

CASCADIA

SCIENCE, IMPACTS AND
RESILIENCE

YUMEI WANG, OREGON DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES
AUGUST 16, 2017 WEBINAR FOR THE NATIONAL ACADEMIES: BESR AND COSG

HAZARDS AND IMPACTS



Strong
Shaking

Moderate to
Light Shaking

SOURCE: DOGAMI, 2013



HAZARDS AND IMPACTS



SOURCE: DHS, 2011



SOURCE: DOGAMI, 2013



SOURCE: DOGAMI, 2013



“A Cascadia Subduction Zone (CSZ) event will have farther reaching impacts than that of Katrina and Sandy combined”

- KEN MURPHY, FEMA REGION X ADMINISTRATOR

	Cascadia	Japan Tsunami	Sandy	Katrina	Cascadia multiplier (of Sandy + Katrina)
Fatalities	12,000+	16,000	162	1,833	6x
People Needing Short-term Shelter	933,000	470,000	174,000	273,000	2x
Housing Units Damaged	961,000	>1,000,000	305,000	215,000	2x

SOURCE: KEN MURPHY

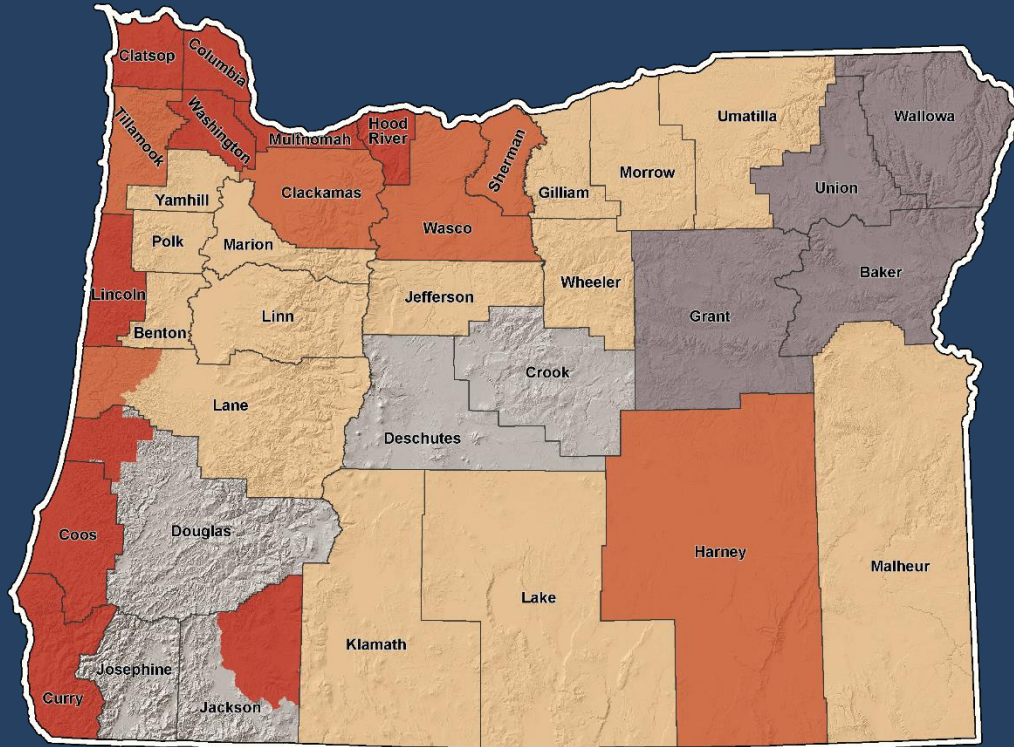




SOLUTIONS

SCIENCE AS THE BASIS
FOR ACTION

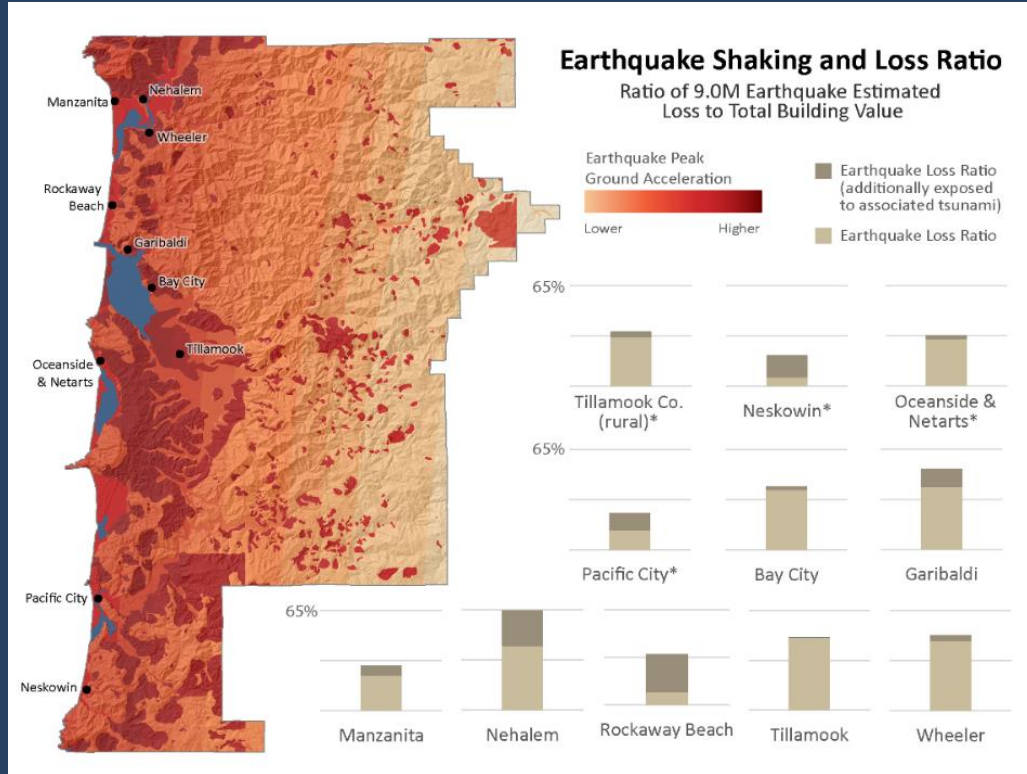
RISK ASSESSMENTS



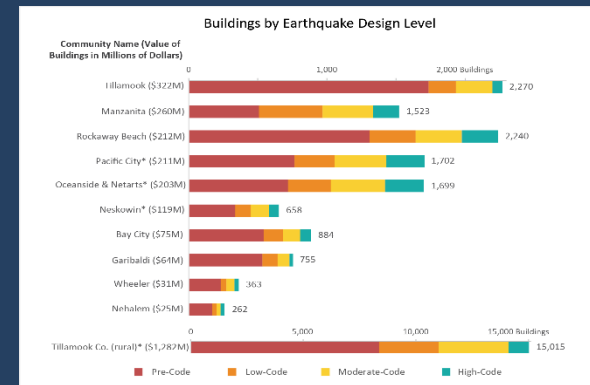
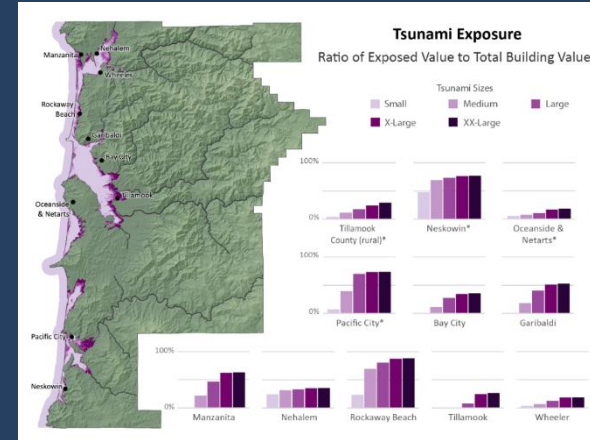
SOURCE: DOGAMI



