

C.1 CITY CAPABILITY ASSESSMENT

DMA 2000 Requirements – Planning Process

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

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

This section provides an overview of the planning process; identifies the Planning Team Members and subject matter experts; documents public outreach efforts; and summarizes the review and incorporation of existing plans, studies and reports used to develop this NHMP. Additional information regarding public outreach efforts is provided in Appendix D.

C.2 OVERVIEW OF PLANNING PROCESS

2010 Plan Update

The 2010 City of Portland Natural Hazard Mitigation Plan update includes newly identified hazards. It provides a comprehensive risk assessment and vulnerability analysis, provides community based mitigation actions and identifies funding sources as part of the update. The first step in the planning process was to ensure that the Planning Team was comprised of subject matter experts from throughout the City. Patty Rueter, POEM Planning Manager, served as the primary point of contact for the overall plan's update and development.

The following seven-step planning update process took place from June through December 2009.

- **Preliminary Research:** Portland State University student interns pursuing Master degree programs in geology or urban studies researched plans, other city or county mitigation action items and the status of existing 2004 NHMP action items to provide background documents for the planning team and contractor involved in the update process.
- **Organize Resources:** POEM identified resources, including City staff, departments and agencies and local non-governmental organization (NGOs) and interns, which could provide the technical expertise, historical information and research data to update the existing NHMP.
- **Update Hazard Profiles:** Planning Team Members reviewed the hazards identified in the 2004 NHMP and assessed other hazards specific to the City. A hazard analysis was developed for eight hazards based on the types of hazards that have historically impacted the City.

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- **Update Risk Assessment:** Planning Team Members reviewed the existing 2006 vulnerability analysis and used the results during mitigation strategy development.
- **Assess Capabilities:** Planning Team Members reviewed and determined whether the current administrative and technical, legal and regulatory and fiscal capabilities adequately addressed existing provisions and requirements and relevant hazards.
- **Update Mitigation Strategy:** Planning Team Members reviewed the existing mitigation goals and actions to determine if they still met the needs of the City as well as to determine whether actions had been implemented, were in progress, or were no longer applicable. Based on the results of the updated risk assessment, the Planning Team evaluated and prioritized the actions for implementation into the City's Mitigation Action Plan.
- **Monitor Progress:** Planning Team Members developed an implementation process to ensure the success of an ongoing program to minimize hazard impacts to the City.

C-Table C-2a 2010 NHMP Review and Update Summary

2004 NHMP Section	2004 Items to be Updated	2004 Items to be Deleted	2010 Items to be Added
Planning Process	<ul style="list-style-type: none"> • Planning process • Planning team • List of sources • Public outreach 	N/A	N/A
Risk Assessment	<ul style="list-style-type: none"> • Hazard profile history • Asset inventory • Vulnerability analysis & summaries 	N/A	New hazards Repetitive Loss properties NFIP requirements
Mitigation Strategy	<ul style="list-style-type: none"> • Mitigation actions status • Mitigation action implementation 	Implemented & non-relevant mitigation actions	New mitigation actions Capability assessment
Plan Maintenance	<ul style="list-style-type: none"> • Plan maintenance process 	N/A	Appendix F

Hazard 2010 NHMP Planning Team

The 2010 Planning Team members were selected based on their program involvement, expertise and decision making authority. The planning team consisted of subject matter experts who understand the hazards which could potentially impact the City. Project managers that include concerns related to the hazards of earthquake, wildland urban interface fire, severe weather, landslide, erosion, invasive plant species and volcano were recruited from the bureaus of Fire & Rescue, Parks & Recreation, Planning and Sustainability, Environmental Services, Development Services, Transportation and Water. Outreach to Portland State University Masters program for research interns and expertise of PSU Department of Geology, subject matter experts from the National Weather Service, Department of Geology and Mineral Industries and the Climate Change Research Institute lent review and accuracy to the background information of the report. URS Corporation contractors reviewed the plan to assure compliance to national standards.

This section outlines the resources available to the City for mitigation and mitigation related funding and training. All City regulatory tools and plans will continue to incorporate NHMP initiatives and activities throughout the planning cycle

C.2.1 Public Involvement

Table C-2-1a lists the City's public involvement focused to encourage participation, insight and data collection for the NHMP effort. Although the City requirements for public involvement were not met through this process they met the federal compliance standards. Time and personnel constraints prohibited public meetings during the preliminary, contracted update period of June to December but prior to update each program involved in mitigation activities conducted their own public involvement processes. For example the Wildland Urban Interface Fuel Reduction program conducted public involvement accentuated the education of the public and its participation in mitigating wildland fires.

The first phase of the 2010 update was the review of existing action items and update/compilation of all bureaus mitigation strategies. The second phase will be DMA 2000 compliance approval and recommendation by the federal and state offices of emergency management, followed by the third phase when the public reviews, prioritizes, improves and approves the final document before taking it to council.

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Table C-2-1a Public Involvement Mechanisms – During Plan Development

Mechanism (Plan Development)	Description
Advertised through Portland State University Masters Program of Urban Planning and the Department of Geology.	Four interns answered the request and worked through their summer vacation in the Portland Office of Emergency Management updating actions, interviewing 2004 committee members and researching hazards.
Subject Matter Experts consulted on accuracy of hazard information.	Department of Geology and Mineral Industries consulted on landslides and earthquake hazards. Climate Change Research Institute advised on the impacts on climate change on flooding, landslides and severe weather and the National Weather Service advised on weather trends.
Website NHMP Update Process Notice, September 30,2009	Posted the newsletter on the City's website soliciting involvement and input. http://www.portlandonline.com/oem/index.cfm?c=36870&a=267385
Presented to City Council	Addressed council to accept FEMA Pre-Disaster Mitigation Grant funds and announce the update of the plan to point out mitigation activities that the City is implementing and the update process. Council is filmed for public viewing on Cable Network.
Provided existing Plans, September 2009	Promoted mitigation actions inclusion in developing plans of city bureaus such as review of Comprehensive Plan, River Renaissance, Sellwood Bridge reconstruction, 08 & 09 City Assets Management Report, Riverfront Park design and 09 Climate Action Plan; Watershed Mgmt Plan and Forest Park Natural Resources Management Plan.
Presented at Citywide workshops, September to December 2009	Bureau of Planning and Sustainability annual Fix-It Fair; NW Industrial Neighborhood meetings; Water Bureau Emergency Management brown-bag luncheon series; Annual PBOT Winter readiness meetings.

On September 30, 2009, POEM intended to post a public notice and newsletter on their website describing the 2009 NHMP update process. The website was meant to be a medium used to extend an invitation to all individuals and entities to review the existing plan through an online survey. Unfortunately the web restructuring at the time of posting interfered with the viewing and review of the plan. The 2004 NHMP has been posted on the POEM website for comment since its publication www.portlandonline.com/oem.

The Planning Team gathered and processed hazard impact and profile information. The participants defined potential hazards for further evaluation (erosion, volcano and invasive plants and also chose to further expand the weather hazard with adding discussions concerning climate change, drought, El Niño/La Niña Southern Oscillation [ENSO], high temperature, straight line wind and tornado).

The Planning Team further processed data from respondents identifying critical facilities in the community to complete the risk assessment including the location, value and population of residents and critical facilities in the community.

The Planning Team collected community asset data during the summer and fall of 2009. This information facilitated the risk assessment's completion, which illustrates exposed and vulnerable assets to specific hazards.

A second newsletter was provided on November 9, 2009 describing the process to date, presenting the prioritized mitigation actions and announcing the availability of the draft NHMP for public review and comment.

Prior to acceptance by council and as a part of the Citizen Mitigation Action Plan, the NHMP will be posted on our new improved website and education regarding the opportunity to comment will be publicized.

C.2.2 Planning Team Meetings and Tasks

October 1, 2009, Planning Team Meeting #1

During the kickoff meeting the attendees discussed the project objective and the requirements for federal compliance. The City assisted in identifying information gaps to focus the Planning Team's efforts. The gaps included:

- New Hazard Identification and Updated Hazard History Data
- Repetitive Loss Data
- Vulnerability Data
- Capability Assessment Data

The process included reviewing the existing Portland NHMP to familiarize members with its approach and concepts used during initial risk identification development. Eight hazards were determined to pose the greatest potential risk to the city. Those include earthquake, erosion, flood, invasive plant species, landslide, volcano, severe weather and wildland urban interface fire. They then reviewed the City's 2004 mitigation goals and mitigation activities and discussed how to update them to best create a disaster resilient city. The team decided to update the listed goals as reflected in the updated mitigation strategy.

October 12, 2009, Planning Team Meeting #2

Participants met to review the existing NHMP mitigation goals, existing hazard mitigation actions list to determine their status, consider action editing concerns and identify newly identified potential mitigation actions to implement during the next five-year planning cycle.

Participants then worked to update the existing hazard profiles and assimilate new research data and mapping projects to update the NHMP. Participants discussed preliminary results of the risk assessment, preliminary city-specific vulnerability analyses and asset information (critical facilities and infrastructure, population and residential and nonresidential structures).

