



# Critical Infrastructure Resilience



**Washington State Emergency Management Division**

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## Critical Infrastructure Sectors (16)



Supply chain disruption



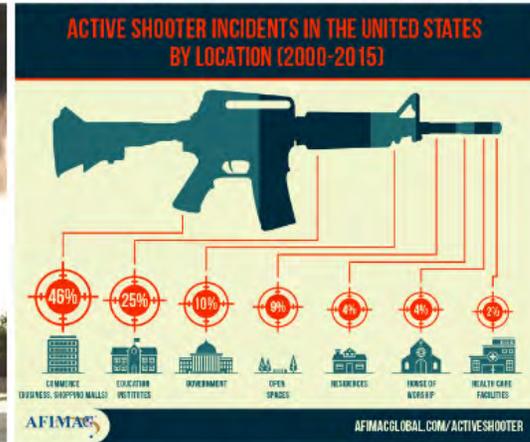
Computer System Breach



Power Outage



Building Fire



Active Shooter



Hazmat Spill

Storms



Volcanic Eruptions



Wildfires



Tsunami



Flooding

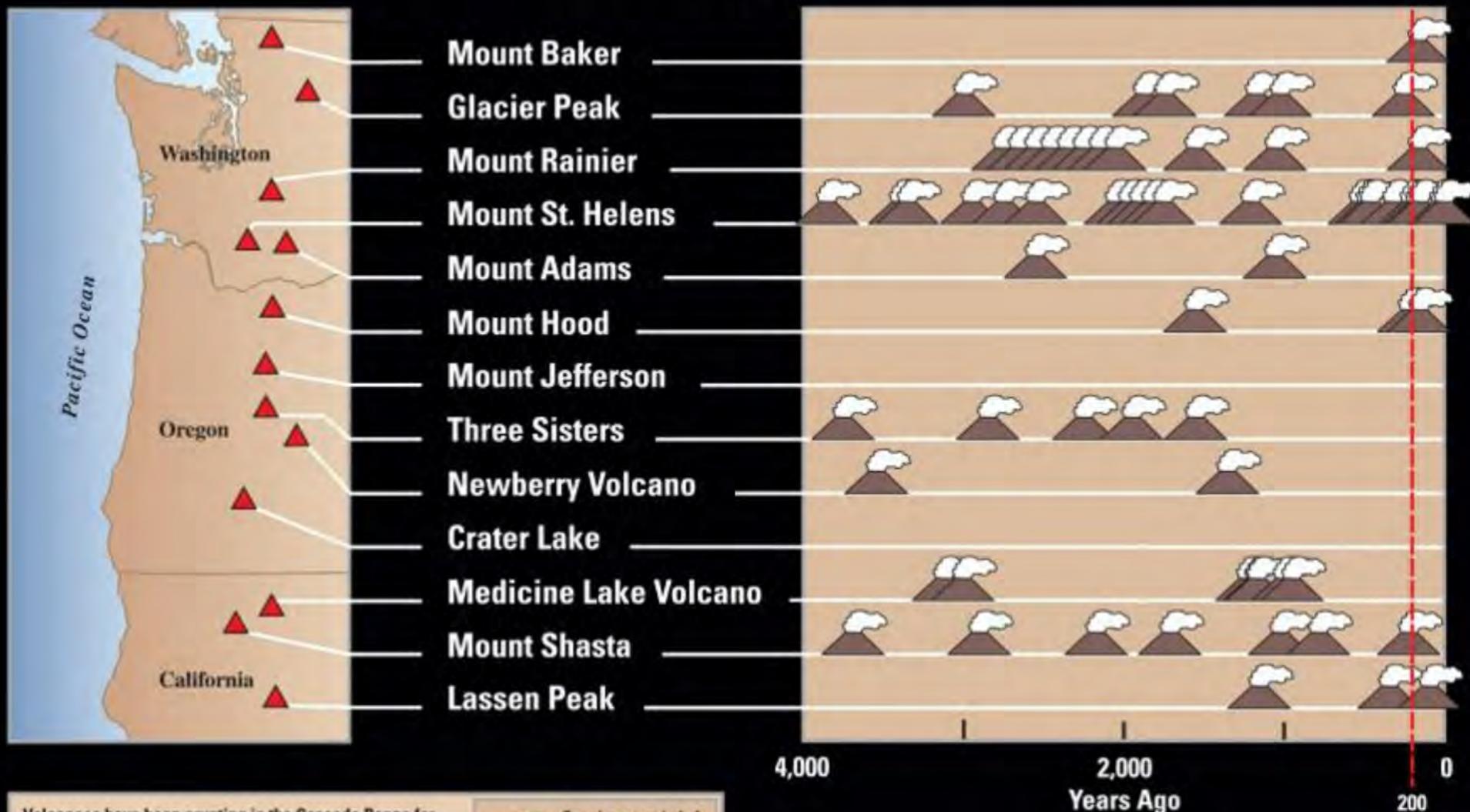


Landslides



Earthquakes

# Eruptions in the Cascade Range During the Past 4,000 Years



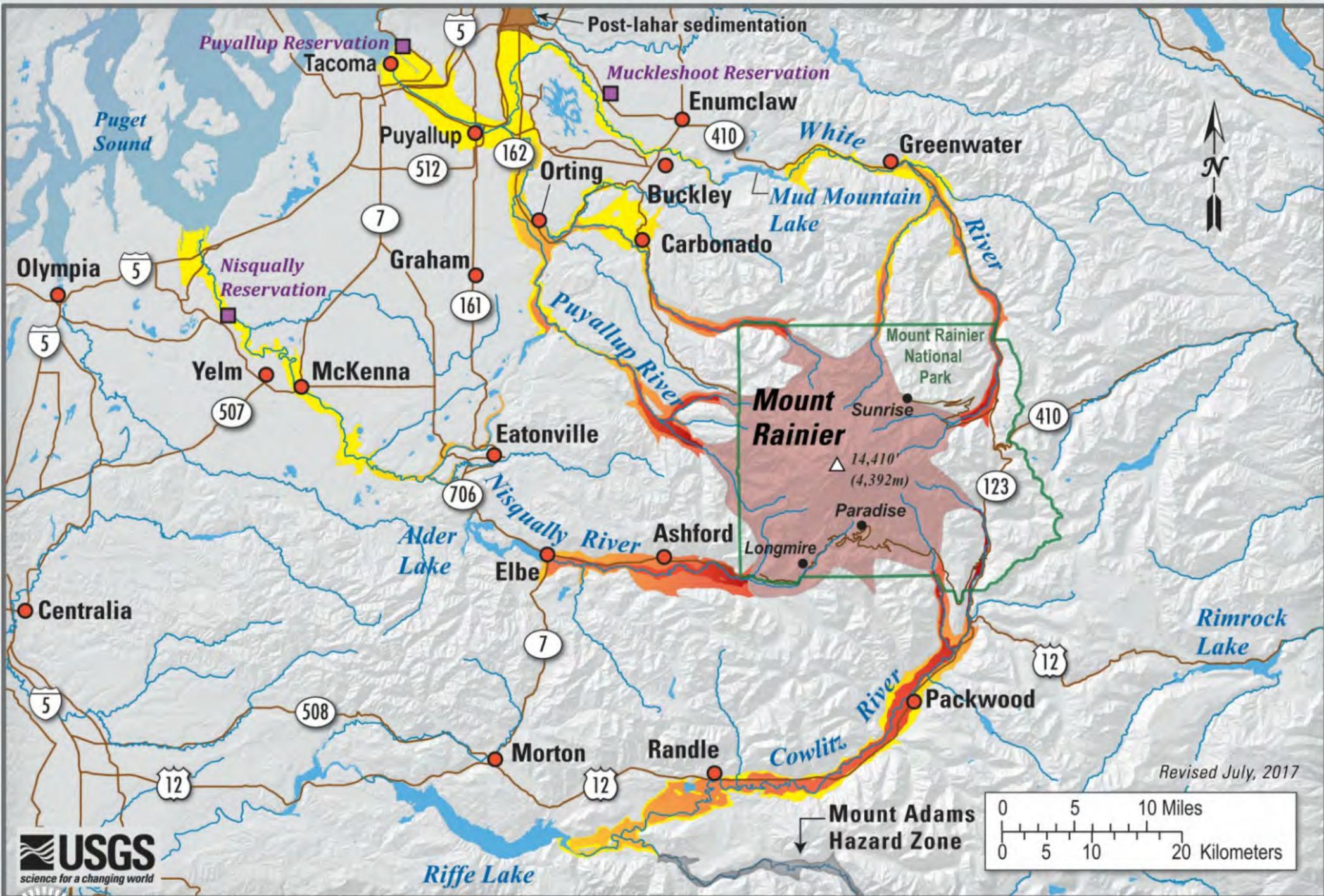
Volcanoes have been erupting in the Cascade Range for over 500,000 years. During the past 4,000 years eruptions have occurred at an average rate of about 2 per century.