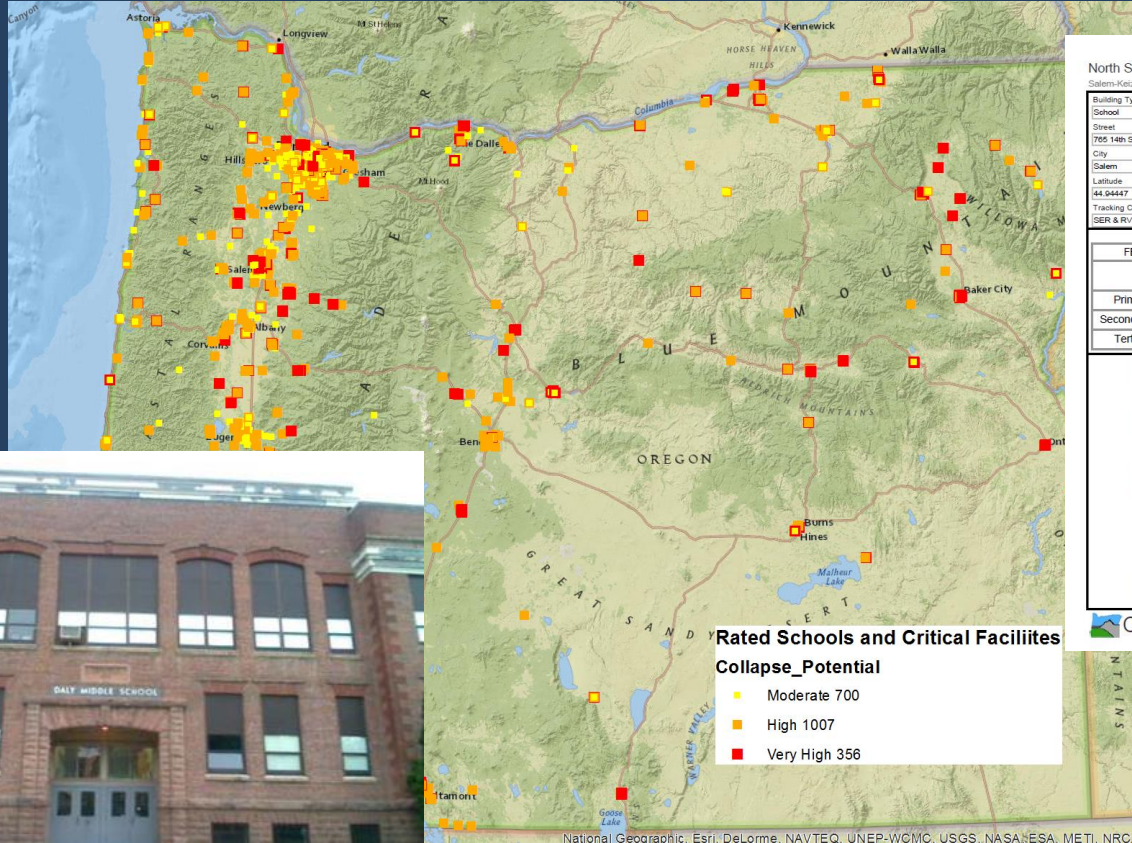
2017 COUNTY RISK ASSESSMENT



SOURCE: DOGAMI, 2017



SEISMIC ASSESSMENTS & GRANT PROGRAMS



SOURCE: DOGAMI, 2007

North Salem High School
Salem-Kenzer SD 24J

Mari_sch44A

Building Type School	County Marion
Street 765 14th St NE	
City Salem	State OR
Latitude 44.94447	Zip 97301
Tracking Code SEER & RV02006	Longitude 123.02117
	Inspection Date 8/1/2006

Seismicity Zone: High

FEMA 154 Rapid Visual Screening Score Card									
Type	Basic Score	Vert. Imp.	Par. Imp.	Par. Mech.	Par. Coll.	Soil Cond.	Soil S.	Soil L.	RVS Score
Primary	C2	2.5	-1	-0.5	-1	0	-0.4	0	-0.1
Secondary	w2	3.5	-2	-0.5	-1	0	-0.4	0	-0.1
Tertiary		0	0	0	0	0	0	0	0

