

Oregon Resilience Plan

Task Force on Resilience Plan Implementation

November 4, 2013

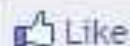


Jay Wilson – OSSPAC Chair
Hazard Mitigation Coordinator
Clackamas County Emergency Management



Hurricane Sandy Aftermath: Anger Mounts Over Gas Shortages, Power Outages, Relief Supplies

Reuters | Posted: 11/02/2012 8:47 am EDT Updated: 11/02/2012 11:43 am EDT



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Getty

Sandy highlights fragile infrastructure

Andrew S. Ross, Chronicle Columnist

Published 4:40 p.m., Thursday, November 1, 2012

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1 of 2

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Disaster plans fail major hospitals

Despite millions in upgrades, flooding from Sandy disabled alternate power supplies

Associated Press

Published 9:50 p.m., Thursday, November 1, 2012

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Paul Solman's
Making Sense

ANALYSIS AIR DATE: Oct. 31, 2012

Is Sandy a 'Cassandra'? How Cities Should Prepare for Future Natural Disasters



Reducing the Impact of Disasters and Promoting Resilience



Public Safety
Canada

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Water hub

From Guardian Sustainable Business

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Disaster resilience: the private sector has a vital role to play

Governments alone cannot ensure the resilience cities need to cope with superstorms like Sandy, business must scale up technology to prevent and respond to disasters

Albert Cho
Guardian Professional, Tuesday 22 October 2013 10.33 EDT

[Jump to comments \(2\)](#)



Superstorm Sandy was supposed to be a once-in-a-generation event, but

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What is the business case for improving the resilience of cities? With a changing climate, rising populations and resource scarcity, cities need to be able to bounce back from crises, says **Judith Rodin**



Philadelphia's water

“Last year, the US government spent about \$100bn on disaster cleanup related to extreme weather events – more than it spent on transportation or education. Building resilience to natural disasters is both a humanitarian mandate and an economic imperative.”



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For Immediate Release

November 01, 2013

FACT SHEET: Executive Order on Climate Preparedness

President Obama Establishes a Task Force on Climate

"We're going to need to get prepared. And that's why this plan will also protect critical sectors of our economy and prepare the United States for the impacts of climate change that we cannot avoid. States and cities across the country are already taking it upon themselves to get ready... And we'll partner with communities seeking help to prepare for droughts and floods, reduce the risk of wildfires, protect the dunes and wetlands that pull double duty as green space and as natural storm barriers." – President Barack Obama, June 25, 2013

Today, President Obama established a Task Force on Climate Preparedness and Resilience to advise the Administration on how the Federal Government can respond to the needs of communities nationwide that are dealing with the impacts of climate change. The Task Force members include state, local and tribal leaders from across the country who will use their first-hand experiences in building climate preparedness and resilience in their communities to inform their recommendations to the Administration.

Pacific Coast COLLABORATIVE

Alaska
British Columbia
California
Oregon
Washington

Leadership now
for a sustainable tomorrow

Home

Member Jurisdictions

Alaska
British Columbia
California
Oregon
Washington

Vision

Agreements

Priorities

Clean Energy
- Low-Carbon Energy
- Energy Efficiency
Emergency Management
Regional Transportation
- Green Ports
- Green Highways
- Rail
Research and Innovation
Sustainable Regional
Economy
- Jobs



With a combined population of 52 million and a GDP of \$2.5 trillion, Alaska, British Columbia, California, Oregon and Washington are poised to emerge as a mega-region and global economic powerhouse driven by innovation, energy, geographic location and sustainable resource management, attracting new jobs and investment while enhancing an already unparalleled quality of life.

