



***Catastrophic Disaster
Planning
Presented to
Washington Cabinet
14 October 2014***

Informational Briefing for SEOC Training
8 April 15

Key Take-Aways for the Cabinet

Six things will happen when the Cascadia Subduction Zone Earthquake occurs:

- 1 Widespread loss of life and catastrophic destruction of infrastructure in Western WA
- 2 Immediate National and International attention on Washington State
- 3 Immediate Presidential involvement
- 4 Massive influx of regional, national, and international assets into Washington State
- 5 A period of chaos will ensue after the event until normal emergency management systems are restored
- 6 It will take several days to weeks for the response effort to take shape

State leadership can choose to make some decisions now
that will effect the results of the response effort



Challenges

- Build statewide Will to be prepared
 - Requires Governor, Cabinet and Legislative leadership and advocacy
 - Link to existing processes and actions
- Build and then sustain statewide effort resulting in increased resilience
 - Add to state agency missions
 - Capital budget guidelines
- Resources (state and local)
 - Time
 - People
 - Funding



Specific Requests

- Short Term (weeks)
 - Place increased emphasis on Continuity of Government (COG) requirements
 - Place increased emphasis on Cabinet and State Agency participation in the FY16 Cascadia exercise
- Longer Term (months)
 - Work toward sustainable funding for statewide emergency management
 - Provide funding for National Guard State Active Duty for preparedness activities
 - Increase resources for Catastrophic Planning in Washington
 - Provide resources for a designated State Continuity Program Manager
 - Develop a subcabinet Working Group to implement Resilient Washington
 - Emphasize Emergency Management / Preparedness for all State Agencies
 - Participate in Cascadia Exercise – early June 2016



Planning Efforts

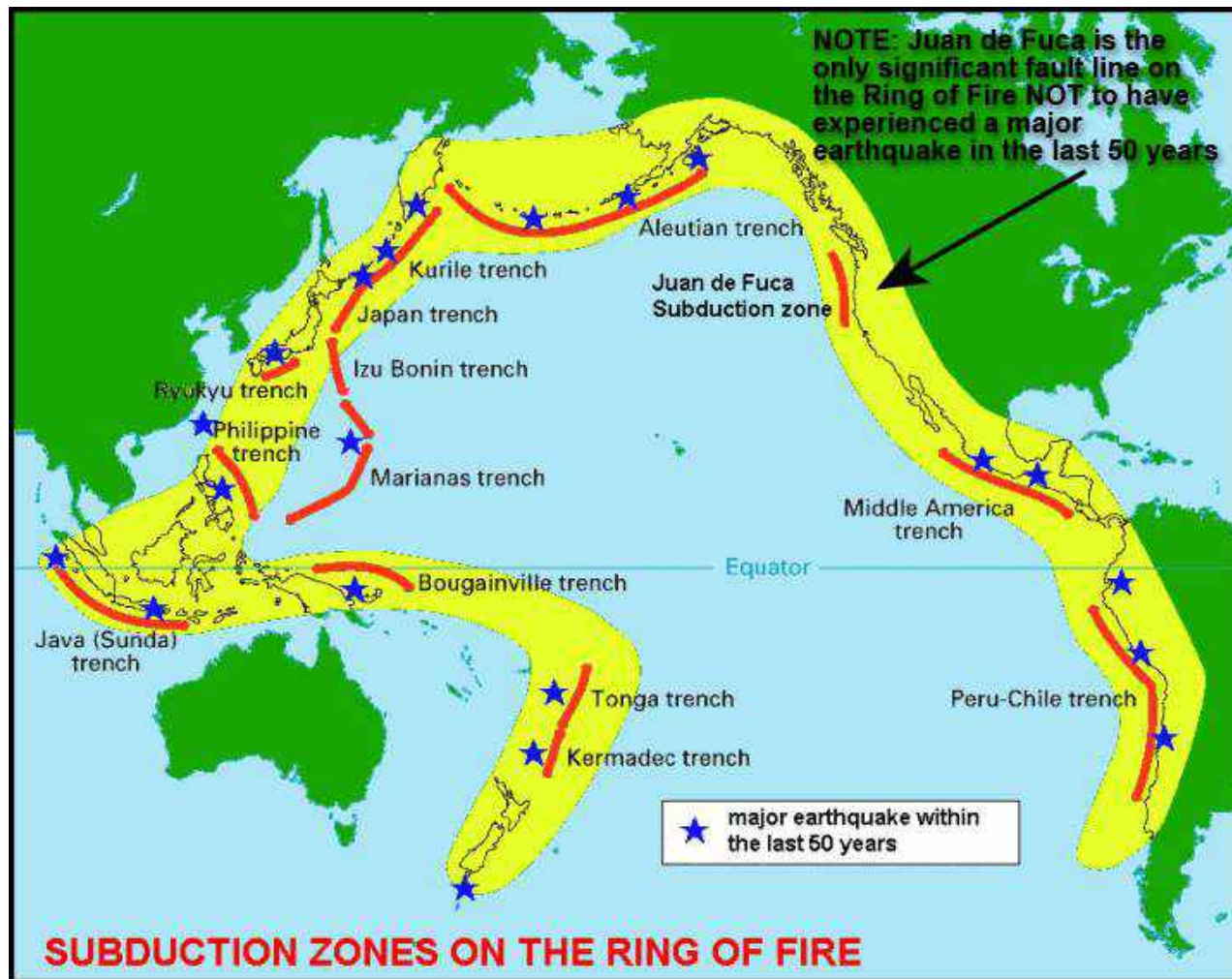
- Based on numerous studies, geologists now recognize the Cascadia Subduction Zone (CSZ) is capable of seismic activity similar to the March 2011 Tōhoku earthquake.
 - FEMA Region X released a report completed by Sandia National Lab specifically studying a 9.0 earthquake on the CSZ in November 2011
 - Includes many key infrastructure elements
 - Basis of FEMA's recently completed Response Plan
- Washington Emergency Management Division is coordinating state agency planning and integrating plans with FEMA and counties, cities & towns.
 - Major effort will require several years to complete and on-going maintenance.
 - Washington NG has developed a detailed response plan in support of civilian authorities in a CSZ scenario



