

4 Mitigation Strategy

*The **Mitigation Strategy** is a long-term blueprint for creating a more disaster-resilient community by reducing the potential losses identified in the risk assessment. 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).*

4.1 Vision, Goals and Objectives

The vision for Multnomah County and its partners is to foster a disaster-resilient community in which:

- Risk-consciousness at all levels — from individuals and businesses to government agencies — is forefront in decision-making.
- Efforts to reduce risk are conducted in an inclusive and collaborative environment.
- Equity is a key consideration in identifying and implementing mitigation and disaster recovery actions.
- The risk to health and safety of all citizens from disaster events is minimized.
- All communities within the county are able to effectively and efficiently recover from disasters because impacts to the economy, built environment, and natural and cultural resources have been greatly reduced.

To reach this vision of resilience, the mitigation strategy is built upon the following goals and objectives:

Goal 1. Strengthen the capacity of the whole community¹ to reduce risk by increasing hazard awareness, creating partnerships, and leveraging multiple implementation mechanisms and funding opportunities.

Obj. 1.1. Ensure the risk assessment and related risk information materials are current with the best available science and appropriate for diverse audiences.

Obj. 1.2. Support community outreach activities that increase stakeholder awareness and understanding of hazard risk and mitigation options.

Obj. 1.3. Continue efforts to build effective partnerships with community-based organizations, businesses and government agencies to identify and implement mitigation actions.

Obj. 1.4. Integrate risk reduction concepts, policies and projects into existing planning and implementation mechanisms, such as comprehensive plans, development codes and capital improvement plans.

Obj. 1.5. Seek various funding opportunities, including mitigation-specific grant sources and local financing solutions.

Obj. 1.6. Enhance efforts to monitor vulnerability reduction and document progress toward resiliency.

¹ The whole community includes individuals, families and households; communities; nongovernmental organizations; private-sector entities; and government agencies (National Mitigation Framework, 2013).

Goal 2. Develop mitigation actions that consider all community systems: economic, health and social services, housing, infrastructure, and natural and cultural resources.

- Obj. 2.1. Consider strategies that support a prosperous and resilient economy and that would expedite economic restoration following an incident.
- Obj. 2.2. Consider strategies that promote the health, independence and well-being of the whole community.
- Obj. 2.3. Consider strategies that mitigate existing housing risks and increase resilience in new construction, repair and rebuilding.
- Obj. 2.4. Consider strategies that strengthen essential infrastructure and services, decrease disruptions, and increase resilience in new construction, repair and rebuilding.
- Obj. 2.5. Consider strategies that conserve, protect and restore the natural and cultural assets of the community.

Goal 3. Prioritize mitigation actions that have a high benefit-to-cost ratio and increase social equity.

- Obj. 3.1. Prioritize actions that have a positive benefit-to-cost ratio by estimating whether the expected long-term benefits of losses avoided will exceed the cost of the mitigation action.
- Obj. 3.2. Prioritize the allocation of resources for mitigation actions that benefit underserved¹ and underrepresented² communities, especially those in high-hazard-risk areas.
- Obj. 3.3. Seek opportunities in which hazard mitigation also benefits other community goals, such as economic development, energy efficiency, public health, universal design or environmental conservation.
- Obj. 3.4. Consider the increased benefit an action may have that reduces risk from multiple hazards.

Goal 4. Plan for including mitigation activities during post-disaster recovery and reconstruction.

- Obj. 4.1. Integrate policies that reduce disaster risk into recovery plans and reconstruction standards by planning for recovery prior to a disaster.
- Obj. 4.2. Educate stakeholders on post-disaster mitigation funding sources and opportunities to build back resiliently.
- Obj. 4.3. Ensure policies and public outreach strategies are in place to provide equitable access to post-disaster mitigation opportunities.

¹ *Underserved* means people and places that historically and currently do not have equitable resources, access to infrastructure, healthy environments, housing choice, etc. Due to historical inequitable policies and practices, disparities may be recognized in both access to services and outcomes.

² *Underrepresented* recognizes that some communities historically and currently have not had equal voice in institutions and policy-making, and have not been served equitably by programs and services.

4.2 Actions

4.2.1 Action Identification

A mitigation action is a specific action, project, activity or process taken to reduce or eliminate long-term risk to people and property from hazards and their impacts. Mitigation actions are different from actions taken to prepare for or respond to hazard events. By reducing risk, mitigation lessens the need for response resources and speeds recovery. Actions that are focused on response and operational planning are tracked through separate planning processes by emergency management entities in the Planning Area.

Table 4.2-1 details the primary types of mitigation actions, including: (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 Natural Hazards Mitigation Plan (NHMP) planning process and plan during implementation and future updates.

Table 4.2-1 Types of Mitigation Actions

Mitigation Type	Description	Examples
Local Plans and Regulations	These actions include government authorities, policies or codes that influence the way land and buildings are developed and built.	<ul style="list-style-type: none"> • Comprehensive plans • Land use ordinances • Subdivision regulations • Development review • Building codes and enforcement • National Flood Insurance Program (NFIP) Community Rating System • Capital improvement programs • Open space preservation • Stormwater management regulations and master plans
Structural and Infrastructure Projects	<p>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.</p> <p>This type of action also involves projects to construct man-made structures to reduce the impact of hazards.</p> <p>Many of these types of actions are projects eligible for funding through the Federal Emergency Management Agency (FEMA) Hazard Mitigation Assistance program.</p>	<ul style="list-style-type: none"> • 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.	<ul style="list-style-type: none"> • Sediment and erosion control • Stream corridor restoration • Forest management • Conservation easements • Wetland 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.	<ul style="list-style-type: none"> • 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.	<ul style="list-style-type: none"> • More detailed or advanced risk assessments • Including additional stakeholders in planning and implementation processes • Enhanced sections or improved format to plan or accessory documents

Source: FEMA's Local Mitigation Plan Review Guide, 2011

To identify actions for this plan update, the steering committee first reviewed actions from the previous mitigation plans, related local plans and regulations, guides on mitigation best practices, and activities that are eligible for federal Hazard Mitigation Assistance funding. At a Hazard Mitigation Strategy Workshop on October 1, 2015, preliminary “action ideas” were shared with the steering committee and key stakeholders and additional action ideas were brainstormed. Public outreach activities provided additional opportunities for identifying actions. Action ideas were then reviewed in relation to the updated risk assessment to determine which actions would reduce identified risks to life safety or property.

4.2.2 Action Prioritization

Mitigation action screening criteria and prioritization criteria were reviewed and edited at the Hazard Mitigation Strategy Workshop. For more information about the workshop, see section 5.1.2 Stakeholder Participation and meeting minutes in **Appendix G: Planning Process Documents**.

Screening criteria:

- Minimal equity impacts
- Technically feasible
- Legal authority exists
- Administrative capacity exists
- Political/public support exists
- Minimal adverse environmental impacts
- Addresses an identified risk
- Meets goals and is consistent with goals from other communities' plans

The committee then further refined the prioritization criteria, as shown in **Table 4.2-2 Mitigation Action Prioritization Criteria**.