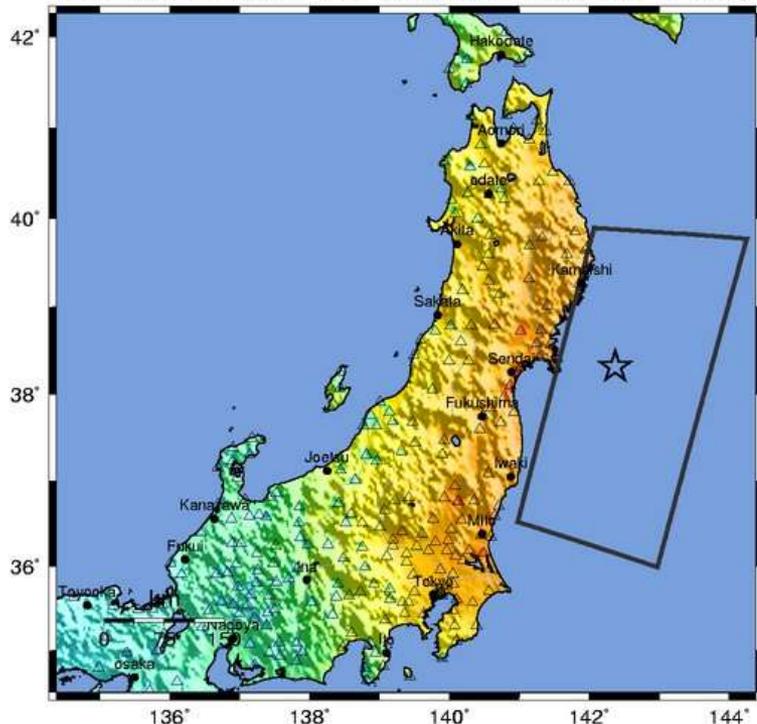
On June 30, 2008, the leaders of the five jurisdictions signed the Pacific Coast Collaborative Agreement, the first agreement that brings together the Pacific leaders as a common front to set a cooperative direction into the Pacific Century. Out of this agreement was born the Pacific Coast Collaborative -- a formal basis for cooperative action, a forum for leadership and information sharing, and a common voice on issues facing Pacific North America.

Magnitude 9.0 Paradigm Shift

Can we learn from other similar events or do we have to learn the hard way?

USGS ShakeMap : NEAR THE EAST COAST OF HONSHU, JAPAN

Fri Mar 11, 2011 05:46:23 GMT M 9.0 N38.32 E142.37 Depth: 32.0km ID:c00014gp

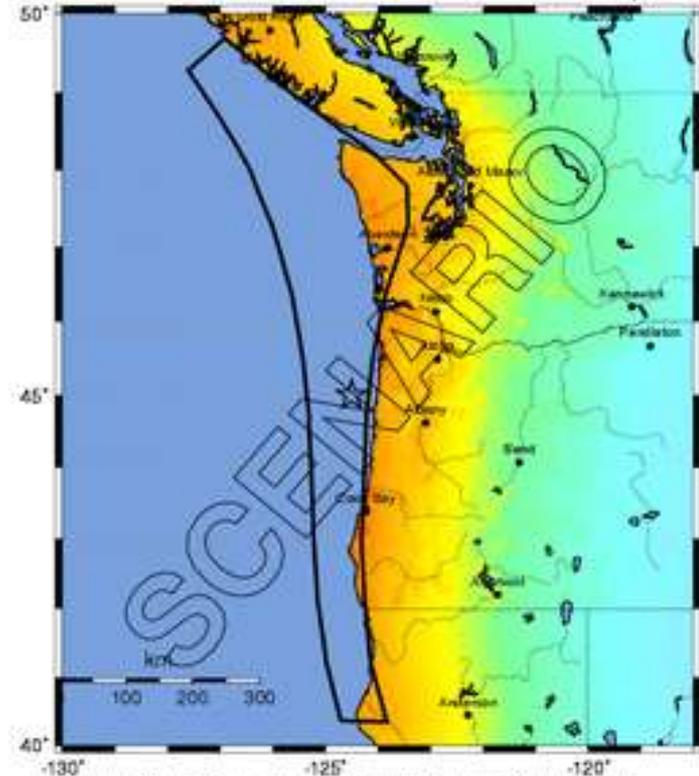


Map Version 7 Processed Wed Mar 16, 2011 11:19:52 AM MDT - NOT REVIEWED BY HUMAN

PERCEIVED SHAKING	Not felt	Weak	Light	Moderate	Strong	Very strong	Severe	Violent	Extreme
POTENTIAL DAMAGE	none	none	none	Very light	Light	Moderate	Moderate/Heavy	Heavy	Very Heavy
PEAK ACC.(%g)	<.17	.17-1.4	1.4-3.9	3.9-9.2	9.2-18	18-34	34-65	65-124	>124
PEAK VEL.(cm/s)	<0.1	0.1-1.1	1.1-3.4	3.4-8.1	8.1-16	16-31	31-60	60-116	>116
INSTRUMENTAL INTENSITY	I	II-III	IV	V	VI	VII	VIII	IX	X+

-- Earthquake Planning Scenario --
ShakeMap for Casc9.0 Scenario

Scenario Date: JUL 16 2009 09:00:00 PM PST PST M 9.0 N45.00 W124.50 Depth: 10.0km



