Emergency Planning Activities

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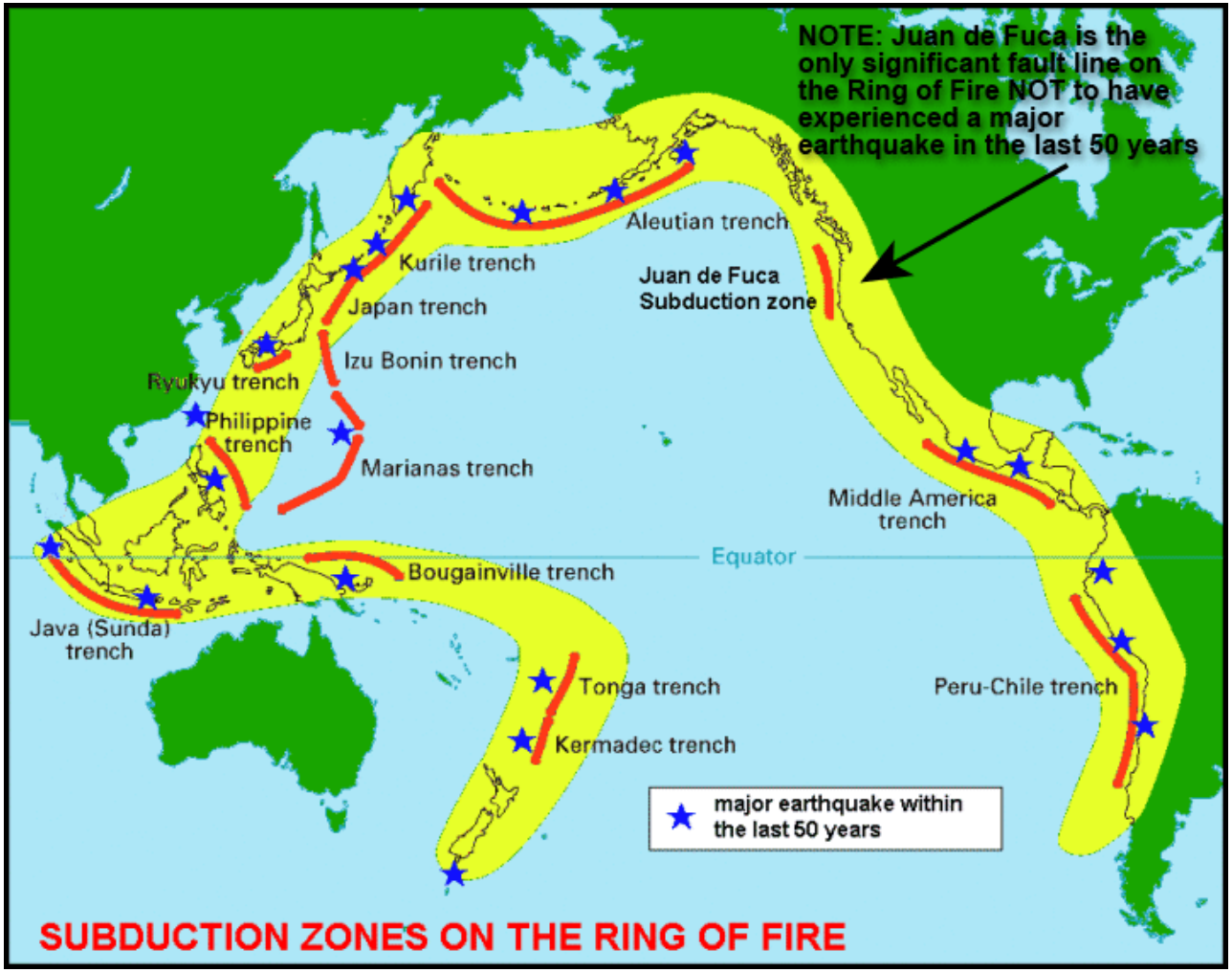
Why do Catastrophic Planning

Ring of Fire



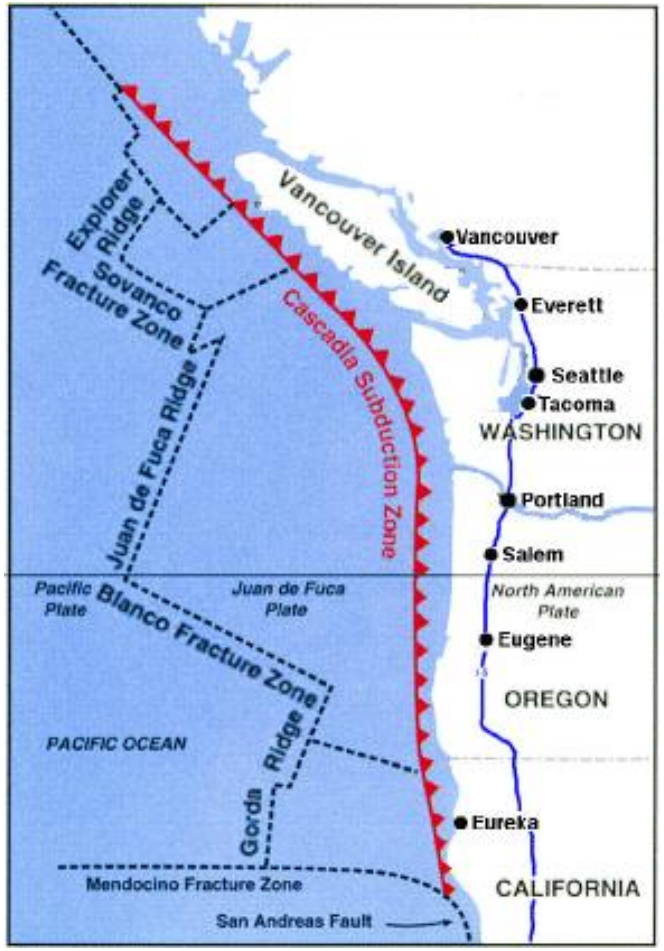
The Ring of Fire accounts for 90% of all earthquakes, and 81% of the world's largest earthquakes