As a result of Meeting #2 the Planning Team reviewed and updated the 2004 implemented hazard mitigation actions and selected new actions for further consideration based on the results of the risk assessment.

Participants determined to carry forward the deferred and ongoing mitigation actions from the 2004 NHMP.

Planning Team Tasks October to November, 2009

Planning team members reviewed hazard-specific narratives and conferred with their bureaus and subject matter experts.

After the Planning Team members reviewed the simplified Social, Technical, Administrative, Political, Legal, Economic and Environmental (STAPLEE) evaluation criteria, the Planning Team decided their membership has sufficient experience, historical knowledge and resources to select and rank the City's mitigation activities. Section 7.6 contains a narrative explaining this process.

November 23, 2009, Planning Team Meeting #3

The November meeting was held to present key findings. Planning Team members are to develop short presentations outlining their NHMP success and newly identified mitigation actions for the City Council. The Planning Team validated the ranked outcomes, approved the NHMP through consensus and approved it for Oregon Emergency Management (OEM) and FEMA submission after their final review. The Team agreed to meet in March and provided recommendations on key collaborative actions and their committee membership.

C.2.3 Incorporating Existing Plans and Other Relevant Information

One of the new goals of the 2010 NHMP, is "Cross reference NHMP goals and actions with all City plans, projects and programs investments." During the planning process, the Planning Team reviewed and incorporated information from existing plans, studies and technical reports into the NHMP. These resource references and reviews provided jurisdiction specific information for hazard profiles, risk assessment and vulnerability analysis development for the City's NHMP:

- City of Portland Comprehensive Plan, October 1980: defines land use, development and government processes.
- Climate Action Plan, 2009; Bureau of Planning and Sustainability defines the City's climate change initiatives.
- Economic Districts Atlas: identifies indoctrinated mitigation initiatives.
- Forest Park Natural Resource Management Plan, 1995: defined current information on natural resources in Forest Park and developed a set of goals and actions designed to guide management of natural resources and recreational uses.
- City of Portland Code Development: defines land use and development, building code compliance and bureau responsibilities. This is the zoning code (Portland City Code Title 33) and Building Regulations (Title 24).

- Portland Wildfire Fuel Reduction Project (FEMA NHMP)
Website: <www.portlandonline.com/wildfire>
- Portland Wildfire Readiness Assessment & Gap Analysis Report, 2009: defined actions to improve the City's wildfire coordination, training and mitigation.
- Citywide Assets Report, December 2008: provides physical asset and critical facility information.
- Portland Standard Construction Specifications, 2007: defines building code compliance.
- Portland Water Bureau Requested Five-Year Capitol Improvement Program, 2007-2012: identified infrastructure mitigation efforts.
- Portland Bureau of Planning Strategic Work Plan, 2006-2010: defined the City's ongoing projects and strategy for completion.
- Portland Bureau of Planning Work Plan-Ongoing Projects, November 2008: defined the City's ongoing projects and completion timeline.
- Portland Urban Forestry Management Plan, 2004: defined improvements and coordination needed for managing and administering Portland's urban forest.
- Mt. Hood Coordination Plan, 2005: defined the City's participation within the coordination group and Mt Hood's volcanic activity and threat to the City of Portland.
- Critical Infrastructure Protection Plan, Portland/Vancouver Urban Area; August 2007, defined the City's critical infrastructure.

Actions from some of the above plans were incorporated as action items in the 2010 NHMP. Some plans were referenced for language consistency, data and gap analysis and background information on city descriptions. A complete list of references consulted for the NHMP update is provided in Appendix H.

C.3 PLANNING REQUIREMENTS

C.3.1 Local Mitigation Plans

In recent years, new Federal law redefined local hazard mitigation plan development. On October 30, 2000, Congress passed the Disaster Mitigation Act of 2000 (DMA 2000) (Public Law [PL] 106-390) which amended the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act) (Title 42 of the United States Code [USC] 5121 et seq.) by repealing the Stafford Act's Section 409 mitigation planning requirement and replacing it with Section 322, which defined Federal Emergency Management Agency's (FEMA) new mitigation planning requirements. Section 322 emphasizes the need for State, tribal and local entities to closely coordinate mitigation plan development and implementation efforts. In addition, it provides the legal basis for the FEMA mitigation plan requirements for access to mitigation grant assistance.

FEMA published its Interim Final Rule in the Federal Register on February 26, 2002, 44 CFR Part 201 (FEMA 2002) with subsequent updates to implement these planning requirements. The planning requirements for local entities are described in detail in Section 2 and are identified in their appropriate sections throughout this Natural Hazard Mitigation Plan (NHMP).

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On October 31, 2007, FEMA changed 44 CFR Part 201.6 by combining and expanding local hazard mitigation plans with flood mitigation plans. This change defined that participating NFIP communities' need to include risk assessments and mitigation strategies that identify and address repetitively flood damaged properties. The newly defined plan requirements eliminated duplicated requirements and grant qualification for all Unified Hazard Mitigation Assistance (UHMA) programs:

- Hazard Mitigation Grant Program (HMGP)
- Pre-Disaster Mitigation (PDM)
- Flood Mitigation Assistance (FMA)
- Severe Repetitive Loss (SRL)
- Repetitive Flood Claim (RFC) programs.

The HMGP remains as a separate state managed, direct disaster funded mitigation assistance program.

Table C-3-1a City Regulatory Tools and Plans

Regulatory Tools (ordinances, codes, plans)	Comments (year of most recent update; problems administering it, etc)
City Charter	http://www.portlandonline.com/auditor/index.cfm?c=28148
Comprehensive Plan	Completed in 2007: http://www.portlandonline.com/bps/index.cfm?c=34249
City Policy Documents	http://www.portlandonline.com/auditor/index.cfm?c=26812
City Building Codes	Chapter 24: http://www.portlandonline.com/auditor/index.cfm?c=28188
Floodplain ordinances	Chapter 24.50
Seismic Ordinances	Chapter 24.85
Wildfire Code	Chapter 24.51
Multnomah County Ordinances	http://www2.co.multnomah.or.us/counsel/code/index.shtml
Economic Development Plan	http://www.pdxeconomicdevelopment.com/docs/Portland-Ec-Dev-Strategy.pdf
Emergency Response Plan	http://www.portlandonline.com/auditor/index.cfm?&a=102348&c=47407
Wildfire Protection Plan	http://www.portlandonline.com/Auditor/index.cfm?a=226988&c=28414 City Code 3.22.180 Forested and Wildland Interface Areas Fire Protection Plan
Portland Urban Forestry Management Plan, 2004	http://www.portlandonline.com/parks/index.cfm?a=184641&c=38306
Comprehensive Plan Work Plan	http://www.portlandonline.com/bps/index.cfm?c=45460&a=218764

(Portland 2008, Portland 2009b)

C.3.2 Mitigation Plan Requirements for FEMA Grant Programs

The new 2008 44 CFR update changed governing mitigation planning requirements for local mitigation plans published under §201.6. Local mitigation plans now qualify communities for the disaster funded HMGP and the combined Hazard Mitigation Assistance (HMA) Grants: PDM, FMA and SRL.

FEMA policy may require a local mitigation plan under the RFC Program, at which time this policy will apply to those governments that apply for and/or receive assistance under this program as well.

As of June 19, 2008, the grant programs were segregated into post- and pre-disaster programs. The HMGP is a state managed, directly funded, competitive post-disaster grant program. Whereas the newly formed HMA programs: PDM, FMA, SRL and potentially RFC are pre-disaster programs that are nationally competitive and rely on specific grant funding sources. These pre-disaster grants share several common elements.

"The [United States] Department of Homeland Security (DHS) FEMA Hazard [HMA] grant programs present a critical opportunity to protect individuals and property from natural hazards while simultaneously reducing reliance on Federal disaster funds. The HMA programs provide PDM grants annually to States, Territories, Tribes and local communities. The statutory origins of the programs differ, but all share the common goal of reducing the loss of life and property due to natural hazards.

The PDM program focuses on mitigation project and planning activities that address multiple natural hazards, although these activities may also address hazards caused by manmade events. The [FMA, SRL and RFC programs] are authorized by the National Flood Insurance Act and focus on reducing claims against the National Flood Insurance Program." (FEMA 2006b)

C.3.2.1 Disaster Funded Mitigation Assistance – Section 404

The HMGP (Stafford Act §404) provides grants to States, Tribes and local entities to implement long-term hazard mitigation measures after a major disaster declaration. The HMGP focuses on repetitive damages from past disasters. The purpose of the 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 and not be associated with disaster damages impacting public infrastructure.

This program is administered by the State and funded by FEMA. Projects must provide a long-term solution to a problem, for example, elevating a home to reduce the risk of flood damages as opposed to buying sandbags and pumps to fight the flood. In addition, a project's potential savings must be more than the cost of implementing the project. Funds may be used to protect either public or private property or to purchase property that has been subjected to, or is in

danger of, repetitive damage. The amount of funding available for the HMGP under a particular disaster declaration is limited. FEMA may provide a State or Tribe with up to 20 percent of the total aggregate disaster damage costs to fund HMGP project or planning grants. The cost-share for this grant is 75 percent Federal/25 percent non-Federal.

