

# Threat and Hazards Identification and Risk Assessment (THIRA)

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## State of Oregon



November 2012

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## Executive Summary

The State of Oregon 2012 Threat and Hazard Identification and Risk Assessment (THIRA) is a preliminary document which will serve to meet the federal requirements that each state and UASI region complete a risk assessment in 2012.

The five steps of THIRA are as follows:

- 1) Identify the threats and hazards of concern
- 2) Give the threats and hazards context
- 3) Examine the core capabilities using the threats and hazards
- 4) Set capability targets
- 5) Apply the results

Note on **Step 5**: Oregon will continue to use preparedness, response, mitigation and other information to inform decisions about how to allocate limited resources following a disaster. We will also continue to identify the needs and capabilities necessary to support our mission of protecting lives and property for the citizens of the State of Oregon.

Oregon's THIRA is intended to provide a better understanding of the operational environment through analyses of the impacts and capabilities following a Cascadia Subduction Zone (CSZ) earthquake. Additionally, we have done a basic analysis on the impacts to several local jurisdictions as well as examined the capabilities required to respond to the detonation of multiple Improvised Explosive Devices.

This THIRA was developed by staff at Oregon Emergency Management, in collaboration with agencies and organizations statewide and the historic work which is the result of many years of planning and preparedness efforts. Because of the short timeline for development, shortage of available staff dedicated to this effort and other priority projects, this THIRA is not all inclusive, nor is it comprehensive. As discussed with FEMA, future versions of THIRA will include additional threats, hazards and information.

For the CSZ portion, Oregon relied heavily upon the information contained in the *Draft Analytical Baseline Study for the Cascadia Earthquake and Tsunami* (September 12, 2011), although the tsunami was not included in the 2012 THIRA. Not all statistical data and figures were included in Oregon's THIRA due to the possibility of underestimations and inaccuracies inherent in the modeling process for these types of disasters.

Oregon's Urban Area Security Initiative (UASI) area encompasses Columbia, Washington, Clackamas and Multnomah counties. The information specific to these four counties is not included with this THIRA, as UASI regions were required to submit their own THIRAs, separate from the states.

## Oregon's Hazards and Threats

Natural <sup>1</sup>	Technological	Adversarial Threats
coastal erosion	dam failure	<b>cyber-incident</b>
drought	levee failure	enemy attack
dust storm	<b>hazardous materials release<sup>2</sup></b>	multiple victim shooting
<b>earthquake</b>	urban conflagration	riot
fire (wildland-urban interface)	wide-area electricity outage	sabotage
<b>flood</b>	technological hazards (all other applicable)	eco terrorism acts
landslide/debris flow		violent extremism
<b>tsunami</b>		bomb detonations
volcanic hazards <sup>3</sup>		bioterrorism acts
windstorm		terrorist acts (all other applicable)
winter storm		
disease outbreak: human <sup>4</sup>		
disease outbreak: animal <sup>5</sup>		

<sup>1</sup> The first 11 are covered in the *Oregon Natural Hazards Mitigation Plan (NHMP)*.

<sup>2</sup> In future iterations of Oregon's THIRA, we can break this into more discrete sub-hazards including nuclear incidents (in Oregon, these would be mostly transportation related), explosions, etc.

<sup>3</sup> For future assessments, this should be broken into various component pieces that range from those that affect a fairly small area to those that can affect an entire region of the state, then conduct the THIRA analysis on those components that affected larger and more developed areas.

<sup>4</sup> In terms of fatalities and impacts to Oregon, a serious human disease outbreak (epidemic/pandemic) may rank high on the list of hazards to consider in future threat and hazard assessments.

<sup>5</sup> In OHIRA, there is mention of "infestation" with regard to animal diseases.

## Threat and Hazard Description Statements

Threat/Hazard Group	Threat/Hazard Type
<b>Natural Hazard</b>	<b><i>Cascadia Subduction Zone Earthquake</i></b>
<p data-bbox="188 394 1252 426"><u>Cascadia Subduction Zone (CSZ) Earthquake – February 6, 2013, 9:41 a.m. PST<sup>6</sup></u></p> <p data-bbox="188 464 1419 625">On the morning of Wednesday, February 6 (winter conditions and generally not “tourist season,” but during school and business hours), a 9.0 magnitude earthquake occurs on the Cascadia Subduction Zone (CSZ) off the coast of Oregon. While the epicenter is approximately 50 miles west of Florence, Oregon, most of the previously locked plate boundary off of Oregon moves during this event.</p> <p data-bbox="188 663 1360 726">This earthquake produces intense ground shaking for more than four minutes, subsidence, liquefaction, and landslides. Many fires are ignited. A tsunami is also produced.<sup>7</sup></p> <p data-bbox="188 764 1365 894">Damage to structures results from the energy of shaking, and in many places due amplified shaking and ground displacement due to liquefaction, and loss of soil-bearing capacity, particularly in areas of liquefaction. Damage is also produced by landslides. Damaged structures include buildings, roads, bridges, and other infrastructure.</p> <p data-bbox="188 932 1284 963">Many people are killed directly by this event, and many others are injured or trapped.</p> <p data-bbox="188 1001 1198 1033">Aftershocks, some quite large, continue for months after the initial earthquake.</p>	

<sup>6</sup> A much longer and more in-depth version of this scenario is available upon request. This scenario borrows heavily from the following sources: Oregon’s *Cascadia Subduction Zone Catastrophic Response Plan*, September 2012; and the U.S. Department of Homeland Security, National Infrastructure Simulation and Analysis Center, Homeland Infrastructure Threat and Risk Analysis Center (HITRAC), Office of Infrastructure Protection, National Protection and Programs Directorate’s *Draft Analytical Baseline Study for the Cascadia Earthquake and Tsunami*, September 12, 2011.