PLANNING SCENARIO ONLY - Map Version 2 Processed Thu Jul 23, 2009 10:30:35 AM MDT

PERCEIVED SHAKING	Not felt	Weak	Light	Moderate	Strong	Very strong	Severe	Violent	Extreme
POTENTIAL DAMAGE	none	none	none	Very light	Light	Moderate	Moderate/Heavy	Heavy	Very Heavy
PEAK ACC.(%g)	<.17	.17-1.4	1.4-3.9	3.9-9.2	9.2-18	18-34	34-65	65-124	>124
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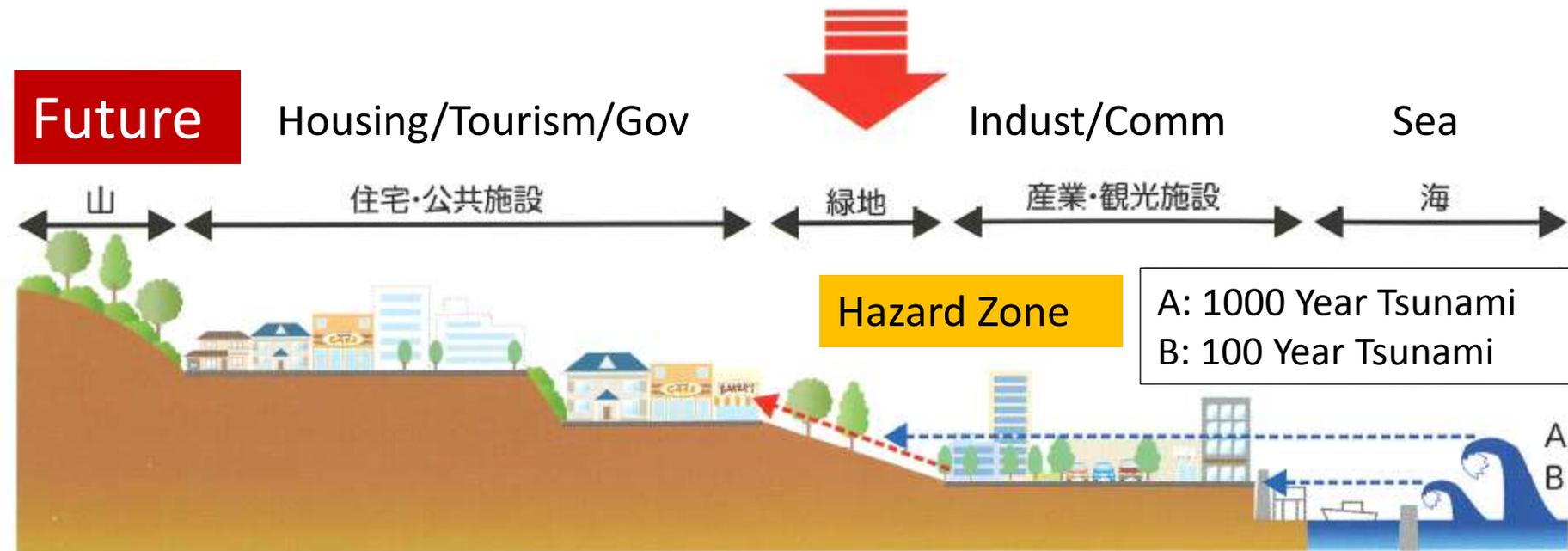
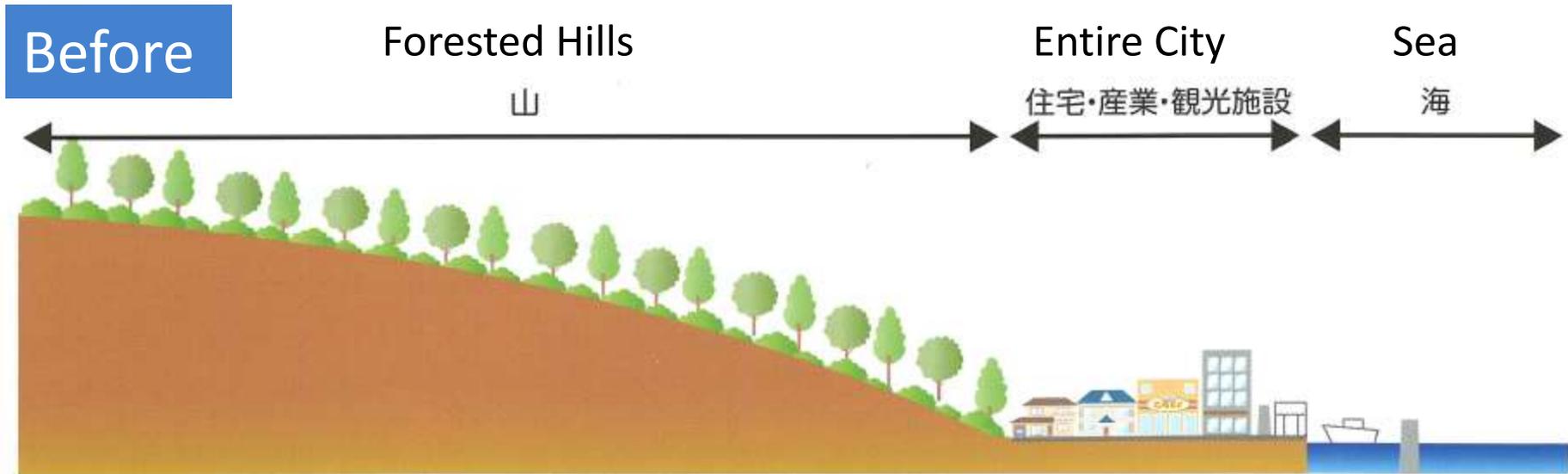
Minamisanriku Recovery Vision

