State of Oregon

The State Must Do More to Prepare Oregon for a Catastrophic Disaster

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Secretary of State
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Report 2018 – 03

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Report Highlights

Oregon is at risk of a major Cascadia earthquake and tsunami that will threaten infrastructure, cost potentially billions of dollars, and result in numerous deaths. The state must do more to prepare for such a disaster, including completing and implementing critical plans, fulfilling minimum standards for an effective emergency management program, and adequately staffing the agency charged with coordinating emergency management efforts.

Background

The emergency management system encompasses local governments and almost all of state government. The Office of Emergency Management (OEM) is charged with coordinating Oregon's emergency management efforts, including mitigation, preparedness, response, and recovery.

Purpose

The purpose of this audit was to determine the status of state agency and local emergency management efforts to prepare for a catastrophic event, such as a Cascadia earthquake and tsunami.

Key Findings

1. Oregon does not meet key emergency management program standards. These national baseline standards are a tool to strengthen preparedness and response, demonstrate accountability, and identify resource needs.
2. Planning efforts across all levels of Oregon's emergency management system are lacking. Critical continuity plans that ensure functional government services in the wake of a disaster are either missing or incomplete. Additionally, insufficient staff resources put the state at risk of losing potentially millions of dollars in federal grant funding for future disasters.
3. Current statewide staffing is inadequate to reduce Oregon's vulnerability to disasters. OEM in particular is understaffed, despite repeated budget requests to the Legislature, which inhibits the agency's capacity to coordinate emergency management efforts in the state.
4. More accountability, such as public reporting and tracking, is needed to ensure progress on long-term resilience goals and projects and to enhance public awareness.

To reach our findings, we conducted a survey of state agencies and local emergency management programs. We also interviewed staff at OEM, other executive branch agencies, and the legislative and judicial branches of state government. We researched programs in other states and assessed emergency management program standards.

Recommendations

This audit includes 11 recommendations, five to OEM and six to the Governor's Office. These recommendations include such actions as completing, implementing, and exercising emergency and continuity plans; meeting minimum emergency management program standards; reporting on efforts to improve state resilience; defining roles and responsibilities and assessing and filling resource gaps.

OEM agreed with all the recommendations we made to them. The Governor's Office agreed with all but one of our recommendations. That recommendation, they believe they have already implemented. Both OEM and the Governor's Office's responses can be found at the end of the report.

Secretary of State, Dennis Richardson
Oregon Audits Division, Kip Memmott, Director

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We sincerely appreciate the courtesies and cooperation extended by officials and employees of the Office of Emergency Management during the course of this audit.

The State Must Do More to Prepare Oregon for a Catastrophic Disaster

Introduction

Oregon is vulnerable to a Cascadia earthquake and tsunami that is expected to have deadly and catastrophic consequences throughout the region, in addition to recurring disasters such as wildfires and flooding. The state's emergency management system, coordinated through the Office of Emergency Management (OEM), must be prepared to respond to such events.

However, our audit found the state lacks key elements needed for an effective emergency management program. The agency charged with coordinating the state's response and preparedness efforts, OEM, is understaffed and lacks the capacity to fully execute its role.

These deficiencies must be addressed to strengthen Oregon's preparedness and ensure the state's ability to effectively function during and after a catastrophic event.

Oregon faces a range of disasters, from recurring storms to catastrophic events

Defining an emergency
Oregon Revised Statute (ORS 401.025) defines an emergency as a human-created or natural event or circumstance that causes or threatens widespread loss of life, injury to person or property, human suffering, or financial loss.

Emergencies are unpredictable. They are inevitable. They do not adhere to state or county boundaries. They can manifest as fires, explosions, floods, severe weather, landslides, drought, earthquakes, volcanic activity, tsunamis, disease, contamination, hazardous material spills, or even acts of terrorism and war.

In 2017 alone, the United States endured hurricanes in Florida, Texas, and Puerto Rico; devastating wildfires in California and Oregon; and the deadliest mass shooting in modern history at a music festival in Las Vegas.

Oregon is at risk from a wide range of disasters. Many of them are recurring, meaning they occur on a semi-regular basis. Recurring disasters include localized flooding and most of the wildfires we experience each summer.

More serious than these recurring disasters are catastrophic disasters — events that overwhelm the existing system and exceed our available resources and capacity. A catastrophic disaster may be a volcanic eruption or a major act of terrorism that threatens thousands of lives.

Figure 1: The Cascadia Subduction Zone Stretches From California to Canada

Source: FEMA / Photo by Mustafa Lazkani

> Ninety percent of Oregon's population of nearly 4 million people will be directly affected by a Cascadia earthquake and tsunami.
> *- Oregon Department of Geology and Mineral Industries in 2012*

One of the most well-publicized risks is from a 9.0 magnitude earthquake along the entire 700-mile Cascadia Subduction Zone with subsequent tsunamis and aftershocks. This event is predicted to destroy transportation and fuel infrastructure across the Pacific Northwest, cost Oregon more than $30 billion in direct and economic losses, and result in anywhere from 1,250 to more than 10,000 deaths.[1]

There is no way to prevent such an event from happening. Yet with effective emergency management, government officials can take action in advance to minimize the damage.

Emergency management is an ongoing cycle of mitigating risk, planning, responding, and recovering

It is helpful to think about emergency management as experts do, in four areas: mitigation, preparedness, response, and recovery.

- Mitigation are actions taken to prevent future emergencies or minimize their effects. An example of a mitigation activity is purchasing flood insurance or seismically retrofitting a building.
- Preparedness means being ready to handle an emergency. Preparedness activities include developing plans, training personnel and officials, and

[1] Oregon Resilience Plan, 2013.

conducting exercises (referred to generally throughout this report as planning, training, and exercising).

- Response means safely and effectively reacting to an emergency. Response includes actions taken to save lives and prevent further damage in an emergency situation.
- Recovery are actions taken to return to normal, or an even safer situation, following an emergency.

Figure 2: The Four Phases of Emergency Management Operate as a Cycle

EMAP Standards
The EMAP standards include 11 program elements, which are:

1. Hazard Identification, Risk Assessment, and Consequence Analysis
2. Hazard Mitigation
3. Prevention
4. Operational Planning and Procedures
5. Incident Management
6. Resource Management, Mutual Aid, and Logistics
7. Communications and Warning
8. Facilities
9. Training
10. Exercises, Evaluations, and Corrective Actions
11. Emergency Public Information and Education

These efforts are a cycle, with each phase overlapping with and feeding into the next. Mitigation leads into preparedness before a disaster, which feeds into the response during and the recovery after the fact, which cycles back into mitigation for the next disaster.