Planning Efforts

- Follows state law and rules and federal guidance
- Washington Comprehensive Emergency Management Plan (CEMP)
 - Based on the WA Hazard Identification and Vulnerability Analysis and Mitigation Plan
 - Catastrophic Incident Annex to the CEMP (Nov 1, 2013)
 - Provides framework for catastrophic incident differences
 - The Cascadia Subduction Zone appendix is under development
 - A Statewide Catastrophic Planning Team recently formed
- Integrated with FEMA Region X planning effort
 - Consistent analysis of CSZ – used by local, state and federal planners
 - Based on model analysis from National Laboratory with state specific adjustments based on local data

Ring of Fire



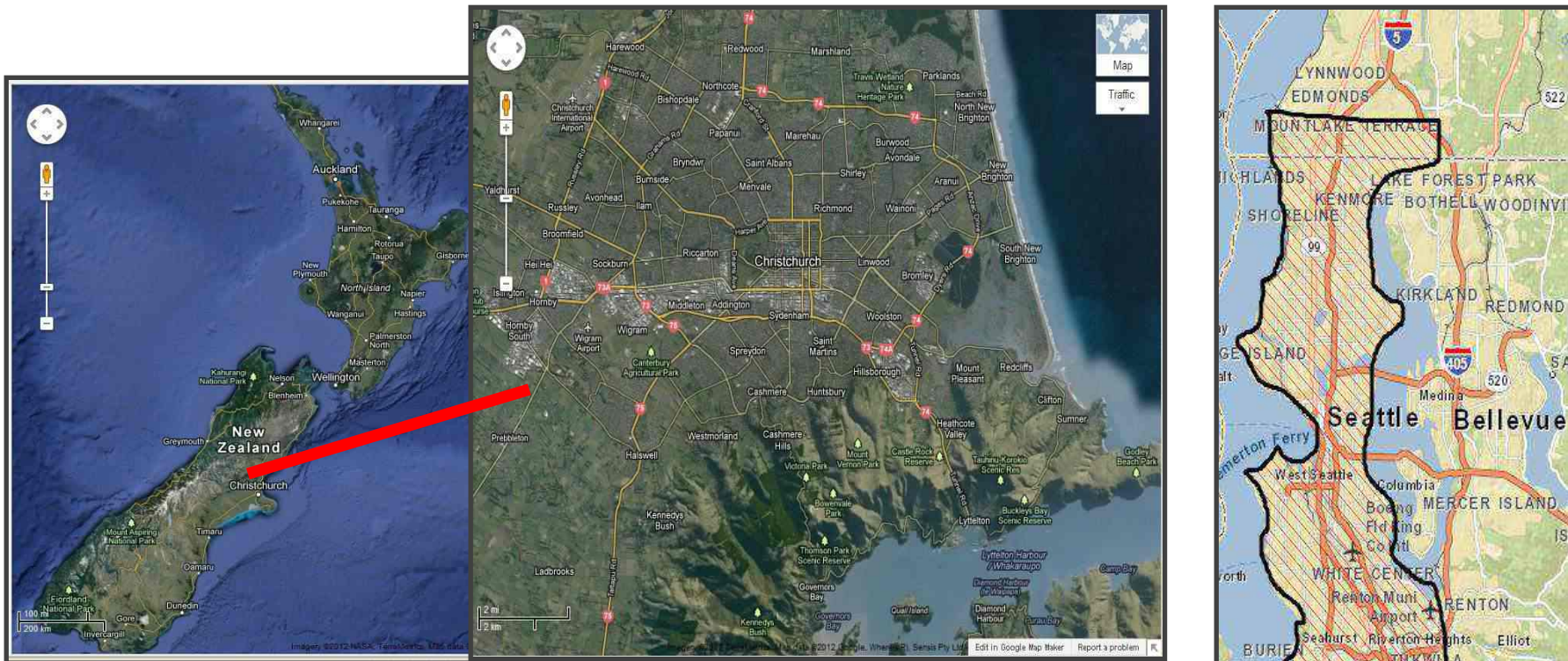
The Ring of Fire accounts for 90% of all earthquakes, and 81% of the world's largest earthquakes

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)

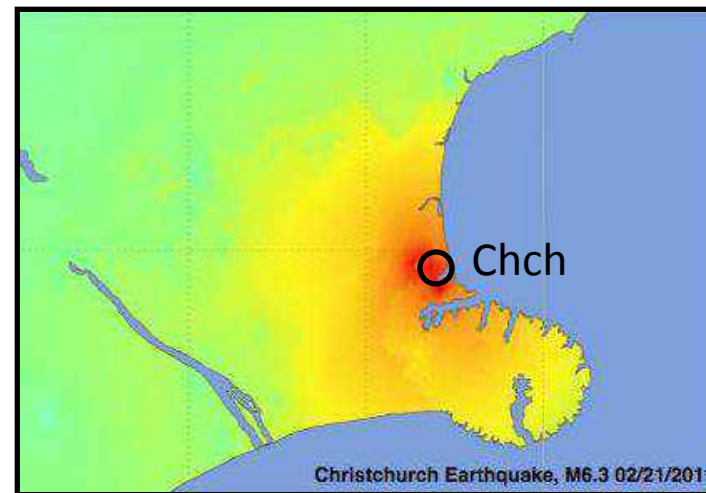
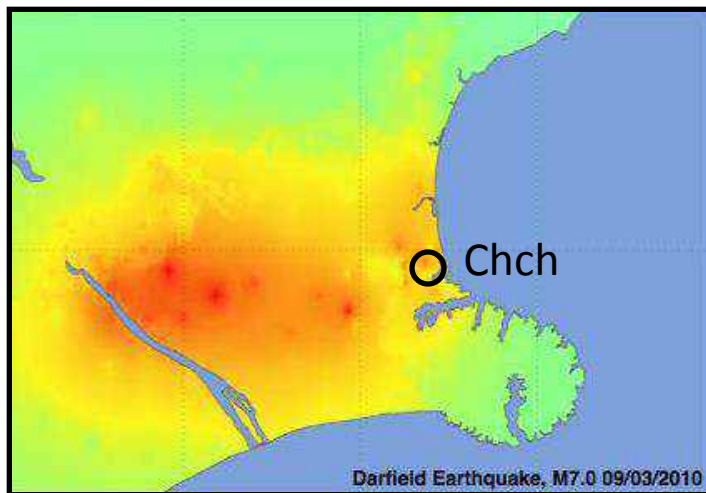
Christchurch, NZ - Location & Demographics



