This draft Medford Natural Hazards Mitigation Plan (NHMP) is available for review to the Steering Committee and public. The document is a work in progress. Presently, the draft Medford NHMP contains two documents for review: 1) Chapter 1 Community Profile and Chapter 2 Hazard Identification and Risk Assessment; and 2) Chapter 3 Mitigation Strategy and Chapter 4 Planning Process. This document contains Chapters 3 and 4.

Note the following:

Comments on the draft Medford NHMP are due to Tricia Sears, Natural Hazards Planner, at the Oregon Department of Land Conservation and Development (DLCD). Please be aware that comments may be submitted at any point, however not all comments may be reflected in the draft that is published due to timing or other matters. Comments may be emailed to: tricia.sears@state.or.us or mailed to 635 Capitol St. NE, STE 150, Salem, OR 97301-2540.

Yellow highlighted areas indicate portions of the text that need updated/ have questions or are in the process of being updated.

Strikethrough text is suggested removal of text that has not yet been discussed with the Steering Committee in a meeting.

The references are stated in parenthetical form in the text of the draft Medford NHMP, but a list of references is not attached to this draft. References are in a separate document and are in the process of being formatted in APA style.

The titles of documents are capitalized in the draft Medford NHMP text. The titles and the references have not been fully formatted in APA style.

Graphics have not been formatted in a wrap text style except in a few locations; that remains to be accomplished.

All chapters have page numbers. The Table of Contents is located in the document with Chapters 1 and 2. The Table of Contents now includes page numbers for Chapters 1 and 2, as well as figure and table numbers. Because Chapters 3 and 4 are in a separate document, those page numbers are not yet included in the Table of Contents. The figure and table numbers in Chapters 3 and 4 are also not included in the Table of Contents.

In the upper right hand corner of the documents, the chapter is identified.
Chapter 3 Mitigation Strategy

Figure 1. Medford Natural Hazards Mitigation Planning Process

Source: Tricia Sears, DLCD, October 2016

Figure 2. Goals, Actions, and Action Plan diagram

Section 1: Introduction

Disaster resilience is the ability of communities to “mitigate hazards, contain the effects of disasters when they occur, and carry out recovery activities in ways that minimize social disruption and mitigate the effects of future disasters” (Multidisciplinary Center for Earthquake Engineering Research, 2004). The Mitigation Strategy, with actions to mitigate hazards, is a key part of the Medford NHMP. It consists of three main required components - mitigation goals, mitigation actions, and an action plan for implementation - as identified by the Local Mitigation Planning Handbook (FEMA, 2013). These provide the framework to identify, prioritize, and implement Medford’s actions to reduce risk to hazards.

Developing goals and prioritizing hazard mitigation actions are part of the Mitigation Strategy. Goals are general guidelines “that explain what the community wants to achieve with the plan” (FEMA, 2013). “Goals are long-term policy statements and global visions that support the Mitigation Strategy. A critical step in the development of specific hazard mitigation actions and projects is assessing the community’s existing authorities, policies, programs, and resources and its capability to use or modify local tools to reduce losses and vulnerability from profiled hazards” (FEMA, 2011). Mitigation actions “are specific projects and activities that help achieve the goals” (FEMA, 2013). How the mitigation actions will be implemented, including how those actions will be prioritized, administered, and incorporated into the community’s existing planning mechanisms are the components that comprise the action plan (FEMA, 2013).

According to the Local Mitigation Plan Review Guide (FEMA, 2011), the overall intent of the Mitigation Strategy is to serve “as the long-term blueprint for reducing the potential losses identified in the risk assessment. The Stafford Act directs Local Mitigation Plans to describe hazard mitigation actions and establish a strategy to implement those actions. Therefore, all other requirements for a Local Mitigation Plan lead to and support the mitigation strategy.”

Medford’s NHMP goals were originally established as part of the 2004 NHMP. These goals were retained for the 2010 update and have been retained again for the 2016-2017 update. The mitigation actions, previously called measures, have been updated and are included below in the Mitigation Actions Tables. Medford has accomplished many mitigation actions over the years, and these are described in “Medford’s Existing Efforts that Implement Mitigation Actions.” The Mitigation Actions Tables serve as the action plan for the Medford NHMP. In addition to the mitigation actions, the Mitigation Actions Tables identify the lead departments and the partners for each action.

Medford’s natural hazards: severe weather, floods, earthquakes, wildland-urban interface fires, landslides, volcanic eruptions, air quality, and emerging infectious diseases.
FEMA requirements for the Mitigation Strategy include:

44 CFR §201.6(c)(3), The plan shall include the following: 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.

44 CFR §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.

44 CFR §201.6(c)(3)(ii), The hazard 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. All plans approved by FEMA after October 1, 2008, must also address the jurisdiction’s participation in the NFIP, and continued compliance with NFIP requirements, as appropriate.

44 CFR §201.6(c)(3)(iii), the hazard mitigation strategy shall include an action plan, describing how the action identified in paragraph (c)(3)(ii) of this section 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.

44 CFR §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.

44 CFR §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 improvements, when appropriate.
Section 2: Medford NHMP Mission and Goals

The Steering Committee developed Medford’s Natural Hazards Mitigation Plan (NHMP) goals for the 2004 NHMP after assessing the natural hazards affecting the City and defining the scope of the City’s vulnerabilities to those hazards. As they developed mitigation measures, now referred to as mitigation actions, the Steering Committee reviewed mitigation plans throughout Oregon as well as the State of Oregon NHMP. This was done to ensure coordination within the region and to benefit from mitigation planning process experiences in other communities. The 2004 Medford NHMP was updated in 2010. This 2016-2017 update to the NHMP involves re-assessing the natural hazards and the mitigation actions. As described in Chapter 2 Hazard Identification and Risk Assessment, a Hazard Analysis was performed on September 23, 2016. The full details of this are included in Chapter 5 Appendices, in Appendix C.

Medford has one overarching mission which has been retained from the 2004 and 2010 NHMPs:

**To Protect People, Property and the Environment from the Impacts of Natural Disasters**

Figure 3. Medford’s NHMP Mission

![Mission is to protect](image)

Source: Tricia Sears, DLCD, October 2016

This mission is served by four goals that reduce the vulnerability of the City’s people, property and environment. The NHMP goals guide the overall direction of mitigation activities. They serve as touchstones for the City’s overall mitigation program. Mitigation is integrated as part of City plans, programs, and policies. It is key to have an internal collaboration of City staff from departments such as Emergency Management, Planning, Building, Fire, Police, and Public Works so that mitigation is coordinated, supported, and comprehensively implemented. Thus, the NHMP makes the Medford community safer and more resilient.
The four goals of the NHMP 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 further comprehensive planning and implementation of mitigation measures.

Figure 4. Medford’s NHMP Goals

Source: Tricia Sears, DLCD, October 2016

The City has identified a comprehensive set of mitigation actions that identify strategies and actions serving these goals. The connection between mitigation actions and goals is displayed in the Mitigation Actions Tables in Tables x-x. For each mitigation action, a dot is placed under each goal served by that measure. There are multi-hazard and hazard-specific mitigation actions.

The NHMP, as part of the Mitigation Strategy, must include analysis of actions and/or projects that are considered to reduce the impacts of hazards identified in the risk assessment, and identify the actions and/or projects that each jurisdiction intends to implement (FEMA, 2013).
Section 3 Mitigation Action Items

Mitigation actions are taken to reduce the vulnerability of people, property, and the environment to the impact of natural hazards and disasters. They can take many forms, some target a specific issue of vulnerability while others have broad targets. There are multi-hazard and specific hazard mitigation actions. All the actions are intended to improve Medford’s ability to protect itself and to recover from a disaster.

The multi-hazard mitigation actions respond to City needs that involve multiple hazards. They present broad strategies and actions that are useful regardless of what hazard impact or disaster occurs. Some actions relate to the maintenance and administration of the NHMP. Other actions focus on the need for further developing and sharing information on natural hazards. Actions also speak to unique qualities of the City’s population, such as vulnerable populations. The unique or specific hazard actions are more focused on mitigation needs related to that specific hazard. Of note, needs identified for one hazard may have similarities and differences to other hazards, and thus some actions for specific hazards may be similar other hazard actions.

Mitigation Actions can be discussed in these ways:

- Action Identification: Mitigation types,
- Action Priorities: What are the criteria used to establish priorities,
- Action Plan: The current actions.

The mitigation actions, previously called measures in the 2010 NHMP, and updated for this current NHMP, are described in Tables x-x.

Action Identification

A mitigation action is a specific action, project, activity, or process taken to reduce or eliminate long-term risk to people, property, and the environment from hazards and their impacts. It is not limited to, but can be, for example, a physical project such as elevating a structure above a floodplain or a process such as adopting changes to the building code (FEMA, 2011). These mitigation actions are specific to the jurisdiction and are based on the community’s risk, vulnerabilities, and priorities.

By reducing risk, mitigation lessens the need for response resources and speeds recovery. Resilience of the community increases with accomplishment of the mitigation actions. FEMA categorizes types of mitigation actions as follows: 1) plans and regulations; 2) structural and infrastructure projects; 3) natural systems protection or restoration; 4) education and awareness programs; and 5) actions that improve the NHMP planning process and plan during implementation and future updates (FEMA, 2011).
Table 1. Types of Mitigation Actions

<table>
<thead>
<tr>
<th>Mitigation Type</th>
<th>Description</th>
<th>Examples</th>
</tr>
</thead>
</table>
| Local Plans and Regulations         | These actions include government authorities, policies, or codes that influence the way land and buildings are developed and built.                                                                      | Comprehensive plans  
Land use ordinances  
Subdivision regulations  
Development review  
Building codes and enforcement  
National Flood Insurance Program (NFIP)  
Community Rating System  
Capital Improvement Programs (CIP)  
Open space preservation  
Stormwater management regulations and master plans |
| Structural and Infrastructure Projects | These actions involve modifying existing structures and infrastructure to protect them from hazards or remove them from a hazard area. This could apply to public or private structures as well as critical facilities and infrastructure.  
This type of action also involves projects to construct man-made structures to reduce the impact of hazards.  
Many of these types of actions are projects eligible for funding through the FEMA Hazard Mitigation Assistance Program. | Acquisitions and elevations of structures in flood-prone areas  
Utility undergrounding  
Structural retrofits  
Floodwalls and retaining walls  
Detention and retention structures  
Culverts |
| Natural Systems Protection          | These are actions that minimize damage and losses and also preserve or restore the functions of natural systems.                                                                                       | Sediment and erosion control  
Stream corridor restoration  
Forest management  
Conservation easement  
Wetlands restoration and preservation |
| Education and Awareness Programs    | These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. A greater understanding and awareness of hazards and risk among local officials, stakeholders, and the public is more likely to result in risk-conscious decision-making. | Radio or television spots  
Websites with maps and information  
Real estate disclosure  
Presentations to school groups or neighborhood organizations  
Mailings to residents in hazard-prone areas  
StormReady  
Firewise Communities |
| Planning Process and Analysis      | These are improvements to the hazard mitigation planning process and to the resulting plan document.                                                                                                     | More detailed or advanced risk assessments  
Including additional stakeholders in planning and implementation processes  
Enhanced actions or improved format to plan or accessory documents |


At a work session on December 8, 2016, the Steering Committee updated the 2010 NHMP actions. Updating actions includes revising existing language, eliminating the action, and adding new actions. Actions were discussed in the context of the Hazard Analysis which was performed at the September 23, 2016 Steering Committee meeting. The Hazard Analysis provided a framework to determine which actions were important and to prioritize them so as to reduce risks to people, property, and the environment. Part of the analysis of developing specific hazard mitigation actions and projects is assessing the community’s existing authorities, policies, programs, and resources, and the City’s capability to use or modify local tools to reduce losses and vulnerability from profiled hazards (FEMA, 2011).
Action Priorities

FEMA identifies that “The one requirement that must be part of the evaluation and prioritization process is a benefit-cost review. That is, the planning team must consider the benefits that would result from a mitigation action versus the cost” (FEMA, 2013). Cost estimates can be based on experience and judgment. Criteria may vary, so long as the Steering Committee members discuss and agree upon the criteria to use to identify, analyze, and prioritize the mitigation actions.

Mitigation screening and prioritization criteria were borrowed from the Multnomah County Multi-Jurisdictional Natural Hazards Mitigation Plan Steering Committee (MC MJNHMP, draft 11/7/16) and revised by the Medford NHMP Steering Committee or use Staplee or Smart.

Mitigation screening criteria include:
- Minimal equity impacts
- Technically feasible
- Legal authority exists
- Administrative capacity exists
- Political/public support exists
- Minimal adverse environmental impacts
- Addresses an identified risk
- Is consistent and meets goals

In Table x, Mitigation Action Prioritization Criteria, the screening criteria and point assignment are shown. Points were assigned to top actions based on the scoring system of low (1 point), medium (2 points), and high (3 points). The overall score provides a priority ranking for the action in the Action Plan, with the highest scores equaling the highest ranked projects. Projects with the same score will be considered equally by the Steering Committee when funding or implementation emerge. The responsible organization to which an action is assigned also will be asked to weigh in on decisions regarding the action moving forward.

Table 2. Mitigation Action Prioritization Criteria

<table>
<thead>
<tr>
<th>Criteria</th>
<th>High (3 points)</th>
<th>Medium (2 points)</th>
<th>Low (1 point)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equity</td>
<td>Social benefits are highly likely, especially for people in areas with high hazard exposure and for people who have been disproportionately impacted by natural disasters.</td>
<td>Social impacts are likely to be neutral to positive, especially for people in areas with high hazard exposure and for people who have been disproportionately impacted by natural disasters.</td>
<td>Social impacts are likely to be neutral, especially for people in areas with high hazard exposure and for people who have been disproportionately impacted by natural disasters.</td>
</tr>
<tr>
<td>Benefits</td>
<td>Supports compliance with a legal mandate or will have an immediate impact on the reduction of risk exposure to life and property.</td>
<td>Will have a long-term impact on the reduction of risk exposure to life and property.</td>
<td>Long-term benefits of the action are difficult to quantify in the short-term.</td>
</tr>
<tr>
<td>Costs</td>
<td>Possible to fund under existing budget. Project is or can be part of an existing on-going program or would not require substantial effort to initiate or appropriate funds.</td>
<td>Possible to budget for under existing work plan, but would require reapportionment of the budget or a budget amendment.</td>
<td>Existing work plan and funding levels are not adequate to cover the costs of the proposed project.</td>
</tr>
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<tr>
<td>Risk</td>
<td>Addresses a high-risk issue as described in the risk assessment.</td>
<td>Addresses a moderate-risk issue as described in the risk assessment.</td>
<td>Addresses a low-risk issue or has not been assessed for the level of risk.</td>
</tr>
<tr>
<td>Capacity</td>
<td>Capacity is highly feasible within 1 to 3 years.</td>
<td>Capacity is feasible within 5 years, but may need to be further explored.</td>
<td>Capacity is uncertain to unlikely within 5 years.</td>
</tr>
</tbody>
</table>

Source: Multi-Jurisdictional Natural Hazards Mitigation Plan Steering Committee, draft 11/7/16

**Action Plans**

The Mitigation Actions Tables are the action plan of the Mitigation Strategy. Tables x-x show the City of Medford’s action items for multi-hazard and for specific hazards, within short-term and long-term categories.
Section 4 Implementation

The City of Medford’s Natural Hazards Mitigation Plan (NHMP) is required to include a process through which the planned mitigation actions are incorporated into other planning mechanisms available to the City. Below is a list of potential planning mechanism types that are often used at the local level. One of the local planning mechanisms available are those that address the Statewide Planning Goals and their legislative rules and requirements. These include Medford’s Comprehensive Plan goals, policies, and implementation strategies; municipal code requirements; and the capital improvement program (CIP). The City of Medford Strategic Plan 2015-2020 also includes actions related to natural hazard mitigation. This NHMP provides mitigation actions that will be implemented throughout the goals, policies, and strategies of the City of Medford. The multiple planning mechanisms that Medford uses to implement natural hazard mitigation are described in the “Medford’s Existing Efforts that Implement Mitigation Actions” section below.

Implementation can be discussed in three ways:

- Coordinating Body: Responsible party for implementation of the NHMP,
- Mechanisms: Ways to integrate NHMP actions,
- Funding: Brief descriptions of potential funding sources.

Coordinating Body

Monitoring of mitigation actions will be continuous by the Emergency Management Coordinator. In addition, meetings of the Emergency Management Coordinator with the Planning Department representative, and meetings with the Steering Committee, will be convened during the timeframe covered by this NHMP. Meetings and potential changes to the NHMP will be documented by the Emergency Management Coordinator. These activities are part of the planning process. See Chapter 4 Planning Process for additional details.