The committee unanimously preferred that each jurisdiction prioritize actions for its own community, rather than having one set of priority actions for the entire Planning Area. Each jurisdiction then identified its top mitigation actions by answering the question, “*To which actions will your community dedicate resources within the next five years?*” Finally, each jurisdiction applied the prioritization criteria in **Table 4.2-2** to its top actions.

Points were assigned to top actions based on the scoring system shown in **Table 4.2-2**: 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 opportunities for funding or implementation emerge. The responsible organization to which an action is assigned also will be asked to weigh in on any decision regarding the action moving forward.

Table 4.2-2 Mitigation Action Prioritization Criteria

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

Source: Mitigation action prioritization criteria was developed by the NHMP Steering Committee

4.2.3 Action Plan

Table 4.2-3 Top Mitigation Actions contains 48 prioritized actions that form the mitigation strategy. These actions address vulnerabilities identified in section **3 Hazard Identification and Risk Assessment** and focus on the hazards to which each jurisdiction has a high and moderate level of risk as identified by the local Office of Emergency Management (OEM) Hazard Analysis scores. For more information on the OEM Hazard Analysis methodology and scores, see **Appendix C Local OEM Hazard Analysis Scores**. Considerable updates were made from the previous Action Plans, and are tracked in **Appendix E: Progress Report on Mitigation Efforts**.

Not all actions relate to every jurisdiction in the Planning Area. As such, the steering committee agreed that each jurisdiction would prioritize the actions most relevant to their community. **Table 4.2-3** only lists communities for which the action is a top priority. Actions are grouped by hazard and in no order of priority. For each top action, **Table 4.2-3** lists:

- **Community systems** addressed by the action, as described in **Goal 2**. Community systems include: economic, health and social services, housing, infrastructure, and natural and cultural resources.
- Relevant **action type(s)** as described in **Table 4.2-1**. Action types include: local plans and regulations, structural and infrastructure projects, natural systems protection, education and awareness programs, and planning process and analysis.
- **NHMP goal(s)** addressed by that action. See **Section 4.1** for a description of the goals.
- **Carry-over and consistency notes** listing which actions in current local NHMPs in the Planning Area have been revised or carried over as is; as well as other plans with which that action aligns.
- The **jurisdiction(s)** for which this is a top action.
- The **lead** entity to champion the action.
- **Prioritization criteria** scores. See **Table 4.2-2** for a description of the prioritization criteria — equity, benefits, costs, risks, capacity — and scoring method.
- Known or potential **funding** sources.
- Known or potential planning **mechanisms** that could implement the action.
- **Notes** when applicable.

Actions not identified as “top actions” (**Table 4.2-4 Other Mitigation Actions**) will be evaluated and reviewed during the required semi-annual NHMP monitoring meetings. If the equity, benefits, costs, risk, or capacity and support change during this plan’s five-year cycle, the steering committee will reassess its prioritization and ranking.

Table 4.2-3: Top Mitigation Actions

Hazard	Action ID	Top Mitigation Actions										
		Jurisdiction	Lead	Equity	Benefit	Cost	Risk	Capacity	Priority Score	Potential Funding	Potential Implementation Mechanism	Notes
ALL HAZARDS	1	Leverage existing hazard mitigation public outreach methods to develop a Hazard Mitigation Outreach Strategy for the Planning Area. The strategy will be culturally appropriate, and inclusive of traditionally underserved and underrepresented populations, and access and functional needs. Community System: All Action Type: Education and Awareness Programs NHMP Goals: 1, 2, 3 Carry-over and Consistency Notes: Revises local NHMP actions # 3, 14, 68, 79, 98, 109, 116, 129, 139; consistent with Climate Action Plan actions 15F, 16B, 17C, and the Multnomah County Vulnerable Populations Assessment Report										
		Prioritization Criteria										
		Fairview	Police chief with assistance of Public Safety Advisory Committee (PSAC)	3	3	3	3	3	13	General Fund: Police/Emergency Management	City Council Public Safety Advisory Committee; Emergency Operations Plan Addenda	
	Wood Village	Public Works	2	2	3	3	3	13	General Fund	Public Outreach Program	Newsletter articles regarding all hazards, with a special focus on severe weather (i.e., urban flooding) and volcanic hazards	
	Gresham	Emergency Management	1	2	3	3	3	12	General Funds/UASI	Public outreach program	Work with Multnomah County Emergency Management and Boise State University to create a Hazard Mitigation Outreach Toolkit to include a hazard mapping program.	
	2	Share hazard mitigation information to encourage integration into other planning mechanisms, such as comprehensive plans (i.e., Statewide Land Use Goal 7: Areas Subject to Natural Hazards) and development code updates. Community System: All Action Type: Local Plans and Regulations NHMP Goals: 1, 2 Carry-over and Consistency Notes: Revises local NHMP actions # 13, 20, 64, 84, 107; consistent with Climate Action Plan action 15F										
Prioritization Criteria												
Multnomah County		Dept. of Community Services, Land Use Planning Division	2	1	3	3	3	12	General Fund	Coordination Meetings, Land Use Ordinance Amendments		
Fairview	City's Senior Management Team	2	2	3	3	2	12	General Fund; Utility Funds	Comprehensive Land Use Plan, Land Use Development Ordinance, Utility Master Plans			
Troutdale	Planning Dept.	3	3	3	3	3	15	General Fund, grants	Comprehensive Land Use Plan, Zoning Ordinance			

Enhance the list of plans, policies and codes for each jurisdiction that address hazards in the Hazard Mitigation Plan.

Community System: All Action Type: Planning Process and Analysis NHMP Goals: 1, 2

Carry-over and Consistency Notes: New action

3	Jurisdiction	Lead	Prioritization Criteria					Priority Score	Potential Funding	Potential Implementation Mechanism	Notes
			Equity	Benefit	Cost	Risk	Capacity				
	Multnomah County	Emergency Management	1	2	3	1	3	10	General Fund; Emergency Management Program Grants funds	Comprehensive Land Use Plan, Zoning Ordinance	
	Fairview	City's Senior Management Team	2	2	3	3	3	13	General Fund	Senior Management Team	
	Gresham	Planning Department	2	3	3	3	3	14	General Funds	Floodplain Code	Complete Environmental Overlay Project and update floodplain code to reflect newer federal guidelines intended to ensure Endangered Species Act considerations are included in floodplain management decisions.

Work cross-jurisdiction with the Portland Metro Region's Urban Area Security Initiative's (UASI) Regional Disaster Preparedness Organization (RDPO) to develop a Post-Disaster Recovery Plan for the region. This project has been approved by the RDPO to receive UASI 2016 grant funding.