Eruption or period of multiple eruptions at or near listed volcano

By Bobbie Myers and Carolyn Driedger  
2006



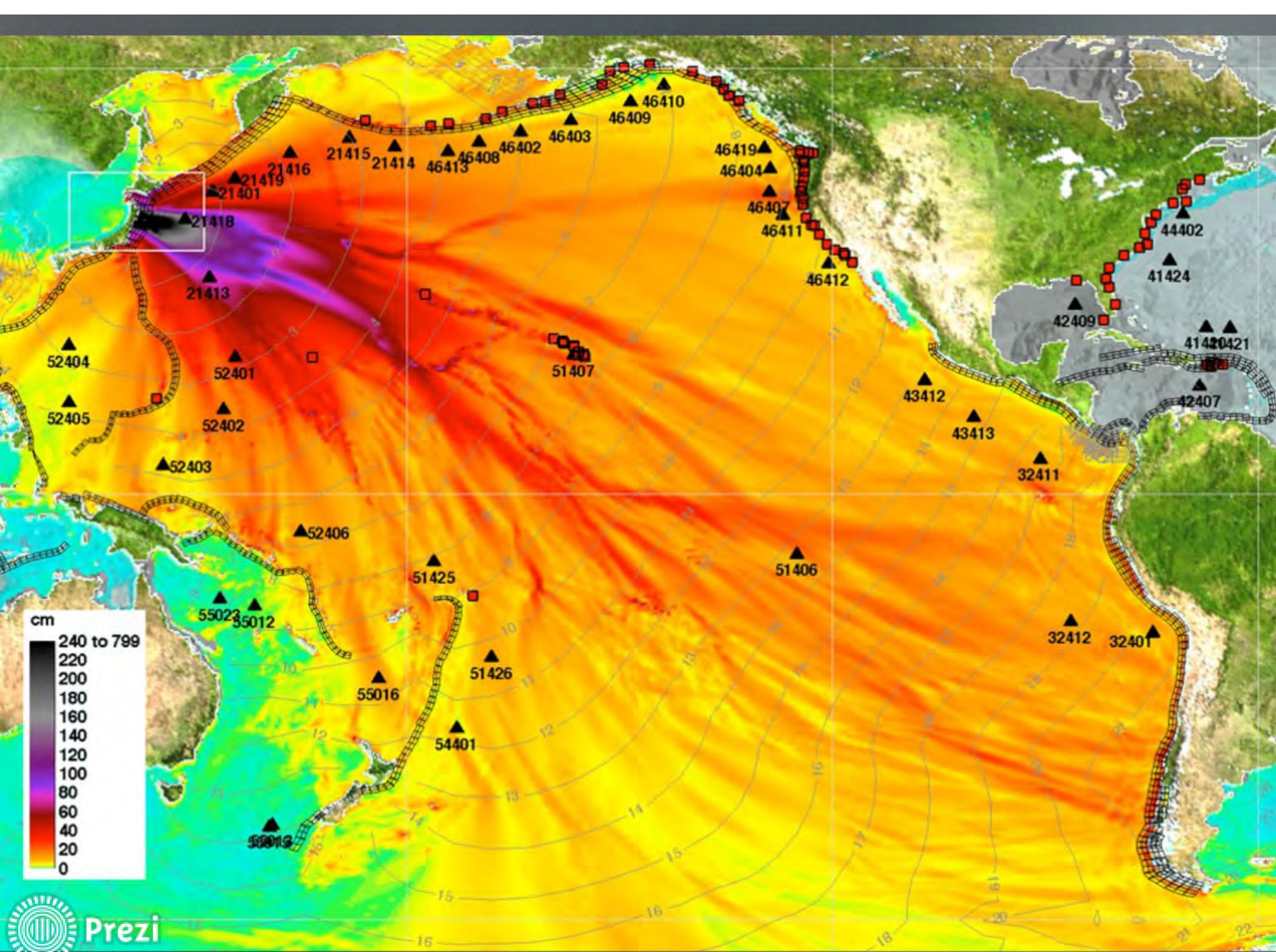


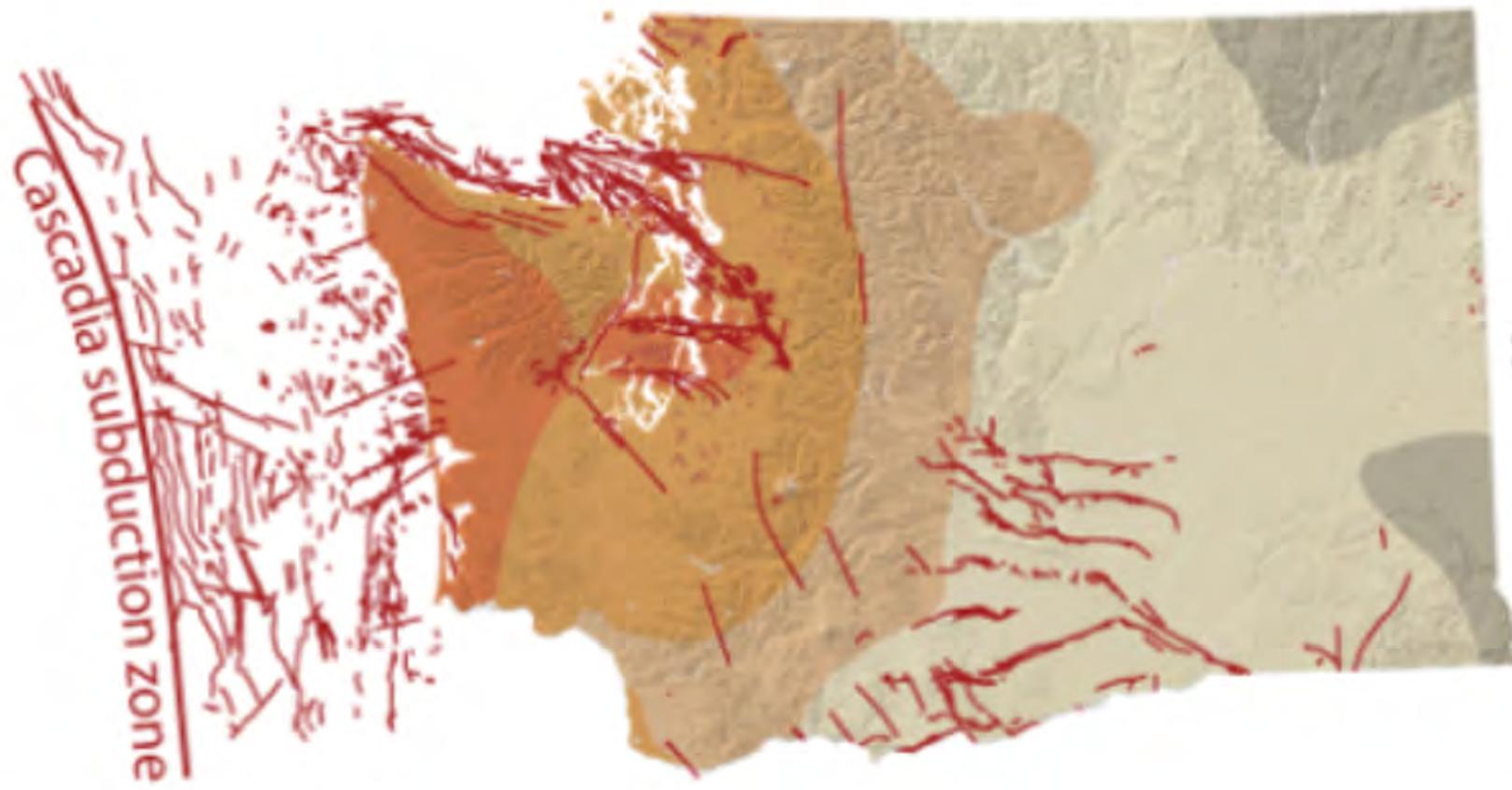
Simplified from Hoblitt and others, 1998, *Volcano Hazards from Mount Rainier, Washington*, USGS Open-File Report 98-428.



<b>A</b>	Assembly area		Tsunami hazard area
	Police station		Driving evacuation route
	Fire station		Walking evacuation route
<b>H</b>	Hospital		