C.3.2.2 Disaster Funded Mitigation Assistance – Section 406

Public Assistance-funded mitigation opportunities exist within FEMA’s Public Assistance Program under Stafford Act §406 mitigation. This activity provides a mechanism for implementing mitigation measures when rebuilding disaster-damaged public infrastructure, to provide long-term recovery and to mitigate future disaster damage impacts.

Disaster Assistance Policy 9526.1 provides guidance for using this discretionary hazard mitigation funding opportunity under the Stafford Act, §406 and 44 CFR §206.226. The Policy states:

- A. Section 406 provides discretionary authority to fund mitigation measures in conjunction with the repair of the disaster-damaged facilities. These opportunities usually present themselves during the repair efforts. The mitigation measures must be related to eligible disaster-related damages and must directly reduce the potential of future, similar disaster damages to the eligible facility. This work is performed on the parts of the facility that were actually damaged by the disaster and the mitigation measure provides protection from subsequent events. Exceptions to this provision will be reviewed on a case-by-case basis.
- B. Mitigation measures must be determined to be cost-effective. Any one of the following means may be used to determine cost-effectiveness:
 - 1. Mitigation measures may amount to up to 15 percent of the total eligible cost of the eligible repair work on a particular project.
 - 2. Certain mitigation measures (see Appendix A) determined cost-effective, as long as the mitigation measure does not exceed 100 percent of the eligible cost of the eligible repair work on the project.
 - 3. For measures that exceed the above costs, the Grantee or subgrantee must demonstrate through an acceptable benefit/cost analysis methodology that the measure is cost-effective. FEMA’s Benefit Cost Analysis (BCA) software provides appropriate benefit/cost analysis methodologies. You can obtain the software from FEMA by contacting the BCA helpline at 1-866-222-3580, e-mail (bchelpine@dhs.gov), or the applicable FEMA Regional Office (FEMA 2007).

C.3.2.3 Unified Hazard Mitigation Assistance (UHMA) Programs

The PDM Grant Program provides funds to State, Tribes and local entities, including universities, for hazard mitigation planning and mitigation project implementation prior to a disaster event. PDM Grants are awarded on a nationally competitive basis. Like HMGP funding, a PDM project's potential savings must be more than the cost of implementing the project. In addition, funds may be used to protect either public or private property or to purchase property that has been subjected to, or is in danger of, repetitive damage. The total amount of PDM funding available is appropriated by Congress on an annual basis. In Fiscal Year (FY) 2008, PDM program funding totaled approximately \$54 million. The cost-share for this grant is 75 percent Federal/25 percent non-Federal.

The City of Portland has been a NFIP program participant since 1975, has a current Flood Insurance Rate Map (FIRM) (2004) and participates in the Community Rating System (CRS) program maintaining a five (5) rating since 2007.

NFIP participation fulfills eligibility requirements for National Flood Insurance Act grant program grants. The City's exceptional CRS five (5) rating qualifies the community for a 25% insurance rate reduction.

The goal of the FMA grant program is to reduce or eliminate flood insurance claims under the National Flood Insurance Program (NFIP). Particular emphasis for this program is placed on mitigating repetitive loss (RL) properties. The primary source of funding for this program is the National Flood Insurance Fund. Grant funding is available for three types of grants, including Planning, Project and Technical Assistance. Project grants, which use the majority of the program's total funding, are awarded to States, Tribes and local entities to apply mitigation measures to reduce flood losses to properties insured under the NFIP. In FY 2008, FMA funding totaled \$32 million. The cost-share for this grant is 75 percent Federal/25 percent non-Federal. However, 90 percent Federal/10 percent non-Federal to mitigate SRL properties is available in certain situations.

The SRL program provides funding to reduce or eliminate the long-term risk of flood damage to residential structures insured under the NFIP. Structures considered for mitigation must have at least four NFIP claim payments over \$5,000 each, when at least two such claims have occurred within any 10-year period and the cumulative amount of such claim payments exceeds \$20,000; or for which at least two separate claim payments have been made with the cumulative amount of the building portion of such claims exceeding the value of the property, when two such claims have occurred within any 10-year period. Congress authorized \$40 million for FY 2006 and FY 2007, \$80 million for FY 2008 and \$80 million for FY 2009. The cost-share for this grant is 75 percent Federal/25 percent non-Federal. However, 90 percent Federal/10 percent non-Federal to mitigate SRL properties is available when the State or Tribal plan addresses ways to mitigate SRL properties.

The RFC program provides funding to reduce or eliminate the long-term flood damage risk to residential and nonresidential structures insured under the NFIP. Up to \$10 million is available annually to assist States and communities with reducing flood damages to structures that have

had one or more claim payments for flood damages. All RFC grants are eligible for up to 100 percent Federal assistance.

C.4 IDENTIFYING MITIGATION ACTIONS

Mitigation actions are activities, measures, or projects that help achieve the goals of a mitigation plan. Mitigation actions are usually grouped into broad categories: prevention, property protection, public education and awareness and structural projects. In the City's NHMP, the action items are listed by hazard and those that address many hazards through the implementation of the action item are listed under the Multi-Hazard (MH) category.

The 2004 NHMP listed 96 mitigation action items selected for implementation for the five-year planning cycle. On October 2, 2009, the Planning Team reviewed the existing action's status and found eight action items completed, 11 completed the action item of the 2004 plan and were determined to have next steps that kept them in an "completed but ongoing" category and 48 were classified as ongoing.

Portland's 2010 NHMP identified an additional 61 new "to be considered" action items. Many items were combined for greater applicability to all hazards. Some combined many individual bureau actions into one action that would allow greater collaboration and resource sharing. Some were deferred to a later date or deleted because of change in program priorities within the responsible bureau.

The Planning Team placed particular emphasis on projects and programs that support the 2009 NHMP goals; reduce the impacts of multiple hazards; that address infrastructure, the built environment (both new and existing) and actions that assure the City maintains NFIP compliance and apply to Emergency Management Accreditation Program standards.

The following table lists all of the actions from the 2004 plan and the proposed actions for inclusion in the 2010 action plan. They are listed by hazard in alphabetical order starting with the actions that address Multiple Hazards (MH) followed by Earthquake (EQ), Erosion (ER), Flood (FIL, Invasive Species (IS), Severe Weather (SW), Volcano (V) and Wildland Urban Interface Fire (WF). All actions are listed so the bureau proposed actions would not be lost through discussion, revisions and combinations.

The first column lists the identification number of the action item as short term (ST) – having the resources and prioritization to be implemented and completed within five years or sooner and long term (LT) which need additional time or resources to complete to complete.

The third column is sometimes an inconclusive list of Coordinating Organization/ Internal Partners.

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Under the Status/Comments section, bureaus identified if actions were:

Completed – action item had been finished in the last 5 years

Completed and Ongoing – the 2004 action item was completed but next steps on the project were identified

To be considered - ideas that might be used in other cities that have not been determined as a part of a City project

New and selected to implement – included in the City 2010 NHMP

Implement – shows that some actions are combined with other actions and which action they are combined with – this is shown by the ID# included in the column

Deferred or Deleted – actions that are not priorities of the responsible bureau and their implementation is delayed or are either removed from the action plan

Appendix C
Planning Process and Requirements

Table C-4a Mitigation Goals and Full List of Action Items (2004 action items and 2010 proposed action items, status and alignment with 2010 goals)