The HITRAC study utilized the FEMA Multi-Hazard Loss Estimation Methodology of *Hazards United States* (HAZUS), which in turn built on a “Shake Map” generated by the U.S. Geological Survey (USGS) specifically for a 9.0 magnitude Cascadia event. This is an authoritative model of the ground shaking expected for a geologically plausible 9.0 magnitude earthquake. The HITRAC scenario does not account for additional impacts caused by aftershocks.

<sup>7</sup> The tsunami is not evaluated in this THIRA document. During future years of THIRA, OEM plans to conduct an analysis on secondary hazards that would be caused by this sort of CSZ earthquake, and that also occur independent of such a CSZ earthquake. For example, OEM plans to conduct a THIRA analysis on a tsunami consistent with the one that would be produced by this earthquake scenario in the near future, very likely during the 2013 THIRA. Other hazards in the *OEM THIRA Strategic Plan* that would likely be caused by such a CSZ earthquake event and are planned for analysis in the future include hazardous materials emergencies, and dam and levee damage or failure.

Threat/Hazard Group	Threat/Hazard Type
Threat (Adversarial, i.e., Human Caused Event)	<i>Multiple Improvised Explosive Devices</i>
<p><u>Improvised Explosive Device Events – December 5, 2013, 4:25 p.m. PST<sup>8</sup></u></p> <p>Late on the afternoon of Thursday, December 5, the Governor and other Oregon elected officials are gathered with several hundred members of the general public in Salem’s Capitol Rotunda for a ceremony marking the beginning of the holiday season. This event is to include the annual Capitol Building tree-lighting. A nearby university choir is singing when several improvised explosive devices (IEDs) detonate, filling the Rotunda with black smoke. The explosions immediately kill an estimated 20 people. Dozens more are injured. Among the injured are the Governor and several other state elected officials. Other participants are overcome by the smoke, and also require hospitalization.</p> <p>On the same afternoon, Eugene is hosting a large Christmas event in the downtown area. An estimated 1,000 people are gathered in a large city park and in surrounding areas.</p> <p>A band playing Christmas music is on a mobile stage which has attracted several hundred listeners. Surrounding the stage and scattered throughout the large park are vendors who have come to provide food and items for sale to the visitors. During a break in the music, the crowd hears many explosions from around the event occurring one after another. Forty people are initially killed, and over 150 more are injured.</p>	

<sup>8</sup> This is a fictitious event described only for the purposes of conducting the THIRA analysis on a plausible Oregon adversarial scenario.

## Desired Outcomes

	Core Capability	Desired Outcome
Common	Planning	<p>Maintain a current State of Oregon's Emergency Operations Plan and annexes as needed. A formal updated EOP is provided to FEMA every two years, as required.</p> <p>Maintain current other relevant state-level plans and annexes as needed on varying schedules, depending upon the agency or department that owns or assumes responsibility each.</p> <p>Maintain a current hazards and mitigation plan for the State of Oregon.</p> <p>Build a Threat and Hazard Identification and Risk Assessment (THIRA), as required.</p>
	Public Information and Warning	Clear, coordinated, relevant and accurate information is delivered, as appropriate, in a timely manner.
	Operational Coordination	Within 12 hours of the incident, required coordinated operational structure is established and maintained.
Prevention	Forensics and Attribution	Immediately following incident, evidence collection and analysis is prioritized and processed immediately following an incident(s) to assist in preventing initial or follow-on terrorist acts.
Prevention and Protection	Intelligence and Information Sharing	Relevant and actionable information and analysis is shared promptly with federal, state, local, and private partners with appropriate classified/unclassified products in accordance with established protocols.
	Interdiction and Disruption	100% of specific conveyances, cargo, and persons associated with an imminent threat to affected jurisdictions will be interdicted immediately, as appropriate.
	Screening, Search, and Detection	All targeted conveyances, cargo, and persons associated with an imminent terrorist threat will be screened using all means as immediately as possible.
Protection	Access Control and Identity Verification	Verification of identify to authorize, grant, or deny physical and cyber access to all affected or relevant locations, information and networks is ensured.
	Cybersecurity	All malicious activity targeted at critical infrastructure, key resources and networks detected and reported immediately.

	<b>Core Capability</b>	<b>Desired Outcome</b>
	Physical Protective Measures	People, structures, materials, products and systems of key operational activities and critical infrastructure sectors protected against any identified or perceived threat.
	Risk Management for Protection Programs and Activities	Risk assessments for all prioritized (and others as applicable) critical infrastructure and key resources (CI/KR) assets completed, as applicable to state level.
	Supply Chain Integrity and Security	100% of identified priority supply nodes, transit methods and materials secured.
<b>Mitigation</b>	Community Resilience	Risk mitigation plans for communities with highest risk through partnerships with whole community representatives implemented, as appropriate and applicable.
	Long-term Vulnerability Reduction	A measurable decrease in long-term vulnerability of critical infrastructures and systems and community features that pose an increased risk to a similar incident is achieved.
	Risk and Disaster Resilience Assessment	Identify, analyze and maintain a risk assessment that includes information about localized vulnerabilities and consequences for the State of Oregon.
	Threats and Hazard Identification	Identify the threats and hazards in collaboration with whole community partners and incorporate into analysis and planning processes in the State of Oregon.
<b>Response</b>	Critical Transportation	During the initial 72 hours of an incident, physical access established through appropriate transportation corridors and delivery of required resources in an effort to save lives and to meet the needs of disaster survivors.
	Environmental Response/Health Safety	During the initial 72 hours of an incident, appropriate organizations have begun to conduct health and safety assessments and disseminate guidance and resources, including the deployment of hazardous materials teams, to support environmental health and safety actions for response personnel and the affected population and area.
	Fatality Management Services	During the initial 72 hours of an incident, begin the conduct of operations to recover fatalities and begin to process deceased.
	Mass Care Services	During the initial 72 hours of an incident, required resources and capabilities are moved and delivered to meet the needs of disaster survivors, including individuals with access and functional needs and others who may be considered at-risk.