Kazumi Izaka



Minamisanriku – Relocation to Higher Ground

Two Levels of Tsunami Protection: 100 yr (seawalls) and 1000 yr (elevation)



Collective Dislocation for Disaster Prevention (Dislocation)

志津川地区土地利用計画案

志津川中央地区	
施設	志津川駅前広場(交通ターミナル)
名	生涯学習センター

- Minimization of development
- Preparation for an aged society

- Purchase or lease land
- Construction of public housing
- Separation of work place and living place

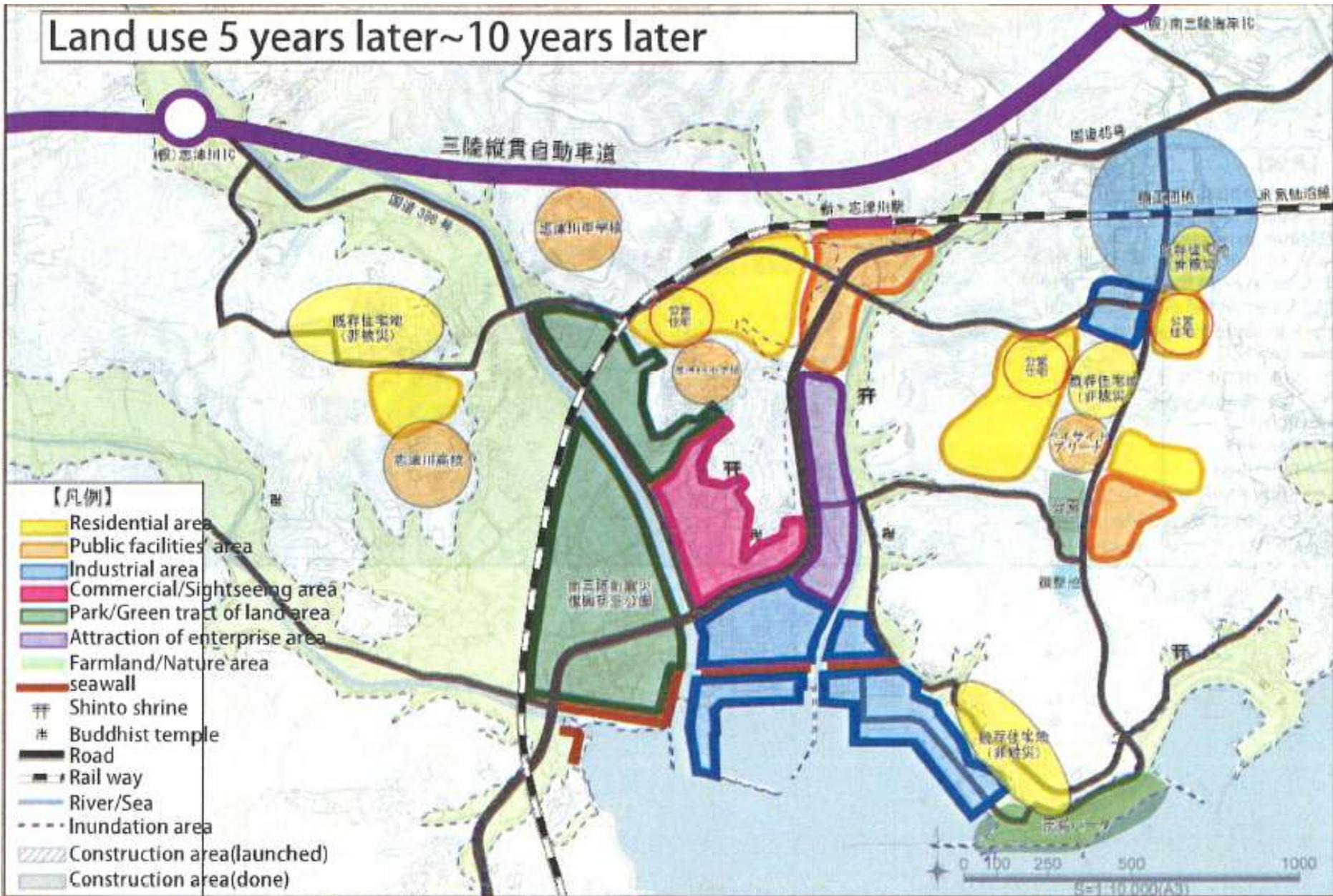
- Communalization of land
- Designation of disaster hazard area

