600 NE Grand Ave.
Portland, OR 97232-2736

Metro | *Agenda*

Meeting: Metro Council Work Session
Date: Tuesday, Oct. 8, 2013
Time: 2 p.m.
Place: Council Chamber

CALL TO ORDER AND ROLL CALL

2 PM	**1.**	**ADMINISTRATIVE/ COUNCIL AGENDA FOR OCT. 10, 2013/ CHIEF OPERATING OFFICER COMMUNICATION**	
2:15 PM	**2.**	**BRIEF OVERVIEW OF THE OREGON RESILIENCE PLAN – INFORMATION / DISCUSSION**	**Kent Yu, Oregon Seismic Safety Advisory Commission**
3 PM	**3.**	**BREAK**	
3:05 PM	**4.**	**METRO ATTORNEY UPDATE – INFORMATION**	**Alison R. Kean, Metro**
3:15 PM	**5.**	**COUNCIL BRIEFINGS/COMMUNICATION**	

ADJOURN

Agenda Item No. 2.0

BRIEF OVERVIEW OF THE OREGON RESILIENCE PLAN

Metro Council Work Session
Tuesday, Oct. 8, 2013
Metro, Council Chamber

METRO COUNCIL

Work Session Worksheet

PRESENTATION DATE: 10/8/2013 **TIME:** 2:15 PM **LENGTH:** 45 minutes

PRESENTATION TITLE: Brief Overview of the Oregon Resilience Plan

DEPARTMENT: N/A

PRESENTER(S): Kent Yu, PhD, SE, Principal/SEFT Consulting Group
Chairman, Oregon Seismic Safety Advisory Commission

WORK SESSION PURPOSE & DESIRED OUTCOMES

- Purpose: Inform metro leadership of (1) seismic and tsunami risk Oregon is facing, (2) resilience planning process led by OSSPAC in 2012, and (3) overarching recommendations for the State to consider and implement.
- Outcome: The Metro Council is informed about the Oregon Resilience Plan.

TOPIC BACKGROUND & FRAMING THE WORK SESSION DISCUSSION

A great earthquake and tsunami on the Cascadia subduction zone is the greatest natural hazard facing Oregon today. Over 40 great earthquakes of magnitude 8 and larger have struck Western Oregon during the last 10,000 years. The current calculation of a 15 to 37% probability that a Cascadia earthquake will strike Oregon within the next 50 years means that it is now prudent to understand and take steps to mitigate this risk to our economy and to our businesses, homes, and communities. Under direction of the 2011 House Resolution 3, Oregon Seismic Safety Policy Advisory Commission (OSSPAC) Chair Dr. Kent Yu and vice Chair Jay Wilson led eight work groups consisting of 169 volunteer professionals in 2012 to develop the Oregon Resilience Plan that addresses the state's critical facilities and its energy, water, transportation, and telecommunications systems, and take a careful look at tsunami risk. The Plan outlines the resilience gaps we are facing now into four geographical zones: Eastern, Valley/I-5, Coastal, and Tsunami. Based on business continuity considerations and community needs, the Oregon Resilience Plan proposes systematic efforts to assess Oregon's buildings, lifelines, and social systems and presents a comprehensive set of actions to save lives, reduce damage, and promote a quicker recovery from this unpredictable but anticipated natural disaster. The Plan also helps the public better understand their community's regional vulnerability and informs their discussions with civic and business leaders about improving disaster resilience. Since the completion of the Plan in February 2013, the Oregon Legislature held five hearings to understand the findings and recommendations of the Oregon Resilience Plan, and passed SB33 to direct the State to establish a special task force to facilitate implementation of the Oregon Resilience Plan in 2014.

QUESTIONS FOR COUNCIL CONSIDERATION

List questions for Council's consideration that will help/guide the Council in providing policy direction.

- Does the Metro Council have any questions about the Oregon Resilience Plan?

PACKET MATERIALS

- Would legislation be required for Council action ☐ Yes ☐ No
- If yes, is draft legislation attached? ☐ Yes ☐ No
- What other materials are you presenting today? *Executive Summary of the Oregon Resilience Plan* and *Senate Bill 33.*

The Oregon Resilience Plan Executive Summary

Reducing Risk and Improving Recovery for the Next Cascadia Earthquake and Tsunami

Report to the 77th Legislative Assembly
from Oregon Seismic Safety
Policy Advisory Commission (OSSPAC)

Salem, Oregon
February 2013

Note: This Executive Summary selects from the large number of detailed recommendations in the chapters of the Oregon Resilience Plan. The full report is available online at the Oregon Office of Emergency Management website: http://www.oregon.gov/OMD/OEM/Pages/index.aspx

Foreword

"If we cannot control the volatile tides of change, we can learn to build better boats."
—Andrew Zolli and Ann Marie Healy, *Resilience: Why Things Bounce Back* (2012)

For more than 300 years, a massive geological fault off America's northwest coast has lain dormant. Well into that interval, Meriwether Lewis and William Clark journeyed to the mouth of the Columbia River and returned to Washington, D.C. to tell the new United States about what came to be known as the Oregon Country. Tens of thousands of settlers crossed the Oregon Trail to establish communities throughout the Willamette Valley, in coastal valleys, and beside natural harbors. With the provisional government established in 1843 followed by statehood in 1859, the modern history of Oregon began. Industries rose and fell, cities and towns grew . . . and still the fault lay silent.

Not until the 1980s did scientists recognize the Cascadia subduction zone as an active fault that poses a major geological hazard to Oregon. A decade later, the state's building codes were updated to address this newly revealed earthquake threat to the built environment.

Since that time, scientists have documented a long history of earthquakes and tsunamis on the Cascadia subduction zone, and state and local officials have urged Oregonians to prepare for the next one. In 1999, the state's Department of Geology and Mineral Industries published a preliminary statewide damage and loss study identifying the dire consequences of a Cascadia earthquake and tsunami for Oregon's infrastructure and for public safety.

One official who took that warning seriously was Senator Peter Courtney, Oregon's unchallenged champion of earthquake safety and advocate for measures to protect students who attend unsafe schools. His legislative efforts over more than a decade launched a statewide assessment of schools and emergency response facilities, and established a state grant program to help fund seismic upgrades to hazardous schools and other critical facilities. Other than California, no state has done as much—yet the hazard surpasses the commitments Oregon has made to date.

In early 2011, we suggested in the pages of *The Oregonian* that Oregon should take new steps to make itself resilient to a big earthquake. Less than two months later, the Tohoku earthquake and tsunami disaster in Japan provided the occasion for Representative Deborah Boone to introduce a House Resolution calling on Oregon to plan for the impacts of a Cascadia earthquake and tsunami here.

House Resolution 3 directed Oregon Seismic Safety Policy Advisory Commission to lead the planning effort. Chairman Kent Yu, Ph.D., has skillfully guided more than 150 volunteer professionals, including noted experts, to develop a landmark report on Oregon's priorities to survive and bounce back from a magnitude 9.0 Cascadia earthquake and tsunami.

The authors of this Oregon Resilience Plan set out to help Oregonians know what to expect from the state's infrastructure should that disaster strike this year, and to propose the level of infrastructure reliability that a resilient state should provide. The plan's recommendations highlight ways to close the gap that separates expected and desired performance.

Business leaders engaged in this resilience planning effort have indicated that in a major disaster, interruptions of infrastructure services lasting longer than two weeks will put their enterprises at risk. Yet, under present conditions, we can expect some interruptions to last much longer, in some cases from 18 to 36 months or more. The state, in tandem with the private sector, has much to do to improve the reliability of basic services. Citizens, too, need to plan to be self-sufficient for far longer than the 72-hour period commonly advised for disaster preparedness.

The most recent Cascadia earthquake struck at around 9:00 p.m. on a late January evening; the next could shake a mid-July morning when hundreds of thousands of Oregonians and visitors are enjoying coastal beaches and towns. No one can predict the next time the Cascadia fault will rupture, and *today* is just as likely as fifty years from now. If we begin now, it is possible to prevent that natural disaster from causing a statewide catastrophe. Now is the time to have a plan. Now is the time to close Oregon's resilience gap.

The Oregon Resilience Plan maps a path of policy and investment priorities for the next fifty years. The recommendations offer Oregon's Legislative Assembly and Governor immediate steps to begin a journey along that path. The plan and its recommendations build on the solid foundation laid over the past quarter century by some of Oregon's top scientists, engineers, and policymakers.

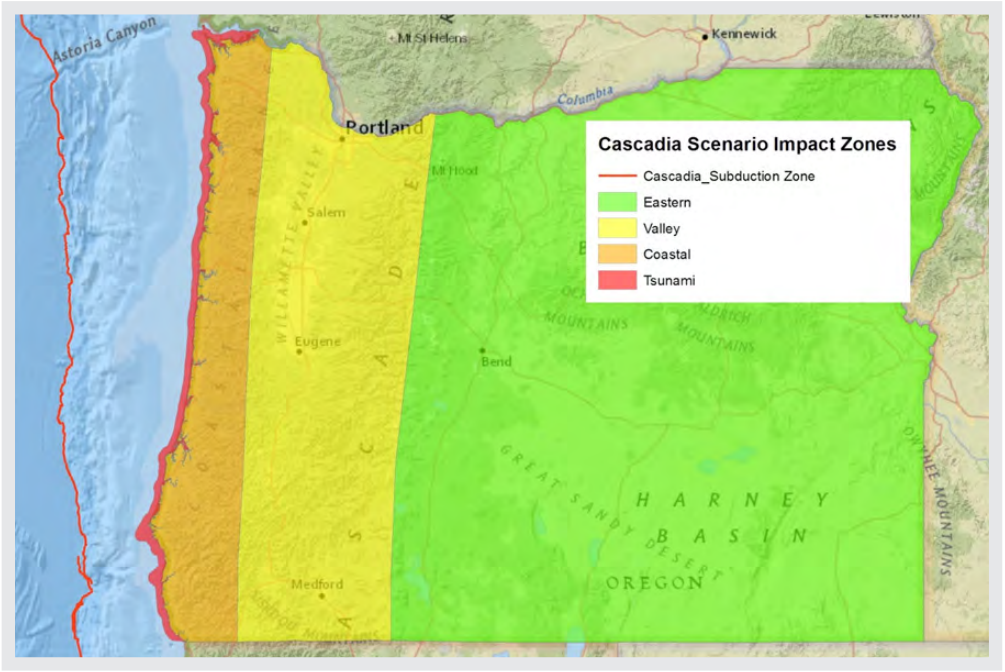
As we wrote two years ago, adopting and implementing such a plan can show "Oregon at its best, tackling a risk with imagination and resourcefulness while sharing the knowledge gained."

Yumei Wang, Jay Raskin, and Edward Wolf
Portland, Oregon, November 2012

Yumei Wang, Jay Raskin, and Edward Wolf are the co-authors of "Oregon should make itself resilient for a big quake," *The Sunday Oregonian*, January 9, 2011.

Executive Summary

Very large earthquakes will occur in Oregon's future, and our state's infrastructure will remain poorly prepared to meet the threat unless we take action now to start building the necessary resilience. This is the central finding of the Oregon Resilience Plan requested by Oregon's 76th Legislative Assembly.



Impact zones for the magnitude 9.0 Cascadia earthquake scenario. Damage will be extreme in the Tsunami zone, heavy in the Coastal Zone, moderate in the Valley zone and light in the Eastern zone.

About the Plan

House Resolution 3, adopted in April 2011, directed the Oregon Seismic Safety Policy Advisory Commission (OSSPAC) "to lead and coordinate preparation of an Oregon Resilience Plan that reviews policy options, summarizes relevant reports and studies by state agencies, and makes recommendations on policy direction to protect lives and keep commerce flowing during and after a Cascadia earthquake and tsunami." OSSPAC assembled eight task groups, comprising volunteer subject-matter experts from government, universities, the private sector, and the general public. An Advisory Group of public- and private-sector leaders oversaw the Task Groups' work, assembled in the portfolio of chapters that make up the plan.

OSSPAC offered the following definition of the seismic resilience goal:

> "Oregon citizens will not only be protected from life-threatening physical harm, but because of risk reduction measures and pre-disaster planning, communities will recover more quickly and with less continuing vulnerability following a Cascadia subduction zone earthquake and tsunami."

