquake Losses in Seismically Prone	4.2	Objective 5.2: Educate the public in earthquake mitigation and readiness.	4.2.4
	4	Goal 5: Reduce Potential Earthquake Losses in Seismically Prone Areas	4.3	Objective 5.3: Seismically retrofit existing critical facilities/infrastructure and government assets.	4.3.1
	4	Goal 5: Reduce Potential Earthquake Losses in Seismically Prone Areas	4.3	Objective 5.3: Seismically retrofit existing critical facilities/infrastructure and government assets.	4.3.2
	4	Goal 5: Reduce Potential Earthquake Losses in Seismically Prone Areas	4.3	Objective 5.3: Seismically retrofit existing critical facilities/infrastructure and government assets.	4.3.3
	4	Goal 5: Reduce Potential Earthquake Losses in Seismically Prone Areas	4.3	Objective 5.3: Seismically retrofit existing critical facilities/infrastructure and government assets.	4.3.4
	4	Goal 5: Reduce Potential Earthquake Losses in Seismically Prone Areas	4.3	Objective 5.3: Seismically retrofit existing critical facilities/infrastructure and government assets.	4.3.5
	4	Goal 5: Reduce Potential Earthquake Losses in Seismically Prone Areas	4.3	Objective 5.3: Seismically retrofit existing critical facilities/infrastructure and government assets.	4.3.6
Completed	4	Goal 5: Reduce Potential Earthquake Losses in Seismically Prone Areas	4.3	Objective 5.3: Seismically retrofit existing critical facilities/infrastructure and government assets.	4.3.7
	4	Goal 5: Reduce Potential Earthquake Losses in Seismically Prone Areas	4.3	Objective 5.3: Seismically retrofit existing critical facilities/infrastructure and government assets.	4.3.8
	4	Goal 5: Reduce Potential Earthquake Losses in Seismically Prone Areas	4.3	Objective 5.3: Seismically retrofit existing critical facilities/infrastructure and government assets.	4.3.9
	4	Goal 5: Reduce Potential Earthquake Losses in Seismically Prone Areas	4.3	Objective 5.3: Seismically retrofit existing critical facilities/infrastructure and government assets.	4.3.10
	4	Goal 5: Reduce Potential Earthquake Losses in Seismically Prone Areas	4.4	Objective 5.4: Implement non-structural mitigation projects to harden State and community assets and infrastructure from seismic hazards	4.4.1
	8	Goal 6: Reduce Impacts from Severe Summer Weather	8.1	Objective 6.1: Increase community capabilities to mitigate summer weather hazards.	8.1.1
	8	Goal 6: Reduce Impacts from Severe Summer Weather	8.1	Objective 6.1: Increase community capabilities to mitigate summer weather hazards.	8.1.2
	8	Goal 6: Reduce Impacts from Severe Summer Weather	8.2	Objective 6.2: Increase public awareness of ways to mitigate summer weather hazards.	8.2.1
	10	Goal 7: Reduce Impacts from Severe Winter Weather	10.1	Objective 7.1: Increase community capabilities to mitigate winter weather hazards.	10.1.1

APPENDIX C - RECONCILIATION OF MITIGATION STRATEGY; 2010 TO 2013					
STATUS	FORMER GOAL #	GOAL	FORMER OBJECTIVE #	OBJECTIVE	FORMER PROJECT #
	10	Goal 7: Reduce Impacts from Severe Winter Weather	10.1	Objective 7.1: Increase community capabilities to mitigate winter weather hazards.	10.1.2
	10	Goal 7: Reduce Impacts from Severe Winter Weather	10.2	Objective 7.2: Increase public awareness of winter weather hazards.	10.2.1
	10	Goal 7: Reduce Impacts from Severe Winter Weather	10.2	Objective 7.2: Increase public awareness of winter weather hazards.	10.2.2
	10	Goal 7: Reduce Impacts from Severe Winter Weather	10.3	Objective 7.3: Implement actions to enhance reliability of power supply.	10.3.1
New	N/A	Goal 7: Reduce Impacts from Severe Winter Weather	N/A	Objective 7.3: Implement actions to enhance reliability of power supply.	NEW for 2013
New	N/A	Goal 8: Minimize Impacts from Communicable Disease Outbreaks	N/A	Objective 8.1: Minimize the impacts communicable disease events have on public health.	NEW for 2013
New	N/A	Goal 8: Minimize Impacts from Communicable Disease Outbreaks	N/A	Objective 8.1: Minimize the impacts communicable disease events have on public health.	NEW for 2013