EMAP establishes standards for emergency management programs

Emergency managers nationwide established a set of standards that are considered the minimum acceptable performance criteria for programs. These standards are part of a process called the Emergency Management Accreditation Program.

EMAP is a voluntary tool to help emergency management programs nationwide foster excellence and accountability through a set of 64 standards.[2]

Entities that meet all 64 standards can opt to have their programs formally accredited. Currently, 32 states and the District of Columbia are EMAP accredited. Counties, cities, federal programs, and even universities can also become accredited.

[2] For a complete list of all 64 standards, see EMAP's website: https://www.emap.org/index.php.

Accreditation is valid for five years, during which time the program is expected to maintain compliance with the standards. Programs can become re-accredited once the five years is up. Most of the accredited states[3] have already been accredited multiple times.

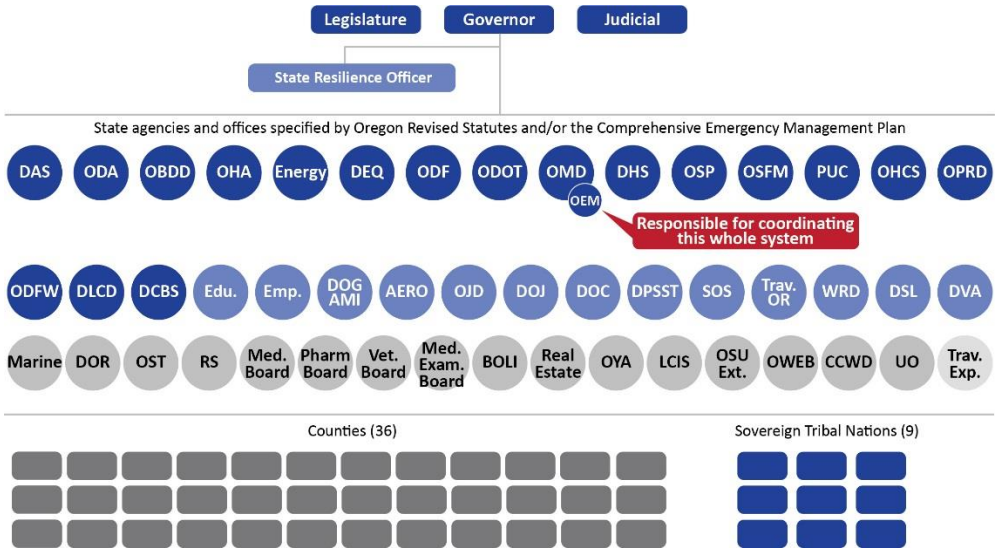
Oregon's emergency management system involves all levels of government

Emergency preparedness and response begins at the local level. Counties are initially responsible for the disasters that happen within their own borders. When disasters spread across multiple counties, or exceed an individual county's response capacity, the state is responsible for stepping in to assist.

Similarly, disasters that span multiple states or exceed one state's ability to respond trigger the involvement of the federal government or other states. For this reason, large-scale disasters require a coordinated response from the local level all the way up to the federal level. This often involves the Federal Emergency Management Agency, or FEMA.

Oregon's emergency management system is more than one agency. It spans across all agencies and organizations involved in the coordinated delivery of emergency services, including: cities, tribal nations, all 36 counties, several dozen state agencies covering all three branches of government, and non-government entities like the American Red Cross.

Figure 3: Oregon's Emergency Management System Spans All of State Government[4]



[3] Twenty-six out of the 32 accredited states have been accredited multiple times.
[4] For a larger and more detailed diagram of the system, see Appendix B.

State Agency Color Codes	Definition
	Agencies with one or more primary roles in the emergency response or recovery functions. These agencies may also have support roles.
	Agencies with support roles in the emergency response or recovery functions.
	Agencies with support roles in the emergency recovery functions only.
	Agency has no primary or secondary role in the response or recovery functions.

The Governor serves a key leadership role in the emergency management system

Per statute,[5] the Governor is responsible for the emergency management system within the state of Oregon. The leadership of the office is crucial to ensure adequate resources are in place for preparing and responding to state emergencies.

The Office of the Governor has the unique authority to ensure specific actions are taken. This includes directing state agencies to complete and implement critical planning efforts, tracking actions and budget items that cross multiple agencies, and leading the state as a whole in meeting minimum acceptable performance criteria. The Governor also has the ability to declare a formal disaster in the state.[6]

The Governor has at his or her disposal a number of committees, cabinets, and other individuals to assist in these efforts, including the State Resilience Officer. The State Resilience Officer was confirmed by the Oregon Senate in May 2016 to work with state agencies to improve Oregon's seismic safety and resilience.

The Governor also has the authority to delegate certain tasks to state agencies. Chief among them is the Office of Emergency Management (OEM[7]), a division of the Oregon Military Department.

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[5] ORS 401.035: Responsibility for emergency services system. The emergency services system is composed of all agencies and organizations involved in the coordinated delivery of emergency services. The Governor is responsible for the emergency services system within the State of Oregon. The executive officer or governing body of each county or city of this state is responsible for the emergency services system within that jurisdiction

[6] ORS 401.165: Declaration of state of emergency; procedures. The Secretary of State or State Treasurer may issue a declaration if the Governor cannot be reached.

[7] For a full list of these acronyms and their meanings, see Appendix A.

OEM Mission
The Oregon Military Department Office of Emergency Management mission is to lead statewide efforts to develop and enhance preparedness, response, recovery and mitigation capabilities to protect the lives, property and environment of the whole community.

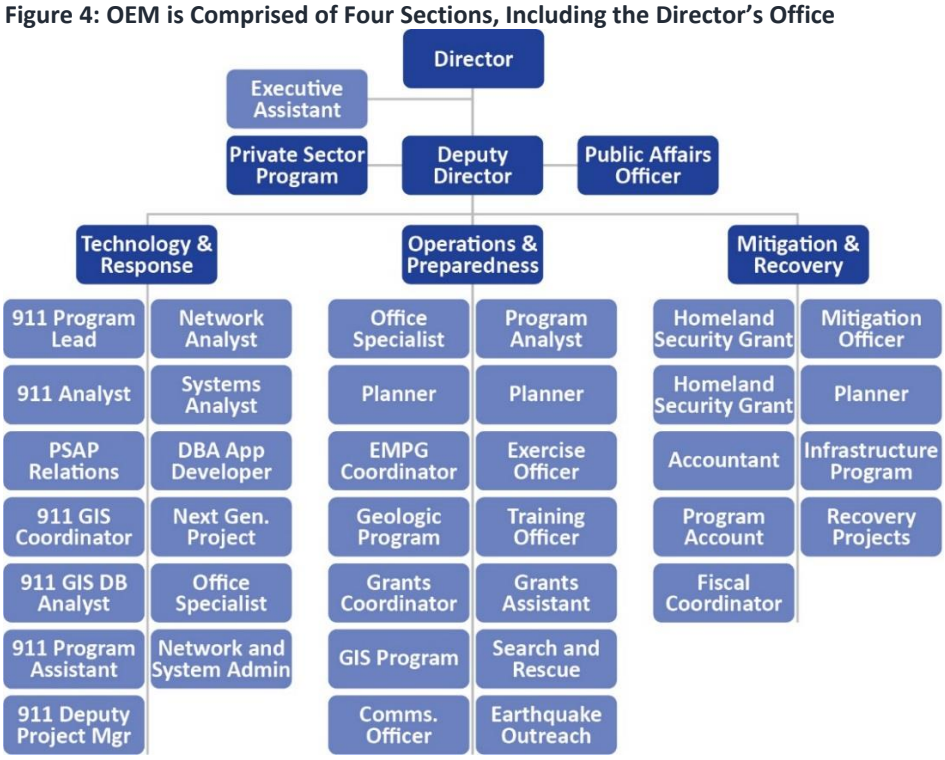
OEM is tasked with coordinating emergency management efforts in the state

