

## Chapter 6: ACRONYMS and ABBREVIATIONS

A300	ANSI A300, Tree Care Operations Standards
AASHTO	American Association of State Highway and Transportation Officials
ACEP	Agricultural Conservation Easement Program
AH	FEMA sand dune overtopping zone: Areas subject to inundation by 1-percent-annual-chance shallow flooding (usually areas of ponding) where average depths are between one and three feet. Base Flood Elevations (BFEs) derived from detailed hydraulic analyses are shown in this zone. Mandatory flood insurance purchase requirements and floodplain management standards apply.
AHPS	Advanced Hydrologic Prediction Service
AHZ	Active Hazard Zone
AIA	American Institute of Architects
AKmax	hypothetical maximum Alaska tsunami
AM	radio broadcasting using amplitude modulation (AM)
ANSI	American National Standards Institute
ANSS	Advanced National Seismic System
AO	FEMA sand dune overtopping zone: Areas subject to inundation by 1-percent-annual-chance shallow flooding (usually sheet flow on sloping terrain) where average depths are between one and three feet. Average flood depths derived from detailed hydraulic analyses are shown in this zone. Mandatory flood insurance purchase requirements and floodplain management standards apply. Some Zone AO have been designated in areas with high flood velocities such as alluvial fans and washes. Communities are encouraged to adopt more restrictive requirements for these areas.
AOC	Association of Oregon Counties
APA	American Planning Association
APCO	Association of Public Safety Communications Officials
ARES	Amateur Radio Emergency Service
ARRA	American Recovery and Reinvestment Act
ARRL	Amateur Radio Relay League
ASCE	American Society of Civil Engineers
ASFPM	Association of State Floodplain Managers
ATC	Applied Technology Council
BCA	Benefit Cost Analysis
BCD	Building Codes Division (State of Oregon, Dept. of Consumer and Business Services)
DCBS	Department of Consumer and Business Services
BCE	Before Common Era

BCR	Benefit-Cost Ratio
BFE	Base Flood Elevation
BLM	Bureau of Land Management (United States Department of the Interior)
BMP	Best Management Practice
BNSF	Burlington Northern-Santa Fe railroad
BPA	Bonneville Power Administration
BusOR-IFA	Business Oregon, Infrastructure Finance Authority
CAP	Community Assistance Program (NFIP)
CAP-SSSE	Community Assistance Program – State Support Services Element (NFIP)
CAV	Community Assistance Visit (NFIP)
CB	Coquille Bank
CBRL	Coos Bay Rail Link
CDBG	Community Development Block Grant
CD-ROM	Compact Disc Read-Only Memory
CEI	Critical Energy Infrastructure
CERT	Community Emergency Response Team
CFR	Code of Federal Regulations
CGIAR	Formerly “Consultative Group on International Agricultural Research.” Since 2008, known simply as CGIAR, a global partnership that unites organizations engaged in research for a food secure future
CI	Critical Infrastructure/Essential Public Facilities
CMIP	Coupled Model Intercomparison Project
CMIP5	Coupled Model Intercomparison Project, 5th phase
CMZ	Channel Migration Zone
CNN	Cable News Network
CPO	Climate Program Office
CPW	Community Planning Workshop (University of Oregon)
CREP	Conservation Reserve Enhancement Program
CREW	Cascadia Region Earthquake Workgroup
CRP	Conservation Reserve Program
CRS	Community Rating System (National Flood Insurance Program)
CSC	Community Service Center (Univ. of Oregon)
CSEPP	Chemical Stockpile Emergency Preparedness Program
CSO	combined sewer overflow
CSREES	Cooperative State Research, Education, and Extension Service
CST	Community Solutions Team

CSZ	Cascadia Subduction Zone
CTP	Cooperating Technical Partner (NFIP)
CVO	Cascades Volcano Observatory
CWPP	Community Wildfire Protection Plan
DAS	Department of Administrative Services (State of Oregon)
DAS-CFO	Department of Administrative Services-Chief Financial Office (State of Oregon)
DAS-CIO	Department of Administrative Services-Chief Information Office (State of Oregon)
DAS-EAM	Department of Administrative Services-Enterprise Asset Management (State of Oregon)
DAS-RM	Department of Administrative Services-Risk Management Division (State of Oregon)
DAS-GEO	Department of Administrative Services-Geospatial Enterprise Office (State of Oregon)
DCBS	Department of Consumer and Business Services (State of Oregon)
DCBS-ID	Department of Consumer and Business-Insurance Division (State of Oregon)
DEM	Digital Elevation Model
DEQ	Department of Environmental Quality (State of Oregon)
DLCD	Department of Land Conservation and Development (State of Oregon)
DMA	Disaster Mitigation Act of 2000 (federal)
DMA2K	Disaster Mitigation Act of 2000
DMV	Department of Motor Vehicles (State of Oregon)
DNR	Department of Natural Resources (Washington State)
DOD-USACE	United States Department of Defense-U.S. Army Corps of Engineers
DOGAMI	Department of Geology and Mineral Industries (State of Oregon)
DP	Demographic Profile
DPSST	Department of Public Safety Standards and Training (State of Oregon)
DR	Alphabetic designation or precursor for Disaster Declaration Number
DRMS	Decision, Risk, and Management Science
DRU	Disaster Resilient University
DS	Dust Storms
DSL	Department of State Lands (State of Oregon)
DTM	digital terrain model
EAM	Enterprise Asset Management (State of Oregon Department of Administrative Services)
EAP	Emergency Action Plan
EAS	Emergency Alert System
ECC	Emergency Coordination Center
EDA	Economic Development Administration (U.S.)
EHP	Environmental and Historic Preservation

EIS	Environmental Impact Statement
EMI	Emergency Management Institute (FEMA)
EMPG	Emergency Management Performance Grant (State of Oregon program)
ENSO	El Niño Southern Oscillation
EO	Education/Outreach
EOC	Emergency Operations Center
EOP	Emergency Operations Plan
EPA	Environmental Protection Agency (U.S.)
EPCRA	Emergency Planning and Community Right-to-Know Act
EQ	Earthquake
EQIP	Environmental Quality Incentives Program
ER	Emergency Relief
ESA	Endangered Species Act
ESD	education service district
ESEE	economic, social, environmental, and energy
EWP	Emergency Watershed Protection (NRCS Program)
FAA	Federal Aviation Administration
FAS	Federal Aid System (U.S. Highway Administration)
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FF	abbreviation for flash flood
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FIS	Flood Insurance Study
FM	radio broadcast band
FMA	Flood Mitigation Assistance
FMAGP	Fire Management Assistance Grant Program
FPD	Fire Protection District
FSA/FMAGP	Fire Suppression Assistance (now Fire Management Assistance Grant Program)
FTA	Federal Transit Administration
FTE	Full Time Equivalent
FY	Fiscal Year
GCM	Global Climate Models
GED	General Education Development
GEO	Geospatial Enterprise Office (State of Oregon, DAS)

GIS	Geographic Information System
GNRO	Governor’s Natural Resources Office (State of Oregon)
GO	General Obligation (General Obligation (GO) Bond Task Force)
GPS	Global Positioning System
GSA	General Services Administration (U.S.)
GSTF	Greatest-Savings-to-the-Fund (FEMA)
GTN	Gas Transmission Northwest (line)
GWEB	Governor’s Watershed Enhancement Board
H	High (Vulnerability): as identified by local jurisdictions
HAZUS	Hazards U.S.
HB	House Bill (State of Oregon)
HCD	Housing and Community Development Act of 1974
HFRA	Healthy Forest Restoration Act of 2003
HHZ	High Hazard Zone
HM	Hazard Mitigation
HMA	Hazard Mitigation Assistance (FEMA’s unified hazard mitigation grants)
HMGP	Hazard Mitigation Grant Program
HMP	Hazard Mitigation Plan
HMSE	Hazard Mitigation and Structural Engineering
HMST	Hazard Mitigation Survey Team
HMTAP	Hazard Mitigation Technical Assistance Program (FEMA)
HR	House Resolution (State of Oregon legislature)
HRFA	Healthy Forest Restoration Act of 2003
HSPR	Health Security, Preparedness and Response (Oregon Health Authority)
HUD	Housing and Urban Development (U.S.)
HWM	High Water Mark
ICBO	International Conference of Building Officials
ICC	Increased Cost of Compliance (NFIP)
ID	Insurance Division (Oregon Department of Consumer and Business Services)
IDA	Initial Damage Assessment
IEBC	International Existing Building Code
IFA	Infrastructure Finance Authority (Business Oregon)
IHMT	(State) Interagency Hazard Mitigation Team
IMS	Interpretive Map Series (DOGAMI)
IPCC	Intergovernmental Panel on Climate Change