Subduction zones are shown in red

The CSZ fault line is part of the Ring of Fire

The CSZ is the only significant fault line on the Ring of Fire without a major quake in the last 50 years (see blue stars)

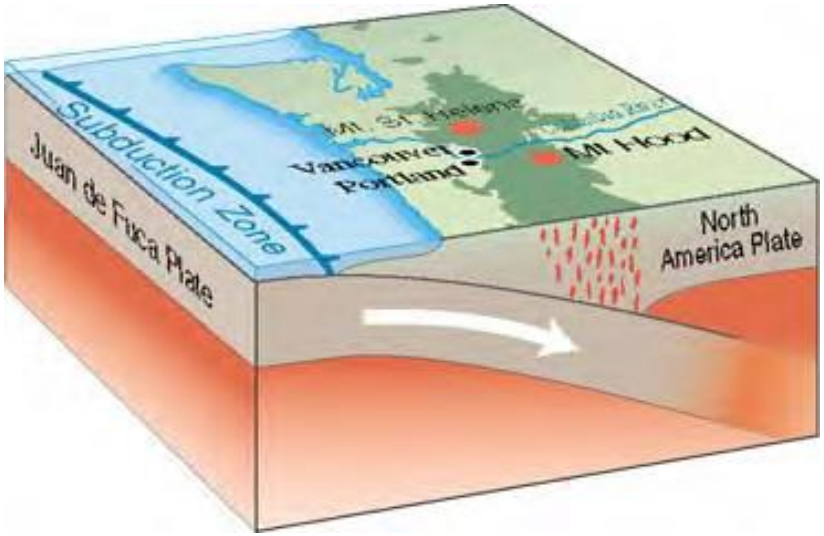
Cascadia Subduction Zone



The CSZ runs 800 miles from Southern British Columbia to Northern California, and lies 50 to 80 miles off the Pacific Coast

The heavy Juan de Fuca plate is sliding under the lighter North American plate

A magnitude 9.0 CSZ earthquake has occurred every 300 to 500 years. **<u>The last CSZ earthquake occurred in the year 1700 (January 26).</u>**



Cascadia Subduction Zone Earthquake

- Magnitude 9.0+
- **Felt region-wide**
- Shaking intensities greatest along coast & where local conditions amplify seismic waves (i.e. Puget Basin).
- “Nisqually-like” shaking intensities in Puget Sound region.
- Duration is a **<u>BIG</u>** Difference:
  - Nisqually ~40 seconds
  - **<u>CSZ ~3-6 minutes</u>**

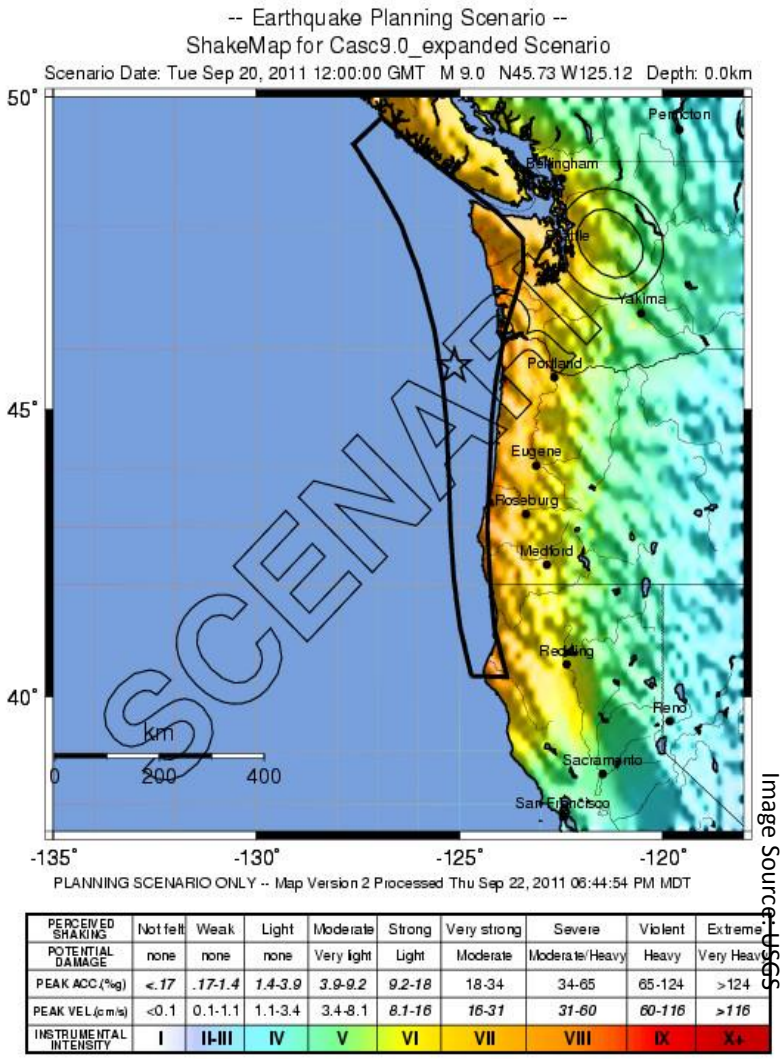
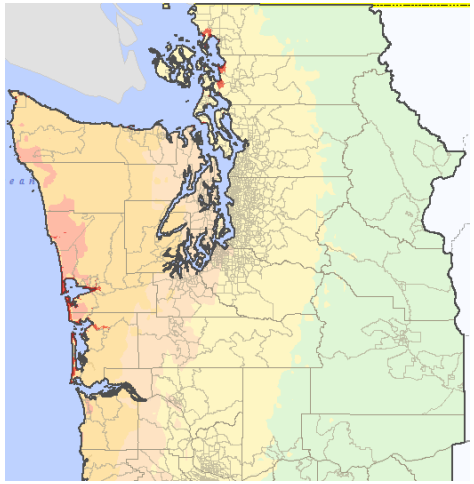


