# Connecting Hazards Research and Geologic Maps to Risk Reduction*

Jeff Rubin, Emergency Manager
Tualatin Valley Fire & Rescue
Oregon, USA

*Some content presented in Pardee session at GSA Annual Meeting, Seattle, October 2017

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# Objectives

- Describe Pacific Northwest (PNW) hazard profile
- Summarize hazard assessment process and needs
- Demonstrate applications of hazards research and geologic mapping to hazard assessment
- Apply research products to risk communication

# Risk Reduction

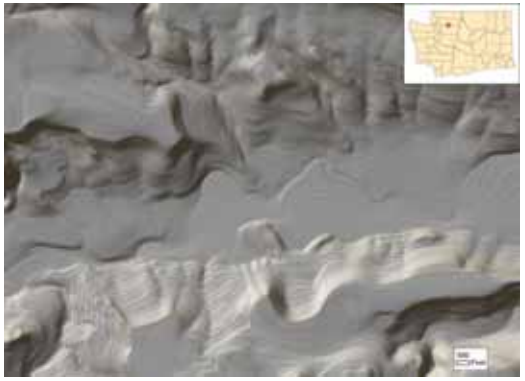
- Hazard vulnerability analyses (HVA)
- Land-use planning
- Building codes
- Structure/site improvements

# Hazard vulnerability analysis (HVA)

- What *relevant* hazards/threats are out there?
- How can they affect our ability to carry out our critical functions?
- History?
- Probability?
- Extent?
- Most likely vs. worst case?
- Where do we find this information?

