

# Meagher County

# Multi-Hazard Mitigation Plan

2009 – 2014

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# Table of Contents

|  |           |
|--|-----------|
| Letter of Transmittal .....  | 4         |
| Resolutions of Adoption.....   | 5         |
| <b>1. Executive Summary.....</b>   | <b>6</b>  |
| <b>1.1. Problem Overview.....</b>  | <b>6</b>  |
| <b>1.2. Process Overview.....</b>  | <b>6</b>  |
| <b>1.3. Overall Goals.....</b>   | <b>6</b>  |
| <b>1.4. Methodology.....</b>   | <b>6</b>  |
| <b>1.5. Mitigation Strategy – The Mitigation Plan.....</b>                               | <b>7</b>  |
| <b>2. Introduction .....</b>   | <b>8</b>  |
| <b>2.1. Background and History.....</b>  | <b>8</b>  |
| <b>2.2. Mission.....</b>   | <b>9</b>  |
| <b>2.3. Current Relevant Emergency Management Policies .....</b>                         | <b>9</b>  |
| <b>2.4. Planning Area Boundaries.....</b>  | <b>13</b> |
| <b>2.5. Acknowledgements.....</b>  | <b>13</b> |
| <b>3. Planning Process .....</b>   | <b>14</b> |
| <b>3.1. Stakeholders .....</b>   | <b>14</b> |
| <b>3.2. Current Process and Plan Development.....</b>                                    | <b>15</b> |
| <b>3.3. Review of Existing Plans, Studies, Reports, Technical Documents.....</b>         | <b>15</b> |
| <b>3.4. Local Jurisdictional Involvement, Approval, Adoption.....</b>                    | <b>15</b> |
| <b>4. Meagher County Profile.....</b>  | <b>17</b> |
| <b>4.1. General.....</b>   | <b>17</b> |
| <b>4.2. Population, Demographics.....</b>  | <b>18</b> |
| <b>4.3. Infrastructure: Roads Utilities, Communication, Water Supply, Hospitals.....</b> | <b>19</b> |
| <b>4.4. Emergency Services .....</b>   | <b>19</b> |
| <b>4.5. Land Use/Development Trends.....</b>   | <b>20</b> |
| <b>5. Risk Assessment .....</b>  | <b>21</b> |
| <b>5.1. Identifying the Hazards.....</b>   | <b>21</b> |
| <b>5.2. Critical Facilities and Infrastructure.....</b>                                  | <b>23</b> |
| <b>5.3 Vulnerable Populations .....</b>  | <b>24</b> |
| <b>5.4 Buildings.....</b>  | <b>24</b> |

|  |           |
|--|-----------|
| 5.5. Fire.....   | 24        |
| 5.6. Technological Hazards.....  | 29        |
| 5.7 Weather.....   | 31        |
| 5.8. Earthquake.....   | 35        |
| 5.9. Flooding.....   | 38        |
| 5.10. Communicable Disease.....  | 41        |
| 5.11 Summary – Risk Assessment.....  | 43        |
| <b>6. Mitigation Strategy -- The Mitigation Plan .....</b>                             | <b>44</b> |
| 6.1. Benefits of Hazard Mitigation.....  | 44        |
| 6.2. Mitigation Goals .....  | 44        |
| 6.3. Mitigation Measures.....  | 46        |
| 6.4 Evaluating and Prioritizing Mitigation Actions.....                                | 56        |
| <b>7. Plan Monitoring and Review: How to Keep this Plan Active and Up-to-Date.....</b> | <b>63</b> |
| 7.1. Monitoring, Evaluating and Updating the Plan.....                                 | 63        |
| 7.2. Implementation Through Existing Programs.....                                     | 64        |
| 7.3. Continued Public Involvement.....   | 64        |
| <b>Appendices .....</b>  | <b>65</b> |
| Appendix 1 — Bibliography.....   | 65        |
| Appendix 2 — Multi-Hazard Planning Alphabet Soup.....                                  | 66        |
| Appendix 2 — Crosswalk and Approval Status.....  | 67        |
| Appendix 4 — Evaluation & Prioritization Matrix.....                                   | 82        |
| Appendix 5 — Benefit–Cost Analysis Fact Sheet.....                                     | 87        |
| Appendix 6 — Vulnerability Assessment.....   | 89        |

# Letter of Transmittal

## Resolutions of Adoption

# Multi-Hazard Mitigation Plan

## 1. Executive Summary

The primary purpose of hazard mitigation planning is to identify community policies, actions and tools for implementation over the long term that will result in a reduction in risk and potential for future losses county wide. The Meagher County Multi-Hazard Mitigation Plan (MHMP) identifies the hazards in the County, sets goals, identifies the appropriate mitigation strategies, and establishes actions to minimize the impacts of the hazards in the County.

### 1.1. Problem Overview

Multi-hazard mitigation plans assist Meagher County and its communities in identifying the hazards that could impact them, determining the vulnerability of the county and communities to these hazards, and identifying mitigation strategies to prevent or reduce the impacts these hazards pose to the County and/or community through a coordinated, multi-jurisdictional approach. The rising cost of responding to and recovering from natural disasters has resulted in a renewed interest in identifying effective ways to reduce the vulnerability to natural hazards and the disasters these hazards can create.

### 1.2. Process Overview

The Meagher County Local Emergency Planning Committee (LEPC) served as the core planning committee for the multi-hazard mitigation plan. The planning process began in March of 2006 with an initial meeting with the Meagher County LEPC. Public input was solicited at the LEPC meetings, through the Meagher County web site, and through public hearings.

The Plan is a five-year blueprint for the future, aimed at making Meagher County disaster resistant by reducing or eliminating the long-term risk of loss of life and property from a range of natural and man-made hazards. It meets the requirements of the Disaster Mitigation Act of 2000 (P.L. 106-390); Part 44 of the Code of Federal Regulations, Part 206; and State of Montana Division of Disaster and Emergency Services standards. An open public process was established to provide multiple opportunities for all aspects of the community to become involved in the planning process and make input during its drafting stage.

### 1.3. Overall Goals

The overall goals of multi-hazard mitigation planning is to reduce the cost of disaster response and recovery to property owners and governments by protecting critical community facilities, reducing liability exposure, and minimizing overall community impacts and disruption.

### 1.4. Methodology

The purpose of multi-hazard mitigation planning is to identify community policies, actions, and tools for implementation over the long-term that will result in a reduction in risk and potential future losses community-wide. This is accomplished by using a systematic process of learning about the hazards that can affect the community, setting clear goals, identifying appropriate actions, following through with an effective mitigation strategy, and keeping the plan current.

## 1.5. Mitigation Strategy – The Mitigation Plan

Chapter 6 summarizes the specific actions that might be implemented by Meagher County and its communities to reduce the impacts of natural and man-made hazards on Meagher County and its communities.

### **“Benefits of Mitigation Planning”:**

- **Leads to cost-effective selection of risk reduction actions**
- **Builds partnerships**
- **Contributes to sustainable communities**
- **Establishes funding priorities**

## 2. Introduction

### 2.1. Background and History

In the past, federal legislation has provided funding for disaster relief, recovery, and hazard mitigation planning. The Disaster Mitigation Act of 2000 is the latest legislation and reinforces the importance of mitigation planning and emphasizes planning for disasters *before* they occur.

The Disaster Mitigation Act is intended to facilitate cooperation between state and local authorities and to encourage coordinated efforts between jurisdictions. The Act encourages and rewards local and state pre-disaster planning and promotes sustainability as a strategy for disaster resistance.

The Chouteau County Conservation District retained the services of Fire Logistics, Inc. to:

1. Development of a countywide Community Wildfire Protection Plan (CWPP) that meets NFP, HFRA and FEMA standards for each of the three counties: Cascade, Chouteau, and Meagher. The CWPP must be a stand alone plan. The process must follow the guidance specified in *Preparing a Community Wildfire Protection Plan - A Handbook for Wildland-Urban Interface Communities*. This document is a collaboration of a number of organizations, and can be found at the website for the Society of American Foresters <http://www.safnet.org/policyandpress/cwpphandbook.pdf> **This guidebook is incorporated by reference into this RFP.** All the elements listed in the “Summary and Checklist” of this planning guide must be covered in the CWPP; the term “forest areas” should be understood to include all vegetation types that may be subject to wildfire. Mapped components must be provided in both hard copy and GIS layers.
2. Development of a county Pre-Disaster Mitigation Plan (PDM) that meets FEMA standards for each of the three counties: Cascade, Chouteau, and Meagher. Finished plans will conform to the Federal Disaster Mitigation Act of 2000, 44CFR Parts 201 and 206; Interim Final Rule. The CWPP will cover the wildland fire hazard for each county and as such should be incorporated into the PDM plan. Guidance for FEMA compliance should be taken from FEMA’s *Multi-Hazard Mitigation Planning Guidance*, available at FEMA’s website <http://www.fema.gov/fima/resources.shtm> **This guidance is incorporated by reference into this RFP.** Mapped components must be provided in both hard copy and GIS layers.
3. Prepare GIS layers including: Evacuation Routes, Fuels, Floodplain, Wildland-Urban-Rural Interface Boundary, Past Fire Occurrence, Fire Prone Landscapes (interpretation of fuels, topography, fire history etc.), Critical Infrastructure, etc. Fire occurrence data should include federal, state and county records. Working with local dispatch and rural fire districts will be necessary to insure completeness of the county fire records. See Attachment A for a list of currently existing GIS layers for each county. Additional existing GIS layers are available through state, BLM and USFS sources.
4. Coordinate meetings with local committees, fire district personnel, local governments, state and federal agencies and keep them informed of activities of the countywide fire and all-hazard planning processes.
5. Establish and maintain effective working relationships with federal, state, local governments, local fire districts and councils, corporate, and private landowners that will assist in the planning project.

6. Prepare materials and make presentations, both orally and in writing, to individuals or groups about the fire and all-hazard mitigation plans.
7. Prepare news releases, articles, and public service announcements for use by media to enhance public relations, inform the public of the fire mitigation plans.
8. Conduct assessments of individual communities and develop a prioritized list (high, medium, low) of recommended mitigation projects including both private and public lands.
9. Analyze and review the information collected and develop strategies to address fire and other hazards in each county. The hazards to be analyzed in detail (in addition to wildland fire) for each county are:
  - Cascade County: flood-dam failure; severe weather, hazardous materials spill
  - Chouteau County: flood-dam failure; severe weather, hazardous materials spill
  - Meagher County: flood-dam failure; severe weather, earthquake.
10. Provide separate budgets for the CWPP's (all counties combined) and the additional increment for the PDM plans (all counties combined). Quarterly reports detailing the planning, assessment, educational or outreach activities and accomplishments as well as dollars spent in the current period and to date for CWPP's and PDM plans separately.
11. Each county will appoint a local contact person to work with the contractor and facilitate setting up public meetings. Locations for public meetings will be determined in consultation with the counties. Public meetings are expected to be required in 3-4 locations for Cascade and Chouteau counties; one or two locations for Meagher may be adequate as long as joint meetings occur in some locations for Cascade and Meagher (e.g., Monarch, Neihart or King's Hill).

## 2.2. Mission

Meagher County's Multi-Hazard Mitigation Plan has one over-arching mission:

"To Protect Meagher County's Citizens, Property and the Environment from the Impact of Natural and Man-made Disasters"

## 2.3. Current Relevant Emergency Management Policies

A brief discussion of the relevant emergency management policies is provided to educate the leaders and residents of Meagher County.

### 2.3.1 Federal Policies "Homeland Security -- A Better Prepared America"

This section briefly describes the relevant policies at the national level, which affect emergency management planning on the local level.

#### 2.3.1.1 Disaster Mitigation Act 2000

Disaster Mitigation Act 2000 (DMA 2000) sets policies for "disaster mitigation plans"—plans designed to avoid disasters such as fires and floods. DMA 2000 requires 4 elements in these plans:

1. A planning process.
2. An assessment of risks.
3. A mitigation strategy (action plan) and,
4. A plan maintenance and updating process.

*As defined by DMA 2000 hazard mitigation: any sustained action taken to reduce or eliminate long-term risk to human life and property from hazards.*

### **2.3.1.2 Presidential Directives**

Homeland Security Presidential Directives 1-9<sup>1</sup> have a direct affect on how Meagher County plans for and responds to incidents in the county. HSPD # 5 directs the county to adopt and implement the National Incident Management System and HSPD # 7 establishes a national policy for Federal departments and agencies to identify and prioritize United States critical infrastructure and key resources and to protect them from terrorist attacks; HSPD # 8 establishes policies to strengthen the preparedness of the United States to prevent and respond to threatened or actual domestic terrorist attacks, major disasters, and other emergencies by requiring a national domestic all-hazards preparedness goal, establishing mechanisms for improved delivery of Federal preparedness assistance to State and local governments, and outlining actions to strengthen preparedness capabilities of Federal, State, and local entities; and HSPD # 9 establishes a national policy to defend the agriculture and food system against terrorist attacks, major disasters, and other emergencies.

### **2.3.1.3 National Response Framework**

The *National Response Framework*<sup>2</sup> is a guide to how the Nation conducts all-hazard response – from the smallest incident to the largest catastrophe. This key document establishes a comprehensive, national, all-hazard approach to domestic incident response. The *Framework* identifies the key response principles, roles and structures that organize national response. It describes how communities, states, the Federal Government and private-sector and non-governmental partners apply these principles for a coordinated, effective national response. And, it describes special circumstances where the Federal Government exercises a larger role, including incidents where Federal interests are involved and catastrophic incidents where a State would require significant support. It allows first responders, decision-makers and supporting entities to provide a unified national response.

### **2.3.1.4 Fire Policies**

See Meagher County's Community Wildfire Protection Plan.

### **2.3.1.5 Local Implementation of Federal Policies**

Homeland Security Presidential Directive 5 "Management of Domestic Incidents" required the local governments be compliant with the National Incident Management System (NIMS) to be eligible for Federal preparedness assistance funding.

In federal Fiscal Year 2005, the Secretary of Homeland Security provided guidance to each state, outlining initial actions that should be taken to implement the NIMS. The letter to the nation's governors included a list of recommended actions for tribal and local governments to help them work towards NIMS compliance. A copy of this letter is posted on the NIMS webpage at: [http://www.fema.gov/emergency/nims/nims\\_compliance.shtm](http://www.fema.gov/emergency/nims/nims_compliance.shtm). Recommended FY 2005 NIMS activities included:

- Institutionalize the use of the Incident Command System;
- Complete the NIMS awareness course IS-700 NIMS: An Introduction;
- Formally recognize NIMS and adopt NIMS principles and policies;
- Establish a NIMS compliance baseline by determining the NIMS requirements that

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<sup>1</sup> [www.ncs.gov/library.html](http://www.ncs.gov/library.html)

<sup>2</sup> <http://www.fema.gov/pdf/emergency/nrf/nrf-core.pdf>

have already been met; and

- Develop a strategy and timeline for full NIMS implementation. By completing these activities, communities will have made substantial progress toward full NIMS implementation by the start of Fiscal Year 2007 (i.e. October 1, 2006).

In federal Fiscal Year 2006, tribes and local communities will be required to complete several activities to comply with the NIMS. See: [www.fema.gov/emergency/nims/nims\\_compliance.shtm](http://www.fema.gov/emergency/nims/nims_compliance.shtm) for a matrix which describes the actions Meagher County and other jurisdictions must take by September 30, 2006 to be compliant with NIMS. Completion of these actions will position local communities to better manage prevention, response and recovery efforts.

FY 2007 requirements are:

- Designate a single point of contact to serve as the principal coordinator for NIMS implementation
- Establish public information system to gather, verify, coordinate, and disseminate information during an incident
- Complete training—ICS-300, ICS-400
- Validate that inventory of response assets conforms to FEMA Resource Typing Standards
- Utilize response asset inventory for Emergency Management Assistance Compact (EMAC) requests, exercises, and actual events
- Develop systems and processes to ensure that incident managers at all levels share a common operating picture of an incident

### **2.3.2 State Policies**

It is the policy of the State to complete Multi-Hazard mitigation plans in compliance with the Federal direction noted above.

On November 9, 2004, Governor Judy Martz signed Executive Order No. 17-04 “proclaiming the designation of the National Incident Management System (NIMS) as the basis for all incident management in the State of Montana.”

### **2.3.3 Local Policies**

Meagher County adopted the Meagher County Growth Policy in 2003 and updated it in 2004. In 1999, the Montana Legislature revised this community development and planning tool and renamed it the Growth Management Policy. The requirements of a Growth Management Policy are detailed in 76-1-601, Montana Code Annotated. The Meagher County Growth Policy provides guidance as the community grows and develops. Special attention is given to specific land uses and the need for infrastructure to support those identified uses. Preparing a growth policy includes describing the historical base, establishing key indicators and monitoring the growth trends, and developing policies to accommodate the potential growth and changes in the community.

There are no specific public safety goal statements Meagher County Growth Policy. However, there are goals, objectives and policies which affect public safety throughout the document and provide some overall direction to this Multi-Hazard Mitigation Plan, the most significant are:

#### **Land Use**

Goals:

Protect the natural beauty and recreational qualities of Meagher County while allocating

sufficient land for future needs of residential, commercial and industrial uses and for community facilities.

Maintain the arable agricultural and forest land base and protect those lands from the adverse impacts of development.

Create a practical pattern of development that encourages efficient use of land and allows economical provision of services and utilities.

**Objectives:**

Ensure that:

- Residential areas are pleasant, convenient, safe, and healthy places to live.
- Commercial areas are functional, efficient, convenient, safe and healthy place to shop and conduct business.
- Industrial areas are functional, efficient, safe and healthy places to manufacture and process goods.

Discourage new growth and development in the wildland urban interface areas and other high fire risk hazard areas.

**Policies:**

**High Fire Hazard Areas**

1. Revise the Meagher County Subdivision Regulations to ensure effective fire fighting in all new subdivisions:
  - Provide proper fire fighting water supplies;
  - Design and construct safe, proper roads, bridges and turnarounds;
  - Clear road rights-of-way of fire fuels;
  - Limit densities based on degree of slope;
  - Ensure that fire, emergency medical, and law enforcement agencies have access through gates.
  
2. Ensure that the Meagher County Subdivision Regulations provide special requirements to ensure fire fighter safety, effective fire fighting, reduced fire damages, and safety in all new subdivisions proposed in designated high fire hazard areas:
  - Provide at least two entrance/exit roads;
  - Provide fire fighting access to wildlands beyond development;
  - Provide clear signs to identify roads;
  - Provide fuel breaks by planned locations of roads, greenbelts, and/or parkland;
  - To provide for fire fighter safety, require a covenant to ensure that each homeowner maintains a “defensible space” around each home.

**Community Facilities and Services**

**Goal:**

Provide public facilities and services that are adequate and cost-effective to serve residents and businesses, and at reasonable public costs and tax expenditures.

**Objectives:**

Develop a 5-6 year Capital Improvements Plan (CIP) to help provide sound and effective public facilities in the county and White Sulphur Springs. The CIP will include scheduling

and likely sources of funding, construction and engineering costs for county roads, fire protection, law enforcement and jail facilities, and recreation facilities.

## **Economic Development**

Goal 5:

Broaden the property tax base of Meagher County

Objectives:

Maintain basic public services and information necessary to encourage and accommodate economic development.

Development Policies:

B. New Development must be designed to minimize the public costs of providing services.

C. Developments must minimize or prevent public health or safety hazards.

Meagher County and the cities of White Sulphur Springs and Martinsdale adopted NIMS as Meagher County's standard for incident management in 2006.

The Meagher County Emergency Operations Plan (EOP), adopted in 2001 and amended in 2003, 2004, and 2005, establishes the county's goals for the EOP to:

- Reduce the vulnerability of county residents to disasters,
- Save as many lives as possible in the event of a disaster, and
- Provide for integrated emergency management.

## **2.4. Planning Area Boundaries**

The Meagher County Multi-Hazard Mitigation Plan encompasses all private and public lands within the boundaries of Meagher County, including the City of White Sulphur Springs and the community of Martinsdale.

## **2.5. Acknowledgements**

Fire Logistics, Inc. would like to thank the Meagher County Sheriff/DES Coordinator Rick Seidlitz White Sulphur Springs Fire Department – Chief Otto Ohlson, Martinsdale FSA – Chief Kurt Swallow; the Meagher County Local Emergency Planning Committee and Meagher County Commission for their contributions to this plan.

### 3. Planning Process

The Meagher County DES Coordinator will be responsible for managing the planning process, with the assistance of their contractor, Fire Logistics, Inc. The DES coordinator will submit the adopted Multi-Hazard Mitigation Plan to the State Hazard Mitigation Officer in Helena, Montana.

#### 3.1. Stakeholders

The Meagher County Local Emergency Planning Committee assisted in meeting the planning requirements and was charged with the following responsibilities:

- Identify PDM goals, hazards, vulnerabilities and projects.
- Ensure that the plan meets the requirements of the Disaster Mitigation Act of 2000.
- Assist in coordinating local efforts in gathering information for inclusion in the plan.
- Participate in the public involvement process at the local level.