IPPM	Insect Pest Prevention and Management program
IR	Indian Reservation
IRIS	Incident Response Information System
ISA	International Society of Arboriculture
ISO	Insurance Services Office
JFO	Joint Field Office (FEMA)
KOG	Keep Oregon Green
KPM	Key Performance Measure
L	Low (Vulnerability): as identified by local jurisdictions
LCDC	Land Conservation and Development Commission (State of Oregon)
LEPC	Local Emergency Planning Committee
LFD	Local Fire Department
LFPC	Local Fire Prevention Cooperative
LHZ	Low Hazard Zone (coastal erosion)
LID	low impact development
LLC	Limited Liability Company
LNG	Liquefied Natural Gas
LNHMP	Local Natural Hazards Mitigation Plan
LOC	League of Oregon Cities
LP	Legislative/Policy
LPA	Landowner Preferred Alternative
LU	Land Use/Development
LWI	Local Wetlands Inventory
M	Moderate (Vulnerability): as identified by local jurisdictions
MAX	Metropolitan Area Express light rail, operated by TriMet (Tri-County Metropolitan Transportation District of Oregon)
MH	Multi-Hazard
MHHW	Mean High High Water
MJO	Madden Julian Oscillation
MLLW	Mean Lower Low Water
MMI	Modified Mercalli Index (earthquake felt intensity)
MMMS	Map Modernization Management Support (FEMA)
MP	Mile Post; Maintenance/Planning
MV	Most Vulnerable (Community): as identified by hazard leads
MVC	motor vehicle accident
M <sub>w</sub>	moment magnitude scale (earthquake)

NA	not available / not applicable
NARCCAP	North American Regional Climate Change Assessment Program
NASA	National Aeronautics and Space Administration
NASEO	National Association of State Energy Officials
NB	Nehalem Bank
NCC	Northwest Coordination Center
NCHR	Natural, Cultural, and Historical Resources
NDBC	National Data Buoy Center
NDWS	Native Database Web Service (Oracle)
NEHRP	National Earthquake Hazards Reduction Program
NEMIS	National Emergency Management Information System
NENA	National Emergency Number Association
NERC	North American Electric Reliability Corporation
NFIP	National Flood Insurance Program
NFP	National Fire Plan
NFPA	National Fire Protection Association
NGA	National Geospatial-Intelligence Agency
NGDC	National Geophysical Data Center
NGO	Non-governmental organization
NHMP	Natural Hazards Mitigation Plan
NID	National Inventory of Dams
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPS	National Park Service
NRC	National Resource Council
NRCS	Natural Resources Conservation Service (U.S.)
NSF	National Science Foundation
NSFHA	No special flood hazard area
NTHMP	National Tsunami Hazard Mitigation Program
NVEWS	National Volcano Early Warning System
NWAC	Northwest Weather and Avalanche Center
NWN	Northwest (NW) Natural Gas
NWRFC	Northwest River Forecast Center (National Weather Service)
NWS	National Weather Service
OAIRS	Oregon All Incident Reporting System (State Fire Marshal)

OAR	Oregon Administrative Rule
OBSMAP	Oregon Beach and Shoreline Mapping and Analysis Program
OCAR	Oregon Climate Assessment Report
OCCRI	Oregon Climate Change Research Institute
OCMP	Oregon Coastal Management Program
OCS	Oregon Climate Service
OCSR	Oregon Coastal Salmon Restoration Initiative
ODA	Oregon Department of Agriculture
ODE	Oregon Department of Education
ODF	Oregon Department of Forestry
ODFW	Oregon Department of Fish and Wildlife
ODOE	Oregon Department of Energy
ODOT	Oregon Department of Transportation
ODR	Oregon Department of Revenue
ODTWG	Oregon Distant Tsunami Working Group
OE	Office of Electricity Delivery and Energy Reliability (US Department of Energy)
OECD	Oregon Economic and Community Development Department (now Business Oregon-IFA)
OEM	Office of Emergency Management
OEMA	Oregon Emergency Management Association
OERS	Oregon Emergency Response System
OFR	Open File Report
OGDC	Oregon Geologic Data Compilation
OGIC	Oregon Geographic Information Council
OHA	Oregon Health Authority
OHD	Oregon Health Division
OHIRA	Oregon Hazard Identification and Risk Assessment
OHP	Oregon Highway Plan
OIG	Office of Inspector General (U.S.)
OLC	Oregon Lidar Consortium
OMB	Office of Management and Budget (U.S.)
OMD	Oregon Military Department
OPDR	Oregon Partnership for Disaster Resilience
OPH	Oregon Public Health
OPRD	Oregon Parks and Recreation Department
OPUC	Oregon Public Utility Commission

OR-OSHA	Oregon Occupational Safety and Health Administration
ORP	Oregon Resilience Plan
ORS	Oregon Revised Statutes
OSBEELS	Oregon State Board of Examiners for Engineering and Land Surveying
OSBGE	Oregon State Board of Geologist Examiners
OSFM	Office of State Fire Marshal
OSG	Oregon Sea Grant (Oregon State University)
OSHA	Occupational Safety and Health Administration
OSLR	Oregon Seismic Lifeline Report
OSMB	Oregon State Marine Board
OSP	Oregon State Police
OSSPAC	Oregon Seismic Safety Policy Advisory Commission
OSU	Oregon State University
OUNS	Oregon Utility Notification System
OUS	Oregon University System
OWEB	Oregon Watershed Enhancement Board
OWRD	Oregon Water Resources Department
PA	Public Assistance
PAS	Planning Advisory Service (American Planning Association)
PDA	Preliminary Damage Assessment
PDF	portable document format (Adobe)
PDM	Pre-Disaster Mitigation (grant program)
PDSI	Palmer Drought Severity Index
PGE	Portland General Electric (utility)
PL	Public Law
PM <sub>10</sub>	Particulate matter less than 10 micrometers in diameter
PMT	Project Management Team
PNP	Private Non-Profit organization
PNW	Pacific Northwest
PNWCG	Pacific Northwest Wildfire Coordinating Group
PNWR	Portland & Western Railroad
POTB	Port of Tillamook Bay Railroad
PRISM	Parameter-elevation Relationships on Independent Slopes Model, an interpolation method and name of associated climate group at Oregon State University
PSA	Public Service Announcement
PSAP	Public Safety Answering Point

PSU	Portland State University
PUC	Public Utility Commission (State of Oregon)
PUD	People’s Utility District
PVC	polyvinyl chloride
RACES	Radio Amateur Civil Emergency Services
RAFT	Rapid Assessment of Flooding Tool
RAPTOR	for Real-Time Assessment and Planning Tool for Oregon (OEM GIS system)
RARE	Resource Assistance for Rural Environments (University of Oregon)
RAS-C	Risk Assessment Sub-Committee (State of Oregon IHMT)
RCP	Representative Concentration Pathway
REDARS2	Risks from Earthquake Damage to Roadway Systems
RFC	Repetitive Flood Claim (NFIP)
RFFPA	Rangeland Fire Protection Association
RFPD	Rural Fire Protection District
RGP	Regional General Permit (Oregon Department of State Lands)
RHS	Rural Housing Service (US Department of Agriculture (USDA))
Risk MAP	Risk Mapping, Assessment, and Planning Program (FEMA)
RL	repetitive loss (insurance term)
RM	Risk Management Division (State of Oregon, Department of Administrative Services)
ROS	rain on snow
ROW	right of way
RPC	Recovery Planning Cell (State of Oregon Executive Order 08-20)
RVS	Rapid Visual Screening
RWIS	Road Weather Information System
SB	Senate Bill (Oregon Legislature)
SBA	Small Business Administration (U.S.)
SC	Steering Committee (OSLR)
SD	Substantial Damage
SEAO	Structural Engineers Association of Oregon
SFC-LPA	Southern Flow Corridor—Landowner Preferred Alternative
SFHA	Special Flood Hazard Area
SHMO	State Hazard Mitigation Officer
SI	Substantial Improvement
SJR	Senate Joint Resolution
SLIDO	statewide landslide inventory database for Oregon