	<b>Core Capability</b>	<b>Desired Outcome</b>
		Requests for assistance on all mass care services, including shelter operations, pet recovery and reunification services are supported.
	Mass Search and Rescue Operations	During the initial 72 hours of an incident, search and rescue operations to locate and rescue persons in distress are conducted and continue until such a time as they are no longer necessary.
	On-Scene Security and Protection	During the initial 72 hours of an incident, local efforts and requests to establish a safe and secure environment for the affected areas are supported.
	Operational Communications	During the initial 72 hours of an incident, the capacity to communicate with response and recovery partners is ensured.
	Public and Private Services and Resources	Activate the State of Oregon Emergency Coordination Center to support local jurisdictions' requests for necessary resource assistance. Contact the Federal Emergency Management Agency Region 10 office and begin coordination in anticipation of federal assistance to the State of Oregon and its affected jurisdictions.
	Public Health and Medical Services	Within the first 72 hours, information gathering has begun on the status of public health and medical services statewide; activation of the State Public Health Agency's Operations Center (AOC) has occurred in order to support the development of a common operating picture for the public health and medical systems and coordinate public health and medical resource needs, deploy available resources to the most impacted areas possible.
	Situational Assessment	Immediately following an incident, procedures are implemented for gathering and dissemination of information, and distribution of Situation Reports to applicable federal, tribal, state, local and non-governmental organization partners.
<b>Response and Recovery</b>	Infrastructure Systems	Jurisdictional efforts are supported, as applicable, to decrease and stabilize immediate infrastructure threats to the affected population, to include survivors in the heavily-damaged zone, nearby communities that may be affected by cascading effects, and mass care support facilities and evacuation processing centers with a focus on life sustaining and congregate care services over the impact area to the affected population.
<b>Recovery</b>	Economic Recovery	Immediately following an incident, procedures for public assistance and individual assistance are implemented, together with other state-level activities related to economic recovery (short and long-term).

Core Capability	Desired Outcome
Health and Social Services	Immediately following an incident, local efforts are supported, as applicable, to begin actions necessary to restore basic health and social service functions.
Housing	Within 60 days, or the appropriate applicable time period following the incident, Oregon Housing and Community Services implements their state plan to assess preliminary housing impacts and needs, identify currently available options for temporary housing, and assist in the process of permanent housing.
Natural and Cultural Resources	As soon as possible after an incident, and when necessary, local and state efforts are supported to mitigate impacts, stabilize natural and cultural resources and identify relevant protocols and procedures to handle incident issues that fall into this capability.

## Estimated Impacts<sup>9</sup> Based on Threat and Hazard Descriptions

	Common			Prevention	Prevention/Protection		
	Planning	Public Information and Warning	Operational Coordination	Forensics and Attribution	Intelligence and Information Sharing	Interdiction and Disruption	Screening, Search and Detection
Earthquake	<p>Immediate reassignment of planning staff to incident-related work (routine work delayed)</p> <p>Activate Cascadia Subduction Zone Annex and State of Oregon's Emergency Operations Plan (EOP)</p> <p>Activation of Continuity of Operations Plans and relocation of ops</p> <p>Shortage of qualified planning personnel</p>	<p>Activation of State JIC; coordination with partners to ensure consistent and accurate dissemination of incident information</p> <p>Activation and utilization of appropriate and functioning warning systems (and/or support local efforts to utilize alternate warning systems due to disruptions of primary systems)</p> <p>Reassignment of PIOs to incident-related work (routine work delayed)</p>	<p>Activation of State of Oregon ECCs, AOCs and EOCs, as appropriate; utilization of OpsCenter for coordination of resource allocation; monitor Web EOC; Update and distribute consistent and timely Sit Reps</p> <p>Shortage of trained personnel to effectively staff shifts in ECCs, AOCs and EOCs</p> <p>Reassignment of relevant staff (routine work delayed) in order to staff ECC and tasks for response and recovery</p>	N/A	<p>Shortage of trained personnel to increase normal methods of information gathering in order to timely update and distribute state situation reports in each operational period.</p>	N/A	N/A

<sup>9</sup> At the state level, OEM's analysis of impacts does not include the impacts within the UASI jurisdictions. Because the UASI THIRA is a separate document which is also "rolled-up" into the *State Preparedness Report*, and because the UASI jurisdictions have also decided to conduct the THIRA analysis on a Cascadia Subduction Zone earthquake and IED events, the combined THIRAs will cover the full range of impacts to the state once, but only once, i.e., we are making a sincere effort to avoid double-counting.