The members of the Meagher County Local Emergency Planning Committee (LEPC) includes:

Deborah Downing – Public Health  
Kari Jo Kiff – Public Health  
Rick Seidlitz – DES  
Maebeth Seidlitz – Sheriff's Department  
Jon Lopp – Sheriff's Department  
Otto Ohlson – White Sulphur Springs Fire Department  
Bernie Lucas – County Commission  
Jamie Doggett – County Commission  
Herb Townsend – County Commission  
BJ Hawkins – Public TV  
Jason Phillips – Newspaper  
Andy Lind – White Sulphur Springs Schools  
Jean Roberts – Mountain View Medical Center  
Jan Kalgaard – Mountain View Medical Center  
Janine Turner – Mountain View Medical Center  
Jess Secrest – USFS  
Marc Hamlen – USFS  
Carol Hatfield – USFS  
Don Babcock – Northwestern Energy  
Kirk Barfuss – MHP  
Errol Galt – Martinsdale FSA  
Julian Thierault – City of White Sulphur Springs  
Brian Clifton – County Sanitarian  
Denise Lopp – Meagher County EMS  
Dan Tousley – Meagher County SAR  
Bob Fry – MT Disaster and Emergency Services  
Jake Odom – Meagher County IT  
Dick Taovs – MT Department of Transportation  
Ray Ringer – Meagher County Road Department

The Meagher County LEPC meets quarterly throughout the year.

The LEPC recommended approval the Meagher County Multi-Hazard Mitigation Plan to the Board of County Commissioners on XXXXX, 2009.

The meetings provided regular opportunities to gather and share information, assess

vulnerabilities, identify critical facilities, and assist in developing mitigation strategies. They also maintained continuity throughout the process to ensure that jurisdiction-specific natural hazards vulnerability information and mitigation strategies were incorporated into the plan.

## **3.2. Current Process and Plan Development**

Initial work on the plan was started with a kick-off meeting in January 2006. Fire Logistics, Inc. met with the Meagher County LEPC, to conduct a preliminary vulnerability assessment.

On June 13 of 2006, Fire Logistics validated the Vulnerability Assessment with the LEPC, reviewed suggested Mission statements and goals for the PDM.

The Meagher County LEPC reviewed a rough draft of the Multi-Hazard Mitigation Plan and suggested changes throughout the document were incorporated into the draft document. A second round of review by the LEPC of the draft document provided further review of the entire document with additional comments and recommendations that were incorporated into the Meagher County Multi-Hazard Mitigation Plan.

A draft of the Multi-Hazard Mitigation Plan was placed on the County's web site. Citizens were encouraged to provide input to the County and/or Fire Logistics, on the draft plan.

### **3.2.1 Avenues of Community and Public Input**

Public meetings held by the Meagher County Local Emergency Planning Committee at which the Multi-Hazard Mitigation Plan was a topic of discussion were held on:

January 3, 2006  
June 12, 2006  
September 12, 2006  
October 14, 2008  
January 20, 2009

Public comments were solicited by placing the draft MHMP on the Meagher County's web site.

A public hearing was held on XXXXXX;

Meetings and hearings were publicized in manner normal to Meagher County's policies. Agendas and minutes are on file at Meagher County.

## **3.3. Review of Existing Plans, Studies, Reports, Technical Documents**

The following documents were reviewed for impacts on the elements of the Multi-Hazard Mitigation Plan:

- Meagher County Emergency Operations Plan
- Meagher County Growth Policy Plan, 2004
- Meagher County Subdivision Regulations, 2006

## **3.4. Local Jurisdictional Involvement, Approval, Adoption**

Representatives of the City of White Sulphur Springs, the Board of County Commissioners, fire and emergency services personnel, community members and businesses representatives all participated in the development of the Multi-Hazard Mitigation Plan.

The Multi-Hazard Mitigation Plan was adopted by the Meagher County Board of County

Commissioners after a public hearing on XXXXXXXX.

The City of White Sulphur Springs adopted the Meagher County Multi-Hazard Mitigation Plan on XXXX.

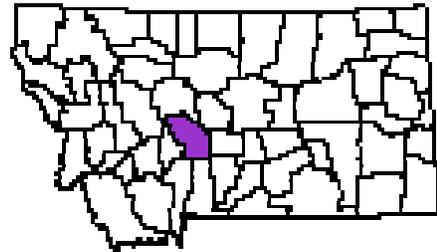
## 4. Meagher County Profile

This section presents an overview of Meagher County, the City of White Sulphur Springs, and the Town of Martinsdale in 2008. It provides baseline information on the characteristics of the County, the towns, their citizens, economy and land use patterns, and presents the backdrop for this mitigation planning process.

### 4.1. General

Meagher County is located in central Montana. Meagher County was one of the original counties in Montana and encompassed the majority of central Montana. It covers just over 2,395 square miles and has a population of about 1,932 people.

Meagher County is a headwaters county with high quality watersheds. About 60% of the land in the county is used for some type of agriculture and as a result, agriculture is the county's number one industry. The majority of the land type is mountainous, with large areas of grassy foothills, valleys and river bottoms, the elevations vary from 3,975 feet in the north where the Smith River exits the county to 9,456 feet in the southwest at the peak of Mount Edith. The county receives less than 10-16 inches of rainfall and the adapted ecosystems contain vegetative types and quantities commensurate with soil productivity and available moisture.



#### 4.1.1 Topography, Slope, Aspect, Elevation

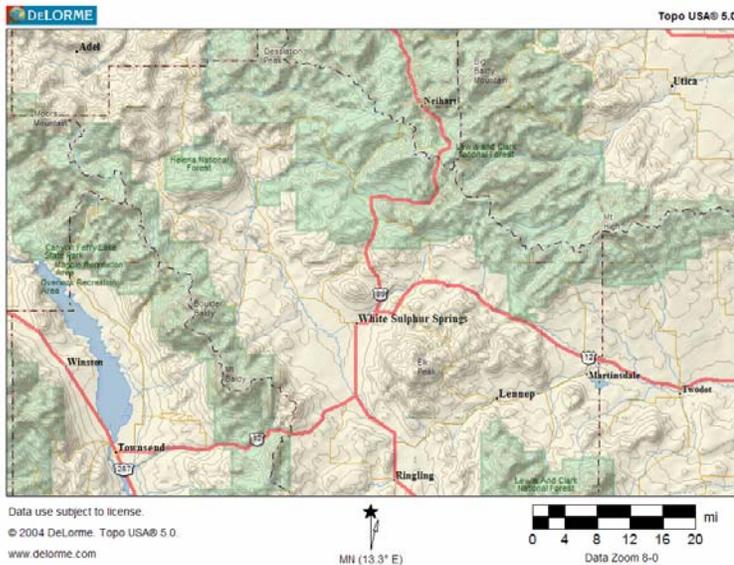
Topography or the "lay of the land" affects the behavior of wildland fires. Fires spread many times faster uphill than on flat ground. Radiant and convective heat at the head of the fire preheats the ground/aerial fuels ahead of the fire. This heating provides an avenue for large fire spread. The steeper the slope, the faster a wildland fire will spread. Specific features, such as steep narrow canyons that act as chimneys, can significantly increase the rate of spread of a wildland fire. Aspect is another feature of topography that affects the behavior of fires on a site, east, south, north and west facing aspects typically have drier fuels and more fires.

Slopes in Meagher County range from 0% (flat) to >50% (very steep). Of all the topographic features reviewed in the county, the slope is among the most important. Fires will generally spread faster uphill than downhill and they will preheat fuels, including homes, further up the slope and ignite easier than other fuels.

There are several narrow canyons, which act as chimneys, on or adjacent to the site that will affect fire behavior and increase the rate of spread of wildland fires starting in or near one of these canyons. These chimneys channel heat, intensify combustion of the fuels, and frequently intensify the winds.

South, southwest and west aspects are called high energy slopes, which is based on the amounts of sunlight they receive during spring, summer and fall seasons. The vegetation on these slopes is a dry site species that have adapted to significant amount of sunlight and reduced amounts of available moisture. These vegetation types quickly mature and become cured early in the summer season and become an available fuel for spreading a fire.

The mountainous terrain also allows a thermal belt condition to set up, where the midslope area along the ridges will remain warmer and drier at night affecting the fuels, by reducing the humidity recovery on the site. The lack of humidity recovery in the thermal belt often keeps available fuels



dry until the onset of the winter season. The fire behavior in these areas will be much more intense than in areas either above or below it. Thermal belt conditions begin in early summer and extend through mid-September.

The main river drainages are the Smith River flowing south to north and the Musselshell River flowing west to east. Figure 3 shows the topography of Meagher

County and it is evident that there is some correlation between slope, elevation and vegetative cover types. The pine forests are generally located on higher ground where soil and moisture conditions are conducive to its survival. The ponderosa pine type is usually denser on north and east aspects where the soils can retain moisture somewhat longer than they can on south and west aspects.

The tillable lands that can be irrigated are used for hay; grain and root crops while the remaining lands are left in a more natural state. These latter areas are either grazed by domestic stock or they remain unused except for wildlife.

#### 4.1.2 Meteorology, Climate, Precipitation

Meagher County has a moderate, seasonal climate. The average daily high temperature in the County is between 70 and 80 degrees in the summer and between 20 and 40 degrees in the winter. The average daily low temperature in Meagher County is between 40 and 55 in the summer season and between 10 and 25 in the winter. Meagher County averages between 10 – 16 inches of rain per year with the vast majority of the precipitation occurring from April to September. Snowfall averages about 47 inches per year. For a more discussion of the weather in Meagher County see Section 5.3 Weather.

#### 4.2. Population, Demographics

Population and demographics information was derived from the 2000 Census. The population for Meagher County was 1997 (2004 estimate). The population of White Sulphur Springs is 1,002 (2006 estimate). Headwaters Economics conducted “A SocioEconomic Profile” of Meagher County in November of 2007. Their report indicates that there has been a general population decline over the last 35 years of 7%. In the county the population was spread out with 28% under the age of 20, 25% from 40 to 54 (Baby Boomers) and 18% who were 65 years of age or older. According the Profile the population has gotten older since 1990.

The area the county in square miles was given as 2,354 square miles. White Sulphur Springs covers approximately .9 square miles. The Census showed 1,363 housing units with a density of <1 housing units per square mile with a population density of <1 per square mile. The Census did not identify other population areas like Martinsdale, Ringling, Lennep, or Checkerboard, which are a concern from a wildfire fire suppression perspective.

### 4.3. Infrastructure: Roads Utilities, Communication, Water Supply, Hospitals

State Highway 12 traverses Meagher County, east to west, following the Musselshell River on the eastern edge of the county. State Highway 89 runs through the county from Showdown south through the Shields River Valley and exits the county near Ringling. Highway 89 is a scenic byway between Glacier NP and Yellowstone NP. Meagher County has a number of graveled roads that can be utilized to provide access for emergency activities. There are no railroads located in Meagher County.

Meagher County has a well maintained airport located at White Sulphur Springs capable of serving as a SEAT reloading base.

Large propane tanks are located throughout Meagher County at ranch and home sites.

Northwestern Energy, Vigilante and Fergus Electric Cooperatives provide electrical power to the county.

Qwest and Triangle Telephone provide telephone service to Meagher County.

Cellular phone service is generally available; however, there are areas within the county that do not have cellular phone service. Cellular phone service is provided Chinook Wireless, Verizon, Alltel and Qwest.

There are municipal water systems serving the City of White Sulphur Springs and the community of Martinsdale for fire protection purposes. In the County, there is no developed water supply and water tenders must transport fire protection water to the fire scene. Dry hydrants are located throughout the county. Stock ponds, rivers and creeks are available at times for a water supply point, but during this extended drought, water is a premium to ranchers.

Radio communication for Meagher County Fire Department can be improved. The southern portions of the county are not served adequately from existing fire repeater sites.

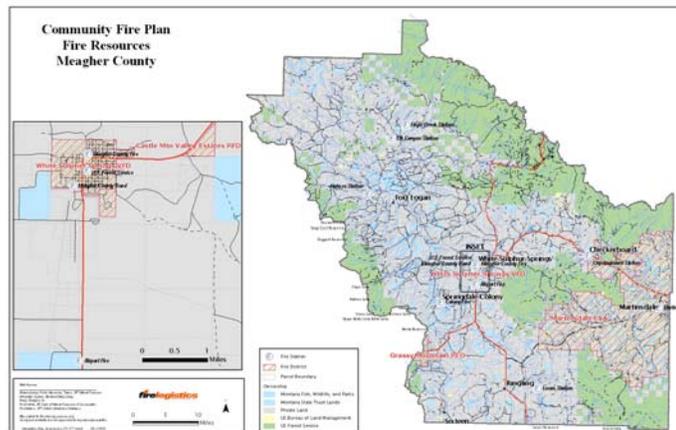
The medical facilities in Meagher County are the Mountain View Memorial Hospital and Mountain View Memorial Nursing Home.

### 4.4. Emergency Services

Emergency services within Meagher County include fire protection, emergency medical services including ambulance transportation, law enforcement, and emergency preparedness.

#### 4.4.1. Fire Protection

The White Sulphur Springs Fire Department, the Martinsdale Fire Service Area, and the Meagher County Fire Department provide community structural fire suppression and protection. There are areas of the county that are not



provided structure fire suppression by any of the existing fire protection agencies.

Wildland fire protection is provided by Meagher County Fire Department and Martinsdale Fire Service Area, with mutual aid from White Sulphur Springs Fire Department under the direction of the county fire warden with various fire suppression resources located throughout the County under the Meagher County Co-Op plan.

The Bureau of Land Management is the responsible land management agency for BLM lands, fire protection is provided by the National Forests or the County. The Lewis and Clark, Gallatin and Helena National Forests are the land management agency responsible for fire suppression on the National Forest Lands in Meagher County and assists the County as needed. The Meagher County Fire Department assists the United States Forest Service as requested on federal lands.

Meagher County is within the Central Land Office of the Montana DNRC's geographic area. This provides additional resources such as air tankers from Missoula, Helena and Billings, helicopters from Helena, single engine air tankers from Lewistown and crews and overhead through the Central Land Office.

#### 4.4.2. Law Enforcement

The Meagher County Sheriff's Department provides law enforcement and evacuation services.

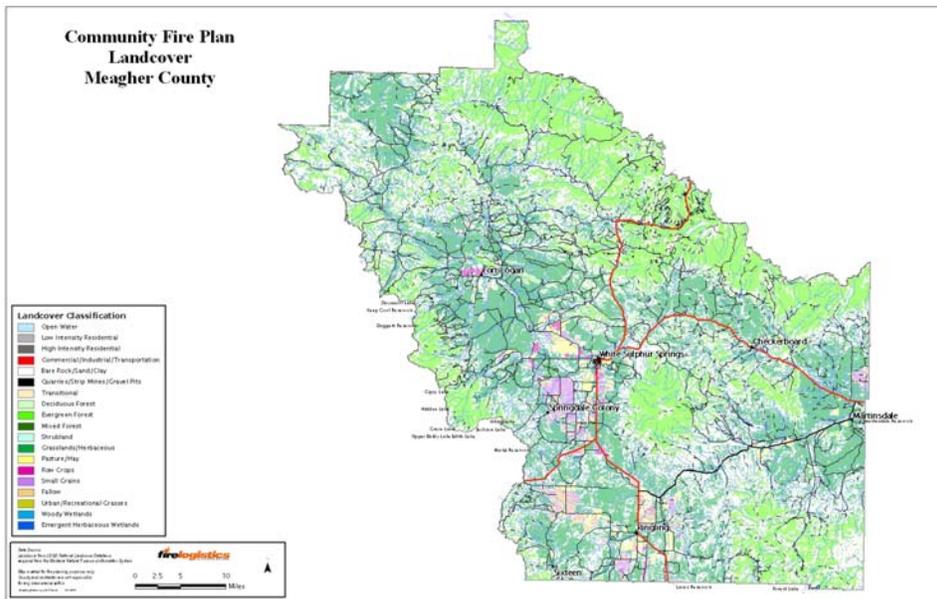
#### 4.4.3. Emergency Medical Services

Meagher County Ambulance, with ambulances in White Sulphur Springs, provides ambulance service to the entire county.

#### 4.4.4. Emergency Management

County emergency preparedness comes under the office of the Meagher County Disaster and Emergency Services.

### 4.5. Land Use/Development Trends



The majority of land use in Meagher County is agricultural based. Generally new land development is at a slow pace. There are small pockets of new construction on existing platted lots in wildland areas causing additional concern from a wildfire perspective.

## 5. Risk Assessment

This section focuses on the array of natural hazards that has beset Meagher County or may conceivably do so over time. It provides the overall context for multi-hazard mitigation planning by identifying the range of hazards, the risk they pose and relevant mitigation activities. For each natural hazard, there is a section with: a description of the nature and scope of the hazard; information on Meagher County's history with the hazard; a description of mitigation activities by Meagher County, other government agencies, or private, non-profit organizations, such as the American Red Cross; a vulnerability assessment of exposure to the hazard; and a set of proposed mitigation measures related to that hazard.

### 5.1. Identifying the Hazards

This section focuses on the array of natural and man-made hazards that have occurred or may occur in Meagher County, Montana. The Meagher County LEPC identified the hazards and rated their relative risk to the County by utilizing the Vulnerability Assessment Form. It provides an overall context for mitigation planning by identifying the range of hazards, the risk they pose to structures, vulnerable populations, critical facilities, economic and environmental assets.

The hazards identified by the Meagher County LEPC are:

- Winter Storm
- Fire
- Technological Hazards
  - Power Failure
  - Water System Failure
- Flood
- Mass Casualty Incident
- Earthquake
- Hazmat Incident
  - Transportation
- Communicable Disease
- Dam Failure
- Airplane Crash

|                       | Probability |
|-----------------------|-------------|
| Airplane Crash        | 1.77        |
| Dam Failure           | 2.38        |
| Communicable Disease  | 2.54        |
| Hazmat Incident       | 2.62        |
| Earthquake            | 2.69        |
| Mass Casualty         | 2.69        |
| Flood                 | 3.31        |
| Technological Hazards | 3.85        |
| Fire                  | 4.38        |
| Winter Storm          | 4.46        |

#### Summary by Human Impact

|                       |      |
|-----------------------|------|
| Airplane Crash        | 2.62 |
| Flood                 | 2.85 |
| Dam Failure           | 2.92 |
| Fire                  | 3.00 |
| Hazmat Incident       | 3.23 |
| Earthquake            | 3.54 |
| Mass Casualty         | 3.77 |
| Winter Storm          | 3.85 |
| Communicable Disease  | 4.15 |
| Technological Hazards | 4.23 |

#### Summary by Property Impact

|                       |      |
|-----------------------|------|
| Communicable Disease  | 1.69 |
| Airplane Crash        | 1.92 |
| Mass Casualty         | 2.07 |
| Hazmat Incident       | 2.46 |
| Winter Storm          | 2.53 |
| Technological Hazards | 3.00 |
| Dam Failure           | 3.46 |
| Flood                 | 3.76 |
| Earthquake            | 4.00 |
| Fire                  | 4.15 |

#### Summary by Business Impact

|                       |     |
|-----------------------|-----|
| Airplane Crash        | 1.7 |
| Hazmat Incident       | 2.3 |
| Mass Casualty         | 2.5 |
| Dam Failure           | 2.5 |
| Flood                 | 3.0 |
| Winter Storm          | 3.2 |
| Communicable Disease  | 3.3 |
| Earthquake            | 3.8 |
| Fire                  | 4.0 |
| Technological Hazards | 4.4 |

Based on the Hazard & Vulnerability Assessment, the overall ranking of the hazard in Meagher County is:

| Overall Rank         |         |
|----------------------|---------|
| Hazard               | Ranking |
| Fire                 | 15.53   |
| Technological Hazard | 15.48   |
| Winter Storm         | 14.04   |
| Earthquake           | 14.03   |
| Flood                | 12.92   |
| Communicable Disease | 11.68   |
| Dam Failure          | 11.26   |
| Mass Casualty        | 11.03   |
| Hazmat               | 10.61   |
| Airplane Crash       | 8.01    |

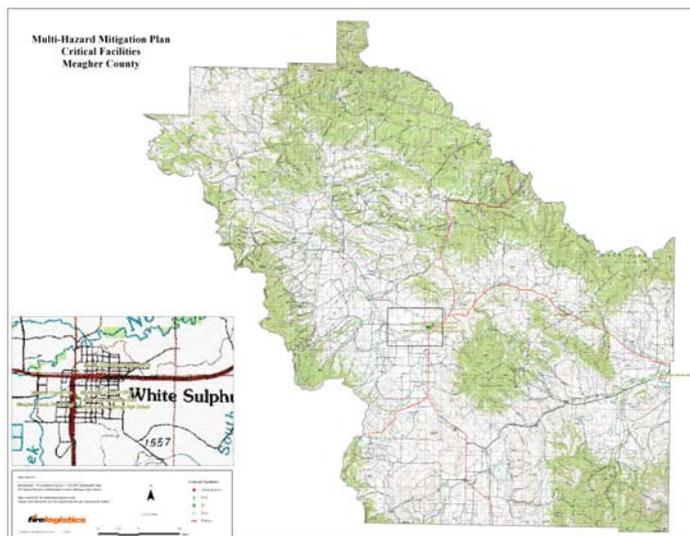
The following hazards were identified by the Meagher County LEPC but due to their low risk and probability, they are not addressed in this Multi-Hazard Mitigation Plan:

- Dam Failure
- Mass Casualty
- Hazmat
- Airplane Crash

Additional hazards identified in the State Hazard Mitigation Plan that were not a concern to address in the Meagher County MHMP due to their lack of frequency of occurrence, lack of impact on the county, or inability by the county to mitigate the hazard.

## 5.2. Critical Facilities and Infrastructure

Critical facilities data was initially obtained from the Montana Department of Administration's Critical Infrastructure Database, Meagher County's GIS data, and local government officials. The data was reviewed and modified during public LEPC meetings.