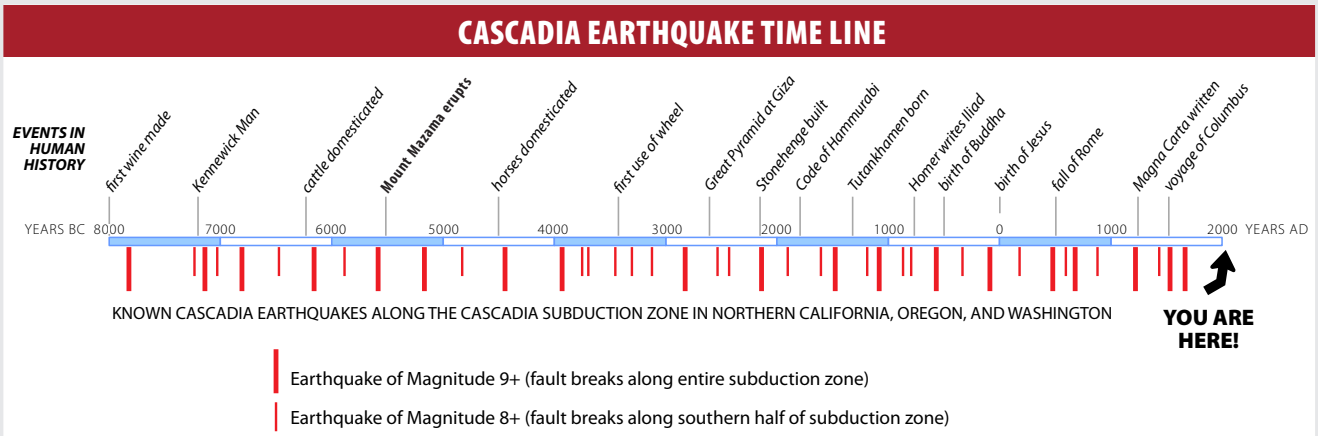
Each group was charged with three tasks for four affected zones (tsunami, coastal/earthquake only, valley, and central/eastern Oregon):

1. Determine the likely impacts of a magnitude 9.0 Cascadia earthquake and tsunami on its assigned sector, and estimate the time required to restore functions in that sector if the earthquake were to strike under present conditions;
2. Define acceptable timeframes to restore functions after a future Cascadia earthquake to fulfill expected resilient performance; and
3. Recommend changes in practice and policies that, if implemented during the next 50 years, will allow Oregon to reach the desired resilience targets.

The purpose of the analysis is to identify steps needed to eliminate the gap separating current performance from resilient performance, and to initiate that work through capital investment, new incentives, and policy changes so that the inevitable natural disaster of a Cascadia earthquake and tsunami will not deliver a catastrophic blow to Oregon's economy and communities.

Overview of the Task Groups

The **Cascadia Earthquake Scenario Task Group** (Chapter One) reviewed current scientific research to develop a detailed description of the likely physical effects of a great (magnitude 9.0) Cascadia subduction zone earthquake and tsunami, providing a scenario that other task groups used to assess impacts on their respective sectors.



Comparison of the history of subduction zone earthquakes along the Cascadia Subduction Zone in northern California, Oregon, and Washington, with events from human history. Ages of earthquakes are derived from study and dating of submarine landslides triggered by the earthquakes. Earthquake data provided by Chris Goldfinger, Oregon State University; time line by Ian P. Madin, DOGAMI.

This timeline compares the 10,000-year-long history of Cascadia earthquakes to events in human history.

The **Business and Workforce Continuity Task Group** (Chapter Two) sought to assess the workplace integrity, workforce mobility, and building systems performance – along with customer viability – needed to allow Oregon's businesses to remain in operation following a Cascadia earthquake and tsunami and to drive a self-sustaining economic recovery.

The **Coastal Communities Task Group** (Chapter Three) addressed the unique risks faced by Oregon's coast, the region of the state that will experience a devastating combination of tsunami inundation and physical damage from extreme ground shaking due to proximity to the subduction zone fault.

Critical Facilities in the Tsunami Zone – Minamisanriku, March 14, 2011. Because their hospital, emergency operation center, and other government and community service facilities were located in the tsunami inundation zone, the surviving community lost nearly all of its capacity to respond and implement recovery efforts. Source: Asia Air Survey Co., Ltd.

Tsunami Vulnerability: City of Seaside with 83% of its population, 89% of its employees and almost 100% of its critical facilities in the tsunami inundation zone. Source: Horning Geosciences

The **Critical and Essential Buildings Task Group** (Chapter Four) examined the main classes of public and private structures considered critical to resilience in the event of a scenario earthquake, and sought to characterize the gap between expected seismic performance (current state) and desired seismic resilience (target state). The group also assessed buildings deemed vital to community resilience, and addressed the special challenges posed by unreinforced masonry (URM) and non-ductile concrete structures.

Many of existing public and private buildings such as the State Capitol Building were built prior to our knowledge of the Cascadia subduction earthquake. They are not seismically safe, and pose significant life-safety threat to the building occupants.

The **Transportation Task Group** (Chapter Five) assessed the seismic integrity of Oregon's multi-modal transportation system, including bridges and highways, rail, airports, water ports, and public transit systems, examined the special considerations pertaining to the Columbia and Willamette River navigation channels, and characterized the work deemed necessary to restore and maintain transportation lifelines after a Cascadia earthquake and tsunami. The group's scope included interdependence of transportation networks with other lifeline systems.

The approach (foreground) to the 1966 Astoria-Megler Bridge that spans the Columbia River has major structural deficiencies that could lead to a collapse following an earthquake. Damaged bridge sections could block waterway access to the Critical Energy Infrastructure Hub. (DOGAMI photo)

The **Energy Task Group** (Chapter Six) investigated the seismic deficiencies of Oregon's energy storage and transmission infrastructure, with a special emphasis on the vulnerability of the state's critical energy infrastructure (CEI) hub, a six-mile stretch of the lower Willamette River where key liquid fuel and natural gas storage and transmission facilities and electricity transmission facilities are concentrated.

Left: Site map of the Critical Energy Infrastructure (CEI) Hub on the western bank of the Lower Willamette River area in NW Portland, Oregon. The CEI Hub, outlined in red, stretches for six miles. (Google Earth)
Right: Oil terminals in the CEI Hub. (DOGAMI photo)

The **Information and Communications Task Group** (Chapter Seven) examined the inherent vulnerabilities of Oregon's information and communications systems and the consequences of service disruptions for the resilience of other sectors and systems. The group explored the implications of co-location of communications infrastructure with other vulnerable physical infrastructure (*e.g.,* bridges), and specified the conditions needed to accomplish phased restoration of service following a Cascadia earthquake and tsunami.

The **Water and Wastewater Task Group** (Chapter Eight) reviewed vulnerabilities of the pipelines, treatment plants, and pump stations that make up Oregon's water and wastewater systems, and discussed the interventions needed to increase the resilience of under-engineered and antiquated infrastructure at potential failure points. The group proposed a phased approach to restoration of water services after a Cascadia earthquake and tsunami, beginning with a backbone water and wastewater system capable of supplying critical community needs.

Left: These high voltage electrical transmission towers are built on a river bank in the Critical Energy Infrastructure (CEI) Hub susceptible to lateral spreading. (DOGAMI photo)

Right: Structural damage to a high voltage transmission tower located at a river crossing in 2010 Chile earthquake (ASCE Technical Council on Lifeline Earthquake Engineering – TCLEE)

Key Findings

Oregon is far from resilient to the impacts of a great Cascadia earthquake and tsunami today. Available studies estimate fatalities ranging from 1,250 to more than 10,000 due to the combined effects of earthquake and tsunami, tens of thousands of buildings destroyed or damaged so extensively that they will require months to years of repair, tens of thousands of displaced households, more than $30 billion in direct and indirect economic losses (close to one-fifth of Oregon's gross state product), and more than one million dump truck loads of debris.

A particular vulnerability is Oregon's liquid fuel supply. Oregon depends on liquid fuels transported into the state from Washington State, which is also vulnerable to a Cascadia earthquake and tsunami. Once here, fuels are stored temporarily at Oregon's critical energy infrastructure hub, a six-mile stretch of the lower Willamette River where industrial facilities occupy liquefiable riverside soils. Disrupting the transportation, storage, and distribution of liquid fuels would rapidly disrupt most, if not all, sectors of the economy critical to emergency response and economic recovery.

- After the February 27, 2010 M8.8 Maule Earthquake, Chile was able to restore 90% communication services and 95% power supply within two weeks, and re-start commercial flights after ten days.
- After the March 11, 2011 M9.0 Tohoku Earthquake, Japan was able to restore more than 90% power supply in ten days, 90% telephone lines in two weeks, and 90% cellular base stations in 19 days.

Business continuity planning typically assumes a period of two weeks to be the longest disruption of essential services (*i.e.*, utilities, communications, etc.) that a business can withstand, and service disruptions lasting for one month or longer can be enough to force a business to close, relocate, or leave the state entirely. Analysis in the *Oregon Resilience Plan* reveals the following timeframes for service recovery under present conditions:

Critical Service	Zone	Estimated Time to Restore Service
Electricity	Valley	1 to 3 months
Electricity	Coast	3 to 6 months
Police and fire stations	Valley	2 to 4 months
Drinking water and sewer	Valley	1 month to 1 year
Drinking water and sewer	Coast	1 to 3 years
Top-priority highways (partial restoration)	Valley	6 to 12 months
Healthcare facilities	Valley	18 months
Healthcare facilities	Coast	3 years

Resilience gaps of this magnitude reveal a harsh truth: a policy of business as usual implies a post-earthquake future that could consist of decades of economic and population decline – in effect, a "lost generation" that will devastate our state and ripple beyond Oregon to affect the regional and national economy.

Recommendations

Based on the findings in this *Oregon Resilience Plan*, OSSPAC recommends that Oregon start now on a sustained program to reduce our vulnerability and shorten our recovery time to achieve resilience before the next Cascadia earthquake inevitably strikes our state.

OSSPAC urges systematic efforts to assess the Oregon's buildings, lifelines, and social systems, and to develop a sustained program of replacement, retrofit, and redesign to make Oregon resilient.

Sector-by-sector findings and detailed recommendations are presented in each chapter of the *Oregon Resilience Plan*. Overarching priorities, illustrated with examples selected from the chapters, include new efforts to:

1. Undertake **comprehensive assessments** of the key structures and systems that underpin Oregon's economy, including
   a. Completing a statewide inventory of critical buildings (those needed for emergency response and the provision of basic services to communities) in both public and private sectors (Chapter Four);
   b. Completing an updated inventory of the local agency, transit, port, and rail assets that assure access to school buildings and hospitals and could be used during emergencies (Chapter Five);
   c. Charging the Oregon Public Utility Commission to define criteria for seismic vulnerability assessments that can be applied by operating companies in the energy and information and communications sectors (Chapters Six and Seven); and
   d. Requiring all water and wastewater agencies to complete a seismic risk assessment and mitigation plan as part of periodic updates to facility plans (Chapter Eight).
2. Launch a sustained **program of capital investment** in Oregon's public structures, including
   a. Fully funding Oregon's Seismic Rehabilitation Grants Program for K-12 schools, community colleges, and emergency response facilities (Chapters Two and Four);
   b. Seismically upgrading lifeline transportation routes into and out of major business centers statewide by 2030 (Chapter Five); and
   c. Establishing a State Resilience Office to provide leadership, resources, advocacy, and expertise in implementing statewide resilience plans (Chapter Four).
3. Craft a **package of incentives** to engage Oregon's private sector in efforts to advance seismic resilience, including
   a. Developing a seismic rating system for new buildings to incentivize construction of buildings more resilient than building code compliance requires and to communicate seismic risk to the public (Chapters Two and Four);
   b. Tasking the Oregon Public Utilities Commission to provide oversight for seismic preparedness of the energy providers currently under its jurisdiction (Chapter Six); and
   c. Working with the hospitality industry to develop plans to assist visitors following a major earthquake and tsunami and to plan strategies to rebuild the tourism industry (Chapter Three).
4. **Update Oregon's public policies**, including
   a. Revising individual preparedness communications to specify preparation from the old standard of 72 hours to a minimum of two weeks, and possibly more (Chapters Two and Three);
   b. Developing a policy and standards for installation of temporary bridges following earthquake disruption (Chapter Five); and
   c. Adopting a two-tiered ratings system that indicates the number of hours/days that a citizen in a community can expect to wait before major relief arrives, and the number of days/months that a citizen can expect to wait before the community itself achieves 90 percent restoration of roads and municipal services (Chapter Two).

These and other recommendations may be refined and implemented via a combination of new legislation, regulations, administrative rules, budget priorities, and in consultation with private sector leaders as appropriate.

Looking Ahead

This *Oregon Resilience Plan* emphasizes the resilient physical infrastructure needed to support business and community continuity. The policy recommendations presented here, if implemented over the next 50 years, will enhance our infrastructure resilience, help preserve our communities, and protect our state economy.

This is a timeframe much longer than typical of government planning efforts. To affirm Oregon's commitment, OSSPAC needs to work with the Joint Ways & Means Committee of Oregon's Legislative Assembly to track and report on progress toward seismic resilience at the beginning of each legislative session, to keep the 50-year goal in view.

Local Oregon communities can use the framework and gap-analysis methodology developed by the *Oregon Resilience Plan* to conduct more refined assessments that consider local seismic and tsunami hazards, and develop community-specific recommendations to meet their response and recovery needs.

