

OREGON NHMP MISSION: TO CREATE A DISASTER RESILIENT STATE OF OREGON									
OREGON NHMP VISION: NATURAL HAZARD EVENTS RESULT IN NO LOSS OF LIFE, MINIMAL PROPERTY DAMAGE, AND LIMITED LONG-TERM IMPACTS TO THE ECONOMY.									
Action Item						Progress			
2012 #	Statement	Description	Plan Goals Addressed	Lead(s)	Support(s)	Not Started	% Complete (1-99)	DONE (100%)	Comments
LEGISLATIVE/ POLICY									
6	NEW LP-5C	Assist local governments in implementing the land use guidance and best practices for reducing risk within tsunami inundation zones.	The risk of tsunami hazard for Oregon's coastal communities is well-documented with the completion of comprehensive tsunami inundation maps developed by DOGAMI. The State of Oregon can assist affected communities by developing land use guidance for tsunami risk reduction, providing it to the communities, then assisting communities with its implementation. Monitoring success of the guidance will allow the State to adjust its approach and update the guidance as necessary.		DLCD		X		ONGOING
7	NEW LP-5D	Monitor the effectiveness of the land use guidance and best practices for reducing risk within tsunami inundation zones provided to local governments by tracking the number of jurisdictions that have used it.	The risk of tsunami hazard for Oregon's coastal communities is well-documented with the completion of comprehensive tsunami inundation maps developed by DOGAMI. The State of Oregon can assist affected communities by developing land use guidance for tsunami risk reduction, providing it to the communities, then assisting communities with its implementation. Monitoring success of the guidance will allow the State to adjust its approach and update the guidance as necessary.		DLCD		X		ONGOING
8	REVISED LP-13A	Seek <u>stable</u> funding for the installation, and operation, and <u>maintenance</u> of additional stream gages.	The availability of timely and accurate telemetered data from stream gages is essential for flood forecasting, for prediction of imminent flood hazards, and for response to flood emergencies. Stream gaging data also provide basic hydrologic information for floodplain mapping and watershed management by communities throughout the state. Numerous agencies of the federal government need data from stream gages for effective management of projects and resources; therefore the installation and maintenance of stream gages has traditionally been a responsibility of the federal government. State agencies plan to work with their federal counterparts to ensure adequate funding and support for existing gages and for the installation of new gaging sites where required. It is recommended that state agencies endeavor to leverage federal funding with state resources and local matching commitments to achieve a reliable network of stream gages around the state.	1,2,5	WRD	DSL			ONGOING - The 2013 Oregon Legislature provided \$750,000 for two hydrologic technicians, one information services position, and 16 stream gages. OWRD will always seek to install more gages throughout the state, and operation and maintenance are inherently ongoing activities.
9	REVISED LP-17	<u>Collaborate through work groups within the Pacific Northwest Coordination Group to encourage</u> the U.S. Forest Service to allow the owners of long-term dwelling leases to apply mitigation standards adjacent to their dwellings.	In Oregon, several thousand seasonal homes, which are located in high-risk wildland-urban interface areas, are on lands owned by the U.S. Forest Service. Because these structures are located on ground owned by the federal government, they are not subject to the <i>Oregon Forestland-Urban Interface Fire Protection Act</i> . In many locations, even when the owners of these homes desire to complete wildfire mitigation practices, federal lease requirements totally or substantially prevent them from doing so. Under this action item, a survey will be made of all lease locations in Oregon and the federal mitigation limitation and prohibitions will be identified. This information will then be used to approach the appropriate federal officials with a request to change their policies or regulations, to allow for the application of mitigation practices on leased property.	1,2,4	ODF	OSFM, Local Fire Protection Agencies			ONGOING

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10	REVISED LP-19B	Develop and implement flood protection standards for state-owned buildings. Continue to improve inventory of state-owned and -leased buildings in all hazard areas.	According to the Senate Bill 814 Task Force (Oregon Legislature, 1997 Session), there is a need to develop and effectively implement a strict standard governing the siting, construction, and leasing of buildings occupied by state agencies in flood-prone areas. There is a corresponding need to inventory existing state buildings located in flood-prone areas. Using DAS's data, DOGAMI developed an inventory of state-owned and -leased buildings and identified those in hazard areas for the 2012 Plan and updated the inventory for the 2015 Plan. The data should be continuously updated by DAS to facilitate DOGAMI's inventory updates in future plan cycles.	2	DAS	DLCD-DOGAMI			ONGOING
EDUCATION/ OUTREACH									
12	NEW EO-63	Monitor the effectiveness of the statewide strategy to encourage the purchase of flood insurance by demonstrating that the number of flood insurance policies held throughout the state continues to increase.	Despite the statewide availability of flood insurance, coverage in place in most communities in Oregon varies from 10% to 20% of the homes and businesses located in the Special Flood Hazard Area (100-year floodplain). Not only does flood insurance reduce the financial vulnerability of individuals, families, businesses, government agencies, other organizations, and the community to the costs posed by flooding, but through the "increased cost of compliance" provision of flood insurance, it also provides funding for the elevation, floodproofing, demolition, or relocation of homes and businesses when required due to "substantial damage" to the structure.		DLCD	DCBS-ID	X		ONGOING
13	NEW EO-6B	Provide the updated <i>Planning for Natural Hazards: Oregon Technical Resource Guide</i> to local governments.	To encourage communities to use <i>Planning for Natural Hazards: Oregon Technical Resource Guide</i> it must be provided to them.		OPDR	DLCD, OEM	X		ONGOING
14	NEW EO-6C	Assist local governments in using the updated <i>Planning for Natural Hazards: Oregon Technical Resource Guide</i> to update their comprehensive plans and development regulations.	The original purpose of <i>Planning for Natural Hazards: Oregon Technical Resource Guide</i> was to assist communities in amending their comprehensive plans and development regulations to reduce risk from natural hazards, implementing Statewide Goal 7. The updated document will also be helpful in developing local hazard mitigation plans and integrating them with local comprehensive plans and development regulations.		OPDR	DLCD, OEM	X		ONGOING
15	NEW EO-6D	Monitor the success of the updated <i>Planning for Natural Hazards: Oregon Technical Resource Guide</i> provided to local governments by evaluating its effectiveness or uptake rate.	Monitoring success of <i>Planning for Natural Hazards: Oregon Technical Resource Guide</i> will allow the State to adjust its approach and update the guidance as necessary.		OPDR	DLCD, OEM	X		ONGOING
16	NEW EO-6E	Provide support for development of local and state hazard mitigation plans.	The State provides support for development of local NHMPs and the state NHMP by managing federal grant funding that it distributes to OPDR and others to assist the state and local governments with NHMP development and update tasks and processes.						ONGOING