# Landslide mapping without LiDAR

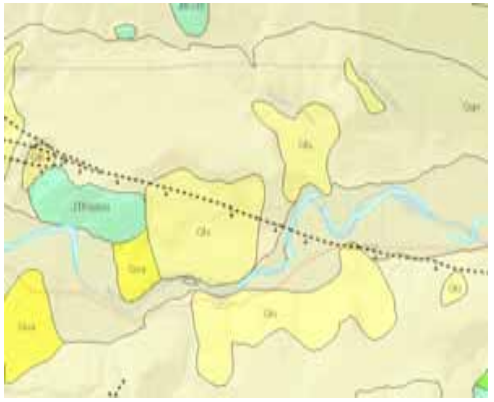
## 30-ft Digital Elevation Model



## Air Photos

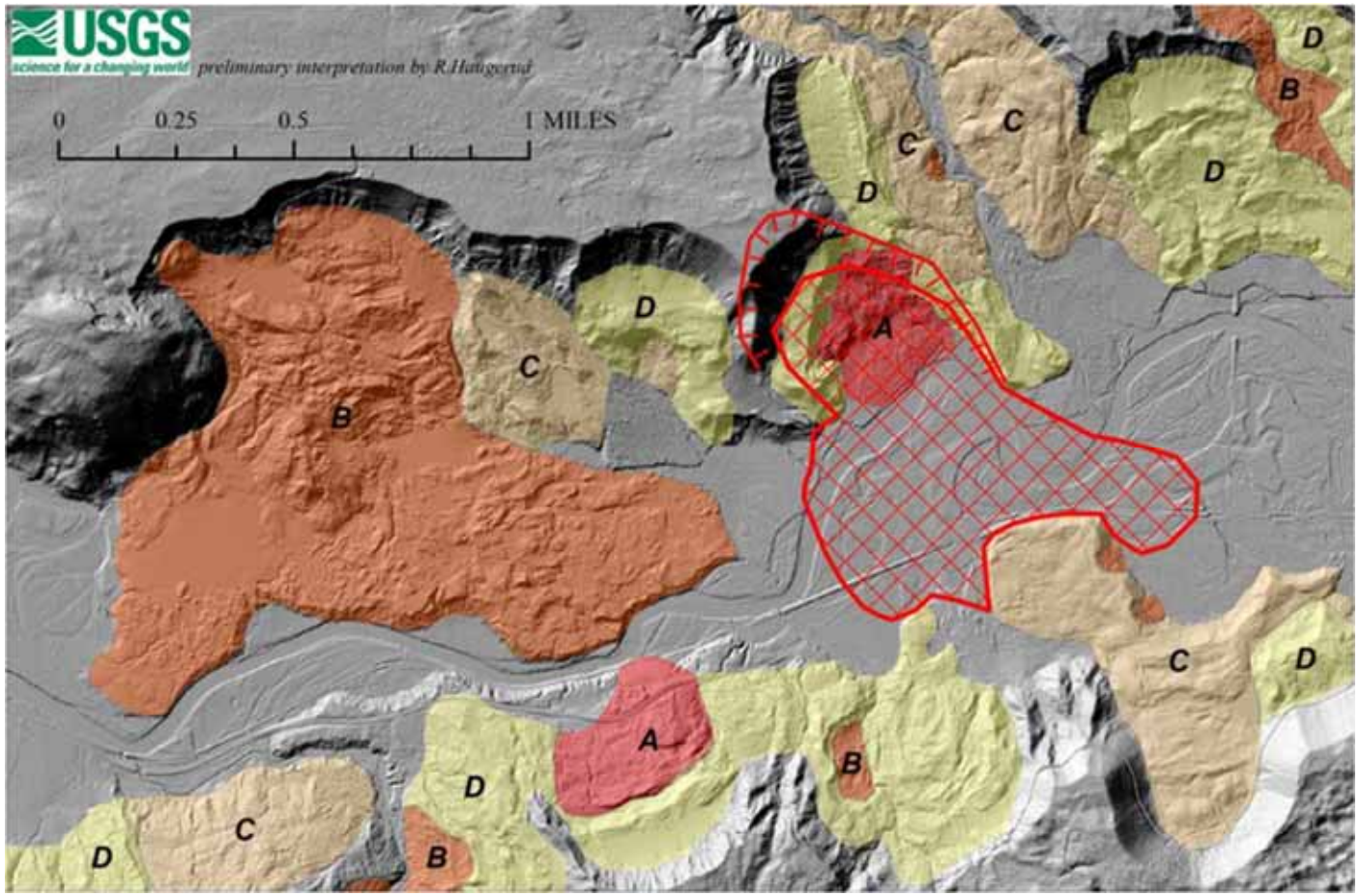