North Salem High School

Final RVS Score	
Final Type C2	Final Score -0.1

FEMA-154 Collapse Potential

Very High (100%)

OregonGeology

Rapid Visual Screening - Senate Bill #2 - Seismic Needs Assessment
Oregon Department of Geology and Mineral Industries



STATEWIDE COLLABORATION WITH STATE RESILIENCE OFFICER

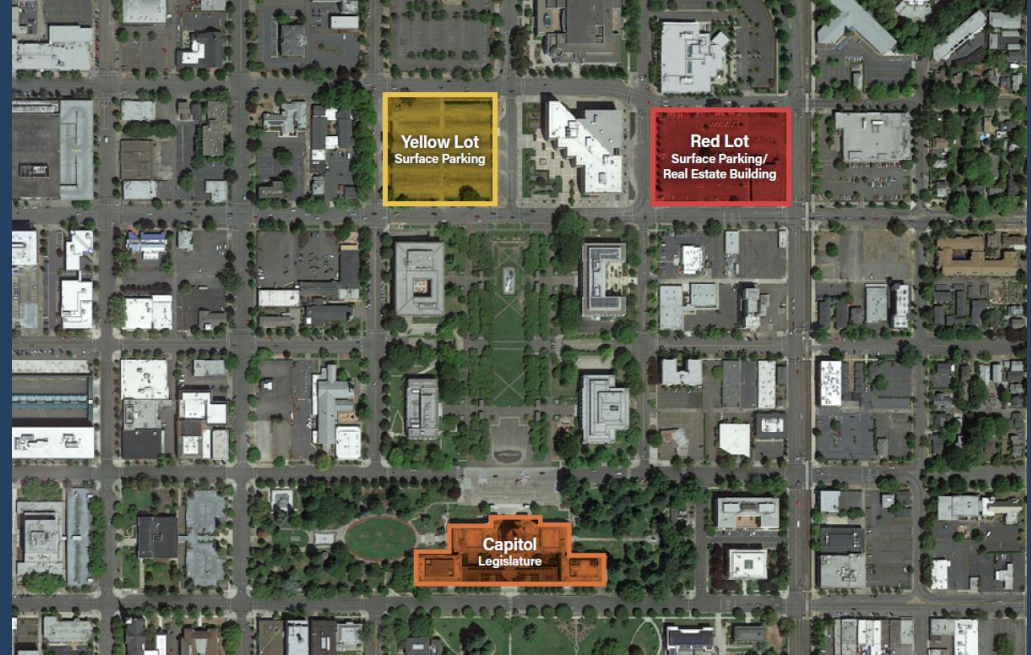
2017 Senate Bill 850 passed

- Earthquake Insurance
- Mass Care Planning

OREGON FUEL ACTION PLAN



Plan, Prepare, Respond, &
Recover
Severe Fuel Shortages



SOURCE: DAS CFO



2 WEEKS READY CAMPAIGN

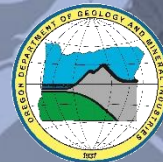
What would **YOU**
do **2** > minutes
> hours
> days
> weeks
after Cascadia?

Do **YOU** have ...    ?

