About OSSPAC

(3) To improve public understanding of earthquake hazards, reduce such hazards and mitigate the possible effects of potentially damaging earthquakes, the commission shall review and advise the Governor and the Legislative Assembly concerning all plans and proposals addressing seismic hazards in the areas of:

(a) Any legislative proposals
(b) Plans & proposals of statewide impact
(c) Lists of recommendations for actions & potential rule changes specifically by state agency.

ODOT Seismic Bridge Report

- ODOT bridges will likely impair transportation mobility in Cascadia earthquake
  - along Highway 101
  - between coast & valley
  - sections of Interstate 5
- >$1 billion of damage
- Current pace > 200 yrs to strengthen 900-some seismically vulnerable priority bridges

OSSPAC View on ODOT Seismic Bridge Report

- OSSPAC commends ODOT’s engineering studies and other ongoing earthquake preparedness efforts
- OSSPAC is highly concerned about reliability of transportation system after a Cascadia earthquake
- State action is needed

Cascadia earthquake is Oregon’s most likely widespread disaster
**OSSPAC Draft policy on Seismic Transportation Reliability**

1) **new Seismic Transportation Reliability Plan**
2) **new Seismic Transportation Reliability Program**

- Draft policy agreed on by OSSPAC leadership
- Commission vote on 5/26/10
- Policy goal is a legislative concept for Legislature to improve Seismic Transportation Reliability

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**Cascadia Earthquakes**

Predictive models: >5,000 fatalities
>35,000 buildings red tags/closed
Damage: tsunami, poor soils, weak infrastructure

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**Chile M8.8 vs Cascadia M9 Analog**

Geology/Geography/Industry~PNW Modern w/earlier seismic codes

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**Chile M8.8**

EQ Statistics
Lower low tide
Summer: dry
~500 deaths
Damage (“good”)
~370,000 homes
~400 schools
~79 hospitals
~300 bridges

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**Transportation Damage in Chile**

*Future Damage in Oregon*

1. Coastal Areas Hit by **Tsunami**
   - Flooded bridges & highways
2. Areas with “Poor” **Soils**
   - Bridges w/liquefaction
3. **Weak Transportation Infrastructure**
   - Bridges w/ poor connections (skews, short bearings, etc)

1. **Tsunami**
1. Tsunami: Coastal Town Dichato
~70% homes destroyed shaking & flooding (17 dead)
2. Poor Soils

2. Poor Soils, Oil Refinery (Closed)

2. Poor Soils, Energy Sector

3. Weak Transportation Infrastructure

Bridge Performance
- Foundation failures
- Substructures
- Superstructures

Chile's bridges: poor connections

3. Weak Infrastructure

3. Weak Infrastructure
3. Weak Infrastructure

Route 5 (with parallel bridges)

Route 5 over-crossing

3. Weak Infrastructure: limited traffic

Bridge limited traffic
3. Weak Infrastructure: Santiago Airport

- Santiago Airport control tower damage of the four anchor points of the cab structure.

3. Weak Infrastructure: Railways

- Route 5 new bridge failed.

Co-location & Interdependencies

- Recommendation #1: Improve Safety in Tsunami Prone Areas

Take Home Lessons for Oregon’s Transportation Sector

1. Coastal Areas Hit by Tsunami
   - Improve Safety in Tsunami Prone Areas
2. Areas with “Poor” Soils
   - Critical/Emergency Routes on Poor Soils
3. Weak Transportation Infrastructure
   - Prioritize & Fix using risk management

Bridges in Tsunami Zones 1964 Cannon Beach
**Recommendation #2: Prioritize & Mitigate Infrastructure on Poor Soils**

Oregon’s fuel supply on poor soils

**Fuel Oil Terminals**

Vulnerable Piers Facilities

**Recommendation #2: Prioritize & Mitigate Infrastructure on Poor Soils**

Vulnerable Bridges

**Recommendation #3: Fix Weak Infrastructure**

**FACTS**
- Cascadia earthquakes
- Vulnerable bridges & transportation system
- Mobility is important in disasters
- Transportation has interdependencies
  - Multimodal transportation
  - Economy & standard of living
- BPA estimates up to 25 Ft movement towards river

What is a solution to improve resilience?

**OSSPAC's Draft 2010 Legislative Concepts**

**New Seismic Transportation Reliability Plan**
- Leverage ODOT's existing data & programs
- Identify emergency seismic routes (both state & local)
- Cascadia earthquakes’ multi-hazards (landslides, tsunamis)
- Holistic approach (impact to critical infrastructure)
- Co-location & resiliency (water mains, redundant routes)
- Prioritize using cost-effective, risk-based management

**New Seismic Transportation Reliability Program**
- Provides funding to ODOT to implement Plan
- Public task force to oversee Plan implementation