Mitigation actions that have been implemented at the City of Medford are described in the “Medford’s Existing Efforts that Implement Mitigation Actions” section, after the three ways of implementation are discussed. The Mitigation Actions Tables, Tables x-x, are also recognized as the action plan and are considered implementation of the Mitigation Strategy. The Mitigation Actions Tables include the hazard with a priority for that action, as well as funding sources and partners for that action.

The Medford NHMP Steering Committee, led by the Emergency Management Coordinator and the Planning Department representative as co-chairs, are the responsible party for the coordination and implementation of the mitigation actions. They are also responsible for the NHMP monitoring, evaluating, and updating of the NHMP.
Mechanisms

Planning mechanisms “means governance structures that are used to manage local land use development and community decision-making, such as comprehensive plans, capital improvement plans, or other long-range plans” (FEMA, 2011).

Integration is critical in moving the detailed hazard information from the non-regulatory NHMP into other plans, policies, and strategies for further implementation. This increases the likelihood of awareness, support, and implementation. While NHMPs are non-regulatory, the incentive to have them is quite strong for a variety of reasons, including securing the City of Medford’s eligibility for both pre- and post- disaster mitigation funding from FEMA.

The types of mechanisms often used to implement mitigation actions at the local level include:

• Comprehensive Plan
• Development/Zoning Code
• Annual Budget
• Transportation System Plan
• Capital Improvement Plan
• Stormwater Management Plan
• Parks and Recreation Master Plan
• Emergency Operations Plan
• Business Continuity of Operations Plan
• Urban Renewal Plan
• City Council and Planning Commission Work Plans
• Community Wildfire Protection Plan
• Climate Action Plan
• Safety Programs
• Facilities Maintenance Plan
• Water Management and Conservation Plan.

The benefits of integrating the NHMP into existing planning mechanisms:

• Reduce a community’s vulnerability to disasters,
• Support effective pre- and post- disaster decision-making,
• Create effective planning tools,
• Speed the return of an impacted community to normalcy following a hazard event, and
• Provide a forum for analysis of potentially sensitive issues (FEMA, 2013).

Funding

An important part of implementing the NHMP, in addition to identifying the coordinating body and the mechanisms, is having resources. The City of Medford budgets on a biennial basis in odd-numbered years, consistent with the State of Oregon’s fiscal planning cycle (Larry Masterman, personal communication, January 3, 2017). The budget process is the best time for City departments to propose capital improvement projects. Public input is included in the
process, which also specifically engages a Budget Committee. The Medford City Council is the final decision-maker for budget approval. The Budget Committee consists of the Mayor, eight Council members and a like number of lay citizens appointed to four-year terms. This committee meets 5 – 6 times during budget-years and at least annually on off-cycle years, and is the chief policy-recommending body for the City Council. Any citizen is welcome to make comments at the “oral requests and communications” segment of each meeting’s agenda (Brian Sjothun, personal communication, January 19, 2017).

In the Mitigation Actions Tables, the column “Potential Funding Resources” includes existing resources, such as those allocated by the City, and other specific resources such as Flood Mitigation Assistance or Pre-Disaster Mitigation grants. As noted above in the “Coordinating Body” section, the Steering Committee, led by the Emergency Management Coordinator and the Planning Department representative, are the responsible party for the coordination and implementation of the Mitigation Strategy. It will be important for the Steering Committee to meet occasionally between NHMP updates to provide continuity for the Mitigation Strategy.

There are a few state and federal grant programs specifically focused on hazard mitigation. However, there are many state and federal grant programs that focus on other matters, but could be applied to hazard mitigation projects. The following information is from the Multnomah County Multi-Jurisdictional NHMP draft dated November 7, 2016 and reaffirmed by DLCD.

State Programs

Oregon Department of Land Conservation and Development Technical Assistance (TA) Grants

DLCD offers grants to local and tribal governments to complete projects that update and modernize comprehensive plans, land use ordinances, development codes and other planning regulations. TA grant awards are guided by the Grants Allocation Plan. Grant Allocation Plan priorities include economic development, streamlining planning processes, natural hazards planning, updating codes to comply with changes in state law, and infrastructure finance planning.

Website: https://ww.oregon.gov/LCD/Pages/grants.aspx

Oregon Military Department, Office of Emergency Management (OEM)

OEM provides grant guidance on hazard mitigation programs; see the section on Hazard Mitigation Grants.

Website: http://www.oregon.gov/OMD/OEM/pages/all_grants.aspx

Oregon Seismic Rehabilitation Grant Program (SRGP)

In 2009, Oregon established the SRGP to fund seismic retrofits for schools and emergency services facilities. SRGP has two advantages relative to federal grant programs: no match requirement, although there is a maximum limit; and statewide competition instead of federal
competition. Eligible schools include buildings owned by public K-12 school districts, education service districts, community colleges, and the Oregon University system. Eligible emergency services facilities include hospital buildings with acute inpatient care, fire stations, police stations, sheriff’s offices, and other facilities used by state, county, district, or municipal law enforcement agencies.

Website: [http://www.orinfrastructure.org/Infrastructure-Programs/Seismic-Rehap/](http://www.orinfrastructure.org/Infrastructure-Programs/Seismic-Rehap/)

Oregon Watershed Enhancement Board (OWEB)

While OWEB primarily supports projects that address coastal salmon restoration and improve water quality statewide, these projects also can reduce flood and landslide hazards. OWEB also coordinates watershed workshops for landowners, watershed councils, educators and others, and conducts a biennial conference highlighting watershed efforts statewide. Funding for OWEB programs comes from the general fund, state lottery, timber tax revenues, license plate revenues, angling license fees and other sources. OWEB awards approximately $20 million in funding annually.

Website: [http://www.oregon.gov/OWEB/Pages/Index.aspx](http://www.oregon.gov/OWEB/Pages/Index.aspx)

Federal Programs: Pre-Disaster

Flood Mitigation Assistance (FMA) Program

The FMA Program is administered through FEMA. The overall goal of FMA is to build cost-effective measures that reduce or eliminate the long-term risk of flood damage to buildings, manufactured homes and other NFIP insurable structures.

Website: [https://www.fema.gov/pre-disaster-mitigation-grant-program](https://www.fema.gov/pre-disaster-mitigation-grant-program)

Pre-Disaster Mitigation (PDM) Grant Program

PDM is a FEMA grant program that provides funds to states, territories, tribal governments, communities and universities for hazard mitigation planning and the implementation of mitigation projects prior to a disaster event. Funding these plans and projects reduces overall risks to the population and structures, while also reducing reliance on funding from actual disaster declarations. PDM grants are awarded on a competitive basis and without reference to state allocations, quotas, or other formula-based allocation of funds.

Website: [http://www.fema.gov/pre-disaster-mitigation-grant-program](http://www.fema.gov/pre-disaster-mitigation-grant-program)

Federal Programs: Post Disaster

Community Development Block Grant (CDBG) Program
The CDBG Program is a U.S. Department of Housing and Urban Development (HUD) program that promotes viable communities by providing 1) decent housing, 2) quality living environments, and 3) economic opportunities, especially for low and moderate income persons. Eligible activities most relevant to hazard mitigation include the acquisition of property for public purposes, the construction/reconstruction of public infrastructure, and community planning activities. Under special circumstances, CDBG funds also can be used to meet urgent community development needs arising in the last 18 months which pose threats to health and welfare.


Community Development Block Grant – Disaster Recovery (CDBG-DR)

In response to presidentially declared disasters, Congress may appropriate additional funding for the CDBG Program as Disaster Recovery grants to rebuild the affected areas and provide crucial seed money to start the recovery progress. CDBG-DR funds a broad range of recovery activities and can help communities and neighborhoods that otherwise might not recover due to limited resources. CDBG-DR grants often supplement disaster programs of FEMA, the Small Business Administration and the U.S. Army Corps of Engineers.

Website: [https://www.hudexchange.info/programs/cdbg-dr-eligibility-requirements](https://www.hudexchange.info/programs/cdbg-dr-eligibility-requirements)

Hazard Mitigation Grant Program (HMGP)

FEMA’s HMGP grants provide funding to states and local governments to implement long-term hazard mitigation measures after a major disaster declaration. The purpose of HGMP is to reduce the loss of life and property due to natural disasters and to enable mitigation measures to be implemented during the immediate recovery from a disaster. HMGP is authorized under Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act.

Website: [http://www.fema.gov/hazard-mitigation-grant-program](http://www.fema.gov/hazard-mitigation-grant-program)

Public Assistance (PA) – Section 406 Hazard Mitigation

Through the PA Program, FEMA provides supplemental federal disaster grant assistance for debris removal, emergency protective measures, and the repair, replacement or restoration of disaster-damaged, publicly owned facilities and the facilities of certain private nonprofit (PNP) organizations. The PA Program also encourages protection of these damaged facilities from future events by providing assistance for hazard mitigation measures during the recovery process. This is authorized under Section 406 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act.

Small Business Administration (SBA) Disaster Loan Program

The U.S. SBA provides low-interest disaster loans to businesses of all sizes, private nonprofit organizations, homeowners and renters. SBA disaster loans can be used to repair or replace items damaged or destroyed in a declared disaster such as: real estate, personal property, machinery and equipment, and inventory and business assets.

Website: https://www.sba.gov/loans-grants/see-what-sba-offers/sba-loan-programs/disaster

Federal Programs: Project Support

Agricultural Conservation Easement Program (ACEP)

The United States Department of Agriculture’s (USDA) Natural Resources Conservation Service (NRCS) ACEP Program provides financial and technical assistance to help conserve agricultural lands and wetlands and their related benefits. Under the Agricultural Land Easements Program, NRCS helps American Indian tribes, state and local governments, and nongovernment organizations protect working agricultural lands and limit non-agricultural uses of the land.

Website: http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/easements/acep/

Assistance to Firefighters Grant Program (AFG)

FEMA’s AFG grants are awarded to fire departments to enhance their ability to protect the public and fire service personnel from fire and related hazards. Three types of grants are available: Assistance to Firefighters Grant (AFG), Fire Prevention and Safety (FP&S), and Staffing for Adequate Fire and Emergency Response (SAFER).

Website: http://www.fema.gov/welcome-assistance-firefighters-grant-program

Community Development Block Grant Entitlement Communities Program

HUD’s CDBG Entitlement Communities Program provides grants to eligible cities and urban counties to develop viable communities (e.g. decent housing, a suitable living environment, expanded economic opportunities), principally for low- and moderate – income persons.

Website: https://www.hudexchange.info/programs/cdbg-entitlement/

Emergency Management Performance Grants (EMPG)

These FEMA grants help state and local governments sustain and enhance their all-hazards emergency management programs.

Website: https://www.fema.gov/emergency-management-performance-grant-program

Emergency Watershed Protection Program, USDA- NRCS
This USDA NRCS Program provides technical and financial assistance for relief from imminent hazards in small watersheds, and to reduce vulnerability of life and property in small watershed areas damaged by severe natural hazards.

Website: http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/landscape/epp

Federal Lands to Parks Program

This program, operated through the U.S. Department of Interior’s National Parks Service, identifies, assesses, and transfers available federal real property for acquisition for state and local parks and recreation areas, such as open space.

Website: http://www.nps.gov/ncrc/programs/flp/index.htm

HOME Investments Partnerships Program (HOME)

HUD’s HOME Program provides grants to states and local governments for permanent and transitional housing, including support for property acquisition and rehabilitation, for low-income persons.

Website: http://www.hud.gov/offices/cpd/affordablehousing/programs/home/

National Flood Insurance Program (NFIP)

FEMA’s NFIP makes flood insurance available to residents of communities that adopt and enforce minimum floodplain management requirements.

Website: http://www.fema.gov/national-flood-insurance-program

National Fire Plan (NFP)

Together, the USDA Forest Service and the U.S. Department of the Interior are working to provide technical, financial, and resource guidance and support for wildland fire management across the United States through the NFP. This plan addresses five key points: firefighting, rehabilitation, hazardous fuels reduction, community assistance, and accountability.

Website: http://www.forestsandrangelands.gov

North American Wetland Conservancy (NAWC) Fund

The NAWC Fund is a program through the U.S. Fish and Wildlife Service (USFWS) that provides cost-share grants to stimulate public/private partnerships for the protection, restoration, and management of wetland habitats.

Website: https://www.fws.gov/birds/grants/north-american-wetland-conservation-act.php
Partners for Fish and Wildlife (PFW) Program

Another USFWS Program, the PFW provides financial and technical assistance to private landowners interested in pursuing restoration projects affecting wetlands and riparian habitats.

Website: [http://www.fws.gov/partners](http://www.fws.gov/partners)

Public Assistance (PA) Grant Program

The objective of FEMA’s PA Grant Program is to provide assistance to state, tribal, and local governments, and certain types of private nonprofit organizations, so that communities can quickly respond to and recover from major disasters or emergencies declared by the President.


Medford’s Existing Efforts that Implement Mitigation Actions

“For a community to succeed in reducing risks in the long-term, the information and recommendations of the mitigation plan should be integrated throughout government operations” (FEMA, 2013).

To illustrate the existing implementation of the City of Medford’s goals, policies, and strategies through such documents as Medford’s Comprehensive Plan, Land Development Code, Building Code, Capital Improvement Program, Emergency Operations Plan, and so forth, the following information is provided. The information is organized as multi-hazard and then as specific hazards in the order the hazards were presented in Chapter 2 Hazard Identification and Risk Assessment. See the Mitigation Actions Tables for the actions for continued and future work.

Multi-Hazard Mitigation Actions

**Data and Maps.** When the City considers new technology in data collection and mapping, the application to hazard assessment and mitigation will be taken into account. As part of this updated NHMP, the most current, relevant data was researched and provided to the extent practicable. For example, GIS layers for landslides, floods, earthquakes, wildfires, and volcanic eruptions have been provided from the State of Oregon to Medford. Data layers for air quality, epidemics, and severe weather have also been gathered from reference sources.

Having up to date data and maps is a very important part of natural hazard mitigation planning, emergency preparedness, and community development. Recognizing, understanding, and sharing information creates a multi-disciplinary effort to integrate information and actions, identify priorities, and strategize for the future.

**Land Use Code.** There are certain “elements” or sections of the City of Medford’s Comprehensive Plan that address natural hazards. These include the “Natural Resources” and “Disasters and Hazards” sections of the Environmental Element; the various primary utilities
sections (water, sewer, storm drainage, and transportation) of the Public Facilities Element; the
General Land Use Plan Element; and the Urbanization Element. The Comprehensive Plan is
periodically reviewed and updated as required by State of Oregon. The mitigation actions
identified in this updated NHMP will be considered and incorporated into revisions of the goals,
policies, and implementation strategies of Medford’s Comprehensive Plan. These are used to
develop implementing regulations and to review new development.

Emergency Operations Plan: The Emergency Operations Plan is an all-hazard plan that
describes how the City of Medford will organize and respond to emergencies and disasters.

The City of Medford’s Emergency Operations Plan (EOP) states the scope of the EOP is,

“The City of Medford will respond to all man-made or natural disasters within the City
Boundaries, to any land owned by the City of Medford or Medford Water Commission
when the response will benefit the City and/or the City can benefit the outcome of the
incident, and to any disaster within the Medford Rural Fire Protection District #2 that is
normally covered by the Medford Fire Department.

The City EOP is intended to be invoked whenever the City must respond to an
unforeseen incident or a planned event whose size or complexity is beyond that normally
handled by routine operations. Such occurrences may include natural or human-caused
disasters and may impact the City itself, neighboring cities, unincorporated areas of the
County, or a combination thereof. Notwithstanding its reach, this plan is intended to
guide only the City’s emergency operations, complementing and supporting
implementation of the emergency response plans of the various local governments,
special districts, and other public- and private sector entities within and around the city
but not supplanting or taking precedence over them” (City of Medford, June 2012).

Continuity of Operations. The City of Medford has a draft Continuity of Operations Plan dated
July 19, 2011. It provides a framework to guide the efforts to mitigate, prepare for, respond to, and
recover from major emergencies and disasters. It has not been finalized. The draft states “This
Continuity of Operations (COOP) Plan was developed according to Department of Homeland
2004, which provides a structure for formulating a COOP plan.” The draft Medford COOP also
states that it is based on the Presidential Decision Directive–67, “Ensuring Constitutional
Government and Continuity of Government Operations, which requires all Federal departments and
agencies to have a viable COOP capability; and local communities to prepare for emergencies and
disasters.”