<b>Multiple Improvised Explosives Devices</b>	Activate State of Oregon's Terrorist Annex (DOJ/TITAN Fusion Center)	Provide support for public information and warning	Reassignment of relevant staff (routine work delayed)	For a limited time, investigation of this event takes resources away from other ongoing investigations, which may make the state more vulnerable to other adversarial events.	Receive information and include appropriate situation details in State ECC situation reports	Provide support from the State ECC, as appropriate	Provide support from the State ECC, as appropriate
	Reassignment of fusion center personnel, if necessary (delay of routine work)	Cancel all public gatherings and events until further notice	All public gatherings and events canceled until further notice	Possible shortage of trained personnel due to immediate need for increase of force protection		Increase force protection measures	

	Protection					Mitigation			
	Access Control and Identity Verification	Cybersecurity	Physical Protective Measures	Risk Management for Protection Programs and Activities	Supply Chain Integrity and Security	Community Resilience	Long-term Vulnerability Reduction	Risk and Disaster Resilience Assessment	Threats and Hazards Identification
<b>Earthquake</b>	Shortfall of personnel, systems and money to ensure procedures are in place for access and I.D. verification in ECCs, EOCs, AOCs and other state-level MACS	N/A	N/A	Shortage of personnel to perform the necessary ATC-20 assessments and other related activities	Shortage of resources and limited or no access (damaged ports, railways, highways, pipelines and other critical resource pathways)	Estimated over 1,000,000 households impacted west of Cascades (includes UASI region)  An undetermined amount of businesses and financial institutions impacted (moderate damaged or destroyed)	Shortfall in funding necessary to perform seismic retrofitting of schools, public safety centers and organizations, bridges, residential foundation	Shortage of resources to appropriately retrofit schools, building and other infrastructures statewide.	Shortage of resources and personnel to comprehensively perform assessments and identification activities

Multiple IED	Ensure procedures are in place for access and I.D. verification in ECCs, EOCs, AOCs and other state-level MACS (may be N/A for multiple IED incident since these events are localized and shorter in duration and recovery)	IT professionals reassigned (deviating from regular work) to ensure the protection of state systems and ensure protocols are followed	Coordinate with other state and federal partners to support resources needed to control site access, active vehicle screening, and other missions, as appropriate	Support and process requests in relation to health assessments and personnel shortages	N/A	Impact to general public's sense of safety and security, including individual, family, and neighborhood efforts to develop resilience.	These events impacts to community infrastructure (Capitol Building and Eugene downtown area) and lifelines (EMS) is dramatic; low likelihood events have occurred with significant severity. This, in turn, impacts public venue vulnerability reduction efforts, leading to more stringent security measures.	Due to these events, the risk of IEDs at similar public venues is considered greater and existing resilience to them lower.	These events lead to a "re-thinking" of the probability and possible magnitude of adversarial threat events at public venues in the Willamette Valley, in turn affecting preparedness for such events.
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		Response						
		Critical Transportation	Environmental Response/ Health and Safety	Fatality Management Services	Mass Care	Mass Search and Rescue Operations	On-Scene Security and Protection	Operational Communications
Earthquake	<p>Most highways West of Cascades are damaged, destroyed or impassible</p> <p>Large portion of bridges West of Cascades are damaged or destroyed</p> <p>Impassible and collapsed tunnels; damaged and destroyed railways and airport runways</p>	<p>50% or more fuel pumps damaged and leaking. 50% or more sewage facilities damaged and spilling into environment.</p> <p>An unknown number of chemical fires burning, and unknown tonnage of debris, including hazardous, is widespread.</p>	<p>550--plus fatalities not including the UASI region in Oregon. (HITRAC study estimates for deaths in Oregon after a CSZ incident seems very low considering the magnitude and scope of this scenario)</p>	<p>Over 400,000 people in need of short term sheltering post disaster (this does not include Oregon's UASI area. Total state estimation is 504,378 people)</p> <p>303,838 pets in need of shelter (entire state estimation)</p> <p>Nearly 100,000 estimated to be special needs populations and vulnerable populations</p> <p>Several hundred thousand without potable water initially</p> <p>Competing priorities make resource ordering and receiving difficult as allocated by the state level for all mass care needs post disaster</p>	<p>Shortage of personnel and resources available for necessary search and rescue operations (competing priorities and massive, immediate need for SAR)</p> <p>Possible shortage of federal resources (SAR teams) specializing in coastal terrain to assist Oregon's coastline area</p> <p>Access issues (ingress/egress to heavily impacted areas) due to downed bridges and impassible roadways</p>	<p>Shortage of trained personnel to provide state support for security and protection</p> <p>Possible delays in trained backup personnel requested from other states to provide assistance</p>	<p>Communications down. Damage to towers, satellite receivers, ISPs and other communications systems.</p> <p>State to coordinate and deploy assets and resources in support of those jurisdictions requesting assistance</p>	
	Multiple IED	N/A	<p>May be local shortage of resources; localities will need to request state level LE involvement to ensure safety of responders, if needed as additional resource</p>	<p>60 dead initially from explosions (between both Salem and Eugene locations)</p>	N/A	N/A	<p>Shortage of local trained personnel will trigger requests for mutual aid</p>	<p>N/A since incidents are localized, and backup systems are local as well</p>