Community System: All Action Type: Local Plans and Regulations NHMP Goals: 1, 2, 4

Carry-over and Consistency Notes: New action

4	Jurisdiction	Lead	Prioritization Criteria					Priority Score	Potential Funding	Potential Implementation Mechanism	Notes
			Equity	Benefit	Cost	Risk	Capacity				
	Multnomah County	Emergency Management	1	2	3	1	2	9	Emergency Management Program Grant Funds	RDPO Post Disaster Recovery Plan	
	Fairview	City's representative to RDPO	3	3	1	2	2	11	General Fund, UASI 2016 Grant	RDPO Post Disaster Recovery Plan	
	Troutdale	City Manager	3	3	3	3	3	15	General Fund	RDPO Post Disaster Recovery Plan	

ALL HAZARDS

5	<p>Integrate hazard risk assessments with jurisdiction/agency continuity of operations requirements to identify mitigation priorities; e.g., facilities that house critical functions and are at risk should be prioritized for mitigation/retrofit/alternative projects within each agency’s Capital Improvements Program. Consideration should be given to life safety vs. habitable vs. operational. Document what has already been mitigated and make info easily accessible. The list of mitigation needs can also be used after a disaster to include mitigation during recovery/repair activities.</p> <p>Community System: Infrastructure Action Type: Local Plans and Regulations NHMP Goals: 1, 2, 4</p> <p>Carry-over and Consistency Notes: Revises local NHMP actions # 15, 19, 42, 48, 59, 70, 78, 83, 91, 108 , 137</p>										
			Prioritization Criteria								
	Jurisdiction	Lead	Equity	Benefit	Cost	Risk	Capacity	Priority Score	Potential Funding	Potential Implementation Mechanism	Notes
	Multnomah County	Department of County Assets	1	2	2	3	2	10	Building Base, Project Specific (Capital Improvement Plans), or Grants, if available.	Facilities and Property Management development and adoption of policy or procedure	
	Fairview	City's Senior Management Team	2	3	1	2	1	9	General Fund, Utility Funds	Continuity of Operations Plan	
Troutdale	Public Works	3	3	3	3	3	15	Utility Funds	Continuity of Operations Plan		
6	<p>Explore and document in the plan how hazard mitigation is integrated into the early design process for public facility and infrastructure projects. Explore opportunities to show co-benefits of sustainable and resilient building practices.</p> <p>Community System: Infrastructure Action Type: Local Plans and Regulations NHMP Goals: 2</p> <p>Carry-over and Consistency Notes: Consistent with Climate Action Plan actions 14A, 16</p>										
			Prioritization Criteria								
	Jurisdiction	Lead	Equity	Benefit	Cost	Risk	Capacity	Priority Score	Potential Funding	Potential Implementation Mechanism	Notes
	Multnomah County	Department of County Assets	1	3	2	3	2	11	Integrate into Project Fund	Facilities and Property Management design process	
	Fairview	City's Senior Management Team	3	3	3	2	3	14	Project-specific Funding, (i.e., new public workshop, new well head)	Request For Proposal process for improvement of new structures	
Wood Village	City Manager	1	1	2	3	3	10	General Fund	Development Request For Proposal process		
Troutdale	Public Works	3	3	3	3	3	15	Utility Funds	Include in preplanning for city structures		

7	<p>Develop Community Executive Summaries that explain the relevant portions of the Hazard Mitigation Plan to elected officials and members of specific communities. Provide annual progress report updates to the Community Summaries.</p> <p>Community System: All Action Type: Planning Process and Analysis NHMP Goals: 1, 2</p> <p>Carry-over and Consistency Notes: Revises local NHMP action # 128</p>										
	Prioritization Criteria										
	Jurisdiction	Lead	Equity	Benefit	Cost	Risk	Capacity	Priority Score	Potential Funding	Potential Implementation Mechanism	Notes
Fairview	City Administrator	2	2	3	2	1	10	Administration Budget	Emergency Operation Plan Addenda		

8	<p>Collaborate and coordinate across the Planning Area to support applications to FEMA Hazard Mitigation Assistance grants and Oregon Seismic Rehabilitation Grant Program annually.</p> <p>Community System: All Action Type: Planning Process and Analysis NHMP Goals: 1, 2, 4</p> <p>Carry-over and Consistency Notes: Revises local NHMP actions # 4, 18, 36, 69, 82, 112</p>										
	Prioritization Criteria										
	Jurisdiction	Lead	Equity	Benefit	Cost	Risk	Capacity	Priority Score	Potential Funding	Potential Implementation Mechanism	Notes
Multnomah County	Emergency Management	1	2	3	3	3	12	Emergency Management Program Grant Funds	Capital Improvements Plans		

9	<p>Assess resources needed for plan implementation and develop capacity options for consideration by participating jurisdictions to pool resources. Develop a cross-jurisdictional team to work on analysis, stakeholder coordination, and grant writing. Partner with state, regional, and academic organizations to coordinate projects related to risk analysis and reduction. Seek opportunities to coordinate planning processes of related plans with similar update cycles, e.g. NHMPs, Community Wildfire Protection Plan, Climate Action Plan.</p> <p>Community System: All Action Type: Planning Process and Analysis NHMP Goals: 1, 2, 4</p> <p>Carry-over and Consistency Notes: Revises local NHMP action # 130; consistent with Climate Action Plan actions 20C, 20J, 20N</p>										
	Prioritization Criteria										
	Jurisdiction	Lead	Equity	Benefit	Cost	Risk	Capacity	Priority Score	Potential Funding	Potential Implementation Mechanism	Notes
Gresham	Emergency Management	1	2	3	1	2	9	City Budget	Capital Improvements Plans		

ALL HAZARDS

10	Seek business alliances and other private sector representation in the mitigation planning process.																																									
	Community System: Economic Action Type: Planning Process and Analysis NHMP Goals: 1, 2, 4 Carry-over and Consistency Notes: Revises local NHMP actions # 16, 80, 127																																									
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Gresham	Emergency Management	2	3	2	1	3	11	City Budget	Emergency Management Work Program																																	
11	Either invite existing Equity Council/Work Group or establish an Equity Working Group to provide guidance to the Hazard Mitigation Plan Steering Committee and other emergency management plans (e.g., Emergency Operations Plans) and programs.																																									
	Community System: Health and Social Services Action Type: Planning Process and Analysis NHMP Goals: 1, 2, 3 Carry-over and Consistency Notes: Consistent with Climate Action Plan actions 16C, 20A and the Multnomah County Vulnerable Populations Assessment Report (2012)																																									
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Multnomah County	Emergency Management	3	1	3	1	3	11	General Fund	Multnomah County Office of Diversity and Equity work program																																	
12	Further integrate social vulnerability data into the hazard risk assessment and use this to inform decisions on mitigation priorities.																																									
	Community System: Health and Social Services Action Type: Planning Process and Analysis NHMP Goals: 1, 2, 3 Carry-over and Consistency Notes: Consistent with Climate Action Plan action 14B																																									
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Multnomah County	Emergency Management	3	2	3	1	3	12	Emergency Management Program Grant Funds	Comprehensive Land Use Plan, Zoning Ordinance																																	

13	<p>Coordinate with the Joint Office for Homeless Services (JO) to reduce risk to natural hazards for people experiencing homelessness. Work with the JO to educate its staff and partner organizations about hazard exposure maps. Encourage JO to reference hazard exposure maps when siting indoor and outdoor locations for people experiencing homelessness. Coordinate with JO on outreach standard operating procedures for people experiencing homelessness during severe weather, flooding events and other emergency situations.</p> <p>Community System: Health and Social Services, Housing Action Type: Education and Awareness Programs, Local Plans and Regulations NHMP Goals: 2, 3</p> <p>Carry-over and Consistency Notes: New action</p>																															
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Multnomah County	Emergency Management	3	3	3	3	3	15	Emergency Management Program Grant Funds	Johnson Creek Severe Weather Standard Operating Procedure, Severe Weather Standard Operating Procedure																							