Per statute,[8] OEM is responsible for coordinating exercises and training, planning, response, mitigation, and recovery activities across all levels of the statewide system.

For example, Cascadia Rising was a multi-jurisdictional exercise in 2016 to practice how the affected states, including Washington and Idaho, would respond to a catastrophic Cascadia earthquake and tsunami. OEM and the Oregon National Guard sponsored Oregon's participation in the exercise.

The agency includes 42 positions across four sections: the Director's Office, Technology and Response, Operations and Preparedness, and Mitigation and Recovery Services. The Technology and Response section is responsible for the state's 911 system, while the other two sections conduct the bulk of OEM's program and operational work.

Figure 4: OEM is Comprised of Four Sections, Including the Director's Office



While OEM is charged with coordinating emergency management efforts, it does not have the authority to direct the efforts of other agencies in the same way the Governor does. This concept is illustrated by the functionality of the state's Emergency Coordination Center, or ECC.

OEM is responsible for Oregon's Emergency Coordination Center

The ECC is a centralized facility that OEM can activate in the event of a disaster to bring together partner agencies to coordinate the response and

[8] ORS 401.052: Responsibilities of Office of Emergency Management.

deployment of resources. These resources may include equipment like snow plows or people like firefighters.

The ECC activates several times a year, either in response to an emergency or as practice during an exercise. For instance, it activated during the total solar eclipse in August 2017 to monitor the flow of people and traffic throughout the state. It also activated in January 2017, after severe winter storms caused flooding and landslides, resulting in disaster declarations in Columbia, Deschutes, Hood River, and Josephine Counties.

The resources used to respond to emergencies are owned by other agencies like the Oregon Department of Transportation or the Oregon Department of Forestry. As OEM does not have ownership of these resources, it must instead coordinate with the agencies that do.

In this way, the state ECC is distinct from other, similar facilities that are called Emergency Operations Centers, or EOCs, many of which exist at the county level. The primary difference between the two is who has ownership of the resources. Counties can make their own operational decisions and deploy resources, such as equipment and people.

OEM is responsible for preparing the statewide Comprehensive Emergency Management Plan

Oregon has a four-volume statewide Comprehensive Emergency Management Plan, with each volume representing one of the phases of emergency management:

- The state's Natural Hazard Mitigation Plan identifies natural hazards and vulnerabilities in Oregon and proposes a strategy to mitigate risk and address recurring disasters and repetitive losses. This plan is required by FEMA and must be revised and updated every five years.
- The Preparedness Plan provides requirements and guidance for each step of the preparedness cycle, including planning, organization, training, exercising, evaluation, and improvement.
- The Emergency Operations Plan, or EOP, describes the organization the state uses to respond to emergencies. It is another plan required by FEMA, with a requisite update cycle of every two years. The EOP includes the basic plan, as well as numerous annexes, which are supporting documents that more specifically define action items in certain areas, or for a specific hazard, during a response.
- The Recovery Plan describes the organization the state uses to assist communities recovering from disasters.

Oregon has developed another document called the Cascadia Playbook. Although not part of the Comprehensive Emergency Management Plan, the playbook is a tool for Oregon's leaders, state agencies, and other participants with a checklist of action items to be done in the wake of a Cascadia earthquake and tsunami. The playbook was the result of a

Liaison agencies
The following agencies are required to designate a liaison to OEM:

Department of Consumer and Business Services
Department of Corrections
Department of Education*
Department of Environmental Quality
Department of Human Services
Department of Justice
Department of Land Conservation and Development
Department of Public Safety Standards and Training*
Department of State Lands*
Department of State Police
Department of Transportation
Department of Veterans' Affairs*
Employment Department*
Housing and Community Services Department*
Judicial Department
Oregon Business Development Department*
Department of Administrative Services
Department of Aviation
Oregon Health Authority
Oregon Military Department*
Oregon Tourism Commission*
Public Utility Commission
Secretary of State*
Department of Agriculture
Department of Energy
Department of Fish and Wildlife
Department of Geology and Mineral Industries
State Fire Marshal
State Forestry Department
State Marine Board
State Parks and Recreation Department
Travel Information Council*
Water Resources Department

**Agency added via Senate Bill 61, 2017 Regular Legislative Session*

planning effort led by OEM starting in 2014, with support of the Governor and other emergency management partners and stakeholders.

OEM is responsible for coordinating these plans, but many state agencies participate in developing, updating, and implementing plans.

State agencies also have roles and responsibilities in emergency management

OEM cannot fully enact emergency management efforts on its own. It must rely on the expertise and assistance of more than 30 state agencies, each with its own role to play in preparing and responding to disasters.

Before 2018, Oregon statute[9] identified 22 state agencies that are required to designate an individual to act as a liaison with OEM, to coordinate their functions that relate to emergency preparedness and response. In the 2017 Legislative session, the statute was amended[10] to include an additional 11 agencies, whose liaison designation requirements take effect at the beginning of 2018.

Many of these agencies have been assigned to Emergency Support Functions, or ESFs. Oregon's official plan to respond to disasters, the Emergency Operations Plan, includes 18 designated ESFs to help organize agency roles and response. Each function includes a corresponding annex to the Emergency Operations Plan. For example, ESF 1 is transportation; ESF 2 is communications; ESF 3 is public works; and so on.[11]

Each ESF includes at least one primary agency and a range of support agencies. For example, the Oregon Department of Transportation is a primary agency for ESFs 1 and 3, but ODOT is also a support agency for an additional seven ESFs. In a similar fashion, many state agencies are assigned to State Recovery Functions, or SRFs.