## Topographic Maps

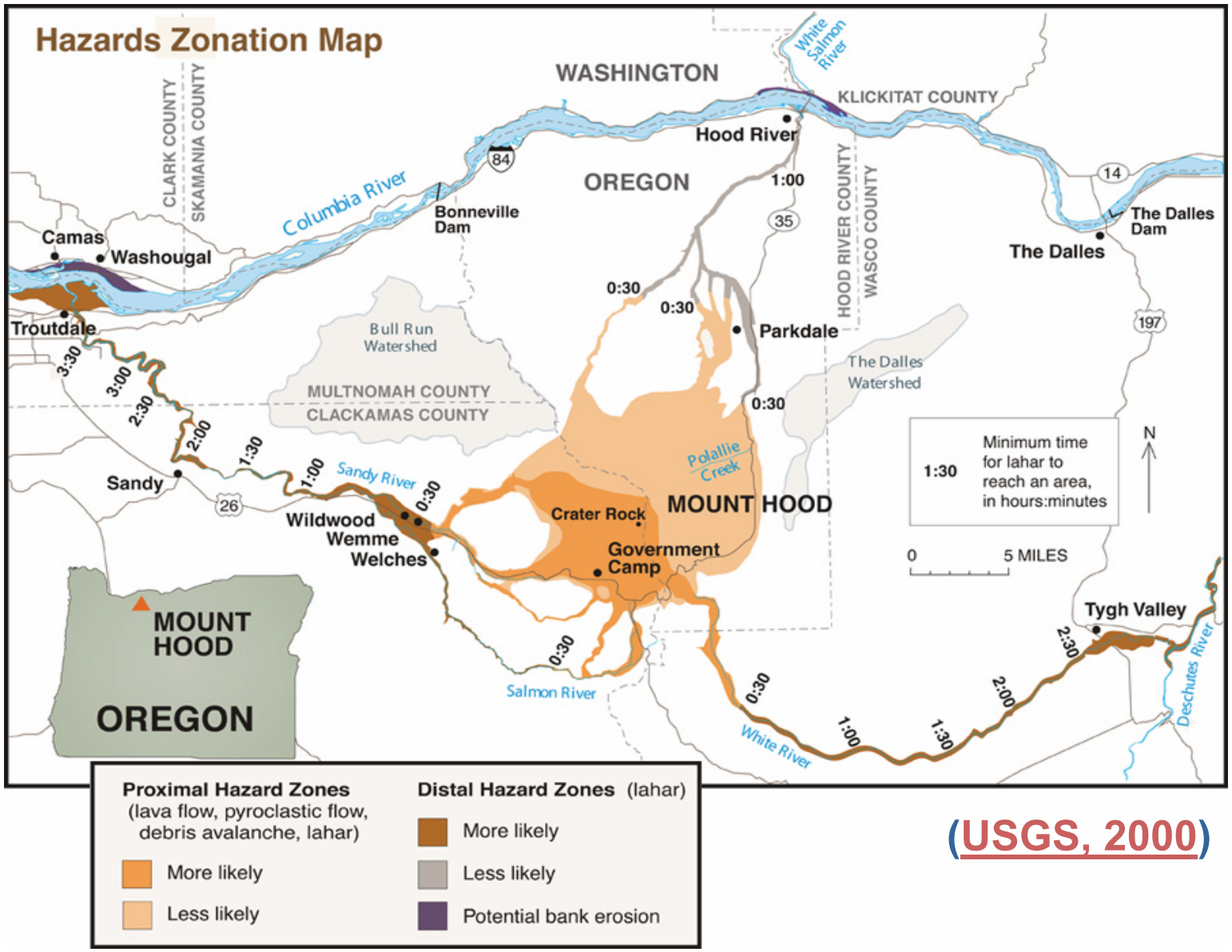

## Geologic Maps



(DNR, WA Geological Survey, Dave Norman)

# Oso/SR 530 landslide and surroundings






(USGS, 2000)

