

# **Appendix A: Action Item Forms**

## Multi-Hazard #1

<b>Proposed Action Item:</b>		<b>Alignment with Plan Goals:</b>	
Integrate the goals and action items from the Clackamas County Natural Hazard Mitigation Plan into existing regulatory documents and programs, where appropriate.		<i>Encourage Partnerships &amp; Implementation</i>	
<b>Alignment with Existing Plans/Policies:</b>			
Capital Improvement Plan; Comprehensive Plan			
<b>2012 Status/Rationale for Proposed Action Item:</b>			
<ul style="list-style-type: none"> <li>•The HMAAC continues to work with the county on integrating action items for the NHMP into regulatory documents and programs.</li> <li>•Forest regulation has been revised with more enforcement and wildfire clearance setbacks.</li> <li>•Capital funds are being used for earthquake mitigation activities and capital projects are addressing an erosion study.</li> <li>•Clackamas County Facilities Management is working with Emergency Management to create a Damage Assessment policy and process. The policy and process will include building and functions priorities identified, key department functions, and a process to assess and report on buildings status. As of May 2012, there have been three different meetings discussing various portions of the policy and process.</li> <li>•Facilities Management has received training on FEMA 74 - Earthquake Hazards mitigation for Nonstructural Elements. Facilities Management has started a process of reviewing buildings and implementation of action to reduce earthquake hazards within the buildings. Currently, the Central Utility Plant (CUP) has been completed. The Development Services Building (DSB) and Public Services Building (PSB) are currently being reviewed. Facilities Management will work on creating a policy for this process.</li> </ul>			
<b>Ideas for Implementation:</b>			
<ul style="list-style-type: none"> <li>• Use the mitigation plan to help the county's Comprehensive Land Use Plan meet State Land Use Planning Goal 7, designed to protect life and property from natural disasters and hazards through planning strategies that restrict development in areas of known hazards;</li> <li>• Integrate the county's mitigation plan into current capital improvement plans; and</li> <li>• Partner with other organizations and agencies with similar goals to promote building codes that are more disaster resistant at the state level.</li> </ul>			
<b>Coordinating Organization:</b>		NHMP Advisory Committee	
<b>Internal Partners:</b>		<b>External Partners:</b>	
Emergency Management; Facilities Management; Development Services; Planning and Zoning		Forest Service; Canby, Damascus, Estacada, Gladstone, Happy Valley, Johnson City, Lake Oswego, Milwaukie, Molalla, Oregon City, Sandy, West Linn, Wilsonville	
<b>Potential Funding Sources:</b>		<b>Estimated cost:</b>	<b>Timeline:</b>
General Fund		Unknown	<input type="checkbox"/> Short Term (0-2 years) <input type="checkbox"/> Long Term (2-4+ years) <input checked="" type="checkbox"/> Ongoing
<b>Form Submitted by:</b>	Existing action item		
<b>Priority:</b>	High		

## Multi-Hazard #2

<b>Proposed Action Item:</b>		<b>Alignment with Plan Goals:</b>	
Identify and pursue funding opportunities to develop and implement local and county mitigation activities.		<i>Encourage Partnerships &amp; Implementation</i>	
<b>Alignment with Existing Plans/Policies:</b>			
Capital Improvement Plan			
<b>2012 Status/Rationale for Proposed Action Item:</b>			
<p>The following are different funding opportunities used to develop and implement local and county mitigation activities:</p> <ul style="list-style-type: none"> <li>• 1 FMA grant award for flood elevation</li> <li>• 1 HMGP award for flood elevation</li> <li>• 5 HMGP awards for flood acquisitions</li> <li>• 1 PDM award for seismic retrofit of water treatment facility</li> <li>• \$2 million in wildfire mitigation for ODF for wildfire mitigation and fuels reduction activities</li> </ul>			
<b>Ideas for Implementation:</b>			
<ul style="list-style-type: none"> <li>• Develop incentives for local governments, citizens, and businesses to pursue hazard mitigation projects;</li> <li>• Allocate county resources and assistance to mitigation projects when possible; and</li> <li>• Partner with other organizations and agencies in Clackamas County to identify grant programs and foundations that may support mitigation activities.</li> </ul>			
<b>Coordinating Organization:</b>		Emergency Management	
<b>Internal Partners:</b>		<b>External Partners:</b>	
Department of Transportation; Development Services; Public Works		Oregon Emergency Management (FEMA); Oregon Department of Forestry; Community Foundations, etc.	
<b>Potential Funding Sources:</b>		<b>Estimated cost:</b>	<b>Timeline:</b>
Capital Funds; FEMA PDM, HMGP and FMA Grants; Forest Service Grants; Other grant sources		Calculated on a project by project basis	<input type="checkbox"/> Short Term (0-2 years) <input type="checkbox"/> Long Term (2-4+ years) <input checked="" type="checkbox"/> Ongoing
<b>Form Submitted by:</b>	Existing action item		
<b>Priority:</b>	High		

### Multi-Hazard #3

<b>Proposed Action Item:</b>		<b>Alignment with Plan Goals:</b>	
Establish a formal role for the Clackamas County Natural Hazards Mitigation Committee to develop a sustainable process for implementing, monitoring, and evaluating countywide mitigation activities.		<i>Encourage Partnerships &amp; Implementation</i>	
<b>Alignment with Existing Plans/Policies:</b>			
N/A			
<b>2012 Status/Rationale for Proposed Action Item:</b>			
<p>The Hazard Mitigation Advisory Committee continues to meet annually. The following are the dates of past HMAP meetings prior to the 2011-2012 NHMP update process:</p> <ul style="list-style-type: none"> <li>•April 15, 2008</li> <li>•March 30, 2009</li> <li>•November 18, 2009</li> <li>•September 22, 2010</li> </ul> <p>The Sandy Sustainable Flood Recovery Group has continued to meet twice a month since March 2011 to discuss long-term mitigation activities.</p>			
<b>Ideas for Implementation:</b>			
<ul style="list-style-type: none"> <li>• Establish clear roles for participants, meeting regularly to pursue and evaluate implementation of mitigation strategies;</li> <li>• Oversee implementation of the mitigation plan;</li> <li>• Establish measurable standards to evaluate mitigation policies and programs and provide a mechanism to update and revise the mitigation plan;</li> <li>• Monitor hazard mitigation implementation by jurisdictions and participating organizations through surveys and other reporting methods;</li> <li>• Develop updates for the Natural Hazards Mitigation Action Plan based on new information;</li> <li>• Conduct a full review of the Natural Hazards Mitigation Action Plan every 5 years by evaluating mitigation successes, failures, and areas that were not addressed; and</li> <li>• Provide training for Committee members to remain current on developing issues in the natural hazard loss reduction field.</li> </ul>			
<b>Coordinating Organization:</b>		NHMP Advisory Committee	
<b>Internal Partners:</b>		<b>External Partners:</b>	
Emergency Management;			
<b>Potential Funding Sources:</b>		<b>Estimated cost:</b>	<b>Timeline:</b>
General Fund		Low	<input type="checkbox"/> Short Term (0-2 years) <input type="checkbox"/> Long Term (2-4+ years) <input checked="" type="checkbox"/> Ongoing
<b>Form Submitted by:</b>	Existing Action Item		
<b>Priority:</b>	Medium		