Get your family
neighborhood
community **2**    **WEEKS**
READY

SOURCE: OREGON OEM





THE GAPS

WHAT REMAINS IN ACHIEVING RESILIENCE



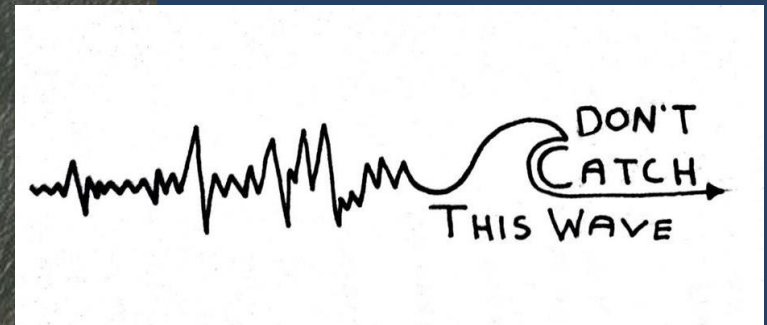
COASTAL VULNERABILITIES



SOURCE: DOGAMI



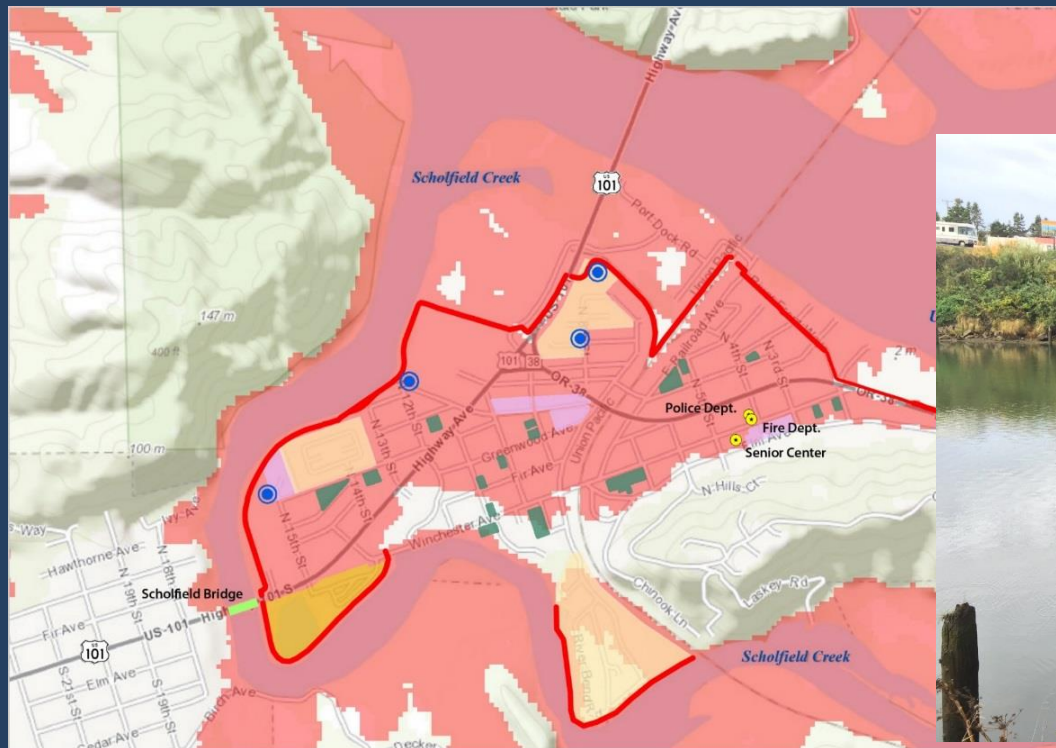
SOURCE: DOUG DOUGHERTY



SOURCE: DOUG DOUGHERTY



COASTAL VULNERABILITIES



City of Reedsport

- Tsunami Inundation, Large (DOGAMI)
- Scholfield Bridge
- Apartment/other multi-family dwelling (104 units)
- Levee
- Subsidized Housing (58 units)
- Mobile Home Park (250 units)
- RV Park (45 units)
- Pump or lift station
- Public Facility