- ▶ Christchurch is the largest city on the south island of New Zealand
 - ▶ Pre-Earthquake Population: 359,900 (~68% the size of Seattle's Population)
 - ▶ 174 square miles (~the size of Mountlake Terrace to Sea-Tac Airport)
 - ▶ Founded in 1856 (Washington State admitted to Union in 1889) - Similar development histories
 - ▶ Seattle's Sister City since 1981

The Canterbury Earthquakes

- **September 4, 2010 @ 4:35 a.m.**
 - Magnitude 7.1
 - 25 miles west of Christchurch near Darfield
 - 6 miles deep
- **February 22, 2011 @ 12:51 p.m.**
 - Magnitude 6.3
 - 3 miles southwest of Christchurch
 - 3 miles deep



PERCEIVED SHAKING	Not felt	Weak	Light	Moderate	Strong	Very strong	Severe	Violent	Extreme
POTENTIAL DAMAGE	none	none	none	Very light	Light	Moderate	Moderate/Heavy	Heavy	Very Heavy
PEAK ACC.(mg)	<0.17	.17-1.4	1.4-3.9	3.9-9.2	9.2-18	18-34	34-65	65-124	>124
PEAK VEL.(mm/s)	<0.1	0.1-1.1	1.1-3.4	3.4-8.1	8.1-16	16-31	31-60	60-116	>116
INSTRUMENTAL INTENSITY	I	II-III	IV	V	VI	VII	VIII	IX	X



Pre-Earthquake: Christchurch Central Business District (CBD)



During Earthquake: Christchurch Central Business District

Christchurch, February 22, 2011
"Munted"



"Downtown" Christchurch 2-Years Later



So, what do you do when your entire downtown, your economic engine, is completely closed for 2+ years?



"Downtown" Christchurch 2-Years Later





Post-Earthquake: (Recovery in Process) Christchurch Central Business District



© 2011 by Mark Woods



The Canterbury Earthquakes: September 4, 2010 - ?

More than 12,000 aftershocks since September 2010 – heard time & again that Christchurch population is suffering from ‘quake brain’ – stress from exposure to continuous shaking...

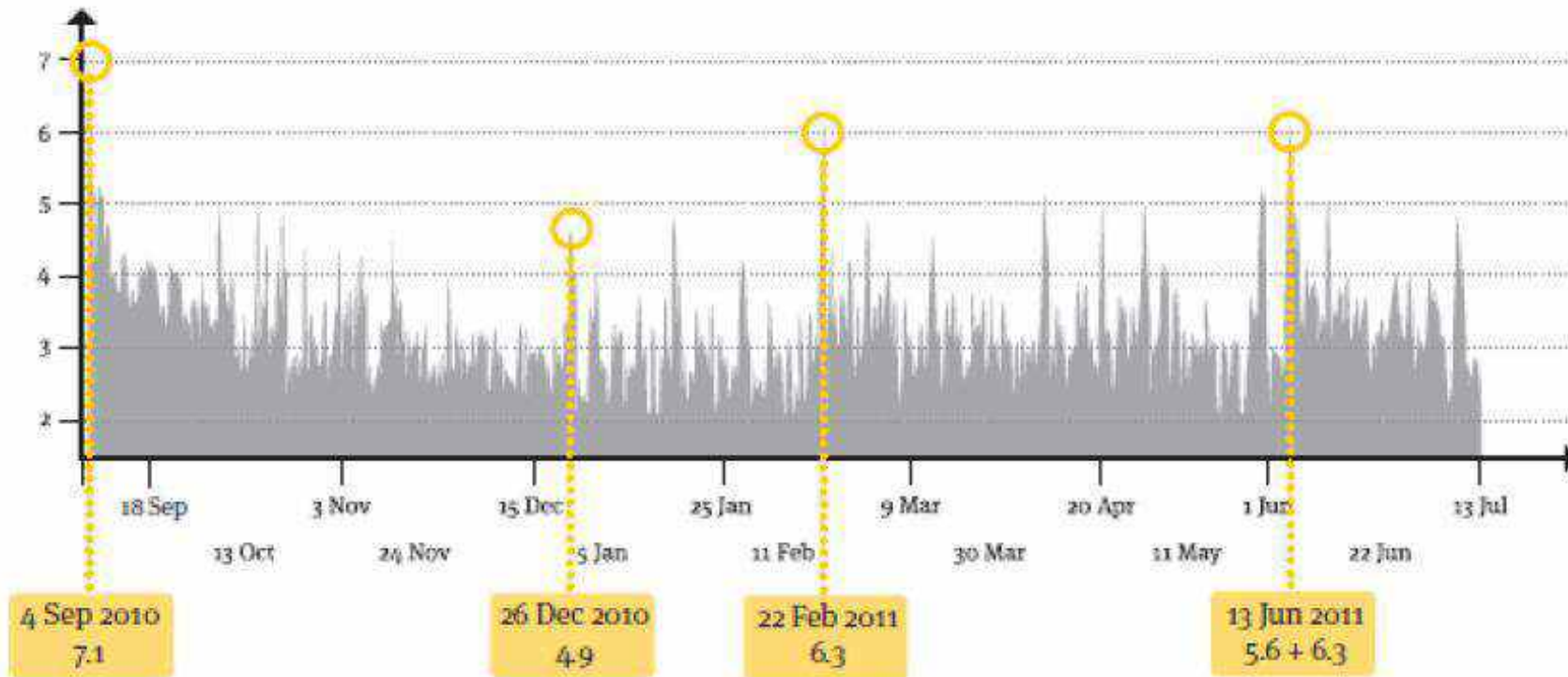
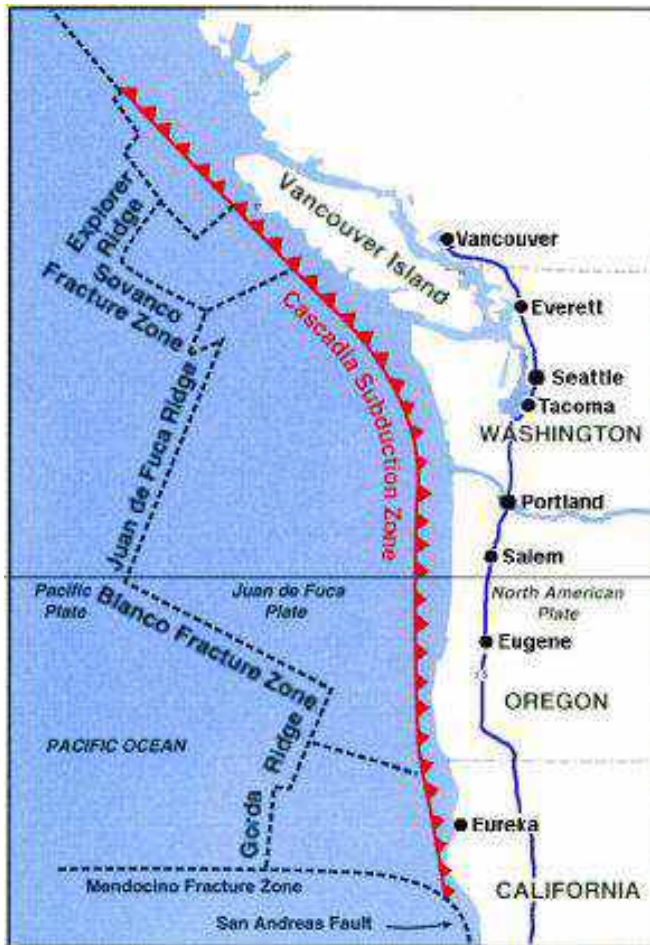