Actions					2010 Goals						
ID	Description	Coordinating Organizations/ Internal Partners	Status: Complete, Deferred, Deleted, Ongoing, or New - Consider or Selected to Implement	Status / Comments	1. Update risk and vulnerability analysis every five years	2. Implement actions to protect life, property and natural systems	3. Promote public outreach to diverse populations	4. Improve City of Portland's economic resilience by identifying mitigation action successes.	5. Commit to continuously reducing the City's natural hazards vulnerability.	6. Cross reference NHMP goals and actions with all City plans, projects and program investments.	7. Coordinate mitigation activities with regional communities and agencies.
MULTI-HAZARD (MH)											
ST MH #1	Continue to involve the public in updating the Natural Hazard Mitigation Plan	Portland Office of Emergency Management (POEM), Bureau of Planning and Sustainability, Office of Neighborhoods	Ongoing		X	X	X	X	X	X	X
ST MH #2	Form a committee to identify and coordinate critical transportation (street and highway) networks	Portland Department of Transportation (PBOT)/ Bureau of Planning and Sustainability, Fire & Rescue, Police, Parks and Recreation, Urban Forestry	Complete and Ongoing	Map included in Earthquake section Transportation routes defined for EQ debris clearing, snow and ice removal and mass transit routes		X	X	X		X	X
ST MH #3	Revise Portland's Comprehensive Plan to address natural hazards including, but not limited to, floods, landslides, earthquakes, wildfires and winter storms	Bureau of Planning and Sustainability/ POEM	Ongoing	Similar to action in LT MH #1		X		X	X	X	
ST MH #5	Acquire Light Detection and Ranging (LiDAR) images of the Portland Metro area and the Bull Run Watershed	POEM / Corporate GIS, Bureau Environmental Services, (BES) Fire and Rescue, Bureau of Water, PBOT, Bureau of Planning & Sustainability(BPS)	Ongoing	Bull Run Watershed has been analyzed but not the entire City Combined all LiDAR Activities under MH	X	X	X	X	X	X	X
ST MH #6	Use findings from Portland's Risk Assessment (HAZUS-MH) to enhance the existing debris removal plan	Bureau of Planning and Sustainability / POEM, PBOT, BES	Ongoing		X			X			X
ST MH #7	Create a mitigation mapping committee	POEM, Corporate GIS / BES, PBOT, Bureau of Development Services (BDS), Fire Bureau, Bureau of Water Bureau, Bureau of Planning and Sustainability	Ongoing	Maps library has 72+ map layers identified, need to include input from all bureau GIS mapping	X	X				X	
ST MH #8	Partner with utilities as they ensure continuity of service to the City	PPOEM/Disaster Policy Council (DPC), Mitigation Sub-Committee leaders; Cable and Franchise	Ongoing	Collaborating with public utilities to develop a prioritization process	X		X	X		X	X
ST MH #9	Develop a city employee emergency response plan to assure that city employees know what is expected of them so that services are continued	POEM / DPC Human Resources, OMF, Bureau of General Services (BGS), Fire and Rescue, Police, Emergency Communications	Complete and Ongoing	Purchased emergency kits, created floor warden procedures and developed building emergency plans developed multi-level training programs			X		X	X	
ST MH #10	Develop educational materials (television and print media) for residents that identify and define their risk to multi hazards: define and offer mitigation measures residents can take. Determine method of distribution of the educational materials	POEM	Ongoing Implement LTMH#2	Reworded to incorporate all outreach activities		X	X		X	X	
ST MH #11	Implement actions in the 2005 Portland Watershed Management Plan (PWMP) to help mitigate flood, landslide, earthquake and wildfire hazards	BES	Ongoing			X		X	X	X	X
ST MH #	Develop and maintain GIS mapped inventory and develop prioritized list of critical facilities and residential and commercial buildings within 100-year and 500-year floodplains (NFIP Compliance)	POEM, Corporate GIS / BES, PBOT, BDS, Fire Bureau, Bureau of Water, Bureau of Planning and Sustainability	Ongoing		X	X				X	
LT MH #2	Develop a public outreach program to raise awareness of hazard risk	POEM / Bureau of Planning & Sustainability, DPC NETs, Bureau of Sustainable Development, BDS, BES, Bureau of Water, Parks and Recreation, Office of Neighborhood Involvement, PBOT,	DELETED	Combined all outreach activities under Multi-Hazard Section							

Table C-4a Mitigation Goals and Full List of Action Items (2004 action items and 2010 proposed action items, status and alignment with 2010 goals)

Actions					2010 Goals						
ID	Description	Coordinating Organizations/ Internal Partners	Status: Complete, Deferred, Deleted, Ongoing, or New - Consider or Selected to Implement	Status / Comments	1. Update risk and vulnerability analysis every five years	2. Implement actions to protect life, property and natural systems	3. Promote public outreach to diverse populations	4. Improve City of Portland's economic resilience by identifying mitigation action successes.	5. Commit to continuously reducing the City's natural hazards vulnerability.	6. Cross reference NHP goals and actions with all City plans, projects and program investments.	7. Coordinate mitigation activities with regional communities and agencies.
LT MH #3	Increase the responsiveness of the emergency permitting procedures for post-hazard event periods through development of a procedural plan and the purchase of a mobile permitting van.	BDS /PBOT, BES, Bureau of Water, Risk Management	Ongoing	The City will address hazards as part of state-mandated Comprehensive Plan Review for 2012		X		X			X
LT MH #4	Develop citywide vegetation protection/ planning goals, policies and plans and implementing tools. Coordinate with vegetation management strategy development for wildfire, flood and landslide hazard mitigation	Bureau of Planning & Sustainability, BES / BDS, Parks and Recreation; Fire & Rescue	Complete	Portland Watershed Management Plan 10 2006-07 Annual Report							
LT MH #5	Coordinate emergency standard operating procedures and plans between disaster responder organizations in the Portland metro region and TriMet, to coordinate and expedite decision-making during emergencies	POEM, PBOT, Bureau of Fire & Rescue, BOEC,	Ongoing			X	X	X	X	X	X
LT MH #6	Promote the development of TriMet communications and dispatch capability to immediately implement changes to transit routes and service due to disruption of streets, roads, bridges and lt. rail transit tracks	PBOT, BOEC	Ongoing				X	X			X
New LT MH #7	Develop a multiple-agency multi-hazard evacuation plan (EQ, flood, fire and landslide at a minimum)	POEM / PBOT	Ongoing	Combined all evacuation actions in MH		X	X			X	X
New LT MH #8	Review and amend City Code to require that all facilities that store or handle hazardous materials (including large tanks) and which are located in the 500-year floodplain or landslide hazard areas, develop a hazardous materials inventory statement. This statement will be made available for Fire Bureau review. Require that these storage tanks are either adequately protected or relocated outside of the 500 year floodplain (NFIP Compliance)	Fire Marshal / Fire Bureau, POEM, BDS, Planning & Sustainability (for mapping and potential code changes)	Ongoing	COMBINED ALL hazmat actions in MH	X	X			X	X	X
New LT MH #9	Identify and pursue funding opportunities from outside agencies to fund and implement identified mitigation projects	All bureaus	New – Implement	Combined all funding activities in MH. (will be an annual inter-bureau agenda item)		X			X		
New LT MH #10	Assess the stability of levees in the Columbia Corridor Area and develop appropriate emergency plans to address potential levee failure and associated hazards	POEM / Bureau of Water, Fire Bureau, BES	Complete and Ongoing	Levees in Pen 1, Pen 2, Multnomah County Drainage District (MCDD) recertified by the USACE and FEMA		X			X		X
New LT MH #11	Support development of a multiple-agency plan for Marine Drive closure coordination	POEM / Bureau of Water, PBOT	Complete and Ongoing.	Developed between police and PBOT with local businesses		X		X	X	X	X
New MH	Cross reference and incorporate mitigation planning provisions into all community planning processes such as comprehensive, capital improvement and land use plans, etc to demonstrate multi-benefit considerations and strengthen eligibility from multiple funding sources	POEM, Planning and Sustainability, Fire, PBOT, Bureau of Water, BES	New – Implement Ongoing	Planning efforts: (Linnton Hillside Plan, Environmental Code Improvement project), will incorporate complete during Comprehensive Plan Periodic Review update in late 2012		X			X	X	X
New MH	Identify and list repetitively flooded structures and infrastructures, analyze the threat to these facilities and prioritize mitigation actions to protect the threatened population from all hazards (NFIP Compliance)	Planning and Sustainability, PBOT, BES, POEM; State Floodplain Manager	New – Implement Ongoing	Floodplain buy out through BES has successfully, lowered the # of RL properties	X	X	X		X	X	

Table C-4a Mitigation Goals and Full List of Action Items (2004 action items and 2010 proposed action items, status and alignment with 2010 goals)