New	N/A	Goal 8: Minimize Impacts from Communicable Disease Outbreaks	N/A	Objective 8.1: Minimize the impacts communicable disease events have on public health.	NEW for 2013
New	N/A	Goal 8: Minimize Impacts from Communicable Disease Outbreaks	N/A	Objective 8.1: Minimize the impacts communicable disease events have on public health.	NEW for 2013
	6	Goal 9: Reduce Losses from Hazardous Material Incidents	6.1	Objective 9.1 Collect data to support mitigation projects	6.1.1
Completed	6	Goal 9: Reduce Losses from Hazardous Material Incidents	6.1	Objective 9.1 Collect data to support mitigation projects	6.1.2
New	N/A	Goal 10: Reduce the Impacts from Drought	N/A	Objective 10.1 Enhance planning efforts, public information, and education regarding drought	NEW for 2013
New	N/A	Goal 10: Reduce the Impacts from Drought	N/A	Objective 10.1 Enhance planning efforts, public information, and education regarding drought	NEW for 2013
New	N/A	Goal 10: Reduce the Impacts from Drought	N/A	Objective 10.1 Enhance planning efforts, public information, and education regarding drought	NEW for 2013
New	N/A	Goal 10: Reduce the Impacts from Drought	N/A	Objective 10.1 Enhance planning efforts, public information, and education regarding drought	NEW for 2013
New	N/A	Goal 10: Reduce the Impacts from Drought	N/A	Objective 10.2 Implement economic incentives to mitigate drought	NEW for 2013
New	N/A	Goal 10: Reduce the Impacts from Drought	N/A	Objective 10.3 Implement actions to ensure water conservation during drought	NEW for 2013
New	N/A	Goal 10: Reduce the Impacts from Drought	N/A	Objective 10.3 Implement actions to ensure water conservation during drought	NEW for 2013
New	N/A	Goal 10: Reduce the Impacts from Drought	N/A	Objective 10.4 Enhance water storage capacity and irrigation conveyance.	NEW for 2013
New	N/A	Goal 10: Reduce the Impacts from Drought	N/A	Objective 10.4 Enhance water storage capacity and irrigation conveyance.	NEW for 2013
New	N/A	Goal 10: Reduce the Impacts from Drought	N/A	Objective 10.4 Enhance water storage capacity and irrigation conveyance.	NEW for 2013
New	N/A	Goal 10: Reduce the Impacts from Drought	N/A	Objective 10.4 Enhance water storage capacity and irrigation conveyance.	NEW for 2013
New	N/A	Goal 10: Reduce the Impacts from Drought	N/A	Objective 10.5 Implement appropriate regulations to mitigate drought.	NEW for 2013
New	N/A	Goal 10: Reduce the Impacts from Drought	N/A	Objective 10.5 Implement appropriate regulations to mitigate drought.	NEW for 2013
Completed	3	Goal 11: Reduce Impacts from Dam Failure Hazard	3.1	Objective 11.1 Reduce the risk of dam failure	3.1.1
	3	Goal 11: Reduce Impacts from Dam Failure Hazard	3.1	Objective 11.1 Reduce the risk of dam failure	3.1.2
	3	Goal 11: Reduce Impacts from Dam Failure Hazard	3.1	Objective 11.1 Reduce the risk of dam failure	3.1.3
	3	Goal 11: Reduce Impacts from Dam Failure Hazard	3.1	Objective 11.1 Reduce the risk of dam failure	3.1.4
	3	Goal 11: Reduce Impacts from Dam Failure Hazard	3.1	Objective 11.1 Reduce the risk of dam failure	3.1.5
	3	Goal 11: Reduce Impacts from Dam Failure Hazard	3.1	Objective 11.1 Reduce the risk of dam failure	3.1.6

APPENDIX C - RECONCILIATION OF MITIGATION STRATEGY; 2010 TO 2013					
STATUS	**FORMER GOAL #**	**GOAL**	**FORMER OBJECTIVE #**	**OBJECTIVE**	**FORMER PROJECT #**
	7	Goal 12: Reduce Impacts from Landslides	7.1	Objective 12.1: Reduce the risk that landslides will damage public property.	7.1.1
Completed	7	Goal 12: Reduce Impacts from Landslides	7.1	Objective 12.1: Reduce the risk that landslides will damage public property.	7.1.2
New	N/A	Goal 13: Minimize Impacts from Terrorism	N/A	Objective 13.1: Prevent losses from acts f terrorism, violence, and civil unrest.	NEW for 2013
New	N/A	Goal 14: Minimize Impacts from Volcanic Ash	N/A	Objective 14.1: Identify and reduce losses from volcanic activitity.	NEW for 2013

PROJECT
Project 1.1.1 Migrate IT systems to central disaster resilient facilities.