City infrastructure in GIS. The street lights GIS module was completed in 2009. A street
standards ordinance was adopted in September 2009. The critical facilities map is updated for
this 2016-17 NHMP update. The stormwater detention ordinance was adopted in November
2009. New aerial photos and planimetric data will be received soon (Chris Olivier, personal
communication, December 23, 2016). This information will allow additional data and map
updates to be performed.
**Recovery Plan.** Currently, the City of Medford does not have specific recovery plan for the recovery of the City after a disaster. The City considers these three plans as constituting the infrastructure recovery plans: the *Transportation System Plan*; the *Stormwater Master Plan*; and the *Sewer Collection Master Plan*. The Public Facilities Element of the *Medford Comprehensive Plan* includes these three plans. The Environmental Element of the *Medford Comprehensive Plan* includes discussion of hazards and regulations.

**Training Efforts.** The City maintains a robust training strategy related to emergency management and hazard mitigation, led by the Emergency Management Coordinator (Larry Masterman, personal Communication, December 8, 2016).

**City of Medford Strategic Plan.** The *City of Medford Strategic Plan 2015-20* was approved in February 2015 and extends through 2020. The “goals, objectives, and action items contained in this document will be reflected and referenced in future budget proposals” (*City of Medford Strategic Plan 2015-20*, February 2015). The actions related to natural hazard mitigation include:

- 1.2a. Update the seismic retrofit portion of the Municipal Code Chapter 9.
- 1.3a. Hold annual public outreach event related to floodplain hazards.
- 1.3b. Hold annual public outreach events related to fire and life safety.
- 1.3e. Increase public emergency preparedness outreach activities to promote all-hazard readiness and resilience.
- 1.11a. Continuously eliminate capacity deficiencies in the storm drain system to prevent flooding.
- 1.11b. Annually remove debris and overgrowth in flood channels.
- 1.11c. Promote increased community participation in the emergency alert system.
- 1.12a. Monitor incident statistics to identify incident trends.
- 1.12b. Continued development of regional partnerships to strengthen local emergency response.
- 1.12c. Conduct threat and risk assessment of high risk occupancies.
- 1.12f. Develop and maintain Natural Hazard Mitigation Plan.
- 1.12g. Update and maintain Emergency Operations Center on City Hall campus.
- 2.1c. Maintain and expand programs and activities to provide public education regarding emergency preparedness.
• 2.1d. Address transportation alternatives to respond to disaster impacts.

• 2.1e. Maintain a Citizen Emergency Response Team (CERT) program.

• 2.2a. Evaluate current Administrative Regulations regarding emergency preparedness and response for relevance and consider new or revised Administrative Regulations as necessary.

• 2.2b. Explore options to maintain the second Emergency Management position after AmeriCorps participation sunsets.

• 2.2c. Appoint and train a Crisis Management Team of key City Management to provide high level leadership during any major emergency response.

• 4.1b. Development and implement employee training program with focus on emergency preparedness.

• 6.9a. Establish a working group of business, non-governmental organizations, and others to explore options and promote resilience in the business community.

• 6.9b. Offer related presentations and resources to inform and motivate business resilience.

• 9.7a. Establish a disaster transportation working group that includes the City, RVTD, First Student, and other potential transporters of people and material.

• 9.7b. Develop necessary agreements to establish and maintain a robust land transportation capability.

• 11.3b. Maintain and/or improve the ISO rating for the floodplain Community Rating Service.

Medford collaboration with American Red Cross. The American Red Cross provides general disaster preparedness education to individuals of all ages and demographics as part of their routine programming (Curtis Peetz, personal communication, August 29, 2016). The American Red Cross identifies possible shelter facilities and enter into agreements with organizations and individuals that own or manage those facilities. They work with cities, counties, first responder agencies, and residents to open shelter when it is needed and fits within their response criteria (Jenny Carver, personal communication, August 22, 2016).

Severe Weather

Medford as a StormReady City. In 2002, the National Weather Service (NWS) recognized the City of Medford as a StormReady city. It was the first city in Oregon to achieve this designation (http://www.ci.medford.or.us/SectionIndex.asp?SectionID=564). The StormReady Program is “about preparing for your community's increasing vulnerability to extreme weather and water events” (NWS, 2016, http://www.stormready.noaa.gov/index.html) and is designed to
help cities and counties implement procedures to reduce the potential for disastrous, weather-related consequences. It is a voluntary program providing guidelines in a variety of areas.

To be officially StormReady, a community must:

- Establish a 24-hour warning point and emergency operations center
- Have more than one way to receive severe weather warnings and forecasts and to alert the public,
- Create a system that monitors weather conditions locally,
- Promote the importance of public readiness through community seminars, and
- Develop a formal hazardous weather plan, which includes training severe weather spotters and holding emergency exercises (NWS, 2016, http://www.stormready.noaa.gov/index.html)

To comply with the guidelines, the Public Works Department, in cooperation with other City departments, established:

- A 24-hour warning point that can receive NWS information and provide local reports, as well as an Emergency Operations Center to staff hazardous weather event functions; multiple warning reception capabilities and locations;
- Sites and capabilities for monitoring weather and watercourse levels;
- Means for ensuring timely dissemination of local warning to citizens;
- Community educational activities for preparedness purposes; and
- An administrative arm producing hazardous weather action plans.

**Severe Weather Watches and Warnings.** The City benefits from the work of the National Weather Service (NWS), located adjacent to the Rogue Valley International - Medford Airport. The NWS, whose mission is to protect lives and property from severe weather, forecasts weather for a nine county area in Oregon and Northern California. NWS issues severe weather warnings and watches, assisted by approximately 1021 trained volunteer weather “spotters” throughout their region (Ryan Sandler, personal communication, November 22, 2016). NWS also provides fire weather forecasts, warnings and watches to fire agencies and the National Forests. The River Forecast Center in Portland provides modeling information on river flows to the local NWS office, which in turn issues flood watches and warnings. As noted above, the City has 24-hour a day access to NWS information (NWS, http://www.weather.gov/).

**The Power Grid.** The private sector is also engaged in mitigation efforts. To protect against power outages, Pacific Power works to improve the redundancy in the electric power system. In new developments, Pacific Power often installs electric lines underground. See Chapter 1 Section 8 for additional information about the power grid.
Tree removal and Pruning. Tree pruning and removal are critical activities related to mitigation for potential power outages and storm damages. Annual tree pruning programs are contracted by Pacific Power. Program activities are communicated to and coordinated with the City Arborist at the Medford Parks & Recreation Department (Adam Airoldi, personal communication, December 29, 2016).

Trees in the public right-of-way are considered a public resource. A permitting process overseen by the Parks & Recreation Department is used to determine whether a tree should be removed, following standards developed in 2016 by the Tree Committee. Hazard trees designated by the City Arborist are automatic candidates for removal. Besides street trees along arterial and collector streets, which are maintained by the City, trees in the public right-of-way are inspected based on reports from the community and where a concern is noted. Pacific Power and their contractors inspect and notify residents about concerns on private property. Across all public property maintained by the City, an estimated 989 dead or hazard trees have been identified and removed between 2014 and 2016 (Adam Airoldi, personal communication, December 29, 2016).

The Medford City Arborist has provided comprehensive training to Parks & Recreation maintenance employees and Public Works staff to identify hazard trees. The City Arborist meets regularly with Pacific Power to coordinate tree related activities (Adam Airoldi, personal communication, December 29, 2016).


In the flyer entitled City of Medford Street Tree Removal Criteria it states,

“Owners of property abutting streets are responsible for the care and maintenance of trees located in the public right-of-way (6.730). An application for street tree removal permit may be approved when the adjacent property owner has sufficiently demonstrated that the detriment from the continuing presence of a tree outweighs the public benefit provided by the tree (6.725). Trees that are determined to be dead, high risk, incurably or infectiously diseased, or are an “inappropriate species” as designated by the City are automatic candidates for removal. Any tree that is removed from the right-of-way must be replaced (6.725)” (City of Medford, Parks & Recreation flyer, 2016).

The City of Medford Parks & Recreation also has a vegetation fuel reduction project in the Prescott Park area. See Chapter 2 Section 5 Wildland-Urban Interface Fires for details.

Curtailment Plan. The Medford Water Commission has developed a curtailment plan which can be implemented during drought or other events, e.g., concerns regarding contamination, broken water lines, etc. The plan has a set of actions ranging from voluntary to restrictive, depending on the severity of the problem. See Chapter 1 Section 8 for additional information about the Medford Water Commission and the Water Management and Conservation Plan.

Conservation. The Medford Water Commission (MWC) has a conservation program to help people think about water usage. As part of that, MWC offers a free Sprinkler Checkup Program
where staff visit properties to assess how people are watering their landscape and offer advice on how to do it more effectively. Additionally, the MWC participates with the City of Medford in requiring the use of drought-tolerant landscaping to reduce water use in new commercial, industrial, multi-family and institutional projects. Other conservation programs include WaterSense toilet rebates and grants to non-profits for the renovation of existing water thirsty landscapes. More information is within the MWC’s *Water Management and Conservation Plan*.

**Dam Flows.** The regional context of drought management and mitigation includes activities by the Bureau of Reclamation, irrigation districts, the U.S. Army Corps of Engineers (USACE), and neighboring cities. The USACE manages the Applegate Dam (USACE, [http://www.nwd-wc.usace.army.mil/dd/common/projects/www/app.html](http://www.nwd-wc.usace.army.mil/dd/common/projects/www/app.html)) and the Lost Creek Lake Dam (USACE, [http://www.nwd-wc.usace.army.mil/dd/common/projects/www/los.html](http://www.nwd-wc.usace.army.mil/dd/common/projects/www/los.html)), the two largest dams in the region. Using information and predictions regarding the snow pack and expected run off, USACE regulates the flow from the two dams. The Bureau of Reclamation oversees the smaller dams in the region, such as those at Fish Lake, Emigrant Lake, and Howard Prairie Lake. The Irrigation District managers manage the flow of water from the dams, according to needs and available resources. Additional information about dams is included in Chapter 2 in Section 3 Floods and Section 4 Earthquakes.

**Irrigation Districts.** For mitigation purposes during drought periods, irrigation districts will often move to lengthier rotation schedules to stretch the available water resources. This may entail changing the delivery schedule from 7 to 14 days or as many as 24 days, depending on circumstances. The local irrigation districts are described in Chapter 1 Section 9 and shown on Figure x, Irrigation Districts, map.

Irrigation districts work with irrigators and watershed councils to educate users about better irrigation practices that lead to more efficient use of water.

Irrigation districts use technology to better manage the available water. The Bureau of Reclamation has a Hydromet satellite system that takes readings of water temperatures and volume of water in ditches, streams and reservoirs. Telemetry readings on the canal systems check water volumes, allowing ongoing management adjustments to the canal systems. The irrigation districts also pipe their irrigation systems to avoid evaporation and to decrease maintenance needs (Brian Hampson, personal communication, January 10, 2017).

**Parks & Recreation.** The City of Medford Parks & Recreation Department has a Standard Operating Procedure called “Severe Weather Policy” (PRD-16-01). It was issued on January 5, 2016. The policy was adopted to “define the steps to be followed in the event of severe weather that could pose a threat to participants, members of the public and staff during recreational activities and events” (PRD-16-01).

**Land Use.** The Medford Land Development Code, in Section 10.555, Underground Utilities, requires all utilities in new developments to be underground.
Floods

NFIP and FIRM. The City is a participant in the National Flood Insurance Program (NFIP) and conducts its land development in accordance with the guidelines established by that program. Flood Insurance Rate Maps (FIRM), showing the anticipated levels of a hundred-year flood event (100-year floodplain), are maintained by the Planning Department. FEMA has determined that Medford earned a Class 6 in the NFIP Community Rating Service (CRS) (Jim Huber, City of Medford, personal communication, July 26, 2016). Medford has no NFIP repetitive loss properties and no severe repetitive loss properties on record as of August 22, 2016 (Chris Shirley, personal communication, August 22, 2016). See also Chapter 2 Section 3 Floods.

Stormwater Management. The purpose of the City of Medford’s stormwater management program is to reduce the risk of negative impacts from stormwater to people, to residential, commercial, industrial and institutional structures; to infrastructure, such as roads; and to the environment. The City employs a program of stormwater management practices and improvements designed to systematically reduce the risk. The methods may include improvements to stormwater conveyances, use of detention facilities, preservation of wetlands, and regulation of new construction in floodplains. The Public Works Department is responsible for the City’s stormwater management program, including evaluating and mitigating the system-wide effects of proposed development. Historically, the primary focus of the program was to control stormwater in terms of quantity, but current regulations also require a focus on quality.

The City of Medford Stormwater Management Plan addresses existing activities to maintain and enhance the quality of stormwater runoff and outlines required modifications to those activities (City of Medford, http://www.ci.medford.or.us/SectionIndex.asp?SectionID=564). The City maintains this plan for all basins within the UGB and implements it by upgrading existing facilities and providing new facilities through public and private development. During the winter, water in the open ditches, which are part of the City’s stormwater system, flows into the City’s piped storm drain system and to local irrigation ditches and canals.

The Stormwater Management Plan incorporates recommendations from the City’s 1996 Comprehensive Medford Area Drainage Master Plan into a new capital improvement program (CIP), with estimated costs for maintenance, engineering and other stormwater activities (City of Medford, http://www.ci.medford.or.us/SectionIndex.asp?SectionID=564).

The current drainage plan for the areas within the Medford UGB is the Comprehensive Medford Area Drainage Master Plan, produced by Brown and Caldwell in 1996. There are two areas with newer and more detailed basin plans, Little Elk Creek and Larson Creek. In those areas the new drainage basin plans take precedence over the 1996 one (Carla Paladino, personal communication, November 18, 2016). To minimize the hazards posed by floods, the City of Medford implements the recommendations of the Drainage Master Plan through revisions to Medford’s Comprehensive Plan and the Land Development Code, in addition to implementing the related state and federal regulations.

In December 2008, the City included an information sheet about what people can do to help water quality with the water bill. The City has placed colorful markers on drainage inlets advising that water in this inlet “drains to stream.” These are just two of the actions
accomplished to meet permit requirements and increase water quality in the creeks (City of Medford, http://www.ci.medford.or.us/SectionIndex.asp?SectionID=564).

A demonstration project for stormwater runoff was completed in 2009 in cooperation with the Coyote Trails (formerly Jefferson Nature Center).

**The Building Code.** Sections 9.100, 9.101, and 9.110 of the *Medford Municipal Code* adopt the 2014 edition of the *Oregon Structural Special Code (OSSC)*, based on the *International Building Code (IBC)*, the 2014 edition of the *Oregon Residential Specialty Code (ORSC)*, and the 2014 *Oregon Energy Efficiency Specialty Code (OEESC)* respectively (Sam Barnum, personal communication, November 21, 2016). The City prohibits development in the floodway, and severely limits development in the 100-year floodplain to use for open space, agricultural, recreational or similar uses. Appendix G, Flood-Resistant Construction, of the *OSSC* in Section G101.1 aims to minimize public and private losses due to flood conditions. This section states the purpose as “promote the public health, safety, and general welfare and to minimize public and private losses due to flood conditions in specific flood hazard areas designed to:

- Prevent unnecessary disruption of commerce, access, and public service in times of flooding;
- Manage the alteration of natural floodplains, stream channels and shorelines;
- Manage filling, grading, dredging, and other development which may cause flood damage or erosion potential;
- Prevent or regulate the construction of flood barriers which will divert floodwaters or which can increase flood hazards; and
- Contribute to improved construction techniques in the floodplain.

The Building Safety Department initially screens all permits for an array of floodplain implications, bulleted above, and identifies concerns to the applicant. Thus, early in the land use and building process, the applicant is notified that the proposal must also be reviewed by one or more agencies external to the City of Medford, such as the Army Corps of Engineers, Division of State Lands, and Department of Environmental Quality. The City works in cooperation with these agencies to see that construction complies with all pertinent state and federal regulations.

*OSSC* Appendix G “provides minimal standards for development in flood areas” (*OSSC*, Appendix G). *ORSC* Section R322 Flood-Resistant Construction states “Buildings and structures constructed in whole or in part in flood hazard areas (including V or A Zones) as identified by the Floodplain Administrator shall be designed and constructed in accordance with the provisions in this section” (*ORSC*, Chapter 3, Section 322). According to G101.2 in the *OSSC*, “flood hazard areas are established in Section 1612.3 of the *International Building Code (IBC)* and adopted by the applicable governing authority on [insert date]” (*OSSC*, Appendix G, http://ecodes.biz/ecodes_support/free_resources/Oregon/14_Structural/PDFs/Appendix%20G%20Flood-Resistant%20Construction.pdf).

Special Flood Hazard Areas refer to land within the community subject to a 1% or greater chance of flooding in any given year or the 100-year floodplain. Some of the many specific requirements in these sections include: the anchoring of all manufactured homes; use of
construction materials that are resistant to flood damage; and ensuring that the lowest floor of new construction/substantial improvement, including the basement, is elevated one foot or more above base flood elevation. See Chapter 2 Section 3 Floods for additional details on flood hazard areas, Special Flood Hazard Areas (SFHA), and floodplain maps.