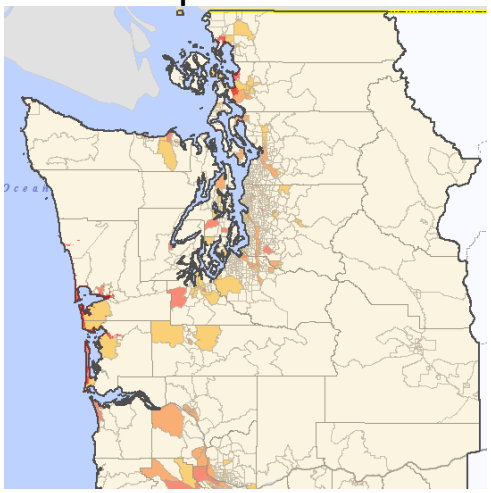
Image Source: USGS

Ground Shaking Effects

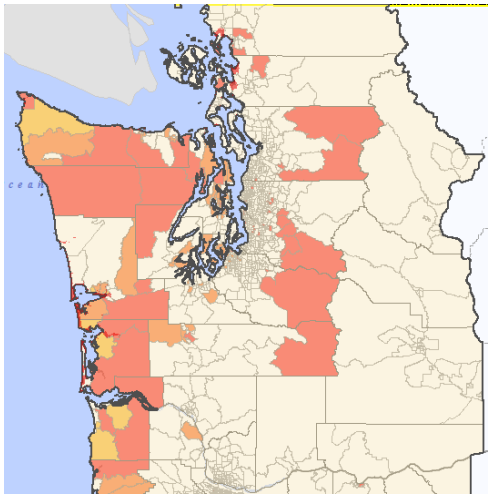
Mercalli Index



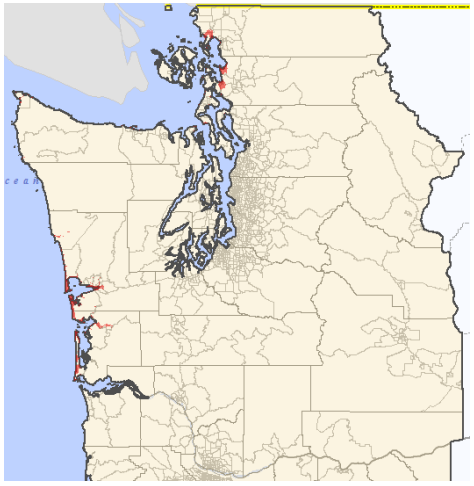
Liquefaction



Landslides



Tsunami



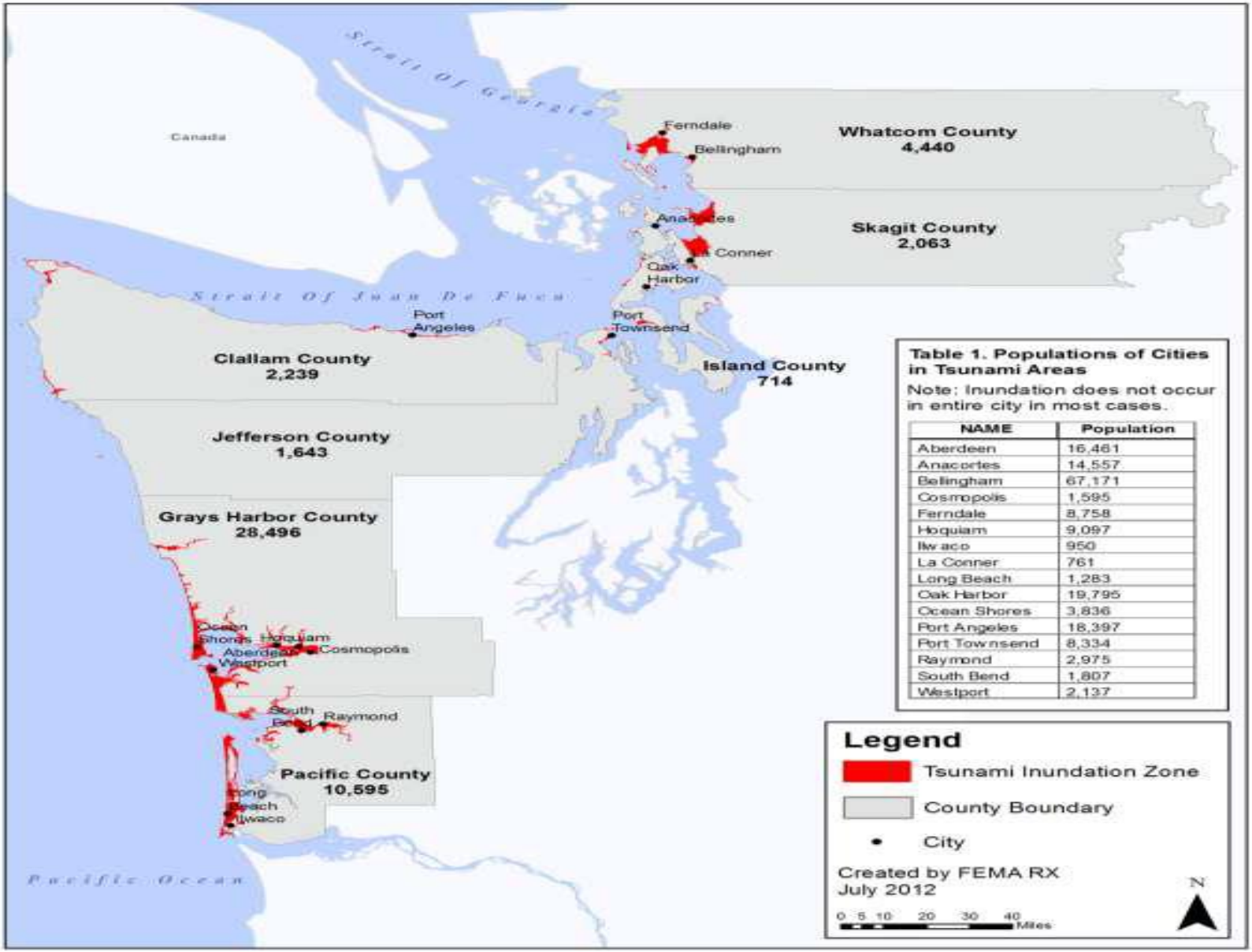
Mercalli Index: Ground shaking will depend on the actual fault rupture method and can not be accurately forecast. It is anticipated that the fault will rupture along its entire 700 mile length resulting in a magnitude 9.0 earthquake that will last 3-5 minutes. The intensity of the shaking will decrease with distance from the fault. Even so, Seattle is expected to experience a 7.0 magnitude or higher earthquake with 5 minutes of shaking.