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17	EO-7	Improve and sustain public information and education programs aimed at mitigating the damage caused by natural hazards	While ongoing efforts are being made in this area, a strong message conveyed by several State IHMT Reports notes the need to strengthen and sustain public information, education, and training efforts by providing additional resources. Although commonly recognized that interest in reducing losses increase during and after events, there is an ongoing need to provide residents and key stakeholder groups (such as infrastructure operators) with hazard mitigation information. These reports cite the need to have timely seasonal information available, better methods to inform residents of sources of hazard mitigation information, use improved electronic methods (e.g., web sites), and materials oriented toward the intended users. This helps keep awareness levels higher, will stimulate actions by some, and reminds users to consider and include hazard mitigation measures in the contexts of regular activities, such as building a new home, relocating an office, or repairing a business.	2,3,4,7	OEM	State IHMT Agencies				ONGOING
18	REVISED EO-12	Better coordinate, fund, and publicize programs to reduce the abundance of Juniper trees in arid landscapes across Oregon	Juniper trees are not native to Oregon. They <u>Juniper trees</u> develop extensive root systems that draw critically needed water from arid soils, transpiring water vapor into the atmosphere, <u>intensifying drought and increasing the risk of wildfire</u> . There are programs in Oregon to reduce Juniper trees from areas where their competition for groundwater resources is harmful, but these programs need to be better coordinated, funded, and publicized.	1,2,4,7	ODF	ODA, DEQ, ODFW, DSL				ONGOING
19	REVISED EO-17	Publicize and facilitate the implementation of both structural and non-structural seismic mitigation measures for home owners, business owners, renters, and contractors, including methods of reducing hazards	Models to display chimney reinforcing techniques, attaching homes to foundations and non-structural measures for building contents have been developed by FEMA following the Nisqually earthquake disaster. Oregon will request models from FEMA Region 10 and/or other sources; develop and deploy a training program for seismic retrofits to be conducted regionally throughout the state. Work with various "Showcase State" partners, as well as the Construction Contractors Board, public and private sector lenders, private sector construction material suppliers and nonprofit organizations to develop programs to assist home and business owners and renters to implement structural and non-structural seismic mitigation measures. Working with federal partners, such as FEMA, and non-profit industry groups, such as AIA, Oregon will enhance education on structural and non-structural seismic mitigation measures by adopting the following actions: <ul style="list-style-type: none"> • Increase the number of educational opportunities by working with FEMA to offer courses from the National Earthquake Technical Assistance Program. • Work with the Construction Contractors Board, public and private sector lenders, private sector construction material suppliers and nonprofit organizations to develop programs to assist home and business owners and renters to implement innovative structural and non-structural seismic mitigation measures. 	1,2,3,6,7	OEM	BCD				ONGOING
20	REVISED EO-27	Support development, enhancement and implementation of local education programs designed to mitigate the wildfire hazard and to reduce wildfire losses, such as the Firewise Communities/NFPA Program and the annual Wildfire Awareness Week Campaign.	As part of its statewide fire prevention program, the Oregon Department of Forestry actively encourages and promotes local education and awareness programs that are designed to mitigate, or reduce the impacts of wildfires. This action reflects ODF's ongoing intentions to: 1) collaborate with agencies and organizations to promote consistency in the development and application of fire prevention standards; 2) work to make individuals aware of their personal accountability and responsibility for wildfire safety; 3) determine local resources and capacity; and 4) define needs and solutions required to increase capacity. Please see Section 3 of the SNHMP for descriptions of current statewide educational programs.	1,2,3,4,7	ODF	OSFM, BCD, DCBS-ID, DLCD				ONGOING

