

# Section 1

## Introduction

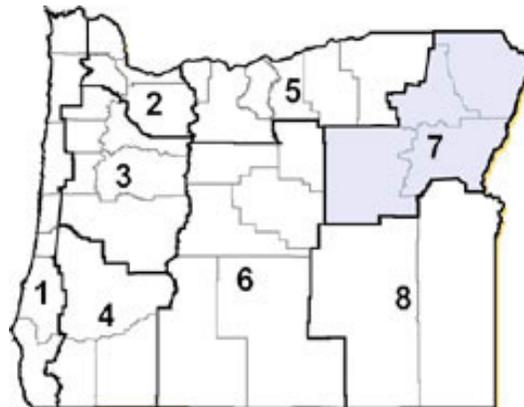
### What is Natural Hazard Mitigation?

Natural hazard mitigation is defined as permanently reducing or alleviating the losses of life, property and injuries resulting from natural hazards through long and short-term strategies. Example strategies include policy changes, such as updated ordinances; projects, such as seismic retrofits to critical facilities; and education and outreach to targeted audiences, such as non-english speaking residents, or senior populations. Mitigation is the responsibility of individuals, private businesses and industries, state and local governments, and the federal government.<sup>i</sup>

Engaging in mitigation activities provides jurisdictions with a number of benefits, including reduced loss of life, property, essential services, critical facilities and economic assets; reduced short-term and long-term recovery and reconstruction costs; increased cooperation and communication within the community and region through the planning process; and increased potential for state and federal funding for recovery and reconstruction projects.

### Why Develop a Multi-Jurisdictional Natural Hazard Mitigation Plan?

The Northeast Region (7) developed this regional Multi-Jurisdictional Natural Hazards Mitigation Plan in an effort to reduce future loss of life and property resulting from natural disasters. Participating counties include Baker County, Grant County, Union County, and Wallowa County. Participating cities include Baker City, the City of Halfway, (both within Baker County), the City of John Day (Grant County), and the City of La Grande (Union County). Additional cities are welcome to be included at any time. Multi-jurisdictional plans benefit participating communities in a number of ways, including:



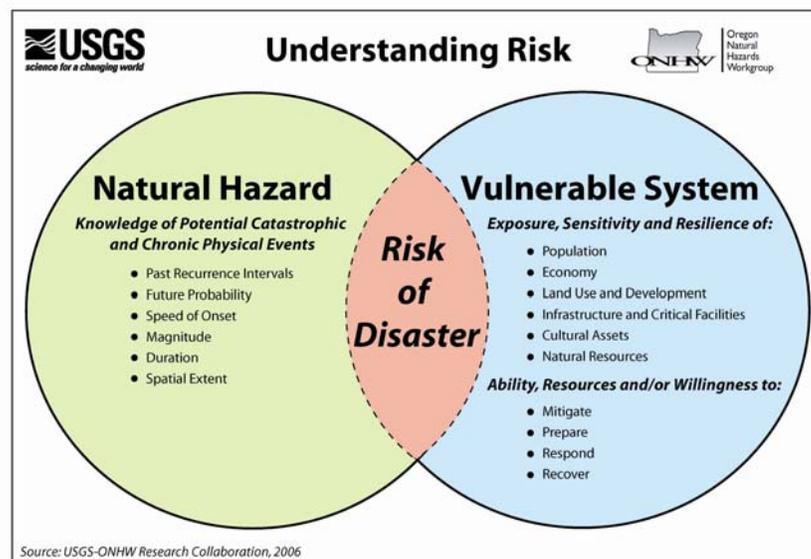
- Enabling comprehensive approaches to mitigating hazards that affect multiple jurisdictions;
- Allowing economies of scale by:
  - Leveraging individual capabilities and
  - Sharing costs and resources; and

- Avoiding duplication of effort.

It is impossible to predict exactly when natural hazards will occur, or the extent to which they will affect the region. However, with careful planning and collaboration among public agencies, private sector organizations, and citizens within the region, it is possible to minimize the losses that can result.