Liquefaction: The cause of some of the most dramatic damage resulting from an earthquake, liquefaction areas can be accurately forecast based on soil types and water content. Some of the most susceptible areas are areas that have a high commercial potentiality, i.e. ports, bridges, commercial areas.

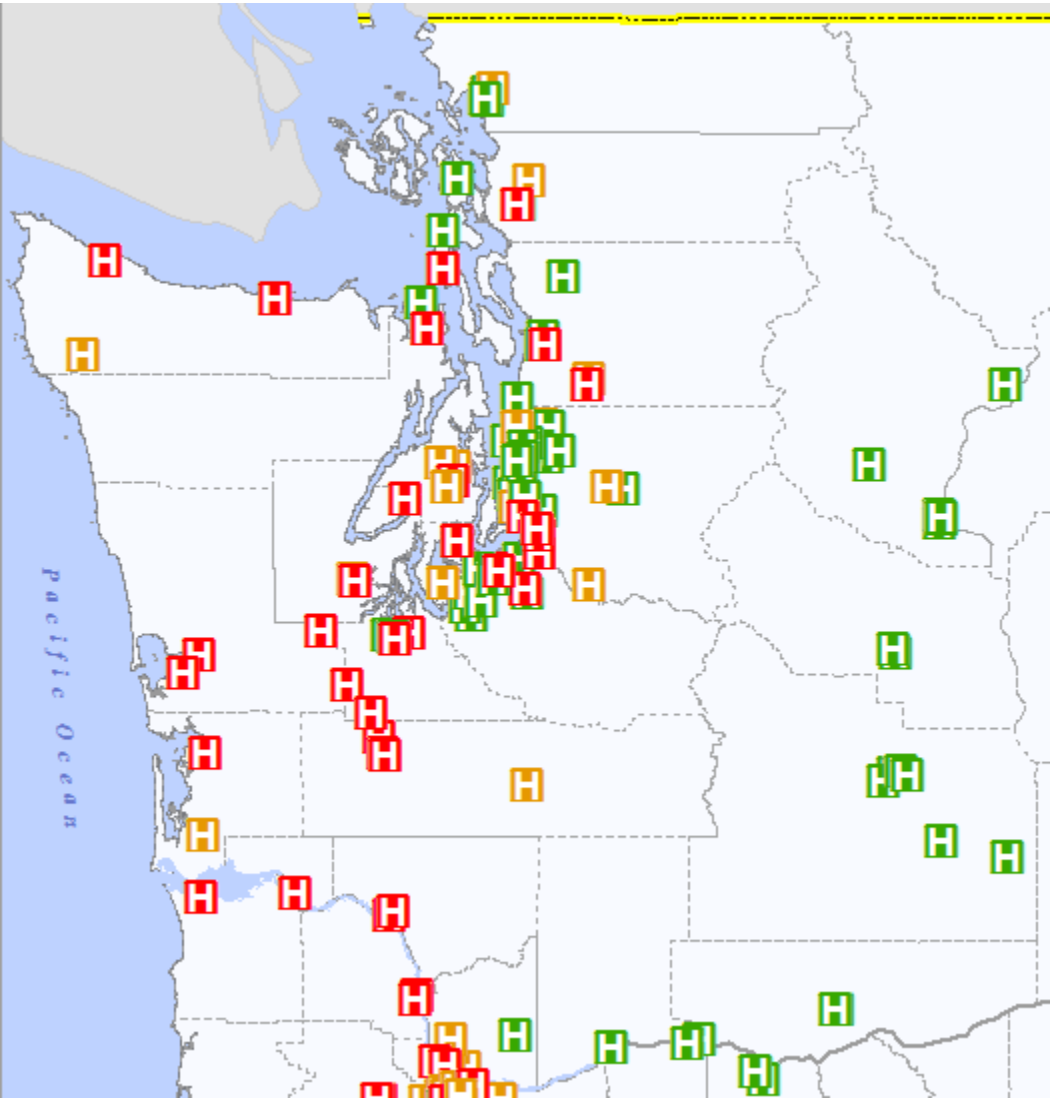
Landslides: Landslides will occur up to hundreds of miles from the fault due to the intensity of the shaking. Landslide potential significantly increases with water content. If the CSZ rupture occurs during the rainy season, landslides will be most prolific.