SM	snow melt
SMART	specific, measurable, achievable, realistic, time-oriented [objective setting criteria]
SMC	state management cost
SNHMP	state natural hazard mitigation plan
SNOTEL	<b>snow telemetry</b> site; part of an automated system of snowpack and related climate sensors operated by the USDA NRCS.
SOI	Southern Oscillation Index
SoVI	Social Vulnerability Index
SRGP	Seismic Rehabilitation Grant Program (State of Oregon)
SRIA	Sandy Recovery Improvement Act of 2013
SRL	Severe Repetitive Loss (NFIP)
SRS	Self-Determination Act
SSF	State Support Function
SUA	State Unit on Aging
SUB	Springfield Utility Board
SWCD	Soil and Water Conservation District
TAG	Technical Assistance Grant (Land Conservation and Development Commission)
TDD	Transportation Development Division (ODOT)
TDR	Transfer of Development Rights
TGM	Transportation and Growth Management Program (Department of Transportation)
THIRA	Threat and Hazard Identification and Risk Assessment
TIM	Tsunami Inundation Map series (DOGAMI)
TNC	The Nature Conservancy
TRG	Technical Resource Guide (Planning for Natural Hazards)
U.S.C.	United States Code
UASI	Urban Area Security Initiative
UGB	urban growth boundary
UO	University of Oregon
UP	Union Pacific (railroad)
URM	un-reinforced masonry
US	United States
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USDOC	United States Department of Commerce
USDOE	United States Department of Energy
USDOI	United States Department of the Interior

USDOT	United States Department of Transportation
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
V	Vulnerable (Community): as identified by hazard leads
VE	FEMA flood zone term: an area inundated by 1% annual chance flooding with velocity hazard (wave action); BFEs have been determined.
WACO	Water Availability Committee of Oregon
WHZ	Wildfire Hazard Zone
WRD	Water Resources Department (State of Oregon)
WREP	Wetlands Reserve Enhancement Program
WRH	Western Region Headquarters (NOAA National Weather Service)
WRP	Wetlands Reserve Program
WSSPC	Western States Seismic Policy Council
WSU	Washington State University
WUI	Wildland-Urban Interface
WWRA	West Wide Risk Assessment
WWTP	Wastewater Treatment Plant
YBP	Years Before Present

## Chapter 7: GLOSSARY

**100-Year Flood** means a flooding condition which has a one percent chance of occurring each year. The 100-year flood is the benchmark upon which the National Flood Insurance Program (NFIP) is based.

**Amplification** is the modification of frequency or strength of seismic earth movement at a location due to thickness, topography, and physical properties of soft surface sediments.

**Ash** is comprised of fine particles of volcanic rock and glass blown into the atmosphere by a volcanic eruption.

**Bombs** are fragments of tephra (particles ejected into the air during volcanic eruptions) larger than 2.5 inches.

**Bedrock Shaking** is expected earth movement at a location due to seismic activity without considering soft sediment effects such as amplification and liquefaction.

**Caldera** is a large, generally circular, fault-bounded depression caused by the withdrawal of magma from below a volcano or volcanoes.

**Cascadia Subduction Zone** is the area where the seafloor plate (the Juan de Fuca or Gorda) is sliding down and below the North American plate.

**CGIAR** is a global partnership that unites organizations engaged in research for a food secure future.

**Cinder** is a bubbly (vesicular) volcanic rock fragment that forms when molten, gas-filled lava is thrown into the air, then solidifies as it falls.

**Conflagration Act** is state legal authority established as a civil defense measure to mobilize structural fire suppression resources for massive urban fires. It must be authorized by the Governor. The act includes authorization for OSFM to assign firefighting forces and equipment beyond mutual aid agreements. It also designates reimbursement for aid to those departments participating.

**Conflagration**, in the context of this chapter, means Governor-declared fires with an imminent threat to life or structures that have exhausted local and mutual aid suppression resources.

**Disaster Mitigation Act of 2000 (DMA2K)** amended the Stafford Act, establishing a national program for pre-disaster mitigation; streamlining the administration of disaster relief; changing FEMA's post-disaster programs for individuals and families; establishing minimum standards for public and private structures; requiring local and state natural hazards mitigation plans that meet a FEMA standard (Section 322); revising FEMA funding for the repair, restoration, and replacement of damaged facilities (Section 406); revising FEMA's participation in the costs of WUI fire suppression through an expanded and renamed Fire Management Assistance Grant Program (Section 420); removing the requirement for post-disaster IHMT or HMST meetings and reports; and other amendments.

**El Niño-Southern Oscillation** is a cycle in the Pacific Basin involving water and air temperatures that has a profound effect on weather patterns around the world; events typically last 6-18 months.

**FireFree** is an Oregon and national model developed in Oregon that predates the more recent nationally known Firewise. <http://www.firefree.org/>

**Firewise** is a program developed by the National Fire Protection Association (NFPA) featuring templates to help communities reduce risk and protect property from the dangers of wildland fires; an interactive, resource-rich website; and training programs throughout the nation. <http://www.firewise.org/>

**Floodplain** is a land area adjacent to a river, stream, lake, estuary or other water body that is subject to flooding. These areas, if left undisturbed, act to store excess flood water.

**Floodway** is the channel of a river or other watercourse and adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than one foot.

**Flows** are rapid to slow mass movement of saturated material moving down a slope. *Debris flows* occur when a landslide moves rapidly downslope as a semi-fluid mass scouring or partially scouring soils from the slope along its path. Other *flow* types include earthflows, mudflows, lahars, debris torrents, and creep.

**Foredune** is a dune lying parallel to the ocean, occurring at the landward edge of the beach or at the landward limit of the highest tide, that has been stabilized by vegetation.

**Goal 7** of the Oregon Statewide Land Use Planning Program calls for local comprehensive plans to include inventories, policies, and implementing measures to guide development in hazard areas with the goal of reducing losses from flooding, landslides, earthquakes, tsunamis, coastal erosion, and wildfires.

**Hazard** is any situation that has the potential of causing damage to people, property, or the environment.

**Hazard Mitigation Grant Program** means the program authorized under Section 404 of the Stafford Act and implemented at 44 CFR Part 206, Subpart N, which authorizes funding for certain mitigation measures identified through the evaluation of natural hazards conducted under Section 322 of the Stafford Act. (44 CFR 201.2)

**Hazard Mitigation** means any sustained action taken to reduce or eliminate the long-term risk to human life and property from hazards. (44 CFR 201.2)

**HAZUS (HAZards United States)** is a loss estimation methodology that is a software program using mathematical formulas and information about building stock, local geology, and the location and size of potential earthquakes, economic data, and other information to estimate losses from potential earthquakes.

**Lahar** is a type of mudflow that originates on the slopes of volcanoes when volcanic ash and debris become saturated with water and flows rapidly downslope.

**Lava** is magma that reaches the Earth's surface through a volcanic eruption and when cooled and solidified, forms igneous rock.

**Landslide** is any detached mass of soil, rock, or debris that moves down a slope or a stream channel.

**Lateral Spreading** is failure on very gentle slopes or flat terrain. The failure is usually associated with water-saturated, loose sediment spreading laterally due to liquefaction during earthquakes or human-caused rapid ground motion.