**Medford Land Development Code.** This code has provisions relating to development, which require the identification and documentation of an array of site characteristics, including: proximity to wetlands; drainage characteristics; flood-prone areas; and designated floodplains.

Post-development runoff control is a requirement of the National Pollutant Discharge Elimination System (NPDES), Phase II rules. The City developed ordinances in 2008 to require that developers provide stormwater detention facilities in new developments, including land divisions and planned unit developments. The ordinances also require that those facilities be privately maintained.

In 2013 the City acquired 3.87 total acres of land for the Southeast Plan Area Greenway (City of Medford, Ordinance No. 2013-88 and Ordinance No. 2013-89).

Medford Land Development Code section 10.924-10.928, Permitted Activities within Riparian Corridors, identify the regulations pertaining to Riparian Corridors. As of December 2016, the Planning Department proposes to amend the Riparian Corridor to include wetland regulations. An extension of the existing Riparian Corridors will be added in the Urban Expansion Areas (Chris Olivier, personal communication, December 1, 2016).

**USGS.** The United State Geological Survey (USGS) Oregon Water Science Center, Central Point Field Office is responsible for operating 21 streamflow sites in the Southern Oregon area of Jackson and Josephine counties. These sites collect a continuous record of 15-minute gauge height data. From the gauge height data, a continuous record of stream discharge based on a stage-discharge relationship is produced. The relationship is defined and maintained at each streamflow site by making discharge measurements over a range of stages (Marc Stewart, Supervisory Hydrologist, January 11, 2017).

In downtown Medford, there is a gauge located on Bear Creek (14357500 Bear Creek at Medford, Oregon) just downstream of the East 12th Street Bridge. The USGS works with USACE, US Bureau of Reclamation (USBR), the Oregon Water Resources Department (OWRD) and other state and local partners to manage and fund the network of gauges. The National Weather Service uses the data for flood forecasting and streamflow predications. The USACE funds gauges in the counties and uses the information to help make informed decisions for managing the storage and release of water at the local projects (dams) (Marc Stewart, Supervisory Hydrologist, January 11, 2017).

USGS Streamflow information is transmitted electronically and the streamflow information is available on the Web in real time ([http://waterdata.usgs.gov](http://waterdata.usgs.gov)). The OWRD are gauges are part of the network of gauges in Jackson and Josephine Counties and Bear Creek ([http://apps.wrd.state.or.us/apps/sw/hydro_near_real_time/](http://apps.wrd.state.or.us/apps/sw/hydro_near_real_time/)). Note that discharge is in cubic feet
per second (cfs) and gauge height is reported in feet (Marc Stewart, Supervisory Hydrologist, January 11, 2017).

Earthquakes

Building and Development Codes. Since 1993, when the Seismic Zone rating of Oregon was revised from Zone 2 to Zone 3, new buildings in Oregon have been required to meet more stringent seismic construction standards. Local jurisdictions can designate seismic standards for existing structures. State and local government buildings and facilities are required to be inspected and to meet higher standards.

In 1995, the Oregon Legislature created a task force to examine and develop recommendations concerning the threat of earthquakes to structures. The task force recommendations address unreinforced masonry buildings (URMs), where the greatest amount of upgrading is required to meet current standards. Downtown Medford, like the downtowns of many Oregon cities, is especially prone to earthquake damage due to the large number of URM structures.

The City of Medford utilizes building and development standards to mitigate the potentially damaging effects of earthquakes. New construction is required to meet the standards of seismic design category D of the International Building Code (IBC). The City also wants city-owned buildings to meet earthquake standards. It commissioned seismic evaluations and retrofitting of City Hall, the Regional Water Reclamation Facility, and the Carnegie Library building as described below in the Seismic Retrofits section.

The City’s Building Code, Sections 9.600 through 9.655, addresses seismic design requirements for existing buildings. These requirements are triggered by application for a permit to change the occupancy classification, add square footage or alter the building. Section 9.600 (2) states that pursuant to OAR 455.202(4), the provisions of this chapter, which prescribe seismic rehabilitation standards for existing buildings, can be used in lieu of meeting the requirements of the current edition of the OSSC (Sam Barnum, personal communication, November 21, 2016).


The Medford City Council approved the use of the 2012 International Property Maintenance Code (IPMC), which replaces the 1997 Uniform Code for the Abatement of Dangerous Buildings and the 1997 Uniform Housing Code, at a public hearing on December 2, 2016. The City of
Medford Building Safety Department’s *Operating Plan* was updated on December 2, 2016 (Sam Barnum, personal communication, December 28, 2016).

“The division and every municipality that administers and enforces a building inspection program or desires to assume responsibilities to administer and enforce a building inspection program, shall prepare an operating plan describing the manner in which the municipality or the division will do so. The operating plan shall establish specific processes and goals, consistent with the program standards described in ORS 455.153 and OAR 918-020-0090. This *Operating Plan* is on file with the state of Oregon Building Codes Department and is available through the City of Medford’s Building Department upon request. This *Operating Plan* has been prepared by staff of the City of Medford Building Safety Department to comply with ORS 455.153 and OAR 918-020-0090” (City of Medford, Building Safety Department *Operating Plan*, December 2, 2016).

**Protecting the Downtown Core.** The downtown core of Medford contains many historic unreinforced masonry buildings. The Downtown Historic District is bounded on either side of Main Street by Fourth and Ninth Streets, approximately five city blocks in breadth. To the east and west, it is bounded by Riverside and Oakdale Avenues, respectively. The District covers an area of 97 acres and holds 169 historic buildings within its boundaries (Chris Olivier, personal communication, December 28, 2016).

In Medford’s *City Center 2050 Plan*, the downtown core plays a significant role in creating a high quality downtown central core that supports the city’s neighborhood districts. The *City Center 2050 Plan* identifies major functions/districts of the downtown area as cultural and entertainment, governmental, educational, office, and residential. Previous downtown redevelopment activities have led to the construction of new structures and the renovation of existing ones, such as the Ginger Rogers Craterian Theater, parking structures, and a new main building for the Jackson County Library System. These investments highlight the need to protect the historic backbone of the downtown area from earthquakes.

**Seismic Retrofits.** Notable seismic retrofit projects have been undertaken on public facilities in Medford. In 2001, the City invested $180,000 in retrofitting the Public Works Service Center. Wall and roof structures were joined and reinforced to prevent shifting. In 2000, as the City was undergoing a comprehensive long-range facilities adequacy analysis, it became apparent that the 36-year old City Hall fell into the non-compliant seismic category. Structural engineers hired to evaluate the building’s earthquake resistance concluded that future anticipated events were likely to be much more severe than the building could withstand. A further complication was the fact that at the time, the City housed its critical public safety operations (Police and 911- Emergency Dispatch) in City Hall (City of Medford, *Pre-Disaster Mitigation Plan*, 2010).

The engineers recommended upgrading the strength of the City Hall building to a significantly higher level of safety, it was not economically or practically feasible to achieve current seismic code. The plan increased the length of support columns around the building and to turn them into shear-walls, adding redundancy to the structure. The design better distributes the weight of the building and beams stabilize the movement of the structure during a seismic event, enabling the safe evacuation of building inhabitants and preventing loss of life. The reinforced building will
be able to withstand ground swells, and motions back and forth and up and down.

The $700,000 project has significantly improved the performance of the City Hall. According to the engineering firm, the project was designed “for an unusually large earthquake that statistically occurs on average every 500 years, and within a 50-year interval, there is a 10% chance that a larger one could take place.” The end result is that the building can be expected to successfully endure anticipated moderate seismic events and enable a safe evacuation in the event of large earthquake. The City Hall seismic retrofit was completed in 2003 (City of Medford, Pre-Disaster Mitigation Plan, 2010).

In 2002, the City invested in retrofitting the Regional Water Reclamation Facility to better withstand earthquake events. As noted previously, this facility treats sewage from homes and businesses in Medford, Central Point, Jacksonville, Talent, Phoenix and Eagle Point. If the plant were inoperable after an earthquake, serious health problems could ensue. The upgrades prepared the plant for an earthquake with a 2% probability of occurring in 50 years. The upgrades mainly consisted of reinforcing and bracing concrete walls and other facility components (Medford Mail Tribune, Medford Wants an Earthquake-Proof Sewer Plant, April 23, 2002).

In 2003, Oregon Department of Transportation completed an $8 million Phase One seismic retrofit of the Interstate 5 viaduct that crosses downtown Medford. At that time the viaduct handled more than 46,000 vehicles per day; it continues to be a vital link for both Medford residents and interstate travelers. Phase One retrofits consisted of external measures to support a bridge. As part of the project, the bridge deck was tied to the vertical piers. ODOT replaced the road deck and bridge rails and enhanced the erosion protection on several of the 48 bents or piers in or near Bear Creek. The retrofit also included longitudinal cable restraints and the addition of concrete shear blocks for transverse force restraint. See Chapter 1 Section 8 Critical Facilities, Critical Infrastructure, and Lifelines for more details.

Council also approved a contract with a local engineering firm to identify and recommend corrective seismic upgrades for the historic Carnegie Library originally built in 1911, with an addition completed in 1950. The library, located in downtown Medford near City Hall, is used for large and small group gatherings, and office space for selected not-for-profits.

Another example of the commitment to retrofitting public facilities is the relocation in May 2004 of Rogue Valley Consolidated Communications (911-Dispatch), an essential public safety service under FEMA guidelines. The dispatch center was relocated in 2004 to a remodeled site in the Lausmann Annex, a building constructed in 1998 to the highest seismic standards. Dispatch services were located previously on the basement level of City Hall. The seismic retrofit of that building could not guarantee dispatch personnel safety and continuity in services after an earthquake. This relocation was a costly, but it was a prudent, pre-disaster mitigation action.

In July 2005, the City of Medford was selected by FEMA for a grant award to be utilized for structural and non-structural upgrades at Fire Stations #3, 4, and 5. These upgrades included construction of shear walls, improved connections to roof decking, overhead door support, bracing of heaters, anchoring of cabinets and shelving, installation of steel tubes, strapping of water heaters, anchoring of propane tanks, securing of light fixtures, removal of chimney,
bracing of another chimney, replacement of some windows and doors, anchoring of air compressor, installing foundation bolts, and installing a steel moment resisting frame. The final project cost was $210,666.70 (City of Medford, *Pre-Disaster Mitigation Plan*, 2010).

The City Council, at its April 2008 goal setting meeting, reaffirmed its goal to provide adequate public safety facilities and staffing by providing new public safety facilities.

**Dam Failure Exercises and Plans.** As discussed in Chapter 2 in Section 3 Floods and in Section 4 Earthquakes, one impact from an earthquake could be the failure of one or more dams in the region. The failure of Emigrant Dam, owned by the Bureau of Reclamation; Lost Creek Dam, owned by the USACE; and Hosler Dam, owned by the City of Ashland; would affect the City of Medford. The agencies that own the dams have Emergency Action Plans to guide its personnel in identifying and handling dam failure. The plans were prepared to ensure that the agencies can provide timely advance notifications to local authorities of the development of hazardous situations. With information provided by the agencies, the City recognizes which areas will be impacted by dam failures. See Figure x Dam Inundation Zones.

The City periodically participates in tabletop exercises simulating dam failure with the emergency management/response community and continuously coordinates information and actions with them.

**Wildland-Urban Interface Fires**

**Special Equipment.** Wildland fires require special equipment to reach the inaccessible areas typical of wildland areas. The City of Medford has invested in specialized equipment designed specifically for wildland terrain. The City employs a combination of standard fire-fighting equipment with forces of fire fighters on the ground to fight wildland fires effectively. The Medford Fire-Rescue leads the fire-fighting efforts for Medford, as discussed in Chapter 1 Section 8. See also Figure x, Medford Fire-Rescue Response Zones, map. The Oregon Department of Forestry is one of the City’s primary partners.

**Senate Bill 360.** The most significant effort to increase protection and reduce risk from WUI fires relates to Senate Bill 360, the Oregon Forestland-Urban Interface Fire Protection Act of 1997 and its administrative rules. This act resulted in the establishment of county committees whose goal was to define and classify interface lands according to natural vegetative fuel hazard value and topography hazard value. Once all lands are classified, property owners are notified of the status of their land within that classificatory system and of modifications they must make to their homes and property for purposes of compliance. Modifications vary and include creating fuel breaks, relocating flammable materials on the property, eliminating vegetative materials impinging on the driveway and home, and other activities. Owners have 2 years to certify that their property is in compliance. See Figure x, Wildfire Hazard, for the location of wildfire areas. See also Chapter 2 Section 5 Wildland-Urban Interface Fires.

**Jackson County Integrated Fire Plan.** The City of Medford is a participating member of the *Jackson County Integrated Fire Plan*. See Chapter 2 Section 5 Wildland-Urban Interface Fires for more details. The development of the *Jackson County Integrated Fire Plan* (*JaCIFP*) began
in January of 2005, building on an active foundation of wildfire protection work in Jackson County. There was a recognized need for increased coordination among wildfire management agencies and a need for a greater understanding of and responsibility for wildfire safety among residents of Jackson County, including the City of Medford. Since the creation of the National Fire Plan (NFP) in 2000 and passage of the Healthy Forests Restoration Act (HFRA) in 2003, communities have an increased opportunity to participate in federal agency wildfire fuels management planning, to receive funding for fuels management on private lands, and to be active participants in reducing wildfire risk. The JaCIFP creates opportunities to increase preparedness for wildfire and other emergencies. The Jackson County Integrated Fire Plan and related documents can be found at http://www.co.jackson.or.us/page.asp?navid=1864.

**Air Response.** The City of Medford strives to minimize the loss of life and property resulting from wildland fires within the UGB. It has a contract with the Oregon Department of Forestry for air response to wildland-urban interface fires.

**Education.** Medford Fire-Rescue works to educate the public in wildland fire safety. It has placed pertinent educational materials in the Jackson County library system, as well as on its website. Medford Fire-Rescue promotes public awareness through seasonal press releases and WUI home assessment program. They also do public service announcements.

Figure 5. Medford’s Firewise Communities Sign and Prepare Yourself Sign

Source: Larry Masterman, August 2016 and Medford Fire-Rescue Facebook page, August 2016

**Land Use Planning.** The Planning Department routes Public Committee - City Council, Planning Commission, and Site Plan and Architectural Commission (SPAC) - projects to Medford Fire-Rescue. Comments received are included in staff reports as discretionary conditions when appropriate (Chris Olivier, personal communication, December 28, 2016).

The Planning Commission considers ingress and egress for new developments when reviewing new subdivisions (Chris Olivier, personal communication, December 23, 2016).
Medford Fire-Rescue is involved in the beginning of every land development project and provides a report which explains water supply and access requirements (Chris Olivier, personal communication, December 28, 2016).

**Regulation of Grass.** The City requires property owners to remove weeds over a certain height from their properties by a designated date each year. The Code Enforcement Division sends out letters to property owners who are not in compliance.

**ODF Grants to Property Owners.** The Oregon Department of Forestry provides small grants from the National Fire Plan program to homeowners who develop defensible space around their homes and driveways. Residents can apply for cost-share incentives up to $400 to modify an acre of vegetation around their homes. Modifications include removing dead vegetation, thinning flammable brush and small trees, and creating vertical spaces between flammable brush and the lower limbs of larger trees.

The 2014 *Interim Fire Plan Update* for the 2014 Interim Josephine-Jackson County Fire Plan describes,

> “The proven overall strategy is to identify at risk landscapes where groups of landowners, neighborhoods, or communities have interest in becoming more fire adaptive and where grant funding can serve to create specific strategic fuels treatments and/or provide seed money to help these neighborhoods get started and generate additional interest. This plan also supports alignment of BLM/USFS hazardous fuels work with fire plan strategies and areas collaboratively identified with NRCS.”

The 2014 *Interim Fire Plan Update* identifies Jackson County Priority Landscapes/Communities. Within that category, the Firewise/Local CWPP section includes “East Medford neighborhood (developing FW).”

According to the 2015 *Oregon NHMP*,

> “While Oregon’s Emergency Conflagration Act helps protect WUI communities that have depleted their local resources when threatened by an advancing wildfire, the escalating number of fires has led to the recognition that citizens in high fire risk communities need to provide mitigation and an appropriate level of local fire protection. Oregon’s seller disclosure law requires a statement of whether or not property is classified as forestland-urban interface. Collaboration and coordination is ongoing among several agencies to promote educational efforts through programs like Firewise, the Oregon Forestland-Urban Interface Fire Protection Act, and Fire Adapted Communities from the National Cohesive Wildfire Strategy” (DLCD, 2015).