Agency involvement goes beyond simply responding to disasters. State agencies are responsible for updating and maintaining ESF annexes to the EOP on a regular basis. Agencies also participate in exercise activities; communicate information to local communities; and in one case even facilitate the updating and maintaining of one statewide plan.[12]

[9] ORS 401.054: Agency liaison with Office of Emergency Management. This list in statute does not include every agency involved in the emergency management system, in particular, those agencies with designated supporting roles in the State Recovery Functions, or SRFs.
[10] Oregon Legislative Session 2017, Senate Bill 61
[11] See Appendix C for more information on each ESF and SRF.
[12] Maintenance and updating of the state's Natural Hazard Mitigation Plan is the responsibility of the Department of Land Conservation and Development.

Local governments are required to have their own emergency management programs

State statute[13] requires each county to have its own emergency management program with a manager. As noted, initial response to disasters begins — and, in the case of most minor events like localized flooding, ends —at the local level.

State law also allows for cities and federally recognized sovereign tribal governments to create their own emergency management programs. Some cities, including Portland and Salem, have elected to create such a program.

These programs are each required to have their own Emergency Operations Plan and manage and maintain their own Emergency Operations Center. They are also expected to coordinate with OEM to implement effective practices in emergency preparedness and response.

County and city programs are generally funded through a combination of federal and local funds.

Federal funds pay a significant amount of Oregon's emergency management dollars

FEMA maintains grant programs that provide funding to state and local emergency management agencies. Some of these include:

- The Emergency Management Performance Grant, or EMPG, helps fund staff at OEM and local governments. The grant requires a 50% non-federal match from each participating jurisdiction. Twenty-one staff at OEM are funded in part through EMPG dollars. In 2016, Oregon was awarded $5.1 million for this grant. Nearly 80% of these funds were awarded to local and tribal governments.
- The Hazard Mitigation Grant Program provides funding for mitigation projects in jurisdictions with a declared disaster. The amount of available money is determined as a percentage[14] of the total cost of the disaster and requires a 25% local match. For example, this grant allocated approximately $5.4 million in federal funds after winter storms in 2015. OEM is allowed to keep 4.89% of the projected program costs for administration.
- The State Homeland Security Grant provides funding for projects that fall under the category of planning, organization, equipment, training, or exercises. Recipients must meet certain requirements to be eligible. In 2016, Oregon was awarded $3.8 million for this grant. Eighty percent of these funds are required to be passed through to local or tribal governments.

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[13] ORS 401.30: Emergency management agency of city, county, or tribal government; emergency program manager; coordination of emergency management functions.
[14] This percentage varies based on whether or not the jurisdiction has an enhanced Natural Hazard Mitigation Plan. This is covered in greater detail later in the report.

OEM receives a small portion of these grants for its own use and distributes most of the funds to local programs as sub-recipients. As grant administrator, OEM is responsible for ensuring the sub-recipients meet each of the requirements, such as having an approved EOP or developing and conducting exercises.

Grant funding makes up the bulk of OEM's budget. For 2015-17, OEM reported that its administrative budget was $6.2 million with 53% of its funding coming from Federal Funds. Without these grants, nearly all of the positions in OEM's Operations and Preparedness and Mitigation and Recovery units would not exist. Local programs would also lose a significant portion of their budgets.

Our prior audit identified issues with OEM's management practices

In February 2014, this office released report no. 2014-03, entitled: "Office of Emergency Management: Rebuilding the Organization to Strengthen Oregon's Emergency Management."

The objective of that audit was to determine what improvements OEM could make to its management practices to better help the state prepare for, respond to, and recover from disasters, with a focus on OEM's internal management practices. Our audit work highlighted significant internal challenges for the division, including staff turnover and a lack of strategic planning.

Our office contacted OEM to learn about the agency's progress toward implementing the audit's recommendations. In November 2015, OEM reported it had fully implemented eight of the 11 recommendations. By October 2016, the agency reported it had fully implemented the remaining three.

Objective, Scope and Methodology

Objective

The objective of this audit was to report on the status of state agency and local emergency management efforts to prepare for a catastrophic disaster, such as a Cascadia earthquake and tsunami.

Scope

This audit focused on efforts across Oregon's emergency management system and included branches of state government, selected state agencies, and local governments.

Methodology

To address our objective, we used a methodology that included but was not limited to: conducting interviews, administering an online survey and analyzing results, administering a questionnaire, and reviewing documentation.

We conducted interviews with OEM staff, staff at other state agencies, representatives from other states' emergency management programs, and local emergency managers.

We administered a survey to state agencies, counties, and some cities. The survey included 78 entities, comprised of 31 state agencies, the Governor's Office, representatives of Oregon's legislative and judicial branches, 36 counties, and 8 cities. A list of the entities included can be found in Appendix D. Six entities, Department of Land Conservation and Development, Benton County, Deschutes County, Hood River County, Multnomah County, and Wallowa County did not complete the survey. Incomplete responses to survey questions were not used.

The survey gathered information about each program, and covered standard baseline elements for emergency management programs, including: planning, mitigation, incident management, communication, public information and education, training, facilities, exercising, and continuity of operations. Due to the breadth of the survey we did not independently verify the information respondents provided or visit local programs, nor did we assess the quality of respondents' efforts.

We administered a questionnaire to emergency management agencies in six other states to gather information to use as a basis for comparison in assessing Oregon's system. This questionnaire asked about topics including staffing, statutory authority, Continuity of Operations and Continuity of Government plans, coordination efforts, and EMAP accreditation.

We reviewed reports, state laws, administrative rules, executive orders, standards, grant requirements and administration. We also reviewed federal directives and guidance for emergency management programs.

We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objective. We believe that the evidence obtained and reported provides a reasonable basis to achieve our audit objective.

Audit Results: The State Must Do More to Prepare Oregon for a Catastrophic Disaster

Our audit found Oregon lacks key elements of an effective emergency management program. For example, state planning efforts for a catastrophic disaster are incomplete and inadequate. Critical plans to ensure continuity of government services in the wake of a disaster are either missing or incomplete.

We found current staffing levels statewide appear to be inadequate to reduce Oregon's vulnerability to emergencies. OEM in particular is understaffed compared to some other states, which inhibits the agency's capacity to lead and coordinate emergency management efforts in the state.

Without addressing these basic elements, Oregon is at increased risk of being unprepared for a disaster such as a Cascadia earthquake and tsunami.

Oregon lacks key elements necessary for an effective emergency management program

Industry experts have established a set of standards that are considered the minimum acceptable performance criteria for emergency management programs, known as the EMAP standards.[15] These minimum standards were first established in 2007. Even though they have existed for a decade, our audit found Oregon is still lacking several of them.