## Multi-Hazard #4

<b>Proposed Action Item:</b>		<b>Alignment with Plan Goals:</b>	
Identify, improve, and sustain collaborative programs focusing on the real estate and insurance industries, public and private sector organizations, and individuals to avoid activity that increases risk to natural hazards.		<i>Encourage Partnerships &amp; Implementation; Promote Public Awareness; Protect Life and Property</i>	
<b>Alignment with Existing Plans/Policies:</b>			
<b>2012 Status/Rationale for Proposed Action Item:</b>			
<ul style="list-style-type: none"> <li>• In March 2012, Clackamas County published a brochure, "You May Need Flood Insurance" to promote consideration for NFIP Preferred Risk policies. The brochure targeted residents and business that may be at lower risk but can take advantage of coverage if flooded.</li> <li>• Clackamas County Emergency Management briefed Committee for Citizen Involvement</li> <li>• Clackamas County Emergency Management and Planning Departments worked with the Oregon Partnership for Disaster Resilience on a cost-effectiveness study of the Clackamas County CRS program, titled Clackamas County Community Rating System Program Review, Nov. 2011.</li> </ul>			
<b>Ideas for Implementation:</b>			
<ul style="list-style-type: none"> <li>• Distribute information about flood, fire, earthquake, and other forms of natural hazards insurance to property owners in areas identified to be at risk through hazard mapping;</li> <li>• Develop a one-page handout on types of insurance and deliver through county utility or service agencies;</li> <li>• Educate individuals and businesses on the benefit of engaging in mitigation activities such as developing impact analyses;</li> <li>• Pinpoint areas of high risk and transfer the cost of risk to property owners through insurance (rather than to the public);</li> <li>• Encourage the development of unifying organizations to ensure communication and dissemination of natural hazard mitigation information;</li> <li>• Identify activities for private sector and citizen involvement such as nonstructural seismic daycare retrofits; and</li> <li>• Continue development of the Regional Emergency Preparedness Calendar.</li> </ul>			
<b>Coordinating Organization:</b>		Emergency Management	
<b>Internal Partners:</b>		<b>External Partners:</b>	
Public and Government Affairs; Economic Development		Realtors; utility providers; property owners	
<b>Potential Funding Sources:</b>		<b>Estimated cost:</b>	<b>Timeline:</b>
General Fund		Low to Medium	<input type="checkbox"/> Short Term (0-2 years) <input type="checkbox"/> Long Term (2-4+ years) <input checked="" type="checkbox"/> Ongoing
<b>Form Submitted by:</b>	Existing action item		
<b>Priority:</b>	High		

## Multi-Hazard #5

<b>Proposed Action Item:</b>		<b>Alignment with Plan Goals:</b>	
Develop public and private partnerships to foster natural hazard mitigation program coordination and collaboration in Clackamas County.		<i>Encourage Partnerships &amp; Implementation</i>	
<b>Alignment with Existing Plans/Policies:</b>			
<b>2012 Status/Rationale for Proposed Action Item:</b>			
Since 2007 there have been two county-wide, Presidential Disaster Declarations. As a result, there has been outreach to affected residents regarding SBA loans. There has also been some outreach with the Chamber of Commerce.			
<b>Ideas for Implementation:</b>			
<ul style="list-style-type: none"> <li>• Work with city governments to develop local Natural Hazards Mitigation Plans that are consistent with the goals and framework of the County Plan;</li> <li>• Identify all organizations within Clackamas County that have programs or interests in natural hazards mitigation;</li> <li>• Involve private businesses throughout the county in mitigation planning;</li> <li>• Improve communication between ODOT and county road departments, and work together to prioritize and identify strategies to deal with road problems; and</li> <li>• Establish protocol for communication electric providers and the Department of Transportation and Development to assure rapid restoration of transportation capabilities.</li> </ul>			
<b>Coordinating Organization:</b>		Emergency Management	
<b>Internal Partners:</b>		<b>External Partners:</b>	
Department of Transportation; Development Services; Economic Development; Public and Government Affairs		Chamber of Commerce	
<b>Potential Funding Sources:</b>		<b>Estimated cost:</b>	<b>Timeline:</b>
General Fund; Business Partnerships		Medium	<input type="checkbox"/> Short Term (0-2 years) <input type="checkbox"/> Long Term (2-4+ years) <input checked="" type="checkbox"/> Ongoing
<b>Form Submitted by:</b>	Existing action item		
<b>Priority:</b>	Medium		

## Multi-Hazard #6

<b>Proposed Action Item:</b>		<b>Alignment with Plan Goals:</b>	
Update and Maintain inventories of at-risk buildings and infrastructure and prioritize mitigation projects.		<i>Protect Life and Property; Encourage Partnerships &amp; Implementation</i>	
<b>Alignment with Existing Plans/Policies:</b>			
Comprehensive Plan			
<b>2012 Status/Rationale for Proposed Action Item:</b>			
The Maintenance Department is working with Emergency Management to develop a list/inventory of the at-risk buildings and infrastructure. Emergency Management maintains the prioritized list. The county also utilizes the, Statewide Seismic Needs Assessment Using Rapid Visual Screening (RVS), DOGAMI Open-File Report O-07-02.			
<b>Ideas for Implementation:</b>			
<ul style="list-style-type: none"> <li>• Identify critical facilities at risk from natural hazards events;</li> <li>• Develop strategies to mitigate risk to these facilities, or to utilize alternative facilities should natural hazards events cause damages to the facilities in question;</li> <li>• Incorporate the building inventory developed by the Department of Geology and Mineral Industries (Dec. 2002) into the hazard assessment; and</li> <li>• Identify bridges at risk from flood or earthquake hazards, identify enhancements, and implement projects needed to reduce the risks.</li> </ul>			
<b>Coordinating Organization:</b>		Geographic Information Services	
<b>Internal Partners:</b>		<b>External Partners:</b>	
Emergency Management; Facilities; Department of Transportation and Development;		DOGAMI	
<b>Potential Funding Sources:</b>		<b>Estimated cost:</b>	<b>Timeline:</b>
Capital Funds		Medium to high	<input type="checkbox"/> Short Term (0-2 years) <input type="checkbox"/> Long Term (2-4+ years) <input checked="" type="checkbox"/> Ongoing
<b>Form Submitted by:</b>	Existing Action Item		
<b>Priority:</b>	High		

## Multi-Hazard #7

<b>Proposed Action Item:</b>		<b>Alignment with Plan Goals:</b>	
Strengthen emergency services preparedness and response by linking emergency services with natural hazard mitigation programs, and enhancing public education on a regional scale.		<i>Augment Emergency Services</i>	
<b>Alignment with Existing Plans/Policies:</b>			
Emergency Operations Plan			
<b>2012 Status/Rationale for Proposed Action Item:</b>			
Clackamas County continues to participate in safety fairs all over the county. Each city sponsors workshops in conjunction with the Emergency Management Department. The county's Hazard Mitigation Specialist continues to present at local and regional workshops, conferences, and fairs.			
<b>Ideas for Implementation:</b>			
<ul style="list-style-type: none"> <li>• Develop a program to encourage private property owners to upgrade their bridges to support weight of fire trucks and emergency vehicles;</li> <li>• Encourage individual and family preparedness through public education projects such as safety fairs;</li> <li>• Identify opportunities for partnering with citizens, private contractors, and other jurisdictions to increase availability of equipment and manpower for efficiency of response efforts;</li> <li>• Work with Community Planning Organizations (CPO's) and other neighborhood groups to establish community response teams; and</li> <li>• Familiarize public officials of requirements regarding public assistance for disaster response.</li> </ul>			
<b>Coordinating Organization:</b>		Emergency Management	
<b>Internal Partners:</b>		<b>External Partners:</b>	
Department of Transportation and Development; Public and Government Affairs; Geographic Information Systems; Health, Housing and Human Services		Community planning organizations; neighborhood associations	
<b>Potential Funding Sources:</b>		<b>Estimated cost:</b>	<b>Timeline:</b>
Emergency Management Grant Program; General Fund		Medium	<input type="checkbox"/> Short Term (0-2 years) <input type="checkbox"/> Long Term (2-4+ years) <input checked="" type="checkbox"/> Ongoing
<b>Form Submitted by:</b>	Existing Action Item		
<b>Priority:</b>	High		