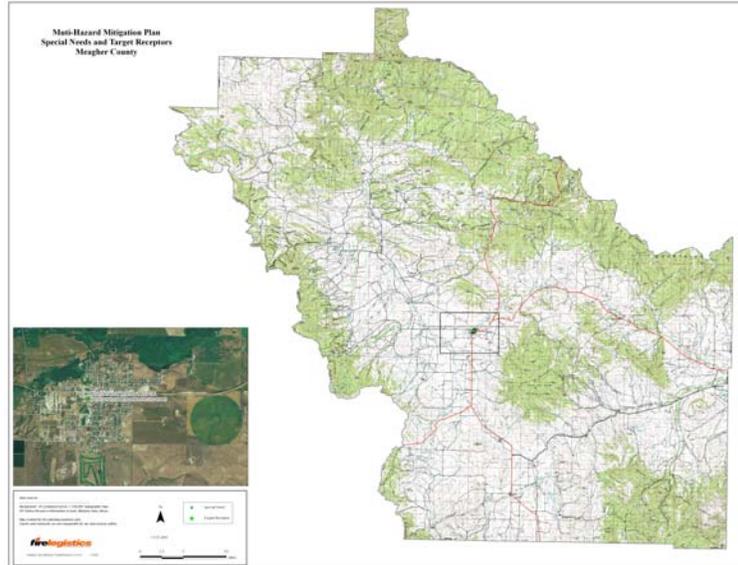
Critical facilities and target receptors are important during mitigation planning because they are essential to the health and welfare of the whole population and are especially important following incidents. Those facilities that are considered vital to the community such as law enforcement, fire services, ambulance services, health services, communications and other government services have been identified as critical facilities. Lifeline Utility Systems such as potable water, wastewater, oil, natural gas, electric power, and communications systems are considered critical infrastructure. Target receptors are defined as those facilities that might be

used to treat potential victims of a man-made or natural incident occurring in Meagher County.

A full sized map showing the critical facility target receptor locations can be found in the Meagher County Disaster and Emergency Services Office.

### 5.3 Vulnerable Populations

In disaster preparedness and response, the terms "vulnerable" or "special needs" populations are often used to characterize groups whose needs are not fully addressed by traditional service providers. In the context of emergencies and disasters, this means members of our community with little or no ability to address their own preparedness, response and recovery and people whose life circumstance leave them needing more than what traditional emergency response agencies provide. This includes anything that prevents you or them from following emergency instructions or fully using traditional disaster preparedness and response services. Vulnerable populations can range from the entire population in general of Meagher County to populations needing special or medical care, depending on the circumstances and magnitude of the incident.



### 5.4 Buildings

The Montana Department of Revenue CAMA (Computer Assisted Mass Appraisal) database was used to establish building value and type data.

### 5.5. Fire

#### 5.5.1 Wildland Fire

##### A. Description

Nationally, more and more homes are being constructed in or adjacent to wildland areas. A desire for a rural or suburban living environment on the fringe of urban areas has increased the risk of fires in what is termed the wildland urban interface. The wildland urban interface is the area where development comes into contact with areas of natural vegetation contributing to rapid fire spread and additional fuel loading.

The wildland urban interface is defined as the line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels.<sup>3</sup> Similar terms are wildland/residential interface and wildland urban intermix.

During the past several fire seasons of 2000, 2003, 2006, and 2007 it has become evident that wildland urban interface fire losses have increased throughout the Western United States. The expectation under

<sup>3</sup> *Ibid.*

the Federal Fire Policy is “that losses will increase in the future.”<sup>4</sup> According to research conducted by Volker C. Radeloff, assistant professor at the University of Wisconsin at Madison, of the 13 million homes constructed in the 1990’s, 69% or 9 million homes were constructed in the wildland urban interface.<sup>5</sup>

The Meagher County Community Wildfire Protection Plan identifies the following areas as being within the wildland urban interface in Meagher County:

- White Sulphur Springs and its watershed
- Checkerboard
- Martinsdale
- Ringling
- Fort Logan Area
- Highway 89 Corridor, including Forest Green
- Grassy Mountain Subdivision
- Smith Creek Subdivision
- Black Butte Area
- Deer Creek Subdivision Area
- Lennep/Castletown Area
- Sixteen
- Two Creeks and Castle Bar Subdivisions Area

#### Local History of Wildland Fires

See Meagher County’s Community Wildfire Protection Plan. Wildland Fire has been more thoroughly addressed in the Meagher County Community Wildfire Protection Plan (See Fire History)

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<sup>4</sup> *Federal Fire Policy, 2001*

<sup>5</sup> *Pomfret, John; As Houses Rise in the Wild, So Do Fire Concerns; Washington Post; 2006*

| <b>Wildland Fire</b>  |   |  |   |  |
|---|---|--|---|--|
| Location  | Probability   | Extent   | Resources at Risk   |  |
| Generalized   | On a scale of 1-5, where 5 is a high probability of an incident, Fire scored 4.38.  | Limited or scattered throughout the county, depending on ignitions and the weather   | All structures, populations and critical facilities are at risk, if they are not protected by asset protection zones (defensible space) from a wildland or wildland urban interface fire. Economic assets may be impacted by either the wildland fire or perhaps due to evacuations that occur due to the wildland fire.  |  |
| Summary of Impact on Exposed Assets   |   |  |   |  |
| Structures  | Vulnerable Populations  | Critical Facilities  | Economic Assets   | Environmental Assets   |
| <p>Wildland Fire starts are difficult to predict and for which to provide specific vulnerabilities.</p> <p>All structures in wildland areas may be threatened by a CRP fire, wildland or wildland urban interface fire.</p> <p>There are 1,363 housing units worth an estimated \$98 million dollars and more than 158 businesses with more than \$15 million dollars in sales potentially at risk in the county.</p> | <p>Homeowners, renters, businesses, frail, homeless, elderly and/or disabled persons are vulnerable due to wildland fire activities, including evacuations.</p> <p>Recreationists can be caught unprepared when wildland fires occur suddenly during high winds.</p> <p>Farmers and ranchers must take necessary steps necessary to move livestock to locations away from the wildland fire activity.</p> | <p>Power lines in the wildland fire perimeter will be impacted by the fire.</p> <p>Some public safety communication sites may be vulnerable without adequate asset protection zones (defensible space).</p> <p>White Sulphur Springs's watershed is highly vulnerable due to bug killed timber and lack of fuel mitigation project to protect the watershed.</p> <p>The transportation network including roads and bridges could become impassable, or be closed due to fire activity.</p> | <p>Structures ranging from homes, businesses including outbuildings are vulnerable.</p> <p>Wildland fires can affect the general economic health of the community due to lost employment, reduced wages, and lowered economic output</p> <p>Agricultural interests are vulnerable with exposed fields, crops, grazing lands and haystacks. Livestock must be moved from the critical areas.</p> | <p>The fire-flood cycle can adversely affect water quality.</p> <p>Air quality is affected by the smoke generated by wildland fires.</p> |

## 5.5.2. Structure Fire

### A. Description

The National Fire Protection Association defines a conflagration as a fire with major building-to-building flame spread over some distance. While they define a group fire as a fire where there is building to building fire spread within a complex of buildings or adjacent buildings. A conflagration can have many causes, including:

- Criminal acts (arson, acts of terrorism, civil unrest)
- Accidental fire causes (improper use of electrical and heating appliances, improper storage or use of flammable liquids, grease fires, improper disposal of ashes)
- Industrial accidents (hazardous materials incidents, explosions)
- Acts of nature (lightning, ignitions following a large earthquake)

In addition, wind and extremely dry weather can contribute to a conflagration. Communities with buildings constructed prior to modern building codes have significant potential for these types of fires due to the lack of fire walls and other fire barriers.

#### Local History of Conflagrations

The City of White Sulphur Springs and the community of Martinsdale do not have a history of conflagrations. Fires within these communities have for the most part been quickly contained.

| <b>Structure Fire</b>  |   |  |   |   |
|--|---|--|---|---|
| Location   | Probability   | Extent   | Resources at Risk   |   |
| Generalized  | On a scale of 1-5, where 5 is a high probability of an incident, Conflagration – Structure Fire scored 4. | Limited to a group of buildings depending on the event                                       | Communities with older construction, i.e., constructed before modern building codes are vulnerable to structure fires that evolve to a conflagration. Significant fires in groups of buildings tend to expose large portions of the remainder of the community; vulnerable populations will be threatened, critical facilities may be at risk; and economic assets will be lost.  |   |
| <b>Summary of Impact on Exposed Assets</b>   |   |  |   |   |
| Structures   | Vulnerable Populations  | Critical Facilities  | Economic Assets   | Environmental Assets                                  |
| <p>Groups or blocks of structures are vulnerable, especially if constructed without fire walls and groups of buildings in a complex have wood shake roof coverings.</p> <p>The core area of White Sulphur Springs is the most vulnerable to a conflagration. There are 9 commercial parcel and 14 residential parcels with a taxable value of approximate \$725,000.00</p> | Homeowners, renters, and businesses can be at risk if the fire involves the buildings which they occupy.  | Unless a critical facility is located in a downtown core, they would likely not be involved. | <p>Structures ranging from homes, businesses are vulnerable.</p> <p>Fire damaged businesses will affect the general economic health of the community due to lost employment, reduced wages and lowered economic output</p> <p>The core area of White Sulphur Springs is the most vulnerable to a conflagration. There are 9 commercial parcel and 14 residential parcels with a taxable value of approximate \$725,000.00</p> | Not affected unless hazardous materials are involved. |

## 5.6. Technological Hazards

### *A. Description*

Technological Hazards are “man-made hazards” which include in Meagher County a power supply failure and a water supply system failure for the City of White Sulphur Springs. Depending on the nature of the incident, the impacts of a technological hazard can be localized or they can be widespread encompassing most of the county. Additionally, the extent of the physical damages generated by the incident can be surpassed by the associated economic impacts, as demonstrated by the power grid failure in the Northeast.

The power grid into Meagher County is a sole source power line supplied by Northwestern Energy. The power grid has had a history of being out of service for extended periods. The water supply system for White Sulphur Springs has portions of the water lines that are substandard for meeting water supply requirements for fire protection.

These critical lifeline systems are integral to the public health, safety and welfare of the residents of Meagher County and White Sulphur Springs.

### Local History of Technological Hazards

Meagher County and City of White Sulphur Springs have a history of power outages for extended periods of time.

## B. Vulnerability Assessment

| Technological Hazards  |  |  |   |                      |
|--|--|--|---|----------------------|
| Location   | Probability  | Extent   | Resources at Risk   |                      |
| Generalized, but depending on the incident could impact the entire county.   | On a scale of 1-5, where 5 is a high probability of an incident, Technological Hazards scored 3.85.  | Limited to county wide   | Depending on the incident, vulnerable populations will be vulnerable depending on how long a power outages last. Power outages can impact operations of businesses and industries and the well being or county residents. A failure of critical water supply lines can expose the community to increased risks from fire. |                      |
| Summary of Impact on Exposed Assets  |  |  |   |                      |
| Structures   | Vulnerable Populations   | Critical Facilities  | Economic Assets   | Environmental Assets |
| Structures would not be affected unless the incident occurred during a sub-zero weather conditions, then a loss of heat will certainly impact the water pipes in structures.<br><br>If a loss of water supply occurs during a fire incident, exposed structures will be vulnerable to fire spread. | Frail, homeless, elderly and/or disabled persons whose well-being is dependent on electric powered devices and utilities can be at risk if the power is unavailable for extended periods.<br><br>Significant portions of the population (1997) of Meagher County could be at risk from a power outage during a winter storm, unless they have a backup power supply. | Communications systems are especially at risk.<br><br>Hospitals and other public safety facilities are vulnerable if the length of the power outage exceeds the capacity of their electrical backup systems.<br><br>Water supply and sewage processing depends on electricity. | Commercial and industrial enterprises may close with possible minor to significant economic impact to the community.  | Minimal Impact.      |

## 5.7 Weather

### 5.7.1 The Seasons

**Winter** begins in the late fall usually in October and lasts until early spring sometime around the middle of March. This time frame can see significant snows in the mountains and modest amounts across the plains. Typical storm snow totals range from 6" – 18" in the mountains during significant events with 4" – 8" or more across the plains. These severe winter events occur three to six times during a typical winter with lesser amounts occurring more frequently. Accompanying these winter storm events are very cold temperatures of 10 below to 20 below zero that can last up to two weeks or so before moderating. These storms are often accompanied by strong gusty winds with typical speeds of 20 to 40 mph with gusts above 70 mph common. Precipitation in winter averages less than one inch per month but has been below normal the past several years. Temperatures are lowest in the winter with December and January being the coldest.

**Spring** begins by the middle of March and lasts until mid to late June. Late winter heavy snows are possible with considerable downed tree limbs and interrupted power and telecommunications. Thunderstorms are the dominant severe weather threat during this period. These storms typically bring heavy rains, strong outflow winds (sometimes called micro burst winds) and large hail. Occasionally tornados do occur with strong thunderstorms, but are rare in the Northern Rockies with usually less than a dozen tornados or less across all of Montana. Heavy rains combined with melting snow pack in the mountains can produce low land flooding that can last for weeks with Urban and small stream flooding lasting a few days to around a week. Monthly rainfall totals are the highest of the year during this period with 1.5" to 3.5" common. Wet years can see 3" to 6" per month during April and May. Temperatures warm into the 70's and 80's with occasional 90's in May and June.

**Summer** begins by mid to late June and lasts until early to mid September. This time frame marks the period when spring rains taper off while high pressure begins to dominate the western United States. This marks the time when temperatures are warmest and humidity values are lowest. It is also the time when vegetation begins to cure with fuel moistures at their lowest values. The dominant severe weather threat during this period is from fires with lightning the primary fire producer and human caused fires in second place. Fires are weather and fuel dependent. Some factors to consider that produce large fires are fuel type, fuel moisture content, elevation, aspect, temperature, humidity values, and probability of wetting moisture in the near term to name a few. The Northern Rockies has endured drought conditions since the year 2000. This brought below normal moisture averaging 20% per year during that same time period. This translates into reduced snow pack, reduced stream flow, lower reservoir levels, and diminished crop yields. Vegetation has become stressed due to limited available moisture for growth and has left many species of tree vulnerable to disease and bug infestation. The area of diseased and bug infested trees has spread with trees standing dead at many locations aiding in available fuel for fire growth. Moisture during the summer diminishes markedly with dry thunderstorms becoming more pronounced. These dry thunderstorms produce little if any moisture but can produce numerous lightning strikes as well as strong outflow winds. Monthly precipitation totals average less than a half-inch during the summer while temperatures peak for the year in July and August with upper 80's to low 100's common.

**Fall** usually begins by mid September with foliage drying, frost beginning, temperatures cooling and moisture amounts increasing. Winds become the dominant severe weather threat during this period with speeds of 30 to 50 mph and gusts over 70 mph common. Early winter snowstorms could occur in late September or early October. A rain event or two usually occurs in September that is followed by a mild weather period in late September and October while a killing frost helps cure fuels. The warm dry and mild weather combined with dry fuels sets up a good potential for late season fires as strong westerly Chinook winds develop along the East Slopes of the Rockies. This combination has the potential for large devastating fires that can rapidly grow to over 100,000 acres in just a few hours time. Precipitation during the fall can range from a half inch to an inch and a half per month. Temperatures continue to cool with 60's and 70's in September and 30's and 40's by the end of October.

## 5.7.2. Severe Storms

### A. Description

Severe natural hazards can occur in any season in Meagher County. The vast majority of these hazards are typically from naturally occurring weather systems that are usually of short duration typically lasting hours for thunderstorms to a few days with winter storms. Local emergency response personnel with immediate resources can best manage hazards such as these. All emergency planning must include precautions for all reasonable severe weather potentials. These severe storms have the potential to bring life or death situations, loss of property including housing, adverse driving conditions, power outages and interrupted commerce.

Severe storms of all kinds are most common in the winter and spring to early summer. Winter storms can bring snow, possibly heavy, strong gusty winds, and bitter cold temperatures with possible ice jam flooding especially in late winter or early spring. These storms are most common from mid October through March. Severe spring and early summer thunderstorms are usually strong and can bring any combination of strong gusty downdraft winds, heavy rains producing flooding, possible tornados, and hail. The summer severe storms are most common from May through August.

These storms can halt or seriously disrupt the areas utilities, telecommunications and the roadway system throughout the county and could bring search and rescue forces to action at any time. Damage from windstorms is typically related to the toppling of trees and limbs and consequent downing of utility power and communication lines with corresponding outages of power and telephone. Fallen limbs and uprooted trees can also block roadways disrupting the transportation network and can easily damage structures.

Severe winds can be defined as sustained winds of 30 to 50 mph with gusts of 70 mph or more. These strong winds can occur for several hours in the winter months and for an hour or so in the summer associated with the passage of thunderstorms or cold fronts. These winds can increase wildfire risks by fanning flames out of control and endanger fire fighters when winds shift suddenly. The winds can also lead to limited visibility from snow or dust which has caused motor vehicle accidents.

Heavy snowfalls of 6 – 12 inches or more can cause closures of schools and businesses, close portions of the local and state roadways disrupting the flow of local and Intra-state freight and traffic. These storms can occur with little warning and can severely impact hunters and other outdoor enthusiasts as well as farmers and ranchers with livestock to feed and shelter. These events can create traffic congestion throughout the county and can bring numerous vehicular accidents.

Hail sized  $\frac{3}{4}$ " or more is the definition of severe hail. Hail this size or larger has been proven to bring the most significant damage to structures and cars as well as being dangerous to livestock and wildlife. Outdoor enthusiasts on the Smith River have been caught in these sudden hail storms with resulting injuries and damage to their equipment.

Heavy rain in a short time can develop into a dangerous situation. Rain like this could over power storm drainages with considerable water backup endangering transportation and structures. This is also the time when urban and small stream flooding occurs with low land flooding the main threat with power and communications becoming interrupted while transportation can see a few days of altered travel due to roads and bridges becoming impassible.

#### Local History of Severe Weather Events.

Meagher County has experienced numerous severe weather events, NOAA's National Environmental Satellite, Data and Information Service (NESDIS) lists 93 events involving Meagher County. SHELDUS lists 10 events involving the County. No injuries or deaths were reported in either database. SHELDUS lists \$888K in property damage and \$89K in crop damage in Meagher County.

Representative severe weather incidents are listed in the following table:

| Severe Weather Incidents – Meagher County |                             |   |             |                 |                     |
|---|-----------------------------|---|-------------|-----------------|---------------------|
| Date                                      | Location                    | Type  | Magnitude   | Damage/Injuries | Source              |
| 6/15/1956                                 | Meagher Co                  | Hail  | 1.5 inches  | -               | NESDIS              |
| 6/20/1956                                 | Meagher Co                  | Hail  | 1.75 inches | -               | NESDIS              |
| 7/1/1975                                  | Meagher Co                  | Hail/Thunderstorm                                 | 1.75 inches | -               | NESDIS              |
| 5/21/1981                                 | Meagher Co                  | Severe Storm,<br>Thunder Storm                    | -           | \$333K          | SHELDUS             |
| 7/4/1988                                  | Meagher Co                  | Thunder Storm                                     | 64 knots    | -               | NESDIS              |
| 9/17/1988                                 | Meagher Co                  | Severe Storm,<br>Thunder Storm, Winter<br>Weather | -           | \$25K           | SHELDUS             |
| 2/1/1989                                  | Meagher Co                  | Winter Weather                                    | -           | \$175K          | SHELDUS             |
| 10/16/1991                                | Meagher Co                  | Wind Storm  | -           | \$102K          | SHELDUS             |
| 6/15/1995                                 | Martinsdale                 | Hail  | 1.75 inches | -               | NESDIS              |
| 7/3/1998                                  | White<br>Sulphur<br>Springs | Hail  | 2.0 inches  | -               | NESDIS              |
| 7/4/1998                                  | White<br>Sulphur<br>Springs | Thunder Storm                                     | 61 knots    | -               | NESDIS              |
| 10/31/1998                                | Meagher Co                  | Wind  | -           | \$20K           | SHELDUS             |
| 2/2/1999                                  | Meagher Co                  | Wind  | -           | \$25            | SHELDUS             |
| 7/3/2000                                  | Martinsdale                 | Thunder Storm, Hail,<br>Wind                      | -           | \$75K           | SHELDUS &<br>NESDIS |
| 7/20/2001                                 | Ringling                    | Hail  | 1.50 inches | -               | NESDIS              |
| 7/8/2002                                  | White<br>Sulphur<br>Springs | Hail  | 1.75 inches | -               | NESDIS              |
| 8/4/2002                                  | Lennepe                     | Hail  | .88 inches  | -               | NESDIS              |
| 11/26/2006                                | Meagher Co                  | Heavy Snow  | -           | -               | NESDIS              |
| 6/24/2007                                 | Lingshire                   | Hail  | 2.5 inches  | -               | NESDIS              |