EMAP standards cover the basic elements of an effective emergency management program, such as operational planning, hazard mitigation, prevention, exercises, corrective actions, and maintaining operational facilities.

These elements serve as a foundation that will ensure Oregon can withstand, with minimal damage and loss of life, a catastrophic disaster, whether it is a volcanic eruption, a terrorist attack, or a Cascadia earthquake and tsunami.

State planning efforts for mitigating, preparing for, responding to, and recovering from disasters are incomplete

EMAP standards require emergency management programs to have operational plans and procedures that are developed, coordinated, and implemented among all stakeholders. These plans should also include a method and schedule for evaluation, maintenance, and revision.

Oregon's comprehensive emergency management plan includes four volumes. These plans help officials think in advance — without the chaos and confusion of an active emergency — about what needs to be done to

[15] Emergency Management Accreditation Program.

manage disasters. All four volumes, however, have issues that need to be addressed.

Natural Hazard Mitigation Plan: The state is at risk of losing its enhanced status for the second time since 2012 due to staffing challenges at OEM, covered in greater detail later in this report.

States with an enhanced plan, as opposed to basic status, are eligible to receive increased funds from FEMA following a disaster declaration. Enhanced status demonstrates to FEMA that the state has developed a comprehensive mitigation program and is capable of managing the increased funding to achieve its mitigation goals.

If the plan loses enhanced status, Oregon will miss out on millions of dollars that could help fund mitigation projects across the state. For example, Oregon received assistance up to $62 million for a 2007 disaster when the plan had enhanced status. Had the plan not been enhanced then, Oregon would have lost about $3 million in potential mitigation funding.

Preparedness Plan: The plan is incomplete and in draft form. Information included about personal and organizational preparedness is preliminary, nonspecific to Oregon, and still needs further development, revision, and refinement.

For example, key supporting documents — including operational plans that define the actions taken to organize resources, train personnel, exercise disaster scenarios, and evaluate program performance — still need to be developed.

Emergency Operations Plan (EOP): While the basic plan is complete and up-to-date, more than a dozen of its annexes are not. These ESF annexes include specific action items corresponding to areas, or functions, that agencies are responsible for in the wake of an emergency, such as transportation or public works.

Of the 18 ESF annexes, 13 of them are overdue for an update. These annexes were last updated in 2014 and 2015. The entirety of the EOP, including these annexes, is required to be updated every two years.

The Recovery Plan: The plan is written, but only some parts have been implemented in the wake of a disaster or during an exercise. For example, the Governor's Disaster Cabinet convened for the first time during the Cascadia Rising exercise in 2016.

However, the entirety of the Recovery Plan has not yet been implemented in a disaster or during an exercise. Additionally, the plan has not been disseminated with the Governor's signature, in a process known as promulgation.

While the only two plans required by FEMA — the Natural Hazard Mitigation Plan and the EOP — are finished, having all these plans

completed and implemented is a crucial way to ensure officials know what to do when an emergency strikes.

State agencies lack critical plans to reestablish or maintain operations after disasters

A catastrophic disaster can potentially disrupt government services and operations for days, weeks, or even months. In a worst case scenario, lines of succession for key officials such as the Governor may need to be initiated, to ensure the state government continues to function effectively.

The effort to plan for these scenarios is known as Continuity of Operations Planning, or COOP,[16] and Continuity of Government, or COG. While COOP focuses more on the capability to continue essential program functions, COG ensures survival of a constitutional form of government.

EMAP standards around planning require programs to have COOP and COG plans. These plans should also include a method and schedule for evaluation, maintenance, and revision.

The Department of Administrative Services (DAS) enacted a policy in 2009 that requires state agencies to develop, implement, test, and maintain COOPs to ensure critical state services continue despite interruption by an emergency.[17] At that time, DAS began efforts to facilitate COOP planning among state agencies. These efforts stalled and ultimately disappeared from legislative budget analysis around 2013.

As a result, we found several state agencies lack these critical plans. Furthermore, we found agencies where plans had not been updated for years, staff had not been trained in their contents, and the actions included within them had not been exercised.

We conducted a survey of 34 state agencies, offices, and branches of government[18] about their continuity planning efforts and all but one agency responded. Most of the agencies we surveyed, 91%, have defined roles in the State's emergency response or recovery functions.

Based on survey results, we found only 9% of respondents met all of the basic elements required for COOP, as detailed in Figure 5. Neither the Executive nor Legislative branches of government have completed, let alone trained or exercised, a COG plan.

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[16] Sometimes it is also referred to as Business Continuity Planning, or BCP.
[17] DAS Statewide Policy 107-001-010 applies to executive branch agencies. Other agencies, including the Office of the Secretary of State, Office of State Treasurer, Department of Justice, Judicial Department, and Department of Education have elected to follow this policy.
[18] These agencies, offices, and branches of government are referred to generally in this report as agencies.

Figure 5: State Agency Continuity of Operations Planning is Lacking

Survey Responses	Has a COOP	Updated plan within the last year	Provides training on plan	Exercised and tested plan	Alternate worksite identified	Exercised and tested the alternate worksite	Has a designated COOP coordinator
Yes	67%	38%	33%	21%	50%	13%	94%
No	27%	54%	46%	54%	33%	60%	0%
I don't know	6%	8%	21%	25%	17%	25%	6%

Source: Self-reported survey responses.

Without these plans in place, Oregon's government is at serious risk of failing to continue with or reestablish its key operations following a catastrophic event. Once created, these plans must be reviewed and updated on a consistent basis, staff must be trained on their specific responsibilities, and the plans must be regularly exercised to ensure staff know how to execute them.

During the course of our audit, the Governor's Office and DAS took action to resume COOP planning in executive branch agencies. In July 2017, the Governor's Office presented executive agencies with a timeline for developing and assessing agency COOP plans. According to the most recently developed timeline, established in January 2018, COOP planning efforts are expected to be completed in March 2019.

Oregon has not corrected deficiencies identified in a multi-state exercise

In June 2016, Oregon participated in Cascadia Rising, a four-day, multi-state exercise intended to simulate a Cascadia earthquake and tsunami, and assess state response efforts.

Members of the National Guard participate in the Cascadia Rising exercise on June 8, 2016. (U.S. Air National Guard photo)

In many ways, the exercise was a success. It brought together emergency management officials from Oregon, Washington, Idaho, and FEMA, as well as city, county, and non-governmental organizations. This was the largest exercise Oregon has ever conducted, and it provided each participating entity with the opportunity to experience first-hand some of the challenges they could expect to face post-Cascadia.

