

University of Oregon Natural Hazard Mitigation Plan

Final Report:
University of Oregon

Prepared by:
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Table of Contents

SECTION 1: INTRODUCTION.....	1.1
UO'S NATURAL HAZARD MITIGATION PLAN.....	1.1
INTEGRATED EMERGENCY MANAGEMENT.....	1.2
MITIGATION PLAN METHODOLOGY.....	1.5
PLAN ORGANIZATION.....	1.8
SECTION 2: CAMPUS PROFILE.....	2.1
CAMPUS POPULATION.....	2.1
CAMPUS OCCUPANCY.....	2.2
UNIVERSITY RESEARCH.....	2.3
ECONOMIC GENERATION.....	2.4
UNIVERSITY ORGANIZATIONAL STRUCTURE.....	2.4
BUILT ENVIRONMENT.....	2.7
CRITICAL FACILITIES.....	2.12
SECTION 3: RISK ASSESSMENT.....	3.1
INTRODUCTION AND METHODOLOGY.....	3.1
HAZARD IDENTIFICATION AND PROFILE.....	3.5
VULNERABILITY ASSESSMENT.....	3.7
RISK ANALYSIS/ESTIMATING POTENTIAL LOSSES.....	3.16
SECTION 4: GOALS AND ACTION ITEMS.....	4.1
METHODOLOGY.....	4.2
MISSION.....	4.2
GOALS.....	4.2

ACTION ITEMS.....	4.3
FULL ACTION ITEM DESCRIPTIONS.....	4.5
SECTION 5: PLAN OVERSIGHT.....	5.1
PLAN ADOPTION.....	5.1
OVERSIGHT STRUCTURE.....	5.1
SECTION 6: PLAN IMPLEMENTATION AND MAINTENANCE.....	6.1
IMPLEMENTATION AND MAINTENANCE MEETINGS.....	6.1
CONTINUED PUBLIC/CAMPUS INPUT.....	6.5
APPENDIX A: OUTREACH STRATEGIES.....	A.1
APPENDIX B: UO PRELIMINARY EARTHQUAKE STUDY.....	B.1
APPENDIX C: STEERING COMMITTEE INTERVIEW SUMMARY.....	C.1
APPENDIX D: EARTHQUAKE PROFILE.....	D.1
APPENDIX E: FLOODING PROFILE.....	E.1
APPENDIX F: SEVERE STORM PROFILE.....	F.1
APPENDIX G: UO POLICIES AND PROCEDURES.....	G.1
APPENDIX H: ECONOMIC ANALYSIS OF NATURAL HAZARD MITIGATION PROJECTS.....	H.1

List of Maps

- Map 2.1 Peak Classroom Occupancy
- Map 2.2 Office Occupancy Per Workday
- Map 2.3 Residence Hall Occupancy
- Map 2.4 Research Value
- Map 2.5 Building Structure Class
- Map 2.6 Building Structure Value
- Map 2.7 Insured Content Value
- Map 2.8 Historic Buildings and Sites
- Map 2.9 Hazardous Materials
- Map 2.10 Critical Facilities and the University of Oregon
- Map 3.1 Buildings Requiring Further Seismic Study
- Map 3.2 Building Design Level
- Map 3.3 Peak Classroom Occupancy
- Map 3.4 Research Value
- Map 3.5 Building Structure Value
- Map 3.6 Insured Content Value
- Map 3.7 Hazardous Materials
- Map 3.8 Critical Facilities at the University of Oregon
- Map 3.9 Campus Area Floodplain
- Map 3.10 Campus/Autzen Floodplain
- Map 3.11 Fall Radius of Campus Trees
- Map 3.12 Predicted Likelihood of Moderate or Greater Damage,
Cascadia Subduction Event

Map 3.13 Predicted Likelihood of Moderate or Greater Damage
Crustal Event

Section 1

Introduction

The purpose of this natural hazard mitigation plan is to assist the University of Oregon in reducing its risk from natural hazards by identifying resources, information, and strategies for risk reduction. It will also help guide and coordinate mitigation activities on campus. Although it is impossible to predict exactly when disasters might occur or the extent to which they might affect the campus, the university can minimize losses from natural hazards through deliberate planning and collaboration within the campus community and with the City of Eugene, Lane County, and the State of Oregon.

A natural disaster occurs when a natural hazard impacts people or property and creates adverse conditions within a community. Natural hazards include: floods, earthquakes, coastal erosion, tsunami, volcanic eruption, severe winter storm, windstorm, drought, and wildfire. This plan focuses on the three natural hazards that could directly affect the University of Oregon, they are: earthquakes; floods; and severe storms (winter and windstorm).