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21	REVISED EO-28	Increase the number of local governments using the Wildfire Hazard Zone process to mitigate wildfire risk and losses	The Wildfire Hazard Zone (WHZ) process allows local governments to require the use of fire resistant roofing materials in jurisdictions assessed to be at a high risk of wildland fire. Currently, only a few eligible entities have utilized the WHZ process. To promote additional use, an assessment will be made of the portions of the state where it appears the WHZ process will have the greatest benefit. Following this assessment, local governments in the areas identified will be educated on the desirability of implementing the process. Those governments that express an interest in applying the process will be assisted in completing the required analysis work.	1,2,3,4,5,7	DLCD, ODF, BCD	OSFM, ODF, BCD			ONGOING
22	EO-29	Increase the number of counties and communities that have current Community Wildfire Protection Plans.	The federal Healthy Forests Restoration Act (HFRA) includes statutory incentives for federal agencies to give consideration to the priorities of local communities as they develop and implement wildfire hazard mitigation projects. To become eligible for priority consideration under HFRA, a community must first prepare a <i>Community Wildfire Protection Plan</i> (CWPP). Most Oregon counties and many Oregon communities have completed CWPPs. To encourage the completion of additional CWPPs, as well as future updates of CWPP's counties and communities will be informed of the benefits to be gained from maintaining a CWPP and assistance will be offered to help facilitate the development and/or update of the plans.	1,2,3,4,5,7	ODF	OSFM, Local fire defense boards, local forest protection districts			ONGOING
23	EO-33	Promote the use of monies for fire prevention and wildfire mitigation projects by counties received pursuant to Title III, Section 302(5) of Public Law 106-393, or other similar federal legislation	Under the federal <i>Secure Rural Schools and Community Self-Determination Act of 2000</i> , counties have the ability to receive and spend federal funds for projects that educate homeowners about wildfire mitigation efforts they can apply on their property and for planning projects that increase the protection of people and property from wildfires. Under this action item, counties will be encouraged to apply for these monies and guidance will be offered on how the monies can best be applied.	1,2,3,4,7	ODF	OSFM			ONGOING
24	EO-34	Promote "flood fight" plans and protocols	Several State IHMT Reports call for the development of flood fight plans and protocols in advance of flood emergencies. In addition to the state agencies potentially involved in flood fighting such as OEM, WRD, and the National Guard, environmental protection and habitat conservation agencies such as DEQ and ODFW should be involved in flood fight planning. At the federal level, the U.S. Army Corps of Engineers is a key partner. These plans and protocols might include improving emergency warnings, strengthening communications systems, stockpiling needed materials, preparing procedures for emergency vehicle access to flooded areas, and other related subjects, including ongoing public education efforts.	2,3,7	OEM	State IHMT agencies and OMD			ONGOING
25	REVISED EO-35A	Continue the State's active Floodplain Management Outreach Program	DLCD has an active floodplain and natural hazards outreach program. The department publishes and distributes newsletters and other outreach information to local governments and other interested parties. DLCD also maintains a website which includes a link to this NHMP. The natural hazards website (http://www.oregon.gov/LCD/HAZ/index.shtml) contains information and links to floodplain management information including many of the documents and booklets prepared by FEMA. DLCD uses an email distribution service for its Natural Hazard Newsletter and other correspondence. The email distribution service affords interested subscribers a greater opportunity to obtain flood management and natural hazards information from DLCD in a timely manner and for DLCD to more readily share information from a variety of sources.						ONGOING

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26	REVISED EO-35B	Continue the State's active Floodplain Management Training Program	DLCD and other State IHMT participants also conduct or sponsor training sessions and meetings throughout the year focused on up-to-date floodplain management practices and projects. DLCDC will continue to deliver focused training to surveyors, building officials, real estate agents and planners as well as local floodplain managers. The interdependent relationships among these key players in providing comprehensive floodplain management will also be highlighted during trainings.						ONGOING
27	REVISED EO-35C	Prepare text for local broadcast of one Public Service Announcement (PSA) each year on a seasonal topic.	PSAs are an effective method for disseminating pertinent seasonal information about hazard preparedness and mitigation.		DLCD				ONGOING
28	NEW EO-39B	Continue to renew enrollment of coastal communities already enrolled in the Tsunami Ready Program.	The Tsunami Ready Program is a program sponsored by the National Weather Service that is designed to provide communities with incentives to reduce their tsunami risk. Cannon Beach was the first community for Oregon. Under a proposed plan through the NTHMP, three communities per year will be added to the rolls of the program. This program is currently evolving through a review process being carried out by the NTHMP National Coordinating Committee. OEM is the primary point of contact for more information about the Tsunami Ready Program.						ONGOING
29	NEW EO-40A	Increase the number of schools participating in annual tsunami evacuation drills.	Increase the ability of Oregonians to prepare for and recover from earthquakes and tsunamis on the Oregon Coast.		OEM, DOGAMI, DLCDC, ODOT	X			ONGOING
30	NEW EO-40B	Increase the number of local agency and local non-profits, such as CERT, to participating in educational efforts such as door-to-door campaigns to educate those living or working in the inundation zone on how to respond to an earthquake and tsunami.	Increase the ability of Oregonians to prepare for and recover from earthquakes and tsunamis on the Oregon Coast.		OEM, DOGAMI, DLCDC, ODOT	X			ONGOING
31	NEW EO-40C	Increase the number of innovative outreach activities, such as tsunami evacuation route fun runs.	Increase the ability of Oregonians to prepare for and recover from earthquakes and tsunamis on the Oregon Coast.		OEM, DOGAMI, DLCDC, ODOT	X			ONGOING
32	EO-43	Encourage local jurisdictions to disseminate volcano preparedness educational materials	Preparedness materials should include what to do in the event of an eruption, evacuation maps, and volcano specific items to include in first aid kits (e.g., breathing masks and goggles). The USGS and FEMA have existing educational materials.	1,7	OEM, DOGAMI				ONGOING
33	REVISED EO-46	Encourage development of Develop volcanic hazard evacuation maps	Volcanic eruptions often produce lahars that travel down river valleys. Evacuation maps should include the hazard area as well as preferred evacuation routes and evacuation sites. USGS staff should support local and state agencies in this effort.	1,7	OEM, ODOT, DOGAMI				ONGOING