Figure from Draft Christchurch City Council
Central City Plan: August 2011

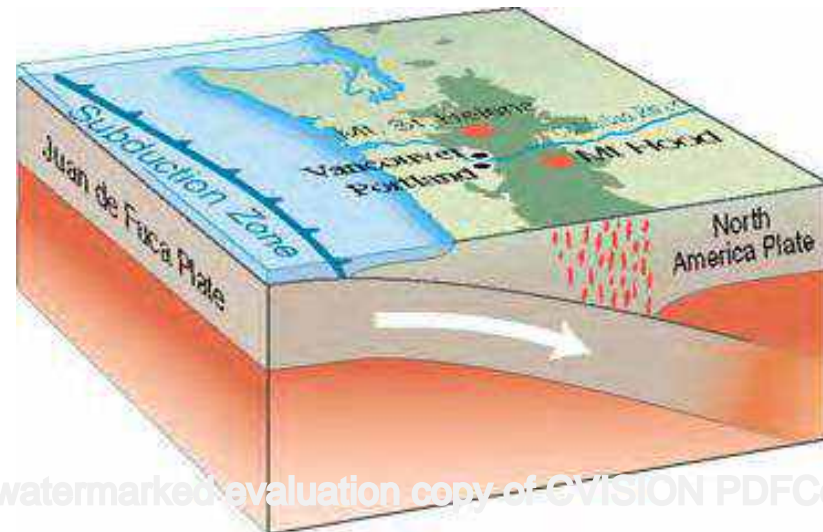
Cascadia Subduction Zone



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

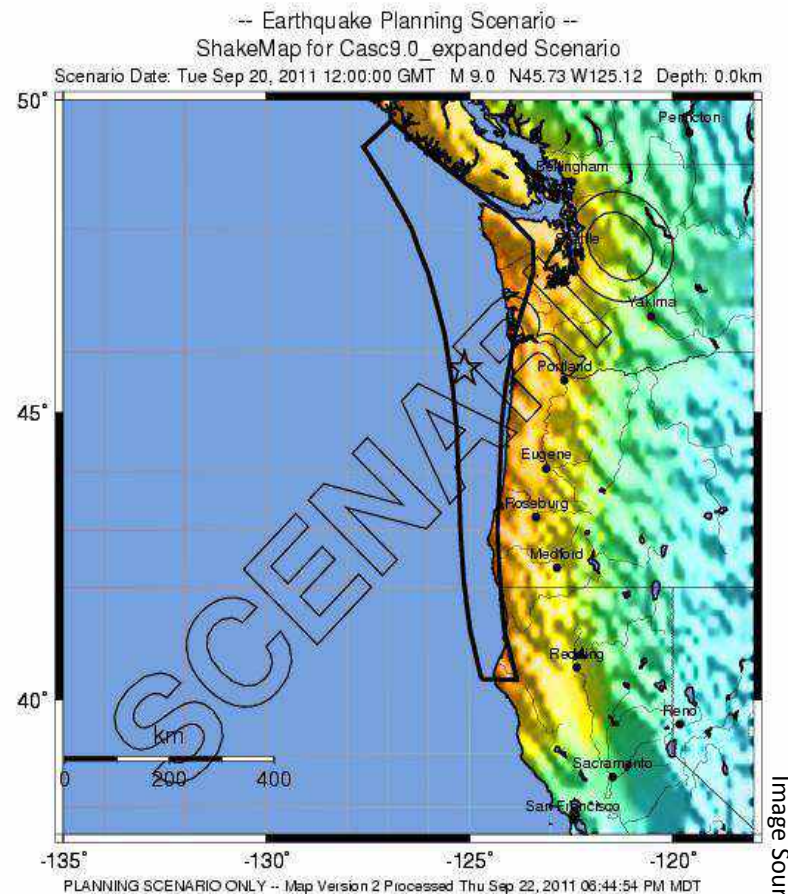
A magnitude 9.0 CSZ earthquake has occurred every 300 to 500 years (USGS – 400-600 years). The last CSZ earthquake occurred in the year 1700 (January 26).