Actions					2010 Goals						
ID	Description	Coordinating Organizations/ Internal Partners	Status: Complete, Deferred, Deleted, Ongoing, or New - Consider or Selected to Implement	Status / Comments	1. Update risk and vulnerability analysis every five years	2. Implement actions to protect life, property and natural systems	3. Promote public outreach to diverse populations	4. Improve City of Portland's economic resilience by identifying mitigation action successes.	5. Commit to continuously reducing the City's natural hazards vulnerability.	6. Cross reference NHP goals and actions with all City plans, projects and program investments.	7. Coordinate mitigation activities with regional communities and agencies.
New Reworded MH	Acquire (buy-out), demolish, or relocate structures from hazard prone areas (earthquake, erosion, flood, landslide, volcano and wildfire). Property deeds shall be restricted for open space uses in perpetuity to keep people from rebuilding in hazard areas (NFIP compliance)	Planning and Sustainability, PBOT, BES, POEM; State Floodplain Manager, Bureau of General Services (BGS), Bureau of Parks and Recreation, BDS, BES, Risk Management	Complete and Ongoing	Combined all hazard references to acquisition/relocation/demolition projects Buy-out programs: BES Floodplain, Gray to Green program, 2006 Metro Bond Measure and Johnson Creek Willing Seller program 87.1 acres	X	X		X	X		
New MH	Review ordinances and develop outreach programs to assure propane tanks are properly anchored and hazardous materials are properly stored and protected from known natural hazards such as flood or seismic events	POEM, Fire, BDS,	New – Implement Ongoing			X	X		X	X	
New MH	Develop and incorporate building ordinances commensurate with building codes to reflect survivability from flood, fire, wind, seismic and other hazards to ensure occupant safety. (NFIP Compliance)	POEM, BDS, Bureau Planning & Sustainability	New – Implement Ongoing	Have all hazards reviewed for code related to critical facilities. Have language specific to upgrading redevelopment and guiding new development.; Undertake an inventory of the commercial, apartment/condominium bldgs within city limits built prior to 1992.		X			X	X	
New MH	Update the Infrastructure Master Plan and System Vulnerability Assessment	POEM, Planning and Sustainability, Bureau of Water, PBOT, BES, OMF, BDS, Bureau of Parks and Recreation, PDC	New – Implement	Rebuilding and maintaining the City's infrastructure includes Hazard and risk analysis criteria	X				X	X	
New MH	Partner with PGE to develop a west side operations center to be used during an emergency if the east side becomes inoperable	Bureau of Water, BES, POEM	New - Consider	Important due to division of bridges, facility mapping and vulnerabilities		X		X	X		
New MH	Promote 09 Climate Action Plan action items with similarities to adaptation planning and mitigation actions	POEM/Bureau of Planning and Sustainability	New – Implement	09 Climate Action Plan identification "Adaptation" as similar to "Mitigation". Identify shared actions	X	X			X	X	
MH	Partner with PGE to develop a secondary electrical feed to the Columbia South Shore Wellfield to provide for redundancy incase of primary power outage	Bureau of Water, BES, POEM	New – Implement		X	X			X	X	
EARTHQUAKE (EQ)											
ST-EQ#1	Using television and print media, educate the public about the importance of signs containing bridge identification information during an earthquake	PBOT	DELETED	Combined all outreach activities under MH							
ST-EQ#2	Assess existing earthquake related mitigation plans and vulnerability studies to identify areas of conflict, duplication or gaps	POEM / Fire Bureau, PBOT, BES, Bureau of Water, BDS Bureau of Planning and Sustainability	Ongoing	BDOT: EQ first response of 6.0 or greater. PF&R: Fire department disaster plan. Water Bureau: Section 4.2 EQ	X				X	X	
ST-EQ#3	Update the vulnerability analysis of Columbia Boulevard Wastewater Treatment Plant (CBWTP0 Tyron Creek Wastewater Treatment Plant (TCWTP) and wastewater pump stations	BES. PBOT	Partially Complete – Ongoing	Draft SVA for CBWTP Three SVA volumes for TCWTP No SVA Data Exists for the PS	X				X	X	
ST-EQ#4	Prioritize the return of power to treatment plants (Tryon Creek and Columbia Boulevard) and pump stations	BES / POEM	Partially Complete – Ongoing	CBWTP has two separate power feeds and limited generator power TCWTP has a back up generator system and automatic transfer switch (ATS)	X	X			X	X	
ST-EQ#5	Lobby to implement legislation of General Obligation Bonds to fund rehabilitation of critical structures	Governmental Relations / BDS, Portland Development Commission, POEM, PBOT, Parks and Recreation	Complete	Go bond task force, General Obligation Bonds passed, Funds out to fire/schools							

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St-EQ#6	Identify secondary hazards generated from earthquake-generated landslides and all other secondary implications	POEM	DELETED Changed to LT EQ #10	Multnomah County NHMP Addresses Landslides							
ST-EQ#7	Work with local jurisdictions to assess the capacity of landfill to accommodate earthquake debris: develop coordination plans for disposal of debris in the aftermath of an earthquake	POEM / PBOT, Bureau of Planning and Sustainability	DELETED Changed to LT EQ #11	Metro: Solid waste and recycling department; Emergency Response Plan; Multnomah county NHMP addresses debris removal							
ST-EQ#8	Study the feasibility of mandatory or voluntary installation of seismic shutoff valves on natural gas meters at commercial and residential buildings	Bureau of Fire / BDS, Bureau of Fire, POEM	Deferred	CREW recommends installation of shut off valves					X		
ST-EQ#9	Develop emergency evacuation plans for residential areas that are near significant hazardous materials storage facilities and heavy industrial areas	POEM	Moved to LT-MH#7	Combined with other emergency evacuation planning activities under MH							
ST-EQ#10	Revising seismic design requirement for existing buildings	BDS	Complete								
LT-EQ#1	Evaluate Funding Alternatives that might accelerate seismic retrofitting of the City's bridges	PBOT	DELETED	Combined funding activities under MH							
LT-EQ#2	Conduct a vulnerability analysis of Portland's sewer system to identify potential failure elements	BES /Corporate GIS, Portland PBOT, Fire Department, Police Department, POEM, Bureau of Water	Complete and Ongoing	BES has Consequence of failure maps	X			X			
LT-EQ#3	Develop a plan to strengthen sewer infrastructure in areas where street overlays and sewers have potential to collapse in a seismic event	PBOT /Corporate GIS; BES, Bureau of Water, POEM	Ongoing.	No specific seismic upgrade for pipes under roads BES has been strengthening pipes under roads, streetcar and light rail lines		X				X	
LT-EQ#4 BES	Develop a sewer failure response plan	BES / Corporate GIS, PBOT, BES, Bureau of Water	Deferred until 01/10.	BES will implement the Sanitary Sewer Release Response plan		X			X	X	
LT-EQ#5	Develop an educational program that targets homeowners, providing them with inexpensive methods that they can use to strengthen their homes against earthquake damage	POEM / BDS, Bureau of Water, Fire Department	DELETED	Combined all outreach activities under MH							
LT-EQ#6	Assess the vulnerability of the water distribution system to seismic events: work toward hardening the system	Bureau of Water	Deferred Ongoing	Deferred due to lack of funding and staff resources	X				X	X	
LT-EQ#7	Partner with DOGAMI and USGS to obtain funding to complete EQ Fault mapping and improvement technology for data and information transfer	POEM	DELETED	Combined with ST #5 LiDAR Mapping is currently in progress							
LT-EQ#8	Study development regulations and policies to ascertain if regulations can be made to limit development of high risk facilities in known areas of earthquake hazards	POEM / BDS, Bureau of Planning and Sustainability, PBOT, Bureau of Fire	Ongoing	State law does not allow us to make building regulations more stringent than the State Code					X	X	
LT EQ#9	Assess the stability of levees in the Columbia Corridor Area and develop appropriate emergency plans to address potential levee failure and associated hazards	POEM / Bureau of Water, Fire Bureau, BES	DELETED	Moved to LT MH #10							
LT EQ 10	Identify secondary hazards generated from earthquake-generated landslides and all other secondary implications	POEM	Deferred Changed to LT timeline	Multnomah County NHMP Addresses Landslides		X			X	X	
LT-EQ#11	Work with local jurisdictions to assess the capacity of landfill to accommodate earthquake debris: develop coordination plans for disposal of debris in the aftermath of an earthquake	POEM / Bureau of Planning and Sustainability	Ongoing moved from STEQ7	Metro: Solid waste and recycling department. "Emergency Response Plan Multnomah County NHMP addresses debris removal		X			X	X	
EQ	Encourage utility companies to evaluate and harden vulnerable infrastructure elements for sustainability		New Implement			X			X		

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EROSION – (ER) NEW HAZARD											
ER	Maintain and update erosion hazard location maps, identify critical facilities potentially impacted and develop mitigation initiatives such as bank stabilization or facility relocation to prevent or reduce the threat (NFIP Compliance)		New Implement	Combine all mapping activities under MH	X				X	X	X
ER	Relocate buildings that are at risk of erosion impacts (NFIP Compliance)		New Implement	Combined relocation activities under MH		X			X		
ER	Implement projects that retain native vegetation, increase vegetation diversity and increase the complexity of the vegetation strata (having three vegetation strata: herbs, shrubs, trees)	BES, Parks, BPS	New Implement			X			X		
ER	Implement policies to increase the extent of coverage of the Greenway zones and further limit proposed activities within these areas	BES, BDS, BPS	New Implement			X	X		X		
ER	Initiate and enforce speed limits for boats on the Willamette River where natural banks are currently eroding due to boat wakes	Multnomah County Sheriff River Patrol	New Implement	"Slow no wake" signs being set up		X	X		X	X	
ER	Develop standards for soil backfill in vegetated areas, especially sloped areas	BES	New Implement			X			X		
ER	Establish regulations that prevent installation of slopes steeper than 3:1 and prohibit development on slopes steeper than 3:1	BDS, BPS, BES	New Implement			X			X		
ER	Implement projects that layback and/or regrade riverbank slopes and secure wetland sod mats composed of native emergent/grasses, etc..	Bureau of Parks and Recreation	New Implement			X					
ER	Construct bioengineered slope protective measures such as brush bundles, fascines, brush mattresses, etc	Bureau of Parks and Recreation	New Implement			X			X		
ER	Implement projects that increase large wood structures that act to soften the effect of wave action on shorelines as well as provide habitat for migrating salmonids	BES	New Implement			X			X		
ER	Secure large wood [boles w/ attached root wads] or log rafts to reduce high wave action that can result in erosion	Bureau of Parks and Recreation	New Implement			X					
FLOOD											
ST FL #1	A covenant is recorded with the deed of new development in the floodplain to ensure that space below the BFE is not converted to habitable space. This should be codified to improve compliance (NFIP Compliance)	BDS	Ongoing	Building permit and codes developed and implemented		X			X		
ST FL #2	Continue to co-fund improvements to river and stream gauges in the Portland metropolitan area with the United Geological Survey	BES	Complete and Ongoing	BES and USGS renewing a 5 year agreement to co-fund improvements to river and stream gauges		X		X	X	X	
ST FL #3	Convene an interagency committee to determine which datum will be used when the City is responding to a flood event. This decision will not preclude agencies from using their own datum during non-flood times	Fire Bureau / BDS, POEM	Complete	Calibration of river datum chart aligning each rivers' gauge settings							