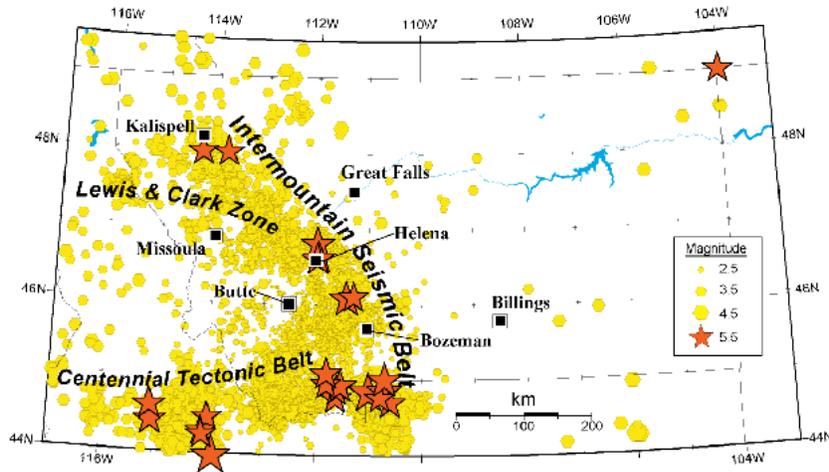
## B. Vulnerability Assessment

| Winter Storm  |  |   |   |   |
|---|--|---|---|---|
| Location  | Probability  | Extent  | Resources at Risk   |   |
| Generalized   | On a scale of 1-5, where 5 is a high probability of an incident, Weather scored 5.   | Limited or County-wide depending on the event   | High winds and heavy snow put all structures at risk. Physical impacts to all types of structures and utilities might occur when trees fall and block transportation systems. Power outages can impact operations of businesses and industries and the well being of county residents.  |   |
| Summary of Impact on Exposed Assets   |  |   |   |   |
| Structures  | Vulnerable Populations   | Critical Facilities   | Economic Assets   | Environmental Assets  |
| <p>All areas of the city and county structures are potentially at risk. There are 1,363 housing units worth an estimated \$98 million dollars and more than 158 businesses with more than \$15 million dollars in sales potentially at risk in the county. The affects of severe weather can be felt across the entire county or in certain areas depending on the event.</p> <p>Winds and snow are the biggest threats especially in the event of the rare blizzard.</p> | <p>Frail, homeless, elderly and/or disabled persons whose well-being is dependent on electric powered assistive devices and utilities can be at risk if the power is unavailable for extended periods. Children at school when storms strike are vulnerable if the event is prolonged due to lack of physical comforts like food, water, blankets and power.</p> <p>Hunters and outdoor enthusiasts can be caught unprepared when severe winter weather strikes forcing emergency personnel to affect their rescue. Farmers and ranchers must take necessary steps necessary to feed and shelter their livestock when heavy snow or blizzards occur.</p> | <p>Power and communications are especially at risk. Hospitals and other public safety facilities are vulnerable if the length of the power outage exceeds the capacity of their electrical backup systems. Water supply and sewage processing depends on electricity. Fallen trees and debris can disrupt the transportation network. High winds and excessive snow can disrupt airport operations.</p> | <p>Commercial and industrial enterprises may close with possible minor to significant economic impact. Strong winds can blow roofing material off commercial, public, and private buildings, warehouses, homes and garages. Snow loads in the winter can cause roofs and buildings to collapse. Icy conditions or white-outs could impair transportation of goods and services while vehicle accidents are a major concern.</p> <p>There are 1,363 housing units worth an estimated \$98 million dollars and more than 158 businesses with more than \$15 million dollars in sales potentially at risk in the county.</p> <p>The agriculture basis of the economy in Meagher County comprised of the 136 farms and ranches the \$19 million (2002) dollars of market production would be severely impacted.</p> | <p>Wind blown debris can be deposited in rivers, creeks and streams with resulting backups with flooding.</p> |

## 5.8. Earthquake

### A. Description

Historically, California has been perceived as the most earthquake-prone state in the west. However, a belt of seismicity known as the Intermountain Seismic Belt extends through western Montana, from the Flathead Lake region in the northwest corner of the state to the Yellowstone National Park region where the borders of Montana, Idaho, and Wyoming meet. The Intermountain Seismic Belt continues southward



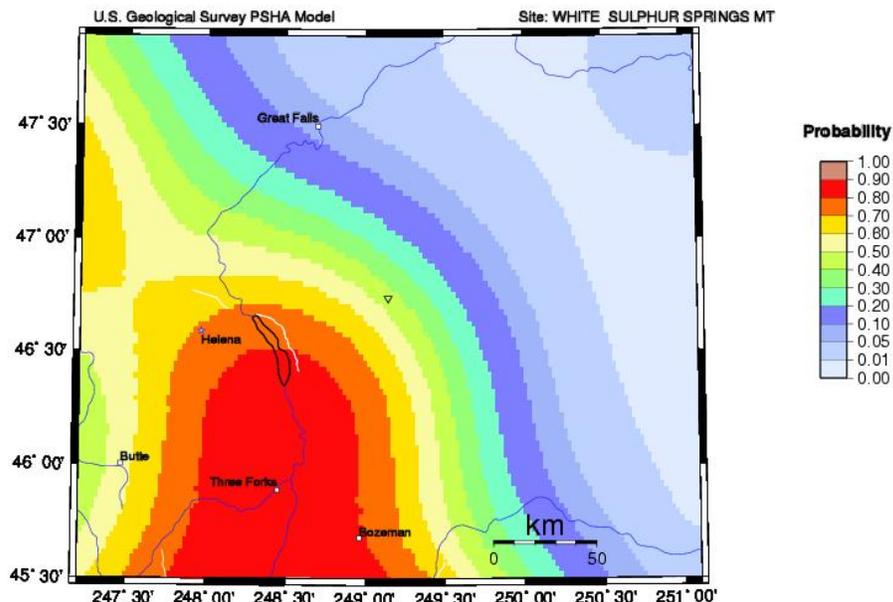
through Yellowstone Park, along the Idaho-Wyoming border, through Utah, and into southern Nevada. In western Montana, the Intermountain Seismic Belt is up to 100 km wide. A branch of the Intermountain Seismic Belt extends west from the northwest corner of Yellowstone Park, through southwestern Montana, into central Idaho. This so called Centennial Tectonic Belt includes at least eight major active faults and has been the site of the two largest historic earthquakes in the northern Rocky Mountains, the August

18, 1959 Hebgen Lake, Montana, earthquake (M 7.5), and the October 28, 1983 Borah Peak, Idaho, earthquake (M 7.3). Although it has been over four decades since the last destructive earthquake in Montana, small earthquakes are common in the region, occurring at an average rate of 7-10 earthquakes per day.

Meagher County has two identified faults in the county, the Camas Creek and the Smith Valley faults. There are several faults west of the county in Broadwater and Lewis and Clark County. The US

Geological Survey has a website where you can create earthquake probability maps for an area surrounding a specific location. Shown below is a map that illustrates the probability of an earthquake of greater than or equal to 5 magnitude occurring during the next 50 years and within 50 kilometers of White Sulphur Springs.

P[eq] with  $M \geq 5$  in 50 yrs & 50 km



GLM 2008 Mar 10 15:16:30 Earthquake probabilities from USGS OFR 02-420 PSHA. 50 km maximum horizontal distance. Site of Interest: Triangle. Fault traces are white; rivers blue. Epicenters M=5.0 circles.

### Local History of Earthquakes

Since 1900, seventeen earthquakes of 5.5 or greater magnitude have occurred within 100 air miles of Meagher County. They are listed in the following table:

| <b>Date</b> | <b>Approximate Location</b> | <b>Magnitude</b> |
|-------------|-----------------------------|------------------|
| 6/28/1925   | Clarkson                    | 6.6              |
| 2/16/1929   | Lombard                     | 5.6              |
| 10/12/1935  | Helena                      | 5.9              |
| 10/19/1935  | Helena                      | 6.3              |
| 10.31/1935  | Helena                      | 6.0              |
| 11/23/1947  | Virginia City               | 6.1              |
| 4/1/1952    | Swan Range                  | 5.7              |
| 8/18/1959   | Hebgen Lake                 | 7.5              |
| 8/18/1959   | Hebgen Lake                 | 6.5              |
| 8/18/1959   | Hebgen Lake                 | 6.0              |
| 8/18/1959   | Hebgen Lake                 | 5.6              |
| 8/18/1959   | Hebgen Lake                 | 6.3              |
| 8/18/1959   | Hebgen Lake                 | 6.0              |
| 8/18/1959   | Hebgen Lake                 | 5.6              |
| 6/30/1975   | Yellowstone Gallatin        | 5.9              |
| 12/8/1976   | Yellowstone Gallatin        | 5.5              |
| 7/25/2005   | Dillon                      | 5.6              |

Meagher County experiences many small earthquakes every month, but they are mostly undetectable except by electronic monitoring.

### Data Limitations

Since significant earthquakes are a rare event in Meagher County, predicting the probability and potential damages is very difficult. Significant research and work beyond the scope of this project would need to be done to make the fault data and value data in HAZUS useful to Meagher County. Improving the modeling and completing structural evaluations on individual buildings would allow the County to more accurately complete a vulnerability assessment. The data and analysis are limited by these factors.

## B. Vulnerability Assessment

| Earthquake  |  |   |  |   |
|---|--|---|--|---|
| Location  | Probability  | Extent  | Resources at Risk  |   |
| Generalized   | On a scale of 1-5, where 5 is a high probability of an incident, Earthquake scored 2.69.   | Effects felt through-out the County; scale of damage dependent on magnitude and location of the earthquake  | Severe damage to non-reinforced masonry buildings. Slight to moderate damage to buildings constructed under modern Building Codes. Highways and bridges in Meagher County are of special concern. Generalized damage to residences, commercial and industrial sites. Electric and gas utility infrastructure at risk, as well as water system.       |   |
| Summary of Impact on Exposed Assets   |  |   |  |   |
| Structures  | Vulnerable Populations   | Critical Facilities   | Economic Assets  | Environmental Assets  |
| <p>The most damage is expected to non-reinforced masonry buildings.</p> <p>There are 1,363 housing units worth an estimated \$98 million dollars and more than 158 businesses with more than \$15 million dollars in sales potentially at risk in the county from an earthquake in Meagher County and the City of White Sulphur Springs.</p> <p>Homes built before the Building Code included requirements sensitive to earthquake hazard will be expected to be severely damage.</p> | <p>Individuals who are unable to support themselves independently for at least 72 hours will be most vulnerable.</p> <p>Low-income persons living in older structures.</p> | <p>The State Highway system is vulnerable to structural damage during an earthquake, especially bridges.</p> <p>The County Sheriff's Office, Jail and Dispatch Center likely would be impacted by a significant earthquake.</p> <p>Gas, electric and telephone service will likely be down.</p> | <p>The downtown business district will experience moderate to severe damage</p> <p>There are 1,363 housing units worth an estimated \$98 million dollars and more than 158 businesses with more than \$15 million dollars in sales potentially at risk in the county from an earthquake in Meagher County and the City of White Sulphur Springs.</p> | <p>There is the potential for spills and releases of hazardous materials.</p> <p>Debris and trash will enter the water systems and may jam the waterways.</p> |

## 5.9. Flooding

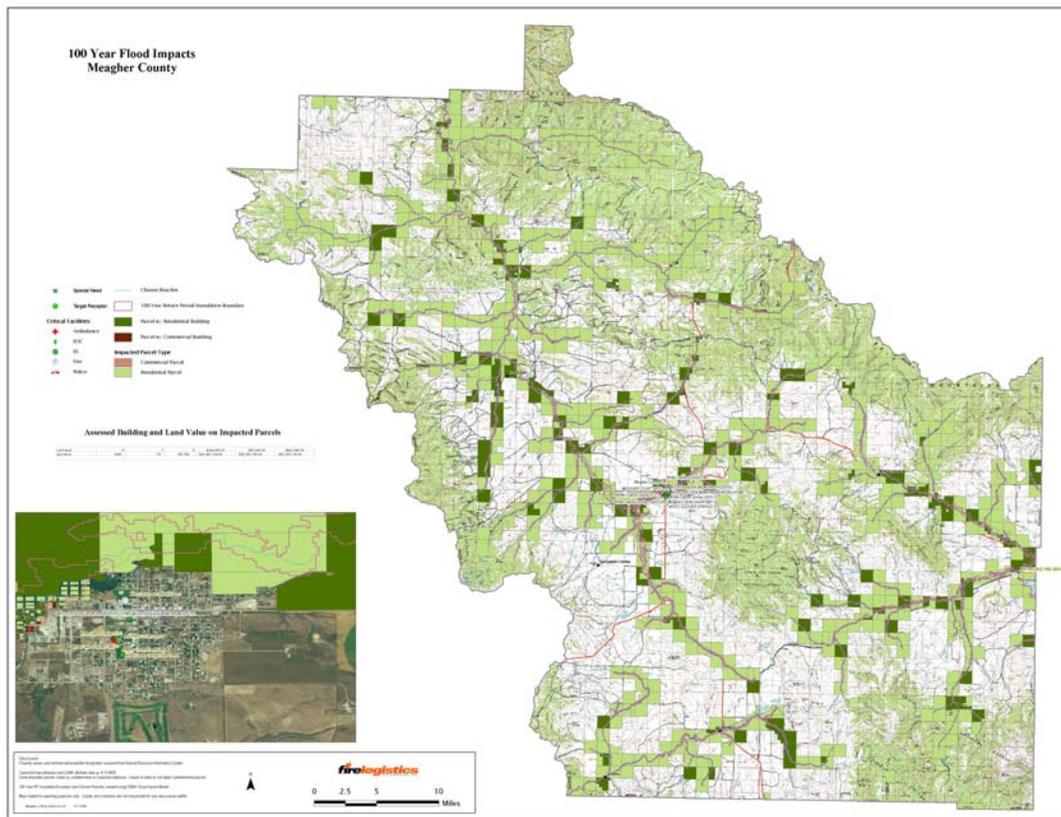
### A. Description

Flooding can occur for many reasons. Winter months can have a prolonged period when rivers and streams freeze over. Late winter or early spring can be a vulnerable period. Sudden warming causes snow pack to melt rapidly or direct heavy rains aid in melting snow rapidly to produce ice jam flooding. This flooding affects mostly low lying areas in rural areas and floodplains in urban and suburban areas. These floods can threaten public health, safety, and welfare by destroying or isolating structures, disrupting transportation systems, polluting water supplies, and destroying basic public facilities, such as sewer and electric services.

#### Local History of Flooding Incidents

There have been 3 Presidential Disaster Declarations involving flooding and Meagher County including statewide declarations in 1975, 1981, 1996, and 1997. Research of the SHELDUS and NWS databases does not reveal any additional flooding incidents.

A 100 year flood was modeled to determine its impacts on Meagher County and White Sulphur Springs. Map 5.9.1 represents the impact to Meagher County as a whole to the City of White Sulphur Springs.



Meagher County and the City of White Sulphur Springs are participants in the National Flood Insurance Program.

Neither Meagher County nor the City of White Sulphur Springs participate the National Flood Insurance Program's Community Rating System. The 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:

1. Reduce flood losses;
2. Facilitate accurate insurance rating; and
3. Promote the awareness of flood insurance.

For CRS participating communities, flood insurance premium rates are discounted in increments of 5%; i.e., a Class 1 community would receive a 45% premium discount, while a Class 9 community would receive a 5% discount (a Class 10 is not participating in the CRS and receives no discount). The CRS classes for local communities are based on 18 creditable activities, organized under four categories:

1. Public Information,
2. Mapping and Regulations,
3. Flood Damage Reduction, and
4. Flood Preparedness.

## B. Vulnerability Assessment

| Flooding  |   |  |  |  |
|---|---|--|--|--|
| Location  | Probability   | Extent   | Resources at Risk  |  |
| Generalized   | On a scale of 1-5, where 5 is a high probability of an incident, Flooding scored 4.   | Limited or County-wide depending on the event  | Use the GIS generated maps to determine residences and businesses within each 100-year flood d zones. Some residents could be disabled or bedridden making evacuation more difficult. Areas within the flood plain may have limited road access making for difficult rescue efforts.   |  |
| Summary of Impact on Exposed Assets   |   |  |  |  |
| Structures  | Vulnerable Populations  | Critical Facilities  | Economic Assets  | Environmental Assets   |
| <p><b>All structures in flood plains are vulnerable. This includes homes, businesses, apartment buildings, mobile homes, gas stations, public facilities, public utilities to include power and all types of communications.</b></p> <p>For the County during a 100 year flood, at least \$18 million of commercial and residential buildings are at risk. Based upon its location on the North Fork of the Smith River, the City of White Sulphur Springs has the greatest risk for structural damage from flooding.</p> <p>For the City of White Sulphur Springs, there is in excess of \$53 million of homes, businesses and infrastructure at risk.</p> <p>There are no repetitive flood loss properties in Meagher County.</p> | <p>Homeowners, renters, businesses, frail, homeless, elderly and/or disabled persons whose well-being is dependent on electric powered assistive devices and utilities can be at risk if the power is unavailable for extended periods.</p> <p>Hunters and outdoor enthusiasts can be caught unprepared when flooding occurs forcing emergency personnel to affect their rescue. Farmers and ranchers must take necessary steps to move livestock to locations away from the flooded areas.</p> | <p>High-tension power lines near and over flooded areas.</p> <p>Water supply and sewage facilities could backup with fouling of the water ways.</p> <p>The transportation network including roads and bridges could become impassable, or destroyed, threatening safety and welfare of those trapped in the flooded areas.</p> | <p>Structures ranging from homes, businesses including outbuildings are vulnerable.</p> <p>Flooded businesses will affect the general economic health of the community due to lost employment and reduced wages lowered economic output</p> <p>Agricultural interests are vulnerable with exposed fields and haystacks. Livestock must be moved from the critical areas.</p> | <p>Debris left over from the flood can be deposited in rivers, creeks and streams with resulting significant affects for aquatic life. Damage to wildlife habitat including brooding areas could have a significant impact on numbers of waterfowl.</p> <p>Sewage can overflow causing pollution affecting ground and surface water.</p> |

## 5.10. Communicable Disease

### A. *Description*

Epidemics are outbreaks of infectious or contagious disease that spread rapidly through a localized community to a broader and more extensive population. Understanding how and why a particular communicable disease spreads requires a multi-disciplinary study of biology, culture, society, economics, environment and technology. Communicable diseases are caused by viruses, bacteria or protozoa, which infect humans in a variety of ways. Some are water borne, some air borne, others food borne, and yet others are transmitted via interpersonal contact or contact with a vector, such as a mosquito or tick. While animal-specific pathogens may yield catastrophic economic effects, a zoonotic disease may also impact human health yielding sickness and possibly death. Many important infectious diseases are zoonotic, thus public health and animal health concerns intersect. Examples of zoonotic disease include West Nile Virus, Hanta Virus, Anthrax, Brucellosis, Tuberculosis, Tularemia, Rabies, Avian Influenza, Plague, various hemorrhagic fever viruses, and various forms of encephalitis to name a few.

#### Local History of Contagious Disease

Meagher County and the City of White Sulphur Springs do not have a significant history of contagious disease.

#### Data Limitations

Disease is a difficult hazard for which to predict specific vulnerabilities. For a disease to have a major impact, it first has to enter a community and then spread. The eventual outcome of a contagious disease outbreak in Meagher County will be determined by the initial location of the disease outbreak, how the disease spreads and mitigation actions taken. The data and analysis are limited by these factors.

**B. Vulnerability Assessment**

| Communicable Disease                |  |  |  |                      |
|-------------------------------------|--|--|--|----------------------|
| Location                            | Probability  | Extent   | Resources at Risk  |                      |
| Generalized                         | On a scale of 1-5, where 5 is a high probability of an incident, Communicable Disease scored 2.54. | Limited or County-wide depending on the event  | Livestock resources, especially horses are at risk from diseases such as West Nile Virus. Widespread communicable disease outbreaks will impact critical facility operations, businesses and the general population.   |                      |
| Summary of Impact on Exposed Assets |  |  |  |                      |
| Structures                          | Vulnerable Populations   | Critical Facilities  | Economic Assets  | Environmental Assets |
| No impacts                          | The entire population (1997) of Meagher County may be at risk depending on the disease outbreak.   | <p>The operation of critical facilities will certainly be impacted by employees thus their accessibility and function may be lost.</p> <p>If a critical facility is contaminated it could be rendered non-functional until it could be decontaminated or the threat has passed.</p> <p>For these reasons all critical facilities should be considered at risk from communicable disease.</p> | <p>Commercial and industrial enterprises may close due to employees not reporting to work with possible minor to significant economic impact.</p> <p>A human quarantine or highly publicized event may affect sales in the community through tourism and the service sector, resulting in long term economic impacts to the county.</p> <p>Animal and plant diseases may have a significant impact on the economy of Meagher County. In 2002, there were 136 farms, totaling 857,215 acres, with an average value of \$2,759,126.00 per farm. The cash receipts for farming in 2002 were \$19,714,000.00 with \$17,478,000.00 in livestock sales.</p> <p>There were 45,467 cattle and 4,962 (2002) sheep in Meagher County. This income and livestock could be lost in a severe animal disease outbreak.</p> | No impact.           |

## **5.11 Summary – Risk Assessment**

The risk assessment as described provides the probability and vulnerabilities to Meagher County and its communities from the identified hazards. As with any assessment involving multi-hazard planning, all potential incidents may not be represented in this document and an actual incident may occur in a different manner than described in this report. The foregoing assessment will allow Meagher County and its communities to design mitigation strategies to minimize damage and impacts from the various multi-hazards facing Meagher County.

## 6. Mitigation Strategy -- The Mitigation Plan

This Chapter provides the steps that are being taken or should be taken in Meagher County to reduce and mitigate the multi-hazard threats to the structures, vulnerable populations, critical facilities, economic and environment assets facing Meagher County and its communities.

### 6.1. Benefits of Hazard Mitigation

The benefits of multi-hazard mitigation planning are to:

#### **Save lives and property**

Meagher County and its communities can save lives and reduce property damage from natural hazards through mitigation actions, such as moving families and their homes out of harm's way, limiting development, and/or regulating the type of construction or structures allowed in certain areas.

#### **Reduce vulnerability to future hazards.**

By having a mitigation strategy in place, Meagher County and its communities will be better prepared to take proper steps that will permanently reduce the risk of future losses.

#### **Facilitate post-disaster funding.**

By identifying mitigation strategies and projects before the next disaster, Meagher County and its communities will be in a better position to obtain post-disaster funding because much of the background work necessary for funding assistance will already be in place.

#### **Speed recovery.**

By developing a mitigation strategy, Meagher County and its communities can identify post-disaster mitigation opportunities in advance of a disaster. Further, Meagher County and its communities can develop recovery plans and policies to minimize the number of decisions that must be made while under the stress of responding to and recovering from a disaster.