A Cascadia earthquake and tsunami will affect both Oregon and Washington. Both states share common challenges, among them the interstate bridges and the Columbia River navigation channel as well as the regional power grid and liquid fuel supply. In particular, Oregon gets almost one hundred percent of its liquid fuel from suppliers in Washington, delivered via pipeline and river. We believe that it would be beneficial for both states to work together at a regional level to address the common challenge of resilience to a region-wide seismic event.

OSSPAC recommends expanding future resilience planning efforts to include:

1. Community-level planning
2. Human resilience
3. Civic infrastructure
4. Joint regional planning with Washington State

With resilient physical infrastructure, a healthy population, and functioning government and civic infrastructure to provide services to those in need, Oregon will be ready to withstand a Cascadia earthquake and tsunami, and to expedite response and recovery efforts quickly.

Table of Contents — Full Report

2012-2013 Oregon Seismic Safety Policy Advisory Commission (OSSPAC) Members

CHAIR: Kent Yu - Structural Engineer Stakeholder, Degenkolb Engineers
VICE CHAIR: Jay Wilson - Public Member, Clackamas County Emergency Management
Deborah Boone - Representative, Legislative Assembly
Greg Ek-Collins - Oregon Department of Transportation
Carl Farrington - Multifamily Housing Stakeholder
Fred Girod - Senator, Legislative Assembly
David Holton - American Red Cross*
Francisco Ianni - American Red Cross
Ian Madin - Department of Geology and Mineral Industries

*Retired from the commission in June 2012.

Michael Mumaw - Local Government Stakeholder, Emergency Manager, City of Beaverton
Jay Raskin - Public Member, Ecola Architects
Althea Rizzo - Oregon Emergency Management
Richard Rogers - Building Codes Division
Stephen Lucker - Department of Land Conservation & Development
Susan Steward – Building Owners Stakeholder, BOMA
Mark Tyler - Schools Stakeholder
Bryce Ward – Banking Stakeholder, ECONorthwest
Stan Watters – Utilities Stakeholder, Port of Portland
Gerry Williams - Public Member, Construction & Engineering Management Research, Inc.
Bev Hall - OSSPAC Secretary, Oregon Emergency Management

Project Team and Acknowledgments

On behalf of my fellow OSSPAC Commissioners, I want to thank several individuals whose vision and support have made our resilience planning work possible. First and foremost, we thank our colleague Rep. Deborah Boone, who introduced House Resolution 3 and won the unanimous support of her colleagues on April 18, 2011. We are also grateful to Governor John Kitzhaber, who encouraged OSSPAC's efforts on resilience, and to President Barack Obama's Senior Director for Resilience Richard Reed, who took the time to express his support for the preparation of Oregon's resilience plan.

We are very grateful to members of the project Steering Committee, who have offered their advice, counsel, and support at every stage of our work: **Jay Wilson** (Vice Chair)**, Ian Madin, Dr. Althea Rizzo, and Stan Watters**.

We appreciate the commitment of our Advisory Panel, whose members participated in meetings on January 26th, 2012 and October 5th, 2012 and have made themselves available for informal consultation over the past year: **Prof. Scott Ashford, Sen. Lee Beyer, Sen. Peter Courtney, Ed Dennis, JR Gonzalez, Prof. Chris Goldfinger, Dave Harlan, Onno Husing, Bruce Johnson, Dr. Leon Kempner, Jr., Prof. Andre LeDuc, Dr. Vicki McConnell, Dr. Jean O'Connor, Cameron Smith, Jeffrey Soulages, Yumei Wang, Edward Wolf, and Dr. Nate Wood**. In particular, we want to thank Dr. Vicki McConnell, Yumei Wang and Edward Wolf for their guidance and support.

We owe the creation of the *Oregon Resilience Plan* to diligent efforts by our eight Task Groups and the capable leadership and project management performed by our Task Group leaders, who may not have fully realized the magnitude of the project when they agreed to serve:

Earthquake and Tsunami Scenario Task Group: ***Ian Madin*** (Chair), Bill Burns, Art Frankel, Chris Goldfinger, Matthew Mabey, George Priest, Yumei Wang, and Ivan Wong.

Business and Work Force Task Group: ***Susan Steward*** (Co-Chair), ***Gerry Williams*** (Co-Chair), Lori Chamberlain, Patrick Estenes, Kelley Okolita, Patrick Slabe, Bert Sorio, Jeffrey Soulages, Rick Van Dyke, and Bryce Ward.

Coastal Communities Task Group: ***Jay Wilson*** (Co-Chair), ***Jay Raskin*** (Co-Chair),Jacque Betz, Rep. Deborah Boone, Josh Bruce, Lori Christiansen,Charlie Davis, Sue Graves, Dave Harlan, Jeffrey Hepler, Maggie Kirby, Sen. Jeff Kruse, Margo Lalich, Jack Lenox, Gary Milliman, Sam Steidel, Wayne Stinson, and Laren Woolley.

Critical Buildings Task Group: ***Ed Quesenberry*** (Co-Chair), ***Trent Nagele*** (Co-Chair), Andre Barbosa, David Bugni, Ed Dennis, Kimberly Dills, Shane Downing, Shelly Duquette, Jennifer Eggers, Joe Gehlen, Tonya Halog, Robert Johnson, Kevin Kaplan, Amit Kumar, Dominic Matteri, Anne Monnier, Willy Paul, Josh Richards, Tim Rippey, Richard Rogers, Terry Shugrue, Jason Thompson, Mark Tobin, Jim Weston, Michael Wieber, and Edward Wolf.

Transportation Task Group: ***Bruce Johnson*** (Chair), Martin Callery, Lieutenant Meredith Condon, Chris Corich, Peter Duskica, Greg Ek-Collins, Herb Florer, Doug Grafe, Elsie Hamner, Chuck Hutto, Doug Kirkpatrick, Jeff Langstrom, Lee Lazaro, Mark Libby, Matt Maass, Bob Melbo, Nason McCullough, Curran Mohney, Lucy Moore, Nancy Murphy, Albert Nako, David Neys, David Olongiagh, Jeff Olson, Jon Oshel, Tom Peterson, Craig Shike, Craig Totten, Tom Wharton, John Wilson, and Holly Winston.

Energy Task Group: ***JR Gonzalez*** (Co-Chair), ***Stan Watters*** (Co-Chair), Heide Caswell, Rick Carter, Brian Doherty, Michael Dougherty, Del Draper, Dave Ford, Debbie Guerra, Teresa Hagins, Marion Haynes, Leon Kempner, Jr., Brian Knight, Lori Koho, Christy Munro, Bruce Paskett, Robbie Roberts, Dave Stuckey, Jack Vranish, Yumei Wang, Tashiana Wanger, and Grant M. Yoshihara.

Information and Communications Task Group: ***Mike Mumaw*** (Chair), Rick Carter, Michael Dougherty, Walter Duddington, JR Gonzalez, Alexis Kwasinki, Devon Lumbard, Kelley Stember, Alex Tang, Yumei Wang, Stan Watters, and Geoffery Williams.

Water and Waste Water Task Group: ***Mike Stuhr*** (Co-Chair), ***Mark Knudson*** (Co-Chair), Don Ballantyne, Steve Behrandt, James Bela, Andy Braun, Scott Burns, Mel Damewood, Jim Doane, Michael Doane, Tom Hickman, Gary Irwin, Gwynne Johnson, Jeff Leighton, Arturo Leon, Ian Madin, Jim Male, Jim Newell, Bob Patterson, Sherry Patterson, Todd Perimon, Brad Phelps, Jeff Rubin, Rob Schab, Ken Schlegel, Brian Stahl, and Jeffrey Winchester.

Dr. Kyra L. Nourse compiled and edited the *Oregon Resilience Plan*, with assistance from my OSSPAC colleagues Dr. Althea Rizzo, Jay Wilson, Ian Madin, Bev Hall and from Edward Wolf. We are grateful to FEMA for financial support, through a grant administered by Oregon Emergency Management, for the technical editing of the plan.

The Port of Portland hosted our workshops on January 26, 2012 and October 5, 2012 in its headquarter building. We want to thank Michelle Walker for her planning and coordination to make the workshops successful. Cascadia Region Earthquake Workgroup (CREW) provided their endorsement for our resilience planning efforts, and also helped sponsor our January 26, 2012 workshop. We want to thank Cale Ash (then President of CREW) and John Schelling (Washington State Emergency Management) for their participation and for sharing their resilience planning experience with us.

On a personal note, I wish to thank my colleagues at Degenkolb Engineers, particularly Chris Poland in San Francisco and Stacy Bartoletti in Seattle, for their inspiration on resilience, and colleagues in our Portland office including Liz Francis and Karla Richards who helped me to manage my resilience plan responsibilities without leaving my other professional obligations too far behind.

Finally, I want to acknowledge the leadership of OSSPAC's Vice Chair Jay Wilson, who has in every respect been a full partner in the vision and execution of the *Oregon Resilience Plan*, and who is a great champion for resilience.

Many other individuals have generously shared their expertise and perspective with us during the creation of this plan. OSSPAC bears the sole responsibility for any errors or omissions it contains.

Kent Yu, Ph.D.
Chairman, Oregon Seismic Safety Policy Advisory Commission
Portland, Oregon
January 2013

Note: The ***full Oregon Resilience Plan report*** *is available online at the Oregon Office of Emergency Management website:* http://www.oregon.gov/OMD/OEM/Pages/index.aspx

Enrolled
Senate Bill 33

Printed pursuant to Senate Interim Rule 213.28 by order of the President of the Senate in conformance with presession filing rules, indicating neither advocacy nor opposition on the part of the President (at the request of Governor John A. Kitzhaber, M.D., for Oregon Military Department)

CHAPTER .....

AN ACT

Relating to emergency preparedness; creating new provisions; amending ORS 401.054; and declaring an emergency.

Be It Enacted by the People of the State of Oregon:

SECTION 1. ORS 401.054 is amended to read:

401.054. (1) **Each of** the following state agencies shall designate [*a person within each*] **an individual within the** agency to act as a liaison with the Office of Emergency Management:

[*(a) The Department of Transportation;*]

[*(b) The State Department of Agriculture;*]

[*(c) The Department of Environmental Quality;*]

[*(d) The Department of Human Services;*]

[*(e) The State Department of Energy;*]

[*(f) The Oregon Department of Administrative Services;*]

[*(g) The Department of State Police;*]

[*(h) The State Department of Geology and Mineral Industries;*]

[*(i) The Oregon Health Authority; and*]

[*(j) The Oregon Military Department.*]

(a) The Department of Consumer and Business Services;

(b) The Department of Corrections;

(c) The Department of Environmental Quality;

(d) The Department of Human Services;

(e) The Department of Justice;

(f) The Department of Land Conservation and Development;

(g) The Department of State Police;

(h) The Department of Transportation;

(i) The Judicial Department;

(j) The Oregon Department of Administrative Services;

(k) The Oregon Department of Aviation;

(L) The Oregon Health Authority;

(m) The Public Utility Commission of Oregon;

(n) The State Department of Agriculture;

(o) The State Department of Energy;

(p) The State Department of Fish and Wildlife;

(q) The State Department of Geology and Mineral Industries;

(r) The State Fire Marshal;

(s) The State Forestry Department;

(t) The State Marine Board;

(u) The State Parks and Recreation Department; and

(v) The Water Resources Department.

(2) Each state agency required to designate a liaison under this section shall designate an individual who has authority during an emergency to allocate resources and assets of the agency.

[*(2)*] **(3)** Each [*person*] **individual** designated as a liaison under subsection (1) of this section shall assist in the coordination of the functions of the [*person's*] **individual's** agency that relate to emergency preparedness and response with similar functions of the Office of Emergency Management.

SECTION 2. (1) The Task Force on Resilience Plan Implementation is established, consisting of the following members:

(a) Two members from among members of the Senate appointed by the President of the Senate.

(b) Two members from among members of the House of Representatives appointed by the Speaker of the House of Representatives.

(c) Eight members appointed by the Governor as follows:

(A) One advisor of the Governor on public safety.

(B) One advisor of the Governor on regional solutions.

(C) One individual recommended by the Association of Oregon Counties.

(D) One individual recommended by the League of Oregon Cities.

(E) One individual recommended by the Special Districts Association of Oregon.

(F) One individual representing the scientific community.

(G) One individual representing the private business sector.

(H) One individual representing the private nonprofit sector.

(d) The Adjutant General, or an individual designated by the Adjutant General.

(e) The Director of the Office of Emergency Management or an officer or employee of the office designated by the director.

(f) The chairperson of the Seismic Safety Policy Advisory Commission or a member of the commission designated by the chairperson.

(g) The Director of Transportation or another officer or employee of the Department of Transportation designated by the director.

(h) The Public Health Director appointed by the Director of the Oregon Health Authority under ORS 431.035 or another officer or employee of the authority.

(2) The Governor shall select one of the members of the task force to serve as chairperson and one member to serve as vice chairperson.