14	<p>Advocate for the creation of a Critical Energy Infrastructure (CEI) Hub Disaster Resiliency Workgroup.</p> <p>Community System: Infrastructure Action Type: Local Plans and Regulations NHMP Goals: 1, 2</p> <p>Carry-over and Consistency Notes: New action, consistent with Portland Mitigation Action Plan</p>																															
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Multnomah County	Emergency Management	1	1	3	3	2	10	Emergency Management Program Grant Funds	Not applicable																							

15	<p>Participate in Regional Disaster Preparedness Organization (RDPO)/Oregon Department of Geology and Mineral Industries (DOGAMI) regional HAZUS risk assessment for earthquakes. Provide local data where available. Incorporate new data into next NHMP update.</p> <p>Community System: All Action Type: Planning Process and Analysis NHMP Goals: 1, 2</p> <p>Carry-over and Consistency Notes: Revises local NHMP action # 40</p>																															
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	Multnomah County	Emergency Management	1	2	3	3	3	12	Emergency Management Program Grant Funds		New data will inform multiple local plans, including the next NHMP																					
	Fairview	City Administrator	3	3	3	3	3	15	General Fund	City Council goal; Appoint a council representative and staff assistance	New data will inform multiple local plans																					
Wood Village	City Manager	2	1	3	3	3	12	General Fund		New data will inform multiple local plans																						
Troutdale	Planning Department	3	3	2	3	2	13	General Fund		New data will inform multiple local plans																						
Gresham	Geographic Information Systems	1	2	3	3	3	12	Administration budget		Update city risk maps utilizing new HAZUS data.																						

EARTHQUAKE

16	<p>Between 2016 and 2018, conduct a Seismic Feasibility Study on the Burnside Bridge, a regional lifeline route, to evaluate various rehabilitation and replacement alternatives for a seismically resilient crossing.</p> <p>Community System: Infrastructure Action Type: Structure and Infrastructure Projects NHMP Goals: 1, 2 Carry-over and Consistency Notes: Revises local NHMP action # 41</p>																																																		
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Multnomah County	Department of Community Services, Division of Transportation, Bridges	1	2	3	3	3	12	General Fund	Willamette Bridge Capital Improvement Plan																																										
17	<p>Seek funding, between 2017 and 2019, for a National Environmental Policy Act (NEPA) study to help the county make an informed decision on which alternatives from the Seismic Feasibility Study should be further evaluated in the design phase.</p> <p>Community System: Infrastructure Action Type: Structure and Infrastructure Projects NHMP Goals: 1, 2 Carry-over and Consistency Notes: Revises local NHMP action # 41</p>																																																		
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Multnomah County	Department of Community Services, Division of Transportation, Bridges	1	2	1	3	2	9	To Be Determined	Willamette Bridge Capital Improvement Plan																																										
18	<p>Many agencies within the county have begun to analyze facility-specific seismic risk, e.g., Multnomah County and the Port of Portland. County stakeholders should prioritize critical facilities/infrastructure, gather seismic risk data when available (structural and non-structural), prioritize risk assessments where there are gaps, and begin to develop a funding strategy for mitigation of the most critical facilities. Document what has already been mitigated and make information easily accessible. The list of mitigation needs can also be used after a disaster to include mitigation during recovery/repair activities.</p> <p>Community System: Infrastructure Action Type: Planning Process and Analysis NHMP Goals: 1, 2, 4 Carry-over and Consistency Notes: Revises local NHMP actions # 1, 5, 34, 37, 6, 69, 96, 137</p>																																																		
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Gresham	Fire and Emergency Services	2	3	1	3	3	12	Oregon Seismic Rehabilitation Grant Fund	Fire and Emergency Services Work Program	Seismically retrofit Fire Station 75, final station in city to be retrofitted																																									

Expand seismic retrofit incentive programs for home owners.

Community System: Housing Action Type: Structure and Infrastructure Projects NHMP Goals: 1, 2

Carry-over and Consistency Notes: New action

19	Prioritization Criteria							Potential Funding	Potential Implementation Mechanism	Notes
	Jurisdiction	Lead	Equity	Benefit	Cost	Risk	Capacity			
Multnomah County	Emergency Management	1	2	2	3	2	10	Unknown	Commercial Property Assessed Clean Energy (CPACE) Project	CPACE includes multi-family properties

Inventory and perform seismic upgrades to suspended wastewater conveyance pipelines (i.e., roadway crossings, pipe bridges, etc.).

Community System: Infrastructure Action Type: Structure and Infrastructure Projects NHMP Goals: 1, 2, 3

Carry-over and Consistency Notes: Action # 138

20	Prioritization Criteria							Potential Funding	Potential Implementation Mechanism	Notes
	Jurisdiction	Lead	Equity	Benefit	Cost	Risk	Capacity			
Fairview	Public Works Director	3	3	1	3	1	11	Sewer User Fees	Wastewater Capital Improvement Plan	
Troutdale	Public Works	3	3	2	3	3	14	Utility Funds	Wastewater Capital Improvement Plan	
Gresham	Wastewater Services	3	3	2	2	3	13	Utility Funds	Capital Improvement Plan	Analyze existing elevated wastewater conveyance pipeline vulnerabilities.

Over the next five years, install high-water-mark signs to educate the public about flooding potential in targeted locations along or within the leveed areas.

Community System: All Action Type: Education and Awareness Programs NHMP Goals: 1, 2

Carry-over and Consistency Notes: Action # 44

21	Prioritization Criteria							Potential Funding	Potential Implementation Mechanism	Notes
	Jurisdiction	Lead	Equity	Benefit	Cost	Risk	Capacity			
Multnomah County Drainage District (MCDD)	Community Affairs	2	2	3	3	3	13	Local Resources	MCDD Community Outreach Plan	

Partners who signed the Declaration of Cooperation will continue participation in Levee Ready Columbia in order to ensure the Portland metro levee system does not lose accreditation by FEMA or become inactive in the U.S. Army Corps of Engineers' Rehabilitation and Inspection Program. The NHMP Steering Committee will continue to integrate flood mitigation relevant to the levee system by staying actively informed and engaged with Levee Ready Columbia, particularly in review of risk assessments and discussions of the appropriate level of protection for the Portland metro levee system. Encourage inclusion of climate, community, economic and environmental considerations.