Tsunami Inundation: Tsunami's are historically the biggest killer associated with earthquakes. The residents most affected are along Pacific Coastal areas. The numbers in jeopardy will increase sharply in summer months. Current estimates place as many as 50,000 residents in the hazard zone in February. This may be up to 200,000 in the summertime.

TSUNAMI INUNDATION AREAS



Hospitals



These are general locations and forecast status of the known Hospitals.

There are 112 Hospitals in the affected area.

<u>36% suffer severe damage, are unusable, and will likely be completely offline.</u>

<u>17%</u> suffer moderate damage and are only assumed capable of 50% normal capacity.

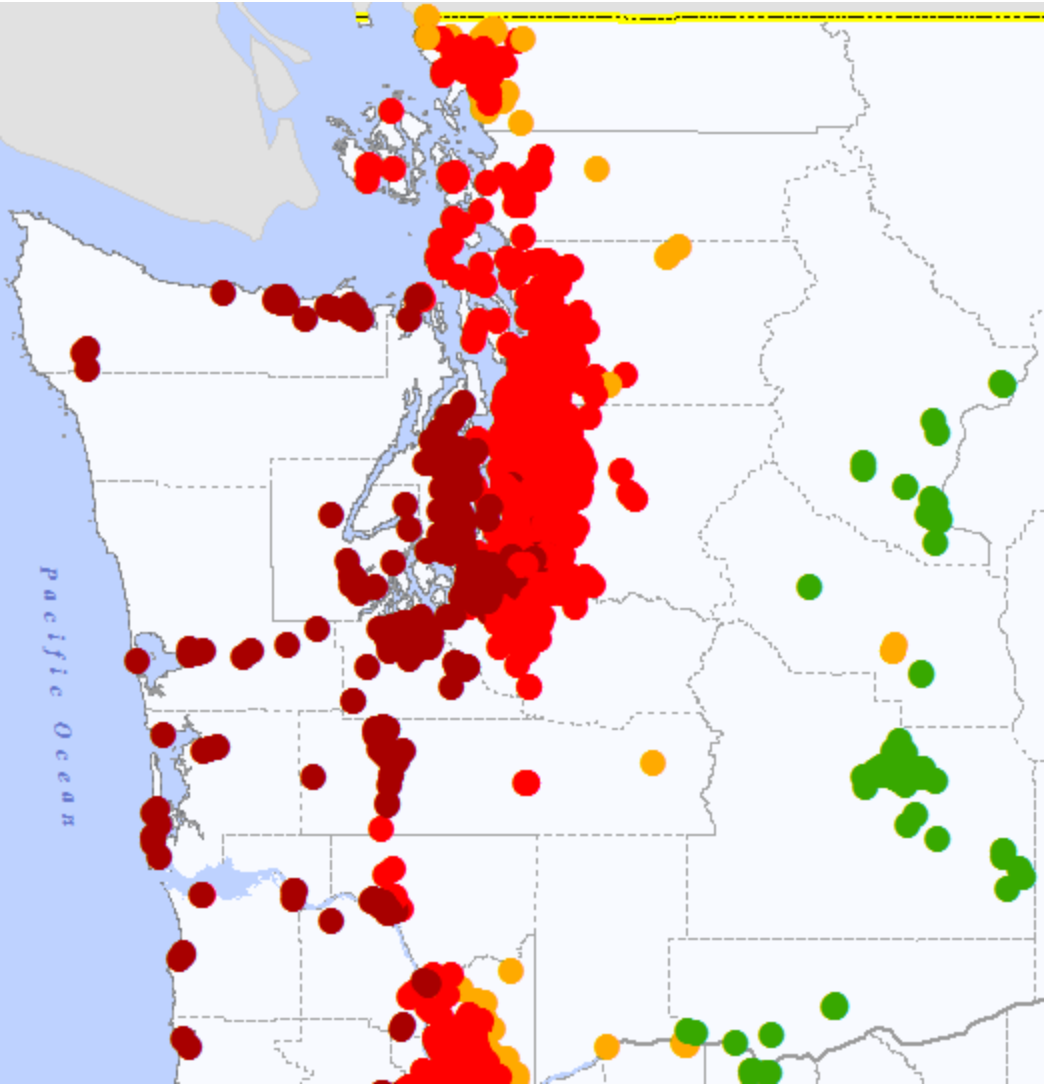
<u>Total reduction is assumed to be 45% of total hospital capacity.</u>

47% suffer slight damage and are able to continue to operate at capacity.

The facilities nearer to the epicenter suffer most significant damage resulting in **<u>virtually</u>** **<u>no Hospital capacity west of the I5 corridor.</u>**

These numbers discuss **<u>STRUCTURAL</u>** capacity, not patient capacity, which is further reduced due to lack of electricity, potable water, sanitation, etc.