Natural disasters occur as a predictable interaction among three broad systems: the natural environment (e.g., climate, river systems, geology, forest ecosystems, etc.), the built environment (e.g., cities, buildings, roads, utilities, etc.), and societal systems (e.g. cultural institutions, regional and community organizations, business climate, service providers, etc.). A natural disaster occurs when a natural hazard impacts the built environment or societal systems and creates adverse conditions within a community.<sup>ii</sup> The figure below is used to illustrate the relationship between natural hazards and vulnerable systems in terms of understanding risk.

**Figure 1.1 Understanding Risk**



Source: USGS-ONHW Research Collaborative, 2006.

This plan focuses on the primary natural hazards that could affect the Northeast Oregon region and include: drought, wildfire, flooding, windstorms, winter storms, earthquake, landslide, and volcanic events. The dramatic increase in the costs associated with natural disasters over the past decades has fostered interest in identifying and implementing effective means of reducing vulnerability. A report submitted to Congress by the National Institute of Building Science’s Multi-hazard Mitigation Council (MMC) highlights that for every dollar spent on mitigation, society can expect an average savings of \$4.<sup>iii</sup> This Multi-Jurisdictional Natural Hazards Mitigation Plan is intended to assist the communities in Northeast Oregon in reducing its risk from natural hazards by identifying resources, information, and strategies for risk reduction.

The plan is strategic and non-regulatory in nature, meaning that it does not set forth any new policy. It does, however, provide: (1) a foundation for coordination

and collaboration among agencies and the public in the region; (2) identification and prioritization of future mitigation activities; (3) aid in meeting federal planning requirements and qualifying for assistance programs. The regional mitigation plan works in conjunction with other regional and county plans and programs including the Northeast Oregon Comprehensive Economic Development Strategy, as well as the State of Oregon Natural Hazards Mitigation Plan. For a complete listing of existing plans, policies, and programs within each County, please see Appendix G.

The plan provides a set of collaborative, regional actions as well as jurisdictionally specific actions to prepare for and reduce the risks posed by natural hazards. The actions described in the plan are intended to be implemented through existing plans and programs within the region.

## **Policy Framework for Natural Hazards in Oregon**

Planning for natural hazards is an integral element of Oregon's statewide land use planning program, which began in 1973. Statewide land use planning Goal 7: 'Areas subject to Natural Hazards' calls for local plans to include inventories, policies and ordinances to guide development in hazard areas. Goal 7, along with other land use planning goals, has helped to reduce losses from natural hazards.

All Oregon cities and counties have comprehensive plans and implementing ordinances that are required to comply with the statewide planning goals. The challenge faced by state and local governments is to keep this network of local plans coordinated in response to the changing conditions and needs of Oregon communities. The comprehensive plans for the participating jurisdictions are between eight and twenty-nine years old (Baker County: 1986; Grant County: 1999; Union County: 1978; Wallowa County: 1978).

The primary responsibility for the development and implementation of risk reduction strategies and policies lies with local jurisdictions. However, resources exist at the state and federal levels. Some of the key agencies in this area include Oregon Emergency Management (OEM), Oregon Building Codes Division (BCD), Oregon Department of Forestry (ODF), Oregon Department of Geology and Mineral Industries (DOGAMI), and the Department of Land Conservation and Development (DLCD).

The Disaster Mitigation Act of 2000 (DMA 2000) is the latest federal legislation addressing mitigation planning. It reinforces the importance of mitigation planning and emphasizes planning for disasters before they occur. As such, this Act established the Pre-Disaster Mitigation (PDM) grant program and new requirements for the national post-disaster Hazard Mitigation Grant Program (HMGP). Section 322 of the Act specifically addresses mitigation planning at the state and local levels. State and local communities must have approved mitigation plans in place in order to qualify to receive post-disaster HMGP and PDM funds. Mitigation plans must demonstrate that proposed mitigation measures are based on sound planning processes that account for communities' risks, as well as their abilities to mitigate, prepare for, respond to, and recover from natural disasters.