**Landslides**

Mitigation actions for landslide hazards are presented in Table x. In the 2010 NHMP, there were two distinct desires: to better define the degree of landslide risk suggested by the DOGAMI model of debris flows identified in the IMS-22 map published in 2002, and to establish a hillside
development ordinance that protects existing and future residents and property. A considerable amount of landslide hazard information has been studied and prepared since 2002, as described in Chapter 2 Section 6 Landslides. With this updated NHMP targeted for completion in June 2017, the most current GIS layers of data for landslides and other hazards have been provided to Medford by the State of Oregon and from other sources as well. See Figure x for the Landslide Hazard Map. Also, see Figure x for the Medford Slope Map from 2009. The Medford Hillside Ordinance was adopted in 2009.

**Engineering Requirements.** As noted in Chapter 2 Section 6 Landslides, expansive soil can cause structural damage to foundations. The City of Medford requires a foundation analysis for construction in areas exhibiting such soil. In areas potentially subject to landslides or on steep slopes, the Building Safety Department requires all foundations to be engineered. The Building Safety and Public Works Departments then review them.

**Securing Infrastructure.** On steep slopes, water and sewer lines must be “keyed into” hillsides. This entails the burying of a concrete anchor into the subsurface rock, a structural technique that holds the lines in place.

**Land Use Planning.** The Medford City Council adopted a Hillside Ordinance in 2009 as an amendment to the *Land Development Code* (Chapter 10 of the Municipal Code). In general, development on slopes in excess of fifteen percent (15%) is subject to its requirements. Requirements include submittal of a Constraints Analysis to the City Engineer of the Public Works Department, consisting of a Geology and Soils Report and a Hydrology and Grading Report. The purpose of the analysis is to identify physical constraints of the property and to propose mitigation measures (Jim Huber, personal communication, August 3, 2016).

The Building and Safety Department is involved during construction on steep slopes. Prior to construction, development on slopes in excess of thirty-three percent (33%) or on any expansive soils, regardless of the slope, requires a geotechnical report. Construction is regulated by provisions of the *2014 Oregon Residential Specialty Code* (and as may be amended in the future) (Jim Huber, personal communication, August 3, 2016).

Medford has a zoning provision for slopes that are 15% or greater, which limits residential development to two units per acre (SR2) (Jim Huber, personal communication, August 8, 2016).

Since 2010, road access to developments in the Roxy Ann Peak area has improved. Cherry Lane and Hillcrest Road/McAndrews Road provide ingress and egress to the area.

**Volcanic Eruptions**

**USGS.** After the dramatic and destructive eruption of Mount St. Helens in 1980, the U. S. Congress provided funding to the USGS for a volcano observatory for the Cascade Range, to better protect life and property in the Pacific Northwest. This observatory, the David A. Johnston Cascades Volcano Observatory (CVO), monitors several potentially active volcanoes in the Pacific Northwest. It works in cooperation with the Pacific Northwest Seismograph Network (PNSN), taking portable equipment to evaluate hazards at sites of seismic activity. The CVO also
uses remote sensing aided by radar images from satellites to detect ground surface movements. The CVO shares information with emergency management and planning officials throughout the region. It studies and assesses potential hazards from volcanoes and educates officials and citizens about the potential effects of volcanic activity and earthquakes. See Chapter 2 Section 4 Earthquakes for additional information about earthquakes.

Air Quality

**Emission Reduction Programs.** As noted, air quality in the Medford-Ashland AQMA has improved dramatically in recent years, due, in part, to programs implemented in Medford and the other jurisdictions in the area to reduce emissions and bring the area into attainment with the NAAQS. See Chapter 2 Section 8 for details on air quality in Medford.

Although air quality has improved, there is a continuing need for these programs. A brief description of each program follows.

- The Vehicle Inspection and Maintenance (I & M) Program requires that all motor vehicles belonging to residents of the Medford-Ashland AQMA be tested for excessive emissions.

- To reduce CO emissions, the Clean Air Act required the sale of oxygenated fuel during the winter in Jackson County and other Oregon counties and cities as of 1992. As of September 28, 2002, the oxygenated fuel requirement was lifted in Jackson County, due to improved air quality indices.

- The Small Business Assistance Program, administered by Oregon Department of Environmental Quality, provides information and technical assistance to small businesses that produce air emissions, such as dry cleaners, auto-body shops, printers, and small manufacturers.

- In 1983, Oregon began a long-term process of regulating the use of wood stoves. The focus was on promoting non-polluting wood stoves. By 1986, only wood stoves certified as meeting new emission standards were permitted to be sold in Oregon. Later, the EPA adopted nationwide standards for wood stove emissions. In 1991, the sale or installation of uncertified stoves by private parties was banned in Oregon, and uncertified stoves were required to be removed upon sale of a home in a PM10 non-attainment area. Few installation permits are now issued in the City of Medford for new wood stoves, and weatherization of the home is required when a new wood stove is installed.

- The Housing Authority of Jackson County administers programs for lower income households that replace wood stoves used as a sole source of home heating. Most are replaced with natural gas furnaces. The **Housing Authority** receives federal Community Development Block Grant (CDBG) funds through the City of Medford for such “emergency” repairs. By 1989, these programs had replaced 253 wood stoves in Medford. Emailed Jeff at Housing Authority on 12/28/16 for an update.
Medford was part of the Interagency Air Quality Team, consisting of representatives from Ashland, Central Point, Jackson County, ACCESS, Inc., the Housing Authority of Jackson County, Pacific Power, Avista Natural Gas, and Oregon DEQ. The team is no longer in existence (Tanya Phillips, personal communication, December 28, 2016).

Smoke from woodstoves and fireplaces can contribute significantly to air pollution in the fall and winter, especially during periods of air stagnation. The Wood Burning Advisory was developed to restrict burning in solid fuel devices (woodstoves, fireplaces, etc.) during high pollution episodes in the Air Quality Maintenance Area (AQMA). The Wood Burning Advisory designates days as green, yellow, or red depending on the amount of particulate matter in the air. The Jackson County Environmental Public Health Division staff establishes the daily advisory by 7:00 a.m. each day from November 1 through February 28 (Tanya Phillips, personal communication, December 28, 2016).

Outdoor burning is not permitted within the City of Medford, and, in Jackson County, is permitted only when the predicted afternoon ventilation index is 400 or greater. From November 1 through February 28, all outdoor burning within the Medford-Ashland AQMA is prohibited (Tanya Phillips, personal communication, December 28, 2016).

Educating the public about ways that individuals can help improve and maintain air quality in the Rogue Valley has been one of the most effective means of improving air quality. The goal of these educational programs is to teach residents that continued compliance with air quality improvement programs is necessary, and that air quality continues to improve because of public cooperation.

The federal Congestion Mitigation and Air Quality Improvement (CMAQ) Program has provided considerable funding to jurisdictions within the Medford-Ashland AQMA for dust and motor vehicle emission reduction programs. The City of Medford was allocated funds to pave alleys, install curbs, gutters, sidewalks, and bicycle lanes, and enhance street sweeping. Additional funds have extended the Bear Creek Greenway multi-use path; aided in the construction of a park-and-ride lot and transit transfer station at the South Gateway Shopping Center for the Rogue Valley Transportation District (RVTD); and helped fund a compressed natural gas fueling station in Medford.

The City of Medford has implemented a computerized traffic signal control system designed to minimize overall delay for motorists, thus decreasing CO emissions from idling automobiles.

The City’s Public Works Department has a year-round Street Sweeping Program that cleans dirt from streets, thus keeping contaminants from the stormwater system, creeks and streams, and decreasing the amount of dust in the air.

**Land Use Strategies.** Implemented through the *Land Development Code* and the *Comprehensive Plan*, land use strategies, such as those that reduce vehicle miles traveled (VMT) and retain vegetation, can assist in achieving and maintaining compliance with air quality standards. The *2003 Medford Transportation System Plan* required the development of Transit Oriented...
Districts (TODs) in four locations in Medford to reduce the growth of vehicle miles traveled (VMTs). Medford’s TODs are: City Center, Southeast, West, and North. These areas contain mixed residential and commercial development, which lessens the number and length of auto trips for work or shopping due to the convenient access to both activities.

**RVTD.** The Rogue Valley Transportation District (RVTD) is one of the local agencies that are active in air quality issues through their efforts to reduce single-occupancy vehicle trips and their use of non-polluting, compressed natural gas-fueled buses. See also Chapter 1 Section 9 Education Facilities and Special Districts.

**City Cooperation and Participation.** The City of Medford aims to maintain compliance with National Ambient Air Quality Standards (NAAQS). The City has participated, along with state and local agencies involved in air quality attainment, in the preparation and implementation of the applicable Air Quality Management Plans (AQMPs) and State Implementation Plans (SIPs) for the Medford-Ashland Air Quality Maintenance Area (AQMA). The City plans to continue participating, along with Jackson County and other affected agencies, in administering air quality public education and smoke reduction programs.

**Transportation Planning.** The Medford Transportation System Plan (TSP), the State Implementation Plan (SIP) and the Oregon Transportation Planning Rule (TPR) present strategies for reducing emissions and improving air quality, such as increasing the use of alternative transportation modes, and the use of alternative motor vehicle fuels, such as compressed natural gas and electricity. The City works to develop a well-connected circulation system and promote other techniques that foster alternative modes of transportation, such as pedestrian-oriented mixed-use development and a well-connected bicycle transportation system. Through the Rogue Valley Metropolitan Organization (RVMPO), the City encourages the use of incentives by Medford’s larger employers to induce employees to use alternative modes of transportation or work at home to reduce motor vehicle emissions.

**City Focus on Fuel Efficiency.** In 2002, the City Manager of Medford directed department heads to review their fuel usage and fleet management to reduce costs, ameliorate air quality, and increase efficiency. Since then, fuel efficiency has been a priority.

- The **Police Department** has no hybrid or electric vehicles (Brett Johnson, personal communication, December 30, 2016).
- The **Building Department** has five hybrid Ford Escapes that are used for inspections (Sam Barnum, personal communication, December 28, 2016).
- The **Public Works Department** has one hybrid compact sedan (Jeff Simas, personal communication, January 5, 2017).
- The **Parks & Recreation Department** has accomplished the following regarding fuel efficiency:
  - Parks & Recreation has developed and implemented a park zone team maintenance program that consolidates staff into teams that perform maintenance within a defined sector of Medford. This program has significantly reduced fuel consumption as multiple staff members are traveling to work sites together and completing work without taking separate vehicles. A reduction in fuel consumption of 38% has resulted.
Parks & Recreation has also implemented a vehicle replacement plan for retiring vehicles that are less fuel efficient with vehicles that are smaller and more fuel efficient. The department recently acquired three new vehicles and retired four.

Parks & Recreation currently has three electric golf carts and three electric maintenance vehicles. The three electric maintenance vehicles are no longer in service due to excessive maintenance needs but are still in the fleet. No hybrids are in the fleet (Tim Stevens, personal communication, January 3, 2017).

- The Emergency Management office evaluates vehicles to purchase based on fuel economy, relative life cycle, and related factors. The fleet includes a gasoline Ford Explorer, a used diesel ambulance, and a diesel command vehicle. (Larry Masterman, personal communication, December 28, 2016).
- The Planning Department has one gasoline vehicle and no hybrid vehicles (Chris Olivier, personal communication, December 28, 2016).
- The Medford Water Commission has one Ford Escape hybrid for visiting the sampling stations (David Searcy, personal communication, December 28, 2016).

Community Health. The City of Medford Parks & Recreation Department has a Standard Operating Procedure called “Air Quality Standards for Recreation Programs/ Events” (PRD-13-01R). It was issued on November 5, 2013 and revised on January 5, 2016. The purpose of the policy is to 1) identify action levels based on AQI readings posted at [www.airnow.gov](http://www.airnow.gov), 2) outline procedures aimed at reducing program participants’ exposures to unhealthy outdoor air and 3) establish a protocol to cancel or reschedule department programs / events when appropriate. (City of Medford, PRD-13-01R).

Emerging Infectious Diseases

Health and Human Services. Jackson County’s Health and Human Services Division is responsible for enforcing laws that protect community health, clean air, water purity, and food service throughout Jackson County, including the cities. If Jackson County requires security and/or assistance for health these services within Medford, it works with Medford’s Police, Fire-Rescue, Building, Planning, and Public Works Departments.

The Health and Human Services Division licenses and inspects restaurants, mobile units such as coffee, hot dog and taco stands, and temporary restaurants, such as food booths at local events. The Division regulates food handlers by offering food handler classes, administering food handler tests, and issuing certificates.

The Division reduces and/or prevents the contamination of public drinking water supplies throughout the county in smaller water systems. It does not have a regulatory relationship with the Medford Water Commission. However, it is legally responsible for conducting disease investigation in the City of Medford. If there is an outbreak of a disease, the Division works to find the source of that problem, how it is spreading, and monitors its progression.

State Drinking Water Program. The Regional Engineer for the State Department of Human Services’ Drinking Water Program oversees all municipal water systems in the region, ensuring that they periodically test and perform all necessary treatment of drinking water. The State of
Oregon implements the federal drinking water requirements. Contamination testing consists of two types: microbiological and chemical. The Medford Water Commission (MWC) conducts 90 – 100 microbiological tests per month. The number of tests is based on population. Microbiological testing begins with testing for coliform bacteria, the indicator organism. If tests are positive, then further testing is conducted for e. coli and fecal coliform. A field investigation is also made (David Searcy, personal communication, November 21, 2016). The state works with the MWC to investigate contamination of the water.

Chemical testing is done for inorganic and organic chemicals. Inorganic chemicals are heavy metals, such as arsenic. Inorganic testing for arsenic occurs once per year for surface water and once every 3 years for groundwater. Nitrate is once per year for all water systems. Organic chemicals are categorized as either volatile or synthetic; they are considered possible carcinogens. Volatile organic chemicals include cleaners and degreasers. Testing for volatile organic chemicals occurs yearly for surface water and once every 3 years for ground water. Synthetic chemicals include herbicides and pesticides. Testing for these is done once every 3 years. Apart from monitoring testing results, the Regional Engineer is responsible for inspecting the entire water system, including all reservoirs in the Medford Water Commission system (Scott Curry, Regional Engineer, Drinking Water Program, Oregon Department of Human Services, personal communication, December 2003).

**Jackson County Vector Control District.** See also Chapter 1 Section 8 Education Facilities and Special Districts. This special district was formed in 1968 to provide mosquito and fly control to residents. The goal of the District is to prevent new vector sources from developing and to abate existing vector populations and their sources, all in an effort to protect public health and comfort. Vectors are insects, rodents or any other animal that can host and/or transmit diseases to human or their domesticated animals. The District has a surveillance program that collects dead crows for laboratory research related to identifying and tracking West Nile Virus. During the summer, the District’s operators use all-terrain vehicles to spray mosquito breeding sites with larvicides. Recent regulations protecting riparian areas have resulted in the protection of vector breeding grounds, especially those of mosquitoes. It is assumed, however, that functioning wetlands harbor enough natural predators to control the vector populations (Jackson County Vector Control District, [http://jcvcd.org/](http://jcvcd.org/)).

**Mitigation Actions and the Action Plan**

“The action plan lays the groundwork for implementation by describing how the mitigation plan will be incorporated into existing planning mechanisms and how the mitigation actions will be prioritized, implemented, and administered by each jurisdiction” (FEMA, 2013).

The City of Medford’s mitigation actions are included in the multi-hazard and specific hazard Mitigation Actions Tables below.

Key things to know about this draft of the Mitigation Actions Tables:

- The 2010 NHMP (City Medford, *Pre-Disaster Mitigation Plan*, 2010) is the basis for the tables. The text for table numbers, table titles, and text within the tables has been altered.
For the text within the tables, the 2010 text is retained with the following parameters:

- The strikethrough text may be deleted pending further discussion and review.
- Yellow highlight indicates the need for more information.
- There is new text.

The 2010 NHMP did not include mitigation actions related to air quality and emerging infectious diseases. Tables for these hazards are included so that the Steering Committee can determine actions for them as part of this 2016-2017 update to the NHMP.

During the preparation of this NHMP, subject matter experts made recommendations.

Mitigation actions related to floods are presented in Table x. They reflect the importance of stormwater management and avoiding development in the floodplain. As previously described in Chapter 2 Section 3 Floods, DOGAMI recommends the Digital Flood Insurance Rate Map (DFIRM) information from 2011 be updated with potential mapping improvement in the following areas which are identified on aerial photo maps (See Appendix xx in Chapter 5):

- Approximate mapping (Zone A) for Upton Slough and Swanson Creek,
- Approximate mapping (Zone A) for Ross Lane Drainage,
- Ponding mapping (Zone AO) for Lone Pine Creek,
- Possible expansion of flood mapping for Larson Creek and tributary,
- Approximate mapping (Zone A) for Lone Pine Creek, and
- Approximate mapping (Zone A) for Lazy Creek (jed Roberts, personal communication, August 18, 2016)

Mitigation actions related to earthquake hazards are presented in Table x. Public awareness and preparedness, and the execution of seismic retrofit projects on public structures is emphasized.