Community System: Infrastructure Action Type: Structure and Infrastructure Projects NHMP Goals: 1, 2
 Carry-over and Consistency Notes: Revises local NHMP actions # 6, 45, 71; consistent with Climate Action Plan 15A

22	Jurisdiction	Lead	Prioritization Criteria					Priority Score	Potential Funding	Potential Implementation Mechanism	Notes
			Equity	Benefit	Cost	Risk	Capacity				
	Fairview	Public Works Director	3	2	3	2	3	13	General Fund	Levee Ready Columbia	
	Wood Village	Public Works	1	1	3	1	3	9	General Fund	Levee Ready Columbia	
	Troutdale	City Manager	3	3	1	3	3	13	General Fund	Levee Ready Columbia	
	MCDD	MCDD - Executive Leadership	3	3	3	3	3	15	Local Resources, Oregon Infrastructure Finance Authority Loans, U.S. Army Corps of Engineers In-kind or Grants	Levee Ready Columbia	
	Sandy Drainage Improvement Company (SDIC)	SDIC - Executive Leadership	3	3	3	3	3	15	Local Resources, Oregon Infrastructure Finance Authority Loans, U.S. Army Corps of Engineers In-kind or Grants	Levee Ready Columbia	

Partners who signed the Declaration of Cooperation to continue participation in Levee Ready Columbia will seek funding to support maintaining certification and accreditation of the Columbia River levee systems, determine appropriate level of flood protection, and educate the public on the benefits and residual risks associated with the levees.

Community System: Infrastructure Action Type: Structure and Infrastructure Projects NHMP Goals: 1, 2, 3
 Carry-over and Consistency Notes: New action

23	Jurisdiction	Lead	Prioritization Criteria					Priority Score	Potential Funding	Potential Implementation Mechanism	Notes
			Equity	Benefit	Cost	Risk	Capacity				
	Fairview	Public Works Director	3	2	3	2	3	13	General Fund	Levee Ready Columbia	
	Troutdale	City Manager	3	3	2	2	3	13	General Fund	Levee Ready Columbia	
	MCDD	MCDD - Executive Leadership	3	3	3	3	3	15	Local Resources	Levee Ready Columbia	
	SDIC	SDIC - Executive Leadership	3	3	3	3	3	15	Local Resources	Levee Ready Columbia	

Identify target areas for flood mitigation projects. Are there any high-risk/repetitive risk problem areas that should be studied in more detail? Are there specific mitigation projects that should be developed and grants pursued for, e.g. land acquisition, home elevation, business floodproofing, floodplain restoration, stormwater infrastructure. Consider if there are areas at risk to multiple hazards that could be targeted for increased cost benefit, e.g. flood + landslide + liquefaction + lahar.

Community System: Economic, Housing, Infrastructure, Natural and Cultural Resource Action Type: Natural Systems and Local Plans and Regulations NHMP Goals: 1, 2, 4

Carry-over and Consistency Notes: Revises local NHMP actions #8,10, 43, 46, 47, 141, and Climate Action Plan action 13D

24

		Prioritization Criteria								
Jurisdiction	Lead	Equity	Benefit	Cost	Risk	Capacity	Priority Score	Potential Funding	Potential Implementation Mechanism	Notes
Gresham	Natural Resources	3	3	2	2	3	13	Federal Emergency Management Administration Hazard Mitigation Grant	Comprehensive Land Use Plan	Utilize the updated 2017 FEMA Flood Risk Maps to identify any new problem areas.

25

Assess whether local regulations should be updated to better protect citizens based on channel migration zone (CMZ) data. Currently, CMZs are mapped for the Sandy River, including an area around Troutdale. In late 2016, a statewide analysis of CMZ susceptibility will be released. This new data will help prioritize future CMZ mapping projects that may include other portions of the Planning Area.

Community System: Housing Action Type: Local Plans and Regulations NHMP Goals: 1, 2

Carry-over and Consistency Notes: New action

		Prioritization Criteria								
Jurisdiction	Lead	Equity	Benefit	Cost	Risk	Capacity	Priority Score	Potential Funding	Potential Implementation Mechanism	Notes
Multnomah County	Department of Community Services, Land Use Planning Division	1	2	3	3	2	11	General Fund	Land Use Ordinance Adoption	

FLOOD

26	<p>Identify stormwater stakeholders to participate on the steering committee during the next update. These subject matter experts will help determine how stormwater management planning and projects should be addressed in the next plan update. Explore if a stormwater subcommittee would be beneficial, or if each jurisdiction will track stormwater projects individually through master plans and Capital Improvement Plans. Consider if mitigation grants should be pursued in funding stormwater projects. Consider opportunities to manage stormwater naturally and prepare for increased stormwater runoff from climate change.</p> <p>Community System: Infrastructure Action Type: Planning Process and Analysis NHMP Goals: 1, 2</p> <p>Carry-over and Consistency Notes: Revises local NHMP actions #7, 11, 49, 50, 73, 74, 103, 104, 142, 143, 144; consistent with Climate Action Plan action 15B</p>										
	Prioritization Criteria										
	Jurisdiction	Lead	Equity	Benefit	Cost	Risk	Capacity	Priority Score	Potential Funding	Potential Implementation Mechanism	Notes
	Wood Village	Public Works	1	1	2	1	3	8	Stormwater Utility Fund	Storm Water Master Plan Capital Improvement Projects	
Gresham	Natural Resources	2	2	3	1	3	11	Stormwater Utility Fund	Comprehensive Land Use Plan	Identify, prioritize, and implement restoration projects that benefit floodplain conditions, fish habitat, and water quality.	
27	<p>Flood-proof wastewater manholes and pipelines within the 100-year floodplain.</p> <p>Community System: Infrastructure Action Type: Structure and Infrastructure Projects NHMP Goals: 1, 2</p> <p>Carry-over and Consistency Notes: Local NHMP Action #140, and FEMA Best Practice</p>										
	Prioritization Criteria										
	Jurisdiction	Lead	Equity	Benefit	Cost	Risk	Capacity	Priority Score	Potential Funding	Potential Implementation Mechanism	Notes
	Wood Village	Public Works	1	2	3	1	3	10	Sewer Fund	Infill and Infiltration Plan	There is no flood hazard area (100-year floodplain) within Wood Village, but the city does actively flood-proof wastewater manholes and pipelines.
Troutdale	Public Works	1	2	3	1	3	10	Utility Funds	Capital Improvement Plan: wastewater		
Gresham	Wastewater Services	1	2	2	2	2	9	Utility Funds	Capital Improvement Plan	Repair/rehabilitate leaking manholes and raise/flood-proof those manholes below the flood plain elevation.	

Coordinate with MCDD, SDIC and the Sauvie Island Drainage Improvement Company (SIDIC; collectively, the Districts) when development is proposed in, on or near the levee systems managed by these entities to ensure minimal impact to the levee systems. Land Use, Planning or similar departments will notify the Districts of development that may impact their flood management systems and give them an opportunity to review the plans for impacts to their systems, per U.S. Army Corps of Engineers standards.

Community System: Infrastructure Action Type: Local Plans and Regulations NHMP Goals: 1, 2

Carry-over and Consistency Notes: New action

28	Jurisdiction	Lead	Prioritization Criteria					Priority Score	Potential Funding	Potential Implementation Mechanism	Notes
			Equity	Benefit	Cost	Risk	Capacity				
	Multnomah County	Department of Community Services, Land Use Planning Division	3	2	3	3	3	14	General Fund	Interagency coordination during development review process	
	Troutdale	Public Works, Planning Department	3	3	3	3	3	12	Utility Funds	Pursuant to permits	
	MCDD	MCDD Engineering	3	3	3	3	3	15	Local Resources	Interagency coordination during development review process	
	SDIC	SDIC Engineering	3	3	3	3	3	15	Local Resources	Interagency coordination during development review process	

Replace, and potentially increase capacity of, the primary stormwater pumping station for the SDIC within the next three years. The current capacity is 37,000 gallons per minute and serves more than 1,550 acres, eight miles of ditches, the Troutdale Airport and a variety of property owners, including a major shipping logistics center and traded-sector manufacturers. Currently, the Port of Portland's Troutdale Reynolds Industrial Park (TRIP) has 350 acres of developable land for sale. Future development will increase impervious area in SDIC, greatly increasing the amount of stormwater entering the system. The pump station may need to have a higher capacity for this reason, and appropriate capacity will be explored as part of the project.