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 **BIG** Difference:
 - Nisqually ~40 seconds
 - **CSZ ~3-6 minutes**



PERCEIVED SHAKING	Not felt	Weak	Light	Moderate	Strong	Very strong	Severe	Violent	Extreme
POTENTIAL DAMAGE	none	none	none	Very light	Light	Moderate	Moderate/Heavy	Heavy	Very Heavy
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INSTRUMENTAL INTENSITY	I	II-III	IV	V	VI	VII	VIII	IX	X+

Image Source: USGS



FEMA Effort & Modeling

- FEMA commissioned a multi year *HITRAC & scientific study and produced the Region X Response Plan (Published December 2013)
- Modeling Factors
 - February 6, 9:41am PST, weekday
 - Complete rupture of the CSZ fault line
 - Epicenter 60 miles off Oregon coast, 120 miles West of Eugene
 - M9.0 earthquake, with ground shaking up to 5 minutes
 - Tsunami wave heights 20 to 80 feet
 - Aftershocks of M7.0 or greater
 - Additional tsunamis caused by aftershocks

Note: Damage caused by aftershocks, follow on tsunamis, and secondary effects is not included in damage estimates. Model ran a data set that was the best available in Oct 2012

***HITRAC** – Homeland Infrastructure Threat and Risk Analysis Center, the Department of Homeland Security (DHS) Infrastructure-Intelligence fusion center.



1st Order Effects - Shaking



Landslides, bridge damage, buildings unsafe

1st Order Effects - Liquefaction



Structure collapse, damage to utilities, silting

So, how do you go to the bathroom and get water after an earthquake – especially one with extensive liquefaction?



1st Order Effects - Tsunami



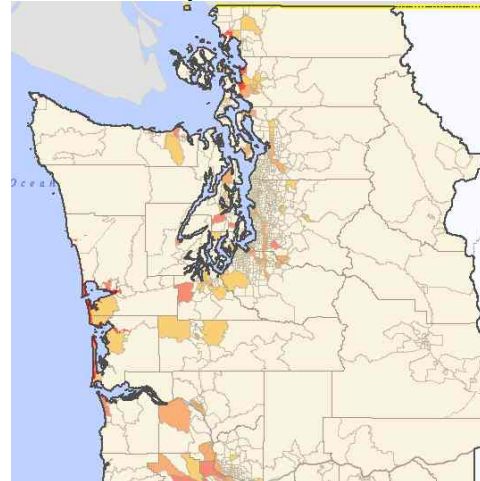
- High mortality rates, communities devastated

Ground Shaking Effects

Mercalli Index



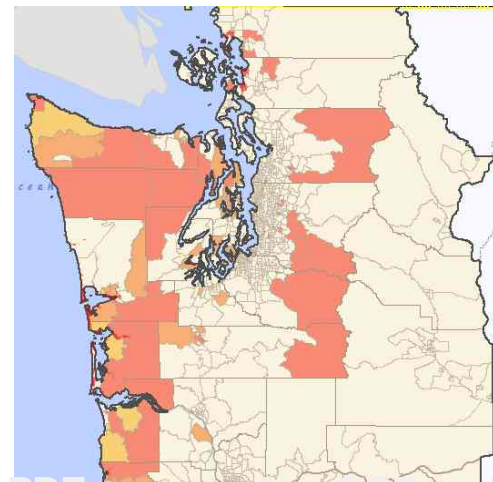
Liquefaction



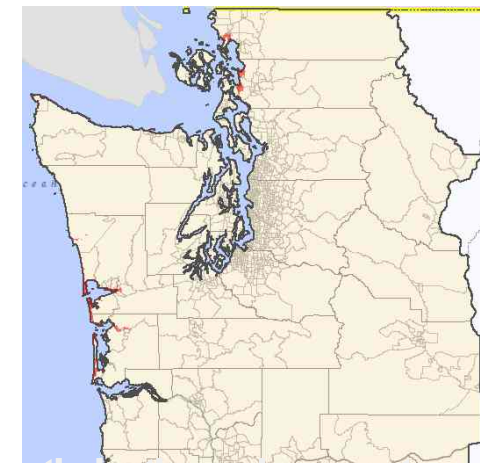
Mercalli Index: Ground shaking will depend on the actual fault rupture method and can not be accurately forecast. It is anticipated that the fault will rupture along its entire 700 mile length resulting in a magnitude 9.0 earthquake that will last 3-5 minutes. The intensity of the shaking will decrease 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