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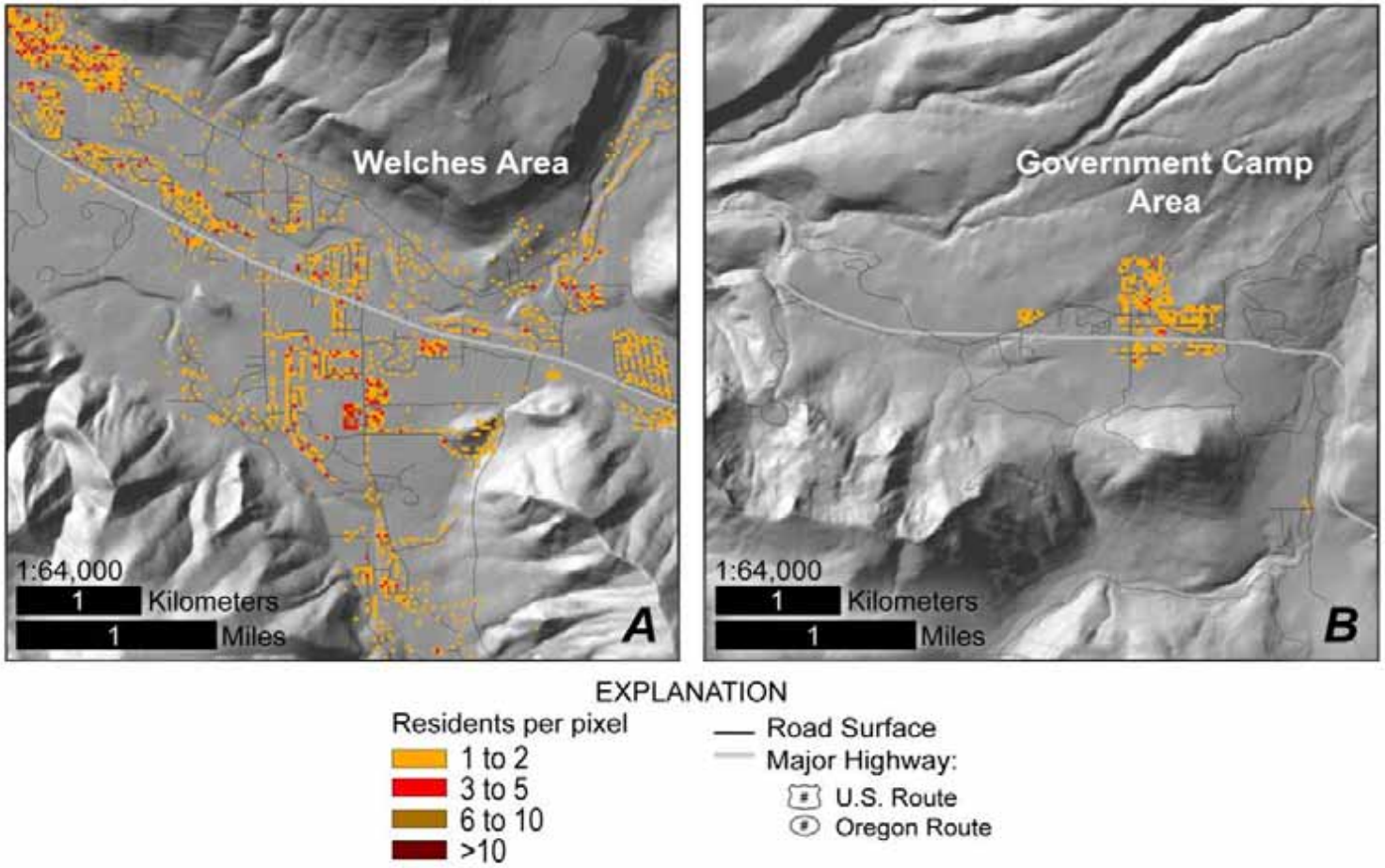
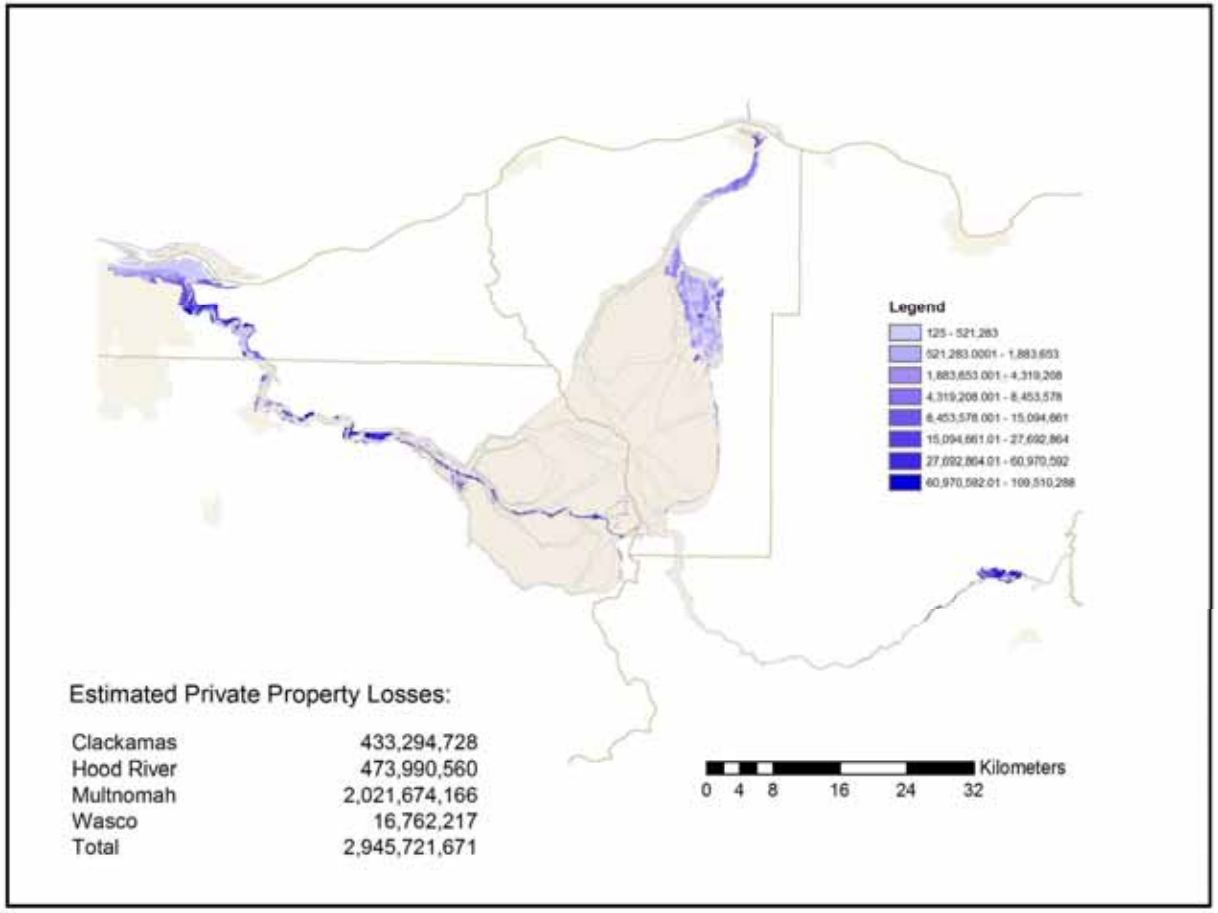
# Who's at risk? (USGS: Mathie & Wood, 2013)