- Utilization of empty lots

志津川東地区	
施設	南三陸町役場
名	志津川病院 保健センター等

Minamisanriku – Recovery Plan

Land use 5 years later~10 years later



Capacity for Response and Recovery?



Minamisanriku



Minamisanriku Recovery Vision

The Oregon Resilience Plan

The Oregon Resilience Plan

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

50-year Comprehensive Plan

Save Lives

Protect our Economy

Preserve our Communities

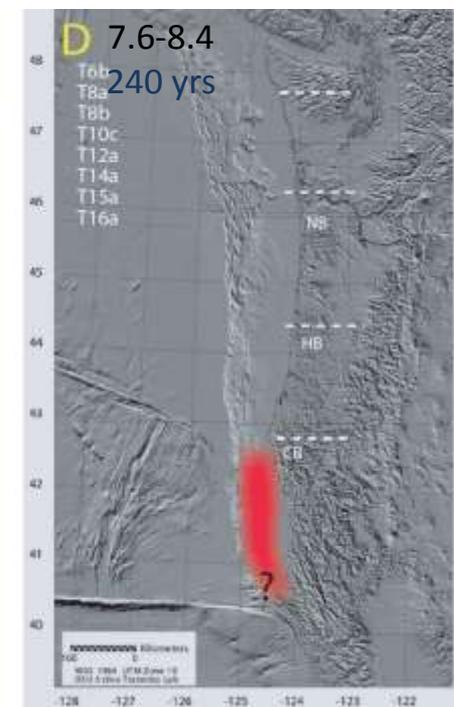
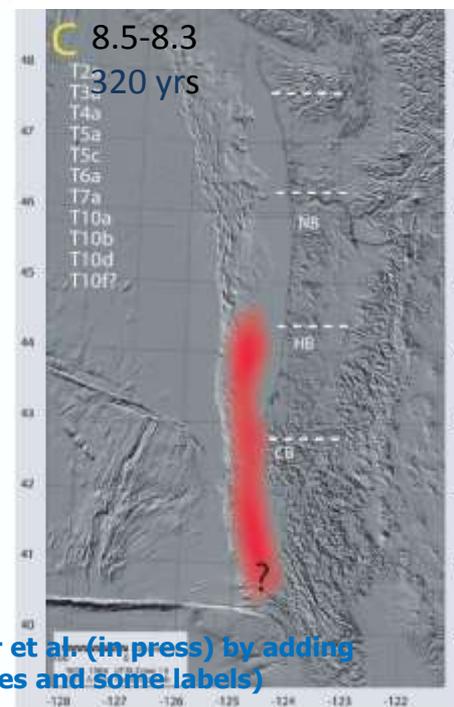