#### **Demonstrate commitment to improving community health and safety.**

Developing a mitigation strategy demonstrates Meagher County and its communities' commitment to safeguarding their citizens and protecting their economic and environmental well-being.

#### **Demonstrate accountability and regional coordination.**

Each jurisdiction is responsible for mitigation projects within their scope and boundaries. This includes identifying, prioritizing, funding, completing and evaluating mitigation projects.

Each of the jurisdictions also has an ongoing commitment to acting cooperatively within the county to the greatest extent possible. This allows for problem-solving at the county level and gaining maximum benefit from potential funding sources.

### 6.2. Mitigation Goals

Meagher County's Multi-Hazard Mitigation Plan Goals are:

- Preventing personal injury, loss of life and damage to property and the environment from natural hazards.
- Enhancing the ability of emergency services to respond to the effects of hazards on people, property and the environment.
- Promoting public awareness and an understanding of natural hazards and the risk they potentially present to quality of life and economic vitality.
- Forming partnerships with private and public sector agencies, businesses and organizations to institutionalize the programs and planning needed to implement, sustain and improve disaster preparedness, mitigation measures, and to facilitate post-disaster recovery and funding.
- Documents hazards, risk assessments, and vulnerabilities of the county from natural and technological hazards.
- Protect essential facilities and critical lifeline systems from damage by natural or technological hazards.
- Reduce the risk to Meagher County from biological/infectious hazards by increasing awareness of diseases that could affect the county through a demonstrated commitment to improving community health and safety.

### 6.3. Mitigation Measures

Mitigation measures are actions taken to reduce the vulnerability of people and resources to the impact of multi-hazards or disasters. They can take many forms, some target a specific issue of vulnerability; others have broad implications for the county's ability to protect itself or recover from a disaster.

The multi-hazard mitigation measures presented in this section respond to mitigation needs that go beyond dealing with any one particular hazard. They present broad strategies and actions that are useful no matter what disaster may strike. Some measures speak to the maintenance and administration of the mitigation plan. Others focus on the need for further developing and sharing information on multi-hazards.

| Hazard                      | Table 6.3.1<br>Multi-Hazard Mitigation Measures   | Potential Funding Sources | Lead Department(s) & Partners | Mission<br>To Protect Meagher County's Citizens, Property and the Environment from the Impact of Natural and Man-made Disasters |                       |                          |              |                          |   |  |   |
|-----------------------------|---|---------------------------|-------------------------------|---|-----------------------|--------------------------|--------------|--------------------------|---|--|---|
|                             |   |                           |                               | Goals   |                       |                          |              |                          |   |  |   |
|                             |   |                           |                               | Preventing Injury & Damage  | Enhance Public Safety | Promote Public Awareness | Partnerships | Document Hazards & Risks | Protect Essential & Critical Facilities | Reduce Risk from Communicable Diseases |   |
| Short-term Multi-hazard # 1 | Identify and pursue new state and federal funding opportunities to develop and implement multi-hazard mitigation programs   | Existing Resources        | DES, BOCC                     | ●   | ●                     | ●                        | ●            | ●                        | ●                                       | ●                                      | ● |
| Short-term Multi-hazard # 2 | Maintain public and private partnerships to foster multi-hazard program coordination and collaboration within Meagher County  | Existing Resources        | LEPC                          | ●   | ●                     | ●                        | ●            | ●                        | ●                                       | ●                                      | ● |
| Short-term Multi-hazard # 3 | Continue to periodically update the County's Emergency Operations Plan, linking emergency services with multi-hazard mitigation programs and enhancing public education | Existing Resources        | LEPC                          | ●   | ●                     | ●                        | ●            | ●                        | ●                                       | ●                                      | ● |

| Hazard                      | Table 6.3.1<br>Multi-Hazard Mitigation Measures  | Potential Funding Sources                                 | Lead Department(s) & Partners | Mission<br>To Protect Meagher County's Citizens, Property and the Environment from the Impact of Natural and Man-made Disasters |                       |                          |              |                          |   |  |
|-----------------------------|--|---|-------------------------------|---|-----------------------|--------------------------|--------------|--------------------------|---|--|
|                             |  |   |                               | Goals   |                       |                          |              |                          |   |  |
|                             |  |   |                               | Preventing Injury & Damage  | Enhance Public Safety | Promote Public Awareness | Partnerships | Document Hazards & Risks | Protect Essential & Critical Facilities | Reduce Risk from Communicable Diseases |
| Short-term Multi-hazard # 4 | Make the Meagher County Multi-Hazard Mitigation Plan available to the public by placing it on the County's web site and through the public library | Existing Resources  | DES                           | ●   | ●                     | ●                        | ●            | ●                        | ●                                       | ●                                      |
| Short-term Multi-hazard # 5 | Continue to encourage all Meagher County residents to have provisions on hand to allow them to be self-sufficient for at least 72 hours.           | Existing Resources  | DES, LEPC, BOCC               | ●   | ●                     | ●                        | ●            | ●                        | ●                                       | ●                                      |
| Short-term Multi-hazard # 6 | Maintain the Meagher County LEPC to facilitate implementation, monitoring and evaluation of Meagher County mitigation projects.                    | Existing Resources  | BOCC, DES                     | ●   | ●                     | ●                        | ●            | ●                        | ●                                       | ●                                      |
| Short-term Multi-hazard #7  | Develop SOG's & EOC Checklists for the operation of the County's Emergency Coordination Center   | Pre-disaster Mitigation (PDM) Program; existing resources | DES, LEPC                     | ●   | ●                     |                          | ●            |                          | ●                                       |  |
| Short-term Multi-hazard #8  | Establish a Continuity of Operations Plan for Meagher County   | Emergency Management Performance Grant                    | DES, LEPC                     | ●   | ●                     | ●                        | ●            | ●                        | ●                                       | ●                                      |

| Hazard                      | Table 6.3.1<br>Multi-Hazard Mitigation Measures   | Potential Funding Sources  | Lead Department(s) & Partners                                   | Mission<br>To Protect Meagher County's Citizens, Property and the Environment from the Impact of Natural and Man-made Disasters |                       |                          |              |                          |   |  |   |
|-----------------------------|---|--|---|---|-----------------------|--------------------------|--------------|--------------------------|---|--|---|
|                             |   |  |   | Goals   |                       |                          |              |                          |   |  |   |
|                             |   |  |   | Preventing Injury & Damage  | Enhance Public Safety | Promote Public Awareness | Partnerships | Document Hazards & Risks | Protect Essential & Critical Facilities | Reduce Risk from Communicable Diseases |   |
| Short-term Multi-hazard # 9 | Continue ICS training meeting Homeland Security requirements for all emergency responders   | Pre-disaster Mitigation (PDM) Program; existing resources                            | DES, LEPC, Fire, Law Enforcement, Schools, EMS, Care Facilities | ●   | ●                     | ●                        | ●            | ●                        | ●                                       | ●                                      | ● |
| Long-term Multi-hazard #1   | Increase knowledge of the hazards and mitigation strategies in Meagher County and adjust policies and programs based on that knowledge. | Pre-disaster Mitigation (PDM) Program; existing resources                            | DES, LEPC, BOCC, Planning, Roads                                | ●   | ●                     | ●                        | ●            | ●                        | ●                                       | ●                                      | ● |
| Long-term Multi-hazard #2   | Create and maintain a system to support populations with special needs within Meagher County, including evacuation and shelter.         | Pre-disaster Mitigation (PDM) Program; existing resources; DHS Citizen Corps Program | LEPC, NGO's, Law Enforcement, Health Dept, Care Facilities      | ●   | ●                     | ●                        | ●            | ●                        | ●                                       | ●                                      | ● |
| Long-term Multi-hazard #3   | Improve public awareness & provide citizens with specific steps to reduce their risks to natural and man-made hazards.                  | Pre-disaster Mitigation (PDM) Program; existing resources; DHS Citizen Corps Program | DES, Fire, Law Enforcement, EMS                                 | ●   | ●                     | ●                        | ●            | ●                        | ●                                       | ●                                      | ● |

| Hazard                      | Table 6.3.1<br>Multi-Hazard Mitigation Measures   | Potential Funding Sources             | Lead Department(s) & Partners               | Mission<br>To Protect Meagher County's Citizens, Property and the Environment from the Impact of Natural and Man-made Disasters |                       |                          |              |                          |   |  |
|-----------------------------|---|---------------------------------------|---|---|-----------------------|--------------------------|--------------|--------------------------|---|--|
|                             |   |                                       |   | Goals   |                       |                          |              |                          |   |  |
|                             |   |                                       |   | Preventing Injury & Damage  | Enhance Public Safety | Promote Public Awareness | Partnerships | Document Hazards & Risks | Protect Essential & Critical Facilities | Reduce Risk from Communicable Diseases |
| Long-term Multi-hazard #4   | Develop a long-term recovery plan for Meagher County from the effects of a catastrophic disaster.   | Pre-disaster Mitigation (PDM) Program | DES, LEPC                                   | ●   | ●                     | ●                        | ●            | ●                        | ●                                       | ●                                      |
| Long-term Multi-hazard #5   | Continue to refine the Critical Facilities list capable of offering <b>safe</b> haven to the citizens of Meagher County during disaster events                | Existing Resources                    | DES, LEPC                                   | ●   | ●                     |                          | ●            | ●                        | ●                                       |  |
| Long-term Multi-hazard #6   | Work with the NGO's to assess the adequacy of service delivery in all areas of the County   | NGO's; existing resources             | DES, LEPC, NGO's                            | ●   | ●                     |                          | ●            | ●                        | ●                                       |  |
| Long-term Multi-hazard #7   | Continue to pursue a Citizen Notification Program to effectively notify Meagher County residents about impending disasters, evacuations, & etc.               | Dept. of Homeland Security            | Sheriff, DES, Fire                          | ●   | ●                     | ●                        | ●            | ●                        | ●                                       | ●                                      |
| Long-term Multi-hazard #8   | Identify specific mitigation related criteria to be incorporated into the land use planning process, e.g., prohibiting development in high hazard areas, etc. | Existing Resources                    | Planning, DES, Fire, Law Enforcement, Roads | ●   | ●                     | ●                        | ●            | ●                        | ●                                       |  |
| Long-term Multi-hazard #9   | Work with businesses to develop a business continuity of operations plan  | Pre-disaster Mitigation (PDM) Program | DES, LEPC, Businesses                       | ●   | ●                     | ●                        | ●            | ●                        | ●                                       | ●                                      |
| Long-term Multi-hazard # 10 | Develop a resource list of personnel, supplies and equipment relative to response to an emergency.  | Existing resources                    | DES, LEPC                                   | ●   | ●                     | ●                        | ●            | ●                        | ●                                       | ●                                      |

Mitigation measures for Fires are presented in Table 6.3.2. They reflect the importance of public awareness, fire prevention, fire mitigation and built in suppression components. Mitigation measures for Wildland Fire and Wildland Urban Interface Fires are outlined in detail in Meagher County's Community Wildfire Protection Plan.

| Hazard             | Table 6.3.2<br>Fire Mitigation Measures  | Potential Funding Sources                                     | Lead Department(s) & Partners                         | Mission<br>To Protect Meagher County's Citizens, Property and the Environment from the Impact of Natural and Man-made Disasters |                       |                          |              |                          |   |  |
|--------------------|--|---|---|---|-----------------------|--------------------------|--------------|--------------------------|---|--|
|                    |  |   |   | Goals   |                       |                          |              |                          |   |  |
|                    |  |   |   | Preventing Injury & Damage  | Enhance Public Safety | Promote Public Awareness | Partnerships | Document Hazards & Risks | Protect Essential & Critical Facilities | Reduce Risk from Communicable Diseases |
| Short-term Fire #1 | Promote fire safety through community groups   | Existing resources  | Fire Departments and Community Groups                 | ●   | ●                     | ●                        | ●            | ●                        | ●                                       |  |
| Short-term Fire #2 | Recruit and train adequate volunteer fire fighters   | Existing Resources  | Fire Departments                                      | ●   | ●                     | ●                        | ●            | ●                        | ●                                       |  |
| Short-term Fire #3 | Support the fire mutual aid response system  | Existing Resources  | Fire Departments.                                     | ●   | ●                     | ●                        | ●            | ●                        | ●                                       |  |
| Short-term Fire #4 | Maintain Fire Flows and hydrant maintenance  | Existing Resources  | Water Department & Fire Department                    | ●   | ●                     | ●                        | ●            | ●                        | ●                                       |  |
| Long-term Fire # 1 | Promote fire sprinkler systems in older community structures                                 | Existing Resources, Insurance savings, Community Block Grants | Fire Departments, Businesses                          | ●   | ●                     | ●                        | ●            | ●                        | ●                                       |  |
| Long-term Fire # 2 | Ensure that there are adequate water supplies in areas of community's subject to large fires | Treasure State Endowment Program                              | Fire Department and Water Department, City Government | ●   | ●                     | ●                        | ●            | ●                        | ●                                       |  |
| Long-term Fire # 3 | Protect the White Sulphur Springs Watershed with a fuel reduction project                    | USFS Fuel Reduction   | USFS, LEPC, City Council                              | ●   | ●                     | ●                        | ●            | ●                        | ●                                       |  |

Mitigation measures for Technological Hazards are presented in Table 6.3.3. They reflect the importance of public safety and continuity of business operations.

| Hazard                          | Table 6.3.3<br>Technological Hazards<br>Mitigation Measures  | Potential Funding Sources                                 | Lead Department(s) & Partners | Mission<br>To Protect Meagher County's Citizens, Property and<br>the Environment from the Impact of Natural and<br>Man-made Disasters |                          |                                |              |                                |  |   |
|---------------------------------|--|---|-------------------------------|---|--------------------------|--------------------------------|--------------|--------------------------------|--|---|
|                                 |  |   |                               | Goals   |                          |                                |              |                                |  |   |
|                                 |  |   |                               | Preventing<br>Injury &<br>Damage  | Enhance<br>Public Safety | Promote<br>Public<br>Awareness | Partnerships | Document<br>Hazards &<br>Risks | Protect<br>Essential &<br>Critical<br>Facilities | Reduce Risk<br>from<br>Communicable<br>Diseases |
| Short-term<br>Technological # 1 | Provide emergency back-up power to critical and essential facilities   | Existing Resources, Pre-disaster Mitigation (PDM) Program | LEPC, City Council, BOCC, DES | ●   | ●                        | ●                              | ●            | ●                              | ●  |   |
| Short-term<br>Technological # 2 | Ensure Rights-of-way for power lines are cleared and maintained  | Existing Resources  | Northwestern Energy, LEPC     | ●   | ●                        |                                | ●            | ●                              | ●  |   |
| Long-term<br>Technological # 1  | Up-grade City water mains to ensure adequate water supply and fire flows.  | Treasure State Endowment Program                          | City Council, Fire Department | ●   | ●                        |                                | ●            | ●                              | ●  |   |
| Long-term<br>Technological # 2  | Support the concept of a removal/replacement for trees that threaten or pose a risk to utilities and structures. | Existing Resources; Pre-Disaster Mitigation (PDM) Program | Northwestern Energy, DES      | ●   | ●                        | ●                              | ●            | ●                              | ●  |   |
| Long-term<br>Technological # 3  | Encourage the addition of an additional source of power supply for Meagher County.                               | Existing Resources; Pre-Disaster Mitigation (PDM) Program | Northwestern Energy, DES      | ●   | ●                        | ●                              | ●            | ●                              | ●  |   |

Mitigation measures for Storms are presented in Table 6.3.4. They reflect the importance of public awareness and continuity of electric power.

| Hazard               | Table 6.3.4<br>Storm Mitigation Measures   | Potential Funding Sources                                 | Lead Department(s) & Partners      | Mission<br>To Protect Meagher County's Citizens, Property and the Environment from the Impact of Natural and Man-made Disasters |                       |                          |              |                          |   |  |
|----------------------|--|---|------------------------------------|---|-----------------------|--------------------------|--------------|--------------------------|---|--|
|                      |  |   |                                    | Goals   |                       |                          |              |                          |   |  |
|                      |  |   |                                    | Preventing Injury & Damage  | Enhance Public Safety | Promote Public Awareness | Partnerships | Document Hazards & Risks | Protect Essential & Critical Facilities | Reduce Risk from Communicable Diseases |
| Short-term Storm # 1 | Explore opportunities on public access television and through local schools for promotion of public awareness of storm hazards and the benefits of mitigation. | Existing Resources  | DES, Fire, Law Enforcement         | ●   | ●                     | ●                        | ●            | ●                        | ●                                       |  |
| Short-term Storm # 2 | Encourage the use of portable warning devices such as radios with severe weather warning alarms in critical facilities.  | Existing Resources, Pre-disaster Mitigation (PDM) Program | LEPC                               | ●   | ●                     | ●                        | ●            | ●                        | ●                                       |  |
| Long-term Storm # 1  | Support the concept of a removal/replacement for trees that threaten or pose a risk to utilities and structures.   | Existing Resources  | DES, LEPC                          | ●   | ●                     | ●                        | ●            | ●                        | ●                                       |  |
| Long-term Storm # 2  | Support the construction of underground utilities when and where practical.  | Existing Resources  | Utilities, DES, Planning           | ●   | ●                     | ●                        | ●            | ●                        | ●                                       |  |
| Long-term Storm # 3  | Develop a plan for clearing debris from priority routes to maintain access to critical facilities  | Existing Resources, Pre-disaster Mitigation (PDM) Program | DES, LEPC                          | ●   | ●                     | ●                        | ●            | ●                        | ●                                       |  |
| Long-term Storm # 4  | Develop and implement programs to reduce risks to public infrastructure.   | Pre-disaster Mitigation (PDM) Program                     | DES, Board of County Commissioners | ●   | ●                     | ●                        | ●            | ●                        | ●                                       | ●                                      |

Mitigation measures for Earthquake are presented in Table 6.3.5. Public awareness/preparedness and the execution of seismic retrofit projects on public structures is emphasized.

| Hazard                   | Table 6.3.5<br>Earthquake Mitigation Measures   | Potential Funding Sources                                 | Lead Department(s) & Partners             | Mission<br>To Protect Meagher County's Citizens, Property and the Environment from the Impact of Natural and Man-made Disasters |                       |                          |              |                          |   |  |
|--------------------------|---|---|---|---|-----------------------|--------------------------|--------------|--------------------------|---|--|
|                          |   |   |   | Goals   |                       |                          |              |                          |   |  |
|                          |   |   |   | Preventing Injury & Damage  | Enhance Public Safety | Promote Public Awareness | Partnerships | Document Hazards & Risks | Protect Essential & Critical Facilities | Reduce Risk from Communicable Diseases |
| Short-term Earthquake #1 | Identify funding sources for undertaking earthquake mitigation in County and City-owned facilities  | Existing Resources  | DES, LEPC, BOCC                           | ●   | ●                     |                          | ●            | ●                        | ●                                       |  |
| Short-term Earthquake #2 | Support structural mitigation of critical infrastructure, schools and other public buildings.       | Existing Resources & Pre-Disaster Mitigation (PDM) funds. | DES, LEPC, Schools, Hospitals, City, BOCC | ●   | ●                     | ●                        | ●            | ●                        | ●                                       |  |
| Long-term Earthquake #1  | Ensure that all Meagher County's residents have information on earthquake hazards and preparedness. | Existing resources.                                       | LEPC, DES                                 | ●   | ●                     | ●                        | ●            | ●                        | ●                                       |  |

Mitigation measures related to Floods are presented in Table 6.3.6. They reflect the importance of storm water management and avoiding development in the flood plain.

| Hazard               | Table 6.3.6<br>Flood Mitigation Measures  | Potential Funding Sources                            | Lead Department(s) & Partners                 | Mission<br>To Protect Meagher County's Citizens, Property and the Environment from the Impact of Natural and Man-made Disasters |                       |                          |              |                          |   |  |
|----------------------|---|--|---|---|-----------------------|--------------------------|--------------|--------------------------|---|--|
|                      |   |  |   | Goals   |                       |                          |              |                          |   |  |
|                      |   |  |   | Preventing Injury & Damage  | Enhance Public Safety | Promote Public Awareness | Partnerships | Document Hazards & Risks | Protect Essential & Critical Facilities | Reduce Risk from Communicable Diseases |
| Short-term Flood # 1 | Provide education related to flood hazards to households and businesses.  | Existing Resources                                   | DES, LEPC                                     | ●   | ●                     | ●                        | ●            | ●                        | ●                                       |  |
| Short-term Flood # 2 | Adopt City codes to improve risk reduction and prevention of flood impacts.   | Existing Resources                                   | City of White Sulphur Springs                 | ●   | ●                     | ●                        | ●            | ●                        | ●                                       |  |
| Short-term Flood # 3 | Continue participation in the NFIP and consider joining the Community Rating System (CRS)                                     | Existing Resources                                   | City of White Sulphur Springs, Meagher County | ●   | ●                     | ●                        | ●            | ●                        | ●                                       |  |
| Long-term Flood # 1  | Create planning and zoning regulations for development within the floodplain  | Flood Mitigation Assistance Program (FMA); PDM.      | Planning, LEPC, City Council, BOCC            | ●   | ●                     | ●                        | ●            | ●                        | ●                                       |  |
| Long-term Flood # 2  | Develop mitigation and preparedness measures for critical public infrastructure and facilities located in flood hazard areas. | Flood Mitigation Assistance Program (FMA); PDM.      | DES, LEPC,                                    | ●   | ●                     | ●                        | ●            | ●                        | ●                                       |  |
| Long-term Flood # 3  | Pursue public acquisition to preserve open space in the floodplain.   | Voluntary service organizations, such as Rotary; FMA | Planning, LEPC, City Council, BOCC            | ●   | ●                     | ●                        | ●            | ●                        | ●                                       |  |

Mitigation measures for Communicable Disease are presented in Table 6.3.7. They reflect the importance of public awareness, prevention and containment of disease outbreaks.

| Hazard                    | Table 6.3.7<br>Communicable Disease Hazards<br>Mitigation Measures   | Potential Funding Sources | Lead Department(s) & Partners                        | Mission<br>To Protect Meagher County's Citizens, Property and<br>the Environment from the Impact of Natural and<br>Man-made Disasters |                          |                                |              |                                |  |   |
|---------------------------|--|---------------------------|--|---|--------------------------|--------------------------------|--------------|--------------------------------|--|---|
|                           |  |                           |  | Goals   |                          |                                |              |                                |  |   |
|                           |  |                           |  | Preventing<br>Injury &<br>Damage  | Enhance<br>Public Safety | Promote<br>Public<br>Awareness | Partnerships | Document<br>Hazards &<br>Risks | Protect<br>Essential &<br>Critical<br>Facilities | Reduce Risk<br>from<br>Communicable<br>Diseases |
| Short-term<br>Disease # 1 | Educate the public, county staff on communicable disease prevention  | Existing resources        | Health Dept, DES, LEPC                               | ●   | ●                        | ●                              | ●            | ●                              | ●  | ●   |
| Short-term<br>Disease # 2 | Work with the Health Department and medical providers to quickly disseminate information should a communicable disease be diagnosed to prevent the spread of the disease | Existing resources        | Health Department, DES, EMS, Health Care Providers   | ●   | ●                        | ●                              | ●            | ●                              | ●  | ●   |
| Long-term<br>Disease # 1  | Update the Communicable Disease Plan yearly  | Homeland Security         | Health Department, DES, LEPC, Health Care Facilities | ●   | ●                        | ●                              | ●            | ●                              | ●  | ●   |
| Long-term<br>Disease # 2  | Maintain contact with MT DPHHS to regularly monitor the threat of communicable disease in Meagher County   | Existing resources        | Health Department, DES                               | ●   | ●                        | ●                              | ●            | ●                              | ●  | ●   |
| Long-term<br>Disease # 3  | Work with the hospital to continue to address issues dealing with surge capacity.  | DPHHS                     | Health Care Facilities, LEPC                         | ●   | ●                        | ●                              | ●            | ●                              | ●  | ●   |
| Long-term<br>Disease # 4  | Develop an annex for the county EOP relative to Animal Diseases within two years.  | Existing resources        | DES, BOH, Extension & Veterinarian                   | ●   | ●                        | ●                              | ●            | ●                              | ●  | ●   |

## 6.4 Evaluating and Prioritizing Mitigation Actions

Once a list of mitigation actions had been approved, the Meagher County LEPC evaluated and prioritized each of the mitigation actions to determine which actions would be included in the MHMP Action Plan, which represents mitigation projects and programs to be implemented throughout the entire county through the cooperation of multiple entities. To complete this task, the Meagher County LEPC reviewed the simplified STAPLEE evaluation criteria (shown in Table 6.4.1) and the Benefit-Cost Analysis Fact Sheet (Appendix 5) to consider the opportunities and constraints of implementing each particular mitigation action.