(3) The task force shall facilitate a comprehensive and robust plan to implement the strategic vision and roadmap of the Oregon Resilience Plan for responding to the consequences of naturally occurring seismic events associated with geologic shift along the Cascadia subduction zone by making recommendations about:

(a) Education and training of community leaders in emergency management and resilience practices, including:

(A) The development of programs required to significantly improve emergency management knowledge and skills within public, private and private-nonprofit leadership throughout the State of Oregon.

(B) The establishment of integrated curriculum to facilitate emergency management best practices throughout the region that are supported by the Federal Emergency Management Agency.

(C) The expansion of outreach and professional development opportunities for emergency management agencies.

(D) The implementation of a sustainable structure for education and training necessary to facilitate statewide resilience awareness, investment and preparedness.

(E) The establishment of a permanent center of excellence in the State of Oregon for resilience initiatives and research.

(F) The provision of regular updates on emerging education and training programming opportunities.

(b) Coordination of investments in equipment, facilities and systems critical for enhanced resilience and survivability in the near, intermediate and far terms, including:

(A) The facilitation of near-term, intermediate-term, and far-term strategic investments of talent, time and moneys in support of established resilience strategies.

(B) The implementation of structured, systemic and timely outreach programming targeting public, private and private-nonprofit stakeholders.

(C) The implementation of targeted public enhancements of critical facilities associated with emergency response, public safety regeneration and civic restoration standards.

(D) The prioritization of state expenditures, including the use of moneys in the Education Seismic Fund established in ORS 286A.768 and the Emergency Services Seismic Fund established in ORS 286A.788.

(E) Analysis of international, national and state best practices.

(F) The standardization of education and training programming.

(4) The chairperson, or the vice chairperson acting in place of the chairperson:

(a) Shall establish an agenda for the task force.

(b) Shall provide leadership and direction to the task force.

(c) May establish subcommittees as necessary and may appoint individuals who are not members of the task force as members of a subcommittee.

(5) A majority of the voting members of the task force constitutes a quorum for the transaction of business.

(6) Official action by the task force requires the approval of a majority of the voting members of the task force.

(7) If there is a vacancy for any cause, the appointing authority shall make an appointment to become immediately effective.

(8) The task force shall meet at times and places specified by the call of the chairperson or of a majority of the voting members of the task force.

(9) The task force may adopt rules necessary for the operation of the task force.

(10) The task force shall submit a report in the manner provided in ORS 192.245, which may include recommendations for legislation, to the Seventy-seventh Legislative Assembly on or before October 1, 2014.

(11) The Oregon Military Department shall provide staff support to the task force.

(12) All agencies of state government, as defined in ORS 174.111, are directed to assist the task force in the performance of its duties and, to the extent permitted by laws relating to confidentiality, to furnish information and advice the members of the task force consider necessary to perform their duties.

SECTION 3. Section 2 of this 2013 Act is repealed on the date of the convening of the 2015 regular session of the Legislative Assembly as specified in ORS 171.010.

SECTION 4. The amendments to ORS 401.054 by section 1 of this 2013 Act become operative on January 1, 2014.

SECTION 5. This 2013 Act being necessary for the immediate preservation of the public peace, health and safety, an emergency is declared to exist, and this 2013 Act takes effect on its passage.

Passed by Senate March 13, 2013

Repassed by Senate June 21, 2013

.....
Robert Taylor, Secretary of Senate

.....
Peter Courtney, President of Senate

Passed by House June 19, 2013

.....
Tina Kotek, Speaker of House

Received by Governor:

.....M.,....., 2013

Approved:

.....M.,....., 2013

.....
John Kitzhaber, Governor

Filed in Office of Secretary of State:

.....M.,....., 2013

.....
Kate Brown, Secretary of State

Materials following this page were distributed at the meeting.

The Oregon Resilience Plan
Brief Overview

for

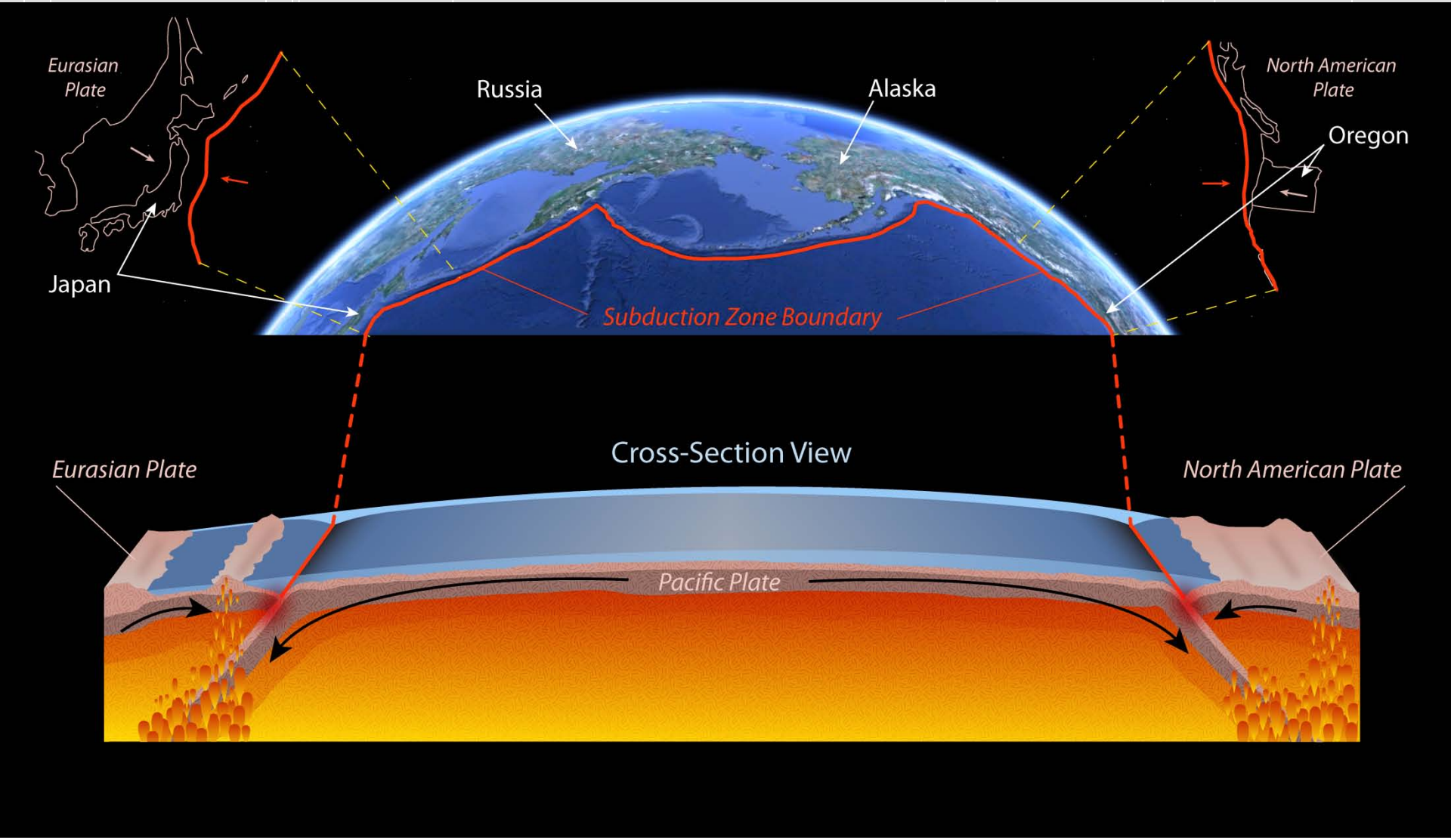
Metro

Kent Yu, PhD, Chair
Oregon Seismic Safety Policy Advisory Commission
Principal, SEFT Consulting Group

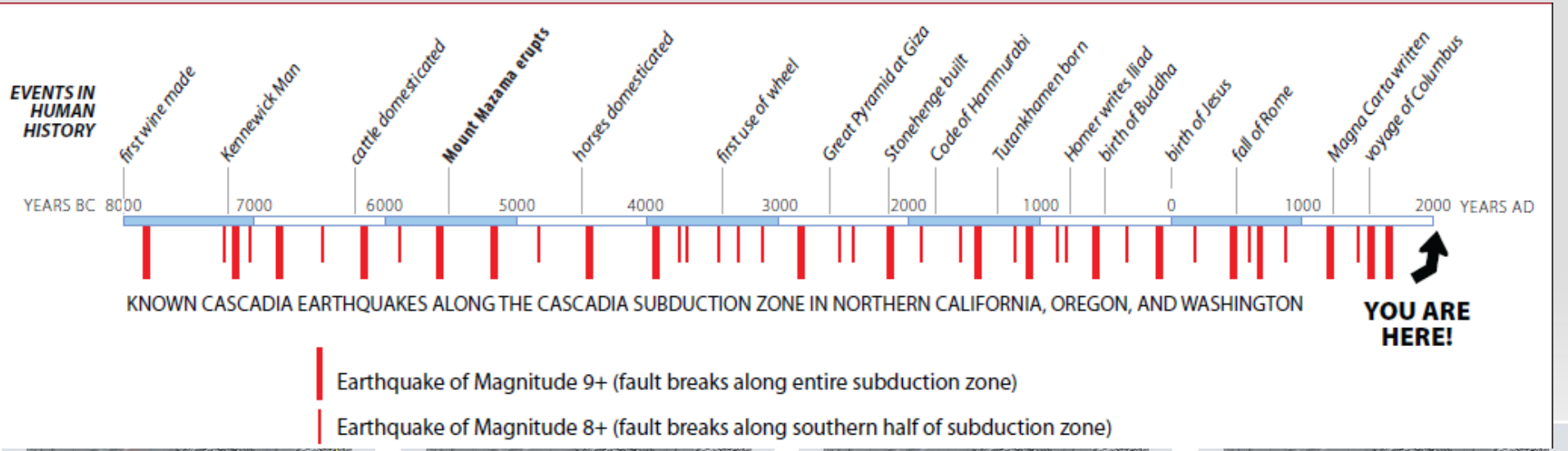
October 8, 2013
Portland, Oregon

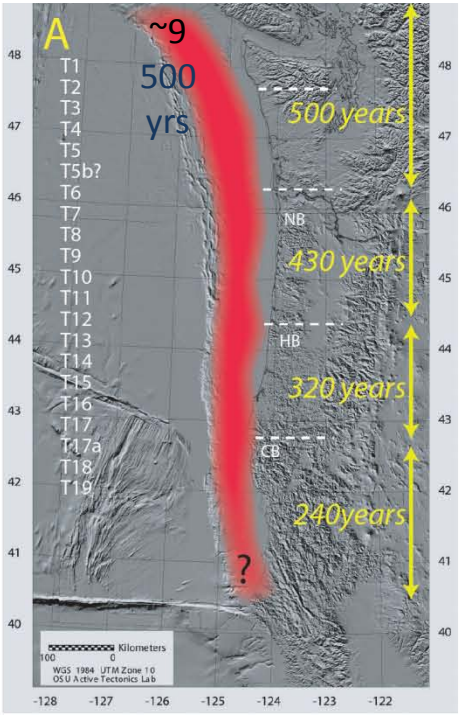
To Keep Commerce Flowing, We Need Infrastructure