Project 1.1.2 Identify and protect essential government records in appropriate facilities.
Project 1.2.1 Place NOAA weather radios in all state government offices.
Project 1.2.2 Promote use of NOAA weather radios in homes and when recreating (battery operated).
Project 1.2.3 Recommend voluntary placement of NOAA weather radios in restaurants, gas stations, stores, day cares, movie theaters, baseball fields, and/or golf courses.
Project 1.3.1 Educate all K-12 school students in preparedness activities including the American Red Cross “Masters of Disaster” curriculum. ALEADY ESTABLISHED
Project 1.3.2 Promote hazard mitigation education in schools.
Project 1.4.1 Determine GPS locations of all State buildings and infrastructure for detailed analysis.
Project 1.4.2 Conduct a risk assessment that utilizes specific State building locations and infrastructure locations to be used for mitigation strategy
Project 1.4.3 Encourage local jurisdictions and Tribal Nations to geo-locate their critical facilities for use in risk assessment.
Project 1.4.4 Recommend that local and Tribal PDM Plans conduct Level 2 HAZUS analysis for critical facilities
Project 1.4.5 Coordinate with NRIS to provide GIS layers for hazard mitigation planning that Counties and Tribal Nations can use.
Project 1.5.1 Plan for the protection of historic and cultural properties in hazard prone areas
Project 2.1.1 Provide mitigation benefit-costanalysis (BCA) training courses.
Project 2.1.2 Coordinate Local and Tribal PDM Plan Updates
Project 2.1.3 Assist local jurisdictions and Tribal Nations fill out FEMA mitigation grant applications.
Project 2.1.4 Encourage DES staff to assist local and Tribal DES coordinators to develop a plan of action to complete their more feasible mitigation projects
Project 2.1.5 Negotiate with FEMA to unify and simplify HMA grant process.
Project 2.1.6 Encourage HMA applicants to work more closely with federal counterparts and utilize their expertise and training relative to hazard mitigation.
Project 2.2.1 Create a State-funded grant program to assist with the 25 percent PDM-C match for local and Tribal governments.
Project 2.2.2 Promote State programs that receive adequate funding to engage in mitigation planning and project implementation.
Project 2.2.3 Encourage local and Tribal growth policies to consider natural and man-made hazards
Project 2.2.4 Promote mitigation awareness

PROJECT
Project 2.2.5 Explore economic incentives for mitigation (i.e. insurance premium discounts, state tax credits, etc.).
Project 2.3.1 Continue outreach of mitigation project funding opportunities.
Project 2.3.2 Document mitigation successes
Project 2.3.3 Continue to engage State agencies such as DMA, DOA, MDT, MFWP and DNRC in the mitigation planning process.
Project 2.3.4 Increase the scope and participation of the State Planning Team during State PDM updates
Project 3.1.1 Conduct wildland fuel reduction on state property including parks, day-use facilities and highway rights-of-way.
Project 3.1.2 Encourage fuel reduction in the WUI and evaculation routes on local jurisdiction, tribal nation, and privately owned lands.