	Response			Response/Recovery	Recovery			
	Public and Private Services and Resources	Public Health and Medical Services	Situational Assessment	Infrastructure Systems	Economic Recovery	Health and Social Services	Housing	Natural and Cultural Resources
Earthquake	<p>50% of hospitals, critical care and other medical facilities damaged or destroyed; 30% of fire stations, police stations and other critical facilities damaged or destroyed in affected areas.</p> <p>An undetermined number of people (estimated 300,000-plus) without water and power.</p> <p>Access problems delivering critical resources to affected areas because of debris and damaged roadways and bridges.</p>	<p>Support requests for over 10,273 injured patients requiring medical care (estimate is from HITRAC Analysis and does not include Oregon's UASI region)</p> <p>Support requests for potable water, sanitation and over 25 shelters in Oregon (including coastal regions, but not including Oregon UASI area)</p> <p>Support requests relevant to debris removal that blocks access to medical care and other critical care facilities, points of distribution and shelters.</p> <p>Support requests for damaged roadways, airports and other that prevents EMS response</p>	<p>Normal methods of conducting situation assessments not functioning. Turn to nontraditional ways of assessing (air assessments, et cetera)</p> <p>Limited situation assessment initially to keep leadership informed of situational status (lack of available, trained personnel and commo)</p>	<p>Estimations of all infrastructure unknown (included in Economic Recovery section's estimation of total damages)</p> <p>Competing priorities and difficulty locating and allocating resources to assist response efforts</p> <p>Limited resources and delayed times to support requests for resources necessary to respond to massive and widespread infrastructure damage</p> <p>Shortfall of insurance and recovery loan funds due to extent of damage and need</p>	<p>An estimated \$15-30 billion in damages.</p> <p>Competing priorities and difficult locating adequate resources to assist with initiating the recovery phase</p> <p>Extensive and delayed recovery times due to limited access initially (routes into coastal areas damaged and destroyed) as well as competing priorities for necessary resources</p>	<p>Extensive interruption of traditional resource distribution and information sharing regularly done through health systems and networks</p> <p>Provide support for health care (including behavioral health) shortages as requested</p> <p>Bring state systems back online as soon as possible</p>	<p>Estimated over 200,000 homes damaged or destroyed</p> <p>Extensive shortage of disaster housing available to hundreds of thousands of displaced Oregonians</p> <p>Possible shortage of federal assistance to assist with housing (massive incident affecting many states)</p>	<p>Damage assessments for natural and cultural sites required</p> <p>Damage or destruction of historically significant locations</p>

Multiple IED	N/A	Overwhelm of local hospitals and EMS responders	Normal methods of conducting situation assessments not functioning. Turn to nontraditional ways of assessing (air assessments, etc.)	N/A	Costly to responding agencies and public buildings or areas, but N/A as far as "big picture" economic disruption	Area hospitals overwhelmed with incoming patients, shortage of beds and hospital staff	N/A	N/A
		Request mutual aid on initial response; transport to out of area hospitals; overwhelm of intake at hospitals and morgues	Possibly delays in keeping leadership informed of situational status on scene			State provide assistance to affected jurisdictions, if requested		

## Capability Targets

	Core Capability	Desired Outcome
Common	Planning	Update and maintain the State of Oregon's EOP and its relevant annexes at least every two years. Update and maintain continuity of plans and annexes. Update and maintain all state terrorism annexes. Ensure staff at each involved state agency or personnel working in the State Emergency Coordination Center (ECC) maintain and appropriate level of training on each plan and process.
	Greatest Estimated Impacts: <b>EQ:</b> Regular planning projects on hold; qualified staff reassigned to support incident <b>IED:</b> Diminished capability for regular planning functions in aftermath of incident.	
	<b>Capability Target: Maintain effective, up-to-date plans that provide comprehensive information regarding the response to catastrophic and localized incidents.</b>	
	Public Warning and Information	Receive, coordinate, confirm and provide accurate in a timely manner. Support local jurisdictions in requests for assistance.
	Greatest Estimated Impacts: <b>EQ:</b> Initial overwhelm to warning systems, or entire failure of warning systems; slow recovery depending upon availability of backup resources and location of those resources; initial communications failures making timely and accurate warning and information to public very difficult; state public information officers activate the JIC and staff 24-7 in support of incident; State of Oregon would need backfill for PIOs to ensure continuity of flow of accurate and timely information. <b>IED:</b> Increase in public warnings in aftermath of incident stresses public information officers at state level responsible to coordinate public messaging and information.	
<b>Capability Target: Provide timely and accurate information to populations within first 24 hours of event using normal or alternate systems and methods of information delivery.</b>		

	Operational Coordination	Activate State ECC as immediately as possible following the incident. Establish, maintain and coordinate an operational structure and process to support requests from local jurisdictions. Notify FEMA of incident and begin process to receive federal assistance on behalf of Oregon.
	Greatest Estimated Impacts: <b>EQ:</b> Operational coordination capacity overwhelmed. Emergency Operations Centers and Emergency Coordination Center's fully activated and staffed 24-7, creating a need for additional trained personnel to assist with staffing. <b>IED:</b> Disruption of routine work in order to provide and effective and immediate response to IED incidents, and support agencies involved with that response.	
	<b>Capability Target: Trained backup personnel and other agency staff to backfill key positions at operations and coordination centers at state level to ensure continuity following a catastrophic and/or localized incident that requires 24-7 operations for an extended period of time.</b>	
Prevention	Forensics and Attribution	Support local jurisdictions, as appropriate. Assist in the prioritization of evidence collection and analysis to assist in preventing initial or follow-up attacks.
	Greatest Estimated Impacts: <b>EQ: N/A</b> <b>IED:</b> Attribution of recurring attacks to source; develop counter options in order to prevent further attacks.	
	<b>Capability Target: Systems in place for the prioritization of physical evidence, analysis and other intelligence gathering in order to effectively respond to terrorist incidents.</b>	
Prevention and Protection	Intelligence and Information Sharing	Support requests from local jurisdictions. Receive information and publish sit stat in sit reps, as appropriate, to ensure consistency and accuracy in the sharing of information.
	Greatest Estimated Impacts: <b>EQ:</b> N/A <b>IED:</b> Decreased communications capabilities at the incident site may occur, slowing the process of information sharing. Intel process likely not disrupted except initially, as dependent upon local communications.	
	<b>Capability Target: Use of intelligence process to identify and address emerging threats. Provide for timely and accurate information sharing, as appropriate.</b>	