Senior Living Facilities



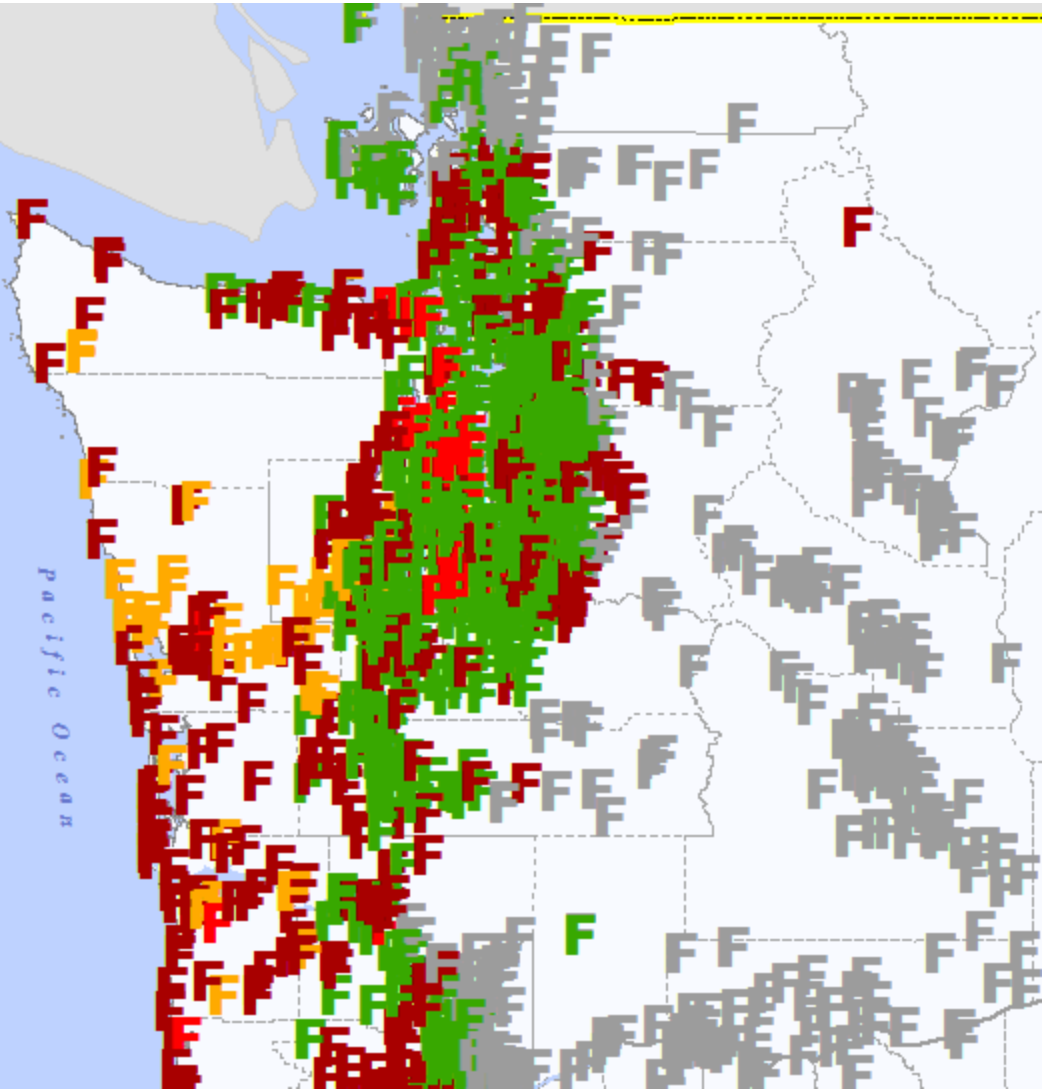
There are approximately 2,156 senior living facilities in the affected area.

Significant numbers (approaching 100%) of facilities West of the I-5 corridor suffer extensive damage, and are likely unusable.

The vast majority of facilities along the I-5 corridor suffer complete to severe damage and are likely unusable, or are significantly degraded.

The facilities nearest the epicenter suffer most significant damage resulting in **virtually no senior living facility capacity West of the I-5 corridor.**

Fire Stations



These are general locations and forecast status of the known Fire Stations.

There are 971 Fire Stations in the affected area.

30% suffer severe damage, are unusable, and are planned to be completely offline.

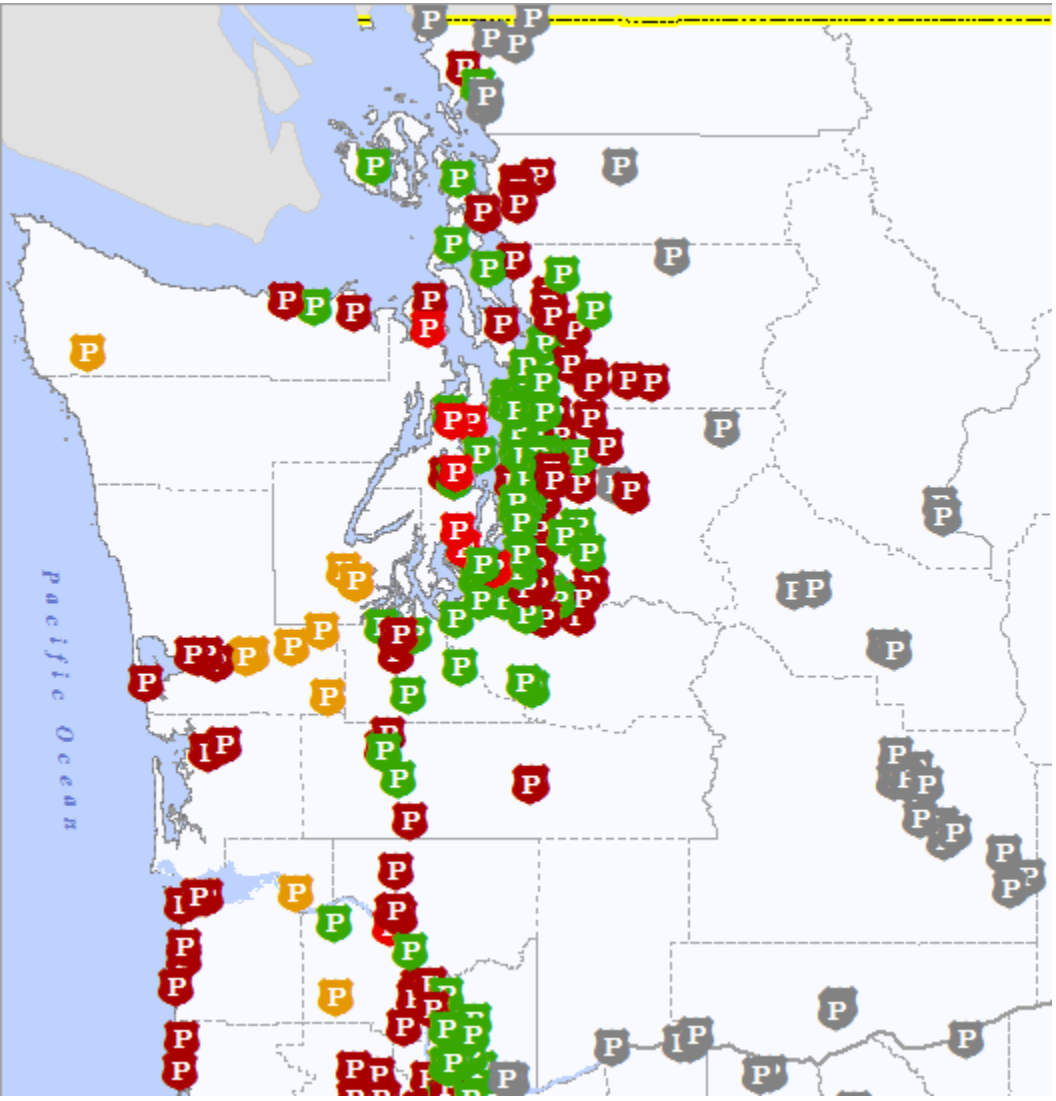
6% suffer moderate damage and are only assumed capable of 50% normal capacity.