UO's Natural Hazard Mitigation Plan

In 2000, Congress passed and the President of the United States signed the Disaster Mitigation Act, commonly known as DMA 2000. Under this Act and rules published in 44 CFR Part 201.6, states, communities, and tribal governments must complete FEMA-approved natural hazard mitigation plans by December 31, 2004 to be eligible for certain federal assistance programs such as the Hazard Mitigation Grant Program (HMGP). Not only are states and communities eligible for funding under DMA 2000, but so are universities under FEMA's Disaster Resistant University (DRU) initiative. The DRU program provides resources and guidance for universities working to protect their campus from natural hazards.

In 2003, five universities received funding for the first DRU projects. In 2004, Universities throughout the nation competed for grants through the Pre-Disaster Mitigation Disaster Resistant University Program. The University of Oregon was one of 29 DRU Universities nationwide to receive a grant award under the program. The University of Oregon is one of only four universities to receive new funding in the western United States, and the only university in FEMA Region 10.

In 2004, the Federal Emergency Management Agency selected the University of Oregon through a proposal submitted by Oregon Emergency Management (OEM) and Oregon Natural Hazards Workgroup (ONHW) at the University of Oregon's Community Service Center to receive a Disaster Resistant University Planning Grant and

served as the project lead. The Community Service Center (CSC) role is to link the skills, expertise and innovation of higher education with needs of communities and regions in the State of Oregon, thereby providing service to Oregon and learning opportunities to the students involved. The CSC and its programs report to the Vice Provost for Research. Additionally, the CSC and ONHW are affiliated with Public Policy, Planning, and Management Department in the School of Allied Arts and Architecture. This project also utilized the InfoGraphics Lab (Department of Geography) to complete elements of the plan.

The purpose of the University of Oregon's natural hazard mitigation plan is to reduce or eliminate impacts to the campus from natural disasters. Engaging in mitigation activities provides the university with a number of benefits including:

- reduced vulnerability to future hazard events, specifically reduced loss of life, property, essential services, critical facilities and economic hardship;
- reduced short-term and long-term recovery and reconstruction costs;
- quicker resumption of University function, including education, research, and business systems.
- increased cooperation and communication within the community through the planning process; and
- increased potential for state and federal funding for mitigation and recovery projects.

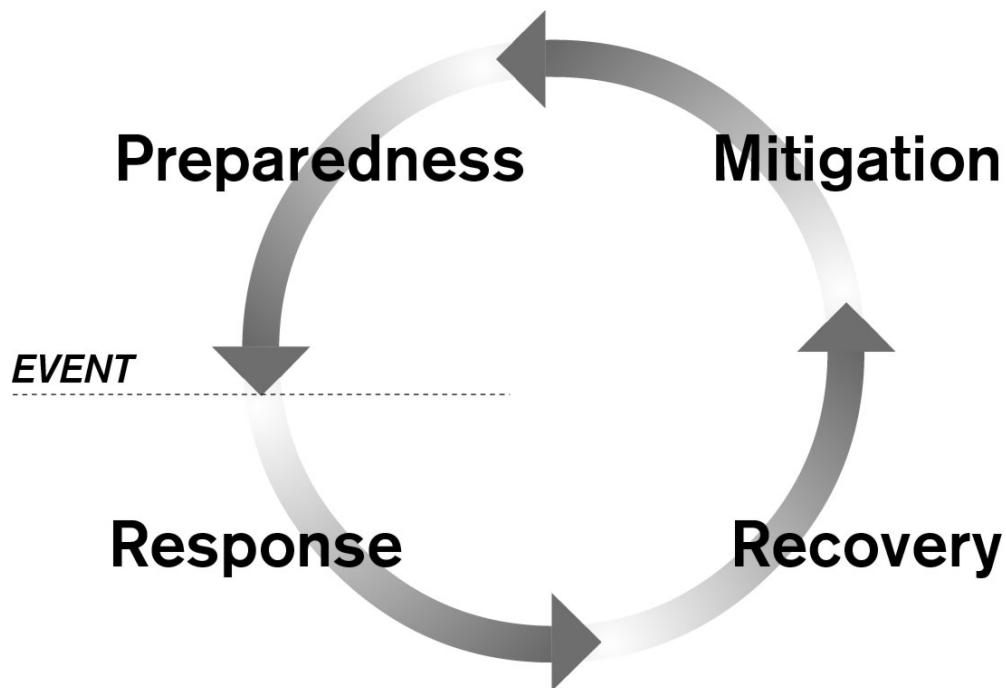
The natural hazard mitigation plan is non-regulatory in nature, meaning that it does not set forth any new policy. Rather, it is designed to help build a foundation and a vision for enhanced coordination and collaboration among university departments and administrative units to prepare for and reduce the risks posed by natural hazards. To be successful, mitigation practices must be integrated into current and future university plans, policies, and practices.