## Multi-Hazard #8

<b>Proposed Action Item:</b>		<b>Alignment with Plan Goals:</b>	
Use technical knowledge of natural ecosystems and events to link natural resource management and land use organizations to mitigation activities and technical assistance.		<i>Enhance Natural Systems</i>	
<b>Alignment with Existing Plans/Policies:</b>			
<b>2012 Status/Rationale for Proposed Action Item:</b>			
Clackamas County Department of Transportation and Develop is working with Water Environment Services and the Sandy River Watershed Council to use the best available data to accurately redefine the erosion zone and not just the flood zone. WES is working with LiDAR studies, and is working to map the meander zones to include all public infrastructure.			
<b>Ideas for Implementation:</b>			
<ul style="list-style-type: none"> <li>• Review ordinances that protect natural systems and resources to mitigate for natural hazards for possible enhancements;</li> <li>• Pursue vegetation and restoration practices that assist in enhancing and restoring the natural and beneficial functions of the watershed; and</li> <li>• Develop education and outreach programs that focus on protecting natural systems as a mitigation activity.</li> </ul>			
<b>Coordinating Organization:</b>		Water Environment Services	
<b>Internal Partners:</b>		<b>External Partners:</b>	
Planning and Zoning; Department of Transportation and Development		Watershed Councils; Soil Watershed Conservation Districts; Oregon Watershed Enhancement Board	
<b>Potential Funding Sources:</b>		<b>Estimated cost:</b>	<b>Timeline:</b>
Oregon Watershed Enhancement Board; General Fund			<input type="checkbox"/> Short Term (0-2 years) <input type="checkbox"/> Long Term (2-4+ years) <input type="checkbox"/> Ongoing
<b>Form Submitted by:</b>	Existing Action Item		
<b>Priority:</b>	Medium		

## Multi-Hazard #9

<b>Proposed Action Item:</b>		<b>Alignment with Plan Goals:</b>	
Enhance strategies for debris management.		<i>Encourage Partnerships and Implementation; Augment Emergency Services; Enhance Natural Systems</i>	
<b>Alignment with Existing Plans/Policies:</b>			
Emergency Operations Plan			
<b>2012 Status/Rationale for Proposed Action Item:</b>			
<p>The Clackamas County Sustainability department has one member attending the regional workgroup, as well as the FEMA Debris Management training. They have been training and working with the intent to talk with some of the city partners to come up with an action plan that will allow the county to refine the initial plan which received comments by FEMA staff but not yet approved.</p>			
<b>Ideas for Implementation:</b>			
<ul style="list-style-type: none"> <li>• Work with Metro to complete a regional debris management plan; and</li> <li>• Identify local resources available to implement debris management plan.</li> </ul>			
<b>Coordinating Organization:</b>		Emergency Management	
<b>Internal Partners:</b>		<b>External Partners:</b>	
Sustainability; Department of Transportation and Development – Roads;		Metro; RMG	
<b>Potential Funding Sources:</b>		<b>Estimated cost:</b>	<b>Timeline:</b>
General Fund		Low to Medium	<input checked="" type="checkbox"/> Short Term (0-2 years) <input type="checkbox"/> Long Term (2-4+ years) <input checked="" type="checkbox"/> Ongoing
<b>Form Submitted by:</b>	Existing Action Item		
<b>Priority:</b>	High		

## Multi-Hazard #10

<b>Proposed Action Item:</b>		<b>Alignment with Plan Goals:</b>	
Update County Comprehensive Plan to integrate most current natural hazard mapping data for Clackamas County and make available to county GIS to improve technical analysis of natural hazards.		<i>Protect Life and Property; Encourage Partnerships &amp; Implementation</i>	
<b>Alignment with Existing Plans/Policies:</b>			
Clackamas County Comprehensive Plan; Statewide Planning Goal 7			
<b>2012 Status/Rationale for Proposed Action Item:</b>			
The current Clackamas County Comprehensive Plan does not include any earthquake hazard mapping.			
<b>Ideas for Implementation:</b>			
<ul style="list-style-type: none"> <li>Utilize LIDAR technology to enhance earthquake mapping efforts.</li> </ul>			
<b>Coordinating Organization:</b>		Geographic Information Systems	
<b>Internal Partners:</b>		<b>External Partners:</b>	
Office of Planning and Zoning; Emergency Management		Metro; DOGAMI; USGS	
<b>Potential Funding Sources:</b>		<b>Estimated cost:</b>	<b>Timeline:</b>
General Fund; Grants		Unknown	<input type="checkbox"/> Short Term (0-2 years) <input checked="" type="checkbox"/> Long Term (2-4+ years) <input type="checkbox"/> Ongoing
<b>Form Submitted by:</b>	Existing Action Item		
<b>Priority:</b>	Medium		

## Flood #1

<b>Proposed Action Item:</b>		<b>Alignment with Plan Goals:</b>	
Identify opportunities to educate Clackamas County residents with flood prone properties and identify feasible mitigation options.		<i>Protect Life and Property; Encourage Partnerships &amp; Implementation</i>	
<b>Alignment with Existing Plans/Policies:</b>			
<b>2012 Status/Rationale for Proposed Action Item:</b>			
The CRS continues to be updated annually. The biggest void that the HMAC and Planning Department faces is the lack of knowledge on the part of insurance lenders. The Sandy Sustainable Flood Recovery Group continues education and outreach in Sandy.			
<b>Ideas for Implementation:</b>			
<ul style="list-style-type: none"> <li>• Identify appropriate and feasible mitigation activities for identified repetitive flood properties. Funding may be available through FEMA's Hazard Mitigation Grant and Flood Mitigation Assistance Programs and the Pre-disaster Mitigation Program;</li> <li>• Contact repetitive loss property owners to discuss mitigation opportunities, and determine interest should future project opportunities arise;</li> <li>• Explore options for incentives to encourage property owners to engage in mitigation;</li> <li>• Determine mitigation strategies to reduce undermining of Anderson road by Pudding River; and</li> <li>• Encourage and support the relocation of the Clackamas County Roads Department out of the floodplain.</li> </ul>			
<b>Coordinating Organization:</b>		Office of Planning and Zoning	
<b>Internal Partners:</b>		<b>External Partners:</b>	
Emergency Management; HMAC		DLCD; OEM	
<b>Potential Funding Sources:</b>		<b>Estimated cost:</b>	<b>Timeline:</b>
General Fund; HMA; FEMA RiskMap		Medium	<input type="checkbox"/> Short Term (0-2 years) <input type="checkbox"/> Long Term (2-4+ years) <input checked="" type="checkbox"/> Ongoing
<b>Form Submitted by:</b>	Existing Action Item		
<b>Priority:</b>	High		

## Flood #2

<b>Proposed Action Item:</b>		<b>Alignment with Plan Goals:</b>	
Recommend revisions to requirements for development within the floodplain, where appropriate		<i>Protect Life and Property</i>	
<b>Alignment with Existing Plans/Policies:</b>			
Flood Ordinance; Zoning Code			
<b>2012 Status/Rationale for Proposed Action Item:</b>			
Clackamas County Planning is working on trying to get the residents more involved. The county dropped to a 4 in the CRS rating because those who benefit from the program are still reluctant to purchase insurance. At this point the cost of implementing the program is higher than the actual cost, so the county is working on ways to resolve this.			
<b>Ideas for Implementation:</b>			
<ul style="list-style-type: none"> <li>• Explore raising the base elevation requirement for new residential construction to two or three feet above base flood elevation, or greater. An increased elevation standard is one activity the county can engage in to receive credit from the NFIP Community Rating System Program; and</li> <li>• Consider adopting regulations specific to meandering streams such as the Sandy and Molalla Rivers.</li> </ul>			
<b>Coordinating Organization:</b>		Office of Planning and Zoning	
<b>Internal Partners:</b>		<b>External Partners:</b>	
Emergency Management; Water and Environment Services; Geographic Information Services.		DLCD; National Association of State Flood Plain Managers	
<b>Potential Funding Sources:</b>		<b>Estimated cost:</b>	<b>Timeline:</b>
General Fund		Unknown	<input type="checkbox"/> Short Term (0-2 years) <input checked="" type="checkbox"/> Long Term (2-4+ years) <input type="checkbox"/> Ongoing
<b>Form Submitted by:</b>	Existing Action Item		
<b>Priority:</b>	Low		