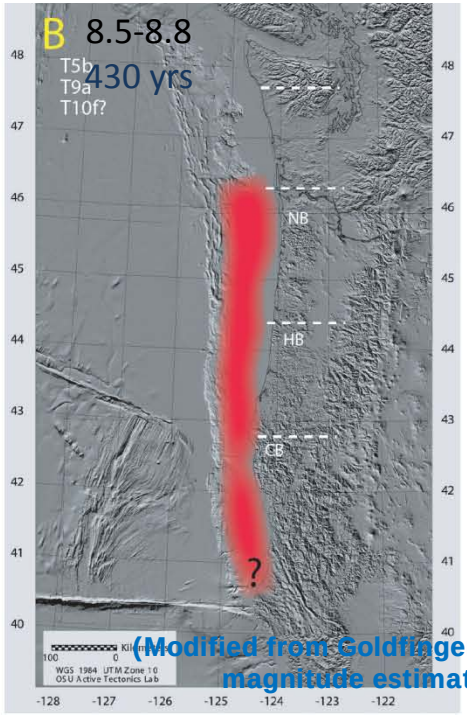
Cascadia Subduction Earthquake

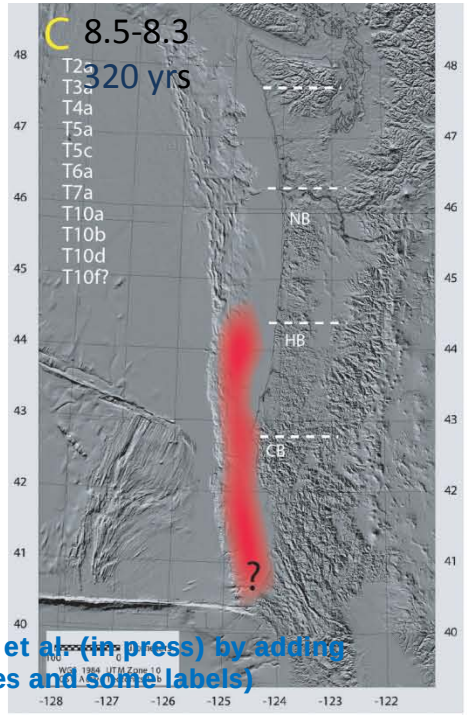


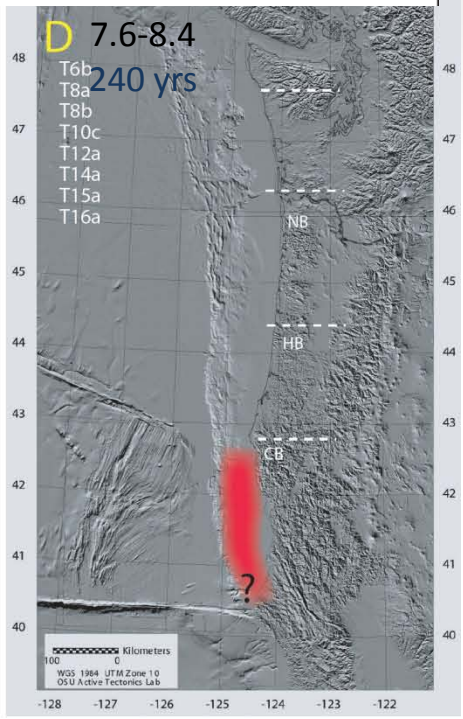
Cascadia Subduction Zone Earthquakes





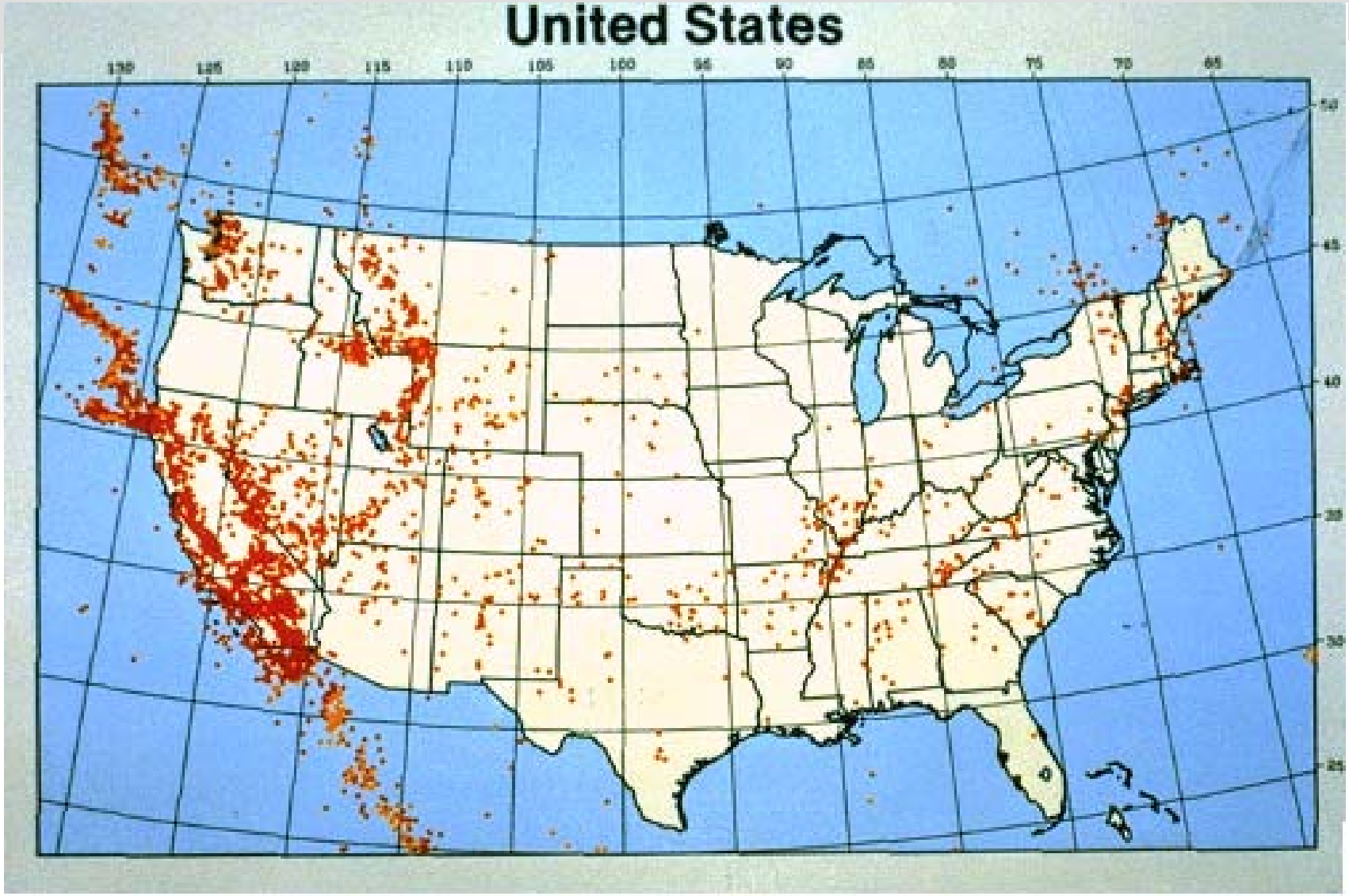




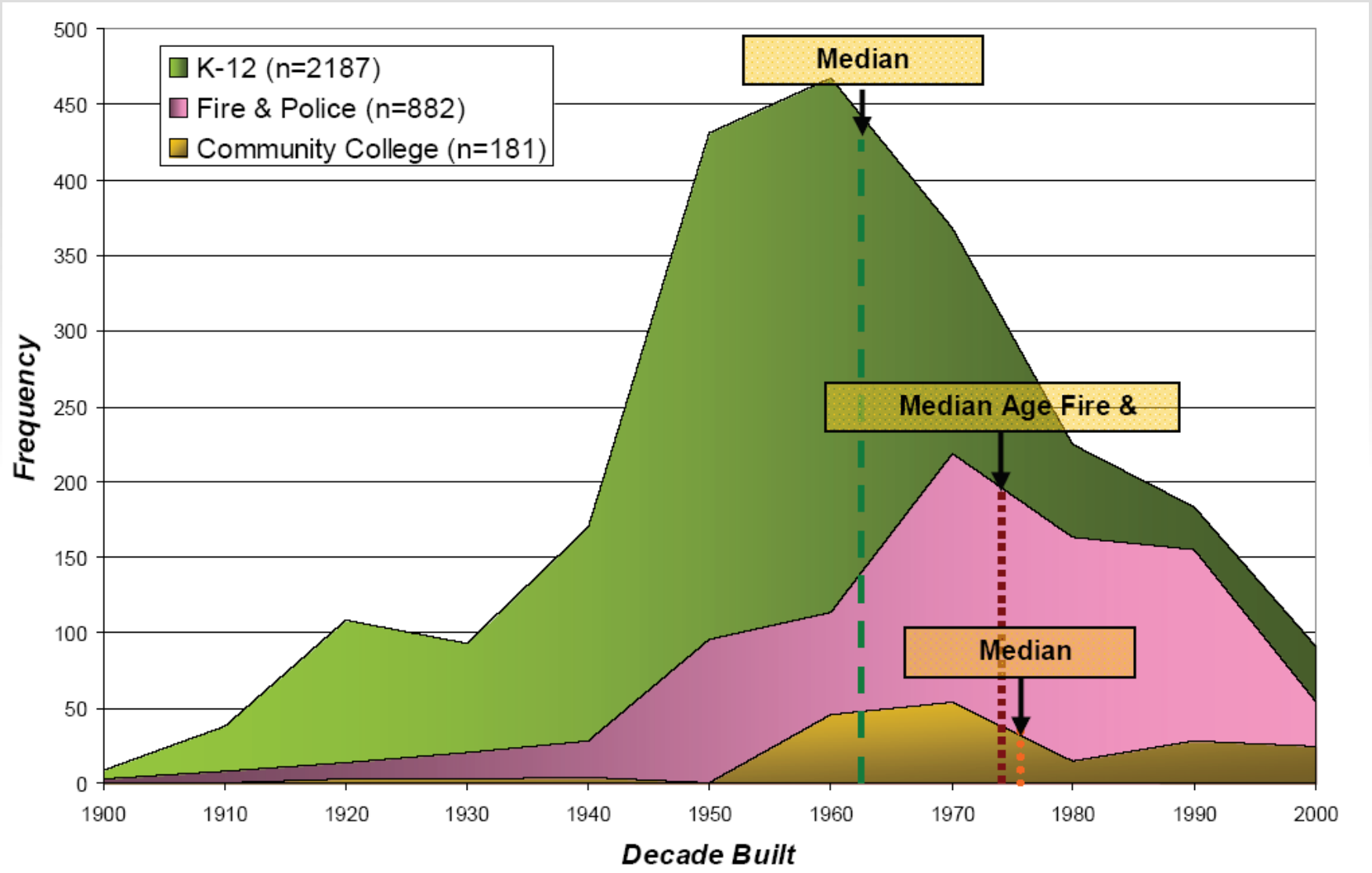


(Modified from Goldfinger et al. (in press) by adding magnitude estimates and some labels)

Cascadia Earthquake Hazards and Risk



Oregon Education & Emergency Facilities



March 25,1993 Scotts Mills Spring Break Earthquake

The Seattle Times
Winner of Nine Pulitzer Prizes

Search

Thursday, March 25, 1993 - Page updated at 12:00 AM

Quake Cracks Oregon Capitol -- Temblor Registers 5.4, Causes Minor Injuries

AP: Times Staff

PORTLAND - An earthquake centered in the Cascade foothills east of Silverton rattled northwest Oregon and parts of Western Washington early today, cracking the rotunda of the Oregon Capitol in Salem and causing minor injuries.

The quake, focused about 12 miles deep and about 30 miles southeast of Portland, registered 5.4 on the Richter scale of ground motion at 5:34 a.m. and lasted about 45 seconds.

"It felt like I was on a boat going down rapids. It woke me right up," said Bill Holder, a cook at Rod's Lafayette Restaurant in Lafayette, near the epicenter.

The original wing of the state Capitol in Salem was closed after serious cracks were found in the rotunda, House Speaker Larry Campbell said. A newer wing remained open. Engineers were considering removing the gold-plated pioneer statue on top of the Capitol.

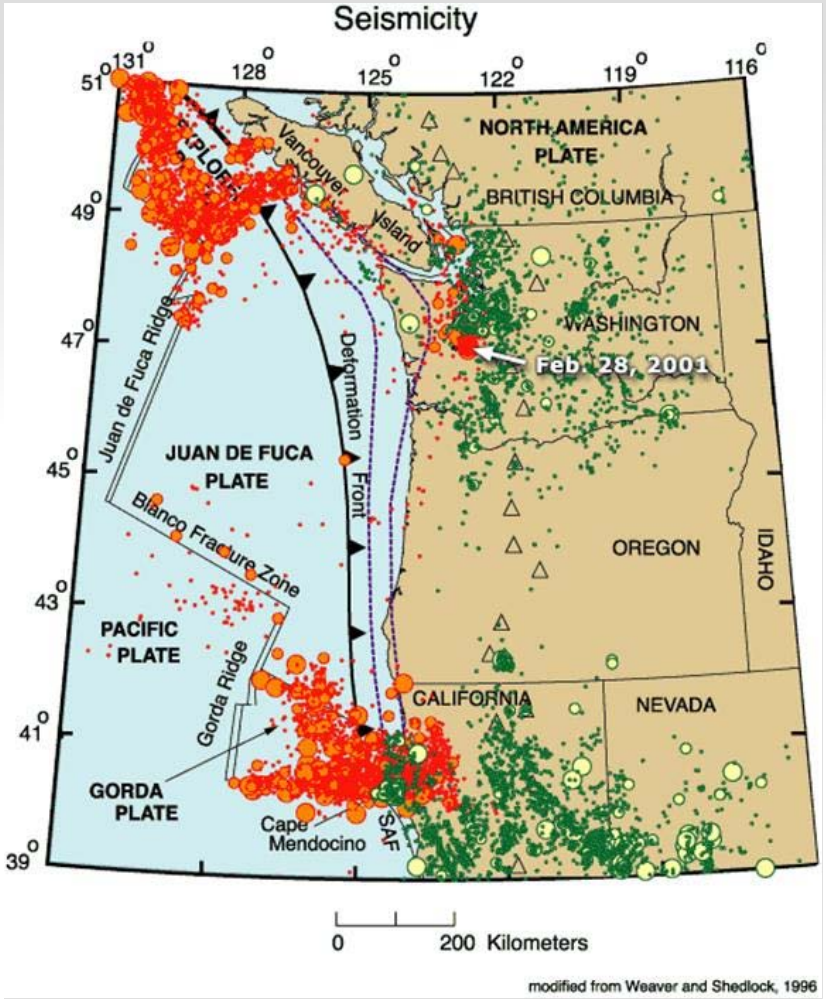
Two people came to the emergency room at Salem Hospital with minor cuts from falling glass.