Community System: Infrastructure Action Type: Structure and Infrastructure Projects NHMP Goals: 1, 2, 3

Carry-over and Consistency Notes: New action

29	Jurisdiction	Lead	Prioritization Criteria					Priority Score	Potential Funding	Potential Implementation Mechanism	Notes
			Equity	Benefit	Cost	Risk	Capacity				
	SDIC	SDIC Executive Leadership and Engineering	3	3	1	3	3	13	Local Resources, U.S. Economic Development Administration Grants, FEMA Mitigation Grants, U.S. Environmental Protection Agency Grants, Oregon Infrastructure Finance Authority Loans	SDIC Capital Improvement Plan	

FLOOD	30	<p>Replace the flow control structure regulating water levels on the TRIP wetland mitigation site within the next year. The current flow control structure insufficiently manages water through two 36-inch culverts placed at different invert elevations. A new flow control structure with an adjustable concrete weir structure and larger diameter culvert with gate valve is needed to properly control the flow of stormwater with greater flexibility to adjust flow in support of flood control in the upstream segment of Salmon Creek and environmental protection.</p> <p>Community System: Infrastructure Action Type: Structure and Infrastructure Projects NHMP Goals: 1, 2</p> <p>Carry-over and Consistency Notes: New action</p>										
		Prioritization Criteria										
		Jurisdiction	Lead	Equity	Benefit	Cost	Risk	Capacity	Priority Score	Potential Funding	Potential Implementation Mechanism	Notes
SDIC	SDIC Executive Leadership and Engineering	2	3	2	3	3	13	Local Resources, Bonds and Grants	Troutdale Reynolds Industrial Park (TRIP)			
LANDSLIDE	31	<p>Consider new DOGAMI landslide data to identify development and infrastructure at risk. This project will be completed by early 2017. Develop and prioritize mitigation projects based on new data. Incorporate new data into other planning mechanisms, such as comprehensive plans and development codes.</p> <p>Community System: Economic, Housing, Infrastructure Action Type: Planning Process and Analysis and Local Plan and Regulations NHMP Goals: 1, 2</p> <p>Carry-over and Consistency Notes: Revises local NHMP actions # 12, 51, 52, 53, 54, 55, 75, 76, 105, 106, 126, 136; and consistent with Climate Action Plan action 15F</p>										
		Prioritization Criteria										
		Jurisdiction	Lead	Equity	Benefit	Cost	Risk	Capacity	Priority Score	Potential Funding	Potential Implementation Mechanism	Notes
		Multnomah County	Department of Community Services, Land Use Planning Division	2	2	3	3	3	13	General Fund	Land Use Ordinance Adoption	
		Wood Village	Public Works	1	1	3	3	3	11	General Fund, Urban Renewal Funds	Comprehensive Land Use Plan, Development Code	
Troutdale	Planning Dept.	3	3	3	2	3	14	General Fund	Comprehensive Land Use Plan, Zoning Ordinance			

Develop and adopt standards for managing stormwater in landslide hazard areas in accordance with best management practices.

Community System: All Action Type: Natural Systems Protection and Infrastructure NHMP Goals: 1, 2

Carry-over and Consistency Notes: New action

32	Jurisdiction	Lead	Prioritization Criteria					Priority Score	Potential Funding	Potential Implementation Mechanism	Notes
			Equity	Benefit	Cost	Risk	Capacity				
	Multnomah County	Department of Community Services, Land Use Planning Division	2	2	3	3	3	10	General Fund	Land Use Ordinance Adoption	
	Wood Village	Public Works	1	2	3	3	3	12	Stormwater Utility Funds	Public Works standards	
	Troutdale	Planning Dept., Public Works	2	2	3	3	3	13	General Fund	Capital Improvement Plan: wastewater; Comprehensive Land Use Plan	

Use new landslide hazard information, available from DOGAMI in early 2017, to examine road and utility maintenance practices.

Community System: Natural and Cultural Resources Action Type: Natural Systems Protection and Infrastructure NHMP Goals: 1, 2

Carry-over and Consistency Notes: New action

33	Jurisdiction	Lead	Prioritization Criteria					Priority Score	Potential Funding	Potential Implementation Mechanism	Notes
			Equity	Benefit	Cost	Risk	Capacity				
	Multnomah County	Department of Community Services, Land Use Planning Division	2	2	3	3	3	13	General Fund	Land Use Ordinance Adoption	See DOGAMI Special Paper 46 for examples of specialized maintenance practices for landslides conducted in the Bull Run area.
	Wood Village	Public Works	1	2	3	2	3	11	Stormwater Utility Funds	Public Works standards	
	Troutdale	Public works	3	3	3	2	3	14	Utility Funds	Capital Improvement Plan	

SEVERE WEATHER	34	Encourage retrofits that make mobile homes safer in high winds.										
		Community System: Housing Action Type: Education and Awareness Programs NHMP Goals: 1, 2 Carry-over and Consistency Notes: Revises local NHMP action # 121										
		Prioritization Criteria										
		Jurisdiction	Lead	Equity	Benefit	Cost	Risk	Capacity	Priority Score	Potential Funding	Potential Implementation Mechanism	Notes
Multnomah County	Emergency Management	2	2	3	3	2	12	Emergency Management Program Grant and General Fund	Emergency Management Outreach Program	Roughly 20% of the housing stock east of the Sandy River within Multnomah County consists of manufactured homes.		
Wood Village	City Manager	3	2	1	3	2	11	General Fund	Outreach Program	Roughly 30% of the housing stock in Wood Village consists of manufactured homes.		
Troutdale	Building Dept.	1	2	3	3	3	12	Code Specialties	Administration			
VOLCANO	35	Explore the feasibility of limiting critical facilities and/or high-density facilities in the lahar zone (e.g., Pierce County, Washington), and if disclosure of lahar hazard can be included in the permitting processes. (e.g., Orting, Washington).										
		Community System: Economic, Housing, Infrastructure Action Type: Local Plans and Regulations NHMP Goals: 1, 2 Carry-over and Consistency Notes: New action										
		Prioritization Criteria										
Jurisdiction	Lead	Equity	Benefit	Cost	Risk	Capacity	Priority Score	Potential Funding	Potential Implementation Mechanism	Notes		
Troutdale	Planning Dept.	3	1	2	3	2	11	General Fund	Comprehensive Land Use Plan			
WILDFIRE	36	Update the Community Wildfire Protection Plan (CWPP). Integrate the CWPP into the next NHMP update.										
		Community System: All Action Type: Planning Process and Analysis NHMP Goals: 1, 2 Carry-over and Consistency Notes: Revises local NHMP action # 65, consistent with Climate Action Plan action 14M and the Community Wildfire Protection Plan										
		Prioritization Criteria										
Jurisdiction	Lead	Equity	Benefit	Cost	Risk	Capacity	Priority Score	Potential Funding	Potential Implementation Mechanism	Notes		
Multnomah County	Emergency Management	1	2	3	3	3	12	Emergency Management Program Grant Funds and Other Grant Sources	Community Wildfire Protection Plan			