## How was the Plan Developed?

In January of 2003, Baker, Grant, Union and Wallowa Counties began the process of developing a regional natural hazards risk-reduction plan. During the course of the year, each county participated in the plan's development. Due to staffing changes and resource deficiencies, however, the plan was never fully realized. Please see Appendix A for an understanding of activities completed in 2003.

In an effort to finalize the Northeast Oregon Multi-Jurisdictional Natural Hazards Mitigation Plan, Baker, Grant, Union, and Wallowa Counties partnered with two organizations at the University of Oregon's Community Service Center: 1) The Oregon Natural Hazards Workgroup (ONHW), and 2) Resource Assistance for Rural Environments (RARE). Together, ONHW, RARE, and Northeast Oregon applied for and received a Pre-Disaster Mitigation (PDM) Planning Grant from the Federal Emergency Management Agency (FEMA).<sup>1</sup> Planning efforts began in the fall of 2006.

The following organization and persons guided the plan's development:

- Oregon Natural Hazards Workgroup: ONHW developed the planning process and associated resources that were used to create Northeast Oregon's Multi-Jurisdictional Natural Hazards Mitigation Plan. More specifically, ONHW:
  - Served as the main contact for information about the natural hazard mitigation planning process.
  - Provided plan development support to the RARE Participant and Local Leads through quarterly work sessions, monthly phone bridges, and site visits.
  - Completed regional research to support local plan development.
  - Provided the following planning resources: Oregon Pre-Disaster Mitigation Community Training Manual; ONHW's Natural Hazards Mitigation Plan Templates; Various technical memos on planning process tools and techniques; Sample Action Item Reports; ONHW's Action Item Form; and Plan Appendices: D) Economic Analysis of Natural Hazard Mitigation Projects, and E) Regional Household Preparedness Study.
- RARE Participant: Resource Assistance for Rural Environments provided a staff person, Megan Findley, to facilitate and document the Northeast Oregon multi-jurisdictional planning process. More specifically, the RARE Participant:
  - Facilitated a series of five work sessions per county to develop the community-specific portions of the regional mitigation plan.
  - Participated in four plan development training sessions as well as monthly phone bridges that were held throughout the process.
  - Conducted community outreach through stakeholder interviews.

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<sup>1</sup> Grant: PDMC-PL-10-OR-2006-005, Award Number: EMS-2006-PC-0003

- Documented planning processes, project expenses, and local match.
- Completed a final draft of the Northeast Oregon Multi-Jurisdictional Natural Hazards Mitigation Plan.
- **Local Leads:** Each county joined the Partnership for Disaster Resistance and Resilience by signing, through their County Commissions, a Memorandum of Understanding for the project. Commissioners appointed local leads to guide in the development of their county’s portion of the regional natural hazards mitigation plan. More specifically, Local Leads:
  - Assisted the RARE Participant in facilitating the regional planning process.
  - Established, coordinated, and chaired county steering committees.
  - Provided guidance to the RARE Participant on local issues and needs.
  - Served as the initial reviewers for all plan drafts developed by the RARE Participant.

The following jurisdictions adopted the Northeast Oregon Multi-Jurisdictional Natural Hazard Mitigation Plan:

- Baker County.....*Date of Adoption*
  - City of Baker City.....*Date of Adoption*
  - City of Halfway.....*Date of Adoption*
- Grant County.....*Date of Adoption*
  - City of John Day.....*Date of Adoption*
- Union County.....*Date of Adoption*
  - City of La Grande.....*Date of Adoption*
- Wallowa County.....*Date of Adoption*

Please see Appendix A for documentation of persons involved, and meeting subjects and dates. City addendums can be found in Volume II. Complete documentation of organizations and stakeholders interviewed can also be found in Appendix A.