In Molalla, 27 miles southeast of Portland, two walls at the high school partially collapsed. Bricks and a chimney fell from the school, which was built in 1925.

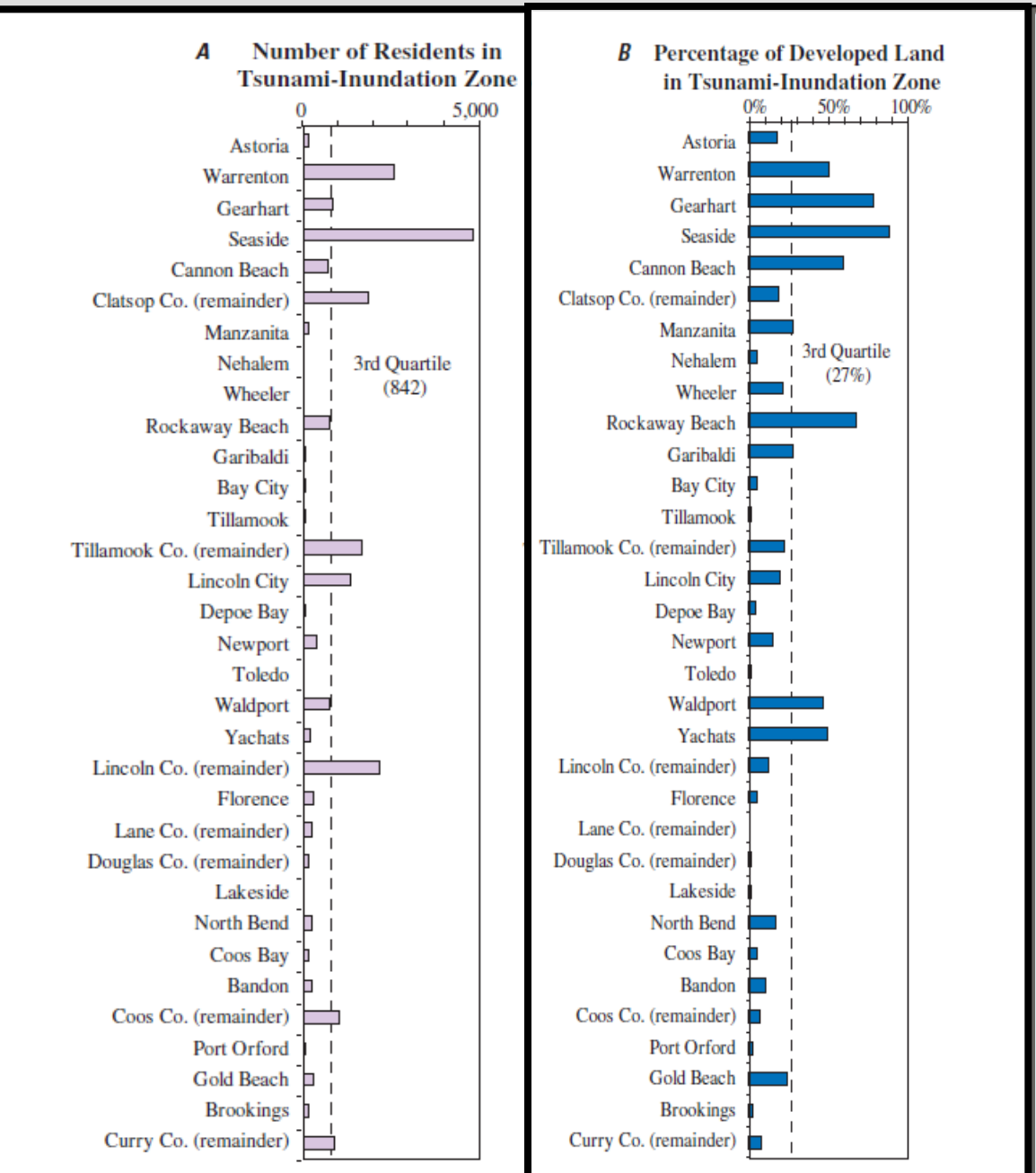
Brick planters and windows also were broken at some homes and businesses in the town of 3,800, and goods were knocked off grocery store shelves.

Cascadia Subduction Earthquake

- Strong Ground Shaking (M9 w/ 2 - 4 min shaking)
- Tsunami within 15 to 25 minutes



Tsunami Life Safety



FAILURE

Sometimes you can see it coming around the bend

House Resolution 3

76th OREGON LEGISLATIVE ASSEMBLY--2011 Regular Session

Enrolled

House Resolution 3

Sponsored by Representative BOONE; Representatives COWAN, KRIEGER, ROBLAN, WITT, Senators COURTNEY, JOHNSON, KRUSE, VERGER, WHITSETT

- Directs Oregon Seismic Safety Policy Advisory Commission (OSSPAC) to "lead and coordinate preparation of an Oregon Resilience Plan that . . . makes recommendations on policy direction to protect lives and keep commerce flowing during and after a Cascadia (megathrust) earthquake and tsunami."
- Focuses on physical infrastructure

Key Endorsement

NATIONAL SECURITY STAF
WASHINGTON, D.C. 20504

December 7, 2011

Kent Yu, PhD
Chairman, Oregon Seismic Safety Policy Advisory Commission
P.O.Box 14370
Salem, OR
97309 5062

Dr. Yu:

On Tuesday, November 8, 2011 I had the pleasure of spending time with the working session of the National Earthquake Hazard Reduction Program (NHERP) Advisory Committee. There, I was honored to meet Deborah Boone, Oregon State Representative and sponsor of Oregon House Resolution 3, which directs the creation of an Oregon Resilience Plan to prepare for the statewide impacts of a Cascadia earthquake and tsunami. I would like to wholeheartedly applaud Representative Boone, yourself, and the rest of the Oregon Seismic Safety Policy Advisory Commission on this initiative..

President Obama's top priority is the safety and security of the American people. I thank you for your leadership and your ongoing contribution to our Nation's resilience.

Sincerely,

Richard Reed
Special Assistant to the President for
National Security Affairs and
Senior Director for Resilience

From White House

JOHN A. KITZHABER, MD
Governor

January 4, 2012

Kent Yu, Ph.D, Chair
Oregon Seismic Safety Policy Advisory Commission
P.O. Box 14370
Salem, OR 97309

Dear Dr. Yu,

The Oregon Seismic Safety Policy Advisory Commission (OSSPAC) has a challenging mission to educate the public about our seismic risks and inform diverse policy decisions. Through OSSPAC's dedicated efforts, though, the State of Oregon and its citizens have become increasingly aware that we live in an earthquake-prone region.

This month will mark the 312th anniversary of the last major earthquake and resulting tsunami from the Cascadia Subduction Zone that sits off Oregon's coast. Throughout this year, OSSPAC will be drafting an Oregon Resilience Plan to help us better prepare for the next major earthquake and tsunami.

A focused resiliency effort can better prepare us for catastrophic disasters as well as help us weather our more common emergencies like storms, floods and fires. OSSPAC has had wide participation from state agencies, local governments, businesses and non-profits and I encourage their continued engagement on this critical effort.

Thank you for all of OSSPAC's efforts to date and for continuing to be a powerful voice for a more prepared and resilient Oregon.

Sincerely,

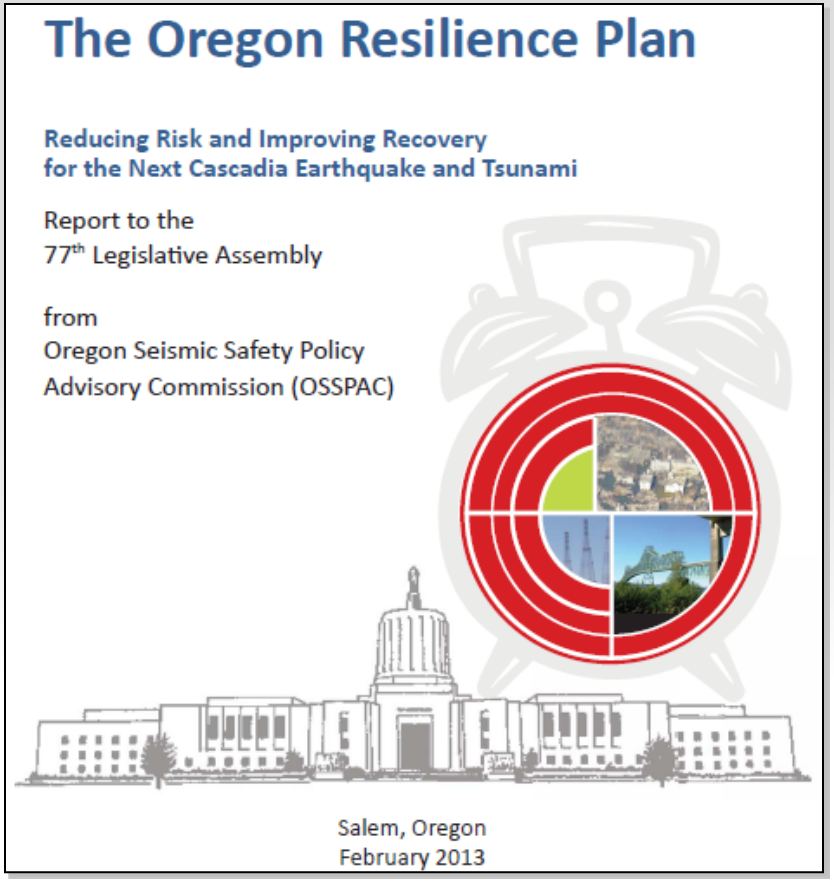
John A. Kitzhaber, M.D.
Governor

JAK/CS/ap

From Governor of Oregon

254 STATE CAPITOL, SALEM OR 97301-4047 (503) 373-3111 FAX (503) 378-4863
WWW.OREGON.GOV

The Oregon Resilience Plan



50-year Comprehensive Plan

- ❑ **Cascadia Earthquake Scenario**
- ❑ **Business/Workforce Continuity**
- ❑ **Coastal Communities**
- ❑ **Critical & Essential Buildings**
- ❑ **Transportation**
- ❑ **Energy**
- ❑ **Information and Communication**
- ❑ **Water & Wastewater**

- ❑ Save Lives, protect our economy, and preserve our communities;
- ❑ 169 Expert Volunteers;
- ❑ $ Millions in donation of professional services over a year

Eight Task Groups

Business and Work Force Continuity

Coastal Communities

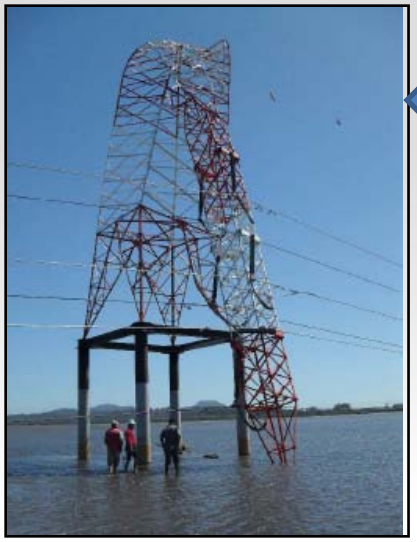
- Critical/Essential Buildings
- Energy
- Information and Communications
- Transportation
- Water and Waste Water

Magnitude 9.0 Earthquake/Tsunami Scenario

Lifeline Interdependencies

Interdependencies will make disaster recovery much more difficult. The earthquake will damage all systems at the same time.