### Flood #3

<b>Proposed Action Item:</b>		<b>Alignment with Plan Goals:</b>	
Develop better flood warning systems.		<i>Protect Life and Property; Augment Emergency Services</i>	
<b>Alignment with Existing Plans/Policies:</b>			
Emergency Operations Plan			
<b>2012 Status/Rationale for Proposed Action Item:</b>			
Clackamas County Emergency Management worked with the National Weather Service to install flood staff gauges on the Molalla River at Shady Dell and three flood staff gauges in the upper Sandy River Basin. The county is currently applying for a DR-19560-OR HMGP project to install five electronic river gauges in the upper Sandy Basin.			
<b>Ideas for Implementation:</b>			
<ul style="list-style-type: none"> <li>• Coordinate with appropriate organizations to evaluate the need for more stream gauges; and</li> <li>• Distribute information regarding flooding to the general public efficiently.</li> </ul>			
<b>Coordinating Organization:</b>		Emergency Management	
<b>Internal Partners:</b>		<b>External Partners:</b>	
Geographic Information Services; Department of Transportation and Development		NWS; FEMA; OEM	
<b>Potential Funding Sources:</b>		<b>Estimated cost:</b>	<b>Timeline:</b>
General Fund; NWS; FEMA			<input type="checkbox"/> Short Term (0-2 years) <input type="checkbox"/> Long Term (2-4+ years) <input checked="" type="checkbox"/> Ongoing
<b>Form Submitted by:</b>	Existing Action Item		
<b>Priority:</b>	Medium		

## Flood #4

<b>Proposed Action Item:</b>		<b>Alignment with Plan Goals:</b>	
Maintain data and mapping for floodplain information within the county, and identify and map flood-prone areas outside of designated floodplains.		<i>Protect Life and Property; Promote Public Awareness</i>	
<b>Alignment with Existing Plans/Policies:</b>			
Flood Ordinance			
<b>2012 Status/Rationale for Proposed Action Item:</b>			
<p>Clackamas County GIS has access to the newest FEMA 2008 flood plain information. This is displayed on the hazard plain flood map 1. GIS currently has 2004-2007 LiDAR coverage for a large portion of the county; 2ft contours are available for most of this coverage. GIS just placed a request with DOGAMI to receive some new limited area LiDAR data from 2011 that was used in a recent study of the Sandy River flooding and channel migration zones. GIS has not used the available LiDAR data to update or create any hazard layers at this time. The GIS department has also coordinated with Emergency Management to map property losses from the 2011 flooding out along the Sandy.</p> <p>DOGAMI 2011 Mt Hood MH study uses LiDAR to locate building footprints in the 100 and 500 year flood plain.</p> <p>DOGAMI Channel Migration Zone Study for Sandy River estimates hazard areas for potential movement of river channel.</p>			
<b>Ideas for Implementation:</b>			
<ul style="list-style-type: none"> <li>• Apply for FEMA's cooperative technical partnership using the 2-foot contour interval floodplain mapping data acquired by Clackamas County GIS;</li> <li>• Use WES inventory and mapping data to update the flood-loss estimates for Clackamas County; and</li> <li>• Identify opportunities to upgrade Federal Insurance Rate Maps, and arrange for Cooperative Technical Partnership mapping upgrades for select areas.</li> </ul>			
<b>Coordinating Organization:</b>		Geographic Information Services	
<b>Internal Partners:</b>		<b>External Partners:</b>	
Department of Transportation and Development; Water Environment Services; Emergency Management		DOGAMI; FEMA; DLCD	
<b>Potential Funding Sources:</b>		<b>Estimated cost:</b>	<b>Timeline:</b>
RiskMap; General Fund; FEMA		Medium	<input type="checkbox"/> Short Term (0-2 years) <input type="checkbox"/> Long Term (2-4+ years) <input checked="" type="checkbox"/> Ongoing
<b>Form Submitted by:</b>	Existing Action Item		
<b>Priority:</b>	Medium		

## Flood #5

<b>Proposed Action Item:</b>		<b>Alignment with Plan Goals:</b>	
Encourage development of acquisition and management strategies to preserve open space for flood mitigation, fish habitat, and water quality in the floodplain.		<i>Protect Life and Property; Enhance Natural Systems</i>	
<b>Alignment with Existing Plans/Policies:</b>			
<b>2012 Status/Rationale for Proposed Action Item:</b>			
Metro recently purchased 31E15 02100, 23 acres along the Willamette River.			
<b>Ideas for Implementation:</b>			
<ul style="list-style-type: none"> <li>• Develop a comprehensive strategy for acquiring and managing floodplain open space in Clackamas County;</li> <li>• Explore funding for property acquisition from federal (e.g., FEMA Hazard Mitigation Grant Program), state, regional, and local governments, as well as private and non-profit organizations, trails programs, fish programs;</li> <li>• Develop a regional partnership among flood mitigation, fish habitat, and water quality enhancement organizations/programs to improve educational programs;</li> <li>• Identify sites where environmental restoration work can benefit flood mitigation, fish habitat, and water quality;</li> <li>• Work with landowners to develop flood management practices that provide healthy fish habitat; and</li> <li>• Identify existing watershed education programs and determine which programs would support a flood education component.</li> </ul>			
<b>Coordinating Organization:</b>		Water and Environment Services	
<b>Internal Partners:</b>		<b>External Partners:</b>	
Department of Transportation and Development		Metro; FEMA	
<b>Potential Funding Sources:</b>		<b>Estimated cost:</b>	<b>Timeline:</b>
Capital Funds; General Fund; FEMA; OWEB		Unknown	<input type="checkbox"/> Short Term (0-2 years) <input type="checkbox"/> Long Term (2-4+ years) <input checked="" type="checkbox"/> Ongoing
<b>Form Submitted by:</b>	Existing Action Item		
<b>Priority:</b>	Medium		



## Flood #6

<b>Proposed Action Item:</b>		<b>Alignment with Plan Goals:</b>	
Identify surface water drainage problematic sites for all parts of unincorporated Clackamas County.		<i>Protect Life and Property; Enhance Natural Systems</i>	
<b>Alignment with Existing Plans/Policies:</b>			
<b>2012 Status/Rationale for Proposed Action Item:</b>			
An ongoing project for WES is replacing culverts throughout the county.			
<b>Ideas for Implementation:</b>			
<ul style="list-style-type: none"> <li>• Map culverts in unincorporated areas of the county;</li> <li>• Prepare an inventory of culverts that historically create flooding problems and target them for retrofitting; and</li> <li>• Prepare an inventory of major urban drainage problems, and identify causes and potential mitigation actions for urban drainage problem areas (e.g. reduce standing water on Telford Road along Johnson Creek by upgrading the 20 inch culvert on Spring Water Trail to drain more efficiently with the County 60 inch culvert in that area.).</li> </ul>			
<b>Coordinating Organization:</b>		Water and Environment Services	
<b>Internal Partners:</b>		<b>External Partners:</b>	
Department of Transportation and Development; Geographic Information Services		Soil and Water Conservation Districts; Watershed Councils	
<b>Potential Funding Sources:</b>		<b>Estimated cost:</b>	<b>Timeline:</b>
Capital Funds		Unknown	<input type="checkbox"/> Short Term (0-2 years) <input type="checkbox"/> Long Term (2-4+ years) <input checked="" type="checkbox"/> Ongoing
<b>Form Submitted by:</b>	Existing Action Item		
<b>Priority:</b>	Medium		

## Flood #7

<b>Proposed Action Item:</b>		<b>Alignment with Plan Goals:</b>	
Establish a framework to compile and coordinate surface water management plans and data throughout the county.		<i>Protect Life and Property; Encourage Partnerships &amp; Implementation</i>	
<b>Alignment with Existing Plans/Policies:</b>			
<b>2012 Status/Rationale for Proposed Action Item:</b>			
At this point, there are no resources or support available to make progress thus far.			
<b>Ideas for Implementation:</b>			
<ul style="list-style-type: none"> <li>Develop surface water management plans for areas that are not currently within surface water management plan boundaries.</li> </ul>			
<b>Coordinating Organization:</b>		Office of Planning and Zoning	
<b>Internal Partners:</b>		<b>External Partners:</b>	
Water Environment Services; Geographic Information Systems			
<b>Potential Funding Sources:</b>		<b>Estimated cost:</b>	<b>Timeline:</b>
Unidentified		Unknown	<input type="checkbox"/> Short Term (0-2 years) <input checked="" type="checkbox"/> Long Term (2-4+ years) <input type="checkbox"/> Ongoing
<b>Form Submitted by:</b>	Existing Action Item		
<b>Priority:</b>	Medium		