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34 REVISED EO-48	Educate communities, workers, and the public about the role of proper tree pruning and care in preventing damage during windstorms	<p>Arboricultural groups, public agencies, and utilities should cooperate in promoting proper tree pruning and care practices that can reduce the risk of tree failure and property damage. Common messages refined by state level entities such as the Oregon Department of Forestry (ODF) and OSU Extension can help provide continuity and efficiency across the state.</p> <p>While implementation of this action largely takes place at the local government level, the state has a role in encouraging and providing incentives for best management practices. ODF maintains and implements a communication plan that includes educational initiatives aimed at improving tree health in cities. This includes a variety of products, including a bimonthly newsletter, a website, and brochures that help convey these messages. State and local cooperators should:</p> <ul style="list-style-type: none"> • Provide training to crews working on powerlines in worker safety and the identification of trees to prune or remove; • Review regulations and standards for easement and right of way maintenance, and provide training to foresters and logging crews; and • Instruct homeowners in pruning of vegetation, tree care safety, and proper tree care for trees bordering utility corridors and public rights of way. 	1,2,4,7	ODF	State IHMT agencies, especially PUC, and ODOT, OEM				ONGOING
35 REVISED EO-49	Educate motorists on safe winter driving, including how to be prepared for traveling over snowy and icy mountain passes.	<p>Actions such as sanding, applying de-icing chemicals, and snowplowing do not make the road safe. Motorists must drive at speeds appropriate for the weather and road conditions, and be prepared to handle adverse conditions. During the December 2003 closure of the Siskiyou Pass on Interstate 5, ODOT and Oregon State Police freed many drivers only to have them spin out and get stuck again. If drivers would have had tire chains, and installed them when conditions warranted, clearing the pass would have been completed hours earlier. Many drivers were not prepared for a long wait in their car. Each year ODOT finds stranded motorists who either do not have or do not know how to install chains.</p>	1,7	ODOT	OSP				ONGOING
36 EO-50	Encourage citizens to prepare and maintain 72-hour kits	State agencies should work with the American Red Cross and local emergency managers to encourage citizens to be prepared to survive on their own for 72 hours.	1,7	OEM	OERS agencies				ONGOING
37 EO-51	Educate citizens about the different National Weather Service announcements	State agencies should work with the National Weather Service and local governments to educate the public about the meaning of the different National Weather Service announcements: winter storm watch, winter storm warning, ice storm warning, heavy snow warning, blizzard warning, severe blizzard warning, and high wind warning.	1,7	OEM	ODOT, OSP				ONGOING
38 EO-52	Educate citizens about safe emergency heating equipment	<p>Improper use of alternate heat sources during winter storms can cause fires. Ongoing efforts of the Office of State Fire Marshal and it's work with local fire departments through the Life Safety Team (http://www.oregon.gov/OSP/SFM/CommEd_OLST.shtml) In addition, people can be killed by carbon monoxide emitted by fuels such as charcoal briquettes when used for heating homes. To reduce the threat of carbon monoxide poisoning, known as the silent killer, the 2009 Legislature passed HB3450a requiring landlords to install carbon monoxide alarms in rentals with a carbon monoxide source and homeowners must ensure they are installed in homes at the time of sale, if the home has a source. Sources include gas heating or fireplaces, woodburning fireplaces or stoves and attached garages. Partnerships for consistent public education messages and outreach are underway, and will include information on the dangers of introducing a carbon monoxide risk.</p>	1,7	OSFM	OEM, OPH, BCD, Oregon Real Estate Industry				ONGOING