Table 6.4.1 Evaluation Criteria for Mitigation Actions

| <b>Evaluation Category</b> | <b>Discussion “It is important to consider...”</b>   | <b>Considerations</b>  |
|----------------------------|--|--|
| <b>Social</b>              | The public support for the overall mitigation strategy and specific mitigation actions.  | Community acceptance<br>Adversely affects population   |
| <b>Technical</b>           | If the mitigation action is technically feasible and if it is the whole or partial solution.   | Technical feasibility<br>Long-term solutions<br>Secondary impacts  |
| <b>Administrative</b>      | If the community has the personnel and administrative capabilities necessary to implement the action or whether outside help will be necessary.  | Staffing<br>Funding allocation<br>Maintenance/operations   |
| <b>Political</b>           | What the community and its members feel about issues related to the environment, economic development, safety, and emergency management.   | Local champion<br>Public support<br>Political support  |
| <b>Legal</b>               | Whether the community has the legal authority to implement the action, or whether the community must pass new regulations.   | Local, State, and Federal authority<br>Potential legal challenge   |
| <b>Economic</b>            | If the action can be funded with current or future internal and external sources, if the costs seem reasonable for the size of the project, and if enough information is available to complete a FEMA Benefit-Cost Analysis. | Benefit/cost of action<br>Contributes to other economic goals<br>Outside funding required<br>FEMA Benefit-Cost Analysis            |
| <b>Environmental</b>       | The impact on the environment because of public desire for a sustainable and environmentally healthy community.  | Effect on local flora and fauna<br>Consistent with community environmental goals<br>Consistent with local, State, and Federal laws |

Upon review, the Meagher County LEPC assigned a high priority ranking to actions that best fulfill the goals of the MHMP and are appropriate and feasible for Meagher County and White Sulphur Springs to implement during the 5-year lifespan of this version of the MHMP. As such, the

Meagher County LEPC determined that only the mitigation actions that received a high priority ranking would be included in the Countywide MHMP Action Plan.

### **IMPLEMENTING A ACTION PLAN**

Table 6.4.2 shows the Meagher County MHMP Action Plan matrix that describes how the mitigation actions were prioritized, how the overall benefits-costs were taken into consideration, and how each mitigation action will be implemented and administered by Meagher County and White Sulphur Springs.

**Table 6.4.2 Mitigation Action Plan Matrix**

| <b>Action Number</b>        | <b>Description</b>  | <b>Ranking/<br/>Prioritization</b> | <b>Administering<br/>Department</b> | <b>Potential<br/>Funding</b>                              | <b>Timeframe</b> | <b>Benefit-Costs / Technical<br/>Feasibility</b>  |
|-----------------------------|---|------------------------------------|-------------------------------------|---|------------------|---|
| Long-term Fire # 3          | Protect the White Sulphur Springs Watershed with a fuel reduction project   | High Priority                      | USFS, LEPC, City Council            | USFS Fuel Reduction                                       | 1-5 years        | Working with partners to protect the community watershed is highly cost-effective compared to finding and developing a new water supply.  |
| Long-term Technological # 1 | Up-grade City water mains to ensure adequate water supply and fire flows.   | High Priority                      | City Council, Fire Department       | Treasure State Endowment Program                          | 1-5 years        | The benefits of increased fire flow availability are a potential reduction in insurance costs to the community  |
| Short-term Storm # 2        | Encourage the use of portable warning devices such as radios with severe weather warning alarms in critical facilities. | High Priority                      | LEPC                                | Existing Resources, Pre-disaster Mitigation (PDM) Program | On-going         | A sustained community outreach program for mitigation activities will help build support for city and county capacity and will enable the public to prepare for, respond to and recover from storm related events |
| Short-term Earthquake #1    | Identify funding sources for undertaking earthquake mitigation in County and City-owned facilities                      | High Priority                      | LEPC                                | Existing Resources  | 1-2 years        | Locating funding sources for undertaking earthquake mitigation in County and City-owned facilities will make these projects more cost-effective by maximizing local government revenues                           |
| Short-term Earthquake #2    | Support structural mitigation of critical infrastructure, schools and other public buildings.                           | High Priority                      | DES                                 | Existing Resources & Pre-Disaster Mitigation (PDM) funds. | On-going         | On-going support of earthquake mitigation activities by Meagher County DES of critical infrastructure ensures the public safety and continued delivery of services from schools and other public facilities       |
| Long-term Earthquake #1     | Ensure that all Meagher County's residents have information on earthquake hazards and preparedness.                     | High Priority                      | LEPC                                | Existing resources.                                       | On-going         | A sustained community outreach program for mitigation activities will help build support for city and county capacity and will enable the public to prepare for, respond to and recover from earthquakes          |

**Table 6.4.2 Mitigation Action Plan Matrix**

| <b>Action Number</b>           | <b>Description</b>  | <b>Ranking/<br/>Prioritization</b> | <b>Administering<br/>Department</b> | <b>Potential<br/>Funding</b> | <b>Timeframe</b> | <b>Benefit-Costs / Technical<br/>Feasibility</b>  |
|--------------------------------|---|------------------------------------|-------------------------------------|------------------------------|------------------|---|
| Short-term<br>Flood # 1        | Provide education related to flood hazards to households and businesses.  | High Priority                      | LEPC                                | Existing Resources           | On-going         | A sustained community outreach program for mitigation activities will help build support for city and county capacity and will enable the public to prepare for, respond to and recover from floods                         |
| Short-term<br>Multi-hazard # 1 | Identify and pursue new state and federal funding opportunities to develop and implement multi-hazard mitigation programs   | High Priority                      | DES, BOCC                           | Existing Resources           | On-going         | Locating new funding sources for multi-hazard mitigation programs in the County will make these projects more cost-effective by maximizing local government revenues  |
| Short-term<br>Multi-hazard # 3 | Continue to periodically update the County's Emergency Operations Plan, linking emergency services with multi-hazard mitigation programs and enhancing public education | High Priority                      | LEPC                                | Existing Resources           | On-going         | Ensuring an effective efficient response from the City and County agencies through an up-to-date Emergency Operations Plan and educating the public about their responsibilities is a primary function of local government. |
| Short-term<br>Multi-hazard # 4 | Make the Meagher County Multi-Hazard Mitigation Plan available to the public by placing it on the County's web site and through the public library                      | High Priority                      | DES                                 | Existing Resources           | On-going         | A sustained community outreach program for mitigation activities will help build support for city and county capacity and will enable the public to prepare for, respond to and recover from disasters in Meagher County    |
| Short-term<br>Multi-hazard # 5 | Continue to encourage all Meagher County residents to have provisions on hand to allow them to be self-sufficient for at least 72 hours.                                | High Priority                      | DES, LEPC, BOCC                     | Existing Resources           | On-going         | A sustained community outreach program for mitigation activities will help build support for city and county capacity and will enable the public to prepare for, respond to and recover from disasters in Meagher County    |
| Short-term<br>Multi-hazard # 6 | Maintain the Meagher County LEPC to facilitate implementation, monitoring and evaluation of Meagher County mitigation projects.   | High Priority                      | BOCC, DES                           | Existing Resources           | On-going         | Meagher County has an active LEPC with significant participation of government and community members and intends to keep the LEPC as the focal point for MHMP activities  |

**Table 6.4.2 Mitigation Action Plan Matrix**

| <b>Action Number</b>              | <b>Description</b>  | <b>Ranking/<br/>Prioritization</b> | <b>Administering<br/>Department</b>                             | <b>Potential<br/>Funding</b>                              | <b>Timeframe</b> | <b>Benefit-Costs / Technical<br/>Feasibility</b>  |
|-----------------------------------|---|------------------------------------|---|---|------------------|---|
| Short-term<br>Multi-hazard<br>#7  | Develop SOG's & EOC Checklists for the operation of the County's Emergency Coordination Center  | High Priority                      | DES   | Pre-disaster Mitigation (PDM) Program; existing resources | 1-3 years        | Ensuring an effective efficient Emergency Operations Center allows the County to deliver responsive services to the community                                   |
| Short-term<br>Multi-hazard<br>#8  | Established a Continuity of Operations Plan for Meagher County  | High Priority                      | LEPC  | Emergency Management Performance Grant                    | 1-4 years        | Development of a continuity of operations plan for the County will ensure continued service delivery of important governmental services.                        |
| Short-term<br>Multi-hazard<br># 9 | Continue ICS training meeting Homeland Security requirements for all emergency responders   | High Priority                      | DES, LEPC, Fire, Law Enforcement, Schools, EMS, Care Facilities | Pre-disaster Mitigation (PDM) Program; existing resources | On-going         | Highly trained personnel allows the County to deliver rapid efficient safe services; because the County relies heavily on volunteers, this is a continual need. |
| Long-term<br>Multi-hazard<br>#6   | Work with the NGO's to assess the adequacy of service delivery in all areas of the County   | High Priority                      | DES   | NGO's; existing resources                                 | 1-4 years        | Utilization of NGO volunteer organizations is a cost effective and necessary solution to service delivery in the County   |
| Long-term<br>Multi-hazard<br>#7   | Continue to pursue a Citizen Notification Program to effectively notify Meagher County residents about impending disasters, evacuations, & etc. | High Priority                      | Sheriff   | Dept. of Homeland Security                                | 1-3 years        | Allows Meagher County 911 Center to efficiently notify residents of emerging emergency incidents and emergency instructions regarding evacuations, etc.         |

**Table 6.4.2 Mitigation Action Plan Matrix**

| <b>Action Number</b>        | <b>Description</b>   | <b>Ranking/<br/>Prioritization</b> | <b>Administering<br/>Department</b>                   | <b>Potential<br/>Funding</b>     | <b>Timeframe</b> | <b>Benefit-Costs / Technical<br/>Feasibility</b>  |
|-----------------------------|--|------------------------------------|---|----------------------------------|------------------|---|
| Long-term Multi-hazard # 10 | Develop a resource list of personnel, supplies and equipment relative to response to an emergency.   | High Priority                      | DES   | Existing resources               | 1-3 years        | Enables the County to more efficiently and effectively respond to emergencies and disasters in the County.  |
| Short-term Fire #1          | Promote fire safety through community groups   | High Priority                      | Fire Departments and Community Groups                 | Existing resources               | On-going         | A sustained fire safety outreach program will help build support throughout the community and enable the public to prevent, respond to and recover from fires in Meagher County                                       |
| Short-term Fire #2          | Recruit and train adequate volunteer fire fighters   | High Priority                      | Fire Departments                                      | Existing Resources               | On-going         | Adequate numbers of highly trained volunteers allows the County to provide cost-effective fire protection services to its residents.  |
| Short-term Fire #3          | Support the fire mutual aid response system  | High Priority                      | Fire Departments.                                     | Existing Resources               | On-going         | Highly cost effective way to maintain a high level of surge response capability   |
| Short-term Fire #4          | Maintain Fire Flows and hydrant maintenance  | High Priority                      | Water Department & Fire Department                    | Existing Resources               | On-going         | Enable the fire department and water department to ensure adequate fire flows are available for fire suppression operations   |
| Long-term Fire # 2          | Ensure that there are adequate water supplies in areas of community's subject to large fires   | High Priority                      | Fire Department and Water Department, City Government | Treasure State Endowment Program | On-going         | Enable the fire department and water department to ensure adequate fire flows are available for fire suppression operations   |
| Short-term Storm # 1        | Explore opportunities on public access television and through local schools for promotion of public awareness of storm hazards and the benefits of mitigation. | High Priority                      | DES,  | Existing Resources               | 1-2 years        | A sustained community outreach program for mitigation activities will help build support for city and county capacity and will enable the public to prepare for, respond to and recover from storms in Meagher County |

**Table 6.4.2 Mitigation Action Plan Matrix**

| <b>Action Number</b>      | <b>Description</b>   | <b>Ranking/<br/>Prioritization</b> | <b>Administering<br/>Department</b> | <b>Potential<br/>Funding</b> | <b>Timeframe</b> | <b>Benefit-Costs / Technical<br/>Feasibility</b>   |
|---------------------------|--|------------------------------------|-------------------------------------|------------------------------|------------------|--|
| Short-term<br>Disease # 1 | Educate the public, county staff on communicable disease prevention  | High Priority                      | Health Dept                         | Existing resources           | On-going         | A sustained community outreach program for communicable disease prevention activities will help build support for city and county capacity and will enable the public to prepare for, respond to and recover from communicable disease outbreaks in Meagher County |
| Short-term<br>Disease # 2 | Work with the Health Department and medical providers to quickly disseminate information should a communicable disease be diagnosed to prevent the spread of the disease | High Priority                      | Health Department,                  | Existing resources           | On-going         | Allows the Health Department to try to effectively contain an outbreak of a communicable disease.  |
| Long-term<br>Disease # 1  | Update the Communicable Disease Plan yearly  | High Priority                      | Health Department,                  | Homeland Security            | On-going         | Reviews and updates of the Communicable Disease Plan will ensure a coordinated timely response to a communicable disease outbreak  |
| Long-term<br>Disease # 2  | Maintain contact with MT DPHHS to regularly monitor the threat of communicable disease in Meagher County   | High Priority                      | Health Department,                  | Existing resources           | On-going         | The Health Department already monitors information & data from DPHHS to track communicable disease outbreaks.  |
| Long-term<br>Disease # 3  | Work with the hospital to continue to address issues dealing with surge capacity.  | High Priority                      | LEPC                                | DPHHS                        | 1-5 years        | Developing a plan to address a sudden influx of patients that exceeds the health care facilities normal capacity is necessary to address the potential patient load during a disease outbreak  |

## 7. Plan Monitoring and Review: How to Keep this Plan Active and Up-to-Date

This section describes a formal plan maintenance process to ensure the Meagher County MHMP remains an active and applicable document. It includes an explanation of how Meagher County DES and the Meagher County LEPC intend to organize their efforts to ensure that improvements and revisions to the Meagher County MHMP occur in a well-ordered, efficient and coordinated manner.

The following three process steps are addressed in detail below:

- Monitoring, Evaluating and Updating the MHMP
- Implementation through existing planning mechanisms
- Continued public involvement

### 7.1. Monitoring, Evaluating and Updating the Plan

The Meagher County LEPC will champion and review progress on implementing the plan's mitigation measures/action items and maintain the partnerships that are essential for the multi-hazard mitigation plan to retain its viability.

To build upon previous hazard mitigation planning efforts and successes, Meagher County DES will use the Meagher County LEPC to monitor, evaluate, and update the Meagher County MHMP. Each participating jurisdiction and participant will be responsible for implementing the Action Plan. Rick Seidlitz, Meagher County DES, will serve as the primary point of contact and will coordinate all local efforts to monitor, evaluate, and revise the Meagher County MHMP.

Each member of the Meagher County LEPC, or representative from each participating jurisdiction, will conduct an annual review to monitor the progress in implementing the Meagher MHMP, particularly the specific mitigation measures identified in the Action Plan. The annual review will provide the basis for possible changes in the overall Meagher County MHMP or by refocusing on new or more threatening hazards, adjusting to changes to or increases in resource allocations, and engaging additional support for the Meagher County MHMP implementation. The annual review should include an evaluation of the following:

- Participation of each jurisdiction and others in the Meagher County MHMP implementation.
- Notable changes in the county's risk of natural or human-caused hazards.
- Impacts of land development activities on hazards and hazard mitigation.
- Progress made with the implementation of the Action Plan.
- The adequacy of local and county resources for implementation of the Meagher County MHMP

In addition to the annual review, the Meagher County MHMP will be evaluated and updated on a five-year cycle to determine the effectiveness of mitigation programs, projects, or other related activities and reflect changes in land development or programs that may affect mitigation priorities and/or strategies. To ensure that this update occurs, in the fourth year following adoption of the Meagher County MHMP, the Meagher County LEPC will undertake the following activities:

- Thoroughly analyze and update the risk of natural and human-made hazards.
- Conduct an annual review, plus the three previous reviews
- Provide a detailed review and revision of the mitigation goals.
- Prepare a new Action Plan for the County and other participating jurisdictions.
- Prepare a new draft Meagher County MHMP and submit it to the governing bodies for adoption.

- Submit an updated Meagher County MHMP to Montana DES and FEMA for approval.

## **7.2. Implementation Through Existing Programs**

The Meagher County MHMP is required to include a process through which the planned mitigation measures are incorporated into other planning mechanisms available to the County and cities and towns. These include the County Growth Policy Plan's goals, policies, and implementation strategies, Subdivision Regulations, Zoning District requirements, and the capital improvement program. The Meagher County MHMP provides recommended mitigation measures that are often closely related to these planning programs, and which can and will be incorporated into them as appropriate.

There are certain sections of the Growth Policy Plan that address issues related to natural hazards. These include the "Natural Resources" and "Land Use" sections; the various primary utilities (water, sewer, storm drainage, transportation) of the "Public Facilities" section; the "Local Services" section; and the "Housing" Section. The Growth Policy Plan is periodically reviewed and updated. The planned mitigation measures will be considered and incorporated when appropriate into future revisions of the goals, policies, and implementation strategies of the Growth Policy Plan. These are used to develop implementing regulations and in review of new development.

The planned mitigation measures will also be considered and incorporated as appropriate into future revisions of the Regulations and Codes when updated by Meagher County and the City of White Sulphur Springs. The sections most likely to be affected include the Subdivision Regulations and Zoning Regulations and sections pertaining to public improvements and emergency management. Revisions or additions to the Growth Policy Plan's goals, policies, and implementation strategies are often accompanied by revisions of the Subdivision Regulations needed to implement them. The planned mitigation measures will also be considered in the development of the Meagher County's and the City of White Sulphur Springs's Capital Improvement Programs and the updating of the Meagher County Emergency Operations Plan. When the County considers new technology in data collection and mapping for utilization, its application to hazard assessment and mitigation will be taken into account.

## **7.3. Continued Public Involvement**

Meagher County, the City of White Sulphur Springs are dedicated to involving the public directly in the continual reshaping and updating of the Meagher County MHMP.

Copies of the plan will be placed on the County's website and catalogued and maintained at the Library. The County's website will also contain an email address and phone number to which citizens can direct their comments or concerns regarding the Meagher County MHMP. Any comments received will be considered during future Meagher County MHMP updates.

The Meagher County LEPC will also identify opportunities to raise community awareness about the Meagher County MHMP and the hazards that affect the County and its communities. This effort could include attendance and providing materials at county, city or town sponsored event, outreach programs, and public mailings.