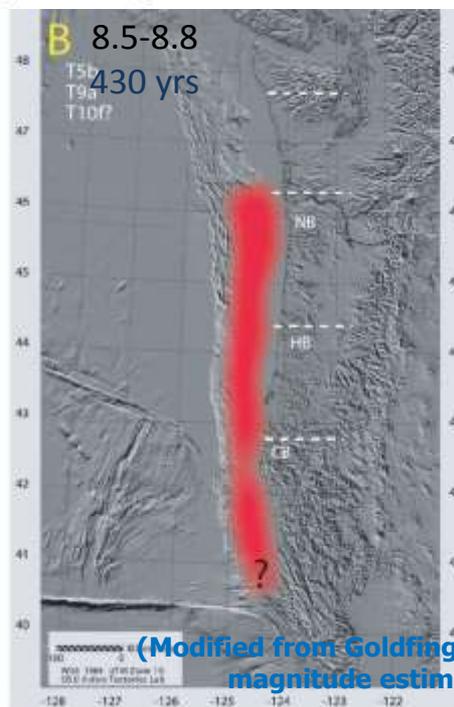
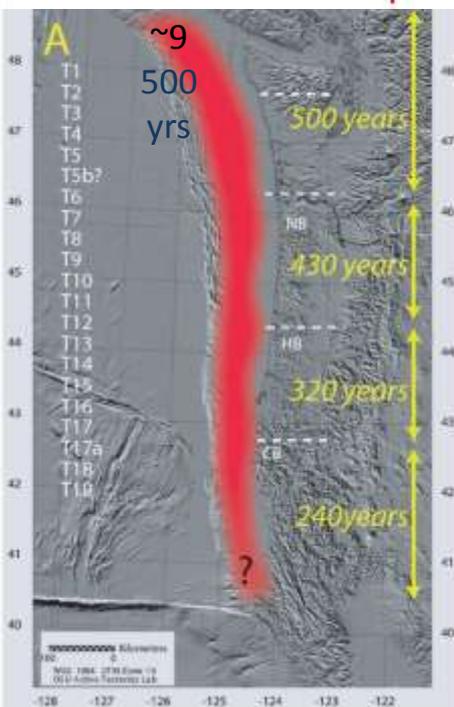
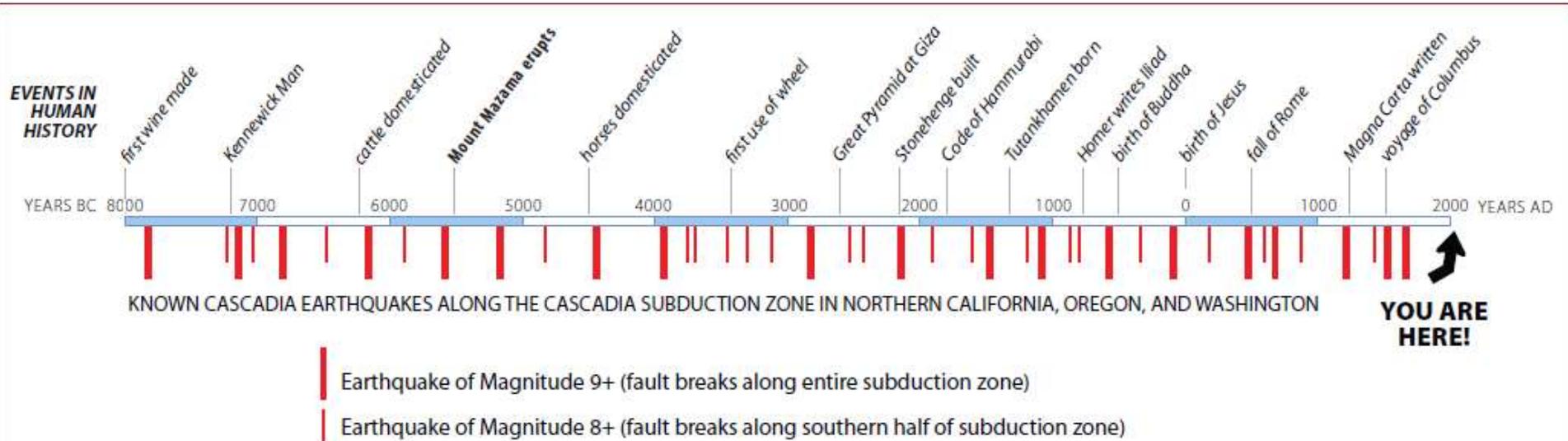
169 volunteers

\$0 Funding

One-year Schedule



Cascadia Subduction Zone Earthquakes



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

Key Findings

- Oregon is far from resilient to the impact of a great Cascadia earthquake today
 - Casualties (1,250 to more than 10,000)
 - Economic Loss (close to 20% state GDP)
 - More than one million truck loads of debris
- Liquid Fuel vulnerability