**Lidar** (Light Detection And Ranging) is an optical remote sensing technology that can measure the distance to, or other properties of a target by illuminating the target with light, often using pulses from a laser.

**Liquefaction** is the reaction of saturated soil to seismic earth movement causing the soil to behave like a liquid.

**Littoral Cells** are beaches comprised of sand, gravel, or both that may be bounded by prominent headlands limiting sand exchange.

**Magma** is molten rock that may be completely liquid or a mixture of liquid rock, dissolved gases and crystals.

**Pyroclastic Flow** is an extremely hot mixture of gas, ash and pumice fragments that travels down the flanks of a volcano or along the surface of the ground at speeds of up to 150 miles per hour and tends to flow down valleys.

**Magnitude (M)** is a measure of the amount of energy released by an earthquake.

**Major Disaster** means any natural catastrophe including any hurricane, tornado, storm, high water, wind-driven water, tidal wave, tsunami, earthquake, volcanic eruption, landslide, mudslide, snowstorm or drought, or, regardless of cause, any fire, flood, or explosion in any part of the United States, which in the determination of the President causes damage of sufficient severity and magnitude to warrant major disaster assistance to supplement the efforts and available resources of states, local governments, and disaster relief organizations in alleviating the damage, loss, hardship, or suffering caused thereby. (44 CFR 206.2)

**Megathrust** is both the giant fault that separates the two plates in a subduction zone and the giant earthquake that occurs when that fault moves.

**National Fire Plan** is a federal program that helps manage the impact of wildfire on communities. It has five main components: (1) firefighting; (2) rehabilitation and restoration; (3) hazardous fuel reduction; (4) community assistance; and (5) accountability.

**National Flood Insurance Program** is the program run by the federal government to improve floodplain management, reduce flood-related disaster costs, and provide flood insurance for residents of flood-prone communities.

**Natural Hazards Mitigation Plan** means a plan meeting the requirements of 44 CFR 201.4, 201.5, and 201.6.

**Senate Bill 360** in 1997 established the policy and framework for meeting the fire protection needs of the wildland-urban interface.

**Pacific Decadal Oscillation** is a similar but longer-term cycle than the El Niño-Southern Oscillation with typical events lasting 20-30 years.

**Public Assistance** is that part of the disaster assistance program in which the federal government supplements the efforts and available resources of state and local governments to restore certain public facilities or services. Public Assistance includes emergency assistance, debris removal, community disaster loans, and the permanent repair, restoration, or replacement of public and designated private nonprofit facilities damaged or destroyed by a major disaster and is further described under Section 406 of the Stafford Act.

**Pyroclastic Surge** is a dilute version of a pyroclastic flow, which can move even more rapidly and easily moves up and over ridges.

**Shield Volcano** is a gently sloping volcano in the shape of a flattened dome and built almost exclusively of lava flows.

**Rock falls** are masses of rock fragments that break away from a steep slope and travel mostly by free fall, coming to rest at the base of a slope as talus debris.

**Slides** have a distinct zone of weakness that separates the overlying failed material from more stable underlying material. Types of slides include rotational (movement along a curved surface) and translational (movement along a flat surface).

**Special Flood Hazard Area** is the land in the floodplain within a community subject to a 1 percent or greater chance of flooding in any given year. (44 CFR 59.1)

**Stafford Act** means the Robert T. Stafford Disaster Relief and Emergency Assistance Act (PL 100-707, which amended PL 91-606 and PL 93-288; then was further amended by PL 106-390, the Disaster Mitigation Act of 2000; and PL 109-295, the Post-Katrina Emergency Reform Act).

**State Hazard Mitigation Officer** is the official representative of state government who is the primary point of contact with FEMA, other federal agencies, and local governments in mitigation planning and implementation of mitigation programs and activities required under the Stafford Act. In Oregon, the State Hazard Mitigation Officer position resides in the Oregon Military Department's Office of Emergency Management.

**State Interagency Hazard Mitigation Team** is a permanent body of state agency officials established in 1997 to understand losses arising from natural hazards and coordinate recommended strategies to mitigate loss of life, property, and natural resources.

**Stratovolcano** is a relatively long-lived volcano built up of both lava flows and pyroclastic material.

**Structural Fire Protection** is protection of structures by established municipal fire departments and rural fire protection districts with specific equipment and training.

**Subduction Zone** is the area between two converging plates, one of which is sliding down and below the other.

**Subduction Zone Earthquake** is an earthquake along a subduction zone. In Oregon, usually refers to the Cascadia Subduction Zone (CSZ), which lies off shore of the Oregon coast.

**Subduction** is the process of one crustal plate sliding down and below another crustal plate as the two converge.

**Surface Fault** is a fault that ruptures to the Earth's surface.

**Tectonic** refers to large scale vertical or horizontal movement of the earth's crust.

**Tectonic Plate** is a slab of rigid lithosphere (crust and uppermost mantle) that moves over the asthenosphere.

**Tephra** is a general term for all sizes of particles ejected into the air during volcanic eruptions. Tephra includes particles as tiny as volcanic ash and as large as bombs.

**Tsunami** is a series of waves generated by undersea earthquakes or landslides.

**Vulnerability** is the susceptibility of life, property, or the environment to damage if a hazard manifests to potential.

**Wave Runup** is the swash of a broken wave as it travels up the beach face.

**Wildfire Hazard Zone** means the portion of a local government jurisdiction that has been determined to be at risk of a catastrophic wildfire.

**Wildland-Urban Interface (a.k.a.: Wildland Interface, Forestland-Urban Interface, Interface)** is an area where structures are adjacent to or are intermingled with natural vegetative fuels which is prone to the occurrence of wildland fires.

## Chapter 8: REFERENCES

**DRAFT note: Many non-specific reference citations are inherited from the 2012 Plan. Reference/citation cross-referencing, verifying, and formatting still in progress.**

- Allan, J. C., & Priest, G. R. (2001). Evaluation of coastal erosion hazard zones along dune and bluff backed shorelines in Tillamook County, Oregon: Cascade Head to Cape Falcon. *Open file report O-01-03*, 126 pp., Oregon Department of Geology and Mineral Industries, Portland, Oregon.
- Allan, J. C., & Komar, P. D. (2002). Extreme storms on the Pacific Northwest Coast during the 1997-98 El Niño and 1998-99 La Niña, *Journal of Coastal Research*, 18(1), 175-193.
- Allan, J. C., Komar, P. D., & Priest, G. R. (2003). Shoreline variability on the high-energy Oregon coast and its usefulness in erosion-hazard assessments, in *Shoreline mapping and change analysis: Technical considerations and management implications*, edited by M. R. Byrnes, M. Crowell and C. Fowler, pp. 83-105.
- Allan, J. C., R. Hart, & Tranquilli, V. (2006). The use of Passive Integrated Transponder tags (PIT-tags) to trace cobble transport in a mixed sand-and-gravel beach on the high-energy Oregon coast, USA, *Marine Geology*, 232(1-2), 63-86.
- Allan, J. C., & Hart, R. (2007). Assessing the temporal and spatial variability of coastal change in the Neskowin littoral cell: Developing a comprehensive monitoring program for Oregon beaches. *Open-file-report O-07-01*, 27 pp, Oregon Department of Geology and Mineral Industries, Portland, Oregon.
- Allan, J. C., & Hart, R. (2008). Oregon beach and shoreline mapping and analysis program: 2007-2008 beach monitoring report. *Open file report O-08-15*, 60 pp, Oregon Department of Geology and Mineral Industries, Portland.
- Allan, J. C., Witter, R. C., Ruggiero, P., & Hawkes, A. D. (2009). Coastal geomorphology, hazards, and management issues along the Pacific Northwest coast of Oregon and Washington, in *Volcanoes to vineyards: Geologic field trips through the dynamic landscape of the Pacific Northwest: Geological Society of America Field Guide 15*, edited by J. E. O'Connor, R. J. Dorsey and I. P. Madin, pp. 495-519, The Geological Society of America.
- Allan, J. C., Ruggiero, P. & Roberts, J. T. (2012). Coastal Flood Insurance Study, Coos County, Oregon. *Special Paper 44*, 132 pp, Oregon Department of Geology and Mineral Industries, Portland, Oregon.
- Allan, J. C., & Stimely, L. (2013), *Oregon Beach Shoreline Mapping and Analysis Program: Quantifying Short to Long-term Beach and Shoreline Changes in the Gold Beach, Nesika, and Netarts Littoral Cells*. (Open File Report O-13-07). Portland, OR: Oregon Department of Geology and Mineral Industries.
- Bacon, C. R., Mastin, L. G., Scott, K., & Nathenson, M. (1997). *Volcano and earthquake hazards in the Crater Lake region, Oregon* (USGS Open-File Report 97-487). Reston, VA.: U.S. Geological Survey. Available: <http://pubs.er.usgs.gov/publication/ofr97487>