Interdiction and Disruption	Support local jurisdictions by coordination of any requested resources. DOJ/Fusion and OSP interdiction of any conveyances, cargo and persons associated with further imminent threat to the State of Oregon or its jurisdictions.
Greatest Estimated Impacts: <b>EQ:</b> N/A <b>IED:</b> Resource support process disrupted and may be overwhelmed initially, considering multiple locations involved and possibility of IEDs in other locations not yet known.	
<b>Capability Target: Interdiction and disruption of future incidents by canceling public gatherings around Oregon of all conveyances with a potential threat.</b>	
Screening, Search, and Detection	The identification, discovery, or locating further imminent threats to public gatherings and scheduled events.
Greatest Estimated Impacts: <b>EQ:</b> N/A <b>IED:</b> Disruption of routine services, reassignment of primary responsibilities following incident.	
<b>Capability Target: Conduct activities to interdict and disrupt future incidents and eliminate additional threats.</b>	

Protection	Access Control and Identity Verification	All agencies ensure 100% verification of identify to authorize, grant or deny physical and/or cyber access to specific locations and/or networks and systems. Access to IED incident locations restricted to authorized response personnel, law enforcement and FBI personnel. Support requests for local assistance, as appropriate.
	<p>Greatest Estimated Impacts:</p> <p><b>EQ:</b> Systems and card readers nonfunctional initially; access control and credentialing systems needed for arriving responders, mutual aid partners and volunteers inaccessible or nonfunctional.</p> <p><b>IED:</b> Set up enhanced security on scene to support access to hot zone; initialize procedures to verify identity of responders arriving on scene.</p>	
	<p><b>Capability Target: Implement and maintain protocols to verify identity and authorize, grant, or deny physical and/or cyber access to specific locations, information and networks. Enhance security for access control and identity verification relevant to IED incidents.</b></p>	
	Cybersecurity	Protect against damage to, the unauthorized use of, and/or the exploitation of (and, if needed, the restoration of) electronic communications systems and services (and the information contained therein).
	<p>Greatest Estimated Impacts:</p> <p><b>EQ:</b> N/A to this incident other than routine monitoring and maintenance of networks and systems.</p> <p><b>IED:</b> N/A to this incident other than routine monitoring and maintenance of networks and systems.</p>	
	<p><b>Capability Target: Ensure the survivorship, maintenance and continuity of security of networks and systems following a catastrophic incident.</b></p>	
	Physical Protective Measures	Support local jurisdictions, as appropriate, to protect people, structures, materials, products and systems of key operational activities and critical infrastructure sectors against an identified or perceived threat.
	<p>Greatest Estimated Impacts:</p> <p><b>EQ:</b> As networks and systems fail following this catastrophic incident, physical protective measures are deteriorated or diminished until systems return to a functional status.</p> <p><b>IED:</b> Heightened concern and fear among Oregon citizens regarding the safety of people and property; immediate overwhelm of resources needed at local incident sites; integration of local and state responders and operations and coordination centers with FBI; public information coordination through state JIC regarding physical protective measures enhanced.</p>	
<p><b>Capability Target: Support operations of responsible entities for the implementation and maintenance of risk-informed physical protections, countermeasures, and policies protecting people, structures, materials, products, and systems associated with key operational activities and critical infrastructure sectors by processing and assisting with resource requests at the state level, and additional response, as appropriate.</b></p>		

	Risk Management for Protection Programs and Activities	Identify, assess, and prioritize risks to inform protection activities and investments.
	Greatest Estimated Impacts: <b>EQ:</b> N/A <b>IED:</b> Personnel associated with identification and assessment of risk, especially as additional threats may exist in other locations, overwhelmed by simultaneous IED incidents.	
	<b>Capability Target: Identify, assess and prioritize 100% of potential risks at all potential alternate locations for other potential IED incidents.</b>	
	Supply Chain Integrity and Security	Support requests from local jurisdictions to ensure the security of all priority supply nodes, transit methods, and materials (incoming and outgoing).
	Greatest Estimated Impacts: <b>EQ:</b> Deterioration of stored products requiring refrigeration and storage that is dependent upon electricity or may have been compromised by contaminants released as a result of the earthquake or aftershocks. <b>IED:</b> N/A	
	<b>Capability Target: Ensure the delivery of information to inform decision making within and outside the affected impact areas to meet basic human needs and begin incident stabilization and recovery.</b>	
<b>Mitigation</b>	Community Resilience	Assist communities to achieve the ability to conduct activities and planning to mitigate risk from a Cascadia Subduction Zone earthquake.
	Greatest Estimated Impacts: <b>EQ:</b> Estimated over 1,100,000 households impacted west of cascades; estimated over 1,000 businesses damaged and without power or nonfunctional. <b>IED:</b> N/A	
	<b>Capability Target: Facilitate partnership among all levels of government, Tribal, NGOs and private entities; support affected communities in development and maintenance of mitigation plans; provide training and information on risks and threats, to include resiliency priorities.</b>	
	Long-term Vulnerability Reduction	Build and sustain resilient systems, communities, and critical infrastructure and key resources lifelines so as to reduce their vulnerability to natural, technological, and human-caused incidents by lessening the likelihood, severity, and duration of the adverse consequences related to these incidents.
	Greatest Estimated Impacts: <b>EQ:</b> Great financial impact to retrofit buildings, schools and infrastructure to reduce and mitigate damage inland and along 296 miles of Oregon coastline. <b>IED:</b> N/A	
	<b>Capability Target: Ensure plans are maintained to mitigate and support efforts to decrease the long-term effects of human and man-made incidents on the whole community and update or develop vulnerability studies within 2 years of incident.</b>	