The planning process included the review and incorporation, if appropriate, of existing plans, studies, reports and technical information. In general, the following regional resources were reviewed and local resources have been cited throughout the plan.

- State of Oregon Natural Hazard Mitigation Plan;
- Regional Profiles and Hazard Assessments;
- Oregon Technical Resource Guide;
- Oregon Natural Hazards Workgroup Training Manual;
- The Oregon Atlas;
- The Oregon Weather Book;
- Baker Land Use Ordinance;
- Baker Comprehensive Land Use Plan;

- Baker County Community Wildfire Protection Plan;
- Baker City/County Economic Development Strategic Plan;
- Baker County Cultural Trust Plan;
- Baker County Transportation System Plan;
- Grant County, Oregon Comprehensive Plan;
- Grant County Transportation System Plan;
- Grant County Community Wildfire Protection Plan;
- Union County Comprehensive Land Use Plan;
- Union County Transportation System Plan;
- Union County Community Wildfire Protection Plan;
- Union County Flood Insurance Study;
- Grande Ronde Subbasin Plan;
- City of La Grande Comprehensive Plan;
- Wallowa County Comprehensive Plan;
- Wallowa County Community Wildfire Protection Plan;
- Salmon Recovery Plan;
- Imnaha Subbasin Management Plan;
- Wallowa County Transportation System Plan; and
- Wallowa County Flood Insurance Study.

The following is a summary of major activities included in the planning process.

### **Phase I: Getting Started**

The RARE Participant, ONHW, and participating counties worked to establish a solid, cooperative base for the year's endeavors. The following activities occurred between October 2006 and January 2007:

- ONHW developed the regional templates of the multi-jurisdictional plan, including Section 1: Introduction; Sections 2-5: Risk Assessment Summaries; Section 6: Mission, Goals, and Action Items, and Section 7: Plan Implementation and Maintenance. Additionally, with help from the RARE Participant, ONHW updated Appendix B, the state's Region 7 Profile and Risk Assessment.
- Local leads created steering committees within their respective counties. Steering committees were composed of 6-10 representatives of key stakeholder groups. Through these steering committees, each county participated in the plan's development. Each committee met and/or conversed with the RARE Participant five times over the course of 11 months to perform the following functions:
  - Guide in the development of the plan by setting goals, identifying appropriate activities, and developing a process for public participation;

- Provide local information for the plan’s development; review plan drafts; and
- Ensure that neighboring jurisdictions and appropriate regional, state, and federal agencies participate in plan development through stakeholder interviews and/or city adoption; A list of committee members, meeting dates, and meeting minutes can be found in Appendix A.
- The RARE Participant developed and facilitated “kick-off” meetings to discuss roles, responsibilities, and timelines for each county’s steering committee. She additionally began conducting stakeholder interviews. Please see Appendix A for 1) lists of attendees at all steering committee meetings; 2) a description of the activities that occurred in each steering committee meeting, and 3) a list of stakeholders, and summaries of each stakeholder interview.

## **Phase II: Risk Assessment**

Northeast Oregon communities worked to better understand their risks to natural hazards, as well as their community assets and vulnerabilities. The following activities occurred between January and March 2007:

- The RARE Participant completed the following activities: 1) developed and facilitated “Risk Assessment” workshops in each of her four counties (see Appendix A for meeting dates and descriptions); 2) completed each county’s chapter on Community Sensitivity and Resilience; 3) engaged the public by conducting stakeholder interviews (see Appendix A for a description of interviews); 4) collected hazard-specific information for each county’s Risk Assessment Summary.
- ONHW provided the RARE Participant with a list of existing plans and policies, in addition to a list of community organizations and programs for each county. The RARE Participant subsequently completed community profiles (i.e., existing plans, policies, and organizations) for each county.