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ST FL #4	Secure the agreements necessary to design and implement the redevelopment of Freeway Land Company site (within the Lents Urban Renewal Area)	BDS /Portland Development Commission; Bureau of Planning and Sustainability, PBOT, Portland Parks and Recreation	Ongoing	This is an ongoing process							X
ST FL #5	Acquire outside funding to hire a consultant to lead the application process for a Class 5 rating the next time the City submits for the Community Rating System certification	BES, Community Rating System Coordinator / BDS; Bureau of Planning and Sustainability; Bureau of Parks and Recreation; POEM; PBOT	Complete and Ongoing	Working on getting a Class 5 rating with next CRS update.		X	X	X	X	X	
ST FL #6	Support Multnomah County Drainage District (MCDD) in the continued calibration and updating of hydraulic models for conveyance and internal flood impacts to the four managed floodplains managed by MCDD #1 (NFIP Compliance)	POEM, BES / Bureau of Planning and Sustainability	Complete and Ongoing	All of the districts continue to calibrate their H&H model using XP SWIMM					X	X	X
ST FL #7	Develop a multiple-agency plan for evacuation of the managed Columbia River floodplain in Multnomah County in the event of a potential levee failure (All floodplain areas)	POEM / PBOT	Deleted	Combined all evacuation actions under MH							
ST FL #8	Identify funding for the design and construction of the Springwater Wetlands Complex, a 30-acre floodplain wetland restoration project in the Lents area of Johnson Creek	BES, Johnson Creek Watershed Manager / Portland Development Commission, Bureau of Parks and Recreation	Ongoing	Funding provided to bring project to 90% design and 90% design completed. Funding for construction not yet earmarked by Congress					X		X
ST FL #9	Secure funding to implement the passive flood management projects that are recommended in the Johnson Creek Restoration Plan & other watershed management plans. Coordinate with Portland Development Commission's urban renewal efforts in Lents and with other partners in other parts of the watershed	Johnson Creek Watershed Manager, BES / Bureau of Parks and Recreation, Portland Development Commission	Complete and Ongoing				X	X	X	X	X
ST FL #10	Improve definitions and refine standards for storm water retention in the Stormwater Management Manual	Development Services Division, BES / BDS, Bureau of Planning and Sustainability	Complete and Ongoing	Complete. Comprehensive Plan (No development in areas where stormwater cannot be managed)				X		X	
ST FL #11	Support development of a multiple-agency plan for Marine Drive closure coordination	POEM / Bureau of Water, PBOT	DELETED	Moved to MH							
ST FL #12	Install a river gauge in the vicinity of the bridge over Johnson Creek at 108 th . The gauge should be able to send data to remote monitoring sites	POEM/ BBOT, Police, Bureau of Water	DELETED	Moved to LT FL Not yet done Revisit this item after East Lents project is completed							
ST FL #13	Install one-way valves on the outlet pipes of the storm inlets on SE Foster Road between 101 st and 112 th	PBOT, Environmental Systems Division Manager / BES; PBOT	DELETED	Moved to LT FL							
LT FL #1	Increase funding for the Johnson Creek Willing Seller Program; establish willing seller programs in other watersheds where flood hazard and priority restoration areas coexist (NFIP Compliance)	Watershed Managers, BES / Bureau of Parks and Recreation, Bureau of Planning and Sustainability, Bureau of Water	Complete and Ongoing	Funding for the Johnson Creek Willing Seller Program increased to \$21 million for 80 acres Gray to Green program funds land acquisition throughout the City				X	X	X	X

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LT FL #2	Review and amend City Code to require that all facilities that store or handle hazardous materials (including large tanks) and which are located in the 500-year floodplain or landslide hazard areas, develop a hazardous materials inventory statement. This statement will be made available for Fire Bureau review. Require that these storage tanks are either adequately protected or relocated outside of the 500 year floodplain (NFIP Compliance)	Fire Marshal / Fire Bureau, POEM, BES	DELETED	Duplicate Project Move to MH							
LT FL #3	Develop a plan for addressing flooding in the Holgate Lake area (NFIP Compliance)	BES /BDS, Bureau of Parks and Recreation, Bureau of Planning and Sustainability	Ongoing	USGS published Hydrology of the Johnson Creek Basin in 2009		X	X		X	X	
LT FL #4	Improve hydraulic bottleneck that prevents discharge of chlorinated effluent to the Willamette River during high river levels (NFIP Compliance)	Operating Manager Tryon Creek Wastewater Treatment Plant, BES	Deferred	benefit does not justify the cost of the project. BES will reevaluate		X			X		
LT FL #5	As Waterfront Park remodeling is designed, ensure that Portland's downtown property and critical facilities remain protected from floodwaters (NFIP Compliance)	Bureau of Parks and Recreation / Fire Bureau, Bureau of Planning and Sustainability, BDS	Ongoing	POEM reviews planning intentions for this area and river reaches		X	X		X	X	
LT FL #6/#7	Partner with Army Corps of Engineers to conduct modeling of the Willamette River upstream of Portland to identify areas that, if acquired or restored, would contribute to mitigate of peak flows in Portland or result in significant reduction of flood damages. (NFIP Compliance)	BES Systems Analysis Group	Deferred	Due to lack of staff and resources		X			X	X	X
LT FL #8	Develop citywide, watershed or sub-watershed specific goals, policies and provisions for amount of impervious surface that should be reduced. Develop implementation tools to meet these goals	Bureau of Planning and Sustainability,, BES / BDS, PBOT	Deleted	Reword to better reflect need							
New LT FL #8	Develop goals, policies and implementation measures to manage the amount of new impervious surface and remove existing impervious surfaces where appropriate. These goals, policies and measures may be at the citywide, watershed, or sub-watershed level (NFIP Compliance)	BES	Reword	Economic analysis documents for South Portland buttes.		X			X	X	X
LT FL #9	Upgrade trestles that carry the main conduits of the water delivery system	Bureau of Water	Deferred Ongoing	Due to lack of funding. Currently defined in the Water Bureau's 5 year CIP Plan		X			X		
LT FL #10	Create redundancy in the water delivery system at the three Sandy River crossings by burying conduits under the river	Bureau of Water, Operations and Support Manager	Deferred Ongoing	Due to lack of funding		X			X		

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LT FL #11	Provide funding for and participate in development of a flood inundation model for the managed floodplains and downtown sea wall (NFIP Compliance)	POEM / BES, Bureau of Water	Ongoing	Not fully developed or utilized due to lack of funding	X	X			X	X	X
New LT FL #12	Install a river gauge in the vicinity of the bridge over Johnson Creek at 108 th . The gauge should be able to send data to remote monitoring sites. (NFIP Compliance)	POEM / PBOT, Police, Bureau of Water	Deferred	Not yet done. Revisit this item after East Lents project is completed		X			X	X	
New LT FL #13	Install one-way valves on the outlet pipes of the storm inlets on SE Foster Road between 101 st and 112 th	PBOT, Environmental Systems Division Manager / BES; PBOT	Deferred Ongoing	Due to lack of funding and staff resources		X				X	
New LT FL	Through the Comprehensive Plan or other plans Develop new zoning codes for the Holgate Lake area using data obtained from the 2009 USGS Holgate Lake Hydrology Study (obtained from LT FL #3) (NFIP Compliance)	Bureau of Planning and Sustainability	New Implement			X				X	
New LT FL	Through the Comprehensive Plan or other plans consider limiting or restricting development in flood prone areas with poorly infiltrating soils and or high groundwater where stormwater cannot be retained onsite (NFIP Compliance)	Bureau of Planning and Sustainability	New Implement LT Ongoing			X				X	
FL	Complete update to the Johnson Creek Restoration Plan. Develop individual plans for each sub-watershed to address the sources of excess stormwater runoff that exacerbates flooding (NFIP Compliance)	BES	New Implement	This will be a Bureau planning action item		X				X	
FL	Through the Comprehensive Plan update implement Citywide policies, land use improvements and mapping changes that reduce landslide, flood, earthquake and wildfire hazards (NFIP Compliance)	POEM – all bureau review	New – Consider	2012		X				X	
FL	Implement actions in the 2005 Portland watershed management Plan (PWMP) to help mitigate flood, landslide, earthquake and wildfire hazards (NFIP Compliance)	BES	Change to ST MH 11			X				X	
FL	Continue to reduce the vulnerability of the Water Bureau's groundwater system i.e. flooding and electrical.	Water Bureau	New Implement								
FL	Establish flood mitigation priorities for critical facilities and residential and commercial buildings located within the 100- year floodplain using survey elevation data. (NFIP Compliance)	POEM, all bureaus	New Implement Move to MH 25	Research is needed, complete as funding allows		X			X		
FL	Increase culvert size to increase its drainage efficiency.		New Implement			X			X		
FL	Construct debris basins to retain debris in order to prevent downstream drainage structure clogging.		New Implement			X			X		
INVASIVE PLANT SPECIES (IS) – NEW HAZARD											
IS	Update Invasive Species Plants List by consolidating nuisance and prohibited plant lists into one "Nuisance Plants List" and assigning priority ranks to the Nuisance Plants List	BPS	New Implement			X			X	X	
IS	Establish the Portland Plant List as an administrative rule (instead of an ordinance)	BPS	New Implement			X			X	X	