DOGAMI recommendations related to earthquakes usually involve:

- Conducting seismic vulnerability assessments of infrastructure,
- Having mitigation plans that address those findings,
- Getting seismic planning institutionalized into programs so the improvements are integrated into operations (e.g., Medford’s schools, hospitals, transportation department, water districts, wastewater districts, levees and dams, electricity providers, etc.) and tracking the progress (Yumei Wang, personal communication, August 18, 2016).

In the Mitigation Actions Tables, short-term mitigation actions are those that can be undertaken without extra personnel or other resources. Long-term mitigation actions are those requiring additional resources for execution. The City may apply for state and federal grant funds for those mitigation actions. When prioritizing potential long-term projects for implementation, the City will conduct cost-benefit analyses to inform the decision-making.
### Table 3. Multi-Hazard Mitigation Actions

<table>
<thead>
<tr>
<th>Priority (High, Medium, Low)</th>
<th>Natural Hazard</th>
<th>Table x Multi-Hazard Mitigation Actions</th>
<th>Potential Funding Resources</th>
<th>Lead Department (s)</th>
<th>Goal: Preventing Injury and Damage</th>
<th>Goal: Enhancing Emergency Services</th>
<th>Goal: Promoting Public Awareness</th>
<th>Goal: Forming Partnerships</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short-term Multi-hazard #1</td>
<td>Identify and pursue new state and federal funding opportunities to develop and implement Medford's mitigation activities.</td>
<td>Existing Resources</td>
<td>Emergency Management Coordinator, Planning</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Short-term Multi-hazard #2</td>
<td>Maintain and develop public and private relationships to foster mitigation planning coordination and collaboration within the City of Medford.</td>
<td>Existing Resources</td>
<td>Emergency Management Coordinator, Fire, Police &amp; Public Works</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Short-term Multi-hazard #3</td>
<td>Continue to update the City Emergency Operations Plan, linking emergency services with natural hazard mitigation implementation, enhancing public education, and reviewing evacuation routes and alerting systems.</td>
<td>Existing Resources</td>
<td>Emergency Management Coordinator, Fire</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Short-term Multi-hazard #4</td>
<td>Keep the most current City of Medford’s Natural Hazards Mitigation Plan available to the public in the following locations at a minimum: City’s website; Emergency Management Coordinator’s office; Rogue Community College; Jackson County Library District; and other public access points.</td>
<td>Existing Resources</td>
<td>Emergency Management Coordinator</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
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</table>
| Short-term Multi-hazard #5  | Encourage all families to have provisions on hand that allow them to support family preparedness and self-sufficiency for a period of up to 14 days.  
  * Distribute the information via sources such as the City’s website, newsletters, and utility bills.  
  * Outreach to internal City staff and to the public. | Existing Resources | Emergency Management Coordinator, American Red Cross (ARC), Jackson County | • | • | • | • | • |
<p>| Short-term Multi-hazard #6  | Maintain the Natural Hazards Mitigation Plan Steering Committee to facilitate implementation, monitoring and evaluation of | Existing Resources | Emergency Management Coordinator | • | • | • | • | • |</p>
<table>
<thead>
<tr>
<th>Multi-hazard</th>
<th>Activity Description</th>
<th>Planning Department(s)</th>
<th>Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short-term Multi-hazard #7 (new)</td>
<td>Revisit the draft Continuity of Operations Plan (COOP) (dated 7/19/11) and determine the resources and timeframe available to complete.</td>
<td>Emergency Management Coordinator</td>
<td>Existing resources, grants</td>
</tr>
<tr>
<td>Long-term Multi-hazard #1</td>
<td>Increase knowledge of natural hazards and mitigation strategies in Medford and adjust policies and programs based on that knowledge.</td>
<td>Emergency Management Coordinator</td>
<td>Pre-Disaster Mitigation (PDM) Program; existing resources.</td>
</tr>
<tr>
<td>Long-term Multi-hazard #2</td>
<td>Continue to refine hazard map data and keep it updated. Share information with City departments, the public, and external partners.</td>
<td>Planning, Building, Technology Services, GIS, State of Oregon agencies such as DOGAMI and DLCD</td>
<td></td>
</tr>
<tr>
<td>Long-term Multi-hazard #3</td>
<td>Support measures to serve People with Access and Functional Needs (PAFN) including evacuation and shelter.</td>
<td>Emergency Management Coordinator, Police, Fire, Community Resources, Jackson County Health and Human Services, Jackson County Emergency Management ARC, Care Facilities, ECSO, RVTD, RVCOG’s Vulnerable Populations Committee</td>
<td>Pre-Disaster Mitigation (PDM) Program; existing resources; Department of Homeland Security</td>
</tr>
</tbody>
</table>

Notes:
- Citywide mitigation activities. Meet at least once a year.
### Chapter 3 Mitigation Strategy

<table>
<thead>
<tr>
<th>Long-term Multi-hazard #4</th>
<th>Improve public awareness and provide people with steps to reduce their risk to natural hazards.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identify, obtain and/or create publications on the hazards in the Medford NHMP and distribute them in public facilities and at public events each year.</td>
<td>Pre-Disaster Mitigation (PDM) Program; existing resources</td>
</tr>
<tr>
<td>Emergency Management Coordinator, Fire, Planning, GIS</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Long-term Multi-hazard #5</th>
<th>Develop a system for data collection for non-declared natural hazard events.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fire Dept. continues to improve its incident records management system and use of proactive data analysis for pre-incident planning purposes.</td>
<td>Pre-Disaster Mitigation (PDM) Program; existing staff resources</td>
</tr>
<tr>
<td>Emergency Management Coordinator, Public Works, Fire, Technology Services, GIS</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Long-term Multi-hazard #6</th>
<th>Development of a long-term recovery plan for Medford from the effects of catastrophic hazards.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research plans for similarly sized cities in the West and deciding which elements are applicable to Medford and the risks it faces.</td>
<td>Pre-Disaster Mitigation (PDM) Program</td>
</tr>
<tr>
<td>Develop worst-case scenarios and long-term recovery needs for each prioritized hazard.</td>
<td></td>
</tr>
<tr>
<td>Forecast the fiscal burden to be borne by the City, once all state and federal assistance has been obtained.</td>
<td></td>
</tr>
<tr>
<td>The following three plans constitute infrastructure recovery plans at this time: Transportation System Plan, Stormwater Master Plan, and Sewer Collection Master Plan.</td>
<td></td>
</tr>
<tr>
<td>Emergency Management Coordinator, Planning, Fire, Public Works, GIS</td>
<td></td>
</tr>
</tbody>
</table>
### Chapter 3 Mitigation Strategy

<table>
<thead>
<tr>
<th>Long-term Multi-hazard #7</th>
<th>Coordinate with American Red Cross to develop an inventory of publicly owned facilities capable of offering shelter during disaster events.</th>
<th>Emergency Management Coordinator, Fire, Planning, American Red Cross, Technology Services, GIS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Determine the relative safety of each facility vis-à-vis prioritized hazards and what specifically must be done to ensure the safety of persons in this facility during a hazard event.</td>
<td>Security Management coordinates with American Red Cross</td>
</tr>
<tr>
<td></td>
<td><strong>Emergency Management</strong> <strong>coordinates with American Red Cross</strong></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Long-term Multi-hazard #8</th>
<th>Continue to assess the adequacy of shelter and mass care service delivery in all areas of the City. Compare populations to be served with the capacities and accommodations of local facilities and services. Develop a prioritized list of needs for each area. Identify funding to serve those needs.</th>
<th>Emergency Management Coordinator, Fire, Planning, American Red Cross, Technology Services, GIS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>FEMA hazard mitigation grants and others</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Long-term Multi-hazard #9</th>
<th>Assess the feasibility of enhancing</th>
<th>Dept. of Emergency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Chapter 3 Mitigation Strategy

<table>
<thead>
<tr>
<th>Hazard #</th>
<th>Description</th>
<th>Responsible Parties</th>
</tr>
</thead>
<tbody>
<tr>
<td>#9</td>
<td>Existing alert system (the Jackson County “Citizen Alert” system) implementing new, effective measures for notifying citizens people about impending disasters and the need to evacuate, e.g., Reverse 9-1-1, EAS. City dispatch currently provides a reverse 911 system and we are evaluating the use of social networks and non-conventional media for public notification.</td>
<td>Homeland Security Management Coordinator, Police, Fire, 211Info, Jackson County</td>
</tr>
<tr>
<td>#10</td>
<td>Continue to identify specific mitigation-related criteria that can be incorporated into the land use planning process, e.g., use of temporary gravel roads for fire access during development, and providing pedestrian pathways with universal access.</td>
<td>Existing resources</td>
</tr>
</tbody>
</table>
| #11      | Determine ways to better integrate the resources of utility companies (personnel, equipment and information) with those of the City during events.  
- Assess the effectiveness of liaison positions in the City ECC and in the Unified Command Structure.  
- The City will evaluate and establish lists that identify critical personnel and resources from both governmental and non-governmental partners. | Existing Resources; Emergency Management Coordinator, Fire, Public Works, PacifiCorp, Qwest, Avista |
| #12      | Continue the annual assessment (of City personnel training (including drills and exercises) regarding emergency preparedness. Assess the adequacy of training, personnel and equipment available to City Emergency Services for responding to widespread and/or multiple concurrent events.  
- Determine the City’s level of acceptable risk and ensure that Emergency Services can protect the community at that level. | Existing Resources; Dept. of Homeland Security; CMO, Emergency Management Coordinator, Emergency Mgt. Team |
desired level. Use tabletop exercises to gain perspective on the allocation of existing resources. Identify state and federal funding to provide for additional needs.

86% of city staff identified as necessary for response to emergencies have been trained utilizing the NIMS online training.
### Table 4. Severe Weather Mitigation Actions

<table>
<thead>
<tr>
<th>Priority (High, Medium, Low)</th>
<th>Natural Hazard</th>
<th>Table x Severe Weather Mitigation Actions</th>
<th>Potential Funding Resources</th>
<th>Lead Department(s)</th>
<th>Goal: Preventing Injury and Damage</th>
<th>Goal: Enhancing Emergency Services</th>
<th>Goal: Promoting Public Awareness</th>
<th>Goal: Forming Partnerships</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short-term Severe Weather #1</td>
<td></td>
<td>Continue Explore opportunities on public access television and through local schools for promoting public awareness of severe weather hazards and the benefits of mitigation. &lt;br&gt;• Public and commercial tv &lt;br&gt;• Radio &lt;br&gt;• Live presentations &lt;br&gt;• Utility bill inserts &lt;br&gt;• Newsletters &lt;br&gt;• City website &lt;br&gt;• Information on emergency preparedness is published in the City's newsletter on an annual basis and is posted on the City's website. &lt;br&gt;City of Medford is a National Weather Service Certified Storm Ready Community, which was the topic of a public access television show.</td>
<td>CMO, Emergency Management Coordinator, Emergency Mgt. Team</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Short-term Severe Weather #2</td>
<td></td>
<td>Continue Support of Pacific Power concept of a removal/replacement program for trees that threaten utilities in the public right-of-way. &lt;br&gt;• Present it to the City's Tree Committee for their review and recommendation to City Council for adoption.</td>
<td>Parks &amp; Recreation, Emergency Management Coordinator, CMO</td>
<td>•</td>
<td></td>
<td></td>
<td>•</td>
<td></td>
</tr>
<tr>
<td>Short-term Severe Weather #3</td>
<td></td>
<td>Continue Support of the identification of concept of identifying trees that pose a risk to utilities and structures. &lt;br&gt;• Continue to have the The Parks &amp; Recreation Dept. through the work of the City Arborist, maintain the</td>
<td>Emergency Management Coordinator, Public Works, Parks and Recreation</td>
<td>•</td>
<td></td>
<td>•</td>
<td>•</td>
<td></td>
</tr>
</tbody>
</table>

*CMO: City Manager's Office*
has completed a city-wide inventory of trees. This inventory consists of identifying and removing hazardous trees in the public right-of-way, City owned property and private property that could possibly affect utility services if the tree was to fall.

- Continue the permit process overseen by Parks & Recreation that is used to determine whether a tree should be removed.
- Over the past three years, the City of Medford has removed or provided permits to private landowners for the removal of over 300 identified problem trees. The City Arborist has provided comprehensive training to other park maintenance employees along with Public Works staff in identifying problem trees. Finally, the City Arborist meets regularly with PacifiCorp to coordinate.

<table>
<thead>
<tr>
<th>Short-term Severe Weather #4</th>
<th>Through public incentives, partnerships, and regulations continue to support the construction of underground utilities.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Medford Land Development code section 10.555 requires all utilities in new developments to be underground.</td>
</tr>
<tr>
<td>Existing Resources</td>
<td>CMO, Emergency Management Coordinator, Planning, Public Works, Building</td>
</tr>
</tbody>
</table>
### Table 5. Flood Mitigation Actions

<table>
<thead>
<tr>
<th>Priority (High, Medium, Low)</th>
<th>Natural Hazard</th>
<th>Table x Floods Mitigation Actions</th>
<th>Potential Funding Resources</th>
<th>Lead Department(s)</th>
<th>Goal: Preparing Injury and Damage</th>
<th>Goal: Enhancing Emergency Services</th>
<th>Goal: Promoting Public Awareness</th>
<th>Goal: Forming Partnerships</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short-term Flood #1 (new)</td>
<td></td>
<td>Update the “Summary of Impact on Exposed Assets” information (see Table x) each year (# structures, # tax lots, total improved value). The data is based on properties within the 100-year and 500-year floodplains.</td>
<td>Existing Resources.</td>
<td>Emergency Management Coordinator, Planning, Building, GIS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Long-term Flood #1</td>
<td></td>
<td>Completed - Mitigation needs identified in applicable facility master plans. Continue to update City GIS maintains FEMA floodplain maps with current data. Update maps that use the floodplain data; such as floodplain maps which can be coupled with critical infrastructure data layers to identify at-risk facilities.</td>
<td>Flood Mitigation Assistance Program (FMA); PDM.</td>
<td>Emergency Management Coordinator, GIS, Planning, Fire, Police, Public Works</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Long-term Flood #2           |                | Pursue further public acquisition to preserve open space in the floodplain.  
  - Include policies supporting the City’s acquisition of Greenway parcels in the Parks Master Plan.  
  - Establish parameters of identifying properties to acquire  
  - Identify properties to acquire  
  - The City has acquired additional properties in the US Cellular Sports Park facility.  
  - A demonstration project for stormwater runoff was completed in 2009 in cooperation with the Jefferson Nature center.  
  - The City has acquired 1.85 acres through private donations along Voluntary service organizations, such as Rotary; FMA. | CMO, Emergency Management Coordinator, Parks & Recreation |                     |                                  |                               |                         |
<table>
<thead>
<tr>
<th>Long-term Flood #3</th>
<th>Larson Creek. When acquired? An additional 3 acres is anticipated as part of the SE Area Plan development for greenway space. Status of the 3 acres?</th>
<th>Provide education related to flood hazards to households and businesses. Include: * • identify specific actions Share FEMA Emergency Preparedness for Business guides with Chamber of Commerce representatives to determine member interest and the Chamber's interest in distributing them throughout their organization.</th>
<th>Existing resources.</th>
<th>Emergency Management Coordinator, Emergency Mgt. Team, Economic Development; Building</th>
</tr>
</thead>
<tbody>
<tr>
<td>Long-term Flood #4</td>
<td>Implement stormwater and urban design best management practices, using the newly completed Stormwater Management Plan as a guide. Storm detention ordinance was adopted in November 2009.</td>
<td>Existing resources.</td>
<td>Emergency Management Coordinator, Public Works</td>
<td></td>
</tr>
<tr>
<td>Long-term Flood #5</td>
<td>Update applicable City codes to improve risk reduction and prevention of flood impacts. Medford Land Development Code sections 10.924-10.928 identify the regulations pertaining to Riparian Corridors. Within the next year, the Planning Dept. will present a proposal to the City Council for the designation of additional riparian corridors within the City.</td>
<td>Existing resources.</td>
<td>Planning, Building, Emergency Management Coordinator</td>
<td></td>
</tr>
<tr>
<td>Long-term Flood #6</td>
<td>Participate in regional partnerships to reduce flood losses in the region. Include: * • Partner with the Rogue River Bear Creek Watershed Council on projects that improve flood mitigation. • Identify other partners or projects</td>
<td>Oregon Watershed Enhancement Board (OWEB).</td>
<td>Public Works, Emergency Management Coordinator, CMO</td>
<td></td>
</tr>
<tr>
<td>Long-term Flood #7</td>
<td>Continue to increase the City’s Community Rating System rating over time. Identify what actions will do that</td>
<td>Existing Resources.</td>
<td>Planning, Building</td>
<td></td>
</tr>
<tr>
<td>Long-term Flood</td>
<td>Strengthen floodplain development</td>
<td>Existing</td>
<td>Planning, Building,</td>
<td></td>
</tr>
<tr>
<td>#8</td>
<td>Regulations</td>
<td>Resources</td>
<td>Emergency Management Coordinator, GIS</td>
<td></td>
</tr>
<tr>
<td>----</td>
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<td>----------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Add Lazy Creek to the creeks protected by the Riparian Corridor regulations, preventing development with a setback from the bank tops.</td>
<td>Medford Land Development Code sections 10.924-10.928 identify the regulations pertaining to Riparian Corridors. Within the next year, the Planning Dept. will present a proposal to the City Council for the designation of additional riparian corridors within the City.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Continue to add setbacks along other creeks.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| #9 | Long-term Flood | Using the maps developed for this NHMP PDM Plan, conduct site visits at structures in the 100-year floodplain and determine whether they are vulnerable to floods or were specially constructed with the potential for flooding in mind. GIS work is done. For vulnerable structures, provide the property owner with information on mitigation. | Building, Planning, GIS, Emergency Management Coordinator |

| #10 | Long-term Flood | Request that FEMA, during its update of floodplain maps, use aerial photos and planimetric data to identify structures in the floodplain, such as bridges, culverts, and buildings that impede the flow of water or raise the elevation of the floodplain. | Building, Public Works, GIS, Emergency Management Coordinator |

| #11 (new) | Long-term Flood | Collaborate with DOGAMI on potential mapping improvements to the 2011 DFIRM information that were recommended by them as listed in Appendix X in Chapter 5. | PDM; FMA, Emergency Management Coordinator, GIS, Planning, DOGAMI |
# Chapter 3 Mitigation Strategy