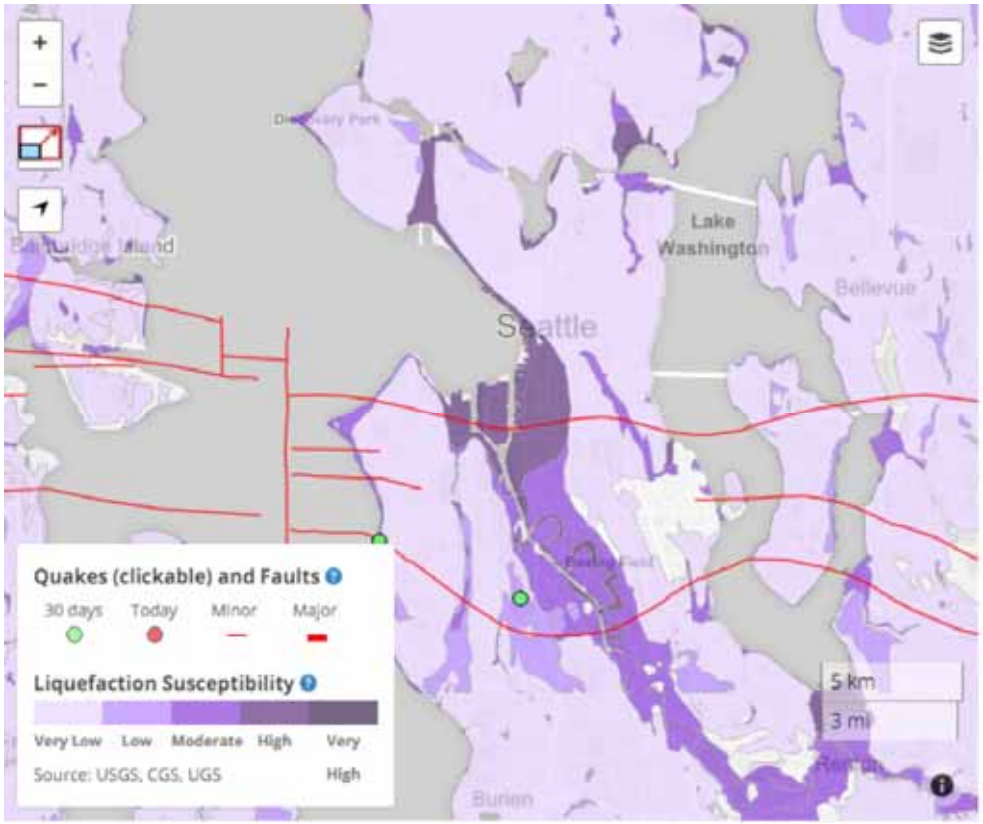


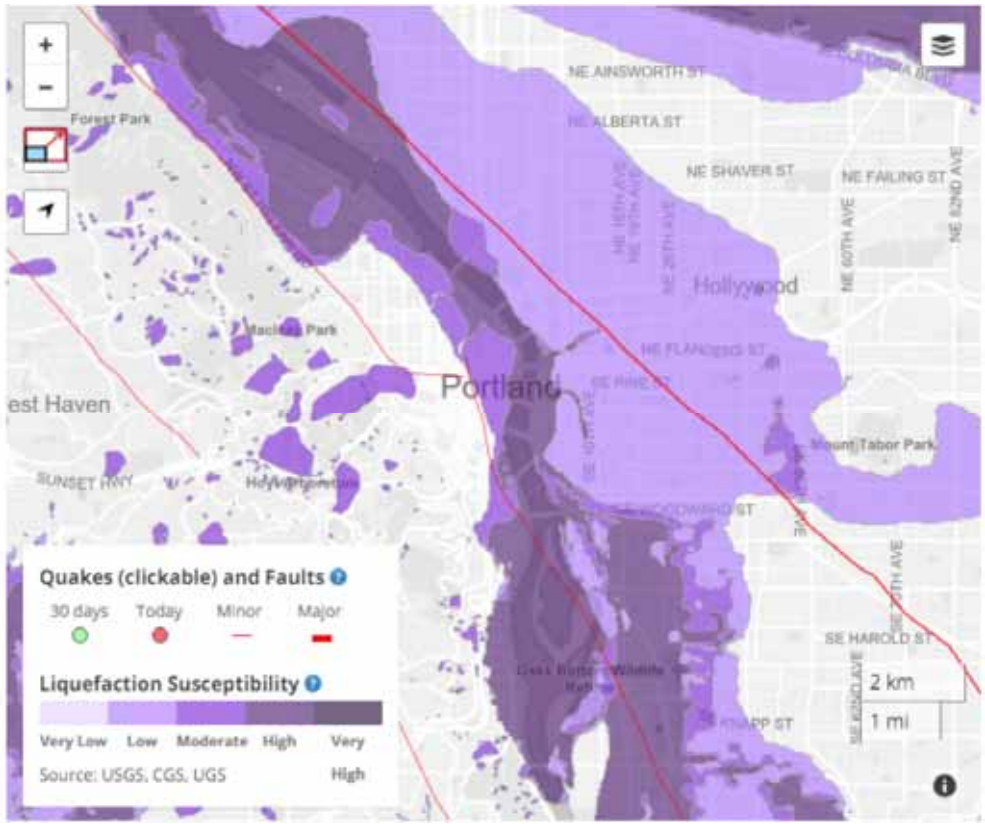
# Mt. Hood lahar property losses




(PSU: Chappell, Dettlaff, Utz, 2009)

# Seattle, Portland liquefaction maps




(Temblor, from USGS, state surveys)