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IS	Clarify zoning regulations to require removal of plants on the Nuisance Plants List in conjunction with required landscaping	BPS	New Implement			X			X	X	
IS	Clarify zoning regulations to require removal of plants on the Nuisance Plants List in the Environmental, Greenway and Pleasant Valley Natural Resources Overlay Zones and the Columbia South Shore and Johnson Creek Basin Plan Districts	BPS	New Implement			X			X	X	
IS	Establish rules requiring that certain early detection species on the Nuisance Plants List be eradicated from a property if discovered	BPS	New Implement			X			X	X	
IS	Initiate a process to ensure the Erosion Control Manual be made consistent with City goals to control and eradicate invasive plants	BPS, BES, BDS	New Implement			X			X	X	
IS	Initiate a process to ensure the Tree and Landscaping Manual, the Recommended Street Tree List and the Stormwater Management Manual be made consistent with City goals to control and eradicate invasive plants	BPS, BES, BDS, PP&R	New Implement			X			X	X	
IS	Coordinate with the Portland Plan project to help ensure that invasive species are addressed in the Comprehensive Plan update and Portland Plan work plan	BPS	New Implement			X			X	X	
IS	Research the feasibility of establishing a local noxious or invasive weed law	BPS	New Implement			X			X	X	
LANDSLIDE (LS)											
ST-LS #1	Continue to Maintain and Improve Internal City communications to facilitate coordination of landslide mitigation activities	BDS/ BES, PBOT, Bureau of Water, Bureau of Parks and Recreation, Risk Management	Complete and Ongoing	The landslide coordination committee has streamlined city services which benefit at least 6 different bureaus				X		X	
ST-LS #2	Improve property owner awareness of the importance of proper maintenance of private drainage systems	BES /PBOT	Complete	River East Center provides opportunities for the public to become more aware of innovative stormwater management techniques 34 in-depth interviews conducted in and around the Taggart D Basin of Southeast Portland. All interviews ascertained public awareness of storm water management in southeast Portland BES developed: Maintaining your storm water management facility. Home owners handbook							
ST-LS #3	Mitigate Portland's water supply infrastructure from landslide hazards	Bureau of Water	Ongoing	Significant elements of a landslide monitoring system are in place.		X			X	X	
ST-LS #4	Initiate more operations and maintenance pilot projects along roads that inform about the development of standards for managing stormwater in ditches in landslide prone areas	BES /PBOT	Complete and Ongoing						X	X	
ST-LS #5	Continue development of standards for small pump stations as an alternative to gravity sewers in accessible or high risk areas	BES/ BDS	DELETED	Convert to Long-Term action item							
LT-LS #1	Develop a comprehensive landslide map for the City to identify hazard areas and to improve communications with the public	BDS / Bureau of Planning and Sustainability, Bureau of Water/ BES, PBOT, Bureau of Parks and Recreation	Complete and Ongoing	BDS provides potential landslide hazard map		X	X			X	

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ID	Description	Coordinating Organizations/ Internal Partners	Status: Complete, Deferred, Deleted, Ongoing, or New - Consider or Selected to Implement	Status / Comments	1. Update risk and vulnerability analysis every five years	2. Implement actions to protect life, property and natural systems	3. Promote public outreach to diverse populations	4. Improve City of Portland's economic resilience by identifying mitigation action successes.	5. Commit to continuously reducing the City's natural hazards vulnerability.	6. Cross reference NHP goals and actions with all City plans, projects and program investments.	7. Coordinate mitigation activities with regional communities and agencies.
LT-LS #2	Acquire land or apply conservation easement for long-term and permanent mitigation of risk	BGS / Bureau of Planning and Sustainability, Bureau of Parks and Recreation, BDS BES, Risk Management	DELETED Combined all acquisition/relocation/demolition actions in MH	Combined all acquisition/relocation activities under MH							
LT-LS #3	Complete a study of the West Hills drainage system which addresses the cumulative effects of development in the Area	BES, Planning and Modeling and Engineering Services, Bureau of Planning and Sustainability, BDS (Site Development)	DELETED	Reworded							
New LT LS #3	Evaluate the role of drainage systems in the West Hills, including pipes, streams and drainage ways and options for protecting and improving their functions and increasing their resiliency	BES, Planning and Modeling and Engineering Services, Bureau of Planning and Sustainability, BDS (Site Development)	Complete and Ongoing	Reworded	X		X	X		X	
LT-LS #4	Review the effectiveness of regulations related to development in identified landslide area.	BDS (Land Use Services and Site Development), Bureau of Planning and Sustainability, BES	Deferred	Due to lack of funding No review process completed,							
New LT LS #4	Review the effectiveness of existing regulations related to development in landslide hazard areas	BDS (Land Use Services and Site Development), Bureau of Planning and Sustainability, BES	Deferred	Reworded					X	X	
LT-LS #5	Update the Bureau of Environmental Service's Sewer and Drainage Facilities Design Manual	BES	Complete	Completed June 2007 and updated November 2008							
LT-LS #6	Employ alternative construction methods such as trenchless construction on City projects to reduce the impact that development can have in landslide prone areas	BES	Complete and Ongoing	BES uses alternate construction methods in steep areas		X		X	X		
New LT LS #7	Construct a catch basin ahead of the TCWTP to catch excess flows	BES, BDS	Converted to LT Action Item	Replaces ST LS #5		X		X	X	X	
SEVERE WEATHER											
ST SW #1	Develop an education/outreach program in collaboration with other bureaus regarding winter preparedness that targets Portland's neighborhoods	PDOT, POEM, Bureau of Water, BES, Office of Neighborhood Involvement	DELETED	Combined all outreach activities under MH General preparedness for winter and ice; snow and ice routes map available							
ST SW #2	Acquire an additional facility for storage of anti-icing materials and expand anti-icing vehicle inventory	PDOT BGS/Facilities, Vehicle Services	Ongoing Move to MH 26			X			X	X	
ST SW #3	Manage the planting and maintenance of trees in the public right of way to minimize risk	City Forester (Bureau of Parks and Recreation), PDOT	Complete								
ST SW #4	Visually assess overhead hazards during development permit reviews	POEM	DELETED	Deleted due to funding, staff resources and infeasibility							
ST SW #5	Develop, implement and/or enhance strategies for debris management for severe winter storm events	BES	Ongoing	The City's street cleaning program removes dirt and debris from City streets and provides emergency response in winter storms		X			X	X	
ST SW #6	Insulate residential buildings that house at-risk populations	PDC	Ongoing			X	X		X		
ST SW #7	Prioritize existing building stock for active review of Title 29 (Dangerous Building Code) This needs to be updated with intern information or information sent from individuals that are on the team	BDS	Deferred	The Bureau does not review existing building stock Inspectors will become aware of a dangerous conditions and then follow-through with the owner to get that dangerous condition fixed					X	X	