## Flood #8

<b>Proposed Action Item:</b>		<b>Alignment with Plan Goals:</b>	
Encourage Clackamas County residents to purchase Flood Insurance.		<i>Protect Life and Property; Encourage Partnerships &amp; Implementation; Promote Public Awareness</i>	
<b>Alignment with Existing Plans/Policies:</b>			
<b>2012 Status/Rationale for Proposed Action Item:</b>			
<p>New 2012 Action Item.</p> <p>There are many Clackamas County property owners located in the flood plain that do not have flood insurance. Clackamas County Planning is working on trying to get the residents more involved. The county dropped to a 4 in the CRS rating because those who benefit from the program are still reluctant to purchase insurance. This situation adds to the public burden when floods occur. Increasing the number of insurance policies on properties in the flood plain will benefit the County CRS rating.</p>			
<b>Ideas for Implementation:</b>			
<ul style="list-style-type: none"> <li>Develop an outreach program that addresses communities located in or near the 100 and 500 year floodplain and provides them with valuable information on the NFIP.</li> </ul>			
<b>Coordinating Organization:</b>		Office of Planning and Zoning	
<b>Internal Partners:</b>		<b>External Partners:</b>	
Emergency Management; HMAC		DLCD; Insurance Providers	
<b>Potential Funding Sources:</b>		<b>Estimated cost:</b>	<b>Timeline:</b>
Unknown		Unknown	<input type="checkbox"/> Short Term (0-2 years) <input type="checkbox"/> Long Term (2-4+ years) <input checked="" type="checkbox"/> Ongoing
<b>Form Submitted by:</b>	HMAC		
<b>Priority:</b>	Medium		

## Flood #9

<b>Proposed Action Item:</b>		<b>Alignment with Plan Goals:</b>	
Develop a floodplain management plan as a standalone for the CRS program		<i>Encourage Partnerships &amp; Implementation</i>	
<b>Alignment with Existing Plans/Policies:</b>			
<b>2012 Status/Rationale for Proposed Action Item:</b>			
<p>New 2012 action item.</p> <p>Clackamas County does not have a comprehensive floodplain management plan. Numerous county departments and outside agencies have responsibility and oversight over pieces of the floodplain, however, activities are not always coordinated. This results in inefficiencies and has hampered the county's efforts to document activities under the CRS program.</p>			
<b>Ideas for Implementation:</b>			
<ul style="list-style-type: none"> <li>Create a floodplain management plan that can be used for the CRS program. This new plan will give the CRS program new weight and can help improve the county's current CRS rating score.</li> </ul>			
<b>Coordinating Organization:</b>		Office of Planning and Development	
<b>Internal Partners:</b>		<b>External Partners:</b>	
Emergency Management; Sustainability; Water Resources; Administration			
<b>Potential Funding Sources:</b>		<b>Estimated cost:</b>	<b>Timeline:</b>
General Fund		Unknown	<input type="checkbox"/> Short Term (0-2 years) <input checked="" type="checkbox"/> Long Term (2-4+ years) <input type="checkbox"/> Ongoing
<b>Form Submitted by:</b>	HMAC		
<b>Priority:</b>	Medium		

## Landslide #1

<b>Proposed Action Item:</b>		<b>Alignment with Plan Goals:</b>	
Continue to improve knowledge of landslide hazard areas and understanding of vulnerability and risk to life and property in hazard-prone areas.		<i>Protect Life and Property; Promote Public Awareness</i>	
<b>Alignment with Existing Plans/Policies:</b>			
<b>2012 Status/Rationale for Proposed Action Item:</b>			
The county is working with DOGAMI to finalize a hazard assessment done in 6 different quadrants of the county. The maps and assessments are still not finalized, but have worked with the public to identify discrepancies.			
<b>Ideas for Implementation:</b>			
<ul style="list-style-type: none"> <li>• Develop public information to emphasize economic risk when building on potential or historical landslide areas;</li> <li>• Identify funding sources to enhance site-specific geohazard mapping the Urban Growth Boundary;</li> <li>• Partner with PSU to develop a descriptive landslide inventory along all Clackamas County roadways, including appropriate mitigation strategies; and</li> <li>• Identify existing mechanisms for public outreach (e.g., SWCD, NRCS, watershed councils, etc.).</li> </ul>			
<b>Coordinating Organization:</b>		Geographic Information Services	
<b>Internal Partners:</b>		<b>External Partners:</b>	
HMAC		DOGAMI	
<b>Potential Funding Sources:</b>		<b>Estimated cost:</b>	<b>Timeline:</b>
General Fund			<input checked="" type="checkbox"/> Short Term (0-2 years) <input type="checkbox"/> Long Term (2-4+ years) <input type="checkbox"/> Ongoing
<b>Form Submitted by:</b>	Existing Action Item		
<b>Priority:</b>	Medium		

## Landslide #2

<b>Proposed Action Item:</b>		<b>Alignment with Plan Goals:</b>	
Identify safe evacuation routes in high-risk debris flow and landslide areas.		<i>Protect Life and Property; Augment Emergency Services; Promote Public Awareness</i>	
<b>Alignment with Existing Plans/Policies:</b>			
<b>2012 Status/Rationale for Proposed Action Item:</b>			
There is currently a USGS report in review that examines concentrations of residents, employees and visitors in the Hoodland area with seasonal variability to serve as a tool for evacuation planning. DOGAMI study for Mt. Hood contains exposure analysis for landslide and debris flow hazards in the Sandy River Basin.			
<b>Ideas for Implementation:</b>			
<ul style="list-style-type: none"> <li>• Identify potential debris removal resources;</li> <li>• Increase participation in regional committee planning for emergency transportation routes;</li> <li>• Identify and publicize information regarding emergency transportation routes; and</li> <li>• Work with County Evacuation Planning Committee to develop and exercise evacuation plans.</li> </ul>			
<b>Coordinating Organization:</b>		Emergency Management	
<b>Internal Partners:</b>		<b>External Partners:</b>	
Department of Transportation and Development		DOGAMI	
<b>Potential Funding Sources:</b>		<b>Estimated cost:</b>	<b>Timeline:</b>
General Fund			<input checked="" type="checkbox"/> Short Term (0-2 years) <input type="checkbox"/> Long Term (2-4+ years) <input type="checkbox"/> Ongoing
<b>Form Submitted by:</b>	Existing Action Item		
<b>Priority:</b>	Medium		

### Landslide #3

<b>Proposed Action Item:</b>		<b>Alignment with Plan Goals:</b>	
Continue to limit activities in identified potential and historical landslide areas through regulation and public outreach		<i>Protect Life and Property; Promote Public Awareness; Enhance Natural Systems</i>	
<b>Alignment with Existing Plans/Policies:</b>			
Comprehensive Plan; Development Code			
<b>2012 Status/Rationale for Proposed Action Item:</b>			
DOGAMI continues to map out landslide hazard areas and get the word out. There haven't been any changes in land use ordinances, however land use regulation picks up new information automatically. Steep slope land use maps continue to refer to hazardous areas.			
<b>Ideas for Implementation:</b>			
<ul style="list-style-type: none"> <li>Analyze and recommend improvements to existing regulations regarding development in landslide prone areas. Consider using the City of Salem Landslide Ordinance as an example of effective regulation for development;</li> <li>Incorporate the data from the historic and potential debris flow and landslides hazard map (DOGAMI, 2003) into the county's Comprehensive Land Use Plan to assist in meet State Land Use Planning Goal 7, designed to protect life and property from natural disasters and hazards through the implementation of planning strategies that restrict development in areas of known hazards;</li> <li>Examine logging regulations on private property to ensure accountability of cumulative downslope effects; and</li> <li>Identify existing mechanisms for public outreach (e.g., SWCD, NRCS, watershed councils, etc.).</li> </ul>			
<b>Coordinating Organization:</b>		HMAC	
<b>Internal Partners:</b>		<b>External Partners:</b>	
Office of Planning and Zoning; Building		DOGAMI; DLCD	
<b>Potential Funding Sources:</b>		<b>Estimated cost:</b>	<b>Timeline:</b>
			<input type="checkbox"/> Short Term (0-2 years) <input type="checkbox"/> Long Term (2-4+ years) <input checked="" type="checkbox"/> Ongoing
<b>Form Submitted by:</b>	Existing Action Item		
<b>Priority:</b>	High		