- Bott, J. D., & Wong, I. G. (1993). Historical earthquakes in and around Portland, Oregon. *Oregon Geology*, 55(5), 116-122.
- Burns, S. F., Burns, W. J., James, D. H., & Hinkle, J. C. (1998). *Landslides in Portland, Oregon Metropolitan area resulting from the storm of February 1996: Inventory map, database, and evaluation* (Metro contract 905828). Portland, OR: Portland State University Dept. of Geology. Available: <http://nwddata.geol.pdx.edu/Landslides/PDX-Landslide/metrosld.pdf>
- Burns, W. J. (2007). *Comparison of remote sensing datasets for the establishment of a landslide mapping protocol in Oregon* (AEG Special Publication 23). Vail, Colo., Conference Presentations, 1st North American Landslide Conference.
- Burns, W. J., Hofmeister, R. J., & Wang, Y. (2008). *Geologic hazards, earthquake and landslide hazard maps, and future earthquake damage estimates for six counties in the Mid/Southern Willamette Valley including Yamhill, Marion, Polk, Benton, Linn, and Lane Counties, and the City of Albany, Oregon* (DOGAMI Interpretive Maps Series IMS-24). Portland, OR: Oregon Department of Geology and Mineral Industries.
- Burns, W. J., & Madin, I. P. (2009). *Protocol for inventory mapping of landslide deposits from light detection and ranging (lidar) imagery* (DOGAMI Special Paper 42). Portland, Oreg.: Oregon Department of Geology and Mineral Industries.
- Burns, W. J., & Mickelson, K. A. (2010). *Landslide inventory maps for the Oregon City quadrangle, Clackamas County, Oregon* [scale 1:8,000] (DOGAMI Interpretive Map 30). Portland, OR: Oregon Department of Geology and Mineral Industries.
- Burns, W. J., Mickelson, K. A., & Saint-Pierre, E. C. (2011). *Statewide landslide information database for Oregon, release 2 (SLIDO-2)*. Portland, OR: Oregon Department of Geology and Mineral Industries.
- Burns, W. J., Hughes, K. L. B., Olson, K. V., McClaughry, J. D., Mickelson, K. A., Coe, D. E., English, J. T., Roberts, J. T., Lyles Smith, R. R., & Madin, I. P. (2011b). *Multi-hazard and risk study for the Mount Hood region, Multnomah, Clackamas, and Hood River Counties, Oregon* (DOGAMI Open-File Report O-11-16). Portland, OR: Oregon Department of Geology and Mineral Industries.
- Burns, W.J., Hughes, K. B., Olson, K. V., McClaughry, J. D., Mickelson, K. A., Coe, D. E., English, J.T., Roberts, J. T., Lyles Smith, R. R., & Madin, I.P. (2012). *Multi-hazard and risk study for the Mount Hood region, Multnomah, Clackamas, and Hood River Counties, Oregon* (DOGAMI Open-File Report O-11-16). Portland, OR: Oregon Department of Geology and Mineral Industries.
- Burns, W.J., Madin, I.P., Mickelson, K.A., & Duplantis, S. (2012b). *Inventory of landslide deposits from light detection and ranging (lidar) imagery of the Portland metropolitan region, Oregon and Washington* (DOGAMI Interpretive Map 53). Portland, OR: Oregon Department of Geology and Mineral Industries.
- Burns, W. J. & Mickelson, K. A. (2013). *Landslide inventory, susceptibility maps, and risk analysis for the City of Astoria, Clatsop County, Oregon* (Open-File Report O-13-05). Portland, OR: Oregon Department of Geology and Mineral Industries.
- Burns, W. J., Mickelson, K. A., Jones, C. B., Pickner, S. G., Hughes, K. L., and Sleeter, R. (2013). *Landslide hazard and risk study of northwestern Clackamas County, Oregon* (DOGAMI Open-File Report O-13-08). Portland, OR: Oregon Department of Geology and Mineral Industries.

- California Governor's Office of Emergency Services (OES) (1997) Emergency Plans for Mobilehome Parks. Completed in Compliance with the Flood Emergency Action Team (FEAT): Initiative Number 5. Available at [http://www.oes.ca.gov/Operational/OESHome.nsf/PDF/Emergency%20Plans%20for%20Mobilehome%20Parks/\\$file/Feat5.pdf](http://www.oes.ca.gov/Operational/OESHome.nsf/PDF/Emergency%20Plans%20for%20Mobilehome%20Parks/$file/Feat5.pdf)
- Cutter, S. L. (2003). Social vulnerability to environmental hazards. *Social Science Quarterly*, 28(2), 242-261.
- Dalton, M.M., Mote, P.W. & Snover, A.K. (Eds.). (2013). *Climate change in the Northwest: implications for our landscapes, waters, and communities*. Washington, D.C.: Island Press. Available: <http://cses.washington.edu/db/pdf/daltonetal678.pdf>
- Dean Runyan Associates (2014). Oregon Travel Impacts: 1991-2013, April 2014. [http://www.deanrunyan.com/doc\\_library/ORImp.pdf](http://www.deanrunyan.com/doc_library/ORImp.pdf)
- Dewey, J. W. (1993). Damages from the 20 September earthquakes near Klamath Falls, Oregon: *Earthquakes & Volcanoes*, 24(3), 121.
- Federal Aviation Administration (2012) *CY 2012 Passenger Boarding and All-Cargo Data*. Retrieved March 5, 2014, [http://www.faa.gov/airports/planning\\_capacity/passenger\\_allcargo\\_stats/passenger/media/cy11\\_primary\\_enplanements.pdf](http://www.faa.gov/airports/planning_capacity/passenger_allcargo_stats/passenger/media/cy11_primary_enplanements.pdf)
- Goldfinger, C., Nelson, C.H., Morey, A. E., Johnson, J. E., Patton, J. R., Karabanov, E., Gutiérrez-Pastor, J., Eriksson, A. T., Gràcia, E., Dunhill, G., Enkin, R. J., Dallimore, A., & Vallier, T. (2012). *Turbidite event history—methods and implications for Holocene paleoseismicity of the Cascadia subduction zone* (USGS Professional Paper 1661–F). Reston, VA: U.S. Geological Survey. Available at <http://pubs.usgs.gov/pp/pp1661f/>
- IPCC (2013). Summary for Policymakers. In: *Climate Change 2013: The Physical Science Basis*. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Stocker, T.F., D. Qin, G.-K. Plattner, M. Tignor, S. K. Allen, J. Boschung, A. Nauels, Y. Xia, V. Bex and P.M. Midgley (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.
- Judson, S. (2012). Earthquake Design History: A summary of Requirements in the State of Oregon: State of Oregon, Building Codes Division, Feb. 7, 2012, 7 p. Available at: [http://www.oregon.gov/OMD/OEM/ospac/docs/history\\_seismic\\_codes\\_or.pdf](http://www.oregon.gov/OMD/OEM/ospac/docs/history_seismic_codes_or.pdf)
- Kirshman, N. H., & Grandgenett II, R. L. (1997). *ADA: The 10 Most Common Disabilities and How to Accommodate* | *LegalBrief.com*. Retrieved March 2014, from <http://www.LegalBrief.com/kirshman.html>
- Komar, P. D., & Rea, C. C. (1976), Erosion of Siletz Spit, Oregon, *Shore and Beach*, 44(1), 9-15.
- Komar, P. D., & McKinney, B. A. (1977). *The spring 1976 erosion of Siletz Spit, Oregon : with an analysis of the causative wave and tide conditions*, 23 pp., Oregon State University School of Oceanography, Corvallis.
- Komar, P. D. (1986). The 1982-83 El Nino and erosion on the coast of Oregon, *Shore and Beach*, 54(2), 3-12.
- Komar, P. D. (1987). Erosional changes at Alsea Spit, Waldport, Oregon, *Oregon Geology*, 49(5), 55-59.