Integrated Emergency Management

Mitigation is only one of the four phases of what is commonly referred to as the disaster cycle. Both traditional emergency management profession and FEMA refer to the phases of the cycle as prepare, respond, recover, and mitigate (Figure 1-1). The phases of this cycle should be integrated to create a comprehensive approach to risk reduction. Although described as separate phases, each phase is tied to the others. It is helpful to think of the disaster cycle as a simple equation. Every risk or vulnerability we mitigate today reduces our overall exposure whereby decreasing the pressure on the response side of the disaster cycle and lowering our recovery costs from future events.

This section defines the four phases and describes plans and activities associated with them.

Figure 1-1: The Disaster Cycle



Mitigation

Natural hazard mitigation is defined as a method to reduce or eliminate loss of life and/or property, and injuries resulting from natural hazards through short and long-term activities. Mitigation strategies may range in scope and size; however, no matter the size, effective mitigation activities have the potential to reduce the vulnerability and/or exposure to risk and impact of natural disasters. Example strategies include projects such as seismically retrofitting a building or moving power lines underground and non-structurally retrofitting labs and offices.

Preparedness

Preparedness refers to activities, programs, and systems developed in advance of a disaster designed to build and enhance capabilities at an individual and campus level to support the response to and recovery from disasters. Example strategies might include developing awareness and outreach campaigns targeted to students, faculty and staff, and visitors, reviewing and improving current emergency procedures.

Response

Response begins as soon as a disaster event occurs. Response is the provision of search and rescue, medical services, access control, and repairing and restoring communication and data systems during a crisis. A coordinated response plan can help reduce casualties, damage,

and decrease recovery time. Examples include emergency operations plan and business continuity plans and procedures for campus.

Recovery

Recovery operations provide for basic needs and restore the community. There are two phases in the recovery phase. During the first phase, infrastructure is examined, and repairs are conducted to restore water, power, communication and other utilities. The second phase includes returning to normal functions and addressing future disasters. The process of recovery can take months or possibility years to accomplish depending upon the event.

Emergency Management Plans

To effectively reduce risk, all phases of the disaster cycle need to be carefully evaluated, and plans need to be developed to provide guidance for each of the phases. Crucial plans include: (1) pre-disaster mitigation plan; (2) emergency operations plan; (3) comprehensive business continuity plan; and (4) post disaster recovery plan. As the University of Oregon enhances its emergency management system, it will need to develop this entire compilation of plans and a management strategy to make sure they stay current and integrated over time.

Pre-Disaster Mitigation Plan

This plan is designed to assist the university in reducing its risk to natural hazards by identifying resources, information, and strategies for risk reduction. This plan provides a foundation to reduce risk by outlining methods to mitigate risk throughout campus. This plan will work in concert with the City of Eugene and Lane County mitigation plans (completed in 2004 and 2005, respectfully) increase the resistance and resiliency of the area.

Emergency Operations Plan (EOP)

The EOP is designed to provide a management tool to facilitate timely, effective, efficient, and coordinated emergency response to disaster situations. The EOP is critical for the first few days after a disaster event. Lines of communication, critical infrastructure, and means of identifying emergency procedures are all outlined in this plan. The university is in the process of updating its plan with an expected completion date of winter 2006.