37	<p>Provide educational materials, presentations and demonstration projects on defensible space and wildfire mitigation techniques to communities at risk.</p> <p>Community System: Housing; Economic; Health and Human Services Action Type: Education and Awareness Programs NHMP Goals: 1, 2</p> <p>Carry-over and Consistency Notes: Revises local NHMP action # 135, and summarizes Community Wildfire Protection Plan actions #2, 3, 10, 13, 25, 28, 29</p>																																	
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Troutdale	Emergency Manager	3	2	2	2	2	11	General Fund	Outreach Program (e.g., champion newsletter, Facebook page and community classes)																									
38	<p>Develop and maintain a prioritized list of potential fuels-reduction projects (i.e., combustible materials) in high-risk areas, including fuel reduction prescriptions and cost estimates. Conduct outreach to community/property owners for priority projects to get buy-in for reduction projects. Seek funding for priority projects with community support.</p> <p>Community System: Natural and Cultural Resources; Housing; Economic; Health and Human Services Action Type: Natural Systems Protection NHMP Goals: 1, 2</p> <p>Carry-over and Consistency Notes: Summarizes Community Wildfire Protection Plan actions # 19, 20, and 16</p>																																	
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Troutdale	Fire Department	1	3	2	3	3	12	Emergency Management Program Grant Funds and Other Grant Sources	Outreach Program																									
39	<p>Promote fire-safe construction practices for existing and new construction in high-risk areas.</p> <p>Community System: All Action Type: Education and Awareness Programs NHMP Goals: 1, 2</p> <p>Carry-over and Consistency Notes: Local NHMP action # 89</p>																																	
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2"></th> <th colspan="6">Prioritization Criteria</th> <th colspan="2"></th> <th colspan="2"></th> </tr> <tr> <th>Jurisdiction</th> <th>Lead</th> <th>Equity</th> <th>Benefit</th> <th>Cost</th> <th>Risk</th> <th>Capacity</th> <th>Priority Score</th> <th>Potential Funding</th> <th>Potential Implementation Mechanism</th> <th>Notes</th> </tr> </thead> </table>													Prioritization Criteria										Jurisdiction	Lead	Equity	Benefit	Cost	Risk	Capacity	Priority Score	Potential Funding	Potential Implementation Mechanism	Notes
			Prioritization Criteria																															
Jurisdiction	Lead	Equity	Benefit	Cost	Risk	Capacity	Priority Score	Potential Funding	Potential Implementation Mechanism	Notes																								
Multnomah County	Dept. of Community Services, Land Use Planning Division	2	3	3	3	3	14	General Fund	Land Use Ordinance Adoption																									
Troutdale	Dept. of Community Services, Land Use Planning Division	2	3	3	3	3	14	General Fund	Uniform Building Code amendment and administration; Comprehensive Land Use Plan and Development Code amendment																									

WILDFIRE

<p>Consider regulations that require fire-safe construction in high-risk areas using Wildland Urban Interface (WUI) overlays. Community System: All Action Type: Local Plans and Regulations NHMP Goals: 1, 2 Carry-over and Consistency Notes: New action, consistent with Community Wildfire Protection Plan</p>											
40	Prioritization Criteria										
	Jurisdiction	Lead	Equity	Benefit	Cost	Risk	Capacity	Priority Score	Potential Funding	Potential Implementation Mechanism	Notes
	Multnomah County	Dept. of Community Services, Land Use Planning Division	2	3	3	3	3	14	General Fund	Land Use Ordinance Adoption	
<p>Use best available data to consider impacts of wildfire risk when developing policy. Community System: All Action Type: Local Plans and Regulations NHMP Goals: 1, 2 Carry-over and Consistency Notes: New action, consistent with Community Wildfire Protection Plan</p>											
41	Prioritization Criteria										
	Jurisdiction	Lead	Equity	Benefit	Cost	Risk	Capacity	Priority Score	Potential Funding	Potential Implementation Mechanism	Notes
	Multnomah County	Dept. of Community Services, Land Use Planning Division	2	3	3	3	3	14	General Fund	Land Use Ordinance Adoption	

Table 4.2-4 Other Mitigation Actions

Hazard	Action ID	Other Mitigation Actions
All Hazard	42	<p>Assess resources needed for plan implementation and develop capacity options for consideration by participating jurisdictions to pool resources. Develop a cross-jurisdictional team to work on analysis, stakeholder coordination and grant writing. Partner with state, regional and academic organizations to coordinate projects related to risk analysis and reduction. Seek opportunities to coordinate planning processes of related plans with similar update cycles, e.g., NHMP, CWPP, Climate Action Plan.</p> <p>Community System: All Action Type: Planning Process and Analysis NHMP Goals: 1, 2, 4 Carry-over and Consistency Notes: Revises local NHMP action # 130; consistent with Climate Action Plan actions 20C, 20J, 20N</p>
	43	<p>Communicate with utility agencies about NHMP actions and priorities, and encourage integration into their planning.</p> <p>Community System: Infrastructure Action Type: Local Plans and Regulations NHMP Goals: 1, 2 Carry-over and Consistency Notes: New action</p>
Earthquake	44	<p>Determine a practical method to track existing public buildings that have had seismic upgrades, and to what degree. This information can be included in future risk assessments to provide more accuracy. The public also would benefit from knowing the seismic status of buildings they occupy or visit. Include seismic data for schools, as available. The Portland Public School District will be developing a stand-alone NHMP.</p> <p>Community System: Economic, Housing Action Type: Planning Process and Analysis NHMP Goals: 1, 2 Carry-over and Consistency Notes: Revises local NHMP actions #2, 67, 97; consistent with public input (6/4/15)</p>
Flood	45	<p>Seek funding to develop future conditions modeling to inform comprehensive planning in floodplain areas.</p> <p>Community System: All Action Type: Local Plans and Regulations NHMP Goals: 1, 2 Carry-over and Consistency Notes: Consistent with Climate Action Plan action 15A</p>
	46	<p>Identify target areas for flood mitigation projects. Are there any high-risk/repetitive risk problem areas that should be studied in more detail? Are there specific mitigation projects that should be developed and for which grants should be pursued, e.g., land acquisition, home elevation, business flood-proofing, floodplain restoration, stormwater infrastructure. Consider if there are areas at risk to multiple hazards that could be targeted for increased cost benefit, e.g., flood + landslide + liquefaction + lahar.</p> <p>Community System: Economic, Housing, Infrastructure, Natural and Cultural Resources Action Type: Natural Systems and Local Plans and Regulations NHMP Goals: 1, 2, 4 Carry-over and Consistency Notes: Revises local NHMP actions #8,10, 43, 46, 47, 141 and Climate Action Plan action 13D</p>
Severe Weather	47	<p>Collaborate with the Climate Action Plan Committee and City of Portland to decrease the urban heat island effect, especially in areas with populations most vulnerable to heat, through strategies such as revegetation, tree preservation planting and maintenance, depaving and porous pavement, green infrastructure such as bioswales and ecoroofs, and site development performance standards.</p> <p>Community System: Health and Social Services, Natural and Cultural Resources Action Type: Local Plans and Regulations NHMP Goals: 1, 2 Carry-over and Consistency Notes: Consistent with Climate Action Plan action 14A and FEMA Best Practice</p>