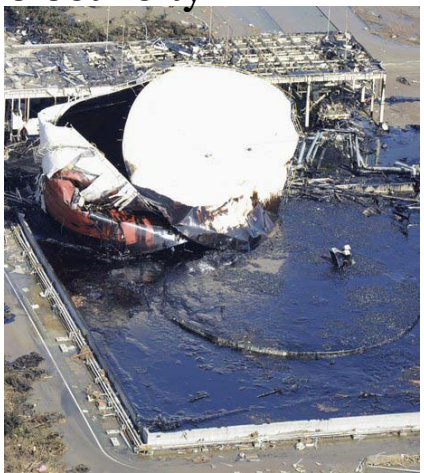
To restore electric service, you need to reopen roads



To restore water service, you need electricity

To restore fuel supplies you need electricity

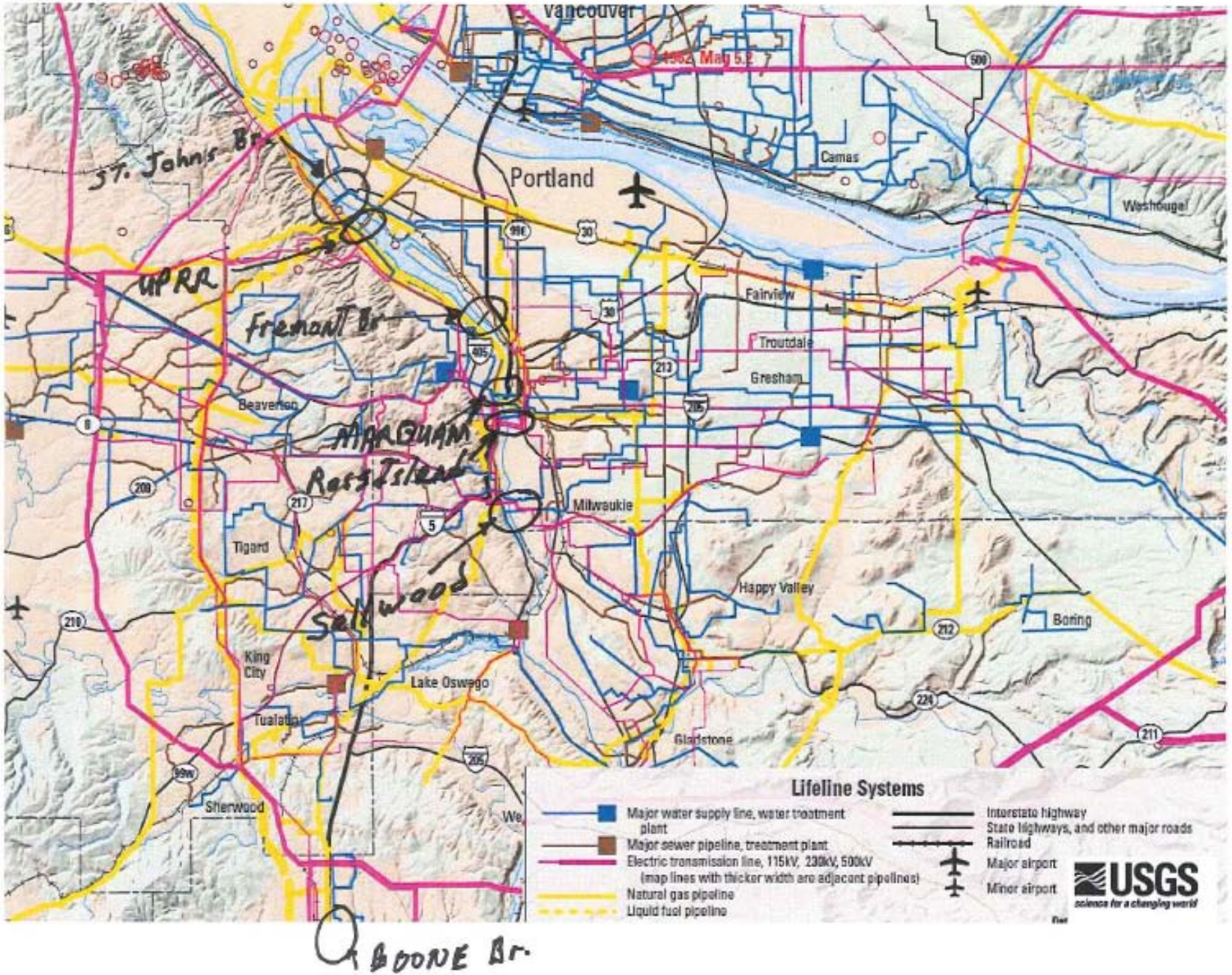
To reopen roads, you need to restore fuel supplies



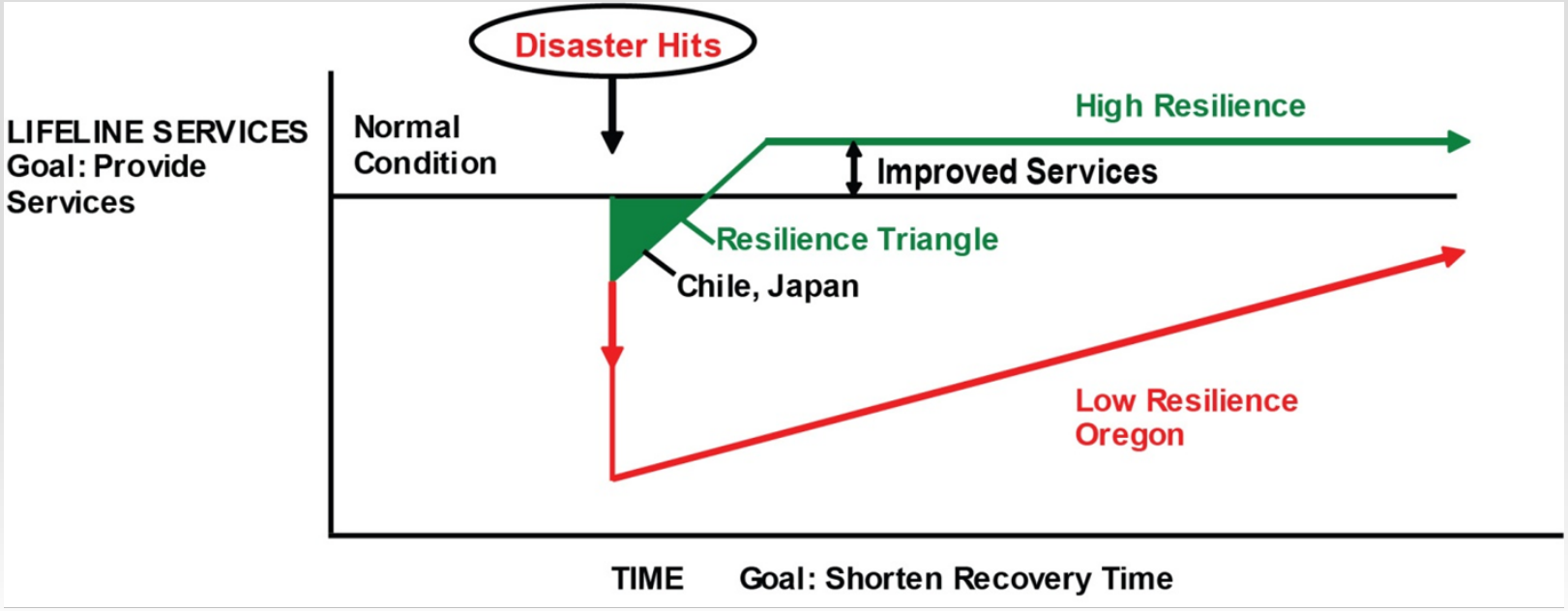
Aftermath of an earthquake in Japan, 2004
Photograph by Kimimasa Mayama/Reuters

NATIONAL GEOGRAPHIC

Lifeline Co-location



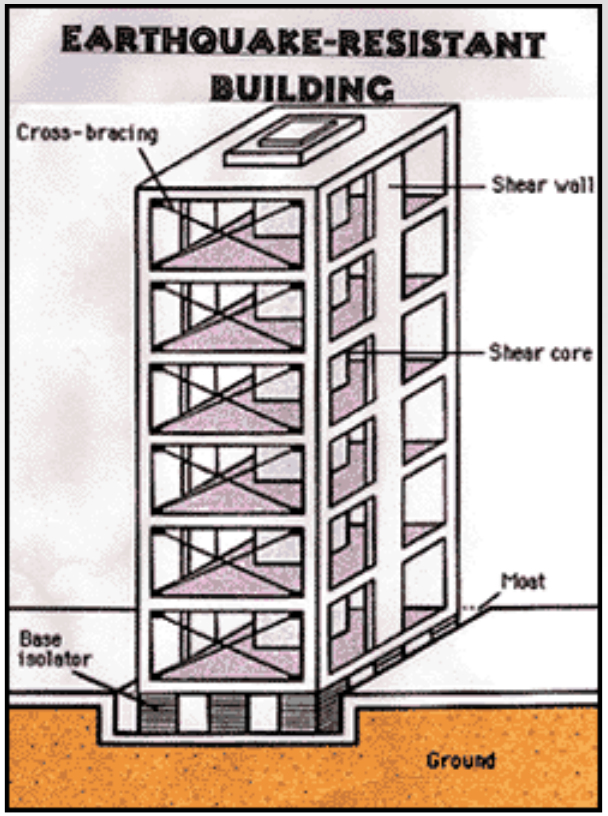
Definition of Resilience



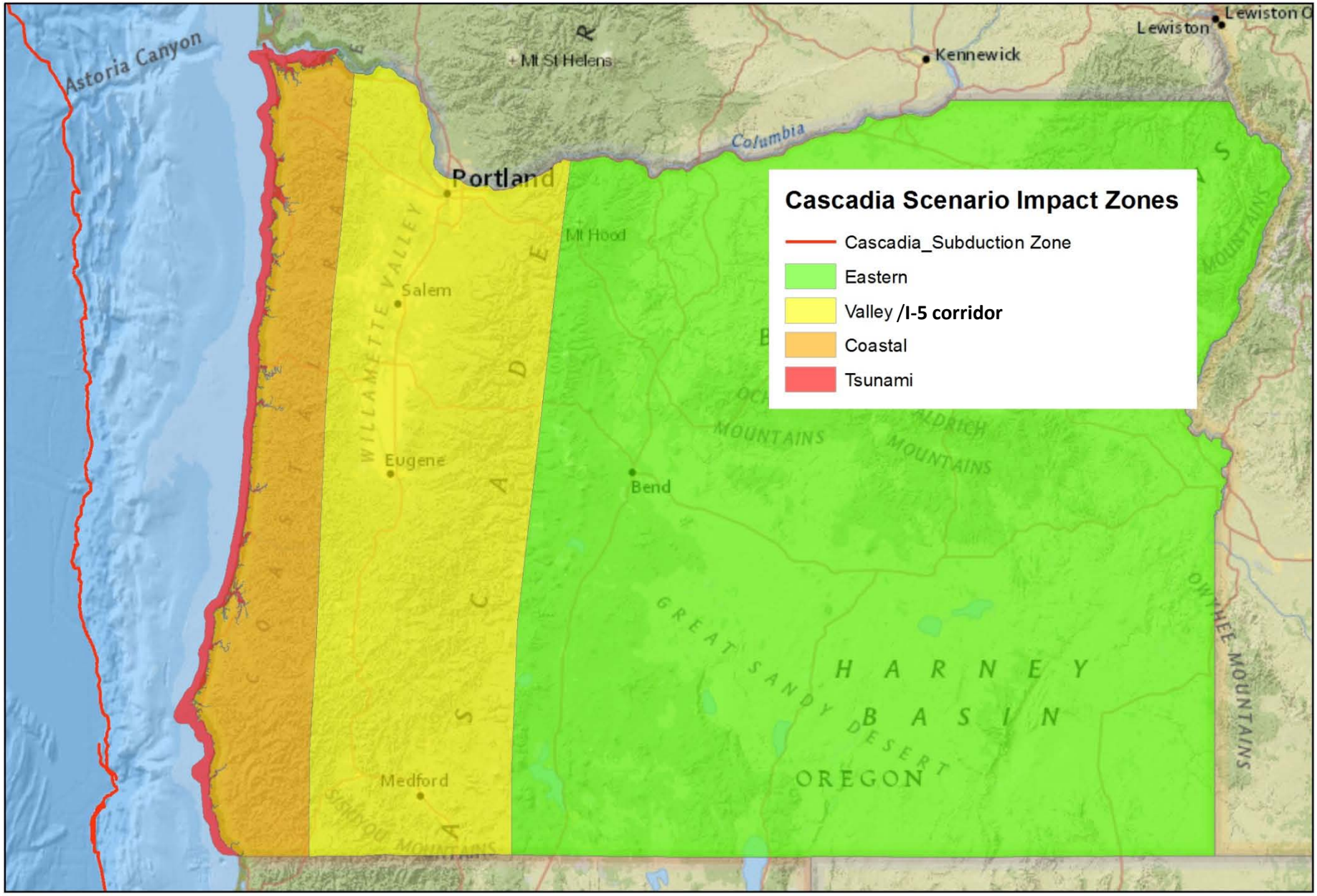
(Yumei Wang)

- **Resilience:** Save lives, Reduce Losses, Speed Recovery, & Rebuild Better
- Direct Economic Loss vs Indirect Economic Loss
- Sustainability without **Resilience** is NOT sustainable!
- Resilience enhances sustainability

Relationship Between Sustainability and Disaster Resilience



Four Zones


Cascadia Scenario Impact Zones
Cascadia_Subduction Zone
Eastern
Valley /I-5 corridor
Coastal
Tsunami
Astoria Canyon
Mt St Helens
Kennewick
Lewiston
Columbia
Portland
Mt Hood
Salem
Eugene
Bend
Medford
WILLAMETTE VALLEY
CASCADE
COASTAL
MOUNTAINS
GREAT SANDY DESERT
HARNEY
BASIN
OREGON

Oregon Resilience Planning Steps

- Assess **performance** of existing critical facilities and lifeline systems, and estimate timeframes required to restore functions at present conditions;
- Develop resilience goals based on business and community needs for each zone;
- Define acceptable target timeframes to restore functions to meet resilience goals; and
- Prepare **recommendations** for statewide policies and actions to achieve the desired performance targets.