# Appendices

## Appendix 1 — Bibliography

The following documents have been utilized in the development of the Chouteau County MHMP

- Meagher County Emergency Operations Plan
- Meagher County Growth Policy Plan, 2004
- Meagher County Subdivision Regulations, 2003
- Meagher County Draft Subdivision Regulations, April 2006
- A Socio Economic Profile; Headwaters Economics; 2007.
- CRS Report for Congress; Agro-terrorism: Threats and Preparedness; August 2004.
- Mitigation Planning Workshop, Student Manual; FEMA; September 2005.
- Profiting through Disaster Preparedness; The Workshop; [www.swfrpc.org](http://www.swfrpc.org).
- Federal Guidelines for Dam Safety; Emergency Action Planning for Dam Owners; April 2004.
- State and Local Mitigation Planning; How to Guides:
  - Getting Started; FEMA 386-1
  - Understanding Your Risks; FEMA386-2
  - Developing the Mitigation Plan; FEMA 386-3
  - Bringing the Plan to Life; FEMA 386-4
  - Using Benefit-Cost Review in Mitigation Planning; FEMA; August 2005
  - Integrating Historic Property and Cultural Resources Considerations into Hazard Mitigation Planning; FEMA 386-6; May 2006
  - Integrating Manmade Hazards Into Mitigation Planning; FEMA 386-7; September 2003
  - Multi-Jurisdictional Mitigation Planning; FEMA386-8; August 2006
- Guide for All-Hazard Emergency Operations Planning; FEMA; September 2006
- If Disaster Strikes Will You Be Covered? A Homeowners Insurance Guide to National Disasters; The Actuarial Foundation and Federal Alliance for Safe Homes; 2006
- Emergency Management Guide for Business and Industry; FEMA 141; October 1993
- Storm Ready; Organization and Operations Manual; NWS; September 2004
- National Flood Insurance Program; <http://www.fema.gov/business/nfip/index.shtm>
- Community Rating System; <http://www.fema.gov/business/nfip/crs.shtm>
- Open for Business; Institute for Business and Home Safety; 2006
- Are We Planning Safe Communities, Results of a National Survey of Community Planners and Natural Disasters; Institute for Business and Home Safety; 2002

## Appendix 2 — Multi-Hazard Planning Alphabet Soup

|       |  |
|-------|--|
| BCR   | Benefit Cost Results                         |
| BLM   | Bureau of Land Management (DOI)              |
| BOCC  | Board of County Commissioners                |
| BOH   | Board of Health                              |
| CRP   | Conservation Reserve Program                 |
| CWPP  | Community Wildfire Protection Plan           |
| DES   | Disaster & Emergency Services                |
| DHS   | Department of Homeland Security              |
| DMA   | Disaster Mitigation Act 2000 (FEMA)          |
| DPHHS | Department of Public Health & Human Services |
| EMAC  | Emergency Management Assistance Compact      |
| EMS   | Emergency Medical Services                   |
| FEMA  | Federal Emergency Management Agency          |
| FMA   | Flood Management Assistance                  |
| FWP   | Department of Fish, Wildlife & Parks         |
| GIS   | Geographic Information System                |
| HMGP  | Hazard Mitigation Grant Program of FEMA      |
| HSPD  | Homeland Security Presidential Directive     |
| LEPC  | Local Emergency Planning Committee           |
| ICS   | Incident Command System                      |
| MHMP  | Multi-Hazard Mitigation Plan                 |
| MRMC  | Missouri River Medical Center                |
| NGO   | Non-Governmental Organization                |
| NIMS  | National Incident Management System          |
| NWS   | National Weather Service                     |
| PDM   | Pre-Disaster Mitigation                      |
| QRU   | Quick Response Unit                          |
| VFC   | Volunteer Fire Company                       |
| WUI   | Wildland Urban Interface                     |

**Appendix 2 — Crosswalk and Approval Status**

# LOCAL MITIGATION PLAN REVIEW CROSSWALK

**LOCAL MITIGATION PLAN REVIEW SUMMARY** The plan cannot be approved if the plan has not been formally adopted. Each requirement includes separate elements. All elements of the requirement must be rated “Satisfactory” in order for the requirement to be fulfilled and receive a score of “Satisfactory.” Elements of each requirement are listed on the following pages of the Plan Review Crosswalk. A “Needs Improvement” score on elements shaded in gray (recommended but not required) will not preclude the plan from passing. Reviewer’s comments must be provided for requirements receiving a “Needs Improvement” score.

**Prerequisite(s) (Check Applicable Box)**

|  | NOT MET                  | MET                      |
|--|--------------------------|--------------------------|
| 1. Adoption by the Local Governing Body: §201.6(c)(5)<br><b>OR</b> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Multi-Jurisdictional Plan Adoption: §201.6(c)(5)<br><b>AND</b>  | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Multi-Jurisdictional Planning Participation: §201.6(a)(3)       | <input type="checkbox"/> | <input type="checkbox"/> |

**Planning Process**

|  | N                        | S                        |
|--|--------------------------|--------------------------|
| 4. Documentation of the Planning Process: §201.6(b) and §201.6(c)(1) | <input type="checkbox"/> | <input type="checkbox"/> |

**Risk Assessment**

|  | N                        | S                        |
|--|--------------------------|--------------------------|
| 5. Identifying Hazards: §201.6(c)(2)(i)  | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. Profiling Hazards: §201.6(c)(2)(i)  | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. Assessing Vulnerability: Overview: §201.6(c)(2)(ii)   | <input type="checkbox"/> | <input type="checkbox"/> |
| <b>8. Assessing Vulnerability: Addressing Repetitive Loss Properties. §201.6(c)(2)(ii)</b>                       | <input type="checkbox"/> | <input type="checkbox"/> |
| 9. Assessing Vulnerability: Identifying Structures, Infrastructure, and Critical Facilities: §201.6(c)(2)(ii)(B) | <input type="checkbox"/> | <input type="checkbox"/> |
| 10. Assessing Vulnerability: Estimating Potential Losses: §201.6(c)(2)(ii)(B)                                    | <input type="checkbox"/> | <input type="checkbox"/> |
| 11. Assessing Vulnerability: Analyzing Development Trends: §201.6(c)(2)(ii)(C)                                   | <input type="checkbox"/> | <input type="checkbox"/> |
| 12. Multi-Jurisdictional Risk Assessment: §201.6(c)(2)(iii)  | <input type="checkbox"/> | <input type="checkbox"/> |

\*States that have additional requirements can add them in the appropriate sections of the *Local Multi-Hazard Mitigation Planning Guidance* or create a new section and modify this Plan Review Crosswalk to record the score for those requirements.

## SCORING SYSTEM

Please check one of the following for each requirement.

**N – Needs Improvement:** The plan does not meet the minimum for the requirement. Reviewer’s comments must be provided.

**S – Satisfactory:** The plan meets the minimum for the requirement. Reviewer’s comments are encouraged, but not required.

**Mitigation Strategy**

- 13. Local Hazard Mitigation Goals: §201.6(c)(3)(i)
- 14. Identification and Analysis of Mitigation Actions: §201.6(c)(3)(ii)
- 15. Identification and Analysis of Mitigation Actions: NFIP Compliance. §201.6(c)(3)(ii)**
- 16. Implementation of Mitigation Actions: §201.6(c)(3)(iii)
- 17. Multi-Jurisdictional Mitigation Actions: §201.6(c)(3)(iv)

|   | N                        | S                        |
|---|--------------------------|--------------------------|
| 13. Local Hazard Mitigation Goals: §201.6(c)(3)(i)  | <input type="checkbox"/> | <input type="checkbox"/> |
| 14. Identification and Analysis of Mitigation Actions: §201.6(c)(3)(ii)                         | <input type="checkbox"/> | <input type="checkbox"/> |
| <b>15. Identification and Analysis of Mitigation Actions: NFIP Compliance. §201.6(c)(3)(ii)</b> | <input type="checkbox"/> | <input type="checkbox"/> |
| 16. Implementation of Mitigation Actions: §201.6(c)(3)(iii)                                     | <input type="checkbox"/> | <input type="checkbox"/> |
| 17. Multi-Jurisdictional Mitigation Actions: §201.6(c)(3)(iv)                                   | <input type="checkbox"/> | <input type="checkbox"/> |

**Plan Maintenance Process**

- 18. Monitoring, Evaluating, and Updating the Plan: §201.6(c)(4)(ii)
- 19. Incorporation into Existing Planning Mechanisms: §201.6(c)(4)(ii)
- 20. Continued Public Involvement: §201.6(c)(4)(iii)

|   | N                        | S                        |
|---|--------------------------|--------------------------|
| 18. Monitoring, Evaluating, and Updating the Plan: §201.6(c)(4)(ii)   | <input type="checkbox"/> | <input type="checkbox"/> |
| 19. Incorporation into Existing Planning Mechanisms: §201.6(c)(4)(ii) | <input type="checkbox"/> | <input type="checkbox"/> |
| 20. Continued Public Involvement: §201.6(c)(4)(iii)                   | <input type="checkbox"/> | <input type="checkbox"/> |

**Additional State Requirements\***

- Insert State Requirement
- Insert State Requirement
- Insert State Requirement

|                          | N                        | S                        |
|--------------------------|--------------------------|--------------------------|
| Insert State Requirement | <input type="checkbox"/> | <input type="checkbox"/> |
| Insert State Requirement | <input type="checkbox"/> | <input type="checkbox"/> |
| Insert State Requirement | <input type="checkbox"/> | <input type="checkbox"/> |

**LOCAL MITIGATION PLAN APPROVAL STATUS**

**PLAN NOT APPROVED**   
**See Reviewer’s Comments**  
**PLAN APPROVED**

**Local Mitigation Plan Review and Approval Status**

|  |   |   |
|--|---|---|
| <b>Jurisdiction:</b><br>Meagher County                     | <b>Title of Plan:</b> Meagher County Multi-Hazard Mitigation Plan | <b>Date of Plan:</b> October 2008   |
| <b>Local Point of Contact:</b> Rick Seidlitz               |   | <b>Address:</b><br><br>101 W. Crawford<br>PO Box 355<br>White Sulphur Springs, MT 59645 |
| <b>Title:</b><br>Disaster & Emergency Services Coordinator |   |   |
| <b>Agency:</b><br>Meagher County                           |   |   |
| <b>Phone Number:</b><br>406-547-3397                       |   |   |
| <b>E-Mail:</b> lwilliams@montana.edu                       |   |   |

|                                       |  |              |
|---------------------------------------|--|--------------|
| <b>State Reviewer:</b><br>Kent Atwood | <b>Title:</b><br>State Hazard Mitigation Officer | <b>Date:</b> |
|---------------------------------------|--|--------------|

|  |               |              |
|--|---------------|--------------|
| <b>FEMA Reviewer:</b>                    | <b>Title:</b> | <b>Date:</b> |
| <b>Date Received in FEMA Region VIII</b> |               |              |
| <b>Plan Not Approved</b>                 |               |              |
| <b>Plan Approved</b>                     |               |              |
| <b>Date Approved</b>                     |               |              |

| <b>Jurisdiction:</b>                              | <b>NFIP Status*</b> |          |            |                  |
|---|---------------------|----------|------------|------------------|
|   | <b>Y</b>            | <b>N</b> | <b>N/A</b> | <b>CRS Class</b> |
| 1. Meagher County                                 | Y                   |          |            | N                |
| 2. City of White Sulphur Springs                  | Y                   | N        |            | N                |
| 3.  |                     |          |            |                  |
| 4.  |                     |          |            |                  |
| 5. [ATTACH PAGE(S) WITH ADDITIONAL JURISDICTIONS] |                     |          |            |                  |

\* Notes:                    Y = Participating                    N = Not Participating                    N/A = Not Mapped

**PREREQUISITE(S)**

**1. Adoption by the Local Governing Body**

**Requirement §201.6(c)(5):** [The local hazard mitigation plan **shall** include] documentation that the plan has been formally adopted by the governing body of the jurisdiction requesting approval of the plan (e.g., City Council, County Commissioner, Tribal Council).

| Element   | Location in the Plan (section or annex and page #) | Reviewer's Comments | SCORE   |     |
|---|--|---------------------|---------|-----|
|   |  |                     | NOT MET | MET |
| A. Has the local governing body adopted <b>new or updated</b> plan? | Not Yet  |                     |         |     |
| B. Is supporting documentation, such as a resolution, included?     | Not Yet  |                     |         |     |
| SUMMARY SCORE   |  |                     |         |     |

**2. Multi-Jurisdictional Plan Adoption**

**Requirement §201.6(c)(5):** For multi-jurisdictional plans, each jurisdiction requesting approval of the plan **must** document that it has been formally adopted.

| Element   | Location in the Plan (section or annex and page #) | Reviewer's Comments | SCORE   |     |
|---|--|---------------------|---------|-----|
|   |  |                     | NOT MET | MET |
| A. Does the <b>new or updated</b> plan indicate the specific jurisdictions represented in the plan? | 2.4 page 13  |                     |         |     |
| B. For each jurisdiction, has the local governing body adopted the <b>new or updated</b> plan?      | 3.4 page 16  |                     |         |     |
| C. Is supporting documentation, such as a resolution, included for each participating jurisdiction? | Not Yet  |                     |         |     |
| SUMMARY SCORE   |  |                     |         |     |

**3. Multi-Jurisdictional Planning Participation**

**Requirement §201.6(a)(3):** Multi-jurisdictional plans (e.g., watershed plans) may be accepted, as appropriate, as long as each jurisdiction has participated in the process ... Statewide plans will not be accepted as multi-jurisdictional plans.

| Element   | Location in the Plan (section or annex and page #) | Reviewer's Comments | SCORE   |     |
|---|--|---------------------|---------|-----|
|   |  |                     | NOT MET | MET |
| A. Does the <b>new or updated</b> plan describe <b>how</b> each jurisdiction participated in the plan's development?  | 3.1 page 14  |                     |         |     |
| B. Does the updated plan identify all participating jurisdictions, including new, continuing, and the jurisdictions that no longer participate in the plan? | N/A  |                     |         |     |
| <b>SUMMARY SCORE</b>  |  |                     |         |     |

PLANNING PROCESS: §201.6(b): An open public involvement process is essential to the development of an effective plan.

**4. Documentation of the Planning Process**

**Requirement §201.6(b):** In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process **shall** include:

- (1) An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval;
- (2) An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia and other private and non-profit interests to be involved in the planning process; and
- (3) Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.

**Requirement §201.6(c)(1):** [The plan **shall** document] the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved.

| Element   | Location in the Plan (section or annex and page #) | Reviewer's Comments | SCORE |   |
|---|--|---------------------|-------|---|
|   |  |                     | N     | S |
| A. Does the plan provide a narrative description of the process followed to prepare the <b>new or updated</b> plan?   | 3.2 page 15  |                     |       |   |
| B. Does the <b>new or updated</b> plan indicate who was involved in the <b>current</b> planning process? (For example, who led the development at the staff level and were there any external contributors such as contractors? Who participated on the plan committee, provided information, reviewed drafts, etc.?) | 3.1 page 14  |                     |       |   |
| C. Does the <b>new or updated</b> plan indicate how the public was involved? (Was the public provided an opportunity to comment on the plan during the drafting stage and prior to the plan approval?)  | 3.2.1 page 15                                      |                     |       |   |
| D. <b>Does the new or updated plan discuss the</b> opportunity for neighboring communities, agencies, businesses, academia, nonprofits, and other interested parties to be involved in the planning process?  | 3.1 page 14  |                     |       |   |
| E. Does the planning process describe the review and incorporation, if appropriate, of existing plans, studies, reports, and technical information?   | 3.3 page 15  |                     |       |   |
| F. <b>Does the updated plan document how the planning team reviewed and analyzed each section of the plan and whether each section was revised as part of the update process?</b>   | N/A  |                     |       |   |
| <b>SUMMARY SCORE</b>  |  |                     |       |   |

**RISK ASSESSMENT:** §201.6(c)(2): *The plan shall include a risk assessment that provides the factual basis for activities proposed in the strategy to reduce losses from identified hazards. Local risk assessments must provide sufficient information to enable the jurisdiction to identify and prioritize appropriate mitigation actions to reduce losses from identified hazards.*

**5. Identifying Hazards**

**Requirement §201.6(c)(2)(i):** *[The risk assessment shall include a] description of the type ... of all natural hazards that can affect the jurisdiction.*

| Element  | Location in the Plan (section or annex and page #) | Reviewer's Comments | SCORE |   |
|--|--|---------------------|-------|---|
|  |  |                     | N     | S |
| A. Does the <b>new or updated</b> plan include a <b>description</b> of the types of <b>all natural hazards</b> that affect the jurisdiction? | 5.1 page 21-23                                     |                     |       |   |
| <b>SUMMARY SCORE</b>   |  |                     |       |   |

**6. Profiling Hazards**

**Requirement §201.6(c)(2)(i):** *[The risk assessment shall include a] description of the ... location and extent of all natural hazards that can affect the jurisdiction. The plan shall include information on previous occurrences of hazard events and on the probability of future hazard events.*

| Element  | Location in the Plan (section or annex and page #) | Reviewer's Comments | SCORE |   |
|--|--|---------------------|-------|---|
|  |  |                     | N     | S |
| A. Does the risk assessment identify the <b>location</b> ( <i>i.e.</i> , geographic area affected) of each natural hazard addressed in the <b>new or updated</b> plan? | pages 24-43  |                     |       |   |
| B. Does the risk assessment identify the <b>extent</b> ( <i>i.e.</i> , magnitude or severity) of each hazard addressed in the <b>new or updated</b> plan?              | pages 24-43  |                     |       |   |
| C. Does the plan provide information on <b>previous occurrences</b> of each hazard addressed in the <b>new or updated</b> plan?  | pages 24-43  |                     |       |   |
| D. Does the plan include the <b>probability of future events</b> ( <i>i.e.</i> , chance of occurrence) for each hazard addressed in the <b>new or updated</b> plan?    | pages 24-43  |                     |       |   |
| <b>SUMMARY SCORE</b>   |  |                     |       |   |

**7. Assessing Vulnerability: Overview**

**Requirement §201.6(c)(2)(ii):** *[The risk assessment shall include a] description of the jurisdiction’s vulnerability to the hazards described in paragraph (c)(2)(i) of this section. This description shall include an overall summary of each hazard and its impact on the community.*

| Element   | Location in the Plan (section or annex and page #) | Reviewer’s Comments | SCORE |   |
|---|--|---------------------|-------|---|
|   |  |                     | N     | S |
| A. Does the <b>new or updated</b> plan include an <b>overall summary</b> description of the jurisdiction’s <b>vulnerability</b> to each hazard? | pages 24-43  |                     |       |   |
| B. Does the <b>new or updated</b> plan address the <b>impact</b> of each hazard on the jurisdiction?  | pages 24-43  |                     |       |   |
| <b>SUMMARY SCORE</b>  |  |                     |       |   |

**8. Assessing Vulnerability: Addressing Repetitive Loss Properties**

**Requirement §201.6(c)(2)(ii):** *[The risk assessment] must also address National Flood Insurance Program (NFIP) insured structures that have been repetitively damaged floods.*

| Element   | Location in the Plan (section or annex and page #) | Reviewer’s Comments   | SCORE |   |
|---|--|---|-------|---|
|   |  |   | N     | S |
| A. Does the new or updated plan describe vulnerability in terms of the types and numbers of <b>repetitive loss properties</b> located in the identified hazard areas? | 5.9 B page 40                                      | <b>Note: This requirement becomes effective for all local plans approved after October 1, 2008.</b> |       |   |
| <b>SUMMARY SCORE</b>  |  |   |       |   |

**9. Assessing Vulnerability: Identifying Structures**

**Requirement §201.6(c)(2)(ii)(A):** *The plan **should** describe vulnerability in terms of the types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard area ... .*

| Element  | Location in the Plan (section or annex and page #) | Reviewer's Comments   | SCORE |   |
|--|--|---|-------|---|
|  |  |   | N     | S |
| A. Does the <b>new or updated</b> plan describe vulnerability in terms of the <b>types and numbers</b> of <b>existing</b> buildings, infrastructure, and critical facilities located in the identified hazard areas? | pages 24-43  | <i>Note: A "Needs Improvement" score on this requirement will not preclude the plan from passing.</i> |       |   |
| B. Does the <b>new or updated</b> plan describe vulnerability in terms of the <b>types and numbers</b> of <b>future</b> buildings, infrastructure, and critical facilities located in the identified hazard areas?   | pages 24-43  | <i>Note: A "Needs Improvement" score on this requirement will not preclude the plan from passing.</i> |       |   |
| SUMMARY SCORE  |  |   |       |   |

**10. Assessing Vulnerability: Estimating Potential Losses**

**Requirement §201.6(c)(2)(ii)(B):** *[The plan **should** describe vulnerability in terms of an] estimate of the potential dollar losses to vulnerable structures identified in paragraph (c)(2)(ii)(A) of this section and a description of the methodology used to prepare the estimate ... .*

| Element  | Location in the Plan (section or annex and page #) | Reviewer's Comments   | SCORE |   |
|--|--|---|-------|---|
|  |  |   | N     | S |
| A. Does the <b>new or updated</b> plan estimate <b>potential dollar losses</b> to vulnerable structures? | pages 24-43  | <i>Note: A "Needs Improvement" score on this requirement will not preclude the plan from passing.</i> |       |   |
| B. Does the <b>new or updated</b> plan describe the <b>methodology</b> used to prepare the estimate?     | 5.2-5.4 pages 23-24                                | <i>Note: A "Needs Improvement" score on this requirement will not preclude the plan from passing.</i> |       |   |
| SUMMARY SCORE  |  |   |       |   |