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SW	Develop and implement programs to coordinate maintenance and mitigation activities to reduce risk to public infrastructure from severe winter storms		New Implement Combined in MH 20 & MH 25	Review and incorporate as appropriate		X		X	X		
SW	Develop critical facility list needing emergency back-up power systems, prioritize, seek funding and implement mitigation actions		New Implement Combined in MH 20 & MH 25	Review and incorporate as appropriate		X		X	X		
SW	Develop and implement tree maintenance and mitigation programs to keep trees from threatening lives, property and public infrastructure from severe weather events		New Implement Combined in MH 20	Review and incorporate as appropriate		X		X	X		
SW	Develop, implement and maintain partnership program with electrical utilities to identify key repetitive loss areas and develop mitigation techniques		New Implement	Review and incorporate as appropriate		X		X	X		
SW	Increase power line wire size and incorporate quick disconnects (break away devices) to reduce ice load power line severe wind or winter ice storm event failure		Ongoing	Review and incorporate as appropriate		X		X	X		
SW	Partner with PGE to provide a robust underground feed for power and communications at headworks treatment at Bull Run to ensure uninterrupted treatment		Ongoing	Review and incorporate as appropriate		X		X	X		
ST SW #1	Develop an education/outreach program in collaboration with other bureaus regarding winter preparedness that targets Portland's neighborhoods	PDOT, POEM, Bureau of Water, BES, Office of Neighborhood Involvement	DELETED	Combined all outreach activities under MH General preparedness for winter and ice; snow and ice routes map available							
ST SW #2	Acquire an additional facility for storage of anti-icing materials and expand anti-icing vehicle inventory	PDOT BGS/Facilities, Vehicle Services	Ongoing Move to MH 26			X			X	X	
ST SW #3	Manage the planting and maintenance of trees in the public right of way to minimize risk	City Forester (Bureau of Parks and Recreation), PDOT	Complete								
ST SW #4	Visually assess overhead hazards during development permit reviews	POEM	DELETED	Deleted due to funding, staff resources and infeasibility							
ST SW #5	Develop, implement and/or enhance strategies for debris management for severe winter storm events	BES	Ongoing	The City's street cleaning program removes dirt and debris from City streets and provides emergency response in winter storms		X			X	X	
VOLCANO (V) – NEW HAZARD											
V	Update public outreach program for ash fall events.		New Implement	Combined all outreach activities in MH							
V	Evaluate capability of water treatment plants to deal with high turbidity from ash falls and upgrade treatment facilities' physical plant to deal with ash falls. Prioritize and initiate actions to fill capability gaps.		New Implement								
V	Identify and prioritize critical facilities' overhead utilities that could be placed underground to reduce power disruption from wind storm / tree blow down damage		New Implement Move to MH 25								
V	Work with the state and other impacted jurisdictions to implement and update the various volcano Inter-Agency Coordination Plans	POEM	New Implement							X	X
V	Collaborate with USGS-CVO and related agencies to develop ash fall models that are specific to the City	POEM	New Implement			X					X
WILDLAND URBAN INTERFACE FIRE (WF)											
ST WF #1	Consolidate unassigned and/or unmanaged vegetated areas owned by the City under a single land management umbrella	Bureau of Parks and Recreation, BES / Bureau of Water, PBOT, BGS	Ongoing	No available funds to actively reduce fuels or manage vegetation					X	X	

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ST WF #2	Procure funding for management of vegetated natural areas with high wildfire danger, including public and private properties	Fire, Bureau of Parks and Recreation, BES, Bureau of Planning and Sustainability, PBOT, BGS	Ongoing	This task is currently funded through 2010 through a FEMA PDM grant			X		X	X	
ST WF #3	Review and index existing maps with pertinent wildfire information. Identify parameters and methods for new maps as needed to meet wildfire mitigation goals	Fire, BDS, Corporate GIS / BIT, Bureau of Planning and Sustainability, Bureau of Parks and Recreation, BES, Bureau of Water	Ongoing	Current wildfire hazard maps are not accurate at a small scale and would be difficult for code enforcement	X				X	X	
ST WF #4	Provide wildfire management training to staff	Portland Fire and Rescue / Bureau of Parks and Recreation, BES, Bureau of Water, PBOT	Ongoing	Portland Fire has two courses currently offered (\$190 & \$130).			X		X	X	
ST WF #5	Amend the Portland Plant List and other related City plant lists and landscaping guides to include/identify fire resistant native plants and planting strategies that could be encouraged or required in local landscaping	Bureau of Planning and Sustainability/ Fire and Rescue, Bureau of Parks and Recreation, BES, PBOT	Ongoing	Updated Portland Plant List in 2004-2005 indicated fire accelerant plants, The 2005 Environmental Code Improvement Project					X	X	X
ST WF #6	Integrate, as appropriate, fire prevention goals and provisions into City policies, plans and codes. Identify and address ambiguities or conflicts among city requirements	Bureau of Planning and Sustainability/ BDS, Fire and Rescue, BES, PBOT	Ongoing	Portions within Bureau of Planning work plans					X	X	
ST WF #7	Identify conditions of approval and mitigation strategies that could be applied to new development or redevelopment in high risk areas	BDS, Bureau of Parks and Recreation, Bureau of Planning and Sustainability, Fire and Rescue, BES and PBOT	Ongoing	Used on a case by case basis by BDS		X				X	
ST WF #8	Integrate wild land fire risk educational opportunities into existing City stewardship programs. Provide education for both internal and external partners. Define and refine. Resource Protection. Eddy Campbell Add wording for funding when funding becomes available	BES, Bureau of Parks and Recreation; Fire and Rescue, Bureau of Water, Bureau of Planning and Sustainability, BDS, BOT, POEM, Office of Neighborhood Involvement	DELETED	Combined all outreach activities under MH Need consistent funding sources							
ST WF #9	Improve the system for identifying new construction in areas subject to wildfires and communicating this information to the affected land owners	BDS / Fire and Rescue; Bureau of Water, PBOT, Office of Neighborhood Involvement, Bureau of Planning and Sustainability	Ongoing	Information is not always effectively communicated during the permitting process		X	X		X		
ST WF #10	Conduct systematic reviews of Portland's large, publicly owned, wildland tracts regarding fire safety and ecological health to inform land management decisions.	Bureau of Parks and Recreation / BES, Fire and Rescue, Bureau of Water, Bureau of Planning and Sustainability, PBOT, Office of Neighborhood Involvement	Ongoing	Portland Park and Recreation is currently working on natural area ecosystem management plans.	X		X			X	
ST WF #11	Adopt the national "Fire Danger Rating System" and install the signs at key points in the City.	Fire and Rescue / Office of Neighborhood Involvement	Ongoing	The rating system is designed to remind the public to be extra cautious during critical r fire danger periods.		X	X				X
ST WF #12	Implement a neighborhood wildland interface disaster planning program.	POEM, Neighborhood Emergency Team, Office of Neighborhood Involvement / Fire and Rescue, Police	Ongoing	The neighbors surrounding wildland interface areas are key partners in loss prevention.			X		X	X	
ST WF #13	Review and potentially refine City contract specifications for machinery operations during "Red Flag" weather conditions.	Fire and Rescue / BES, Bureau of Parks and Recreation, Bureau of Water	Ongoing				X		X		
ST WF #14	Convene a standing wildland interface fire technical group.	Fire and Rescue / Bureau of Parks and Recreation, BES, POEM, Bureau of Water, PBOT, BDS, Bureau of Planning and Sustainability	Ongoing	This group would provide an ongoing forum platform to discuss and coordinate implementation of wildfire mitigation actions across City bureaus and ensure actions are reasonably and equitably supplied. To be qualify for a Community Wildfire Community Plan, Multnomah Co and City must convene this group.	X	X	X	X	X	X	X

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ST WF #15	Index City wildfire mitigation plans and activities.	Fire and Rescue / Bureau of Parks and Recreation, BES, POEM, BOT, Metro, BDS, Bureau of Planning and Sustainability	Ongoing	Tracking current activities helps direct limited resources, key priorities, eliminate redundancy and id gaps. Will be an action item of committee.					X	X	
New ST WF #16	Identify water grid engineering requirements for firefighting in wildfire areas	Bureau of Fire and Rescue, Bureau of Water	Deferred	Work has been initiated by the Water Bureau. Representatives from the Bureau of fire should meet with Water Bureau representatives to identify State and Federal criterion/standards. Fire Bureau and Water Bureau have met numerous times to discuss standards and priorities. A prioritization memorandum that identifies areas of the most concern has been prepared by the Fire Bureau and the Water Bureau.		X				X	
LT WF #1	Improve public education and understanding about wildfire occurrence, risk and prevention. Move to Public.	Portland Fire and Rescue / Parks, BES, PBOT, Bureau of Planning and Sustainability	DELETED	Combined all outreach activities under Multi-Hazard Section							
LT WF #2	Review the feasibility of adopting portions of nationally recognized wildfire interface codes to strengthen building standards in wildfire risk areas.	Portland Fire & Rescue, BDS	Ongoing	Wildfire interface codes are a model for requiring stricter building standards for new buildings in interface areas.			X			X	X
LT WF #3	Design and conduct a study to determine the effectiveness of maintenance agreements that are established when new land divisions are approved to manage vegetation in open space tracts.	BDS; Fire and Rescue / Bureau of Planning and Sustainability, Bureau of Parks and Recreation, BES, PBOT and the Office of Neighborhood Involvement	Ongoing	Allows the City to ensure maintenance agreement requirements are effectively implemented.	X					X	
LT WF #4	Complete an assessment to characterize high priority wildfire risk areas and recommend specific mitigation strategies.	Fire and Rescue / Bureau of Parks and Recreation, BES, Bureau of Planning and Sustainability, BDS, Bureau of Water, PBOT	Complete and Ongoing	This has been implemented by PDM grant and has helped in limited areas. This activity will provide information for a benefit cost analysis for actions to be developed.	X			X		X	
LT WF #5	Explore avenues for funding interface home construction upgrades for low income homeowners.	Fire and Rescue / BDS, Office of Neighborhood Involvement	Deferred	Have no idea if anything has been accomplished in this area by other Bureaus. PF&R should not be involved if this remains in the mitigation plan.			X			X	X
WF	Develop, adopt and enforce burn ordinances that require burn permits, restrict campfires and controls outdoor burning.		New Implement						X	X	
WF	Complete engineering work to analyze the fire risk potential of the Bull Run Watershed. Implement appropriate actions as determined from the engineering work.		New Implement			X			X	X	