- Komar, P. D., Good, J. W., & Shih, S. M. (1989). Erosion of Netarts Spit, Oregon: continued impacts of the 1982-83 El Niño, *Shore & Beach*, 57(1), 11-19.
- Komar, P. D. (1997). *The Pacific Northwest Coast: Living with the Shores of Oregon and Washington*, 195 pp., Duke University Press, Durham and London.
- Komar, P. D. (1998). The 1997-98 El Niño and erosion on the Oregon coast, *Shore & Beach*, 66(3), 33-41.
- Komar, P. D., & Allan, J. C. (2010). "Design with Nature" strategies for shore protection—The construction of a cobble berm and artificial dune in an Oregon State Park *Rep.*, 117-126 pp, U.S. Geological Survey Scientific Investigations Report 2010-5254.
- Lander, J. F., Lockridge, P. A., & Kozuch, M. J. (1993). *Tsunamis affecting the west coast of the United States 1806-1992: Boulder, Colo., National Oceanic and Atmospheric Administration* (NGDC Key to Geophysical Records Documentation No. 29). Boulder, CO: National Geophysical Data Center. Available: <ftp://ftp.ngdc.noaa.gov/hazards/publications/Kgrd-29.pdf>
- Lewis, D. (2007). *Statewide seismic needs assessment: Implementation of Oregon 2005 Senate Bill 2 relating to public safety, earthquakes, and seismic rehabilitation of public buildings* (DOGAMI Open-File Report O-07-02). Portland, OR: Oregon Department of Geology and Mineral Industries.
- Longwoods International (2011a). Oregon 2011 Regional Visitor Report: Greater Portland: Toronto, Ont., Retrieved April 29, 2014. Available at: [http://industry.traveloregon.com/content/uploads/2013/04/OR-Greater-Portland-2011-Final-Report-rev-4\\_10\\_13.pdf](http://industry.traveloregon.com/content/uploads/2013/04/OR-Greater-Portland-2011-Final-Report-rev-4_10_13.pdf)
- Longwoods Travel USA.(2011b). *Regional Visitor Report 2011, Southern Region*. Retrieved February 10, 2014 from [http://industry.traveloregon.com/wp-content/uploads/2013/04/OR-Southern-Region-2011-Final-Report-rev-4\\_10\\_13.pdf](http://industry.traveloregon.com/wp-content/uploads/2013/04/OR-Southern-Region-2011-Final-Report-rev-4_10_13.pdf)
- Loy, W. G. (Ed.). (2001). *Atlas of Oregon* (2nd ed.). Eugene, Ore., University of Oregon Press.
- Loy, W. G., Allan, S., & Patton, C. P. (1976). *Atlas of Oregon*. Eugene: University of Oregon.
- Loy, W. G., Allan, S., & Patton, C. P. (1976). *Atlas of Oregon*. Eugene: University of Oregon and Economic Development for Central Oregon, retrieved from <http://www.edcoinfo.com/business-resources/utilities/natural-gas/default.aspx>
- Madin, I.P., & Burns, W.J. (2013). *Ground motion, ground deformation, tsunami inundation, coseismic subsidence, and damage potential maps for the 2012 Oregon Resilience Plan for Cascadia Subduction Zone earthquakes* (DOGAMI Open-File Report O-13-06). Portland, OR: Oregon Department of Geology and Mineral Industries.
- MDC Consultants (n.d.). *When Disaster Strikes – Promising Practices*. Retrieved March 18, 2014, from <http://www.mdcinc.org/sites/default/files/resources/When%20Disaster%20Strikes%20-%20Promising%20Practices%20-%20Tourists.pdf>
- Meadows, D. H. (2008). *Thinking in Systems: A Primer*. White River Junction, VT: Chelsea Green Publishing.

- Meyers, B., Brantley, S.R., Stauffer, P., & Hendley, J.W., III. (1997). *What are volcano hazards?* (USGS Fact Sheet 002-97, March 2008 rev.). Reston, VA: U.S. Geological Survey. Available: <http://pubs.usgs.gov/fs/fs002-97/>
- Meyers, B., & Driedger, C. (2008). Eruptions in the Cascade Range during the past 4,000 years (USGS General Information Product 63). Denver, Colo.: U.S. Geological Survey. Available: <http://pubs.usgs.gov/gip/63/>
- Morrow, B. H. (1999). Identifying and mapping community vulnerability. *Disasters*, 23(1), 1-18. doi:10.1111/1467-7717.00102
- Mote, P.W., Abatzoglou, J. T., & Kunkel, K. E. (2013). Chapter 2, Climate: variability and change in the past and the future. In M. M. Dalton, P. Mote, and A. K. Snover (eds.), *Climate change in the Northwest: implications for our landscapes, waters, and communities* (pp. 25–40). Washington D.C.: Island Press. Available: <http://ces.washington.edu/db/pdf/daltonetal678.pdf>
- National Disaster Education Coalition. (2004). *Talking about disaster: guide for standard messages*. Washington, DC: Author. Available: [http://www.crh.noaa.gov/Image/bis/AmericanRedCross\\_TalkingAboutDisaster.pdf](http://www.crh.noaa.gov/Image/bis/AmericanRedCross_TalkingAboutDisaster.pdf)
- National Research Council (2012). *Sea-level rise for the coasts of California, Oregon, and Washington: past, present, and future*. Washington, D.C.: National Academies Press.
- National Weather Service – Portland, Oregon Forecast Office (Historical Storms and Data—Oregon’s Notable Historical Snowstorms, March 20, 2003, (<http://www.wrh.noaa.gov/pqr/paststorms/snow.php>, accessed March 21, 2015)
- OCCRI [Oregon Climate Change Research Institute] 2010. The Oregon Climate Assessment Report, K.D. Dello and P.W. Mote (eds). College of Oceanic and Atmospheric Sciences, Oregon State University, Corvallis OR.
- Oregon Office of Emergency Management (2013). *The 2013 Oregon State Emergency Alert System Plan (12.0)*: Oregon Military Department, Retrieved from State of Oregon website: [http://www.oregon.gov/OMD/OEM/tech\\_resp/EAS/EAS\\_Plan.pdf](http://www.oregon.gov/OMD/OEM/tech_resp/EAS/EAS_Plan.pdf)
- Oregon Office of Emergency Management, 2014 rev., State of Oregon Emergency Operations Plan: Drought Annex, September 2002. Available at: [http://www.oregon.gov/OMD/OEM/Pages/plans\\_train/EOP.aspx](http://www.oregon.gov/OMD/OEM/Pages/plans_train/EOP.aspx); [http://www.oregon.gov/owrd/WR/docs/eop\\_ia\\_1\\_drought\\_complete.pdf](http://www.oregon.gov/owrd/WR/docs/eop_ia_1_drought_complete.pdf)
- Oregon Bridge Engineering Section (2012). 2012 Bridge Condition Report. Salem, Oregon: Bridge Section, Oregon Department of Transportation.
- Oregon Department of Environmental Quality (2014). *Jordan Cove Energy Project*. Retrieved February 19, 2014, from <http://www.deq.state.or.us/wr/localprojects/jordancove/index.htm>
- Oregon Department of Forestry (2008). Drought and conifer mortality in the Willamette Valley. <http://www.oregon.gov/odf/privateforests/docs/Forest%20Health/droughtconifermortalitywv.pdf>. Accessed September 2014.