Tsunami

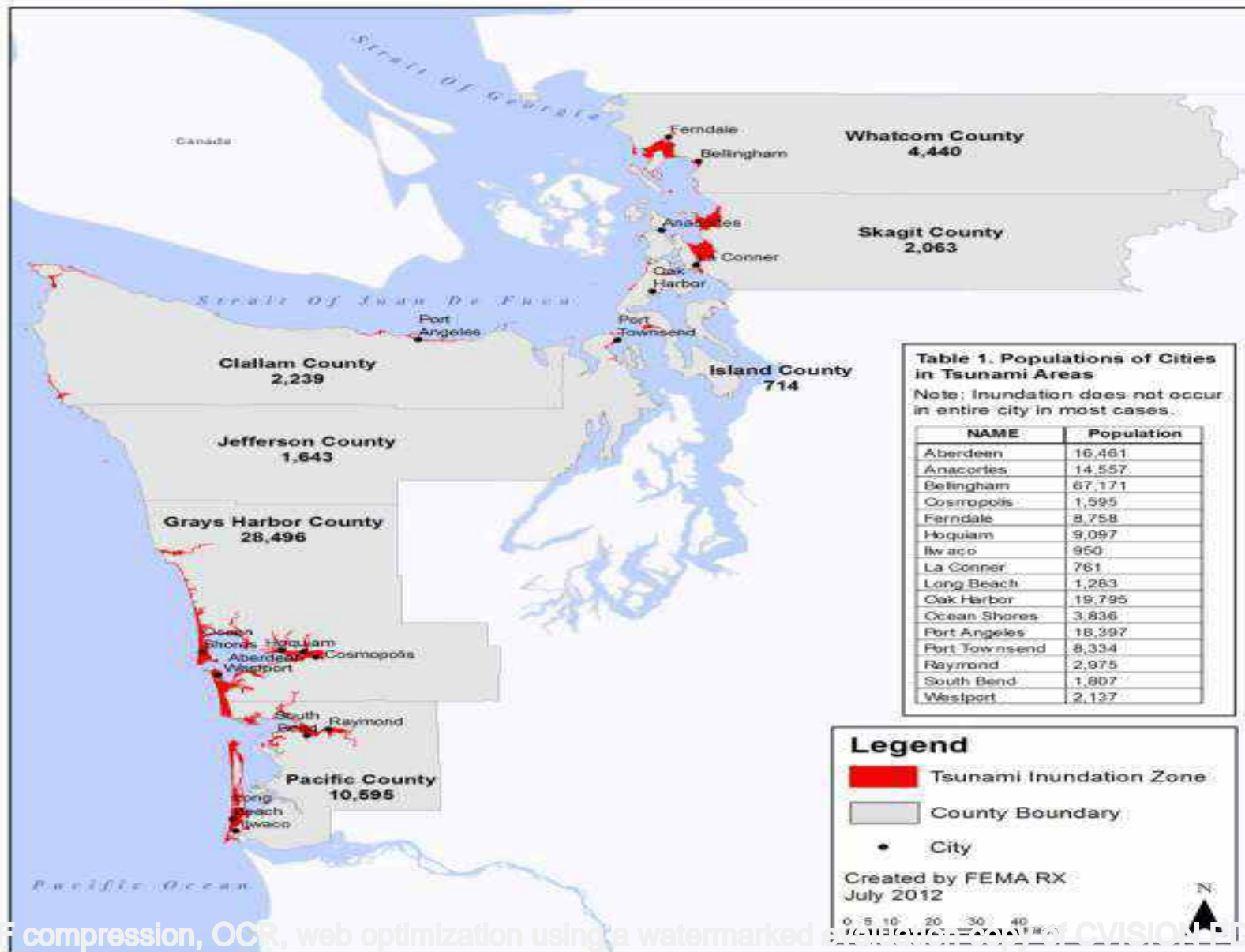


Landslides: Landslides will occur up to hundreds of miles from the fault due to the intensity of the shaking. Landslide potential significantly increases with water content. If the CSZ rupture occurs during the rainy season, landslides will be most prolific.

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.

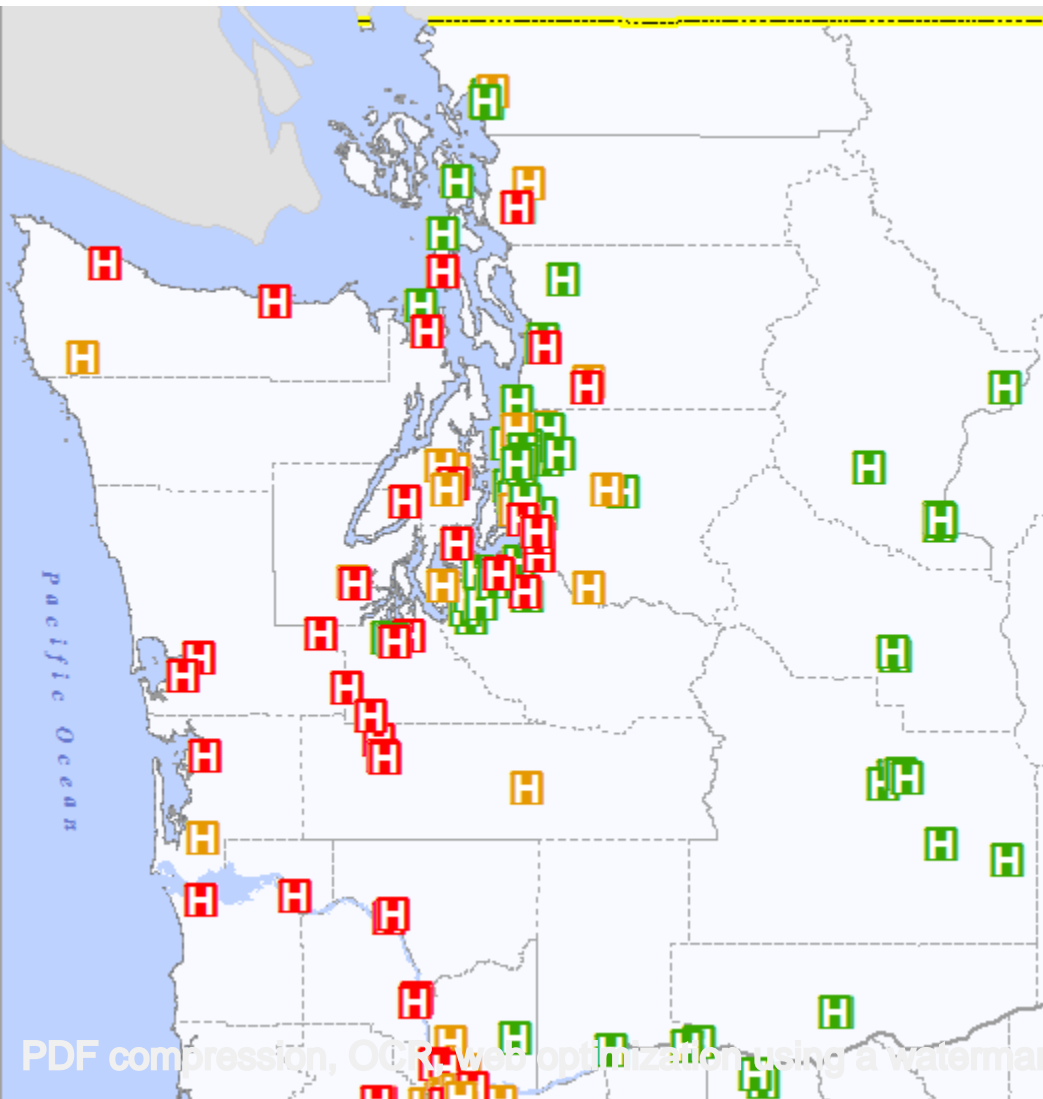
Washington Military Department

"ALWAYS READY, ALWAYS THERE" – GUARDIANS!