**11. Assessing Vulnerability: Analyzing Development Trends**

**Requirement §201.6(c)(2)(ii)(C):** *[The plan **should** describe vulnerability in terms of] providing a general description of land uses and development trends within the community so that mitigation options can be considered in future land use decisions.*

| Element   | Location in the Plan (section or annex and page #) | Reviewer's Comments   | SCORE |   |
|---|--|---|-------|---|
|   |  |   | N     | S |
| A. Does the <b>new or updated</b> plan describe land uses and development trends? | 4.5 page 20  | <i>Note: A "Needs Improvement" score on this requirement will not preclude the plan from passing.</i> |       |   |
| <b>SUMMARY SCORE</b>  |  |   |       |   |

**12. Multi-Jurisdictional Risk Assessment**

**Requirement §201.6(c)(2)(iii):** *For multi-jurisdictional plans, the risk assessment **must** assess each jurisdiction's risks where they vary from the risks facing the entire planning area.*

| Element   | Location in the Plan (section or annex and page #) | Reviewer's Comments | SCORE |   |
|---|--|---------------------|-------|---|
|   |  |                     | N     | S |
| A. Does the <b>new or updated</b> plan include a risk assessment for each participating jurisdiction as needed to reflect unique or varied risks? | pages 24-43  |                     |       |   |
| <b>SUMMARY SCORE</b>  |  |                     |       |   |

**MITIGATION STRATEGY:** *§201.6(c)(3): The plan shall include a mitigation strategy that provides the jurisdiction's blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools.*

**13. Local Hazard Mitigation Goals**

**Requirement §201.6(c)(3)(i):** *[The hazard mitigation strategy **shall** include a] description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.*

| Element  | Location in the Plan (section or annex and page #) | Reviewer's Comments | SCORE |   |
|--|--|---------------------|-------|---|
|  |  |                     | N     | S |
| A Does the <b>new or updated</b> plan include a description of mitigation <b>goals</b> to reduce or avoid long-term vulnerabilities to the identified hazards? | 6.2 page 44-45                                     |                     |       |   |
| <b>SUMMARY SCORE</b>   |  |                     |       |   |

**14. Identification and Analysis of Mitigation Actions**

**Requirement §201.6(c)(3)(ii):** *[The mitigation strategy shall include a] section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure.*

| Element   | Location in the Plan (section or annex and page #) | Reviewer's Comments | SCORE |   |
|---|--|---------------------|-------|---|
|   |  |                     | N     | S |
| A. Does the <b>new or updated</b> plan identify and analyze a <b>comprehensive range</b> of specific mitigation actions and projects for each hazard? | 6.3 pages 46-55                                    |                     |       |   |
| B Do the identified actions and projects address reducing the effects of hazards on <b>new</b> buildings and infrastructure?                          | 6.3 pages 46-55                                    |                     |       |   |
| C. Do the identified actions and projects address reducing the effects of hazards on <b>existing</b> buildings and infrastructure?                    | 6.3 pages 46-55                                    |                     |       |   |
| <b>SUMMARY SCORE</b>  |  |                     |       |   |

**15. Identification and Analysis of Mitigation Actions: National Flood Insurance Program (NFIP) Compliance**

**Requirement: §201.6(c)(3)(ii):** *[The mitigation strategy] must also address the jurisdiction’s participation in the National Flood Insurance Program (NFIP), and continued compliance with NFIP requirements, as appropriate.*

| Element  | Location in the Plan (section or annex and page #) | Reviewer’s Comments  | SCORE |   |
|--|--|--|-------|---|
|  |  |  | N     | S |
| <b>A. Does the new or updated plan describe the jurisdiction (s) participation in the NFIP?</b>                                | 5.9 pages 38-40                                    | <b>Note: This requirement becomes effective for all local mitigation plans approved after October 1, 2008.</b> |       |   |
| <b>B. Does the mitigation strategy identify, analyze and prioritize actions related to continued compliance with the NFIP?</b> | Table 6.3.6 page 54                                | <b>Note: This requirement becomes effective for all local mitigation plans approved after October 1, 2008.</b> |       |   |
| <b>SUMMARY SCORE</b>   |  |  |       |   |

**16. Implementation of Mitigation Actions**

**Requirement: §201.6(c)(3)(iii):** [The mitigation strategy section **shall** include] an action plan describing how the actions identified in section (c)(3)(ii) will be prioritized, implemented, and administered by the local jurisdiction. Prioritization **shall** include a special emphasis on the extent to which benefits are maximized according to a cost benefit review of the proposed projects and their associated costs.

| Element  | Location in the Plan (section or annex and page #) | Reviewer's Comments | SCORE |   |
|--|--|---------------------|-------|---|
|  |  |                     | N     | S |
| A. Does the <b>new or updated</b> mitigation strategy include how the actions are <b>prioritized</b> ? (For example, is there a discussion of the process and criteria used?)  | 6.4 pages 56-57                                    |                     |       |   |
| B. Does the <b>new or updated</b> mitigation strategy address how the actions will be implemented and administered, including the responsible department, existing and potential resources and the timeframe to complete each action?          | Table 6.4.2 pages 58-62                            |                     |       |   |
| C. Does the <b>new or updated</b> prioritization process include an emphasis on the use of a <b>cost-benefit review</b> to maximize benefits?  | Table 6.4.2 pages 58-62                            |                     |       |   |
| D. Does the <b>updated</b> plan identify the completed, deleted or deferred mitigation actions as a benchmark for progress, and if activities are unchanged ( <i>i.e.</i> , deferred), does the updated plan describe why no changes occurred? | N/A  |                     |       |   |
| <b>SUMMARY SCORE</b>   |  |                     |       |   |

**17. Multi-Jurisdictional Mitigation Actions**

**Requirement §201.6(c)(3)(iv):** For multi-jurisdictional plans, there **must** be identifiable action items specific to the jurisdiction requesting FEMA approval or credit of the plan.

| Element  | Location in the Plan (section or annex and page #) | Reviewer's Comments | SCORE |   |
|--|--|---------------------|-------|---|
|  |  |                     | N     | S |
| A. Does the <b>new or updated</b> plan include identifiable <b>action items</b> for each jurisdiction requesting FEMA approval of the plan?  | Table 6.4.2 pages 58-62                            |                     |       |   |
| B. Does the <b>updated</b> plan identify the completed, deleted or deferred mitigation actions as a benchmark for progress, and if activities are unchanged ( <i>i.e.</i> , deferred), does the updated plan describe why no changes occurred? | N/A  |                     |       |   |
| <b>SUMMARY SCORE</b>   |  |                     |       |   |

PLAN MAINTENANCE PROCESS

**18. Monitoring, Evaluating, and Updating the Plan**

**Requirement §201.6(c)(4)(i):** [The plan maintenance process **shall** include a] section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan within a five-year cycle.

| Element  | Location in the Plan (section or annex and page #) | Reviewer's Comments | SCORE |   |
|--|--|---------------------|-------|---|
|  |  |                     | N     | S |
| A. Does the <b>new or updated</b> plan describe the method and schedule for <b>monitoring</b> the plan, including the responsible department?                                      | 7.1 page 63  |                     |       |   |
| B. Does the <b>new or updated</b> plan describe the method and schedule for <b>evaluating</b> the plan, including how, when and by whom ( <i>i.e.</i> the responsible department)? | 7.1 page 63  |                     |       |   |
| C. Does the <b>new or updated</b> plan describe the method and schedule for <b>updating</b> the plan within the five-year cycle?   | 7.1 page 63  |                     |       |   |
| <b>SUMMARY SCORE</b>   |  |                     |       |   |

**19. Incorporation into Existing Planning Mechanisms**

**Requirement §201.6(c)(4)(ii):** *[The plan shall include a] process by which local governments incorporate the requirements of the mitigation plan into other planning mechanisms such as comprehensive or capital improvement plans, when appropriate.*

| Element   | Location in the Plan (section or annex and page #) | Reviewer's Comments | SCORE |   |
|---|--|---------------------|-------|---|
|   |  |                     | N     | S |
| A. Does the <b>new or updated</b> plan identify other local planning mechanisms available for incorporating the mitigation requirements of the mitigation plan?   | 7.2 page 64  |                     |       |   |
| B. Does the <b>new or updated</b> plan include a process by which the local government will incorporate the mitigation strategy and other information contained in the plan (e.g., risk assessment) into other planning mechanisms, when appropriate? | 7.2 page 64  |                     |       |   |
| C. Does the <b>updated</b> plan explain how the local government incorporated the mitigation strategy and other information contained in the plan (e.g., risk assessment) into other planning mechanisms, when appropriate?                           | N/A  |                     |       |   |
| <b>SUMMARY SCORE</b>  |  |                     |       |   |

**Continued Public Involvement**

**Requirement §201.6(c)(4)(iii):** *[The plan maintenance process shall include a] discussion on how the community will continue public participation in the plan maintenance process.*

| Element   | Location in the Plan (section or annex and page #) | Reviewer's Comments | SCORE |   |
|---|--|---------------------|-------|---|
|   |  |                     | N     | S |
| A. Does the <b>new or updated</b> plan explain how <b>continued public participation</b> will be obtained? (For example, will there be public notices, an on-going mitigation plan committee, or annual review meetings with stakeholders?) | 7.3 page 64  |                     |       |   |
| <b>SUMMARY SCORE</b>  |  |                     |       |   |

## Appendix 4 — Evaluation & Prioritization Matrix

| Evaluation & Prioritization Matrix |        |           |                |           |       |          |               |
|------------------------------------|--------|-----------|----------------|-----------|-------|----------|---------------|
| Hazard Mitigation Name & Number    | Social | Technical | Administrative | Political | Legal | Economic | Environmental |
| Short-term Multi-hazard # 1        | H      | H         | M              | H         | H     | H        | N/A           |
| Short-term Multi-hazard # 2        | H      | M         | H              | M         | H     | H        | M             |
| Short-term Multi-hazard # 3        | H      | H         | H              | H         | H     | H        | N/A           |
| Short-term Multi-hazard # 4        | H      | H         | H              | H         | H     | H        | N/A           |
| Short-term Multi-hazard # 5        | H      | H         | H              | H         | H     | H        | N/A           |
| Short-term Multi-hazard # 6        | H      | H         | H              | H         | H     | H        | N/A           |
| Short-term Multi-hazard #7         | H      | H         | H              | H         | H     | H        | N/A           |
| Short-term Multi-hazard #8         | H      | H         | H              | H         | H     | H        | N/A           |
| Short-term Multi-hazard # 9        | H      | H         | H              | H         | H     | H        | N/A           |
| Long-term Multi-hazard #1          | M      | H         | M              | H         | H     | M        | N/A           |
| Long-term Multi-hazard #2          | H      | H         | H              | H         | H     | L        | M             |
| Long-term Multi-hazard #3          | M      | M         | M              | M         | M     | M        | N/A           |
| Long-term Multi-hazard #4          | H      | M         | M              | M         | H     | L        | H             |
| Long-term Multi-hazard #5          | H      | L         | M              | H         | H     | L        | N/A           |

| <b>Evaluation &amp; Prioritization Matrix</b> |               |                  |                       |                  |              |                 |                      |
|---|---------------|------------------|-----------------------|------------------|--------------|-----------------|----------------------|
| <b>Hazard Mitigation Name &amp; Number</b>    | <b>Social</b> | <b>Technical</b> | <b>Administrative</b> | <b>Political</b> | <b>Legal</b> | <b>Economic</b> | <b>Environmental</b> |
| Long-term Multi-hazard #6                     | H             | H                | H                     | H                | H            | H               | N/A                  |
| Long-term Multi-hazard #7                     | H             | H                | H                     | H                | H            | H               | N/A                  |
| Long-term Multi-hazard #8                     | M             | H                | M                     | L                | H            | M               | H                    |
| Long-term Multi-hazard #9                     | H             | L                | L                     | H                | H            | L               | M                    |
| Long-term Multi-hazard # 10                   | H             | H                | H                     | H                | H            | H               | N/A                  |
| Short-term Fire # 1                           | H             | H                | H                     | H                | H            | H               | N/A                  |
| Short-term Fire #2                            | H             | H                | H                     | H                | H            | H               | N/A                  |
| Short-term Fire #3                            | H             | H                | H                     | H                | H            | H               | N/A                  |
| Short-term Fire #4                            | H             | H                | H                     | H                | H            | H               | N/A                  |
| Long-term Fire # 1                            | M             | H                | L                     | M                | N/A          | L               | N/A                  |
| Long-term Fire # 2                            | H             | H                | H                     | H                | H            | H               | N/A                  |

| <b>Evaluation &amp; Prioritization Matrix</b> |               |                  |                       |                  |              |                 |                      |
|---|---------------|------------------|-----------------------|------------------|--------------|-----------------|----------------------|
| <b>Hazard Mitigation Name &amp; Number</b>    | <b>Social</b> | <b>Technical</b> | <b>Administrative</b> | <b>Political</b> | <b>Legal</b> | <b>Economic</b> | <b>Environmental</b> |
| Long-term Fire # 3                            | H             | H                | H                     | H                | H            | H               | H                    |
| Short-term Technological # 1                  | H             | H                | H                     | M                | M            | M               | N/A                  |
| Short-term Technological # 2                  | H             | H                | H                     | H                | H            | H               | M                    |
| Long-term Technological # 1                   | H             | H                | H                     | H                | H            | H               | H                    |
| Long-term Technological # 2                   | M             | H                | M                     | H                | M            | M               | M                    |
| Long-term Technological # 3                   | H             | H                | H                     | H                | H            | H               | M                    |
| Short-term Storm # 1                          | H             | H                | H                     | H                | H            | H               | N/A                  |
| Short-term Storm # 2                          | H             | H                | H                     | H                | H            | H               | H                    |
| Long-term Storm # 1                           | M             | H                | M                     | H                | M            | M               | M                    |
| Long-term Storm #2                            | H             | H                | H                     | H                | H            | H               | M                    |
| Long-term Storm # 3                           | M             | H                | H                     | M                | M            | M               | M                    |
| Long-term Storm # 4                           | H             | H                | H                     | H                | H            | L               | M                    |

| <b>Evaluation &amp; Prioritization Matrix</b> |               |                  |                       |                  |              |                 |                      |
|---|---------------|------------------|-----------------------|------------------|--------------|-----------------|----------------------|
| <b>Hazard Mitigation Name &amp; Number</b>    | <b>Social</b> | <b>Technical</b> | <b>Administrative</b> | <b>Political</b> | <b>Legal</b> | <b>Economic</b> | <b>Environmental</b> |
| Short-term Earthquake #1                      | H             | H                | H                     | H                | H            | H               | H                    |
| Short-term Earthquake #2                      | H             | H                | H                     | H                | H            | H               | H                    |
| Long-term Earthquake #1                       | H             | H                | H                     | H                | H            | H               | H                    |
| Short-term Flood # 1                          | H             | H                | H                     | H                | H            | H               | H                    |
| Short-term Flood # 2                          | L             | L                | L                     | L                | L            | L               | L                    |
| Short-term Flood # 3                          | L             | L                | L                     | L                | L            | L               | L                    |
| Long-term Flood # 1                           | L             | L                | L                     | L                | L            | L               | L                    |
| Long-term Flood # 2                           | L             | L                | L                     | L                | L            | L               | L                    |
| Long-term Flood # 3                           | L             | L                | L                     | L                | L            | L               | L                    |
| Short-term Disease # 1                        | H             | H                | H                     | H                | H            | H               | N/A                  |
| Short-term Disease # 2                        | H             | H                | H                     | H                | H            | H               | N/A                  |
| Long-term Disease # 1                         | H             | H                | H                     | H                | H            | H               | N/A                  |
| Long-term Disease # 2                         | H             | H                | H                     | H                | H            | H               | N/A                  |
| Long-term Disease # 3                         | H             | H                | H                     | H                | H            | H               | N/A                  |

| <b>Evaluation &amp; Prioritization Matrix</b> |               |                  |                       |                  |              |                 |                      |
|---|---------------|------------------|-----------------------|------------------|--------------|-----------------|----------------------|
| <b>Hazard Mitigation Name &amp; Number</b>    | <b>Social</b> | <b>Technical</b> | <b>Administrative</b> | <b>Political</b> | <b>Legal</b> | <b>Economic</b> | <b>Environmental</b> |
| Long-term Disease # 4                         | H             | L                | L                     | H                | H            | H               | H                    |

## Appendix 5 — Benefit–Cost Analysis Fact Sheet

### ***Benefit-Cost Analysis Fact Sheet***

Hazard mitigation projects are specifically aimed at reducing or eliminating future damages. Although hazard mitigation projects may sometimes be implemented in conjunction with the repair of damages from a declared disaster, the focus of hazard mitigation projects is on strengthening, elevating, relocating, or otherwise improving buildings, infrastructure, or other facilities to enhance their ability to withstand the damaging impacts of future disasters. In some cases, hazard mitigation projects may also include training or public-education programs if such programs can be demonstrated to reduce future expected damages.

A Benefit-Cost Analysis (BCA) provides an estimate of the “benefits” and “costs” of a proposed hazard mitigation project. The benefits considered are avoided future damages and losses that are expected to accrue as a result of the mitigation project. In other words, benefits are the reduction in expected future damages and losses (i.e., the difference in expected future damages before and after the mitigation project). The costs considered are those necessary to implement the specific mitigation project under evaluation. Costs are generally well determined for specific projects for which engineering design studies have been completed. Benefits, however, must be estimated probabilistically because they depend on the improved performance of the building or facility in future hazard events, the timing and severity of which must be estimated probabilistically.

#### ***All Benefit-Costs must be:***

- Credible and well documented
- Prepared in accordance with accepted BCA practices
- Cost-effective (BCR  $\geq$  1.0)

#### ***General Data Requirements:***

- All data entries (other than Federal Emergency Management Agency [FEMA] standard or default values) MUST be documented in the application.
- Data MUST be from a credible source.
- Provide complete copies of reports and engineering analyses.
- Detailed cost estimate.
- Identify the hazard (flood, wind, seismic, etc.).
- Discuss how the proposed measure will mitigate against future damages.
- Document the Project Useful Life.
- Document the proposed Level of Protection.
- The Very Limited Data (VLD) BCA module cannot be used to support cost-effectiveness (screening purposes only).
- Alternative BCA software MUST be approved in writing by FEMA HQ and the Region prior to submittal of the application.

#### ***Damage and Benefit Data***

- Well documented for each damage event.
- Include estimated frequency and method of determination per damage event.
- Data used in place of FEMA standard or default values MUST be documented and justified.
- The Level of Protection MUST be documented and readily apparent.
- When using the Limited Data (LD) BCA module, users cannot extrapolate data for higher frequency events for unknown lower frequency events.

#### ***Building Data***

- Should include FEMA Elevation Certificates for elevation projects or projects using First Floor Elevations (FFE).
- Include data for building type (tax records or photos).
- Contents claims that exceed 30 percent of building replacement value (BRV) MUST be fully

- documented.
- Method for determining BRVs MUST be documented. BRVs based on tax records MUST include the multiplier from the County Tax Assessor.
- Identify the amount of damage that will result in demolition of the structure (FEMA standard is 50 percent of pre-damage structure value).
- Include the site location (i.e., miles inland) for the Hurricane module.

#### ***Use Correct Occupancy Data***

- *Design occupancy* for Hurricane shelter portion of Tornado module.
- *Average occupancy per hour* for the Tornado shelter portion of the Tornado module.
- *Average occupancy* for Seismic modules.

#### ***Questions to Be Answered***

- Has the level of risk been identified?
- Are all hazards identified?
- Is the BCA fully documented and accompanied by technical support data?
- Will residual risk occur after the mitigation project is implemented?

#### ***Common Shortcomings***

- Incomplete documentation.
- Inconsistencies among data in the application, BCA module runs, and the technical support data.
- Lack of technical support data.
- Lack of a detailed cost estimate.
- Use of discount rate other than FEMA-required amount of 7 percent.
- Overriding FEMA default values without providing documentation and justification.
- Lack of information on building type, size, number of stories, and value.
- Lack of documentation and credibility for FFEs.
- Use of incorrect Project Useful Life (not every mitigation measure = 100 years).

## Appendix 6 — Vulnerability Assessment

| Vulnerability Chart |                       |              |                 |                        |                              |                              |       |
|---------------------|-----------------------|--------------|-----------------|------------------------|------------------------------|------------------------------|-------|
|                     | Probability           | Human Impact | Property Impact | Govt & Business Impact | Internal Resource Capability | External Resource Capability | Total |
| Type of Hazard      | (Low (1)------(5)High |              |                 |                        | Strong (1)---(5)Weak         |                              |       |
|                     |                       |              |                 |                        |                              |                              |       |
|                     |                       |              |                 |                        |                              |                              |       |
|                     |                       |              |                 |                        |                              |                              |       |
|                     |                       |              |                 |                        |                              |                              |       |
|                     |                       |              |                 |                        |                              |                              |       |
|                     |                       |              |                 |                        |                              |                              |       |
|                     |                       |              |                 |                        |                              |                              |       |
|                     |                       |              |                 |                        |                              |                              |       |
|                     |                       |              |                 |                        |                              |                              |       |

### Probability

Rate the likelihood of each hazards occurrence.

### Human Impact

Rate the potential for human impact – the possibility of death or injury.

### Property Impact

Rate the potential for losses and damage to property. Consider:

- Cost to replace
- Cost to set up temporary replacement
- Cost to repair

### Government & Business Impact

Rate the potential loss to business market share or loss of government services. Assess the impact of:

- Business or service interruption
- Employees unable to report to work
- Customers unable to reach business or government offices
- Interruption of critical supplies or government resources
- Interruption of product or service delivery

### Internal Resource Capability

Does the county have the needed resources and capabilities to respond to this hazard?

### External Resource Capability

Are there resources available outside the county that would be needed to successfully handle this emergency?