## **Phase III: Developing a Mission, Goals and Action Items**

Northeast Oregon communities worked to establish a vision for future progress by establishing a collective mission and goals for the plan, as well as regionally and locally-applicative mitigation actions. The following activities occurred between April and June 2007:

- The RARE Participant: 1) worked with individual communities to develop regionally and locally-applicative mitigation actions; 2) held the third round of steering committee meetings to discuss the plan’s mission, goals, and action items (see Appendix A for meeting times, locations, and minutes); 3) completed Section 6 of the Natural Hazards Mitigation Plan: Mission, Goals, and Action Items; and 4) finished conducting stakeholder interviews. While developing action items, the RARE Participant found that each county had similar vulnerabilities and ideas for mitigation actions. To facilitate regional collaboration and planning efforts, the RARE Participant grouped similar ideas under one action title, and listed jurisdictionally-specific projects under the action item worksheet’s “ideas for implementation.” This way, cities and counties may choose to work together when applying for funds to support similar projects.

- ONHW drafted a mission statement for Region 7 based on previous successful mitigation planning efforts in the state. Steering Committee members unanimously approved the statement.
- Cities in Region 7 were invited by Adrian Albrich, from City County Insurance, to participate in the plan's development and secure eligibility for adoption once approved. The RARE Participant contacted all cities that expressed interest in plan adoption. Please see City Addendums for a greater understanding of the process involved here.

## **Phase IV: Plan Implementation and Maintenance**

Northeast Oregon communities created a plan maintenance schedule and an implementation process for the regional Natural Hazards Mitigation Plan. The following activities occurred between July and September 2007:

- The RARE Participant: 1) held the fourth round of steering committee meetings to establish a bi-annual plan maintenance schedule, and to discuss plan implementation strategies; 2) completed a final draft of the Northeast Oregon Multi-Jurisdictional Natural Hazards Mitigation Plan and distributed it to Steering Committee Members for review; 3) met with, and created addendums for, the cities of John Day, La Grande, Baker City, and Halfway; 4) Held a fifth round of steering committee meetings to guide members through the plan, and to answer final questions.
- ONHW developed strategies for plan implementation, monitoring, and evaluation, and created a template for Section 7: Plan Implementation and Maintenance.
- The Cities of John Day, La Grande, Baker City, and Halfway held local meetings to identify local risks, assets, and mitigation actions. The RARE Participant facilitated and documented all meetings. Please see all City Addendums within Volume II.

## **How is the Plan Organized?**

Each section of the multi-jurisdictional mitigation plan provides specific information and resources to assist readers in understanding the hazard-specific issues facing citizens, businesses, and the environment in Northeast Oregon. Combined, the sections work together to create a multi-jurisdictional mitigation plan that furthers the region's mission to create a disaster resilient Northeast Oregon. This plan structure enables stakeholders to better use the section(s) of interest to them.

Because this is a multi-jurisdictional plan, there are regional components that are shared by all participating jurisdictions. Due to the planning requirements, there are also sections that describe communities' individual vulnerabilities, risks and identified mitigation actions. In Volume I, sections 1, 6, and 7 are the regional components. Community-specific information can be found in Sections 2-5, and in Volume II, City Addendums.

## **Volume I: Natural Hazard Mitigation Plan**

### Section 1: Introduction

The Introduction briefly describes the multi-jurisdictional mitigation planning efforts and the methodology used to develop the plan.

### Sections 2-5: County Risk Assessment Summaries

These sections describe each county's risk to natural hazards. Hazard summaries are provided for each hazard addressed in the plan. Summaries include hazard histories, locations, extents, probabilities, and vulnerabilities.

### Section 6: Mission, Goals and Action Items

This section documents the plan's mission, goals, and actions and also describes the components that guide implementation of the identified mitigation strategies. Both regionally and locally-specific actions are included in this chapter.

### Section 7: Plan Maintenance

This section provides information on the implementation and maintenance of the multi-jurisdictional plan. It describes the process for prioritizing projects, and includes a suggested list of tasks for updating the plan.