0.5 1 mile

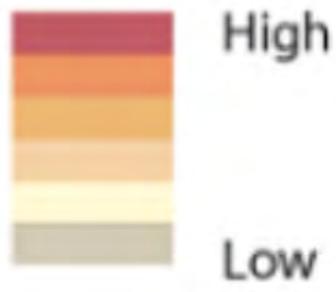




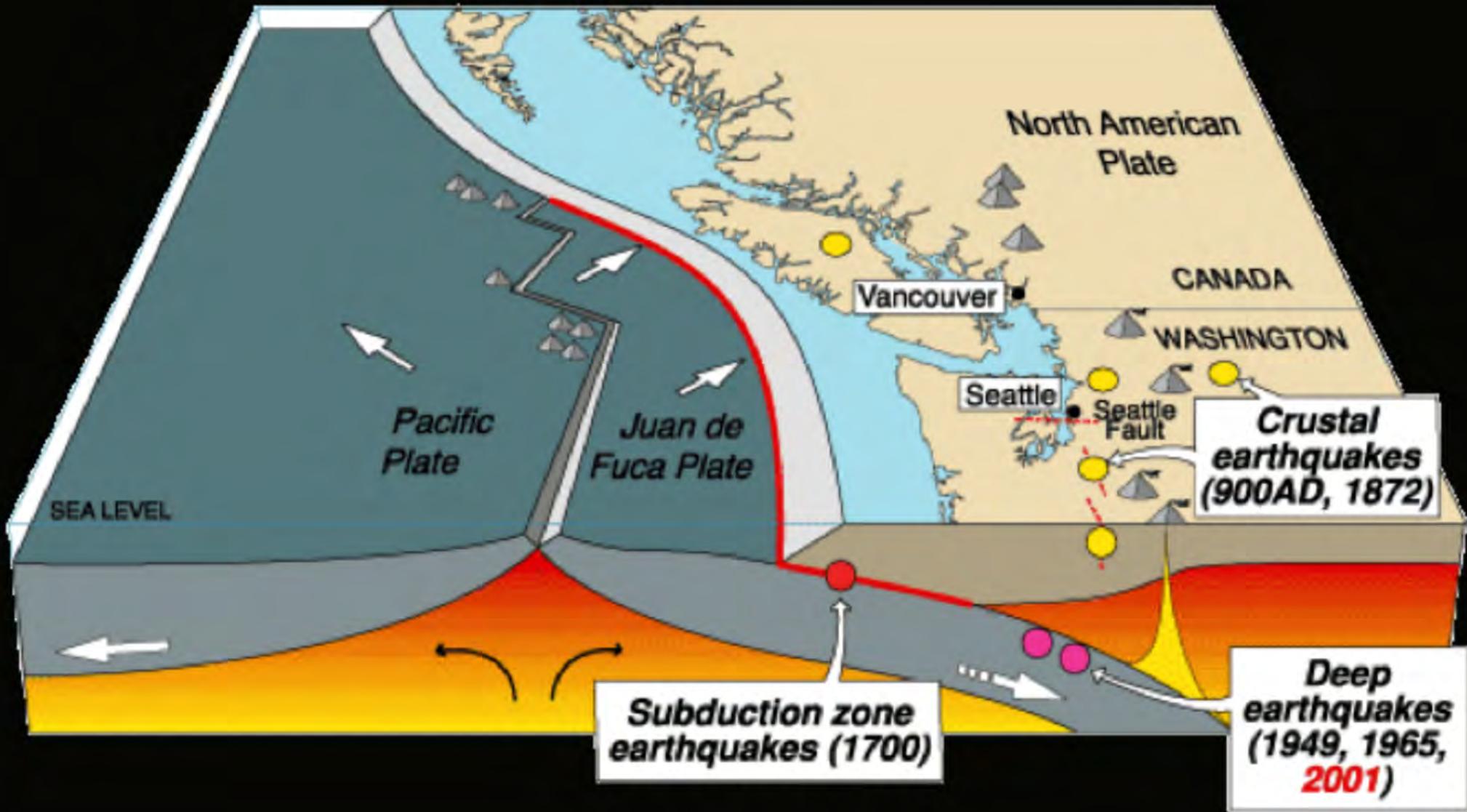
### Earthquakes

— Potentially active faults

### Shaking Hazard

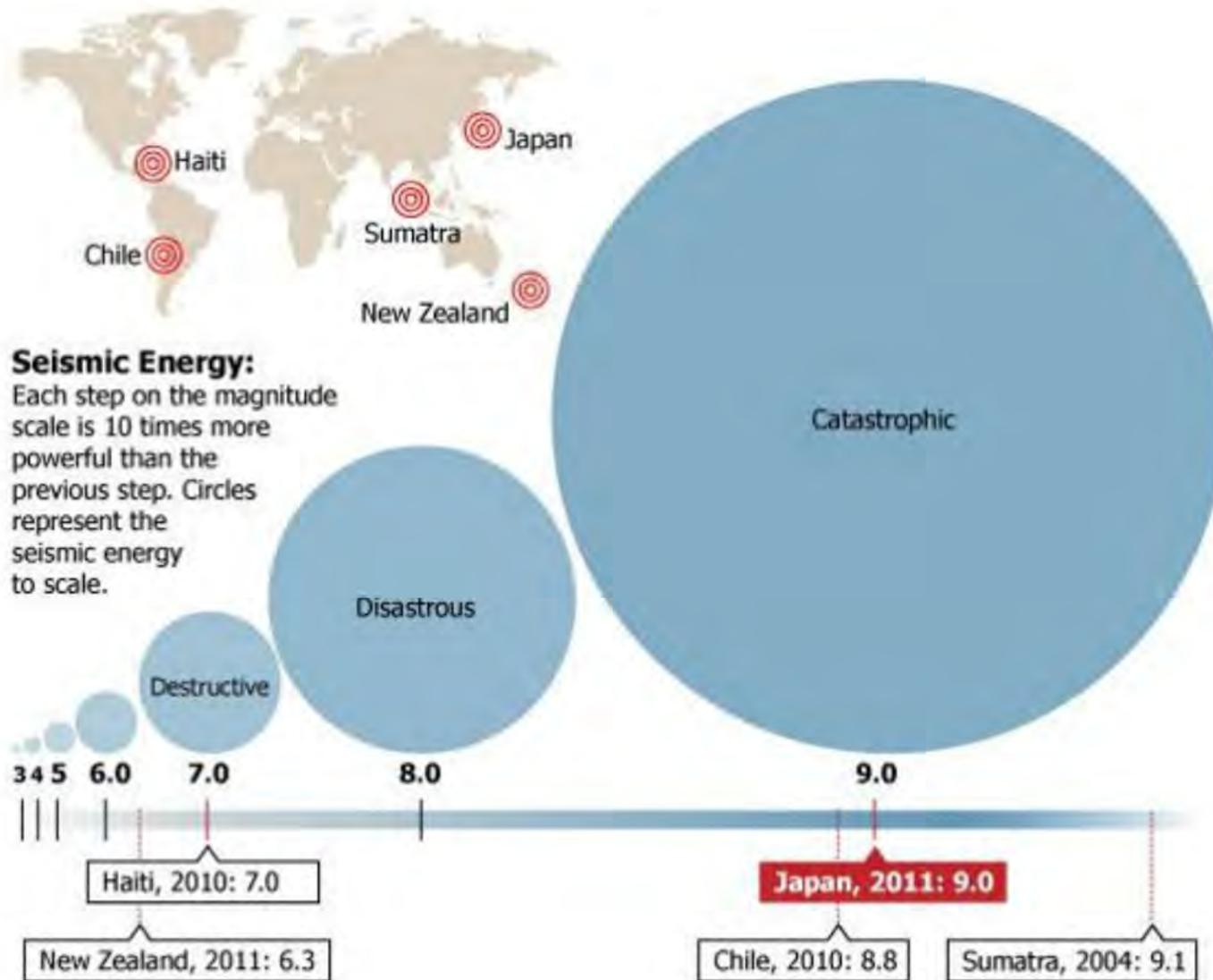






## Magnitudes of Recent Earthquakes

The earthquake off the east coast of Honshu, Japan's largest island, was the fifth-largest ever recorded, according to the U.S. Geological Survey (USGS), and the largest ever recorded in Japan. How it compares in magnitude with other major earthquakes:

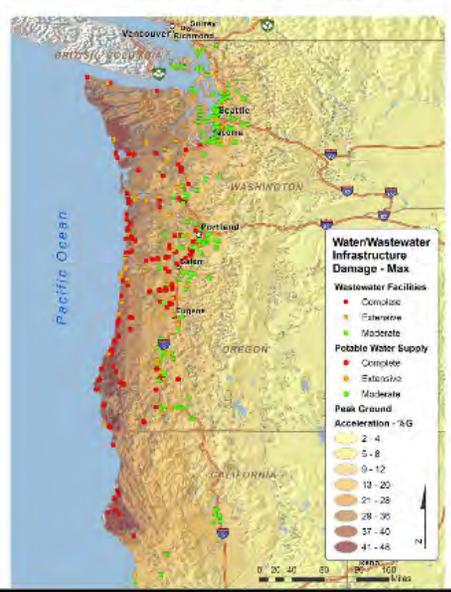
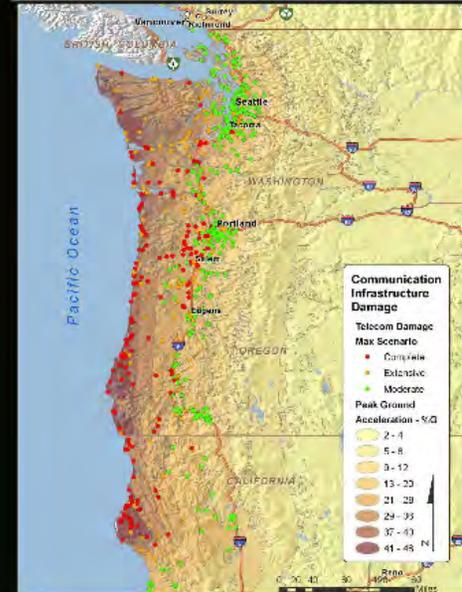
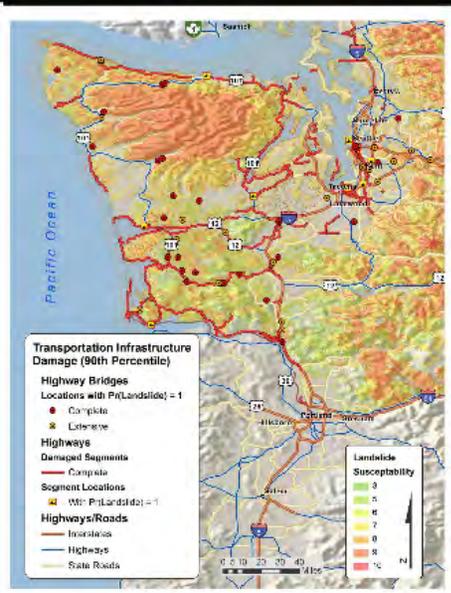
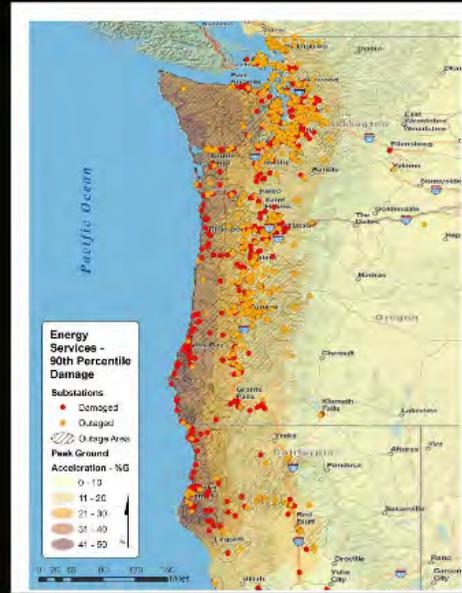