## Landslide #4

<b>Proposed Action Item:</b>		<b>Alignment with Plan Goals:</b>	
Recommend construction and subdivision design that can be applied to steep slopes to reduce the potential adverse impacts from development.		<i>Protect Life and Property; Promote Public Awareness</i>	
<b>Alignment with Existing Plans/Policies:</b>			
<b>2012 Status/Rationale for Proposed Action Item:</b>			
<p>New 2012 action item.</p> <p>Existing hillside development regulations have not been updated recently.</p>			
<b>Ideas for Implementation:</b>			
<ul style="list-style-type: none"> <li>Analyze and recommend improvements to existing regulations regarding development in landslide prone areas. Consider using the City of Salem Landslide Ordinance as an example of effective regulation for development;</li> <li>Incorporate the data from the historic and potential debris flow and landslides hazard map (DOGAMI, 2003) into the county's Comprehensive Land Use Plan to assist in meet State Land Use Planning Goal 7, designed to protect life and property from natural disasters and hazards through the implementation of planning strategies that restrict development in areas of known hazards;</li> <li>Examine logging regulations on private property to ensure accountability of cumulative downslope effects; and</li> <li>Identify existing mechanisms for public outreach (e.g., SWCD, NRCS, watershed councils, etc.).</li> </ul>			
<b>Coordinating Organization:</b>		HMAC	
<b>Internal Partners:</b>		<b>External Partners:</b>	
Office of Planning and Zoning; Building		DOGAMI; DLCD; SWCD, NRCS, watershed councils	
<b>Potential Funding Sources:</b>		<b>Estimated cost:</b>	<b>Timeline:</b>
General Fund		Unknown	<input checked="" type="checkbox"/> Short Term (0-2 years) <input type="checkbox"/> Long Term (2-4+ years) <input type="checkbox"/> Ongoing
<b>Form Submitted by:</b>	Existing Action Item		
<b>Priority:</b>	High		



## Wildfire Actions (refer to Clackamas County CWPP)

<b>Proposed Action Item:</b>		<b>Alignment with Plan Goals:</b>	
		Protect Life and Property; Augment Emergency Services; Encourage Partnerships & Implementation; Promote Public Awareness; Enhance Natural Systems	
<b>Alignment with Existing Plans/Policies:</b>			
<b>2012 Status/Rationale for Proposed Action Item:</b>			
<p>The wildfire mitigation action items provide direction on specific activities that organizations and residents in Clackamas can take to reduce wildfire hazards. The CCWPP includes action items for Fuels Reduction, Structural Ignitability, Community Outreach, Risk Assessment, and Emergency Operations. Please see Appendix G: Clackamas Community Wildfire Protection Plan for a full listing of all wildfire action items.</p>			
<b>Ideas for Implementation:</b>			
<ul style="list-style-type: none"> <li></li> </ul>			
<b>Coordinating Organization:</b>			
<b>Internal Partners:</b>		<b>External Partners:</b>	
<b>Potential Funding Sources:</b>		<b>Estimated cost:</b>	<b>Timeline:</b>
			<input type="checkbox"/> Short Term (0-2 years) <input type="checkbox"/> Long Term (2-4+ years) <input type="checkbox"/> Ongoing
<b>Form Submitted by:</b>	Existing Action Item		
<b>Priority:</b>			

## Severe Weather #1

<b>Proposed Action Item:</b>		<b>Alignment with Plan Goals:</b>	
Develop and implement programs to coordinate maintenance and mitigation activities to reduce risk to public infrastructure from severe weather.		<i>Augment Emergency Services; Encourage Partnerships &amp; Implementation</i>	
<b>Alignment with Existing Plans/Policies:</b>			
<b>2012 Status/Rationale for Proposed Action Item:</b>			
Ongoing.			
<b>Ideas for Implementation:</b>			
<ul style="list-style-type: none"> <li>• Partner with responsible agencies and organizations to design and implement programs that reduce risk to life, property, and utility systems;</li> <li>• Develop partnerships between utility providers and county and local public works agencies to document known hazard areas;</li> <li>• Reduce icy conditions or other hazards at public access public service buildings and ensure public safety by prioritizing critical facilities' parking lots to be cleared before other roads.             <ul style="list-style-type: none"> <li>○ Improve traffic management</li> <li>○ Track progress of road crews.</li> <li>○ Provide public/staff with info. regarding road closures, sanding and plowing routes, time the roads were plowed, and a safety rating via cable access and website; and</li> </ul> </li> <li>• Enhance County plowing capability             <ul style="list-style-type: none"> <li>○ Purchase a residential snow plow and a de-icer machine</li> </ul> </li> </ul>			
<b>Coordinating Organization:</b>		HMAC	
<b>Internal Partners:</b>		<b>External Partners:</b>	
Department of Transportation and Development		Mutual Aid Partners	
<b>Potential Funding Sources:</b>		<b>Estimated cost:</b>	<b>Timeline:</b>
Capital Funds		TBA	<input type="checkbox"/> Short Term (0-2 years) <input type="checkbox"/> Long Term (2-4+ years) <input type="checkbox"/> Ongoing
<b>Form Submitted by:</b>	Existing Action Item		
<b>Priority:</b>	Medium		

## Severe Weather #2

<b>Proposed Action Item:</b>		<b>Alignment with Plan Goals:</b>	
Continue to educate and increase public awareness of severe weather mitigation activities.		<i>Protect Life and Property; Promote Public Awareness</i>	
<b>Alignment with Existing Plans/Policies:</b>			
<b>2012 Status/Rationale for Proposed Action Item:</b>			
Ongoing			
<b>Ideas for Implementation:</b>			
<ul style="list-style-type: none"> <li>• Distribute educational materials to Clackamas residents and public and private sector organizations regarding evacuation routes during road closures;</li> <li>• Target the vulnerable populace for disseminating preparedness information; and</li> <li>• Reduce freezing pipes and resultant damage by encouraging water providers to put a flyer in November water bills to advise of preventions measures available.</li> <li>• Annual CCEM Calendars with monthly mitigation tips.</li> </ul>			
<b>Coordinating Organization:</b>	HMAC		
<b>Internal Partners:</b>		<b>External Partners:</b>	
Public and Government Affairs			
<b>Potential Funding Sources:</b>		<b>Estimated cost:</b>	<b>Timeline:</b>
General Fund		Low	<input type="checkbox"/> Short Term (0-2 years) <input type="checkbox"/> Long Term (2-4+ years) <input checked="" type="checkbox"/> Ongoing
<b>Form Submitted by:</b>	Existing Action Item		
<b>Priority:</b>	Medium		

### Severe Weather #3

<b>Proposed Action Item:</b>		<b>Alignment with Plan Goals:</b>	
Monitor and implement programs to keep trees from threatening lives, property, and public infrastructure during windstorm events.		<i>Augment Emergency Services; Encourage Partnerships &amp; Implementation</i>	
<b>Alignment with Existing Plans/Policies:</b>			
<b>2012 Status/Rationale for Proposed Action Item:</b>			
Ongoing			
<b>Ideas for Implementation:</b>			
<ul style="list-style-type: none"> <li>• Partner with responsible agencies and organizations to design and disseminate education information to property owners to reduce risk from tree failure to life, property, and utility systems;</li> <li>• Develop partnerships between utility providers and county and local public works agencies to document known hazard areas; and</li> <li>• Identify potentially hazardous trees in urban areas.</li> </ul>			
<b>Coordinating Organization:</b>		Department of Transportation and Development - Roads	
<b>Internal Partners:</b>		<b>External Partners:</b>	
Forestry		Utility Providers	
<b>Potential Funding Sources:</b>		<b>Estimated cost:</b>	<b>Timeline:</b>
General Fund		Medium	<input type="checkbox"/> Short Term (0-2 years) <input type="checkbox"/> Long Term (2-4+ years) <input checked="" type="checkbox"/> Ongoing
<b>Form Submitted by:</b>	Existing Action Item		
<b>Priority:</b>	High		