## **Volume II: City Addendums**

The Cities of Baker City, Halfway, John Day, and La Grande completed addendums to the regional Natural Hazards Mitigation Plan. Addendums include a description of the City's participation in the Northeast Oregon Regional Planning Process, an analysis of the City's risks to natural hazards, and a listing of mitigation action items. Cities chose to either partner with their respective County on actions, or to identify their own actions, or both.

## **Volume III: Resource Appendices**

The resource appendices are designed to provide the users of the Northeast Oregon Multi-Jurisdictional Natural Hazards Mitigation Plan with additional information to assist in understanding the contents of the mitigation plan, and to provide resources to assist in plan implementation.

### A) Planning and Public Process

This appendix includes documentation of all the public processes utilized to develop the multi-jurisdictional plan. It includes invitation lists, agendas, sign-in sheets, and summaries of Steering Committee meetings as well as any other public involvement methods.

### B) Northeast Oregon Profile and Risk Assessment

The Profile and Risk Assessment report serves as the regional overview of community sensitivities and the risk assessment. A component of the State Plan, the report includes a *Demographic Profile* that discusses the population in the region, an *Infrastructure Profile* that addresses the region's critical facilities and systems of transportation and power transmission, and an *Economic Profile* that discusses the scale and scope of the regional economy with a focus on the key industries. This report also includes the regional risk assessment that describes historical impacts, general location, extent, and severity of past natural hazard events as well as the probability of future events.

### C) Hazard Annexes

The Purpose of the hazard-specific annexes is to provide additional resources and documentation of the hazard. Where extensive local data is available, beyond the scope of information provided in Section 3, the additional local data is placed in the annex. The hazard specific annexes included with this plan are the following:

- Drought
- Earthquake
- Flood
- Landslide
- Wildfire
- Wind Storm
- Winter Storm

### D) Economic Analysis of Natural Hazards Mitigation Projects

This appendix describes the Federal Emergency Management Agency's (FEMA) requirements for benefit cost analysis in natural hazards mitigation, as well as various approaches for conducting economic analysis of proposed mitigation activities. This appendix was developed by the Community Service Center's Oregon Natural Hazards Workgroup at the University of Oregon. It has been reviewed and accepted by the Federal Emergency Management Agency as a means of documenting how the prioritization of actions 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.

### E) Regional Household Preparedness Survey

This appendix includes the survey instrument and results from the household preparedness survey implemented by ONHW throughout the region. The survey aims to gauge household knowledge of mitigation tools and techniques to assist in reducing the risk and loss from natural hazards, as well as assessing household disaster preparedness.

### F) Resource Directory

The resource appendices are designed to provide the users of the Northeast Oregon Multi-Jurisdictional Natural Hazards Mitigation Plan with additional information to assist them in understanding the contents of the mitigation plan, and provide them with potential resources to assist with plan implementation.

### G) Community Profiles

The purpose of the County Profile is to document how each participating jurisdiction differs from the region in terms of community sensitivity and resilience. Sensitivities include community assets and characteristics that may be impacted by natural hazards, and resilience factors describe the community's ability to manage risk and to adapt to hazard impacts. Resilience factors include existing mitigation actions, and plans, policies, programs, or community organizations that influence a community's character, governance or growth trends.

### H) Community Wildfire Protection Plans

### I) Action Item Worksheets

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<sup>i</sup> Massachusetts Department of Environmental Management. 1999. "Hazard Mitigation: Managing Risks, Lowering Costs." <http://www.state.ma.us/dem/programs/whatis.htm> Accessed 8/2/02

<sup>ii</sup> LeDuc, A. "Establishing Mitigation as the Cornerstone for Community Resilience," 2006 Risk Management Yearbook, Public Entity Risk Institute. Fairfax, VA.

<sup>iii</sup> National Institute of Building Science's Multi-hazard Mitigation Council. "Natural Hazard Mitigation Saves: An Independent Study to Assess the Future Savings from Mitigation Activities" 2005.