The exercise identified a number of issues that could severely impede Oregon's ability to recover from a Cascadia disaster. These issues were summarized in the Cascadia Rising 2016 After Action Report created by OEM, which found that:

- Government at all levels is ill prepared and equipped to implement effective COOP and COG operations;
- The state's ability to effectively communicate critical warnings and information to the public will be greatly reduced because of impacts to standard communications systems and networks;
- The ECC is not equipped, staffed, or structurally designed to provide the level of sustained emergency management required for a catastrophic event; and

- Current emergency planning is not adequate or comprehensive enough for catastrophic disasters.

Oregon developed a corrective action plan in December 2017 to address these issues. However, the plan is still in draft form and has not been finalized, more than 18 months after the exercise. Washington published its own corrective action plan six months after its participation in Cascadia Rising.

According to federal guidance,[19] a corrective action plan documents deficiencies identified during the exercise, the actions that should be taken in response, the resources required to address the deficiencies, and justification for the need to correct them. A due date and responsible person should also be assigned for each action, with the plan reviewed regularly to track progress.

Without this completed plan, the state is not fully prepared to address this type of disaster and the public has no assurance that Oregon will take steps to resolve deficiencies identified in the exercise.

State emergency response facilities are located within seismically vulnerable buildings or have not been exercised

OEM relies on its ECC as the facility for coordinating the state's emergency response. For recurring disasters, such as winter storms and flooding, the ECC has an established staff and set of procedures. Cascadia Rising demonstrated, however, that the facility has insufficient space and staffing needed to cope with a catastrophic disaster.

Furthermore, the ECC is currently located in a building that has not been seismically retrofitted, meaning that in the wake of an earthquake such as Cascadia, the facility could be inoperable or inaccessible.

The Oregon Military Department received approval in the 2017 Legislative session to issue bonds to fund seismically retrofitting three of its facilities, including the Anderson Readiness Center, which houses the ECC. The cost of retrofitting the Anderson Readiness Center is estimated at $5.4 million.[20] Until this construction is completed, however, the building remains vulnerable to a seismic event.

In the event the ECC is inoperable or inaccessible, OEM has identified three alternate sites where the ECC could be relocated. However, two of the sites are located in hazard zones or hazardous buildings, such as one that has not been retrofitted to withstand a seismic event.

Additionally, OEM has never practiced or exercised operating the ECC at any of the three sites. Failure to familiarize staff with the facility or practice

[19] U.S. Department of Homeland Security
[20] This figure excludes bonding costs

coordinating events from it could negatively impact how well an emergency response is conducted.

According to EMAP standards, emergency management programs should maintain facilities for conducting emergency management activities, including alternate facilities in addition to their primary facility. Both primary and alternate facilities should be capable of coordinating and supporting sustained response and recovery operations. They should also be regularly tested for activation, operation, and deactivation.

EMAP accreditation can help ensure the state is better prepared for a disaster

All of these basic elements — statewide plans, COOP and COG plans, exercises, corrective actions, and emergency response facilities — come from the EMAP standards.

Emergency management programs that meet all 64 of the EMAP standards can apply for accreditation, which provides programs the opportunity to be recognized for compliance with industry standards and to demonstrate accountability.

However, no jurisdiction in Oregon is currently accredited.

State EMAP accreditation requires leadership and prioritization outside of OEM, as the accreditation applies to Oregon's entire program — meaning other state agencies would have to achieve certain standards, such as COOP planning. The Governor, being responsible for the emergency services system in the state, is in an ideal position to provide leadership on these preparedness efforts, which cut across dozens of state agencies.

The EMAP standards are a valuable tool for continuous improvement. Becoming accredited could help Oregon's program demonstrate public accountability. It could also help the state focus attention on areas and issues where resources are needed. OEM managers told us they do see the value in becoming accredited.

Officials with New Mexico's emergency management agency told us they became accredited to ensure their programs are consistent with the benchmarks and standards that have been set for programs nationwide.

The state of Florida and 18 of its counties became accredited, state officials told us, because it demonstrates to the taxpayers that the state is in line with best practices. It also provides justification for funding the state has received, and provides assurance that emergency managers can do the job with which they've been tasked.

Washington is currently pursuing accreditation. Officials told us they believe it can help strengthen the program and point out efficiencies. Accreditation would also give the program standing when they make a case for resources.

State and local government emergency management programs are not meeting minimum standards

To establish a baseline of emergency management efforts across the state, we conducted a survey of all 36 counties, eight cities, and 34 state entities, including the Governor's Office and Legislature. See Appendix D for a complete list of the entities we surveyed.

We had a 92% response rate on the survey overall, with all three branches of government responding. Among state agencies, the response rate was 97%; among counties it was 86%; and 100% of cities responded.

The survey included questions about the standards outlined in EMAP. It asked respondents about their planning, training, exercising and mitigation efforts, as well as the status of facilities. Key survey results are discussed below.

State agency survey results show a lack of dedicated and trained staff for emergency support functions

Approximately 30 state agencies or offices have been designated as either primary or support agencies with specific Emergency Support Functions (ESFs). Per the state's Emergency Operations Plan, these agencies are responsible for executing critical activities during an event in such areas as transportation and public works.

However, our survey found these agencies have little to no dedicated staff to fulfill these ESF obligations. Specifically, 36% of responding state agencies reported having no dedicated Full Time Equivalent (FTE) staff. In some cases, agencies with multiple assignments as either primary or support functions had zero dedicated FTE. Only 39% reported one or more dedicated FTE.

This lack of dedicated staff could be due, in part, to a lack of established expectations for these agencies. Oregon statute requires agencies to designate a liaison to OEM, but there is no additional written guidance or expectations established for these individuals on what it means to be a liaison, such as position descriptions or orientation materials to prepare staff from these agencies on how to fulfill their roles.

Establishing such guidance is critical, as is training staff on how to fulfill these obligations. However, nearly half of responding agencies said they were not conducting a training needs assessment for personnel with emergency management responsibilities.

Additionally, 61% of agencies reported that current key public officials or executive leaders were only partially trained. Only 27% said these individuals are fully trained.

Local emergency management programs lack several EMAP elements

Under state law,[21] all of Oregon's 36 counties are required to have an established emergency management program with a designated manager. Cities may opt to also create their own programs. For example, Salem and Portland each have their own emergency management program.

The amount of full-time staff dedicated to these programs vary. Some counties had less than one FTE position for the emergency management program. Two counties reported larger programs with six FTE. On average, responding counties reported dedicating 1.6 FTE to emergency management.

Much like OEM, county programs rely heavily on federal funding to support their budgets. Among all the responding counties, an average of 42% of the Fiscal Year 2017 budgets were supported by federal funds or grants.

In order to receive federal funding, emergency management programs must meet certain federal grant requirements, such as having an approved EOP and a FEMA-approved Natural Hazard Mitigation Plan.