- Oregon Department of Transportation (2014a). Oregon Department of Transportation (2013), Oregon's Historic Bridge Field Guide
- Oregon Department of Transportation (2014b). DRAFT Oregon State Rail Plan: Freight and Passenger Rail Inventory. Salem, Oregon. Oregon Department of Transportation.
- Peterson, C. D., P. L. Jackson, D. J. O'Neil, C. L. Rosenfeld, and A. J. Kimerling (1990). Littoral cell response to interannual climatic forcing 1983-1987 on the central Oregon coast, USA, *Journal of Coastal Research*, 6(1), 87-110.
- Pitzer, P. C. (1988). The atmosphere tasted like turnips: the Pacific Northwest dust storm of 1931. *Pacific Northwest Quarterly*, 79(2), 50-55.
- Priest, G. R. (1999). Coastal shoreline change study Northern and Central Lincoln County, Oregon, in *Coastal Erosion Mapping and Management*, edited by M. Crowell and S. P. Leatherman, pp. 140-157.
- Priest, G. R., Witter, R. C., Zhang, Y. J., Wang, K., Goldfinger, C., Stimely, L. L., English, J. T., Pickner, S. G., Hughes, K. L. B., Wille, T. E., & Smith, R. L. (2013). *Tsunami inundation scenarios for Oregon* (DOGAMI Open-File Report O-13-19). Portland, OR: Oregon Department of Geology and Mineral Industries.
- PRISM Group, Oregon State University, from Fig 2-15
- Redmond, K. (2002). The depiction of drought: a commentary. *Bulletin of the American Meteorological Society*. 83(8), 1143-1147.
- Revell, D., Komar, P. D., & Sallenger, A. H. (2002). An application of LIDAR to analyses of El Niño erosion in the Netarts littoral cell, Oregon, *Journal of Coastal Research*, 18(4), 792-801.
- Ruggiero, P., Kratzmann, M. G., Himmelstoss, E. A., Reid, D., Allan, J. C., & Kaminsky, G. M. (2013). National Assessment of Shoreline Change: Historical Shoreline Change along the Pacific Northwest coast (Oregon and Washington), Open-File Report 2012-1007 Rep., U.S. Geological Survey, Reston, Virginia.
- Schilling, S. P. (1996). [Digital data set of volcano hazards for active Cascade Volcanoes, Washington](http://pubs.usgs.gov/of/1996/0178/). U.S. Geological Survey Open-File Report 96-178. Available: <http://pubs.usgs.gov/of/1996/0178/>
- Schilling, S. P., Doelger, S., Walder, J. S., Gardner, C., Conrey, R. M., & Fisher, B. J. (2007). [Digital Data for Volcano Hazards in the Mount Jefferson Region, Oregon](http://pubs.usgs.gov/of/2007/1224/intro.html). U.S. Geological Survey Open-File Report, 1224. <http://pubs.usgs.gov/of/2007/1224/intro.html>
- Schilling, S. P., Doelger, S., Scott, W. E., Pierson, T., Costa, J., Gardner, C., Vallance, J. W., & Major, J. (2008a). [Digital Data for Volcano Hazards of the Mount Hood Region, Oregon](http://pubs.er.usgs.gov/publication/ofr20071222). U.S. Geological Survey Open-File Report, 2007-1222. <http://pubs.er.usgs.gov/publication/ofr20071222>
- Schilling, S. P., Doelger, S., Sherrod, D. R., Mastin, L. G., & Scott, W. E. (2008b). [Digital Data for Volcano Hazards at Newberry Volcano, Oregon](http://pubs.usgs.gov/of/2007/1225/). U.S. Geological Survey Open-File Report, 2007-1225. <http://pubs.usgs.gov/of/2007/1225/>
- Schilling, S. P., Doelger, S., Scott, W. E., & Iverson, R. (2008c). [Digital Data for Volcano Hazards of the Three Sisters Region, Oregon](http://pubs.usgs.gov/of/2007/1221/). U.S. Geological Survey Open-File Report, 2007-1221. <http://pubs.usgs.gov/of/2007/1221/>

- Schlicker, H. G., Deacon, R. J., Beaulieu, J. D., & Olcott, G. W., (1972). Environmental geology of the coastal region of Tillamook and Clatsop Counties, Oregon. Bulletin 74, 164 p., 118 maps pp, Oregon Department of Geology and Mineral Industries, Portland, Oregon.
- Schlicker, H. G., Deacon, R. J., Olcott, G. W., & Beaulieu, J. D. (1973). Environmental geology of Lincoln County, Oregon. Bulletin 81, 171 p, 176 maps pp, Oregon Department of Geology and Mineral Industries, Portland, Oregon.
- Scott, W. E., Iverson, R., Vallance, J. W., & Hildreth, W. (1995). [Volcano hazards in the Mount Adams region, Washington](http://pubs.er.usgs.gov/publication/ofr95492). *U.S. Geological Survey Open-File Report*, 95-492, 11 p. <http://pubs.er.usgs.gov/publication/ofr95492>
- Scott, W. E., Pierson, T., Schilling, S. P., Costa, J., Gardner, C., Vallance, J. W., & Major, J. (1997). [Volcano hazards in the Mount Hood region, Oregon](http://pubs.er.usgs.gov/publication/ofr9789). *U.S. Geological Survey Open-File Report*, 97-89, 14 p. <http://pubs.er.usgs.gov/publication/ofr9789>
- Scott, W.E., Gardner, C.A., Sherrod, D.R., Tilling, R.I., Lanphere, M.A., & Conrey, R.M. (1997b). Geologic history of Mount Hood Volcano, Oregon; a field-trip guidebook: U.S. Geological Survey, Open-File Report 97-263, 38 p.
- Scott, W. E., Iverson, R., Schilling, S. P., & Fisher, B. J. (2001). [Volcano Hazards in the Three Sisters Region, Oregon](http://pubs.usgs.gov/of/1999/0437/). *U.S. Geological Survey Open-File Report*, 99-437, 14 p. <http://pubs.usgs.gov/of/1999/0437/>
- Sherrod, D. R., Mastin, L. G., Scott, W. E., & Schilling, S. P. (1997). [Volcano hazards at Newberry Volcano, Oregon](http://pubs.er.usgs.gov/publication/ofr97513). *U.S. Geological Survey Open-File Report*, 97-513, 14 pp. <http://pubs.er.usgs.gov/publication/ofr97513>
- Sherrod, D. R. (1993). Historic and prehistoric earthquakes near Klamath Falls, Oregon. *Earthquakes & Volcanoes*, 24(3), 106.
- Stembridge, J. E. (1975). Shoreline changes and Physiographic Hazards on the Oregon Coast, Ph.D Dissertation thesis, 202 pp, University of Oregon, Eugene.
- Tauer, G. (2014, January). OLMIS - Regions 1, 2 and 8: Economy. Retrieved April, 2014, from <http://www.qualityinfo.org/olmisj/OlmisZine>
- Taylor, G. H., & Hannan, C. (1999). *The climate of Oregon: from rain forest to desert*. Corvallis, Ore.: Oregon State University Press.
- Taylor, G. H., & Hatton, R. (1999). *The Oregon weather book: a state of extremes*. Corvallis, Ore.: Oregon State University Press.
- Terich, T. A., & P. D. Komar (1974). Bayocean Spit, Oregon: History of development and erosional destruction, *Shore & Beach*, 42(2), 3-10.
- Thomas, G. C., Crosson, R. S., Carver, D. L., & Yelin, T. S. (1996). The 25 March 1993 Scotts Mills, Oregon, earthquake and aftershock sequence: spatial distribution, focal mechanisms, and the Mount Angel Fault. *Bulletin of the Seismological Society of America*, 86(4), 925–935.
- Thomas, Y. F., Richardson, D., & Cheung, I. (2008). *Geography and drug addiction. Proceedings from jointly sponsored AAG/NIDA Geography and Drug Symposium (2006: Chicago, Ill.)*. Dordrecht: Springer.