Key Findings

- Oregon is far from resilient to the impact of a great Cascadia earthquake today
  - Casualties (a few thousand to more than 10,000)
  - Economic Loss (at least 20% state GDP)
  - More than one million truck loads of debris

- Liquid Fuel vulnerability

Current Resilience Gap

- Business can only tolerate two to four weeks of disruption of essential services

Critical Service	Zone	Estimated Time to Restore Service
Electricity	Valley	1 to 3 months
Electricity	Coast	3 to 6 months
Police and fire stations	Valley	2 to 4 months
Drinking water and sewer	Valley	1 month to 1 year
Drinking water and sewer	Coast	1 to 3 years
Top-priority highways (partial restoration)	Valley	6 to 12 months
Healthcare facilities	Valley	18 months
Healthcare facilities	Coast	3 years

Expected Building Performance

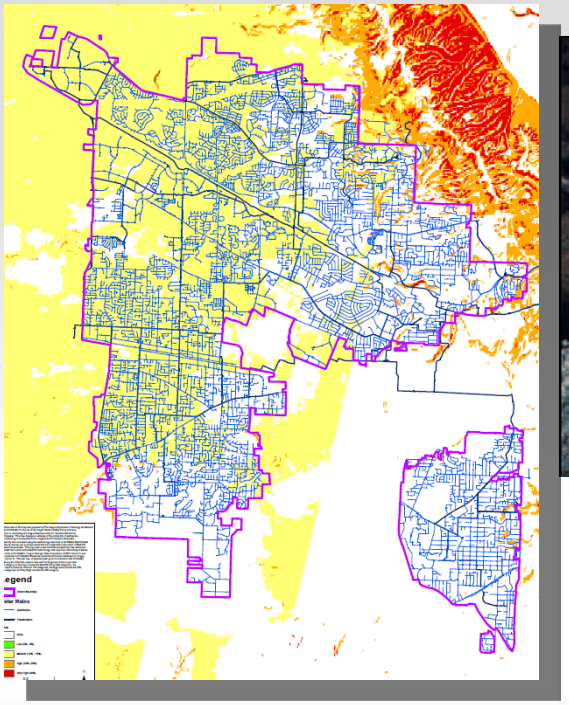
- Falls short in almost every category
- Business can tolerate 2 to 4 week recovery

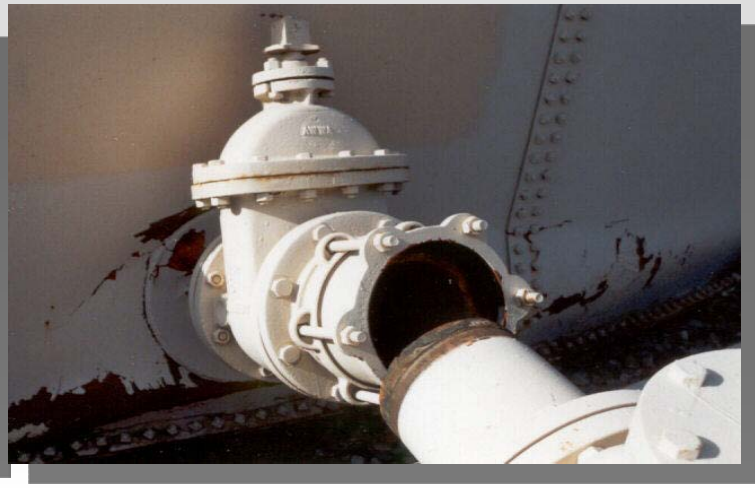
Critical Building Category	Zone	Estimated Average Recovery Time
Healthcare Facilities	Valley	18 months
Healthcare Facilities	Coast	3 years
Police and Fire Stations		
Police and Fire Stations		
Schools		
Schools		
Housing		
Housing		
Retail and Banking		

** Underestimates recovery for older construction

Vulnerable W/WW Systems

- Large, complex systems, multiple failures
  - Source, treatment, pumping, storage, distribution





Water Pipeline System Performance

Characteristic	Main Lines	Services
Length, Number	4,592 miles	385,600 connections
Number of Breaks	2,656	7,712 (utility side)
Number of Leaks	941	19,280 (customer side)
Total Leaks & Breaks	**3,597**	**26,992**

- Unprecedented number of pipeline failures
  - Equivalent of ~16 years of breaks
- Will required ~3 months to repair
  - Assumes 3 hrs/break, 12hrs/d, 7d/wk, unlimited materials, equipment & transportation
  - Does not include repairs to customer-side

METRO Bridges Preliminary Assessment

Potential Collapse

Extensive Damage

Moderate Damage

Port of Portland Facilities

Columbia River Ports

Unseen Debris

EERI: Richard Eisner

Unseen Debris

Capacity for Response and Recovery

Minamisanriku Tsunami Zone - Zero Capacity

Can we achieve resilience for M9?

- YES

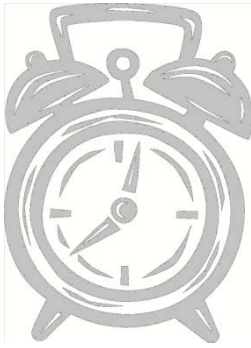
- Chile (2010 M8.8 Maule Earthquake)
  - 90% communication services within two weeks
  - 95% power supply within two weeks
  - Re-start commercial flights in ten days

- Japan (2011 M9.0 Tohoku Earthquake)
  - 90% power supply in ten days
  - 90% telephone lines in two weeks

Overarching Recommendations

- Establish a State Resilience Office to provide leadership, resources, advocacy, and expertise in implementing statewide resilience plans

- Undertake comprehensive seismic assessments of the key structures and systems that underpin Oregon's economy;

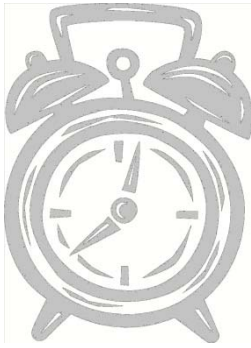


Overarching Recommendations

- Launch a sustained program of capital improvement in Oregon's public structures;

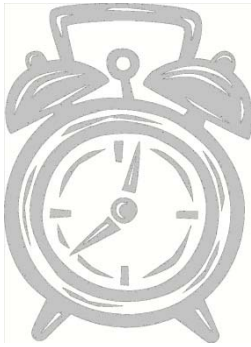
- Craft a package of incentives to engage Oregon's private sector to advance seismic resilience;

- Update Oregon's public policies

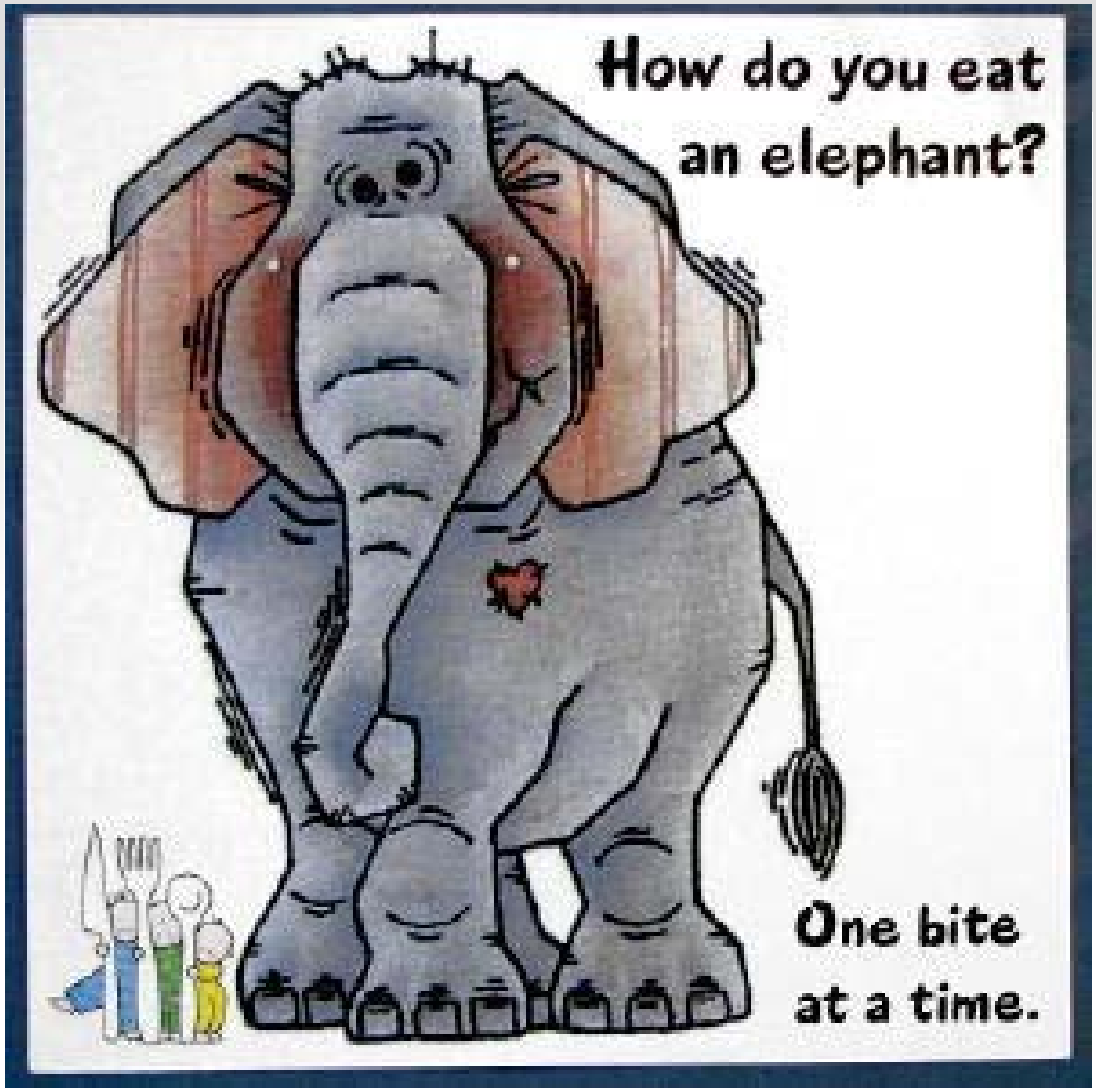


Looking Ahead

- Propose to work with Oregon's Legislative Assembly to keep the 50-year goal in view
- Community-level Planning
- Joint regional planning with Washington State
- Human Resilience
- Civic infrastructure



How to Implement it?



- March 14th Hearing for HVET and SVEP
- May 13th Hearing for House Committee on Transportation &Economic Development
- June 6th, 13th, and 20th Hearing for HVET and SVEP

B-Engrossed
Senate Bill 33

Ordered by the House June 17
Including House Amendments dated May 31 and June 17

SUMMARY

The following summary is not prepared by the sponsors of the measure and is not a part of the body thereof subject to consideration by the Legislative Assembly. It is an editor's brief statement of the essential features of the measure.

Modifies list of state agencies required to designate liaison for emergency preparedness and response. Requires that liaison be individual with authority during emergency to allocate agency resources and assets.

Establishes task force to facilitate implementation of Oregon Resilience Plan.

Declares emergency, effective on passage.

(3) The task force shall facilitate a comprehensive and robust plan to implement the strategic vision and roadmap of the Oregon Resilience Plan for responding to the consequences of naturally occurring seismic events associated with geologic shift along the Cascadia subduction zone by making recommendations about:

(a) Education and training of community leaders in emergency management and resilience practices, including:

(b) Coordination of investments in equipment, facilities and systems critical for enhanced resilience and survivability in the near, intermediate and far terms, including:

Thank You

if you have any questions, please contact Kent Yu at

kentyu@seftconsulting.com
(503)702-2065

A Few Links for Further Reading

1. ASCE Civil Engineering Magazine coverage:
http://www.constructioninst.org/CEMagazine/ArticleNs.aspx?id=23622324492

2. *Oregon Resilience Plan* executive summary (PDF):
http://www.oregon.gov/OMD/OEM/osspac/docs/Oregon_Resilience_Plan_Executive_Summary_Final.pdf

3. Oregon Resilience Plan full report, by chapter:
http://www.oregon.gov/omd/oem/pages/osspac/osspac.aspx#Oregon_Resilience_Plan

4. Coverage in *The Oregonian* (Feb. 4, 2013):
http://www.oregonlive.com/business/index.ssf/2013/02/cascadia_earthquake_and_tsunam.html#incart_m-rpt-2

5. Coverage in *The Seattle Times* (March 9, 2013):
http://seattletimes.com/html/localnews/2020525702_earthquakerecoveryxml.html

6. Materials submitted for 3/14 hearing:
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