Responding counties largely reported they do meet these requirements. In fact, federally required plans are often the only plans that counties have. They often lacked other plans which are considered standard for emergency management programs, such as recovery plans.

All responding city and county programs reported having a complete EOP and 88% reported having a FEMA-approved Natural Hazard Mitigation Plan. Yet only 30% reported having a COG plan, 40% reported a COOP, and 10% reported having a recovery plan. While many programs reported having a complete EOP plan, 27% had not updated their plan within the recommended two-year timeframe.

Figure 6: All Local Programs Reported Having an Emergency Operations Plan (EOP)

Survey Responses	Natural Hazard Mitigation Plan	Emergency Operations Plan	Recovery Plan	Continuity of Operations Plan	Continuity of Government Plan
Yes	88%	100%	10%	40%	30%
Partially	12%	0%	20%	35%	25%
No	0%	0%	68%	25%	45%
I don't know	0%	0%	3%	0%	0%

Source: Self-reported information.

Local governments are a recipient of FEMA's Hazard Mitigation Grant Program, which is administered through OEM. The grant helps fund local projects that mitigate for future disasters, with local programs providing a 25% non-federal match.

[21] 401.305: Emergency management agency of city, county or tribal government; emergency program manager; coordination of emergency management functions.

Seventy-three percent of local programs indicated they were able to complete mitigation projects related to recurring disasters, such as floods or winter storms. However, only 43% were able to complete projects to reduce the risks associated with a catastrophic disaster. Another 23% reported that they were unable to complete mitigation projects for reoccurring or catastrophic disasters.

Half of city and county survey respondents said their Emergency Operations Center is located in a hazard zone.

While OEM operates the state's ECC, counties and cities are responsible for operating and maintaining their own Emergency Operations Centers, which they activate during emergencies. Seventy-two percent of respondents indicated their jurisdiction had a facility capable of supporting sustained response and recovery operations for a catastrophic event. However, many of these facilities are currently located in known hazard zones. Specifically, half of these respondents said their Emergency Operations Center is located in a hazard zone.

In some cases, these facilities may be required to operate around the clock, requiring multiple shifts of people. However, 28% of respondents said their facility was not capable of supporting sustained operations to respond to a catastrophic event.

The same percentage, 28%, also reported that they do not have an alternate facility identified in the event the primary one is inoperable or inaccessible. For those who have identified an alternate site, 24% said those facilities are also located in hazardous zones.

Most local programs indicated they have training requirements for their Emergency Operations Center staff. However, most reported having only one or part of one shift of staff fully trained. In situations where operations last multiple shifts, this could hinder response efforts.

OEM must be adequately staffed and must enhance its strategic planning to ensure it fulfills its statutory responsibility

Currently, OEM does not have sufficient staff resources to accomplish its wide range of duties and responsibilities, or to effectively lead and coordinate Oregon's emergency management system.

OEM is understaffed in critical areas compared to other states

When compared to states facing similar catastrophic threats and states with a more robust and mature emergency management program, OEM is understaffed.

Per federal law, every state is required to have a State Hazard Mitigation Officer. In some other states, this position oversees a team of people who work on the state's mitigation program. In Washington, this team consists of six people; Alaska maintains a five member team. Florida has 41 people assigned to mitigation efforts.

Conversely, in Oregon, the entire state's mitigation program is administered by one employee.

Other emergency management program areas are also understaffed compared to these states. Washington, Alaska, and Florida all have more people working on planning, training, and exercise efforts than Oregon has. In terms of total staff, Oregon's program is the 12th smallest in the nation.[22]

Figure 7: Some Other States Have More Staff Than Oregon in Key Areas

	Planning staff	Mitigation staff	Training staff	Exercise staff	Subtotal	Total staff
Alaska	7	5	2	3	17	62
Florida	11	41	4*	4*	52	157
Washington	9	6	4	3	22	82
Oregon	3	1	1	1	6	42

*Florida has four staff working both on training and exercising.
Source: Self-reported information. Total staff numbers are from the NEMA 2016 Biennial Report.

This staffing issue is especially critical for the hazard mitigation program, where inadequate staffing has put the state at risk of losing out on millions of dollars in funding for local mitigation projects.

FEMA's Hazard Mitigation Grant Program makes funding available to states in the wake of natural disasters to help with local mitigation projects. These projects are intended to mitigate the risk — and reduce the cost — of the next disaster. After Oregon experienced severe winter storms in 2015, this grant provided approximately $5.4 million in mitigation project funding.

The amount of available grant money is a percentage of the total cost of the declared disaster. For states with a basic Natural Hazard Mitigation Plan, the percentage is set at 15%. For states that have an enhanced plan, that percentage is 20%.

This enhanced status demonstrates to FEMA that the state has developed a comprehensive mitigation program and is capable of managing the increased funding to achieve its mitigation goals.

Although Oregon currently has enhanced status, it is at risk. Oregon previously lost enhanced status in 2012. After working with FEMA, the state was able to regain enhanced status on its Natural Hazard Mitigation Plan, under the condition that OEM would work to develop its mitigation program and prove it could handle the additional funding.

However, Oregon's single mitigation officer is not sufficient to keep up with FEMA's requirements. According to FEMA, without an increase in staffing or a plan and commitment to do so, it would be difficult to justify the state's ability to manage the increased funding that comes with enhanced status.

[22] According to the National Emergency Management Association 2016 Biennial Report.

OEM's staffing challenges impair its capacity to coordinate emergency management efforts in the state

OEM staff indicated they are finding it challenging to perform all of their assigned responsibilities. For example, managing the state's ECC is a full-time job on its own, according to OEM. Administering, monitoring, and providing assistance to the state on the EMPG is also a full-time job. At OEM, both of these tasks are handled by a single person.

OEM personnel indicated many emergency management efforts that would help local programs, other agencies, and the state as a whole have not been fully or adequately addressed because they simply do not have the resources.

For instance, due to the time spent on EMPG administration, some standard operating procedures and training have not been developed for the state's ECC. Such procedures and training would help other agencies or participants understand the function of the center and become familiar with how it operates before it activates for an emergency.

Conversely, whenever the ECC is activated, the responsible staff person cannot perform other critical duties, including EMPG. This could put local programs, state agencies, and Oregon as a whole at risk of missing crucial grant deadlines.

These deadlines are especially important because of the number of staff and county and city emergency management programs whose funding relies on federal grant dollars. For example, half of the EMPG administrator's position is funded by the very same grant she administers. According to OEM, without those federal dollars, her position — as well as more than a dozen others in the agency — would not exist.

This scenario applies throughout OEM. Staff have been unable to devote time to work directly with local programs to help them with things like getting training or developing exercises. They also have not had the time to develop guidance for their partner agencies, especially in how they fulfill their ESF obligations.