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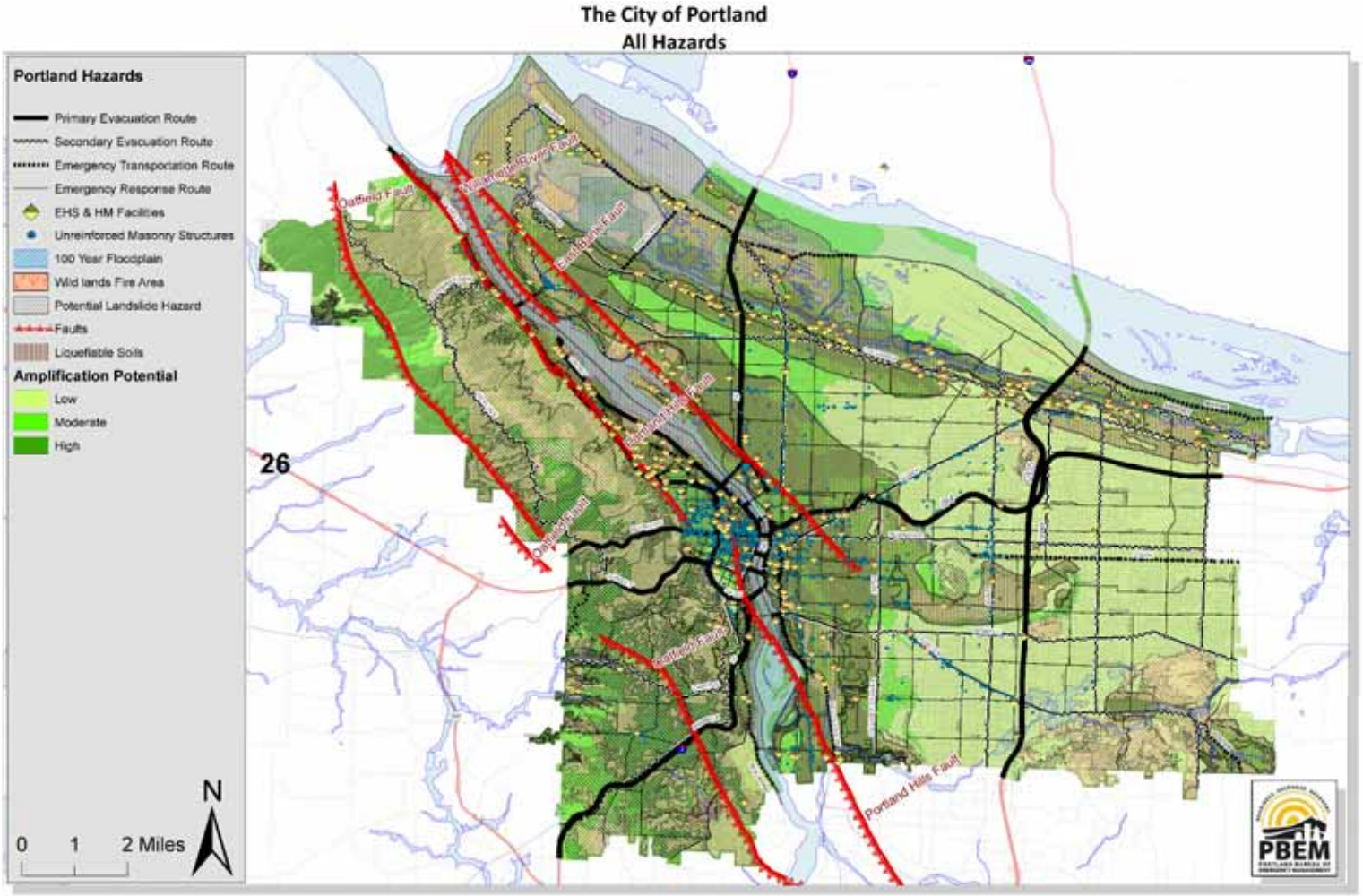