Total reduction is assumed to be 33% of Fire Response capability.

64% suffer slight or no damage and are able to continue to operate at capacity.

The facilities nearer to the epicenter suffer most significant damage resulting in **significantly reduced capability west of Shelton.**

Police Stations



These are general locations and forecast status of the known Police Stations.

There are 178 Police Stations in the affected area.

41% are completely destroyed, 7% suffer severe damage, are unusable, and are planned to be completely offline.

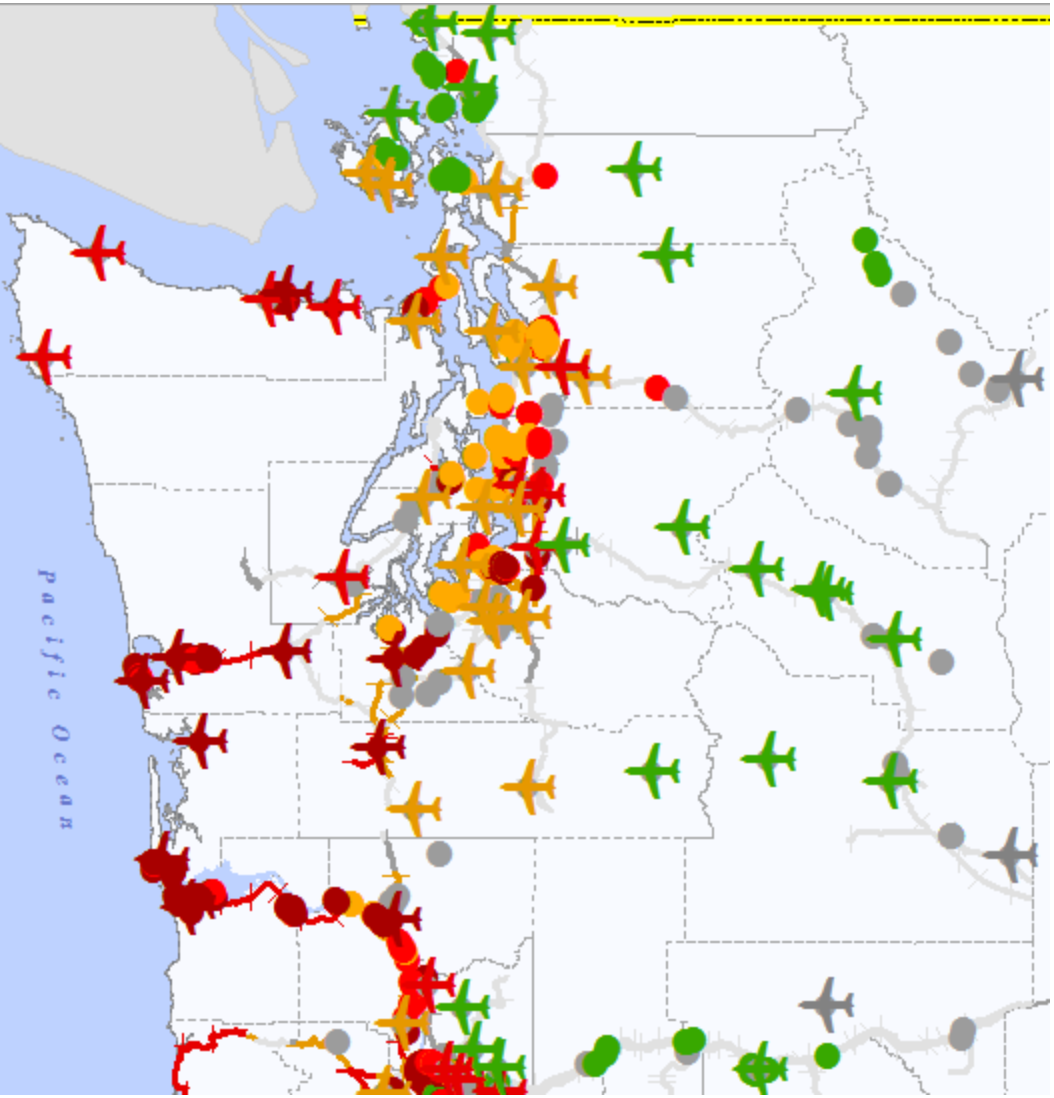
5% suffer moderate damage and are only assumed capable of 50% normal capacity.

Total reduction is assumed to be 51% of Police Response capability.

48% suffer slight or no damage and are able to continue to operate at capacity.