	Risk and Disaster Resilience Assessment	Assess risk and disaster resilience so that decision makers, responders, and community members can take informed action to reduce their entity's risk and increase their resilience.
	Greatest Estimated Impacts: <b>EQ:</b> Financial shortfalls related to the need to retrofit schools, buildings and other infrastructure statewide. <b>IED:</b> N/A	
	<b>Capability Target: Complete a statewide risk assessment or THIRA and develop a strategic plan to address gaps over an undetermined number of years.</b>	
	Threats and Hazard Identification	Identify the threats and hazards for Oregon; determine the frequency and magnitude; and incorporate that information into analysis and planning processes.
	Greatest Estimated Impacts: <b>EQ:</b> Strain on staff responsible for project due to personnel and financial shortages statewide. <b>IED:</b> Strain on staff responsible for project due to personnel and financial shortages statewide.	
	<b>Capability Target: Identify threats and hazards by maintaining the state OHIRA, and participating in THIRA, when required.</b>	
Response	Critical Transportation	Support requests for transportation (including infrastructure access and accessible transportation services) for response priority objectives, including the evacuation of people and animals, and the delivery of vital response personnel, equipment, and services into the affected areas.
	Greatest Estimated Impacts: <b>EQ:</b> Moderate to severe damage to bridges; roadways; highways; tunnels; ferries; ports; airports and other infrastructure. Some communities isolated due to ingress/egress issues and debris. Widespread transportation issues in West of Cascades and coastal. <b>IED:</b> Overwhelm at local level near incident site for transport of victims; ingress/egress closed for safety reasons causing reroutes causing traffic issues in local area.	
	<b>Capability Target: Provide support for physical access restoration so that resources can be delivered to ensure basic human needs are met and incident is stabilized as immediately following the incident as possible.</b>	

<p>Environmental Response/Health and Safety</p>	<p>Ensure the availability of guidance and resources to address all hazards including hazardous materials, acts of terrorism, and natural disasters in support of the responder operations and the affected communities.</p>
<p>Greatest Estimated Impacts:  <b>EQ:</b> Moderate damage to chemical and other manufacturing facilities; 8 Million-plus tons of debris; water and wastewater facilities damaged or destroyed; contamination to drinking water and immediate shortage of potable water; petroleum pipeline possibly damaged causing cascading effects (fire, explosions or inhalation hazards); mass fatalities with no access to process initially; infectious disease within 72 hours due to hazardous and waste/sewage present; ammonia and other releases into environment.  <b>IED:</b> Possible shortage of personnel trained to respond in local areas that can ensure safety of responders.</p>	
<p><b>Capability Target: Support efforts to reduce human exposures to contaminated food, air, water, solid waste/debris, hazardous waste, vegetation, sediments and vectors and protect the public, environment and response personnel.</b></p>	
<p>Fatality Management Services</p>	<p>Work with appropriate authorities to provide fatality management services and support efforts for the provision of temporary mortuary solutions. Share information, as appropriate, with mass care services for the purpose of reunifying family members and caregivers with missing persons/remains, and providing counseling to the bereaved.</p>
<p>Greatest Estimated Impacts:  <b>EQ:</b> An estimated 674-plus fatalities in Oregon (number is taken from Baseline Study for Cascadia EQ, but estimates are considered low) quickly overwhelming all jurisdictions' ability to manage mass fatalities in relation to this incident.  <b>IED:</b> Initially, 55 people are killed between two incident locations.</p>	
<p><b>Capability Target: Establish, maintain and/or support operations to recover fatalities and ensure a process is established to process, store and reunify remains of deceased.</b></p>	
<p>Mass Care Services</p>	<p>Provide life-sustaining services to the affected population and/or support actions that provide life-sustaining services with a focus on hydration, feeding, and sheltering to those who have the most need, as well as support for reunifying families.</p>
<p>Greatest Estimated Impacts:  <b>EQ:</b> Estimated 504,000 Oregonians in need of immediate, short term sheltering with an additional 303,000-plus pets in need of sheltering; unknown number of shelter locations damaged during initial quake; shortage of food and potable water for mass care; access and functional needs up to 100,000-plus including disaster and non-disaster related; inability to transport lifeline services to affected populations; widespread, extensive and overwhelming medical care needs and inability to deliver necessary resources to affected populations (because of analyses available, UASI included in these estimations).  <b>IED:</b> N/A</p>	
<p><b>Capability Target: Establish, maintain and/or support operations to activate and provide for mass care services.</b></p>	

<p>Mass Search and Rescue Operations</p>	<p>Deliver traditional and atypical search and rescue capabilities, including personnel, services, animals, and assets to survivors in need, with the goal of saving the greatest number of endangered lives in the shortest time possible.</p>
<p>Greatest Estimated Impacts:  <b>EQ:</b> Limited access for ground and air assets to severely impacted areas; environmental hazards for SAR teams; marine SAR operations impeded because of debris in waterways; buildings with severe or total damage widespread.  <b>IED:</b> N/A</p>	
<p><b>Capability Target: Activation of ESF-9 and provision of any and all appropriate support to ensure SAR operations begin immediately following incident.</b></p>	
<p>On-Scene Security and Protection</p>	<p>Support local jurisdictions and enact state policies and procedures to ensure the safe establishment of incident area and surrounding areas.</p>
<p>Greatest Estimated Impacts  <b>EQ:</b> Capability could come into play with looting or other criminal activity that follows a catastrophic earthquake, in particular those many locations where no law enforcement is present and people are desperate for food, water or assistance.  <b>IED:</b> Ingress and egress from incident site not accessible immediately following incident (crime scene); local responders and safety personnel overwhelmed due to the need for immediate, heightened security needs.</p>	
<p><b>Capability Target: Provide for or support actions that establish a safe and secure environment in affected areas, to include on-scene security and actions that mitigate further risk or damage to persons, property or the environment.</b></p>	
<p>Operational Communications</p>	<p>Immediately following incident, establish interoperable voice and data communications and ensure communications systems or alternate systems are functioning or begin the process for repairs so they will become operational as soon as possible.</p>
<p>Greatest Estimated Impacts:  <b>EQ:</b> Communications infrastructure moderately to severely or totally damaged; undersea fiber-optic cables damages or completely severed; underground cables severed or damaged; damaged or destroyed mobile switching centers; shortage of communication backup trailers and trucks; limited access to communications west of cascades and coastal regions.  <b>IED:</b> Possibly initial overwhelm of 9-1-1 call takers and area PSAPs.</p>	
<p><b>Capability Target: Establish effective communications and take action or support actions to repair and/or rebuild failed communications infrastructure.</b></p>	