Severe Weather	48	<p>Use new guidance on planning drought-ready communities to develop a focused project on drought mitigation planning and outreach.</p> <p>Community System: Health and Social Services, Natural and Cultural Resources Action Type: Natural Systems Protection NHMP Goals: 1, 2</p> <p>Carry-over and Consistency Notes: Consistent with Climate Action Plan actions 14G, 14I</p>
	49	<p>Determine what actions are needed to incorporate emergency management criteria into normal maintenance practices to reduce power disruptions from severe weather.</p> <p>Community System: Infrastructure Action Type: Local Plans and Regulations NHMP Goals: 1, 2, 4</p> <p>Carry-over and Consistency Notes: Revises local NHMP actions # 29, 32, 33, 57, 58, 60, 92, 94, 95, 124, 122</p>
Wildfire	50	<p>Work with local fire agencies to (1) integrate new local wildfire data with the regional data in the West-wide Wildfire Risk Assessment for the Planning Area, then (2) update the Wildland Urban Interface (WUI) areas within the Planning Area as needed. Once WUI areas are updated, develop a strategy for tracking vulnerable properties and identifying appropriate mitigation strategies. Prioritize properties with fire response access limitations.</p> <p>Community System: All Action Type: Planning Process and Analysis NHMP Goals: 1, 2</p> <p>Carry-over and Consistency Notes: Revises local NHMP actions # 88, 126, Community Wildfire Protection Plan actions # 24, 23, 30 and Climate Action Plan action 14M</p>

4.3 Implementation

4.3.1 Coordinating Body

The steering committee is responsible for the coordination and implementation of the mitigation actions, and for undertaking the formal plan monitoring, evaluating and update process. Each jurisdiction in the Planning Area will continue to provide staffing to ensure the successful implementation of the plan over the next five years. See **5.2 Maintaining the Plan** for more information on monitoring and evaluation, plan updates and public involvement during the update process.

4.3.2 Mechanisms

Integration into other Plans

Many of the plan's top mitigation actions are consistent with the goals and objectives of existing plans and policies in the Planning Area. When possible, each jurisdiction will implement the plan's top actions through existing planning mechanisms. This integration is critical in moving the detailed hazard risk information from this non-regulatory document into regulatory planning mechanisms that guide the growth and development of the Planning Area. Implementing mitigation actions through such plans and policies increases their likelihood of being supported and implemented.

Table 4.2-3 Mitigation Actions lists existing local plans and policies with goals and objectives that are consistent with each action, where applicable.

The types of mechanisms that mitigation actions are often integrated into include comprehensive plans, zoning ordinances, land development codes, Capital Improvement Plans, jurisdiction and agency strategic plans and budgets, economic development plans, Transportation Systems Plans (TSP), park plans, Climate Action Plans, and Community Wildfire Protection Plans.

Table 4.3-1 Planning Mechanisms by Jurisdiction lists the planning mechanisms relevant to hazard mitigation in each community. In **Appendix F: Implementation Mechanisms**, each of these plans, programs and policies is described in detail, including:

- Date of last revision
- Plan owner
- Plan cycle
- Relationship to hazard mitigation
- Funding source
- Suggestions to integrate mitigation into the planning mechanism
- Where more information can be found on the Internet

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*
- *Provide a forum for analysis of potentially sensitive issues*

Integrating the Local Natural Hazard Mitigation Plan into a Community's Comprehensive Plan: A Guidebook for Local Governments, FEMA, 2013

Table 4.3-1 Local Planning Mechanisms by Jurisdiction

Planning Mechanism	Jurisdiction				
	Multnomah County	Gresham	Fairview	Troutdale	Wood Village
Comprehensive Plan	X	X	X	X	X
Sub-Area Plans	-	X	-	X	X
Development/Zoning Code	X	X	X	X	X
Annual Budget	X	X	X	X	X
Transportation System Plan	X	X	X	X	X
Capital Improvement Program	X	X	-	X	-
Stormwater Management Plan	X	X	X	X	X
Parks Master Plan	-	X	X	X	X
Emergency Operations Plan	X	X	X	-	X
Urban Renewal Plan	-	X	-	X	X
City Council/Commission Work Plan	-	X	-	-	-
Wildfire Protection Plan	X	-	-	-	-
Climate Action Plan	X	-	-	-	-
Safety Programs	X	-	-	-	-
Facilities Maintenance Plan	X	-	-	-	-
Recovery Plan	X	-	-	-	-
Water Division Emergency Response Plan	-	X	-	-	-
Public Facilities Plan	-	-	-	X	-

4.3.3 Funding

There are a few state and federal grant programs specifically focused on hazard mitigation. However, there are many other state and federal grant programs that address other goals but could be applied to hazard mitigation projects. Federal mitigation funding typically is very competitive.

State Programs

Oregon Department of Land Conservation and Development (DLCD) Technical Assistance (TA) Grant Program

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://www.oregon.gov/LCD/Pages/grants.aspx>

Oregon Military Department, Office of Emergency Management (OEM)

The OEM provides grant guidance on hazard mitigation programs.

Website: http://www.oregon.gov/OMD/OEM/pages/all_grants.aspx (see Hazard_Mitigation_Grants)

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 versus 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-Rehab/>

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>

Federal Programs: Pre-Disaster

Flood Mitigation Assistance (FMA) Program

The FMA Program is administered through the Federal Emergency Management Agency (FEMA). The overall goal of FMA is to fund cost-effective measures that reduce or eliminate the long-term risk of flood damage to buildings, manufactured homes and other National Flood Insurance Program (NFIP) insurable structures.

Website: <https://www.fema.gov/flood-mitigation-assistance-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>

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 immediate threats to health and welfare.

Website:

http://portal.hud.gov/hudportal/HUD?src=/program_offices/comm_planning/communitydevelopment/programs

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

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 process. 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/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 HMGP 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>

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.

Website: <http://www.fema.gov/public-assistance-local-state-tribal-and-non-profit>

Small Business Administration (SBA) Disaster Loan Program

The U. S. Small Business Administration 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 the following items damaged or destroyed in a declared disaster: 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 State 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 nongovernmental 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 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 Natural Resources Conservation Service (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 hazard events.

Website: <http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/landscape/ewpp>

Federal Lands to Parks Program

This program, operated through the U. S. Department of the Interior's National Park 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/nrcr/programs/flp/index.htm>

HOME Investments Partnerships Program (HOME)

HUD's HOME program provides grants to states and local government 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 Conservation (NAWC) Fund

The NAWC Fund is a program through the U. S. Fish and Wildlife Service (FWS) 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 FWS 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/>

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.

Website: <http://www.fema.gov/public-assistance-local-state-tribal-and-non-profit>

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