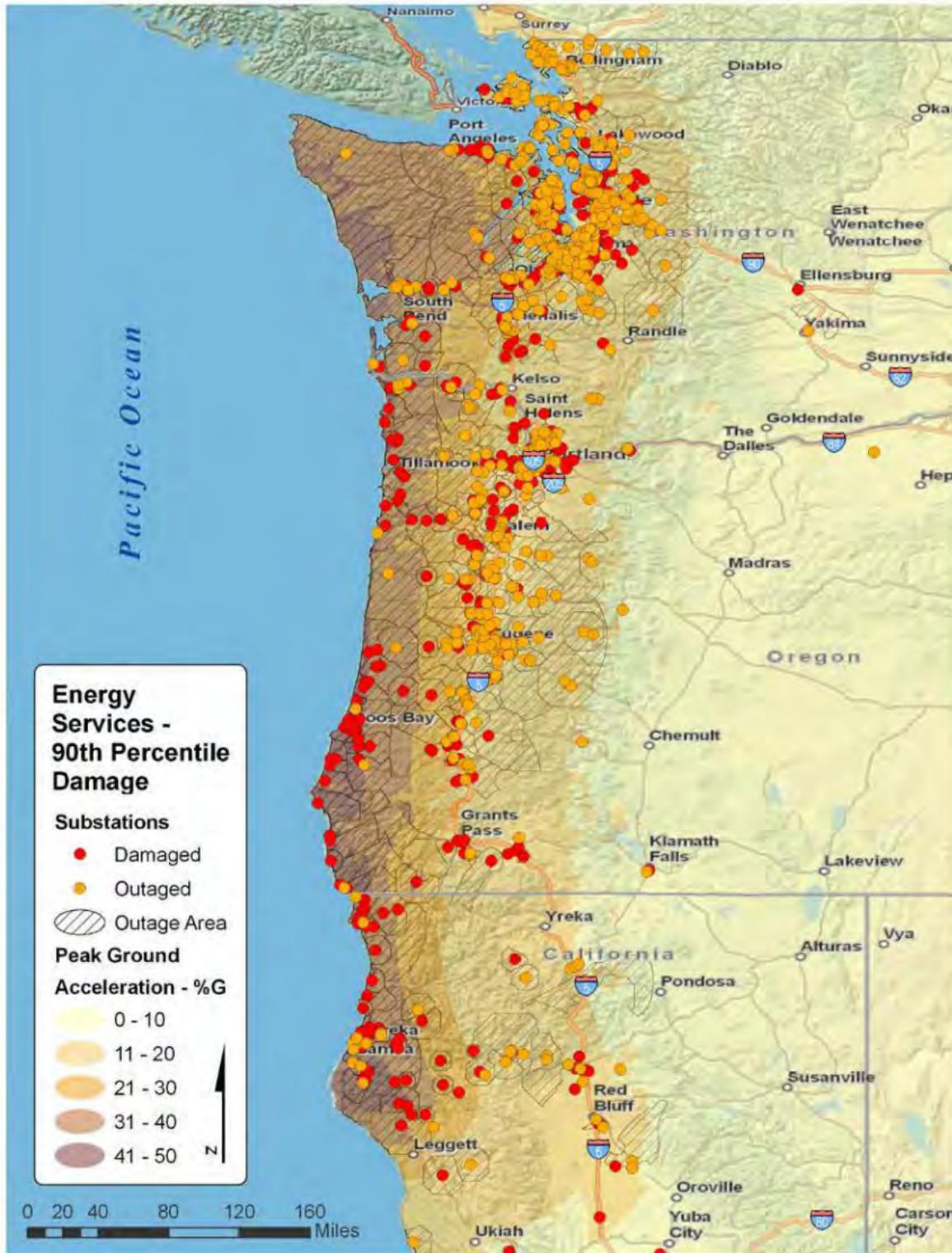
## Cascadia M9.0 Scenario

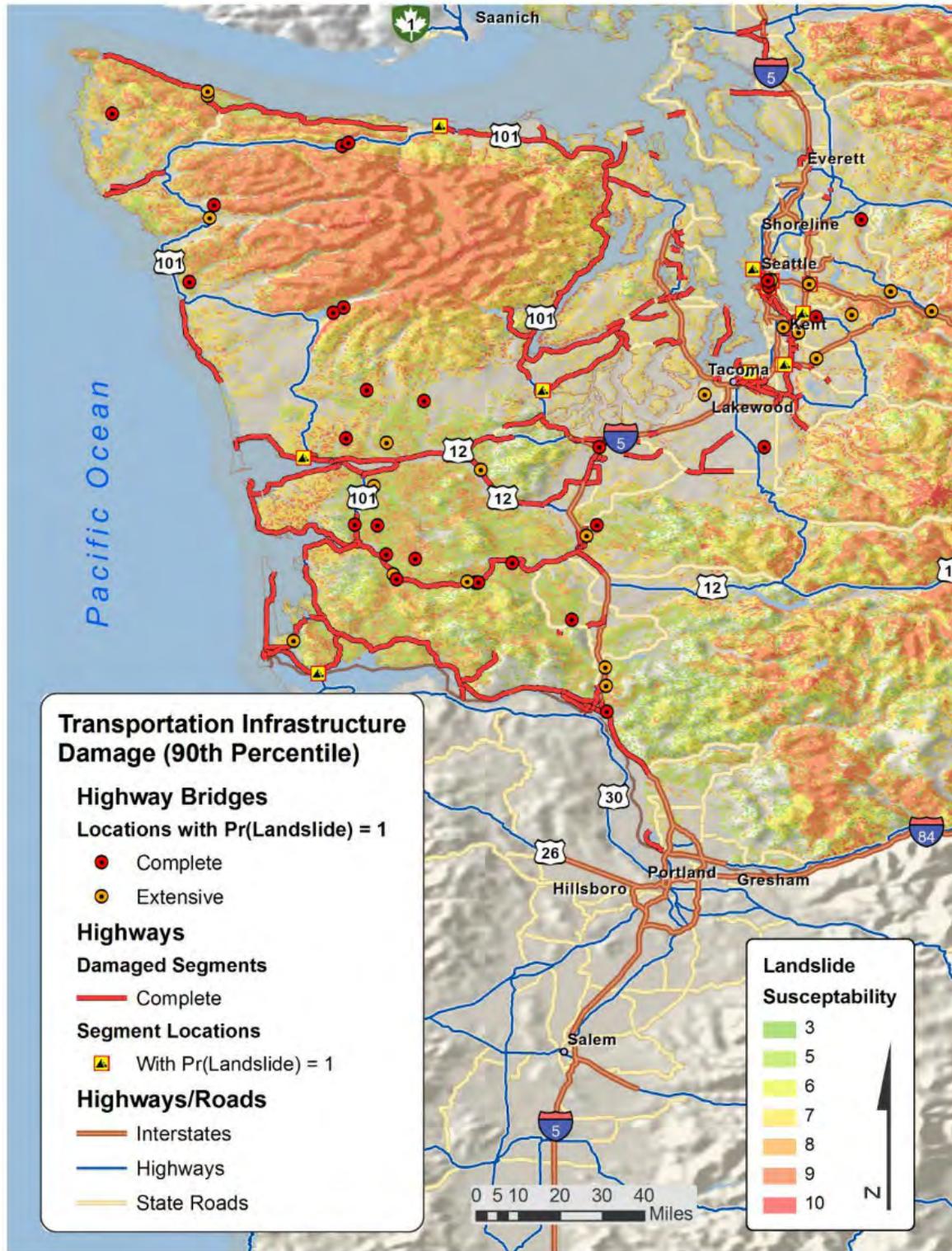
Washington State Seismic Hazards Catalog

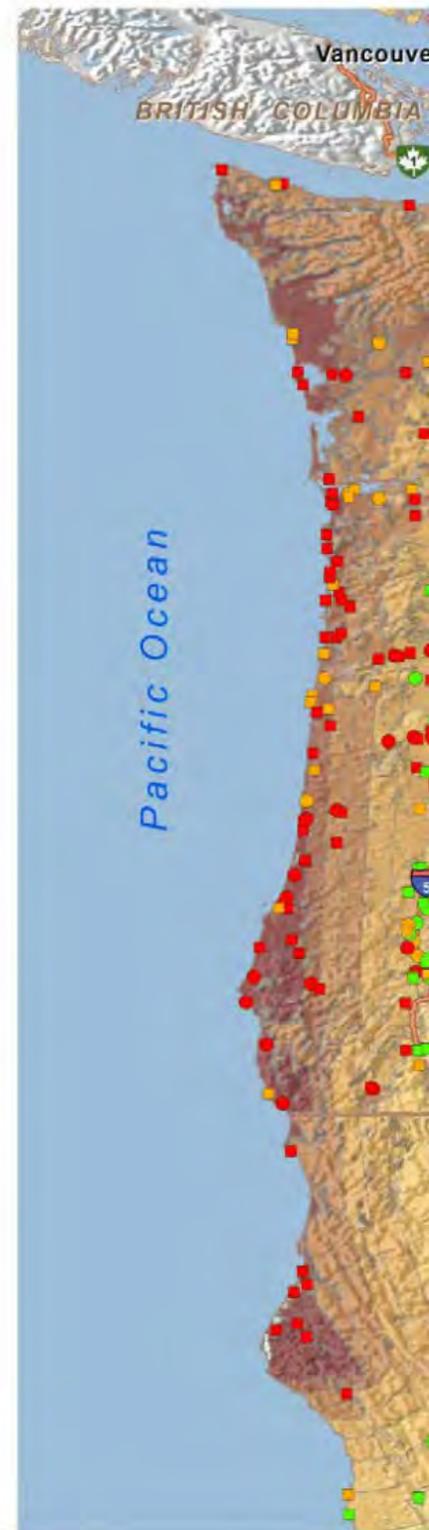
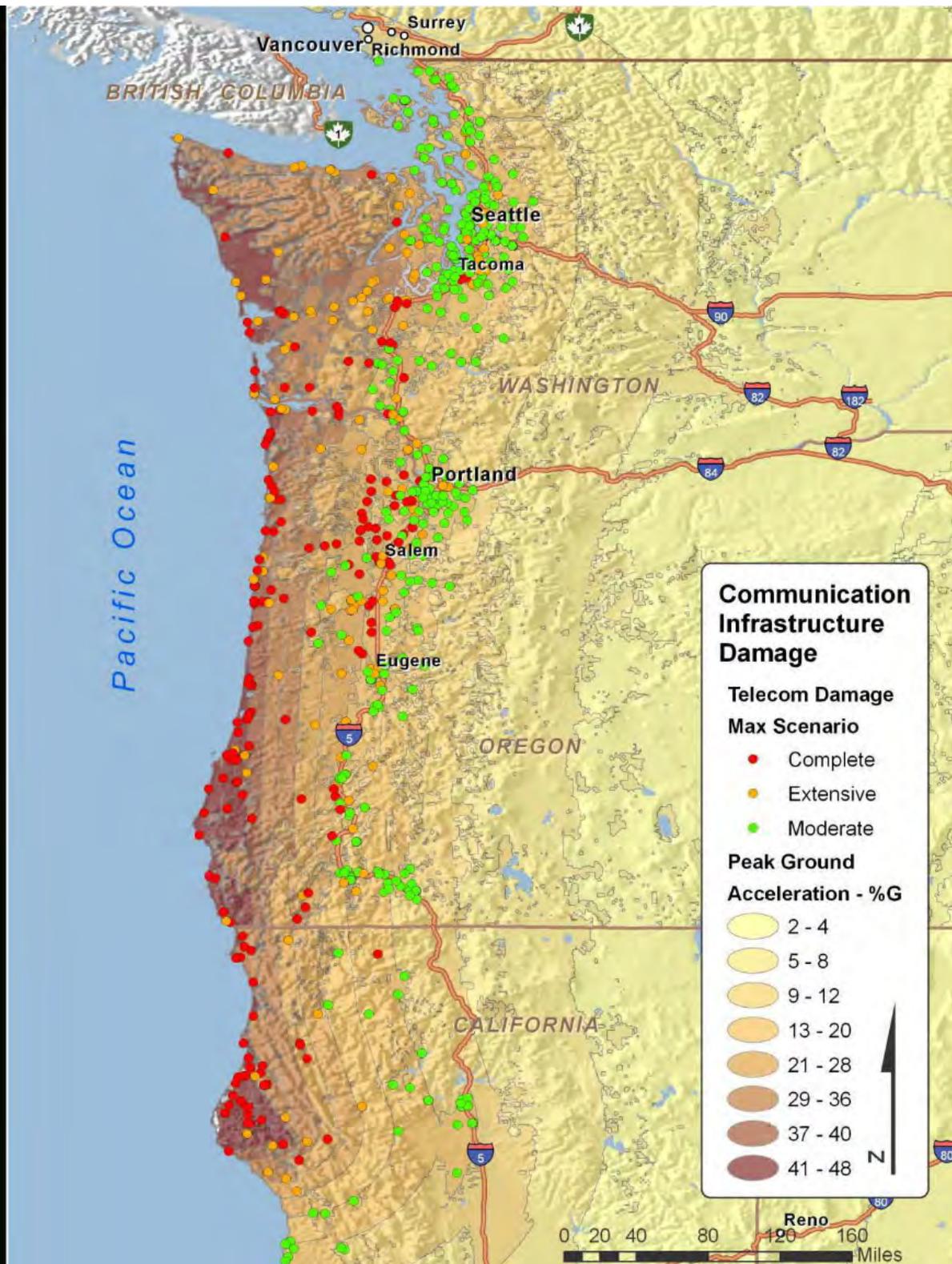