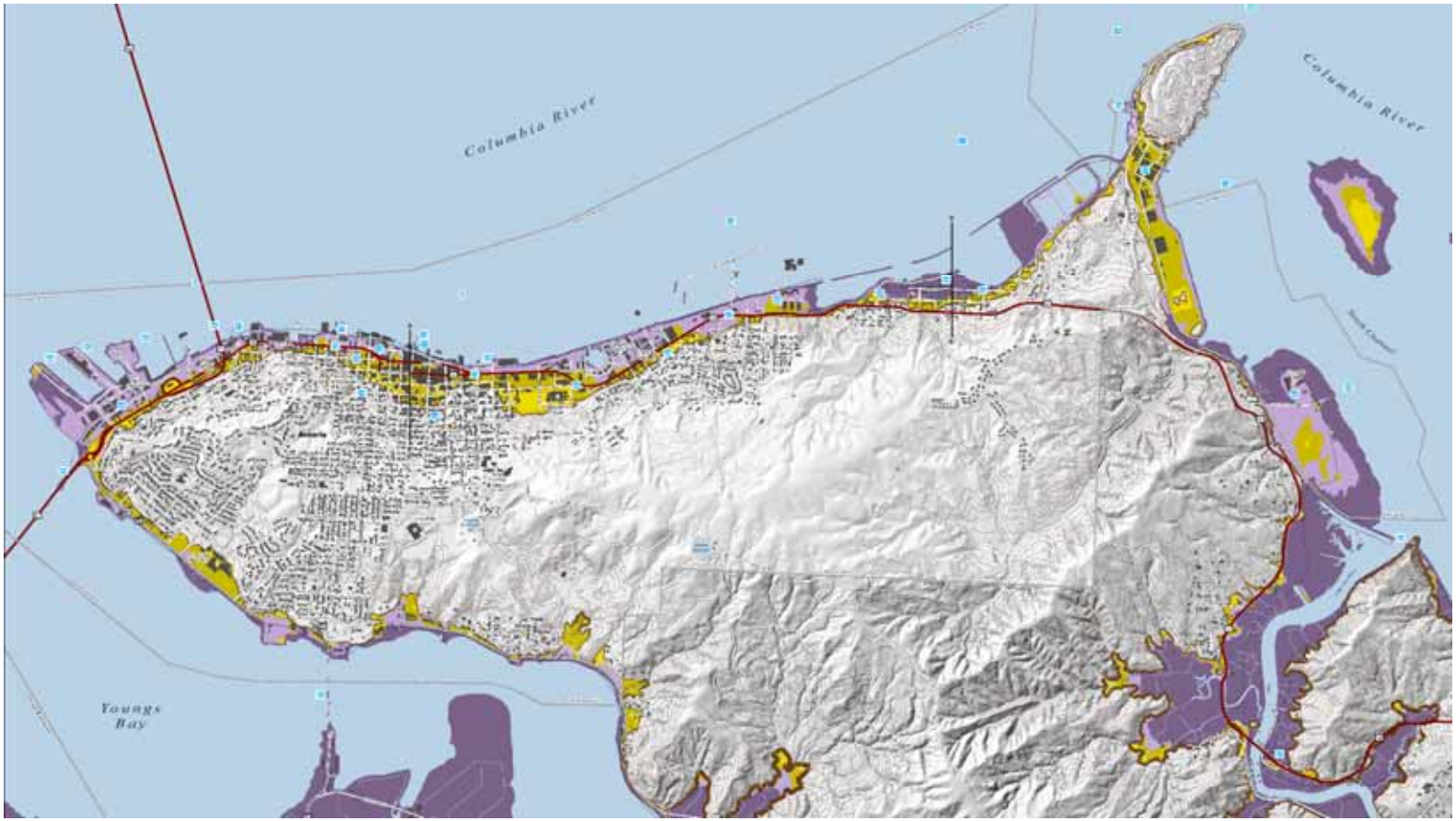
# Portland integrated hazards map