## Table 6. Earthquake Mitigation Actions

<table>
<thead>
<tr>
<th>Priority (High, Medium, Low)</th>
<th>Natural Hazard</th>
<th>Table x Earthquake Mitigation Actions</th>
<th>Potential Funding Resources</th>
<th>Lead Department (s)</th>
<th>Goal: Preventing Injury and Damage</th>
<th>Goal: Enhancing Emergency Services</th>
<th>Goal: Promoting Public Awareness</th>
<th>Goal: Forming Partnerships</th>
</tr>
</thead>
</table>
| **Short-term Earthquake #1** | **Identification of funding sources for undertaking earthquake mitigation in City-owned facilities.**  
- Identify the facilities and prioritize the work  
- Target the structural retrofit of the Carnegie Library Building and four City fire stations, and additional “safe havens”, such as the Santo Community Center, as funds become available.  
- Fire Stations were upgraded in July 2005 with funding provided by a FEMA grant.  
The Carnegie Library Building renovation project is still being evaluated due to limited funding opportunities. |  
- Existing Resources, other grants | CMO Emergency Management Coordinator, Planning, Building, GIS |  |  |  |  |
| **Short-term Earthquake #2** | **Support structural mitigation of infrastructure, schools and other public buildings.**  
- The City will model an active retrofit program for other public entities, share information with school districts on federal funding mechanisms, and facilitate the consideration of their applications.  
City Hall seismic retrofit was completed in 2003 and serves as an example project. |  
- Existing Resources & Pre-Disaster Mitigation (PDM) funds. | CMO, Emergency Management Coordinator, Building, Planning, GIS |  |  |  |  |
| **Short-term Earthquake #3 (new)** | **Ask DOGAMI to conduct a study of local earthquake hazards in Medford. Present the findings of that study to insurance companies and request that they use them to** |  
- PDM | Emergency Management Coordinator, GIS, Planning |  |  |  |  |

**Note:** DOGAMI stands for Disaster Oregon Geological and Mapping. This term is used to describe the state's geological mapping and disaster preparedness efforts.
### Chapter 3 Mitigation Strategy

**Inform homebuyers of their potential risk.**

DOGAMI is slated to begin a detailed geologic mapping project of the entire Ashland-Medford urban area in June 2010. Update:

- "Summary of Impact on Exposed Assets information (# structures, # tax lots, total improved value) each year.

**Short-term Earthquake #4**

Publicize the Medford Urban Renewal Agency’s (MURA) low-interest loans for earthquake mitigation on the City website and in the City Newsletter. This program no longer funded by the Urban Renewal Agency.

Existing Resources

- CMO, MURA, Emergency Management Coordinator

**Short-term Earthquake #5**

Educate the public, insurance and real estate industries about Medford’s earthquake hazards, such that they advise people/citizens of the availability of earthquake insurance. This information is already provided by insurance and real estate industries.

Existing Resources

- CMO, Emergency Management Coordinator

**Short-term Earthquake (new) #6**

Create a new educational video about earthquake awareness and preparation.

- Grants, partnerships, State of Oregon technical grant

**Long-term Earthquake #1**

Provide Medford residents, whatever their income, disability or ethnicity, with information on earthquake hazards and preparedness.

- Contact local advocacy groups, senior centers, social service agencies and care facilities serving these populations and provide them with pertinent Red Cross pamphlets and information about video resources in the public library system.

Existing resources.

Red Cross in partnership with Jackson County emergency management, Department of Health

Emergency Management Coordinator, Mgt. Team: American Red Cross; Hispanic Interagency Committee Vulnerable Populations Committee; United Way, Jackson County

<table>
<thead>
<tr>
<th><strong>Short-term Earthquake #4</strong></th>
<th><strong>Short-term Earthquake #5</strong></th>
<th><strong>Short-term Earthquake (new) #6</strong></th>
<th><strong>Long-term Earthquake #1</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Publicize the Medford Urban Renewal Agency’s (MURA) low-interest loans for earthquake mitigation on the City website and in the City Newsletter. This program no longer funded by the Urban Renewal Agency.</td>
<td>Educate the public, insurance and real estate industries about Medford’s earthquake hazards, such that they advise people/citizens of the availability of earthquake insurance. This information is already provided by insurance and real estate industries.</td>
<td>Create a new educational video about earthquake awareness and preparation.</td>
<td>Provide Medford residents, whatever their income, disability or ethnicity, with information on earthquake hazards and preparedness. Contact local advocacy groups, senior centers, social service agencies and care facilities serving these populations and provide them with pertinent Red Cross pamphlets and information about video resources in the public library system.</td>
</tr>
<tr>
<td>Existing Resources</td>
<td>Existing Resources</td>
<td>Grants, partnerships, State of Oregon technical grant</td>
<td>Emergency Management Coordinator, Mgt. Team: American Red Cross; Hispanic Interagency Committee Vulnerable Populations Committee, United Way, Jackson County</td>
</tr>
<tr>
<td>CMO, MURA, Emergency Management Coordinator</td>
<td>CMO, Emergency Management Coordinator</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
& Human Services and United Way of Jackson County provide information to all agencies serving citizens of low-moderate income and the homeless.

<table>
<thead>
<tr>
<th>Long-term Earthquake #2</th>
<th>Develop public/private partnerships for retrofitting projects.</th>
<th>Pre-Disaster Mitigation.</th>
<th>CMO Emergency Management Coordinator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Long-term Earthquake #3</td>
<td>Research and propose a study of the Medford area earthquake hazards</td>
<td>Existing resources, Pre-Disaster Mitigation grants.</td>
<td>Emergency Management Coordinator, Planning, GIS, DOGAMI</td>
</tr>
</tbody>
</table>
### Table 7: Wildland-Urban Interface Fires Mitigation Actions

<table>
<thead>
<tr>
<th>Priority (High, Medium, Low)</th>
<th>Natural Hazard</th>
<th>Table x Wildland-Urban Interface (WUI) Fires Mitigation Actions</th>
<th>Potential Funding Resources</th>
<th>Lead Department(s)</th>
<th>Goal: Preventing Injury and Damage</th>
<th>Goal: Enhancing Emergency Services</th>
<th>Goal: Promoting Public Awareness</th>
<th>Goal: Forming Partnerships</th>
</tr>
</thead>
</table>
| Short-term WUI Fires #1      |                | Work with Jackson County to support the maintenance and update of the adoption of WUI fire maps and the development of requirements that assist WUI fire mitigation within the Urban Growth Boundary.  
- Propose the adoption of a parallel set of requirements within City limits near interface areas.  
Fire Dept. is currently working with Jackson County Integrated Fire Plan and Jackson County has developed Wildland Urban Interface fire maps to help assess hazards to assist in fire mitigation. In addition, a new WUI home assessment program is being developed and delivered. | Emergency Management Coordinator, Fire, GIS, Planning, Jackson County Emergency Management | • | • | • | |
|                             |                | Existing Resources |                                                                 |                    |                      |                                  |                                  |                              |
| Short-term WUI Fires #2      |                | Continue to promote public awareness campaigns for property owners living within WUI interface areas.  
- Use public service announcements to reach the broader public and direct mailings to property owners in WUI hazardous areas.  
Fire Dept. promotes public awareness through seasonal press releases and WUI home assessment program. Fire Dept. also works with other agencies and committees including Rogue Valley Fire Prevention Cooperative and Jackson County Integrated Fire Plan (this is a document not an agency) which develop and deliver US Fire Administration (USFA): Assistance to Firefighters Grant Program; Fire Prevention and Safety Grants. | Emergency Management Coordinator, Fire, GIS, Planning, Jackson County, Rogue Valley Fire Prevention Cooperative, ODF | • | • | • |
## Chapter 3 Mitigation Strategy

### Short-term WUI Fires #3 (new)
- Update the “Summary of Impact on Exposed Assets” information (see Table x) each year (# structures, # tax lots, total improved value). The data is based on properties within the high risk fire zone.

### Long-term WUI Fires #1
- Increase the communication and collaboration among WUI property owners and public agencies to identify the risks in WUI areas, increase local knowledge of protective measures and available federal assistance programs.
- Fire Dept. works with ODF on the WUI Home Assessment Program which provides property owners in the WUI with advice, education and information on potential assistance programs to aid them in WUI fuel reduction measures.

### Long-term WUI Fires #2
- Reduce wildfire fuels in high-risk WUI fire hazard areas.
  - Undertake neighborhood meetings in these areas to educate property owners about what they can do to decrease fire hazard to their homes.
- Fire Dept. works with ODF on the WUI Home Assessment Program which involves a door to door educational campaign for WUI fuel reduction in wildland hazard mitigation areas.

### Long-term WUI Fires #3
- Explore the City’s ability to prohibit particular building materials and practices in high hazard areas, e.g., CC&R requirements.
  - If it is determined to be legal, consider including such restrictions in city ordinances.
- The Planning Dept. solicits recommendations from the Fire Dept. and includes them in staff reports as discretionary conditions for the Site Plan & Architectural Commission, Planning Commission

### Existing Resources
- Emergency Management Coordinator, Planning, Building, GIS
- US Fire Administration (USFA): Assistance to Firefighters Grant Program; Fire Prevention and Safety Grants.
- Emergency Management Coordinator, Fire, GIS, Planning, Jackson County, ODF

### Long-term WUI Fires #3
- Explore the City’s ability to prohibit particular building materials and practices in high hazard areas, e.g., CC&R requirements.
  - If it is determined to be legal, consider including such restrictions in city ordinances.
- The Planning Dept. solicits recommendations from the Fire Dept. and includes them in staff reports as discretionary conditions for the Site Plan & Architectural Commission, Planning Commission

### Existing resources
- Emergency Management Coordinator, Planning, Fire, Building, City Attorney
<table>
<thead>
<tr>
<th>Long-term WUI Fires #4</th>
<th>Planning, Fire, Public Works</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continue to consider the need for adequate ingress and egress for evacuation purposes during the land use planning process.</td>
<td></td>
</tr>
<tr>
<td>- Identify actions</td>
<td></td>
</tr>
<tr>
<td>- This is particularly important in the eastern hillside developments.</td>
<td></td>
</tr>
<tr>
<td>- Ingress and egress for new developments are considered by the Planning Commission when reviewing new subdivisions.</td>
<td></td>
</tr>
<tr>
<td>Fire Dept. is involved in the beginning of every land development project and provides a report which explains water supply and access requirements.</td>
<td></td>
</tr>
<tr>
<td>Existing resources.</td>
<td></td>
</tr>
</tbody>
</table>
## Table 8. Landslide Mitigation Actions

<table>
<thead>
<tr>
<th>Priority (High, Medium, Low)</th>
<th>Natural Hazard</th>
<th>Table x Landslide Mitigation Actions</th>
<th>Potential Funding Resources</th>
<th>Lead Department(s)</th>
<th>Goal: Preventing Injury and Damage</th>
<th>Goal: Enhancing Emergency Services</th>
<th>Goal: Promoting Public Awareness</th>
<th>Goal: Forming Partnerships</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Short-term Landslide #1 (new)</strong></td>
<td>Landslides Mitigation Actions</td>
<td>Track data related to landslide events, e.g. date of event, location, etc. and the impacts on property, e.g. foundation repairs, water main breaks, etc. on a parcel by parcel basis, within Medford UGB. Report this data to the Emergency Management Coordinator on a yearly basis. Note that events may or may not occur in identified landslide hazard areas. Explore the potential for testing the validity of the DOGAMI Debris-Flow Risk Area mapping in the Roxy Ann Peak area. Contact the Regional Geologist to see if he would like to partner on this idea. Explore federal funding opportunities.</td>
<td>Emergency Management Coordinator, Planning, Building Department, GIS, DOGAMI</td>
<td>•</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Short-term Landslide #2 (new)</strong></td>
<td>Landslides Mitigation Actions</td>
<td>Update the “Summary of Impact on Exposed Assets” information (see Table x) each year (# structures, # tax lots, total improved value). The data is based on properties with slopes 25% or more.</td>
<td>Existing resources, Pre-Disaster Mitigation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Long-term Landslide #1</strong></td>
<td>Landslides Mitigation Actions</td>
<td>Establish a hillside development ordinance that protects existing development in landslide-prone areas; includes public education about the risks to life and property in steep slope areas; implements construction and subdivision design that reduces potential adverse impacts on steep slopes; and treats issues related to proper drainage systems. Hillside ordinance was completed and adopted by City Council in 2009. Included already in the</td>
<td>Public Works, Planning, GIS, Emergency Management Coordinator</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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**Chapter 3 Mitigation Strategy**

Medford Natural Hazards Mitigation Plan 58 Update 2017
| Long-term Landslide #2 | Explore options for alternative access to existing hillside developments in steep slope areas.  
• Focus on developments on the steep slopes of Roxy Ann Peak.  
Completed—included in Hillside ordinance in 2009.  
Completed - Cherry Lane and Hillcrest Road/McAndrews Road provide ingress and egress to the residents of the Roxy Ann Peak area. Note when Cherry Lane and McAndrews were added. | Existing resources. | Public Works, Emergency Management Coordinator | • | • |
Table 9: Volcanic Eruptions Mitigation Actions

<table>
<thead>
<tr>
<th>Priority (High, Medium, Low)</th>
<th>Natural Hazard</th>
<th>Table x Volcanic Eruptions Mitigation Actions</th>
<th>Potential Funding Resources</th>
<th>Lead Department(s)</th>
<th>Goal: Preventing Injury and Damage</th>
<th>Goal: Enhancing Emergency Services</th>
<th>Goal: Promoting Public Awareness</th>
<th>Goal: Forming Partnerships</th>
</tr>
</thead>
</table>
| Short-term Volcanic #1       |                | Research the availability of plume models to better determine the City's vulnerability to volcanic ash.  
• Use the model to assess the risk posed by Mount Shasta.  
City of Medford GIS systems have developed a plume modeling program. Larry says info is from Ryan Sandler of NWS | Existing resources. | Technology Services, GIS, Emergency Management Coordinator, USGS, DOGAMI | . | . |  |  |
| Short-term Volcanic #2       |                | Increase the public’s awareness of the potential for volcanic eruptions. Include information at events such as included in Emergency Preparedness brochure distributed during Neighborhood Walk visits with residents. | Existing resources. | Emergency Management Coordinator, Mgt. Team | . | . |  |  |
| Long-term Volcanic #1        |                | Explore options for a regional ash disposal plan.  
• Begin pertinent discussions at a Board Meeting of the Rogue Valley Council of Governments or at the regional City Managers’ Meeting.  
Low priority issue for members of the Rogue Valley Council of Governments – will not be pursued at this time. | Existing resources. | Emergency Management Coordinator, Public Works | . | . |  |  |
| Long-term Volcanic #2        |                | Coordinate with other agencies to protect people citizens from the health effects of ash.  
• Provide information regarding shelter in place, respiratory and skin protection, and avoiding use of vehicles and machinery prone to damage. Hold tabletop | Existing resources. | Emergency Management Coordinator, Emergency Mgt. Team | . | . |  |  |
exercises among emergency response and health care facility personnel to simulate conditions and responses and to assess human and technical capacities. Has not been topic of table-top exercise at this time as trainings have been focused on events with a higher occurrence rate.
Table 10. Air Quality Mitigation Actions