SOURCE: CITY OF REEDSPORT

SOURCE: DAS CFO

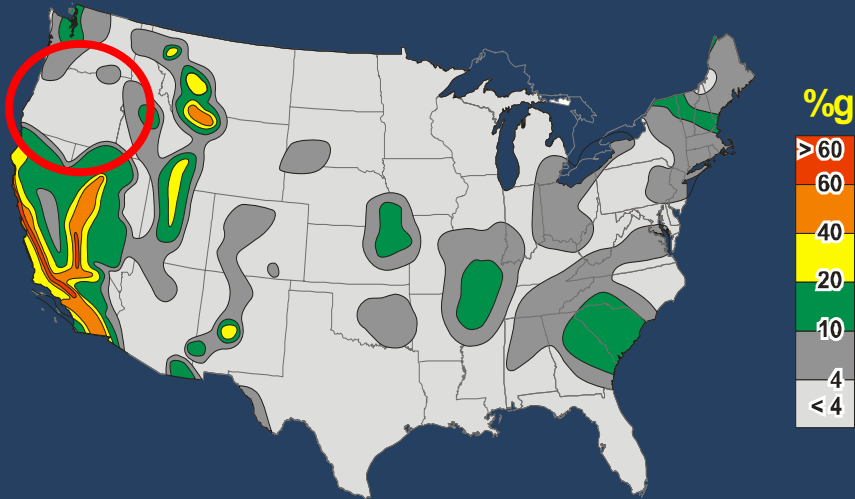
YUMEI WANG | DOGAMI | AUGUST 16, 2017



OREGON'S GAPS

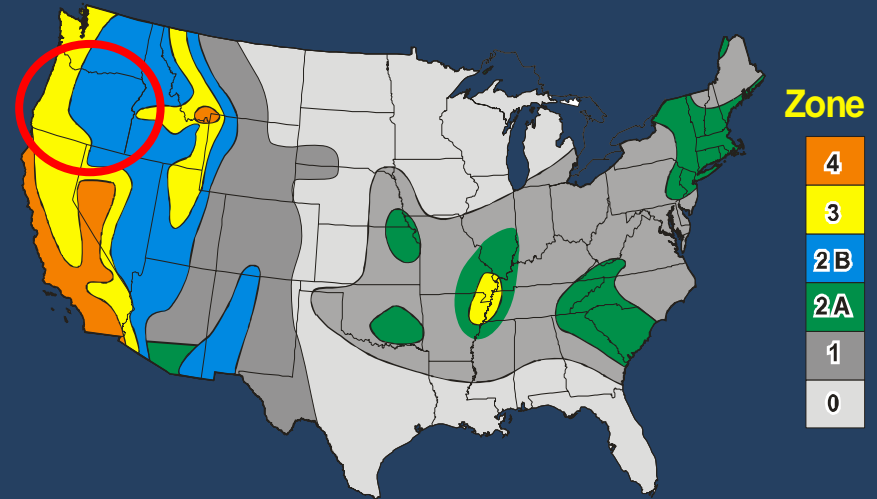
1976

(10% PE in 50 yrs)



SOURCE: ALGERMISSEN AND PERKINS

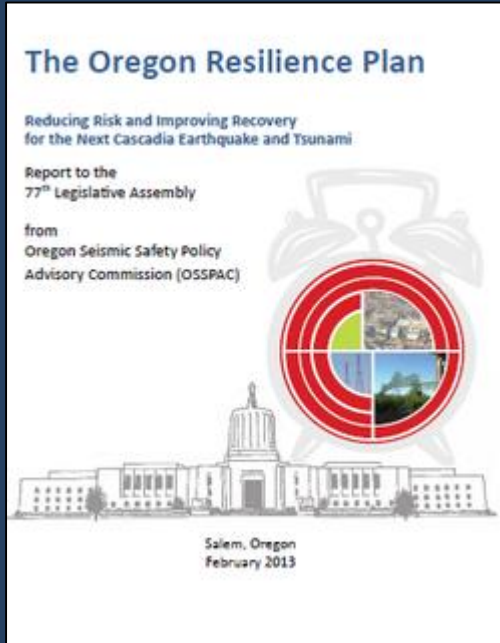
1994



SOURCE: USGS



OREGON'S GAPS



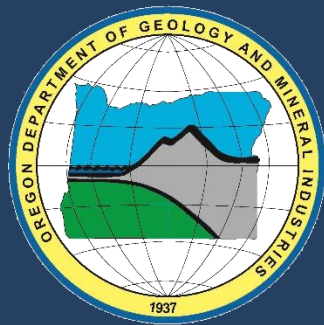
SOURCE: OSSPAC, 2013

EXPECTED DOWNTIME OF COASTAL INFRASTRUCTURE

- Healthcare – over 36 months
- Water and Wastewater – over 36 months
- Fire and Police – over 36 months
- State Highways – 12 to 36 months
- Schools – 18 months
- Electricity and Communication – 3 to 12 months
- Fuel – No Info

NARROW GAPS: PROACTIVE INVESTMENT OF RESOURCES IN RESILIENCE





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