- Thorson, T. D. (2004). Ecoregions of Oregon [Map, 1 pl.] (scale 1:500,000). Reston, Va.: U.S. Dept. of the Interior, U.S. Geological Survey.
- U.S. Environmental Protection Agency, n.d., Ecoregions of Oregon: U.S. Environmental Protection Agency, Western Ecology Division, web site: [http://www.epa.gov/wed/pages/ecoregions/or\\_eco.htm](http://www.epa.gov/wed/pages/ecoregions/or_eco.htm)
- USGS. Oregon Earthquake History. Retrieved October 28, 2013, <http://earthquake.usgs.gov/earthquakes/states/oregon/history.php>
- USGS. Earthquake Archive. Retrieved October 28, 2013, <http://earthquake.usgs.gov/earthquakes/search/>
- Walder, J. S., Gardner, C., Conrey, R. M., Fisher, B. J. & Schilling, S. P. (2000). [Volcano Hazards in the Mount Jefferson Region, Oregon](#). *U.S. Geological Survey Open-File Report, 99-24*, 14 p. Available: <http://pubs.usgs.gov/of/1999/0024/>
- Walder, J. S., Gardner, C. A., Conrey, R. M., Fisher, B. J., & Schilling, S. P. (1999). Volcano hazards in the Mount Jefferson region, Oregon: U.S. Geological Survey Open-File Report 99-24, 14 p., 2 plates. Available: <http://pubs.usgs.gov/of/1999/0024/>
- Wang, Y., & Clark, J. L. (1999). Earthquake damage in Oregon: Preliminary estimates of future earthquake losses: Oregon Department of Geology and Mineral Industries, Special Paper 29, 59 p.
- Wang, Y., Summers, R.D., & Hofmeister, R.J. (2002). Landslide loss estimation pilot project in Oregon: Oregon Department of Geology and Mineral Industries Open-File Report O-02-05, 23 p.
- Wang, Y., Bartlett, S. & Miles, S. (2012). Earthquake Risk Study for Oregon's Critical Energy Infrastructure Hub. Oregon Department of Geology and Mineral Industries.
- Wang, Y., Bartlett, S.F., & Miles, S.B., (2013). *Earthquake risk study for Oregon's critical energy infrastructure hub* (Open-File Report )-13-09). Portland, OR: Oregon Department of Geology and Mineral Industries.
- Wang, Y., Summers, R.D., & Hofmeister, R.J. (2002). Landslide loss estimation pilot project in Oregon: Oregon Department of Geology and Mineral Industries Open-File Report O-02-05, 23 p.
- Wiley, T.J., McClaughry, J.D., & D'Allura, J.A. (2011). Geologic database and generalized geologic map of Bear Creek Valley, Jackson County, Oregon: Oregon Department of Geology and Minea Industries, Open-File Report O-11-11, 75 p., 1 map pl., scale 1:63,360.
- Witter, R. C., Zhang, Y., Wang, K., Priest, G. R., Goldfinger, C., Stimely, L. L., English, J. T., & Ferro, P. A. (2011). Simulating tsunami inundation at Bandon, Coos County, Oregon, using hypothetical Cascadia and Alaska earthquake scenario. Oregon Department of Geology and Mineral Industries Special Paper 43, 57 p., plates, GIS and data files, and animations.
- Wolfe, E. W., & Pierson, T. (1995). [Volcanic-hazard zonation for Mount St. Helens, Washington, 1995](#). *U.S. Geological Survey Open-File Report, 95-497*, 12 p. Available: <http://pubs.usgs.gov/of/1995/0497/>
- Wong, I. G., & Bolt, J. D. J. (1995). A look back at Oregon's earthquake history, 1841–1994. *Oregon Geology*, 57(6), 125–139.

Wood, N. (2007). Variations in city exposure and sensitivity to tsunami hazards in Oregon. *U.S. Geological Survey Scientific Investigations Report 2007-5283*, 37 p. Available: <http://pubs.usgs.gov/sir/2007/5283/>

## Chapter 9: APPENDICES

*The following links will open in a new window. All are PDFs except 9.1.8, which is an Excel file.*

### 9.1 Risk Assessment

- 9.1.1 [Dust Storm: DEQ Air Pollution RuleDust Storm: DEQ Air Pollution Rule](#)
- 9.1.2 [Wildfire: Conflagration Fires 1996-2014](#)
- 9.1.3 [Wildfire: Trends for Some Wildfire Ignition Sources](#)
- 9.1.4 [Wildfire: West Wide Wildfire Risk Assessment Project Summary Statistics of Published Results by State: Oregon](#)
- 9.1.5 [Wildfire: West Wide Wildfire Risk Assessment Final Report– Addendum VI, County Risk Summaries: Oregon](#)
- 9.1.6 [Windstorm: Information on 1931 Dust Storm](#)
- 9.1.7 [Windstorm: How to Recognize and Prevent Tree Hazards](#)
- 9.1.8 [Winter Storm: Average Annual Snowfall at Various Oregon Stations](#)
- 9.1.9 [Winter Storm: Reducing Ice Storm Damage to Trees](#)
- 9.1.10 [Statewide Loss Estimates: State-Owned Facilities and Critical and Essential Facilities Loss Estimates Table \(Excel\)](#)
- 9.1.11 [Statewide Loss Estimates: State-Owned Facilities and Critical and Essential Facilities Loss Estimates Table](#)
- 9.1.12 [Statewide Loss Estimates: Oregon Highways Seismic Options Report](#)

9.1.13 **Statewide Loss Estimates: Seismic Lifelines Evaluation, Vulnerability Synthesis, and Identification**

9.1.14 **2014 Threat and Hazard Identification and Risk Assessment (THIRA)**

9.1.15 **Oregon Risk Assessment: A New Model, Final Report**

## **9.2 Mitigation Strategy**

### **9.2.1 Mitigation Actions: Progress and Initial Evaluation**

### **9.2.2 Mitigation Actions: Prioritization Score Sheet**

### **9.2.3 Mitigation Actions: Priority Scoring**

### **9.2.4 Mitigation Actions: Level of Support**

### **9.2.5 Oregon Resilience Plan**

### **9.2.6 Resilience Task Force Report to the Oregon Legislature**

## **9.3 Enhanced Plan**

### **9.3.1 Hazard Mitigation Grant Program: DR-4169 Administrative Plan**

### **9.3.2 Loss Avoidance Study: Oregon, Property Acquisition and Structure Elevation**

## **9.4 Planning Process**

### **9.4.1 State IHMT Meeting: April 2013**

### **9.4.2 State IHMT Meeting: July 2013**

### **9.4.3 State IHMT Meeting: October 2013**

### **9.4.4 State IHMT Meeting: January 2014**

### **9.4.5 State IHMT Meeting: April 2014**

### **9.4.6 State IHMT Meeting: July 2014**

### **9.4.7 State IHMT Meeting: October 2014**

- 9.4.8 **LCDC and DOGAMI Governing Board Joint Meeting, September 2013**
- 9.4.9 **Mitigation Actions Meeting, September 2013**
- 9.4.10 **Mitigation Actions Meeting, December 2013**
- 9.4.11 **Silver Jackets Meeting, January 2014**
- 9.4.12 **2015 Oregon NHMP Update Project Website**
- 9.4.13 **State IHMT Website**
- 9.4.14 **Emails to 2015 Oregon NHMP Update Project Website Subscribers**
- 9.4.15 **Information Provided to DLCD's Regional Representatives**
- 9.4.16 **Handout Provided to FEMA Hazard Mitigation Planning Course Participants, September 2014**
- 9.4.17 **Standard State Hazard Mitigation Plan Review Crosswalk**
- 9.4.18 **Enhanced State Hazard Mitigation Plan Review Crosswalk**