Project 3.1.3 Encourage utilities and private landowners to conduct fuel reduction in right-of-ways.
Project 3.1.4 Participate in the coordination of mitigation projects on federal lands adjacent to state/private holdings.
Project 3.1.5 Encourage biomass utilization from wildland fuel mitigation projects.
Project 3.1.6 Protect state structures in WUI via fuel reduction.
Project 3.2.1 Promote public responsibility for defensible/survivable space in the WUI
Project 3.2.2 DELETED/REDUNDANT w/ 3.1.2
Project 3.2.2 Continue to support and fund the statewide FireSafe Montana organization that gathers, disseminates and assists counties and other political subdivisions with grant information, project development and operations.
Project 3.2.4 DELETED/REDUNDANT w/ 3.2.1
Project 3.3.1 Develop fire/fuel GIS layer for state lands
Project 3.3.2 Compile WUI GIS layer from CWPPs
Project 3.3.3 Compile database of structure damage from wildfire for use in future risk and damage assessments
Project 3.3.4 DELETED. State has no authority to do this.
Project 4.1.1 Encourage jurisdictions to pursue mitigation projects for repetitive loss structures or any severe repetitive loss properties identified in the future.
Project 4.1.2 Develop and improve upon model floodplain ordinances for local and Tribal governments
Project 4.1.3 Encourage appropriate entities to obtain conservation easements for land in the floodplain.
Project 4.2.1 Encourage mitigation projects that upgrade undersized bridges that inhibit water flow or those with scour potential.
Project 4.2.2 Encourage communities at risk from ice jam flooding to apply for mitigation grants to install ice jam mitigation systems.
Project 4.3.1 Continue to provide flood insurance education.
Project 4.3.2 Educate public on need to limit future development in the floodplain.
Project 4.3.3 Educate home and business owners on utility tie-downs.

PROJECT
Project 4.4.1 Provide outreach and technical assistance in joining the NFIP Community Rating System for reducing flood insurance premiums.
Project 4.4.2 Develop mapping for flood prone areas without maps
Project 4.4.3 Update floodplain mapping from approximate to detailed maps.
Project 4.4.4 Establish a schedule for National Flood Insurance Program map review and updates.
Project 4.4.5 Encourage coordination between DES Coordinators, floodplain managers and land use planners.
Project 5.1.1 Integrate seismic resilience into significant building retrofits.
Project 5.1.2 Adopt seismic requirements of updated International Code Council.
Project 5.2.1 Continue “Earthquake Preparedness Month” outreach activities during the month of October.
Project 5.2.2 Continue presentations and distribution of earthquake preparedness materials including encouraging steops such as anchoring hot water heaters.
Project 5.2.3 Expand and upgrade the earthquake monitoring network and information reporting capabilities in high hazard areas.
Project 5.2.4 Quantify seismic hazards posed by faults.
Project 5.3.1 Survey and install utility shut-off valves at all state buildings in the intermountain seismic belt.
Project 5.3.2 At the Capitol Complex in Helena, seismically retrofit buildings with most vulnerability and highest occupancy to mitigate loss.
Project 5.3.3 At Montana University System campuses in the intermountain seismic belt, seismically retrofit most vulnerable and highest occupancy buildings.
Project 5.3.4 At the Department of Corrections facilities in Deer Lodge, improve support systems and implement seismic upgrades to ensure security and maintain operation.
Project 5.3.5 At the Montana State Hospital in Warm Springs, seismically harden buildings and expand support systems to assure continued operation and meet medical needs.
Project 5.3.6 At the Montana Developmental Center and Riverside in Boulder, implement seismic upgrades.
Project 5.3.7 Conduct seismic evaluations of state-owned buildings in the intermountain seismic belt (including utility tunnels and infrastructure systems) to identify where seismic retrofits are necessary.
Project 5.3.8 Encourage local jurisdictions and tribal nations in the intermountain seismic belt to conduct seismic evaluations of their critical facilities
Project 5.3.9 Encourage and educate home owners and businesses in the intermountain seismic belt to implement seismic retrofit projects.