The facilities nearer to the epicenter suffer most significant damage resulting in **significant degradation of Law Enforcement capability west of Shelton.**

Transportation - Sea, Air, Rail



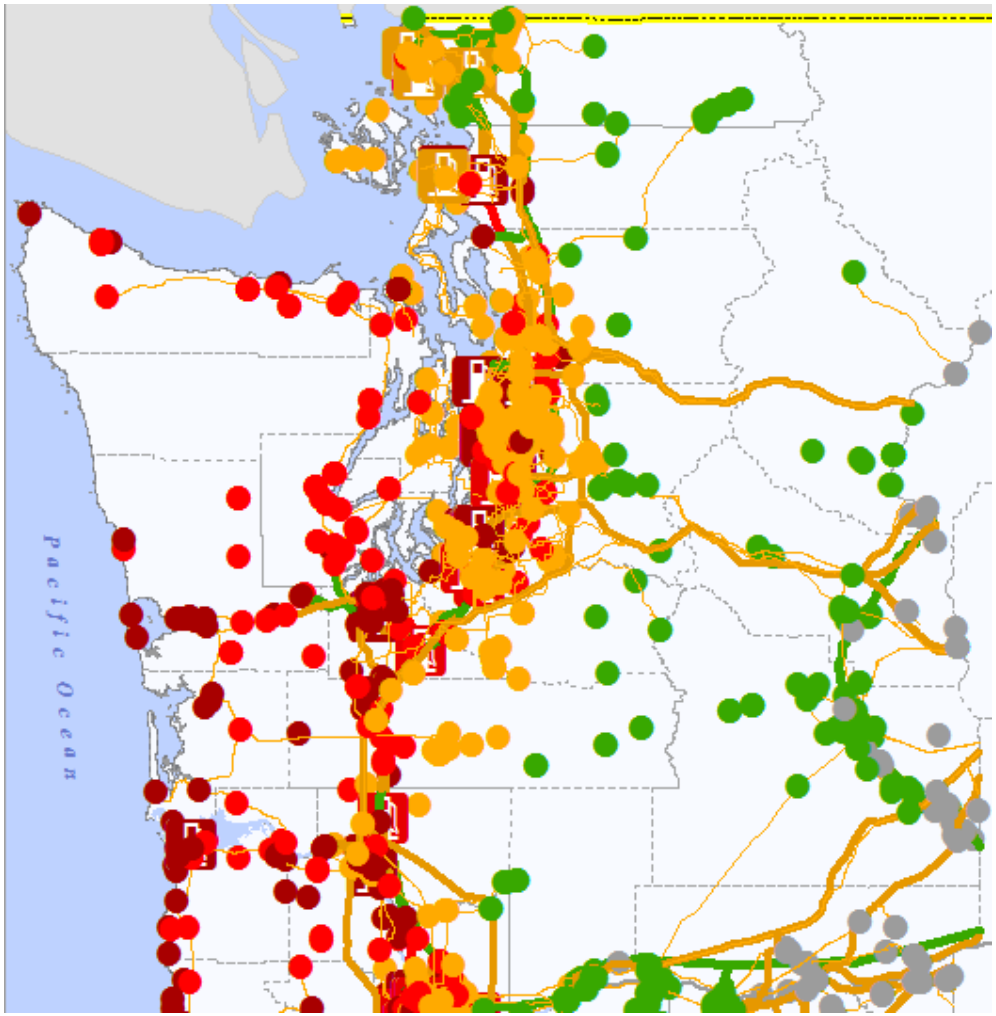
Most facilities west of the I-5 corridor suffer complete to severe damage

Most facilities along the I-5 corridor suffer severe to moderate damage

Most facilities east of the I-5 corridor suffer slight to no damage

Many of these facilities are located in liquefaction zones

Utilities



- This slide provides an overview of the utilities networks across the affected area. In general the amount of damage decreases from West to East. Major networks will be out-of-service until significant repairs can be made.

- There are approximately 440 major electrical facilities and a vast network of electrical power lines, both above and underground throughout the region.

- There are 68 major Natural Gas facilities and 12 counties contain 22 major sections of NG pipe network.

- There are 54 petroleum processing facilities, and 9 counties contain 16 major sections of petroleum pipeline.

- There are 35 known Potable Water Facilities.

Catastrophic Planning

- Comprehensive Emergency Management Plan (CEMP) Catastrophic Incident Annex
  - Framework for State Government actions for catastrophe
  - Catastrophic Contingency Options
    - 31 specific areas for additional detailed planning currently identified
    - 4 areas under development – State Feeding, Disaster Playbook, Fuel Prioritization and Emergency Distribution, Coordination and Control
    - Transportation related – Community Road Repair and Evacuation and Supporting Voluntary Relocations

Statewide Catastrophic Incident Planning Team (SCIPT)

- Evolved from the Regional Catastrophic Grant Program (RCPG) as a follow on
  - RCGP – 8 Counties
  - SCIPT – 39 Counties and State Government agencies
- Building statewide framework to address catastrophic incidents
  - 3 Phases

Statewide Catastrophic Incident Planning Framework Development

Phase I (2015-2016)

Develop Local to State coordination for response & short-term recovery

Identify & develop core coordination elements

- Direction & Coordination
- Resource Management
- Information Collection
- Public Communications

Validate or reject operational regions concept

Grounded on the National Response Framework

Phase II (late 2016)

Incorporate after action items from Cascadia Rising 2016

Socialize & vet *draft* framework

Develop Local to State coordination for long-term recovery

Develop State to Federal coordination framework

Ensure planning assumptions align w/ FEMA Region X

Phase III (2017 - on)

Finalize local-State framework

Finalize State to Federal framework

Socialize & train on frameworks

Validate frameworks in a catastrophic incident exercise

Engage other states within FEMA Region X

Conduct regular plan maintenance