Hospitals



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

There are 112 Hospitals in the affected area.

36% suffer severe damage, are unusable, and will likely be completely offline.

17% suffer moderate damage and are only assumed capable of 50% normal capacity.

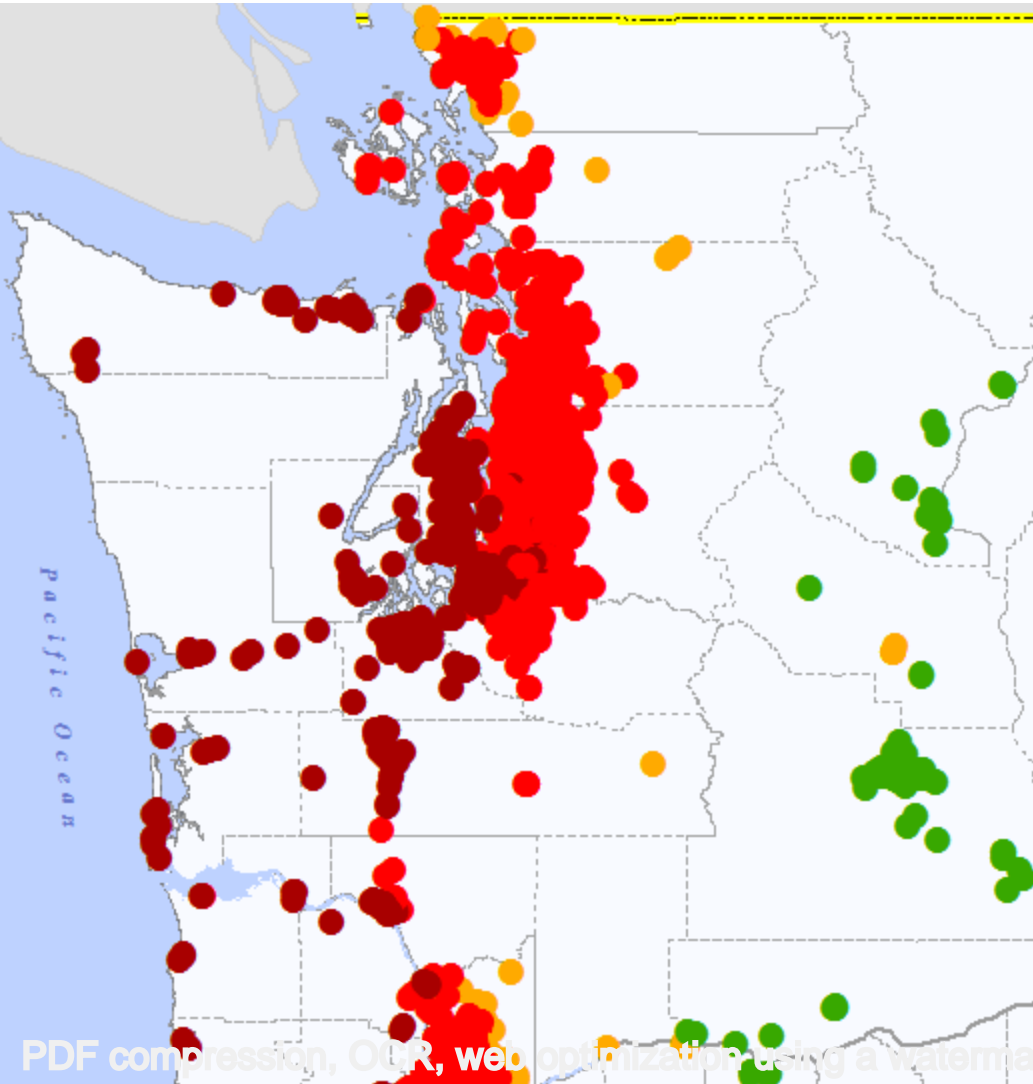
Total reduction is assumed to be 45% of total hospital capacity.

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 virtually no Hospital capacity west of the I5 corridor.

These numbers discuss **STRUCTURAL** capacity, not patient capacity, which is further reduced due to lack of electricity, portable water, sanitation, etc.