## Severe Weather #4

<b>Proposed Action Item:</b>		<b>Alignment with Plan Goals:</b>	
Map and publicize locations around the county that have the highest incidence of extreme windstorms.		<i>Protect Life and Property; Encourage Partnerships &amp; Implementation; Promote Public Awareness</i>	
<b>Alignment with Existing Plans/Policies:</b>			
Emergency Operations Plan			
<b>2012 Status/Rationale for Proposed Action Item:</b>			
The county's GIS department is unaware of the PGE power outage prone area information. If available, this information would be useful if the HMAC wanted an action item dedicated to creating and distributing educational flyers or similar to individuals living in these areas. GIS can easily generate mailing lists of folks in defined areas. At this time, no progress has been reported.			
<b>Ideas for Implementation:</b>			
<ul style="list-style-type: none"> <li>Identify a responsible agency for central collection and reporting of storm data. Data collected should include: <ul style="list-style-type: none"> <li>Windstorm data (sustained speeds, gusts, storm durations) for localities throughout the county;</li> <li>Maps of the locations within the county, which are most vulnerable to high winds;</li> <li>Injury and property damage estimates, including locations; and</li> </ul> </li> <li>Identify public infrastructure and facilities subject to damage or closure during windstorm events.</li> </ul>			
<b>Coordinating Organization:</b>		Geographic Information Systems	
<b>Internal Partners:</b>		<b>External Partners:</b>	
Emergency Management		Utility Providers	
<b>Potential Funding Sources:</b>		<b>Estimated cost:</b>	<b>Timeline:</b>
General Fund			<input type="checkbox"/> Short Term (0-2 years) <input checked="" type="checkbox"/> Long Term (2-4+ years) <input type="checkbox"/> Ongoing
<b>Form Submitted by:</b>	Existing Action Item		
<b>Priority:</b>	Low		

## Severe Weather

<b>Proposed Action Item:</b>		<b>Alignment with Plan Goals:</b>	
Support/encourage electrical utilities to use underground construction methods where possible to reduce power outages from windstorms.		<i>Encourage Partnerships &amp; Implementation; Enhance Natural Systems</i>	
<b>Alignment with Existing Plans/Policies:</b>			
<b>2012 Status/Rationale for Proposed Action Item:</b>			
All new county electrical utilities (non-transmission) are required to be constructed underground.			
<b>Ideas for Implementation:</b>			
<ul style="list-style-type: none"> <li>• Increase the use of underground utilities where possible.</li> </ul>			
<b>Coordinating Organization:</b>		Building	
<b>Internal Partners:</b>		<b>External Partners:</b>	
Office of Planning and Zoning		Utility Providers	
<b>Potential Funding Sources:</b>		<b>Estimated cost:</b>	<b>Timeline:</b>
Permit fees		Low	<input type="checkbox"/> Short Term (0-2 years) <input type="checkbox"/> Long Term (2-4+ years) <input checked="" type="checkbox"/> Ongoing
<b>Form Submitted by:</b>	Existing Action Item		
<b>Priority:</b>	Medium		

## Earthquake #1

<b>Proposed Action Item:</b>		<b>Alignment with Plan Goals:</b>	
Pursue funding opportunities for structural and nonstructural retrofitting of structures that are identified as seismically vulnerable.		<i>Protect Life and Property; Augment Emergency Services; Encourage Partnerships &amp; Implementation</i>	
<b>Alignment with Existing Plans/Policies:</b>			
<b>2012 Status/Rationale for Proposed Action Item:</b>			
Funding source of limited implementation is the Oregon Seismic Rehabilitation Grant Program (SRGP) that depends on the State Treasurer to obligate bond capacity and the ability of the Oregon Military Department to incur bond debt into their operating budget.			
<b>Ideas for Implementation:</b>			
<ul style="list-style-type: none"> <li>• Provide information for property owners, small businesses, and organizations on sources of funds (loans, grants, etc.); and</li> <li>• Work with owners of buildings included in the DOGAMI seismic survey to ensure that they are aware of potential grant opportunities. Current Needs: <ul style="list-style-type: none"> <li>○ Rivergrove Water has completed seismic analysis on reservoirs, and needs funding for seismic bracing.</li> <li>○ Milwaukie Community Center (owned by Milwaukie, maintained and operated by Clackamas County North Parks Recreation District) is in need of seismic upgrade. No engineering studies have been completed.</li> <li>○ Colton Fire has an engineering report and is in need of seismic upgrades</li> </ul> </li> </ul>			
<b>Coordinating Organization:</b>		HMAC	
<b>Internal Partners:</b>		<b>External Partners:</b>	
Emergency Management; Administration		OEM; FEMA	
<b>Potential Funding Sources:</b>		<b>Estimated cost:</b>	<b>Timeline:</b>
FEMA; OEM Seismic Grants; Capital Funds; Local bonds		High	<input type="checkbox"/> Short Term (0-2 years) <input checked="" type="checkbox"/> Long Term (2-4+ years) <input type="checkbox"/> Ongoing
<b>Form Submitted by:</b>	Existing Action Item		
<b>Priority:</b>	Medium		

## Earthquake #2

<b>Proposed Action Item:</b>		<b>Alignment with Plan Goals:</b>	
Encourage purchase of earthquake hazard insurance.		<i>Protect Life and Property; Promote Public Awareness</i>	
<b>Alignment with Existing Plans/Policies:</b>			
<b>2012 Status/Rationale for Proposed Action Item:</b>			
CCEM continues to encourage the purchase of earthquake hazard insurance at annual preparedness fairs all over the county.			
<b>Ideas for Implementation:</b>			
<ul style="list-style-type: none"> <li>• Provide earthquake insurance information to Clackamas County residents; and</li> <li>• Coordinate with insurance companies and organizations such as the Insurance Information Service of Oregon and Idaho to produce and distribute earthquake insurance information.</li> </ul>			
<b>Coordinating Organization:</b>		HMAC	
<b>Internal Partners:</b>		<b>External Partners:</b>	
Emergency Management		Insurance Providers	
<b>Potential Funding Sources:</b>		<b>Estimated cost:</b>	<b>Timeline:</b>
		Low	<input type="checkbox"/> Short Term (0-2 years) <input type="checkbox"/> Long Term (2-4+ years) <input checked="" type="checkbox"/> Ongoing
<b>Form Submitted by:</b>	Existing Action Item		
<b>Priority:</b>	LOW		



### Earthquake #3

<b>Proposed Action Item:</b>		<b>Alignment with Plan Goals:</b>	
Encourage seismic strength evaluations for existing critical facilities in the county to identify vulnerabilities for mitigation of schools and universities, public infrastructure, and critical facilities to meet current seismic standards.		<i>Protect Life and Property; Augment Emergency Services</i>	
<b>Alignment with Existing Plans/Policies:</b>			
Emergency Operations Plan			
<b>2012 Status/Rationale for Proposed Action Item:</b>			
Currently, all new facilities must comply with and meet seismic standards. If someone moves into an old building, they must upgrade to current standards. DOGAMI recently did a windshield survey of schools, fire stations, police, and city halls. The focus was on action of existing buildings and information was shared with participants.			
<b>Ideas for Implementation:</b>			
<ul style="list-style-type: none"> <li>• Encourage owners of non-retrofitted reservoirs to upgrade them to meet seismic standards;</li> <li>• Encourage all water providers to replace all old cast iron pipes with more ductile iron, and identify partnership opportunities with other agencies for pipe replacement; and</li> <li>• Perform FEMA 154 seismic evaluations on all buildings not included in the recent DOGAMI inventory.</li> </ul>			
<b>Coordinating Organization:</b>		Emergency Management	
<b>Internal Partners:</b>		<b>External Partners:</b>	
<b>Potential Funding Sources:</b>		<b>Estimated cost:</b>	<b>Timeline:</b>
		High	<input type="checkbox"/> Short Term (0-2 years) <input checked="" type="checkbox"/> Long Term (2-4+ years) <input type="checkbox"/> Ongoing
<b>Form Submitted by:</b>	Existing Action Item		
<b>Priority:</b>	High		