State agencies are required to designate a liaison to work with OEM, and update their annex to the EOP. These annexes include roles and responsibilities assigned to state agencies and community partners to ensure the ESF activities are performed to support response and recovery.

However, these annexes do not include expectations regarding preparedness efforts, such as training, exercising, and planning. OEM has not provided written guidance as to what agencies are specifically expected to do in order to be adequately prepared to fulfill these ESF obligations.

Budget requests for additional staffing have gone unfulfilled

OEM has previously requested additional funding for more positions to alleviate some of these issues.

In the 2013-15 budget, OEM requested six additional staff to create regional teams to assist city and county emergency managers in planning efforts, as well as responding to requests for assistance during disasters. However, the Governor did not recommend this request be fulfilled and the Legislature did not fund it.

The following biennium, OEM requested two positions critical to helping Oregon retain the enhanced status for its Natural Hazard Mitigation Plan. According to the budget document, the State Hazard Mitigation Officer was overwhelmed as the sole person providing programmatic support statewide for mitigation efforts. Increased staffing, the request stated, would allow OEM to transition the role in a more strategic direction. The Governor did not recommend this request be fulfilled and the Legislature did not fund it.

Another request was for two additional staff to enhance and further develop the ECC, as well as providing technical assistance to local governments and assist and coordinate the protection of critical infrastructure and key resources. This request also went unfulfilled.

For the 2017-19 budget, OEM again requested additional resources for the mitigation and regional staff. Again, these requests went unfulfilled.

Until OEM can find a way to adequately address these staffing challenges, its ability to fulfill its role as the state's leader and coordinator is impaired. Without that critical role filled, it remains unlikely that Oregon will be able to implement the basic elements of an effective program, let alone adequately prepare the state for a catastrophic disaster.

OEM's strategic plan needs strengthening

After our 2014 audit found that OEM did not have a formal strategic plan in place, management took steps to develop one. The plan defines the vision, mission, core values, and goals for the organization. It also identifies the objectives necessary to achieve them.

While developing the plan was a good first step, OEM needs to build upon that work to create a more robust and quantifiable strategic plan. The current plan does not include metrics or any way to measure the agency's progress toward achieving its goals and objectives.

OEM is currently in the process of reviewing and updating its strategic plan to address these issues. According to the OEM director, the updated plan will emphasize existing resource issues and more clearly articulate the agency's priorities.

Having a robust strategic plan will help ensure OEM is able to achieve its mission — to lead statewide efforts to develop and enhance preparedness, response, recovery, and mitigation capabilities to protect the lives, property, and environment of the whole community.

Tracking and progress reporting are needed to ensure resilience efforts are successful

In 2013, the Oregon Seismic Safety Policy Advisory Commission created the Oregon Resilience Plan. It lays out a 50-year plan of recommended action items to achieve the goal of improving our resilience to a catastrophic disaster.

The plan's recommendations are targeted at a range of state agencies and individuals from both the public and private sectors. For example, one of the recommendations charges the Oregon Public Utility Commission with defining criteria for seismic vulnerability assessments to be used by companies in the energy, information, and communication sectors.

Some recommendations have been implemented or are currently being implemented. For instance, according to commission representatives, some local jurisdictions are developing and implementing resilient transportation plans, tsunami overlay zones have been adopted by some coastal communities, and some schools are being upgraded to be used as earthquake shelters.

However, limited accountability for many of these actions means there is a risk that momentum could be lost and they could be abandoned.

The Oregon Resilience Plan needs more accountability to be effective

After the creation of the Oregon Resilience Plan, a legislative taskforce formed in 2013 began prioritizing which of the plan's recommendations to implement. While commission representatives told us some of these recommendations have been implemented, there has been no public, comprehensive reporting on the plan's progress in the nearly five years since the report was first published.

During the course of our audit, the State Resilience Officer began tracking which of the plan's recommendations have been implemented. According to the Governor's Office, the results of this work will be made public in early 2018.

While these tracking efforts are a good start, more work needs to be done to ensure this progress reporting is performed consistently and the results are made public to ensure accountability over the 50-year timeframe.

Specific roles and responsibilities of the State Resilience Officer are unclear

One recommendation that has been implemented was to create a State Resilience Office to provide leadership, resources, advocacy, and expertise in implementing statewide resilience plans.

In 2015, the Legislature passed a bill[23] to create the office of the State Resilience Officer within the Governor's Office. The officer was charged in statute with directing, implementing, and coordinating both seismic safety and resilience goal setting, as well as state agency planning and preparation, all to improve seismic safety and resilience.

However, the statue does not further define the specific roles, responsibilities, goals, objectives or job description for the State Resilience Officer. The State Resilience Officer is likely to be a key position that exists beyond the tenure of one individual. Documenting a position description with clear goals and objectives, including how the officer will coordinate and work with others in the statewide emergency services system, will help ensure the success of future State Resilience Officers.

The Officer told us that he sees the Oregon Resilience Plan as one of his central guiding documents, but it includes 50 years' worth of effort to increase resiliency in the state. Both the plan, and the officer position, need long-term strategies, tracking, public reporting, and clearly defined roles and responsibilities to ensure they are successful.

Without addressing these issues, the effects of a catastrophic event could be even more severe

On March 11, 2011, a magnitude 9.0 earthquake struck Tōhoku, Japan. Both the quake, and the subsequent tsunami, killed more than 18,000 people, triggered the Fukushima power plant meltdown, and cost an estimated $220 billion.

This was in a country that is recognized as being well-prepared for earthquakes and tsunamis. It was not prepared, however, for the power of a quake of this magnitude. In fact, scientists did not think the region was capable of producing an earthquake with a magnitude exceeding 8.4.

The Tōhoku earthquake is an example of what Oregon faces in the future. Scientists say the odds that a magnitude 9.0 earthquake and subsequent tsunami will strike Oregon within the next fifty years are roughly one in ten.

However, unlike Japan, Oregon is not well-prepared. Although no amount of preparation will prevent all losses from disaster, especially catastrophic ones, countries and states can take action to reduce the loss of life, money, and property.

Officials at all levels of state government have begun laying the necessary foundation, but these efforts have not gone far enough to fully protect Oregon from the worst-case scenario. As detailed above, too many basic elements for a well-functioning program are still missing.

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[23] Oregon Legislative Session 2015, House Bill 2270.

Finishing COOP and COG plans will prepare agencies to continue to operate, and the government continue to function, after an emergency. Completing and implementing comprehensive emergency plans will help OEM staff and others feel confident and prepared to respond to any disaster.

Additionally, pursuing EMAP accreditation will begin the process of building an effective emergency management program and identifying where state resources are most needed to keep it functioning.