Project 5.3.10 Encourage private utilities in intermountain seismic belt to retrofit their systems for seismic stability
Project 5.4.1 Implement non-structural projects at state buildings in the intermountain seismic belt such as anchoring utilities.
Project 6.1.1 Encourage utilities to bury electric lines that could blow down to improve reliability.
Project 6.1.2 Modify vulnerable buildings to resist water penetration and wind damage.
Project 6.2.1 Maintain partnership with National Weather Service and media to publicize Severe Weather Awareness Week to help educate public on preparedness and what to do when the warnings are issued.
Project 7.1.1 Encourage utilities to put their equipment underground in areas that are hit by extreme weather.

PROJECT
Project 7.1.2 Encourage utilities to apply for mitigation grants to install air flow spoilers on above ground utility lines
Project 7.2.1 Promote partnership with National Weather Service and media to publicize Winter Weather Hazards Awareness Week to help educate public on preparedness
Project 7.2.2 Encourage local jurisdictions and tribal nations to create partnerships with a private company for winter survival kits already put together that can be sold to the public at a reasonable price.
Project 7.3.1 Publicize demonstrated ability of airflow spoilers to reduce powerline failure.
Project 7.3.2 Encourage backup power at state, local, and tribal critical facilities.
Project 8.1.1 Conduct public health surveillance, disease investigations, and provide mitigation strategies
Project 8.1.2 Improve the timeliness and completeness of disease reporting.
Project 8.1.3 Ensure Department Emergency Operations Plans (EOPs) and all associated annexes and procedures are current and complete.
Project 8.1.4 Test and evaluate public health response plans
Project 9.1.1 Complete hazmat flow studies at highly vulnerable locations
Project 9.1.2 Obtain hazmat incident property damage for use in future risk assessments
Project 10.1.1 Increase the educational emphasis given to forest and range management practices for the minimizing of drought impacts.
Project 10.1.2 Inventory operating plans of reservoirs to ensure drought contingency plans.
Project 10.1.3 Develop and implement drought plans for state-funded reservoirs.
Project 10.1.4 Encourage system of soil moisture gauges to monitor drought.
Project 10.2.1 Establish stronger economic and other incentives for private investments in water conservation.
Project 10.3.1 Encourage voluntary water conservation by domestic, municipal, and industrial users.
Project 10.3.2 Clarify state law so that water rights holders who conserve water are clearly allowed to sell or lease salvaged water in a manner that does not adversely affect water rights.
Project 10.4.1 Consider feasible water storage where it will increase water supply security such as development of catchment basins with wells and storage capacity and/or percolation ponds.
Project 10.4.2 Improve water conveyance efficiencies in agricultural, municipal, and industrial uses.
Project 10.4.3 Urge DNRC to adopt rules for irrigation water metering devices to resolve conflict on water short drainages.
Project 10.4.4 Find ways to better expedite the resolution of water use conflicts and water rights enforcement during drought.
Project 10.5.1 Develop a model water conservation ordinance and funding of residential metering for use by municipalities and rural domestic water suppliers.
Project 10.5.2 Establish a legal mechanism and process for expediting temporary changes in points of diversion and places of use to address exigencies caused by drought.
Project 11.1.1 Obtain digitized inundation maps for federally-regulated high hazard dams for risk assessment.
Project 11.1.2 Repair state high hazard dams with deficiencies.
Project 11.1.3 Evaluate existing state dams for hazard classification.
Project 11.1.4 Keep Emergency Action Plans current.
Project 11.1.5 Exercise Emergency Action Plans every five years.
Project 11.1.6 Encourage continued participation of local and tribal DES in DNRC dam safety table top exercises.

PROJECT
Project 12.1.1 Conduct proactive scaling and reducing of back slopes along highways
Project 12.1.2 Create a GIS layer of areas vulnerable to landslides using geology, soil type, slope and past occurrence.
Project 13.1.1 Support mitigation-related goals, objectives, and actions of the Montana Homeland Security Security Strategic Plan.
Project 14.1.1 Educate the public on how to respond to volcanic ash fall-out.