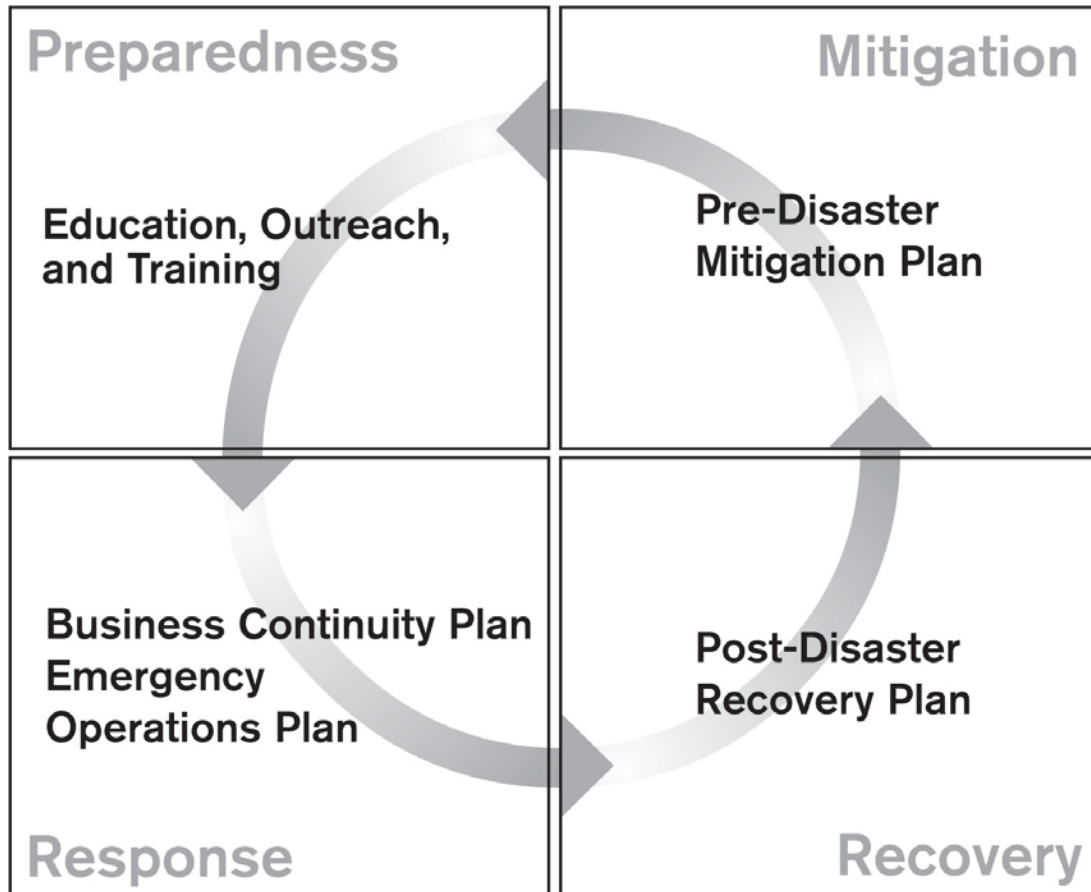
Comprehensive Business Continuity Plan

A business continuity plan is designed to identify vital business functions and systems, and present a framework for prioritizing and restoring these functions after a disaster. The business continuity plan outlines how the university will maintain critical business operation during and event and restore campus business functions after the disaster event.

Post Disaster Recovery Plan

A post disaster recovery plan paired with a mitigation plan can help to break the cycle of increasing disaster costs by planning for stronger, smarter redevelopment process before the disaster occurs. This plan provides guidance for post-disaster redevelopment policies and procedures before the event so that sustainable redevelopment actions can be taken quickly.

Figure 1-2: The Disaster Cycle with Corresponding Plans



Mitigation Plan Methodology

The information used to formulate this plan was drawn from a variety of sources. ONHW performed the following tasks to develop the plan.

- **Formed the steering committee:** The steering committee, organized in winter 2004, consisted of representatives from 11 departments and administrative units. This committee guided the development of the plan, specifically focusing on the creating the plan purpose, goals and action items. Steering committee members represented the following departments:

1. Business Affairs
2. Department of Architecture
3. Department of Public Safety
4. Environmental Health Services
5. Facilities Services
6. Housing
7. InfoGraphics Lab/Department of Geography
8. Office of Planning
9. Oregon Natural Hazards Workgroup/Community Service Center
10. Telecommunications Services
11. The City of Eugene, Emergency Management

- **Interviewed steering committee members and stakeholders:** ONHW conducted interviews with 16 steering committee members and stakeholders to better understand the current mitigation concerns on campus. The results of the interviews helped form the plan's goals and action items. (See Appendix B for more information.)
- **Researched university characteristics:** ONHW researched characteristics of the University that are important to understand when developing mitigation strategies. (See Section 2.)
- **Developed risk assessment:** ONHW teamed with InfoGraphics and the Department of Architecture to develop a comprehensive risk assessment that describes the University's vulnerability to natural disasters. (See Section 3.)
- **Created goals and action items:** With the assistance of the steering committee and stakeholders, goals and action items were developed. (See Section 4.)