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39	EO-53	Educate citizens about ways to weatherize their homes	Weatherization measures can help keep the cold out during winter. Energy audits, cash rebates, and tax credits are available to help homeowners.	1,7	ODE	BCD			ONGOING
40	EO-54	Educate citizens about the dangers of hypothermia, other winter health conditions	State agencies should work with the American Red Cross and local health authorities to educate citizens about the dangers of winter health conditions, including hypothermia, exhaustion, and heart attacks caused by overexertion.	1,7	OPH	OEM			ONGOING
41	EO-55	Educate homeowners about choosing ice and windstorm-resistant trees and landscaping practices to reduce tree-related hazards in future ice storms	Trees that don't stand up well to ice and wind, especially when planted near power lines, can cause power outages and other damage. Certain species of trees hold up better to winter's fury than others. Other factors, such as where a tree is planted and use of proper pruning techniques, can also help trees be more resistant to ice storm damage.	2,7	ODF	PUC, OSU Extension Service, ODA			ONGOING
42	REVISED EO-58	Maintain an the inventory of shoreline protection structures	Maintain an the inventory of existing and new coastal engineering (shore protection) structures on the Oregon Coast.	1,2,3,7	DLCD	OPRD, DOGAMI			ONGOING
43	REVISED EO-60	Better understand beach processes by developing a coastal geomorphic database.	<u>Develop a coastal geomorphic database that describes the various morphological parameters of beaches, dunes, and bluffs present along the central to northern Oregon coast, specifically in Clatsop and Tillamook Counties.</u> As recent research has shown, ocean water levels and wave dynamics along the Oregon coast are changing. These will, in turn, affect beach sand budgets and rates of erosion. More research must be done on alternative shore protection methods, effects of hard shore protection structures, near-shore circulation processes and sediment budgets, sea cliff erosion processes, and other hazard processes. <u>This effort is phase 1 of a needed future multi-phase effort.</u> In addition to the state agencies below, NOAA and USACE will play a role in advancing this action.	1,2,5,7	DOGAMI, OSU	DLCD			ONGOING
44	REVISED EO-62A	Work with ODOT to replace or move existing Entering/Leaving Tsunami Hazard Zone signs to correspond with the XXL inundation line developed by DOGAMI.	Existing tsunami hazard zones signs are considered inadequate for placement along stretches of Highway 101, or on any roads, that are within the tsunami hazard zone. A single tsunami hazard zone sign will not indicate the boundaries of the inundation zone. Tsunami Hazard Zone signs should be located to correspond with the XXL inundation line developed by DOGAMI.						ONGOING
45	NEW EO-62B	Work with ODOT to develop additional signage as needed to increase awareness of the tsunami hazard.	Existing tsunami hazard zones signs are considered inadequate for placement along stretches of Highway 101, or on any roads, that are within the tsunami hazard zone. A single tsunami hazard zone sign will not indicate the boundaries of the inundation zone. There is need for increased public education program to let the public, including motorists who are not local residents, know what the signs mean and what actions they should take.						ONGOING
46	NEW EO-62C	Work with Oregon Parks & Recreation Department and Oregon Travel Experience to increase the number of interpretive educational installations along Highway 101.	Existing tsunami hazard zones signs are considered inadequate for placement along stretches of Highway 101, or on any roads, that are within the tsunami hazard zone. There is need for increased public education program to let the public, including motorists who are not local residents, know what the signs mean and what actions they should take.						ONGOING
47	CRITICAL INFRASTRUCTURE								

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48	REVISED CI-2*	Continue to conduct and improve risk assessments for state owned properties	FEMA requires the state's plan to: 1) describe the types of state owned or operated critical facilities located in the identified hazard areas; and 2) present an estimate of the potential dollar losses to state owned or operated buildings, infrastructure, and critical facilities in the identified hazard areas. In addition, FEMA also requires that the state develop a comprehensive multi-year plan to mitigate the risks posed to existing buildings that have been identified as necessary for post-disaster response and recovery. Part of this risk assessment for state owned property should be to identify: 1) which facilities would be necessary for response and recovery efforts and 2) mitigation strategies for those priority facilities. Currently, the State Plan's assessment of state owned properties consists of a 'low,' 'moderate,' or 'high' vulnerability ranking. Rankings are derived from county-wide hazard analysis scores that do not account for local variations in vulnerability. Likewise, the structural integrity and physical condition of the critical facilities are not yet considered. As such, the State IHMT will encourage the state to invest resources in performing more detailed vulnerability assessments for state-owned properties. The assessments may result in mitigation opportunities that reduce the state's vulnerability to natural hazards.	2,7	DAS DOGAMI, OPDR, DLCD	OEM, DOGAMI, OPDR			ONGOING
49	REVISED CI-3*	Promote the reduction Provide information and technical assistance to implement mitigation of non-structural hazards in K-12 schools	Provide training to school officials and teachers in reducing non-structural hazards in schools such as unsecured bookcases, filing cabinets, and light fixtures, which can cause injuries and block exits. The program should include a procedure for periodic life safety inspections of non-structural seismic hazards in schools that can be implemented by local fire department inspectors. BCD will have an important role in providing technical assistance in the development of educational materials	1,2,7	OEM	OSSPAC, BCD, OSFM, ODE			ONGOING
50	REVISED CI-5*	Strongly encourage voluntary relocation of existing essential facilities, hazardous facilities, and special occupancy structures that are in the tsunami inundation zone.	A large tsunami (preceded by a locally devastating earthquake) would likely destroy many buildings in coastal communities that are located in the tsunami inundation zone. The damage would be from the combined effects of the forces from the tsunami surges, currents and debris as well as the earthquake hazards. Essential facilities and special occupancy structures, such as fire stations/hospitals and schools, and hazardous facilities are often located in the tsunami inundation zone. Because of the critical need of essential facilities during a disaster, the added danger from hazardous materials, and the importance of protecting children, these facilities and structures need to be relocated out of the inundation zone through some type of incentive program. A voluntary program can be implemented without statutory change; however, a mandatory program would require legislative support. After a tsunami disaster, the top priority would be to reconstruct essential facilities, special occupancy structures, and hazardous facilities out of the tsunami inundation zone as defined in the maps produced for ORS 455.466 and 455.467. Finally, when these facilities come up for replacement, they should be encouraged to build out of the tsunami inundation zone.	2,8	OEM, DOGAMI, DLCD	BCD		??	ONGOING