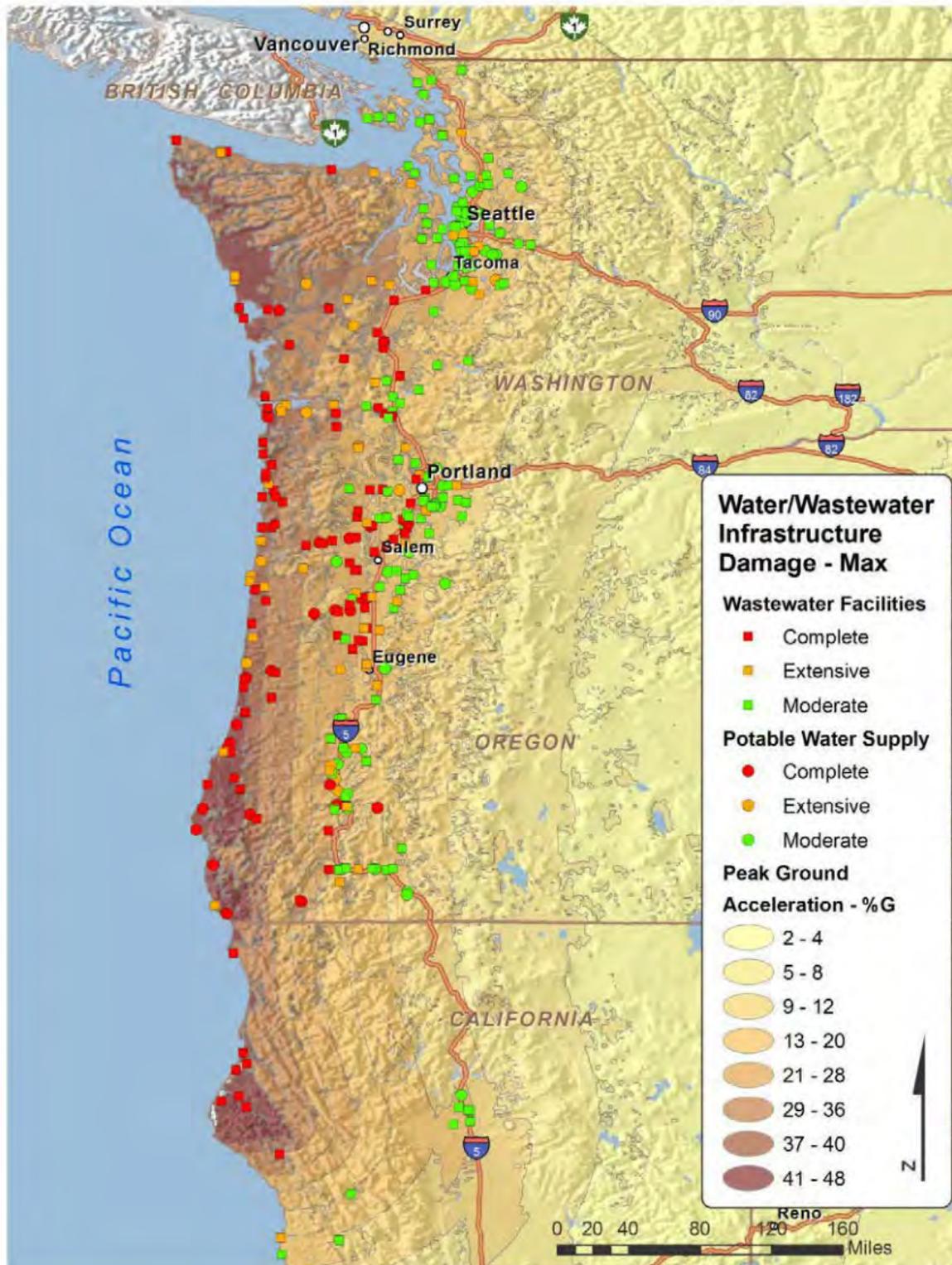
<b>71,303</b>	square miles affected
<b>5,894,121</b>	people in hazard area
<b>50,190</b>	people in tsunami hazard area
<b>507,701</b>	residential buildings damaged
<b>410,127</b>	people needing short-term shelter & feeding
<b>1,274,327</b>	needing long-term feeding and hydration
<b>8,440</b>	deaths
<b>12,114</b>	injuries
<b>15,501</b>	patients evacuated from hospitals
<b>13,174,243</b>	cubic yards of debris