Key Findings

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



Toppled Radio Towers in Loma Prieta, 1989

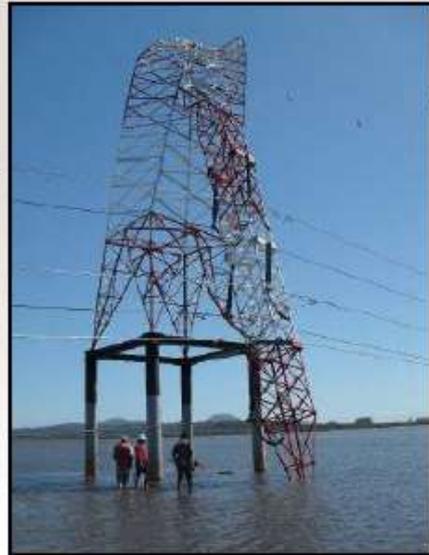


Northridge, 1994

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



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

'Compared to the level of earthquake preparedness even in California and Washington, it's clear that Oregon is bringing up the rear'

By David Stouth, OSU News & Research Communication
Published: Oct 30, 2013 at 10:56 AM PDT

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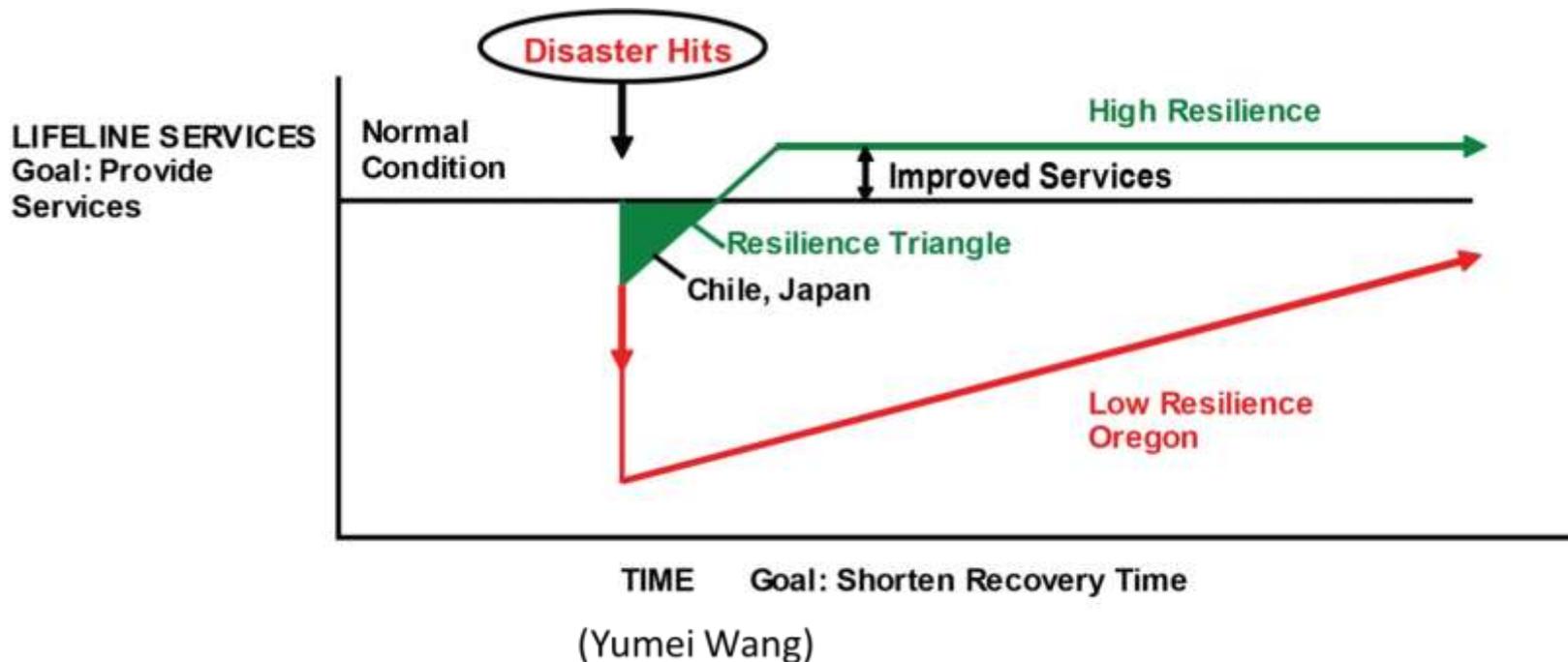
Liquefaction in the recent subduction zone earthquake in Japan caused entire buildings to sink several feet lower than they had been previously. (Photo by Scott Ashford, courtesy of Oregon State University)

“When I studied areas that had been hard-hit by earthquakes in Chile, New Zealand and Japan, it became apparent that **money spent to prepare for and minimize damage from the earthquake was hugely cost-effective,**” Ashford said.