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51	REVISED CI-6	Continue seismic rehabilitation of hospital, fire, and police facilities under the Seismic Rehabilitation Grant Program administered by <u>OEM Business Oregon</u> .	Continue to rehabilitate to operational readiness in the event of an earthquake essential hospital buildings, fire, and police stations that pose a threat to occupant safety. Senate Bill 15 of the 2001 Legislative Session requires that rehabilitation or other actions to be completed by January 1, 2022. SJR 21 and 22 are bond measures (November 2002 election) which would provide funding to implement this proposed action. Senate Bills 2 to 5 (2005) provided the mechanism to accomplish some of these legislatively mandated tasks. Under SB2, Oregon Department of Geology and Mineral Industries developed a seismic needs assessment database of emergency response facilities buildings. These data are being used the SRGP to administer a grant program which provides for seismic rehabilitation of eligible buildings (SB 3). Senate Bill 5 allows the State Treasury to sell Government Obligation Bonds to fund the program.	1,2,5	<u>OEM Business Oregon</u>	OSSPAC, DOGAMI, BCD, OSFM (SB3). OEM, OHD			ONGOING
52	REVISED CI-8	Lifeline services, such as electricity, gas, telecommunications, water, and transportation, can be critical to a community's wellbeing. However, much of Oregon's infrastructure has not been designed to tolerate extreme conditions, such as severe storms, major earthquakes, or large landslides. Certain lifeline services should have reliable performance to ensure that the region can withstand future damage without crippling consequences. These items of critical infrastructure require vulnerability studies in order to understand potential damages and consequences. Promote improved reliability and resiliency of critical infrastructure to operators by adopting industry-specific best practices, guidelines, and standards.	Lifeline Service Delivery Systems (aka: Critical Infrastructure(CI)), including electric supply, natural gas, telecommunications, water/wastewater, transportation corridors, pipelines and petroleum fuels' storage facilities, are all vital resources for a community's life-safety and economic viability. However, much of Oregon's existing critical infrastructure has not been designed or constructed to withstand the impact of severe natural disasters such as extreme wind & winter storms, major earthquakes, or large landslides. Lifeline Service Delivery Systems (CI) should have reliable and measurable performance objectives, which insure the region's CI can withstand future damage without crippling consequences.	2,7	PUC, DOGAMI	State IHMT Agencies			ONGOING
53	REVISED CI-9	Continue seismic rehabilitation of public schools buildings under the Seismic Rehabilitation Grant Program administered by <u>OEM Business Oregon</u> .	Continue to rehabilitate to occupant life safety standards certain public school and community college buildings. Senate Bill 14 from the 2001 Session of the Oregon Legislature requires that the State Board of Education examine buildings used for both instructional and non-instructional activities, including libraries, auditoriums, and dining facilities in order to determine which buildings are in most need of additional analysis. Following the identification of high-risk buildings and additional analysis, high-risk buildings must be rehabilitated by January 1, 2032, subject to available funding. SJR 21 and 22 are bond measures (November 2002 election) which would provide funding to implement this proposed action. SB 2 to 5 (2005) provided the mechanism to accomplish some of these legislatively mandated tasks. Under SB2, Oregon Department of Geology and Mineral Industries developed a seismic needs assessment database of K-12 and Community College public school buildings. These data are being used the SRGP to administer a grant program for seismic rehabilitation of eligible buildings (SB 3). SB 4 allows the State Treasury to sell Government Obligation Bonds to fund the program.	1,2,5	<u>OEM Business Oregon</u>	OSSPAC, DOGAMI, BCD, ODE (SB3)			ONGOING

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OREGON NHMP VISION: NATURAL HAZARD EVENTS RESULT IN NO LOSS OF LIFE, MINIMAL PROPERTY DAMAGE, AND LIMITED LONG-TERM IMPACTS TO THE ECONOMY.									
Action Item						Progress			
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54	<u>REVISD CI-13</u> Encourage local governments to inter-tie water systems. Evaluate the need and opportunities for inter-tie projects in Local Natural Hazard Mitigation Plans.	The capital expense associated with this action needs to be carried mostly by local governments, perhaps with some grant or low-interest loan funding provided by the state or federal governments. The role of the state in this action is to encourage local governments located proximate to one another, yet with separate water systems, to develop the physical capability to send water from one system to the other. Oftentimes during drought situations, one local government will have a bit of water to spare while a nearby government is struggling to meet its needs. Transferring water by truck is expensive and inefficient when compared to transferring water via pipeline. Water inter-ties are also effective mitigation for the flood and earthquake hazards where one system can serve as back-up for another.	2,7	OBDD, Oregon Business	WRD, ODFW, PUC				ONGOING
55	<u>REVISD CI-14</u> Continue to maintain the existing roster of qualified post-earthquake, flood, and wind inspectors. Solicit those with ATC-20 earthquake and ATC-45 flood & wind inspection training. Develop plans for rapid mobilization of inspectors for post-disaster facility inspection.	Continue to compile and maintain a list of individuals trained and certified for post-disaster inspection. Support the recruitment and training of qualified ATC-20 post earthquake inspectors and inspection teams. Create rapid communication networks to effectively alert necessary inspectors when disasters occur. Work with OEM, local government building officials, and emergency planners to establish an effective process for assigning inspection teams to needed areas and educating local governments regarding the circumstances and process for initiating BCD and state involvement.	1,2,3	BCD	OEM, ODOT				ONGOING
56	<u>REVISD CI-20</u> Encourage windstorm mitigation techniques that reduce losses to electric utilities through existing state programs. Use industry best practices to reduce losses to overhead line operators.	Implement outreach efforts through existing safety-related programs managed by the PUC in coordination with private and public utilities	2,7	PUC	State IHMT agencies, especially ODF, ODOT, OR-OSHA, and the OUNS				ONGOING
LAND USE									
58	<u>REVISD LU-6</u> Implement the Oregon Forestland-Urban Interface Fire Protection Act ("Senate Bill 360") in all Oregon counties that meet criteria under the law.	The Oregon Forestland-Urban Interface Fire Protection Act, more commonly known as "Senate Bill 360," was enacted by the Oregon Legislature in response to the growing incidence of wildfire destroying homes and communities in Oregon's wildland-urban interface. The Act recognizes that individual property owners are in the best position to take mitigation actions which will have the most direct impact to whether or not a structure will survive a wildfire. Under this action item, the Act will be implemented county by county in those portions of the state, based on weather, fire incidence, fuels, or on the number of structures at risk. It has been Legislature's stated preference that implementation be accomplished with federal grant funds.	1,2,3,4,5	ODF	OSFM				ONGOING