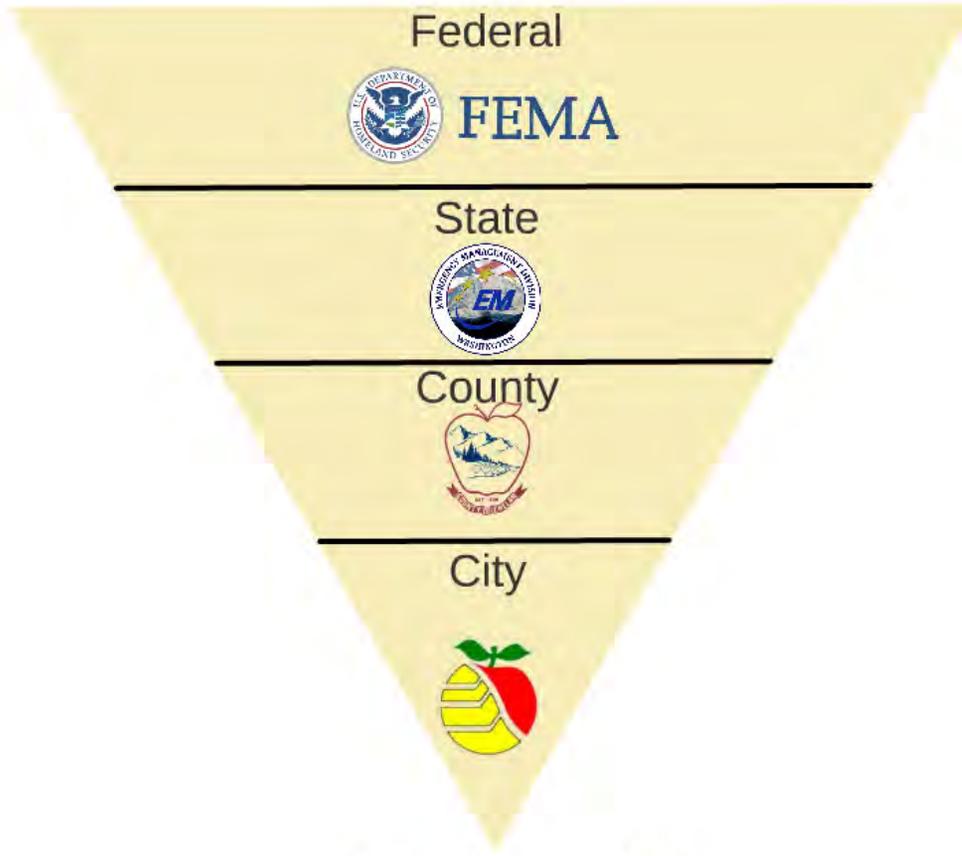












Tribal Nations

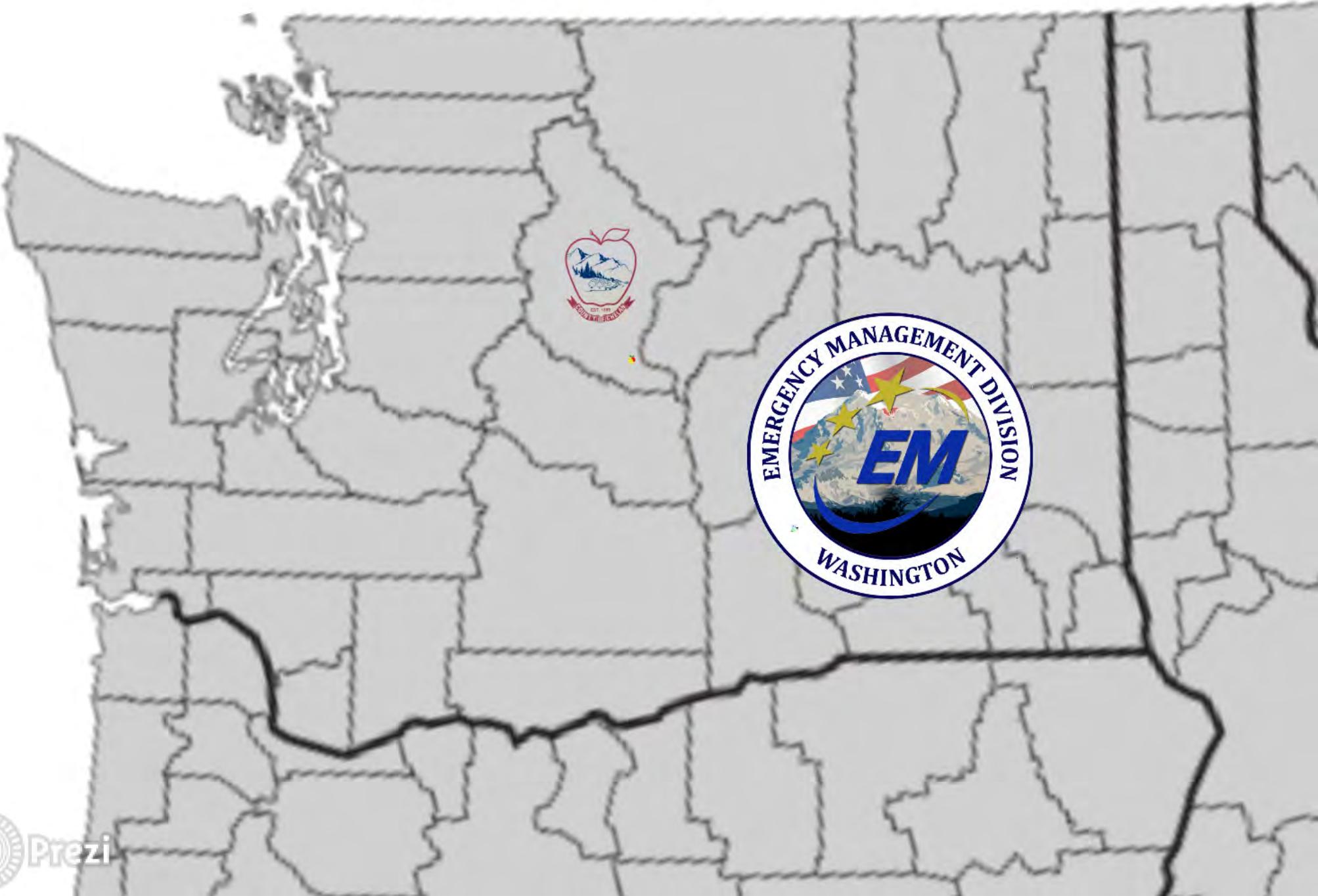
Businesses

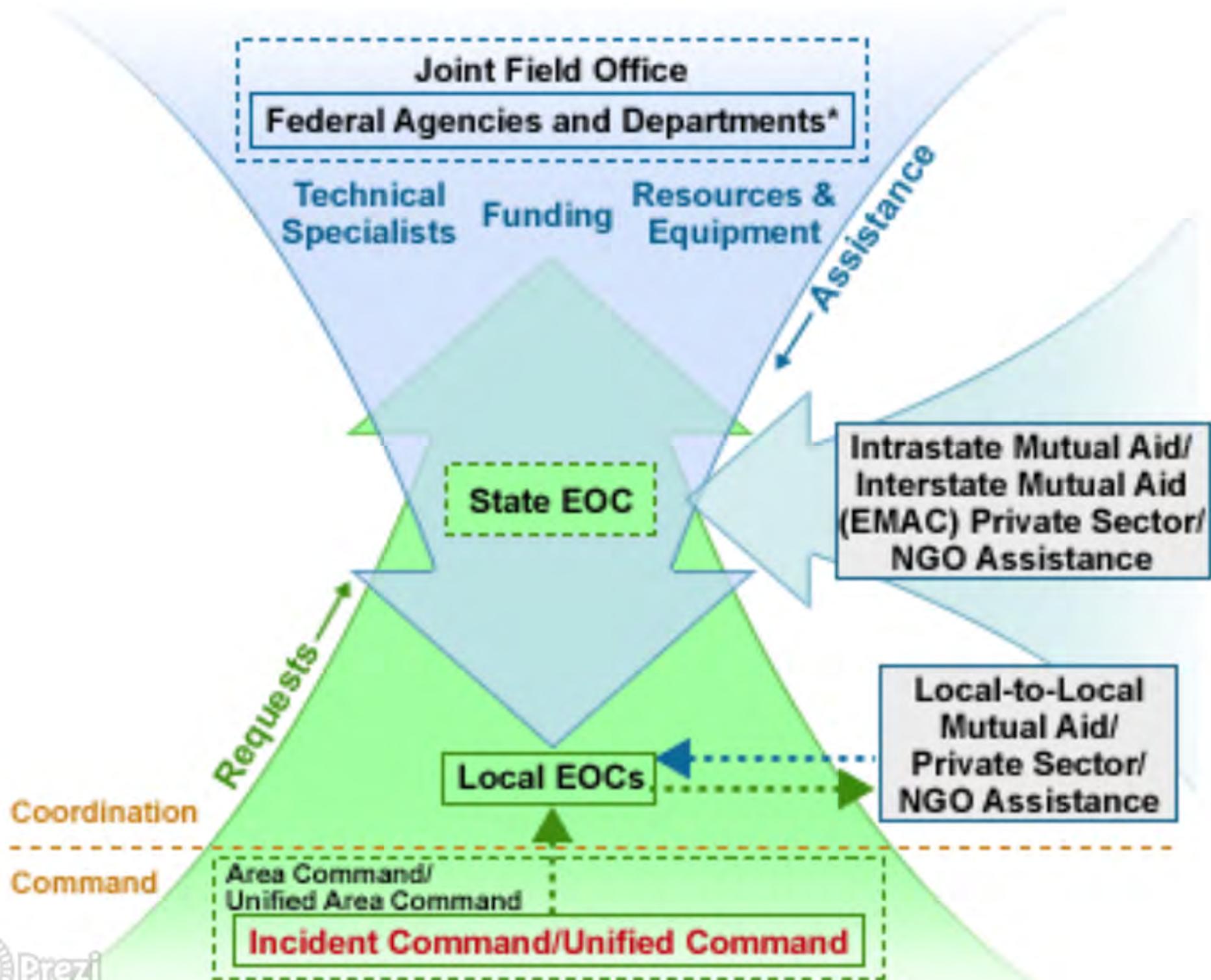
**INITECH**

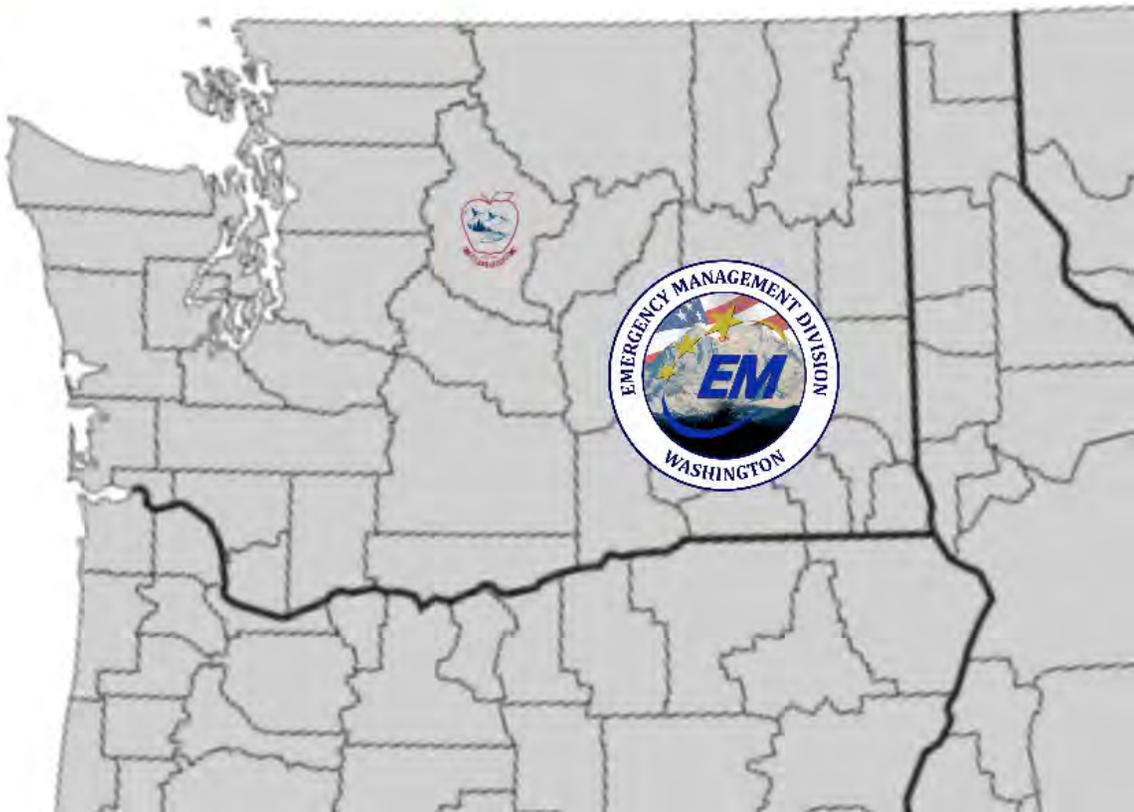
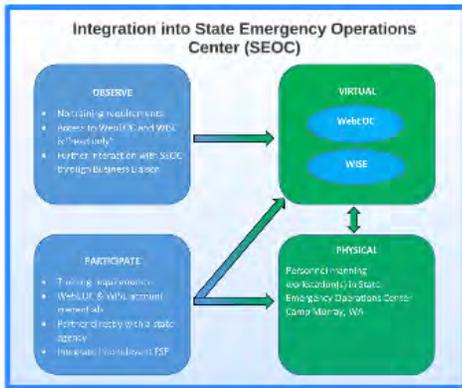












# WA Governor's Emergency Management Council

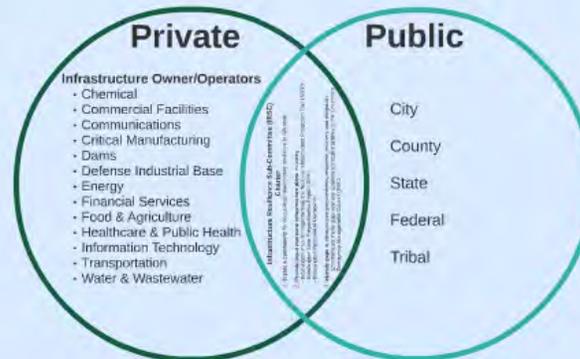
## Membership:

- WA State Patrol
- WA Military Department
- State & Local EM Directors
- Seismic Safety Experts
- Sheriffs and Local Police Chiefs
- Local Fire Chiefs
- Medical Officers
- Department of Ecology
- State Fire Marshal
- Search & Rescue Volunteers

## Sub-Committees:



# Infrastructure Resilience Sub-Committee (IRSC)



- Meet quarterly
- Benefit for ALL participants
- Set goal with objectives for each meeting

Operators

S

g

ase

Health

gy

## Infrastructure Resilience Sub-Committee (IRSC) Charter

1. **Create a community** for discussing infrastructure resilience in WA state
2. **Provide input into state infrastructure plans** including
  - Washington Plan for Implementing the National Infrastructure Protection Plan (NIPP)
  - Washington State Preparedness Report (SPR)
  - Washington Restoration Framework
3. **Identify gaps** in infrastructure preparedness, response, recovery and mitigation.  
Communicate these gaps and any potential corrective actions to the Governor's Emergency Management Council (EMC)