	Public and Private Services and Resources	Provide (or support the provision of) essential public and private services and resources to the affected population and surrounding communities, to include emergency power to critical facilities, fuel support for emergency responders, and access to community staples (e.g., grocery stores, pharmacies, and banks) and fire and other first response services.
	Greatest Estimated Impacts: EQ: Damage to communications facilities; airports; hospitals; nursing homes; waste water facilities; fire and police stations; EOC locations; power generation facilities and other critical infrastructure necessitating a large amount of assistance from public and private services. IED: N/A	
	<b>Capability Target: Provide for and coordinate or support the provision and coordination of private sector resources to benefit affected and other populations in order to meet the basic human needs of disaster survivors.</b>	
	Public Health and Medical Services	Support public health and medical services in coordinating resource requests and restoring the systems.
	Greatest Estimated Impacts: EQ: Severe impact to the public health and medical systems along western border and extending into the I-5 corridor. Significant physical infrastructure damage that will impact the ability of public health and medical services. The public health and medical services system that is function within the state will be working to provide any support that they are able. IED: Severe localized short-term impact to the medical system. Public health system will assist with coordination of resources for patient movement and maintain public health and medical situational awareness.	
	<b>Capability Target: Within first 72 hours, gather information on status of public health and medical services statewide; activate the AOC to support the development of a common operating picture and coordinate public health and medical resource needs; deploy available resources to the most impacted areas.</b>	
	Situational Assessment	Provide decision makers with situation assessment regarding incident, cascading effects and response status.
	Greatest Estimated Impacts: EQ: N/A – routine in any incident IED: N/A – routine in any incident	
	<b>Capability Target: Ensure sufficient incident-related information is timely and accurately given to decision makers.</b>	
Response and Recovery	Infrastructure Systems	Stabilize critical infrastructure functions, minimize health and safety threats, and efficiently restore and revitalize systems and services to support a viable, resilient whole community.
	Greatest Estimated Impacts: EQ: Damage to infrastructure for oil, gas, electric, telecommunications, drinking water, wastewater, and transportable services. IED: N/A	
	<b>Capability Target: Immediately following incident, begin to assess damage to critical infrastructure/key resources and implement or support the implementation of actions to decrease and stabilize further threats to infrastructure and resources that may be caused by cascading affects.</b>	

Recovery	Economic Recovery	Return economic and business activities (including food and agriculture) to a healthy state and develop new business and employment opportunities that result in a sustainable and economically viable community.
	Greatest Estimated Impacts: <b>EQ:</b> Immediate and widespread decrease in revenue generation because of affected businesses, utility companies and other entities that sustain the economic level. <b>IED:</b> Diminished funding to responding and impacted jurisdictions who pay for services that support victims of criminal incidents as well as diminished resources used in response and recovery of these incidents.	
	<b>Capability Target: Develop and maintain comprehensive recovery and mitigation plans that incorporate economic revitalization and removes governmental inhibitors to post-disaster economic sustainability; support actions that return the affected jurisdictions to a sustainable, healthy economic and pre-disaster level.</b>	
	Health and Social Services	Receive and process requests from local jurisdictions to support the restoration of health and social services functions to the affected areas of Oregon.
	Greatest Estimated Impacts: <b>EQ:</b> Diminished basic health and social services systems and networks leading to a lessened well-being of the whole community. <b>IED:</b> N/A	
	<b>Capability Target: Support actions that restore basic health and social service functions that lend to short-term and long-term recovery.</b>	
	Housing	Support the implementation of housing solutions which support the needs of the whole community and contribute to its sustainability and resilience.
	Greatest Estimated Impacts: <b>EQ:</b> Estimated 100,000-plus homes damaged or destroyed in the initial impact areas (minus Oregon's UASI area) <b>IED:</b> N/A	
	<b>Capability Target: Conduct initial damage assessments on 100% of affected homes and support the implementation of alternative housing solutions, including the establishment of shelters statewide.</b>	
	Natural and Cultural Resources	Support the processes of protecting natural and cultural resources and historic properties in order to preserve, conserve, rehabilitate and restore them consistent with post-disaster community priorities and best practices and in compliance with appropriate environmental and historical preservation laws and executive orders.
Greatest Estimated Impacts: <b>EQ:</b> Normal processes for preservation and handling of natural and cultural resources may be stressed or nonexistent initially due to the absence of regular personnel or other diminished resources. <b>IED:</b> N/A		
<b>Capability Target: Provide requested technical information and support to ensure compliance with appropriate environmental and historic preservation laws during the response and recovery phases.</b>		