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59	REVISED LU-7	Update the Model Ordinance for Flood Damage Prevention	<p>FEMA Region 10 has approved for use in Oregon a model ordinance for flood damage prevention. This model ordinance incorporates the NFIP minimum standards plus some elements of Oregon's state building codes. DLCD reviewed and updated the model ordinance in 2006 and again in 2008. DLCD views the model ordinance as a living document and will continue to work with Region 10 and other interested parties to develop model ordinance provisions that address issues such as "fish-friendly" floodplain management, reducing flood insurance costs, etc.</p> <p>Model code language was developed in 2008 to guide habitat restoration projects in the floodway. Model code is based on FEMA Region X, "Policy on Fish Enhancement Structures in the Floodway" dated June 1999, and Portland District of the Army Corps of Engineers and the Oregon Department of State Lands jointly developed Regional General Permit (RGP) for Stream Habitat Restoration (ref. NWP 2007-1023). The model code language was reviewed by FEMA and incorporated into Oregon Flood Hazard Reduction model ordinance.</p> <p>In 2010 the model ordinance was rewritten to incorporate Oregon Building Codes by reference and to include suggested administrative and permitting procedures. The model code language was reviewed by FEMA and published in 2011. DLCD will continue to modify the model ordinance.</p> <p>The State's strategy for selecting properties for flood hazard mitigation projects is four-fold. It prioritizes projects that 1) are geographically balanced 2) are in communities with a FEMA-approved local hazard mitigation plan, 3) address properties with sustained substantial damages or repetitive losses, 4) provide communities with information and/or tools to evaluate properties suitable for mitigation, and to develop mitigation projects.</p> <p>Repetitive flood loss properties (those which have experienced multiple flood insurance claims) have been identified as high priority hazard mitigation projects by the NFIP. Nationwide, 40% of all flood insurance claims are paid on just 2% of insured properties. In Oregon, repetitive loss (RL) properties represent about 1% of all insured properties, and account for about 14% of all claims paid (19% of the dollar amount paid). Most (80%) of Oregon's repetitive loss properties pre-date the FIRMs. These properties are referred to as "pre-FIRM"; they were built in floodplains before FEMA FIRMs became available. Because of this, the property owners do not pay the true, actuarial cost of flood insurance. The RL lists provided by FEMA can have value for hazard mitigation planning because their locations may be indicative of persistent flood or drainage problems that may or may not be reflected on a FIRM.</p> <p>The state, working with local jurisdictions, will verify the FEMA provided repetitive flood loss</p>	2,3,5	DLCD	OEM, BCD				ONGOING
60	REVISED LU-12	Establish and maintain a priority ranking system for properties for flood mitigation	<p>This program is administered by the ODFW. This program involves the preparation of a plan and agreement between the landowner and the ODFW. The plan details measures the landowner will implement to preserve, enhance, or restore the riparian areas. Landowners receive a complete property tax exemption for the riparian property (up to 100 feet from the top of stream bank or the edge of non-aquatic vegetation). This program helps reduce sediment and protect stream banks which helps reduce the filling of river and stream channels.</p>	2,3,5	DLCD	OEM			ONGOING	
61	LU-13	Maintain the Riparian Lands Tax Incentive Program	<p>This program is administered by the ODFW. This program involves the preparation of a plan and agreement between the landowner and the ODFW. The plan details measures the landowner will implement to preserve, enhance, or restore the riparian areas. Landowners receive a complete property tax exemption for the riparian property (up to 100 feet from the top of stream bank or the edge of non-aquatic vegetation). This program helps reduce sediment and protect stream banks which helps reduce the filling of river and stream channels.</p>	4	ODFW	ODR			ONGOING	
62	REVISED LU-15	Acquire existing homes and businesses seriously threatened or damaged by landslide hazards	<p>When opportunities and funding become available (pre- and/or post-disaster) explore options for the acquisition of developed property, particularly homes, in areas of repetitive or ongoing landslide hazards. Acquired properties will be maintained as open space in perpetuity and may also provide a buffer for landslide movements and debris that could otherwise impact improvements such as transportation routes.</p>	1,2,3	OEM	DOGAMI, ODF, DLCD			ONGOING	