Tr

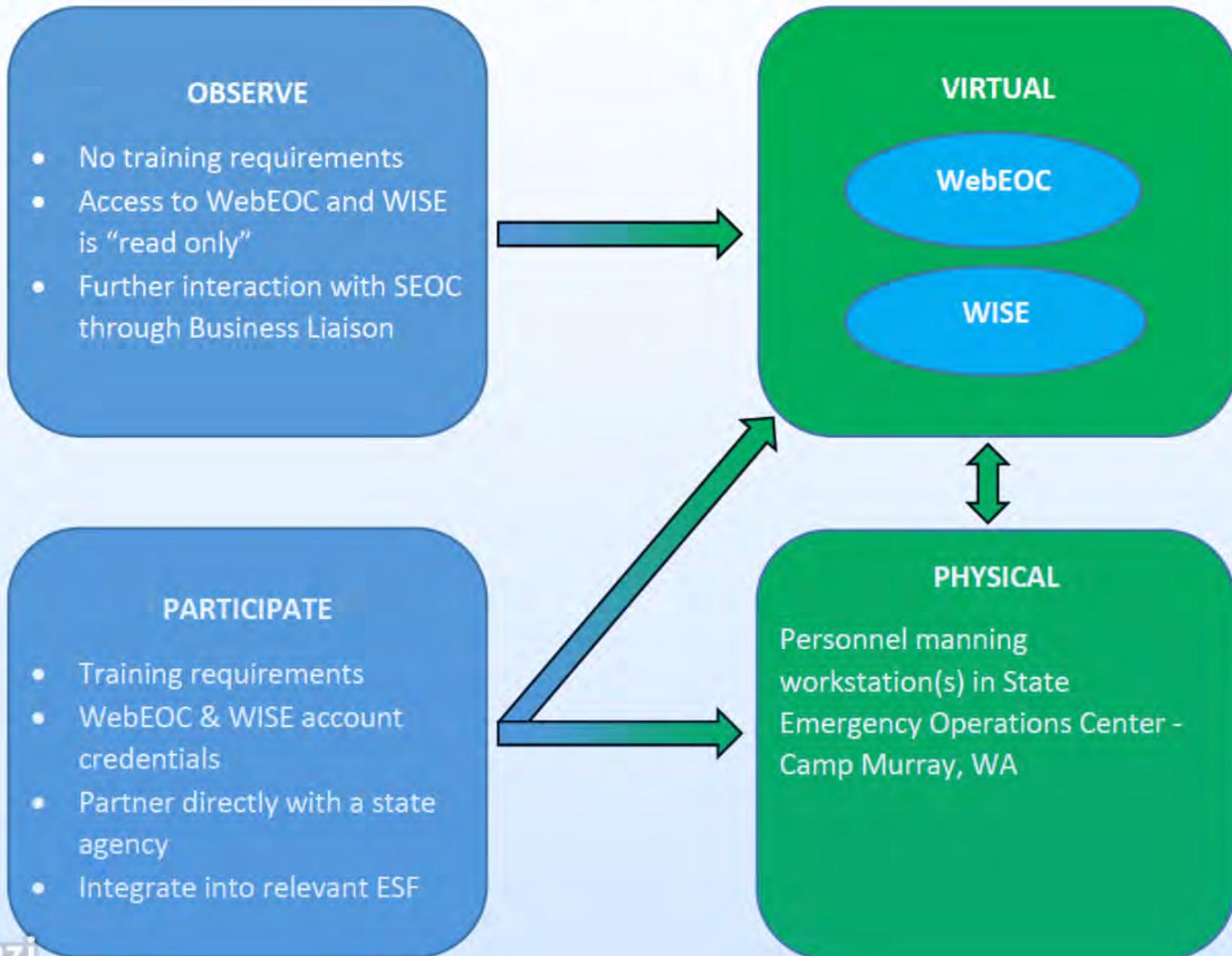
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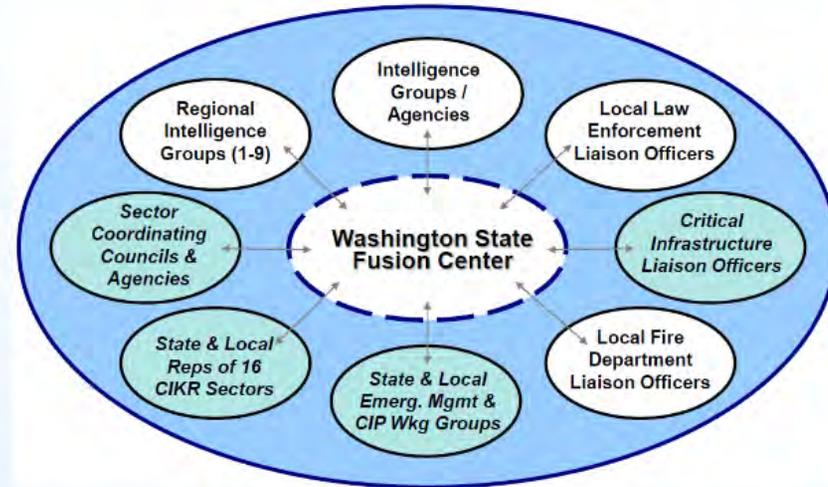
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# Integration into State Emergency Operations Center (SEOC)



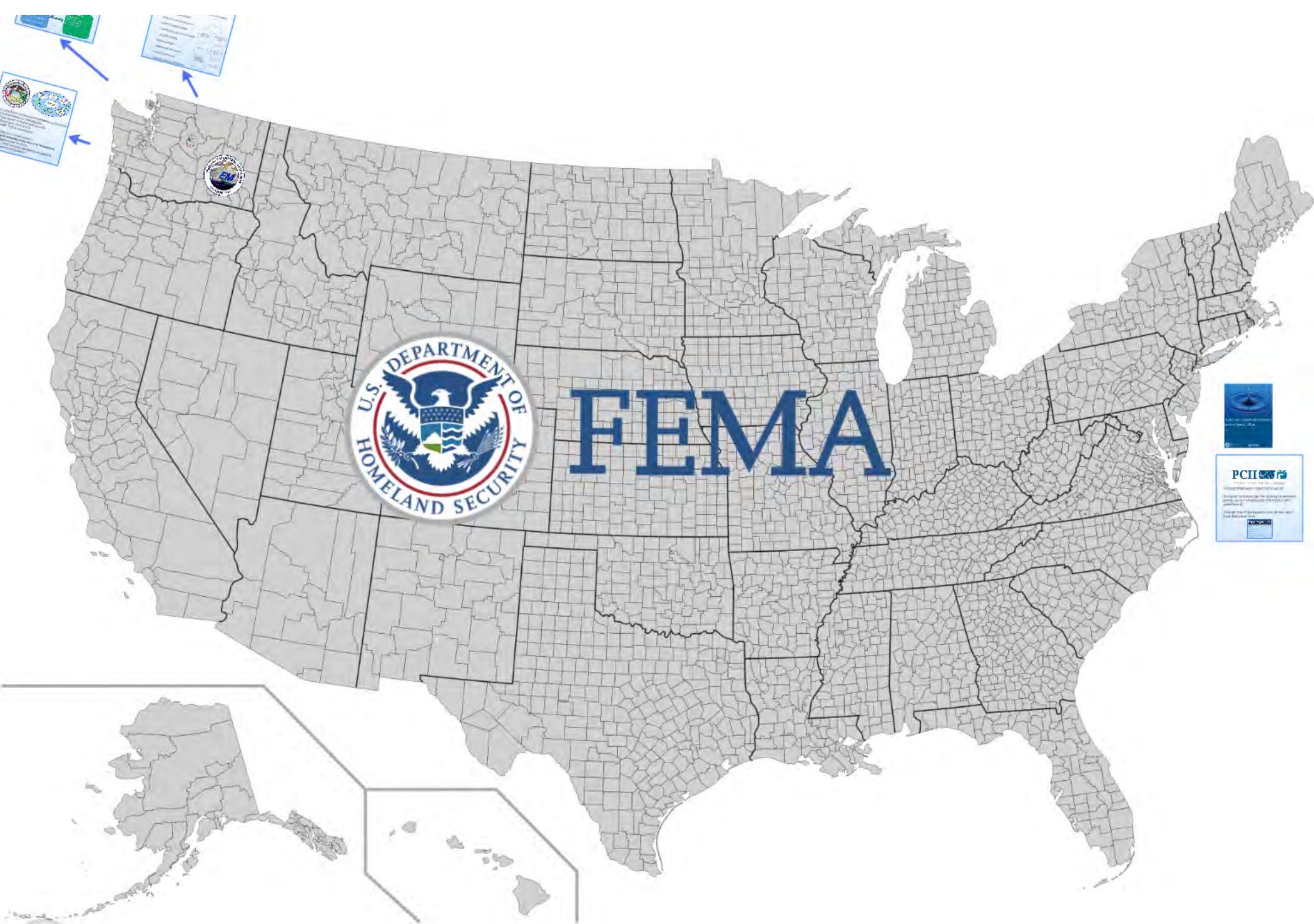


Multi-jurisdiction information/intelligence organization

- Federal Bureau of Investigation
- Department of Homeland Security
- Washington State Patrol
- Seattle Police Department

Organized into 4 main sections

- **Critical Infrastructure and Key Resources**
- Intelligence and Analysis
- Urban Area Security Initiative Investigations
- Statewide Investigations



PCI

PCI compliance is a requirement for all companies that store, process, or transmit credit card information. It is a set of standards designed to ensure that all companies that accept, process, store, or transmit credit card information must maintain a secure environment for their credit card information.



# Water and Wastewater Systems Sector-Specific Plan

2015



Homeland  
Security



United States  
Environmental  
Protection Agency

# PCII

Protected Critical Infrastructure Information

- Federal information protection program
- Designed to encourage the sharing of sensitive private sector infrastructure information with government
- Exempt from FOIA requests and similar state/local disclosure laws



Department of Homeland Security  
**IP GATEWAY**

- Repository for PCII data relating to infrastructure/facilities
- Data visualization & search
- Risk and vulnerability ratings
- Protection scores
- Links infrastructure dependencies



- Repository for PCII data relating to infrastructure/facilities
- Data visualization & search
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# Preparedness

A collection of icons representing preparedness: a hand holding a document, a checklist, a red book, a 'Ready' logo with a checkmark, a 'Ready Rating' logo, and a 'OPB-22' logo.

# Response

A collection of icons representing response: a yellow and black hazard symbol, a person running, a person in a hard hat, and a person in a uniform.

# Mitigation

A collection of icons representing mitigation: a building, a fire truck, a person in a hard hat, and a group of people.

# Recovery

A collection of icons representing recovery: a person in a hard hat, a person in a uniform, and a person in a hard hat.