<table>
<thead>
<tr>
<th>Priority (High, Medium, Low)</th>
<th>Natural Hazard</th>
<th>Table x Mitigation Actions</th>
<th>Potential Funding Resources</th>
<th>Lead Department (s)</th>
<th>Goal: Preventing Injury and Damage</th>
<th>Goal: Enhancing Emergency Services</th>
<th>Goal: Promoting Public Awareness</th>
<th>Goal: Forming Partnerships</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Short-term Air Quality #1</td>
<td></td>
<td>Existing resources.</td>
<td>Emergency Management Coordinator,</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Short-term Air Quality #2</td>
<td></td>
<td>Existing resources.</td>
<td>Emergency Management Coordinator,</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Long-term Air Quality #1</td>
<td></td>
<td>Pre-Disaster Mitigation</td>
<td>Emergency Management Coordinator,</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Long-term Air Quality #2</td>
<td></td>
<td>Pre-Disaster Mitigation</td>
<td>Emergency Management Coordinator,</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Table 11. Emerging Infectious Diseases Mitigation Actions

<table>
<thead>
<tr>
<th>Priority (High, Medium, Low)</th>
<th>Natural Hazard</th>
<th>Table x Emerging Infectious Diseases Mitigation Actions</th>
<th>Potential Funding Resources</th>
<th>Lead Department(s)</th>
<th>Goal: Preventing Injury and Damage</th>
<th>Goal: Enhancing Emergency Services</th>
<th>Goal: Promoting Public Awareness</th>
<th>Goal: Forming Partnerships</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short-term Disease Outbreaks #1</td>
<td>Existing resources.</td>
<td>Emergency Management Coordinator</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Short-term Disease Outbreaks #2</td>
<td>Existing resources.</td>
<td>Emergency Management Coordinator</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Long-term Disease Outbreaks #1</td>
<td>Pre-Disaster Mitigation.</td>
<td>Emergency Management Coordinator</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Long-term Disease Outbreaks #2</td>
<td>Pre-Disaster Mitigation.</td>
<td>Emergency Management Coordinator</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Chapter 4 Planning Process

Figure 6. Scenes from Medford’s NHMP Planning Process

Source: Tricia Sears, DLCD, January 2017
Section 1 Introduction

“An effective and open planning process helps ensure that citizens understand the risks and vulnerability, and they can work with the jurisdiction to support policies, actions, and tools that over the long-term will lead to a reduction in future losses” (FEMA, 2011).

In CFR 44, as part of the Natural Hazards Mitigation Plan, FEMA identifies several requirements for the planning process such as 201.6(b); 201.6 (b)(1); 201.6(b)(2); 201.6(b)(3); 201.6(c)(1); 206(c)(4)(i); and 201.6(c)(4)(iii). According to the *Local Mitigation Plan Review Guide*,

“FEMA will accept the planning process as defined by the community, as long as the mitigation plan includes a narrative description of the process used to develop the mitigation plan – a systematic account about how the mitigation plan evolved from the formation of a planning team, to how the public participated, to how each section of the plan was developed, to what plans or studies were incorporated in the plan, to how it will be implemented. Documentation of a current planning process is required for both new and updated plans” (FEMA, 2011).

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**44 CFR §201.6(b)**, An open public involvement process is essential to the development of an effective plan. In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process shall include:

- **44 CFR §201.6(b)(1)**, An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval;
- **44 CFR§201.6(b)(2)**, An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation, 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
- **44 CFR §201.6(b)(3)**, Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.

**44 CFR §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.

**44 CFR §201.6(c)(4)(i)**, The plan maintenance process shall include a method and schedule for monitoring, evaluating, and updating the mitigation plan within a five-year cycle.

**44 CFR §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.
Organizing and Planning for the Medford NHMP

The City of Medford worked with DLCD to determine the most effective way to update the City of Medford’s 2010 NHMP. Medford was included, along with several other jurisdictions, in a Pre-Disaster Mitigation grant that DLCD made to FEMA in 2014. DLCD received a Pre-Disaster Mitigation (PDM 14) grant approval and funding from FEMA through OEM to assist Medford with its NHMP update. The grant’s original performance period was from April 21, 2014 through September 30, 2016. Because FEMA’s grant award process and then Oregon’s subsequent legislative fiscal process took an extensive amount of time, a 12-month no-cost period of performance extension from FEMA to complete the update was requested by DLCD in July 2016. FEMA granted the extension on August 30, 2016; this provided a grant performance period that extended through September 30, 2017 for PDMC-PL-OR-2014-003.

FEMA does not allow DLCD to disburse the PDM 14 grant funds to local governments to complete updates on their own. Therefore, DLCD used the grant funds to provide consulting and technical assistance to Medford to complete the update, and Medford provided cost-share through in-kind services. Medford documented its cost-share expenditures.

During the NHMP update process, Medford entered the Jackson County Multi-Jurisdictional NHMP update process. Once the Medford NHMP is officially approved, Medford will re-adopt its updated NHMP as an addendum to the Jackson County NHMP. DLCD will provide technical assistance to Medford during this process. DLCD will also provide technical assistance to Medford on the integration of its updated NHMP into Medford’s existing planning mechanisms.

Invitations to the Steering Committee members were extended by the Emergency Management Coordinator and DLCD staff at the beginning and throughout the planning process. Medford’s NHMP Steering Committee’s kickoff meeting occurred on June 22, 2016, beginning a planning process for the City of Medford’s Natural Hazards Mitigation Plan that continued through June 2017. The Project Schedule, in two versions: the original provided to the Steering Committee at the kickoff meeting and the final version, is included in Appendix x. Additional documentation from the NHMP planning process, such as but not limited to the Public Engagement Program, the Memorandum/Scope of Work, timeline of project activities, agendas, website screen shots, informational flyers, and floodplain information, is also included in Appendix x.

At the June 22, 2016 Steering Committee (SC) meeting, the members of the SC determined that having one committee rather than two separate committees (the Steering Committee and the Community Partners Committee) would be most efficient. Larry Masterman, the Emergency Management Coordinator, and Jim Huber, the Planning Director at that time, agreed to co-chair the Steering Committee. After Jim Huber’s retirement, Chris Olivier stepped in as co-chair and continued the Planning Department representation. The Steering Committee was comprised of City staff, agencies, and community groups. The Steering Committee was intended to bring a range of community perspectives, interests, and expertise to the planning process.

The role of this Steering Committee was to: generate ideas for plan content; provide required information; develop or assist in the development of plan components; react to and critique draft plan components; and participate in the generation of mitigation actions. A list of the Steering
Committee members, as well as other participants and contributors to the update of the Medford NHMP, is provided in the Acknowledgements section at the beginning of the NHMP.

**Review of Plan Format and Content, and Changes Made**

“To continue to be an effective representation of the jurisdictions overall strategy for reducing risk to natural hazards, the updated local mitigation plan must reflect current conditions and progress in mitigation efforts. The 5-year plan update is an opportunity for each jurisdiction to assess its previous goals and actions, evaluate progress in implementing the action plan, and adjust its actions to address current realities” (FEMA, 2013).

The original Medford NHMP was approved by FEMA in 2004. In August 2010, an updated NHMP was approved by FEMA, with the title of *City of Medford Pre-Disaster Mitigation Plan*. The 2010 updated NHMP relied on information in the 2004 NHMP.

For the 2016-2017 updated NHMP, much of the existing NHMP information was either revised or removed. A considerable amount of information was added, and the NHMP was completely re-organized and reformatted. A new Hazards Analysis was performed so that current scientific information, recent hazard event data, and other current information was used. Mitigation actions, formerly called measures, were updated. Existing maps were updated and a few were removed. New maps were added; these are identified as such in the Table of Contents. Again, new data was used as well as new methodologies, to revise the maps and to create new ones. Map methodologies are described in Appendix x Map Methodology.

Data was gathered by DLCD and Medford staff using extensive research and collaboration with other agencies and organizations. DOGAMI provided a considerable amount of support on mapping to this NHMP as did the Medford GIS staff.

Review of the existing material and transformation of the NHMP into this current version included review of technical analyses, datasets, local information, regional and state information, academic materials and other resources; all are identified briefly within the NHMP text and fully in the References in Appendix x.

A brief description of the focus and formation of the chapter content in the Medford NHMP is included below.

**Develop a Community Profile: Chapter 1**

The Community Profile describes the City’s basic characteristics and the implications of those characteristics for the impact of natural hazards on the city. The Community Profile also suggests how those characteristics affect the City’s ability to prepare for, mitigate, respond to or recover from a disaster. The Community Profile was developed in a collaborative fashion by DLCD staff and the Steering Committee, using available documents and conducting additional research.
Hazard Identification and Risk Assessment: Chapter 2

The identified natural hazards faced by Medford were reviewed and described with respect to the type of hazard, the location and extent of the hazard, the history of hazard events, the probability of future events (the likelihood of occurrence in terms of intensity and frequency), and the impacts and vulnerabilities on the City of Medford. The City’s vulnerability to each hazard was defined. One of the tools used was an inventory of the built and natural environment lying within the area affected by each hazard. This was done using GIS mapping and database capabilities. Estimates were made of the number of impacted structures and the potential dollar losses from the hazards. A Hazard Analysis was performed at the September 23, 2016 Steering Committee meeting. As completed, it provides a relative ranking of natural hazards faced by the City. See Appendix X for the Hazard Analysis, and an explanation of the methodology used. Steering Committee members expressed the most concern for the risk represented by severe weather, floods, earthquakes, and wildland-urban interface fires.

Mitigation Strategy and Planning Process: Chapters 3 and 4

In 2004, having assessed the hazards faced by the City and ongoing mitigation actions, the Steering Committee developed an overarching mission and four goals serving that mission. The mission and goals were retained in the 2010 NHMP update and again in the 2016-2017 NHMP update. The current Steering Committee also reviewed the action items from the 2010 NHMP. Those action items were categorized as multi-hazard or hazard-specific, as well as short-term or long-term, and reviewed and assessed. The Steering Committee identified what the City has accomplished; those are included in the “Medford’s Existing Efforts that Implement Mitigation Actions” portion of Chapter 3. Accomplished actions are mitigation because they are actions that were taken to reduce or eliminate risk to people, property, and the environment from hazards. The Steering Committee also determined if the actions were to be retained, revised, or deleted, as well as adding new actions.

As described in Chapter 3, monitoring of mitigation actions will be continuous by the Emergency Management Coordinator, who is the primary responsible party for monitoring, evaluating, and updating the Medford NHMP. Meetings of the Emergency Management Coordinator with the Planning Department representative, and meetings with the Steering Committee, will be convened during the timeframe covered by this 2016-2017 NHMP. Meetings, public outreach, hazard events, and potential changes needed to the NHMP will be documented by the Emergency Management Coordinator.

Chapter 4 describes the planning process for the Medford NHMP.

Appendices: Chapter 5

The Appendices include the Glossary, References, the Hazard Analysis, the Map Methodology, the Cost Benefit Analysis, History, Climate Change, and the Planning Documentation. Outreach efforts for the Medford NHMP are included in Planning Documentation.
Section 2: Public Participation

The City of Medford takes pride in its public outreach efforts and the level of civic participation. Outreach was performed in a variety of methods during this Medford NHMP process including emails, website postings, distribution of printed flyers, word of mouth, community events, interviews, open Steering Committee meetings, briefings to the Planning Commission and to the City Council, and an open house.

Copies of the Medford NHMP are on the City’s website and catalogued and maintained at the downtown Jackson County Library District headquarters. The contact person on the NHMP is the City of Medford Emergency Management Coordinator.

Documentation of the NHMP planning process is included in Chapter 5 Appendix H.

Medford’s past NHMP work relates to the present. With that in mind, it should be noted that the NHMP goals and referred implementation strategies identified in 2004, continue to have a role.

In May 2004, after the NHMP goals were developed by the Steering Committee, NHMP project staff convened a special focus group to represent a broad range of perspectives and stakeholders in the community. Invited were Neighborhood Watch Captains from each City ward, a developer, downtown businesspeople, the owner two assisted living facilities, a nurse who specializes in disaster preparedness from the local health care industry, a senior, and the Neighborhood Resource Coordinator for the City of Medford.

The Oregon Natural Hazards Workshop of the University of Oregon led the focus group. Participants were asked to prioritize the NHMP goals. From this process, the City learned that stakeholders strongly favored an emphasis on the goals of Promoting Public Awareness and Enhancing Emergency Services. According to the participants, residents have primary responsibility for disaster preparedness and the well-being of their families. Educating the public about that responsibility and the importance of preparedness were seen as the key to mitigation. Prevention was seen as less effective and regulation as onerous and less productive.

The focus group was then asked to imagine that they were City Councilors with funds to budget among four strategies for achieving each of the four mitigation goals. The strategies were education, providing incentives, regulation, or acquisition of property or resources. Table x below displays the choices they made.

Table 12. Preferred Implementation Strategies

<table>
<thead>
<tr>
<th>Goal</th>
<th>Education</th>
<th>Regulation</th>
<th>Acquisition</th>
<th>Incentives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prevention</td>
<td>$44,000</td>
<td>$23,000</td>
<td>$4,000</td>
<td>*</td>
</tr>
<tr>
<td>Emergency Services</td>
<td>$35,000</td>
<td>$7,000</td>
<td>$14,000</td>
<td>*</td>
</tr>
<tr>
<td>Public Awareness</td>
<td>$28,000</td>
<td>*</td>
<td>*</td>
<td>$12,000</td>
</tr>
</tbody>
</table>
Partnerships $16,000 * * $24,000

*Not Applicable

Source: Oregon Natural Hazards Workgroup, May 2004

The total of the amounts allocated to each of the four strategies revealed a clear emphasis on education. Of the entire $207,000, some 59% was dedicated to the education strategy. Education was followed by incentives (17%), regulation (14%), and acquisition (9%).

These results are consistent with the 2004 ranking of mitigation goals, whereby participants deemed promoting public awareness most important. The results reflect commonly expressed local values that stress the importance of personal responsibility.

With this direction from citizens, the City placed top priority on implementing short-term actions that preserve the life, health and safety of its citizens. The City implemented public awareness and preparedness strategies whenever possible and continues to do so.
Section 3: Maintaining the Plan

Plan maintenance is a critical component of the NHMP. It ensures that this NHMP will continue to be current and guide mitigation actions into the future. It is possible that the Medford NHMP mission and goals will change over time, if determined as an appropriate step by the Steering Committee. NHMP strategies and actions will require periodic review and refinement, in addition to the required NHMP update timelines. Also, new scientific information that can change the understanding of hazard risk occasionally becomes available. This new information should be reflected in the NHMP and, if necessary, acted upon.

Monitoring and Evaluation

As discussed in Chapter 3 Mitigation Strategy, the Steering Committee will be responsible for monitoring and evaluating the NHMP, led by the Emergency Management Coordinator, between updates. During the monitoring and evaluation phase, the committee will discuss the following:

- Funding opportunities
- New data
- Mitigation action progress
- Public comments
- Elected official comments
- New mitigation actions
- Mitigation action screening and prioritization criteria
- Lessons learned
- Mitigation success
- Priorities for the next plan update.

The committee may choose to meet additional times than the usual schedule – such as after a disaster event or if new funding opportunities arise – to review the mitigation actions of the NHMP and reconsider priorities for implementation of those actions.

NHMP Updates

This NHMP will be updated every five years, as required by the Disaster Mitigation Act of 2000. The questions below are borrowed from the Multnomah County Multi-Jurisdictional NHMP draft dated November 7, 2016. Questions to be considered include but are not limited to:

- Are the plan goals still applicable? If no, what are the modifications that should be made?
- Do the plan’s priorities align with state priorities? If no, what steps do we take to align priorities?
- What new partners should be brought to the table?
- What new local, regional, state, or federal policies influencing natural hazard should be addressed?
- What mitigation activities has the community successfully implemented since the last plan was updated?
• What new issues or problems related to hazards have been identified in the community?
• What existing actions need to be reprioritized for implementation?
• Are the actions still appropriate given current resources?
• What changes in development patterns could influence the effects of hazards?
• What significant changes in the community’s demographics could influence the effects of hazards?
• What new studies or data would enhance the risk assessment?
• Has the community been affected by any disasters? How did the plan accurately or inaccurately address the impacts of those events?

Discussing these questions as well others, will help the communities determine what components of the NHMP need to be updated.