# Tsunami inundation map – Astoria (DOGAMI)

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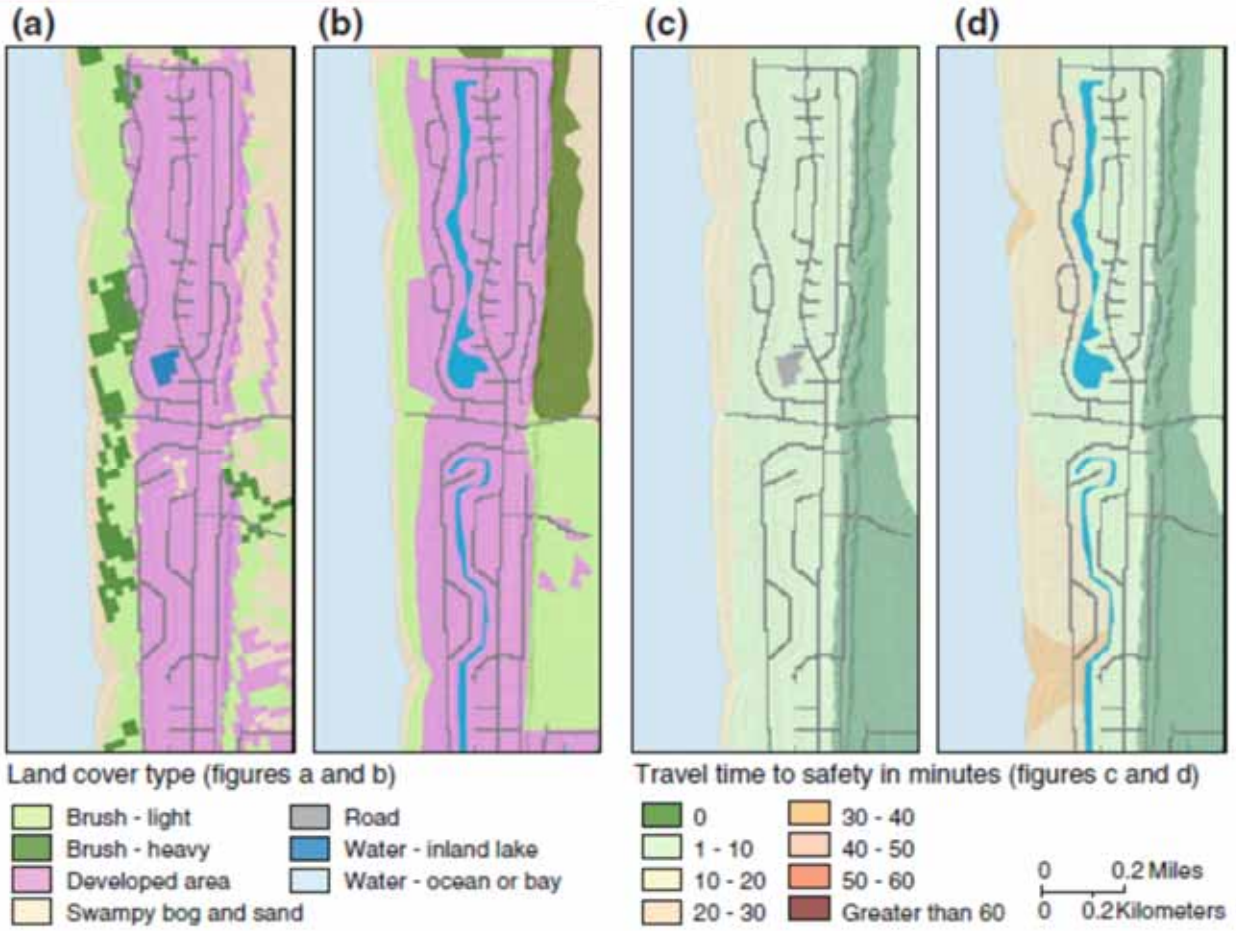
# Land-cover affects evacuation

## (Wood & Schmidtlein, 2012)



# Recovery

- Policy input:
  - Limit rebuilding in hazard-zones
  - Build to better standards
  - Develop more resilient infrastructure
  - Incorporate more realistic planning assumptions

# Communication

- Are you part of the conversation?
- Pictures are great
  - Opportunity to show nuance
- What do you want to emphasize?
  - How does that change with scenario and audience?

# Communication

**Outcome = Audience + Message + Medium**

- Start from the left…
- Respect your audience
  - Don’t “dumb it down”
- Know your topic (and your limitations)
- Be consistent; communicate uncertainty
- Medium ≠ Message

Jeff Rubin, PhD, CEM

Emergency Manager

Tualatin Valley Fire & Rescue

@jeffrubin2

www.tvfr.com

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