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63	REVISED LU-16	Continue to develop training and information packets and articles for local building officials informing them of their responsibilities and authority under ORS 455.446 and 455.447 and the State Building Code. MOVE TO ONGOING TABLE.	Statutes and the State Building Code limit construction of new essential facilities and special occupancy structures in the mapped tsunami inundation zone. Definitions of essential and special occupancy structures are in the Oregon State Structural Specialty Code. Training has not been provided to local building officials since the original adoption of SB 379 (1995 Oregon Legislative Session), codified as ORS 455.446 - 447. As personnel change and time passes, additional training and information for officials will be provided.	2,7	BCD, DLCD	DOGAMI, OEM			ONGOING
64	REVISED LU-18	Assist local communities in securing funding to implement measures to mitigate damage to buildings exposed to or having experienced repetitive flood losses, properties or those substantially damaged by flooding.	The state maintains an inventory of high priority repetitively damaged buildings located in floodplains (also see short-term action #7). As funding opportunities arise, continue to acquire, elevate, or otherwise mitigate damage to buildings exposed to or having experienced unacceptable flood damages. The flood event of December 2007 heavily impacted the City of Vernonia and the unincorporated Nehalem Valley. As a result of this flood, significant changes were made to flood hazard maps in the area, causing scores of buildings to be placed in the regulated flood hazard zone. DLCD and OEM have worked closely with these communities to secure funding to mitigate buildings now located in the flood hazard zone and to buyout properties now located in the floodway and will continue to provide such expertise statewide where needed.	2,8	OEM, DLCD	State IHMT agencies			ONGOING
MAINTENANCE/PLANNING									
66	NEW MP5A	Continue implementation of FEMA's RiskMAP program in Oregon, including building effective community strategies for reducing risk.	Measurably increase the public's awareness of flood and other natural hazards through a combination of regulatory and non-regulatory products, tools, community outreach. Address gaps in flood hazard data, identifying areas of dated and/or inconsistent mapping and updating high-priority areas with new mapping and innovative natural hazard mapping techniques that lead to actions that reduce risk to life and property. Provide support to help manage the FEMA Map Modernization projects that remain to be completed.						ONGOING
67	REVISED MP-9	Encourage Continue to assist local governments with GIS capability development	Assist local governments with GIS program development, including system planning, hardware/software costs, training, and data development in relation to all hazards mapping and regulation of coastal development.	5	DLCD, DAS-GEO	DOGAMI			ONGOING
68	MP-11	Survey coastline to monitor erosion	Continue to periodically measure and monitor the Oregon coastline in order to document the response of Oregon's beach and bluffs to changes in ocean water levels (sea level rise and storm surges), storms (frequency and intensity), precipitation patterns that may threaten lives and property. Maintain a long-term, permanent Oregon Beach and Shoreline Mapping and Analysis Program (OBSMAP). The program will be a partnership with local, state, and federal agencies that have responsibility over coastal and ocean activities.	2,4	DOGAMI	OSU, DLCD, OPRD			ONGOING: 30% of coast actively monitored; 60% monitored to a lesser degree.

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69	REVISED MP-12	Analyze wildfire ignition probability statistics to better target prevention efforts at the leading causes of fires	There is currently no single database or common method of collecting fire cause information for wildfires occurring in Oregon. This results in different entities focusing their prevention and mitigation efforts on those causes which may not be the state's leading causes of fires. This likelihood can be lessened by developing a process to compare fire cause data collected by the Oregon Department of Forestry, the Office of State Marshal, and federal wildfire agencies. It is also important to understand the ignition probability from homes within and adjacent to the wildland interface because of the ignition risk to nearby wildlands. <u>Under this action item, until a common database is developed, a process will be developed to identify the most common wildfire ignition causes, compile and analyze a list of those causes and trends, and distribute this information to agencies and organizations that can help to prevent such wildfires. Having data on the leading causes of ignitions, organized by county, will help establish a course of action for prevention programs. While there is no centralized database, wildland and structural fire agencies will continue to work collaboratively to determine leading fire causes and focus efforts statewide and locally to prevent future ignitions. We need to express this "collaboration" message in this item. "Keep Oregon Green," a statewide non-profit fire prevention association could potentially play a</u>	1,2,3,4	ODF	OSFM				ONGOING
70	NEW MP-13A	Collaborate through work groups within the Pacific Northwest Coordination Group (PNWCG) to continue collecting and analyzing wildfire occurrence data using the standardized statewide method and report to the state legislature as required.							ONGOING	
71	REVISED MP-20	Acquire high resolution lidar data and map hazards. <u>Acquire statewide lidar coverage for the purpose of improving natural hazard mapping and infrastructure inventories.</u>	If not yet available, high resolution lidar-topographic data should be collected on all potentially active volcanoes in Oregon and all the way down the major drainages of each volcano. Lidar data should be used to improve volcano, landslide, flood, and earthquake hazard data. For an example, see the DOGAMI Multi Hazard and Risk Study for the Mount Hood Region (Burns et al., 2011). Lidar is currently the best source of regional topographic data and allows for highly precise and accurate natural hazard mapping (landslide, flooding, volcanics, channel migration zones, tsunami, geologic faults, etc.) and infrastructure inventories (buildings, utilities, lifelines, etc.). <u>The state should continue to invest in lidar acquisition for the purpose of understanding risk to natural hazards at a local scale.</u>	7	DOGAMI	OEM, ODOT, DLCD, Various State IHMT agencies				ONGOING
72	NEW MP-29	Use LIDAR for statewide analysis of all natural hazards							ONGOING	
73	NEW MP-30	Continue to encourage the development of Emergency Action Plans for all remaining high hazard dams in Oregon.	In Oregon, money from FEMA grants is used to help dam owners create Emergency Action Plans (EAP). An EAP helps identify situations where a dam failure might occur, actions to take that could save the dam, if possible, and evacuations in situations that could result in dam failure. There is an Oregon-specific EAP template available, designed for owners of remote dams that have limited personnel. Approximately 75 percent of state-regulated high hazard dams have, or are currently developing EAP's. The State is encouraging the development of emergency action plans (EAP) for all remaining high hazard dams in Oregon.		OWRD				ONGOING	

LEGEND

	New Mitigation Action
	Revised Mitigation Action
	No Change to Current Mitigation Action