One utility company in New Zealand said they **saved about \$10 for every \$1 they had spent in retrofitting and rebuilding their infrastructure.**”

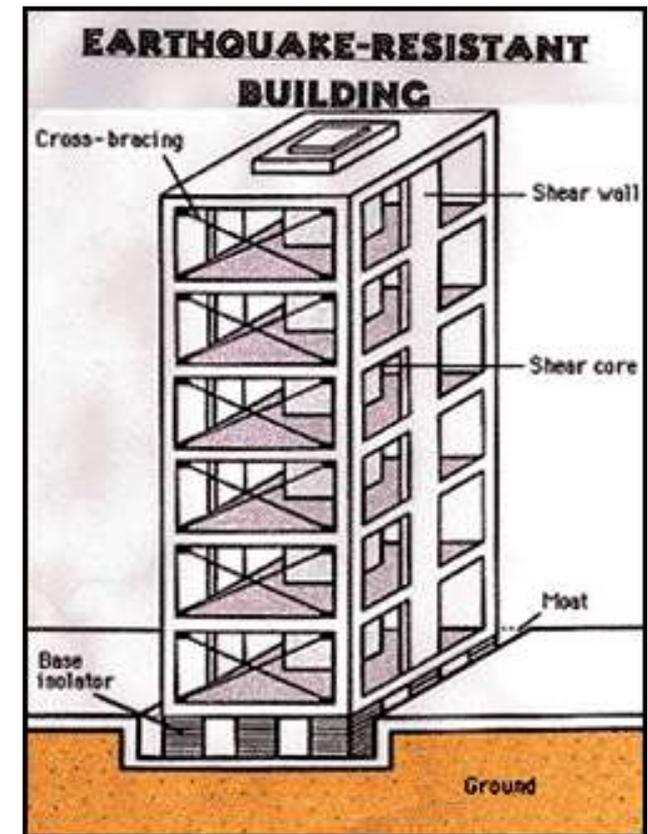
Prof. Scott Ashford, OSU

Our Definition of Resilience



- **Resilience:** Save lives, Reduce Losses, Speed Recovery, & Rebuild Better
- Sustainability without **Resilience** is NOT sustainable!

Relationship Between Sustainability and Disaster Resilience



Source: Public Entity Research workgroup

Leadership now
for a sustainable tomorrow



Nature of the Northwest?



Vision 2030

**Positioning Pacific North America
for Sustainable Prosperity**

Released for comment and discussion by the Premier of British Columbia and the Governors of California, Oregon and Washington on the occasion of the first Leaders' Forum of the Pacific Coast Collaborative in Vancouver, B.C. on February 12, 2010.

A Secure Regional Economy

Protecting the lives and livelihoods of the citizens of our region remains a top priority for Pacific North America. Natural disasters, ranging from earthquakes and tsunamis to severe storms, flooding and forest fires, do not respect state or national borders. Coordinated emergency preparedness and response systems serve to secure the region's economy and keep our citizens safe.



WCX

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West Coast Infrastructure Exchange

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A new way to finance

A new way to build

Overview

California, Oregon, Washington, and British Columbia have combined to form the West Coast Infrastructure Exchange (WCX).

[WCX Framework Agreement](#)

[CH2M HILL Report | summary](#)

The partnership is being launched to create

Participants *and* Partners

The WCX operates under a framework agreement adopted by partners in British Columbia, California, Oregon, and Washington.



News

Tuesday September 10, 2013

[West Coast Infrastructure Exchange Releases Draft Project Standards for Comment WCX](#)

Tuesday August 13, 2013

[Viewpoints – Chris Taylor: Bay Bridge doesn't have to mark end of big California public works](#)

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;
 - Statewide inventory of critical buildings for emergency response and economic recovery in public and private sectors
 - Transportation (Ports, Railroads, and local bridges)
 - Energy and information and communications sectors
 - Seismic risk assessment/mitigation of Water and Wastewater as part of periodic updates to facility plans



Overarching Recommendations

- Launch a sustained program of capital improvement in Oregon's public structures;
 - Fully funding Oregon's grant program for schools and emergency facilities
 - Seismically upgrade lifeline transportation routes into and out of major business centers statewide by 2030
- 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**
- **Civic infrastructure**
- **Human Resilience**