# Preparedness



Event	Impact	Response
Power Outage	Loss of critical data, equipment damage, communication breakdown	Backup power, data recovery, emergency communication
Supply Chain Disruption	Loss of raw materials, production delays	Inventory management, alternative suppliers
Employee Unavailability	Loss of key personnel, reduced productivity	Employee safety, remote work capabilities, cross-training
Facility Damage	Operational downtime, equipment loss	Business continuity plan, disaster recovery site
IT System Failure	Data loss, system downtime	Regular backups, disaster recovery plan
Security Breach	Loss of sensitive information, reputational damage	Incident response plan, data encryption
Regulatory Changes	Compliance issues, fines	Regular audits, staying updated on regulations
Market Volatility	Revenue fluctuations, increased costs	Financial reserves, flexible pricing

Business	Industry	Location	Disaster Type	Impact	Response
ABC Corp	Manufacturing	Chicago, IL	Earthquake	Facility damage, production halt	Emergency evacuation, equipment relocation
DEF Inc	Retail	New York, NY	Power Outage	Loss of sales, inventory damage	Backup power, data recovery
GHI Ltd	Healthcare	Los Angeles, CA	Supply Chain Disruption	Loss of critical supplies, patient care affected	Inventory management, alternative suppliers
JKL Co	Finance	San Francisco, CA	IT System Failure	Data loss, system downtime	Regular backups, disaster recovery plan
MNO Corp	Construction	Houston, TX	Employee Unavailability	Loss of key personnel, project delays	Employee safety, remote work capabilities
PQR Inc	Energy	Denver, CO	Facility Damage	Operational downtime, equipment loss	Business continuity plan, disaster recovery site
STU Ltd	Technology	Seattle, WA	Security Breach	Loss of sensitive information, reputational damage	Incident response plan, data encryption
VWX Co	Transportation	Phoenix, AZ	Regulatory Changes	Compliance issues, fines	Regular audits, staying updated on regulations
YZA Inc	Real Estate	Miami, FL	Market Volatility	Revenue fluctuations, increased costs	Financial reserves, flexible pricing



American Red Cross  
**Ready Rating**



Infrastructure Improvements







# Unde

## Hazards

- Fire
- Explosion
- Natural hazards
- Hazardous materials spill or release
- Terrorism
- Workplace violence
- Pandemic disease
- Utility outage
- Mechanical breakdown
- Supplier failure
- Cyber attack

Probability  
& Magnitude

## Assets at Risk

- People
- Property including buildings, critical infrastructure
- Supply chain
- Systems/equipment
- Information Technology
- Business operations
- Reputation of or confidence in entity
- Regulatory and contractual obligations
- Environment

Vulnerability

## Impacts

- Casualties
- Property damage
- Business interruption
- Loss of customers
- Financial loss
- Environmental contamination
- Loss of confidence in the organization
- Fines and penalties
- Lawsuits

Hazard Identification

Vulnerability Assessment

Impact Analysis





**Ready**  
Prepare. Plan. Stay Informed.



U.S. CHAMBER OF COMMERCE FOUNDATION

American Red Cross  
**Ready Rating™**



A PROGRAM OF IBHS

# Response



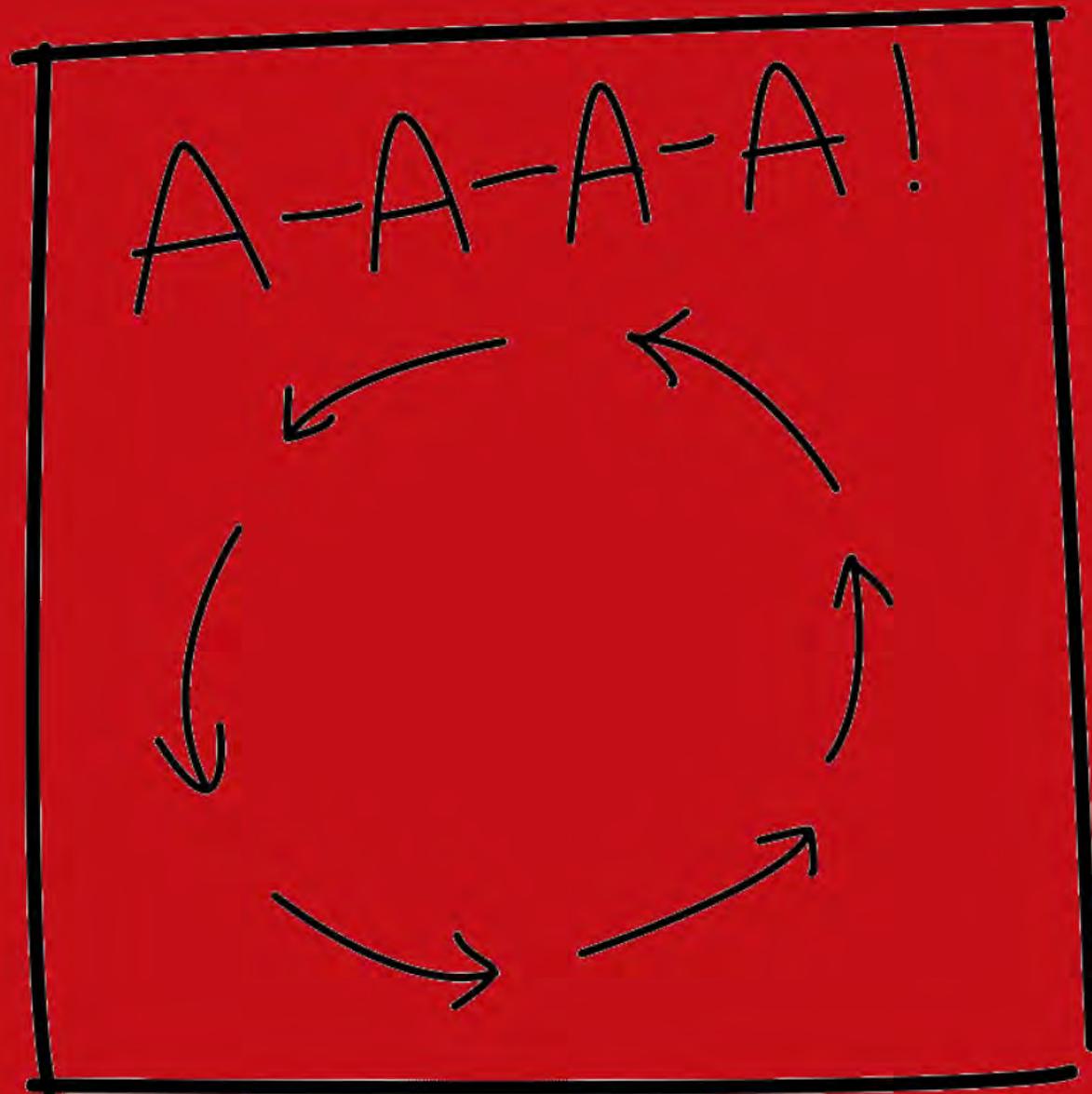
## Mutual Aid Agreements

- Coordinate with government
- Seeking to arrange in private sector:
  - Businesses
  - NGOs
  - Associations



**SHELTER IN PLACE**

# EVACUATION PLAN





## Mutual Aid Agreements

- Common among governments
- Starting to emerge in private sector
  - Businesses
  - NGOs
  - Associations



Disaster Cleanup & Repair



# Recovery





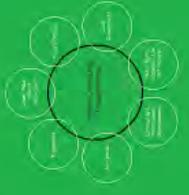
# Disaster Cleanup & Repair





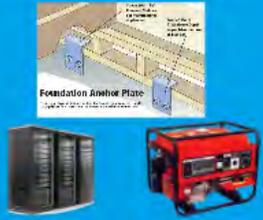
Ready  
Prepare, Plan, Practice

Ready R22



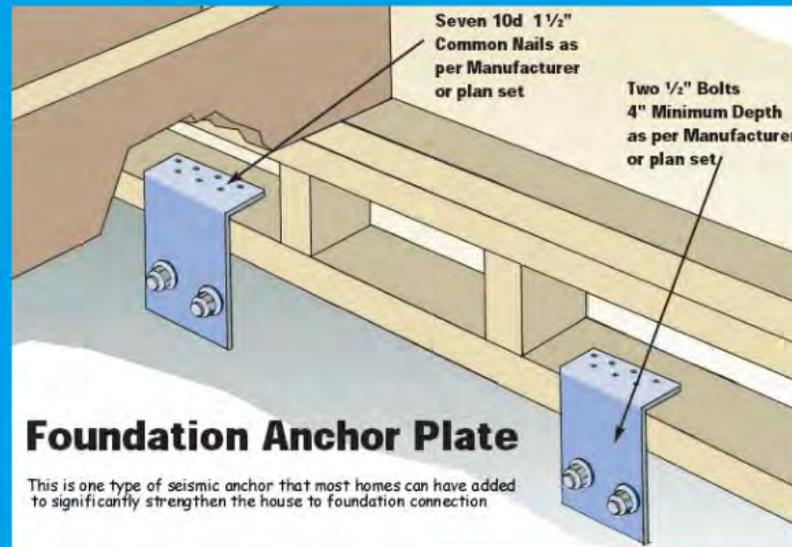
Disaster

### Infrastructure Improvements



# Mitigation

# Infrastructure Improvements



# Training





# Preparedness

A collection of icons representing preparedness, including a hand holding a document, a stack of books, a 'Ready' logo with a checkmark, a 'Ready Rating' logo, and a 'OPB-12' logo.

# Response

A collection of icons representing response, including a yellow and black hazard symbol, a person running, and a person sitting at a desk.

# Mitigation

A collection of icons representing mitigation, including a house with a lightning bolt, a fire truck, a car, and a group of people.

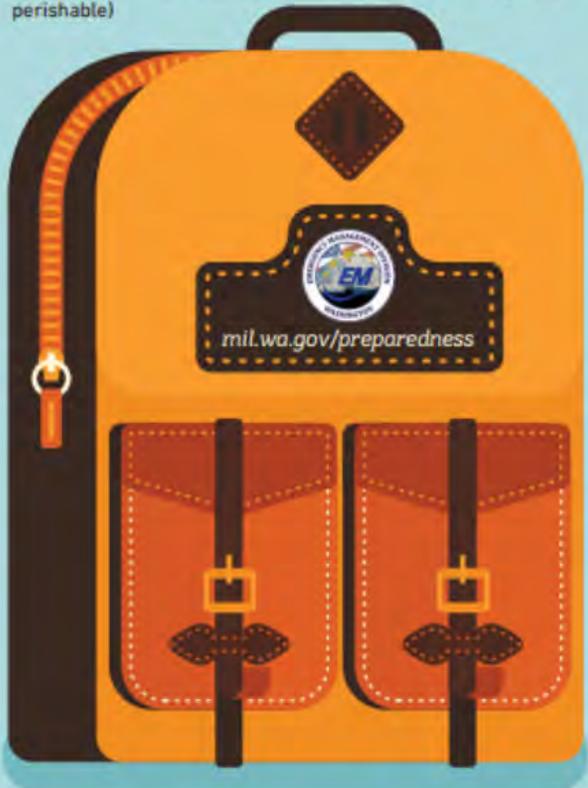
# Recovery

A collection of icons representing recovery, including a person holding a document, a person sitting at a desk, and an IRS logo.

# 2 WEEKS READY

## BUILD KITS

Plan to be on your own for at least 2 weeks



Water (1 gallon per person, per day)

Food (non-perishable)

Comfort/entertainment

Medical equipment

Glasses/eye care

First aid kit

Can opener

Sturdy shoes

NOAA alert radio

Extra batteries

Flashlight

Warm clothes

Personal hygiene items

Fire extinguisher

Tools

Pet supplies

Cash

Toilet paper

Medications

Identification & important documents

! Keep at least 2 weeks of supplies in your home. Have smaller kits for work, for every family member, and pets. Have a vehicle safety kit too.

Sign up for ShakeOut!



[shakeout.org/washington](http://shakeout.org/washington)

**Oct. 19, 2017**

The Great  
Washington  
**Shake  
Out**



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