## Earthquake #4

<b>Proposed Action Item:</b>		<b>Alignment with Plan Goals:</b>	
Encourage reduction of nonstructural and structural earthquake hazards in homes, schools, businesses, and government offices through public education.		<i>Protect Life and Property; Promote Public Awareness</i>	
<b>Alignment with Existing Plans/Policies:</b>			
<b>2012 Status/Rationale for Proposed Action Item:</b>			
Ongoing.			
<b>Ideas for Implementation:</b>			
<ul style="list-style-type: none"> <li>• Provide information to government building and school facility managers and teachers on nonstructural mitigation techniques including: securing bookcases, filing cabinets, light fixtures, and other objects that can cause injuries and block exits;             <ul style="list-style-type: none"> <li>○ Encourage facility managers, business owners, and teachers to refer to FEMA's practical guidebook: Reducing the Risks of Nonstructural Earthquake Damage;</li> <li>○ Encourage homeowners and renters to use Is Your Home Protected from Earthquake Disaster? A Homeowner's Guide to Earthquake Retrofit (IBHS) for economic and efficient mitigation techniques;</li> </ul> </li> <li>• Use the FEMA 154 seismic evaluations generated by DOGAMI to prioritize critical and essential buildings for upgrades;</li> <li>• Explore partnerships to provide retrofitting classes for homeowners, renters, building professionals, and contractors; and</li> <li>• Target development located in potential fault zones or in unstable soils for intensive education and retrofitting resources.</li> </ul>			
<b>Coordinating Organization:</b>		HMAC	
<b>Internal Partners:</b>		<b>External Partners:</b>	
Emergency Management			
<b>Potential Funding Sources:</b>		<b>Estimated cost:</b>	<b>Timeline:</b>
			<input type="checkbox"/> Short Term (0-2 years) <input type="checkbox"/> Long Term (2-4+ years) <input checked="" type="checkbox"/> Ongoing
<b>Form Submitted by:</b>	Existing Action Item		
<b>Priority:</b>	Medium		

## Volcanic Eruption #1

<b>Proposed Action Item:</b>		<b>Alignment with Plan Goals:</b>	
Work with the state and other impacted jurisdictions to implement and update the Mount Hood Inter-Agency Coordination Plan.		<i>Augment Emergency Services; Encourage Partnerships &amp; Implementation; Promote Public Awareness</i>	
<b>Alignment with Existing Plans/Policies:</b>			
<b>2012 Status/Rationale for Proposed Action Item:</b>			
Clackamas County Emergency Management has convened the Mt Hood Plan Facilitation Committee twice. CCEM has also worked with CVO and TVF&R on delivering a Mt Hood table-top scenario to elected officials from around the greater Portland Metro area.			
<b>Ideas for Implementation:</b>			
<ul style="list-style-type: none"> <li>Coordinate with local and regional groups to conduct exercises, plan evaluation and revisions.</li> </ul>			
<b>Coordinating Organization:</b>	Emergency Management		
<b>Internal Partners:</b>		<b>External Partners:</b>	
		DOGAMI; USGS; OEM; Metro; CVO; TVF&R	
<b>Potential Funding Sources:</b>		<b>Estimated cost:</b>	<b>Timeline:</b>
General Fund		Unknown	<input type="checkbox"/> Short Term (0-2 years) <input checked="" type="checkbox"/> Long Term (2-4+ years) <input type="checkbox"/> Ongoing
<b>Form Submitted by:</b>	Existing Action Item		
<b>Priority:</b>	Medium		

## Volcanic Eruption #2

<b>Proposed Action Item:</b>		<b>Alignment with Plan Goals:</b>	
Utilize existing risk assessments and collaborate with USGS-CVO and related agencies to develop ash fall models that are specific to Clackamas County.		<i>Protect Life and Property; Augment Emergency Services; Encourage Partnerships &amp; Implementation; Promote Public Awareness</i>	
<b>Alignment with Existing Plans/Policies:</b>			
Emergency Operations Plan			
<b>2012 Status/Rationale for Proposed Action Item:</b>			
<p>USGS funded DOGAMI MH study of proximal and distal land-based exposure to volcano hazards for Sandy River and Hood River valleys. This may provide the basis for vulnerability assessments for near-field ash hazard assessments.</p> <p>From the GIS standpoint, no one has done or has access to any ash fall models or maps at this time. GIS is a tool that could model some of this if the base data was available. Once the DOGAMI Mt Hood study becomes available, it may provide the county with initial debris flow and possibly ash fall models.</p>			
<b>Ideas for Implementation:</b>			
<ul style="list-style-type: none"> <li>Determine critical activities that must be implemented for varying degrees of ash fall; and</li> <li>Work with the National Early Volcano Warning System collaborative group to better assess ash fall modeling and warning systems in Clackamas County.</li> </ul>			
<b>Coordinating Organization:</b>	Geographic Information Systems		
<b>Internal Partners:</b>		<b>External Partners:</b>	
Emergency Management		DOGAMI; USGS	
<b>Potential Funding Sources:</b>		<b>Estimated cost:</b>	<b>Timeline:</b>
USGS			<input type="checkbox"/> Short Term (0-2 years) <input checked="" type="checkbox"/> Long Term (2-4+ years) <input type="checkbox"/> Ongoing
<b>Form Submitted by:</b>	Existing Action Item		
<b>Priority:</b>	Low		

### Volcanic Eruption #3

<b>Proposed Action Item:</b>		<b>Alignment with Plan Goals:</b>	
Strengthen response and recovery programs, and work with the USGS-CVO to enhance public education programs for volcanic eruption hazards.		<i>Protect Life and Property; Augment Emergency Services; Encourage Partnerships &amp; Implementation; Promote Public Awareness</i>	
<b>Alignment with Existing Plans/Policies:</b>			
<b>2012 Status/Rationale for Proposed Action Item:</b>			
CCEM participated in a 2010 presentation to the Congressional Hazards Caucus in Washington DC to promote improvements for volcano early warning.			
CCEM provided evaluation of FEMA/USGS Volcano Crisis Awareness Course in 2011 to complete FEMA's final course certification process.			
Worked with USGS Geographer Nate Wood on a multi-hazard vulnerability study for the Hoodland area, with an emphasis on assessing volcanic risk.			
<b>Ideas for Implementation:</b>			
<ul style="list-style-type: none"> <li>• Develop basic public education materials that describe volcanic eruption hazards (pyroclastic surges, pyroclastic flows, lahars, mudflows, landslides, ash fall), potential impacts, and appropriate response and mitigation activities;</li> <li>• Coordinate with the media for volcanic hazard education programs to reduce conveyance of misinformation;</li> <li>• Participate with the USGS-CVO to develop a public education program for volcano hazards specific to Clackamas County; and</li> <li>• Work with active citizen groups to sustain volcanic hazards education programs.</li> </ul>			
<b>Coordinating Organization:</b>		Emergency Management	
<b>Internal Partners:</b>		<b>External Partners:</b>	
		USGS	
<b>Potential Funding Sources:</b>		<b>Estimated cost:</b>	<b>Timeline:</b>
USGS			<input type="checkbox"/> Short Term (0-2 years) <input checked="" type="checkbox"/> Long Term (2-4+ years) <input type="checkbox"/> Ongoing
<b>Form Submitted by:</b>	Existing Action Item		
<b>Priority:</b>	Low		

This page left intentionally blank.