Public Involvement in Plan Development

During plan development, public participation, mainly through the steering committee and identified stakeholders, was incorporated into every stage of the plan development process. Involvement included:

- December 01, 2004: Steering Committee project kick-off meeting
- January – March 2005: Interviews with steering committee members and identified stakeholders about natural disaster concerns and current practices.

- May 12, 2005: Steering Committee/Stakeholder work session to discuss the campus profile and risk assessment.
- May 19 & 26, 2005: Steering Committee meetings to discuss mission and goals.
- June 14 & 26, 2005: Steering Committee meetings to develop action items.
- September 19, 2005: Steering Committee meeting to discuss PDM grant requirements.
- November 21, 2005: Steering Committee meeting to develop Plan Maintenance and Implementation section of the report.
- February 21, 2006: Steering Committee meeting to approve the plan.

Outreach Activities

A critical component of the University of Oregon's Natural Hazard Mitigation Plan is the development of effective outreach materials; however, awareness of natural disasters is only part of changing people's behaviors. Continued communication through multiple outlets including workshops, brochures, campaigns and interviews help increase people's understanding of the issue, which will hopefully lead to behavior change.

The following were outreach strategies were implemented on campus between February 2005 and November 2005. For more information on outreach strategies see Appendix A.

Disaster Resistant University Kick-off Event, February 18, 2005

The purpose of the Disaster Resistant University Kick-Off was to celebrate the \$100,000 grant that was secured to develop the University of Oregon's Natural Hazard Mitigation Plan. Faculty, staff and administrative officials joined FEMA, the Department of Homeland Security, the media, and City of Eugene officials to learn more about how natural disasters could affect the university and promote the development of the plan.

Tabletop Triangles, May 30 – June 3, 2005

Over 200,000 students, faculty, staff and visitors travel through the Erb Memorial Union (EMU) each year making it a strategic place for outreach. During the first week of June, 2005 Tabletop Triangles were placed on tables in the food court and fishbowl dining area located within the EMU. The triangles targeted students and explained feasible methods to reduce their risks to natural hazards. The triangles they were brightly colored, professionally printed, and placed in the center of each table. Information included:

- How to prepare a 72-hour kit (preparation and maintenance)

- Phone numbers to call in the event of an emergency
- Actions students can take to reduce risk to natural hazards

Oregon Daily Emerald News Articles, June 10, November 2,3,4

On June 1, and November 2,3,4 the Oregon Daily Emerald, the independent newspaper at the University of Oregon, published an article about natural hazards and the university. The first article highlighted the Disaster Resistant University project and the impacts that this plan will have on the university. The other series of articles focused on campus vulnerability to earthquakes, the city's vulnerability to flooding, and how the university community could better prepare for natural disasters. Having the student newspaper run articles about the plan and about natural hazards was a low-cost method of outreach that reached a broad audience; however, as with all media, the journalists can choose how to portray the information which in the end may not further efforts of the project.

Plan Organization

This report is divided into six sections and seven appendices, which provide specific information and resources to assist in understanding the hazard-specific issues facing the university. The chapters are as follows:

Section 1: Introduction

The Introduction describes the purpose of the plan and how the plan fits into a comprehensive emergency management system that will help reduce risk from natural hazards.

Section 2: Campus Profile

The Campus Profile describes the University of Oregon's campus, including its demographic, economic and research characteristics. Additionally, it includes information about the university's infrastructure and critical facilities.

Section 3: Risk Assessment

The Risk Assessment identifies hazards affecting the campus and assesses the campus vulnerabilities. This section includes information about the four hazards, their history on campus, and analysis of campus risk to each hazard

Section 4: Goals and Action Items

This section provides information on the process used to develop the goals and action items in the plan. It also presents the Goals and Action Item Matrix, which is the overall framework for the campus's natural hazard mitigation strategies.

Section 5: Plan Oversight

This section explains the oversight structure of the plan.

Section 6: Plan Implementation and Maintenance

This section provides information on the implementation, monitoring and evaluation of the plan.

Appendices

Appendix A: Outreach Strategies

Appendix B: UO Preliminary Earthquake Study

Appendix C: Steering Committee Interview Summary

Appendix D: Earthquake Profile

Appendix E: Flooding Profile

Appendix F: Severe Storm Profile

Appendix G: UO Policies and Procedures

Appendix H: Economic Analysis of Natural Hazard Mitigation Projects