Senior Living Facilities



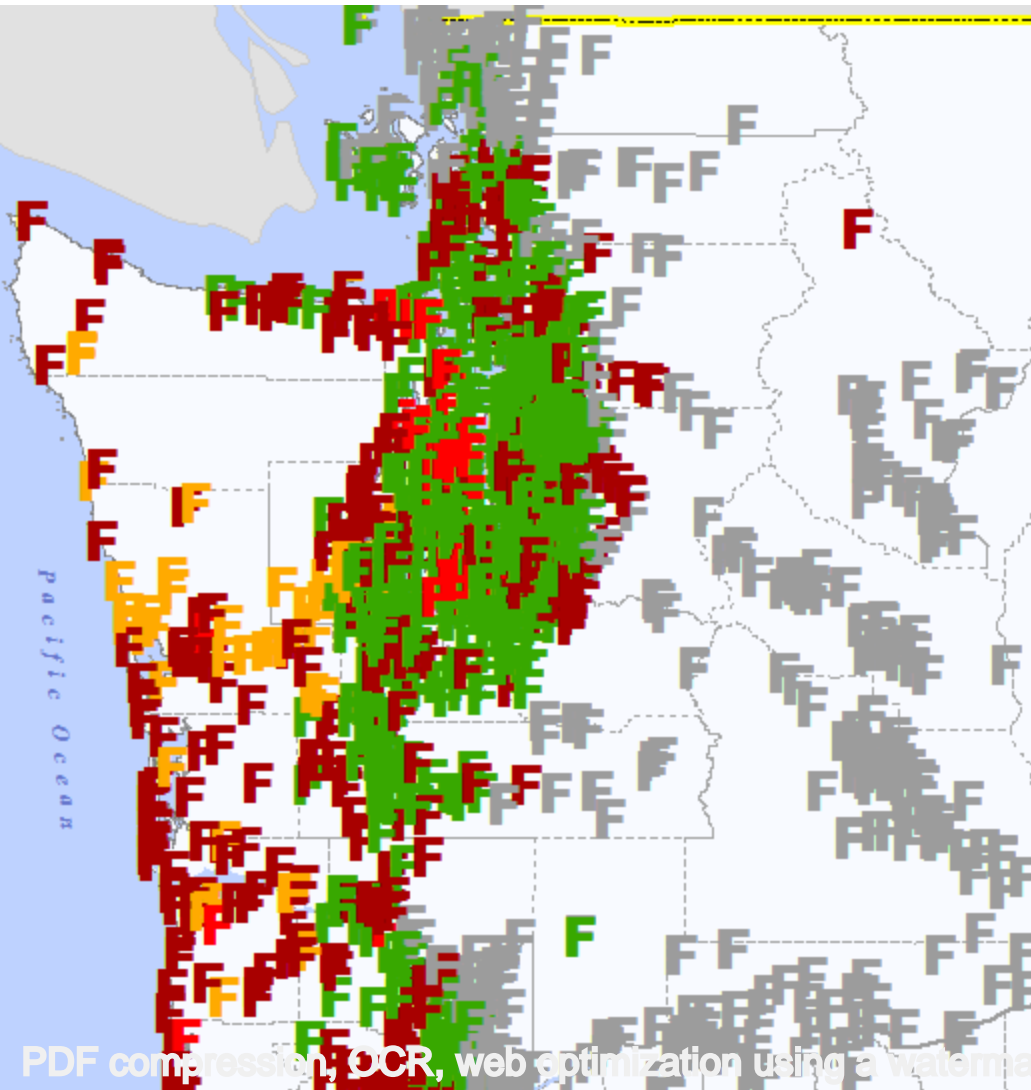
There are approximately 2,156 senior living facilities in the affected area.

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.

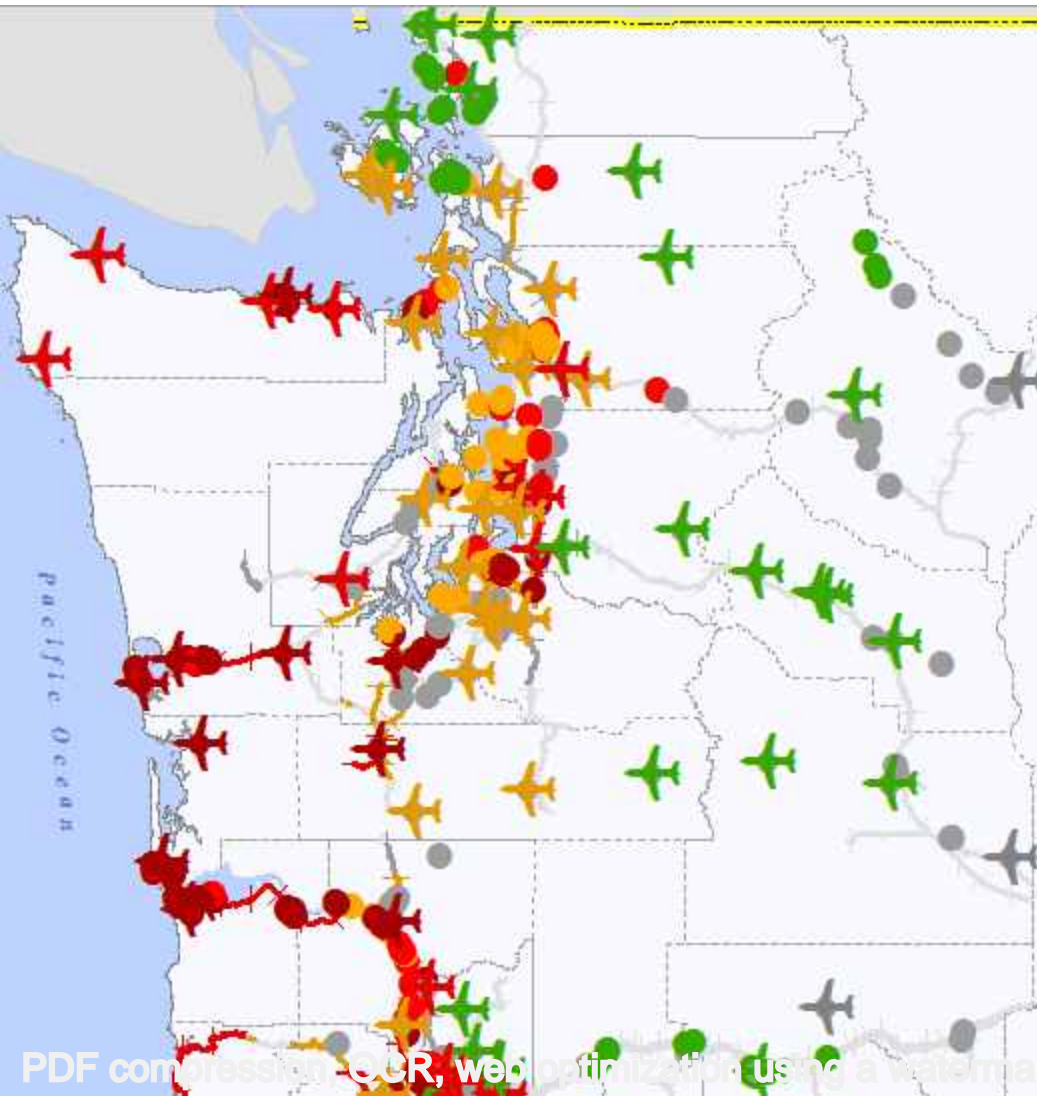
5% suffer moderate damage and are only assumed capable of 50% normal capacity.

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



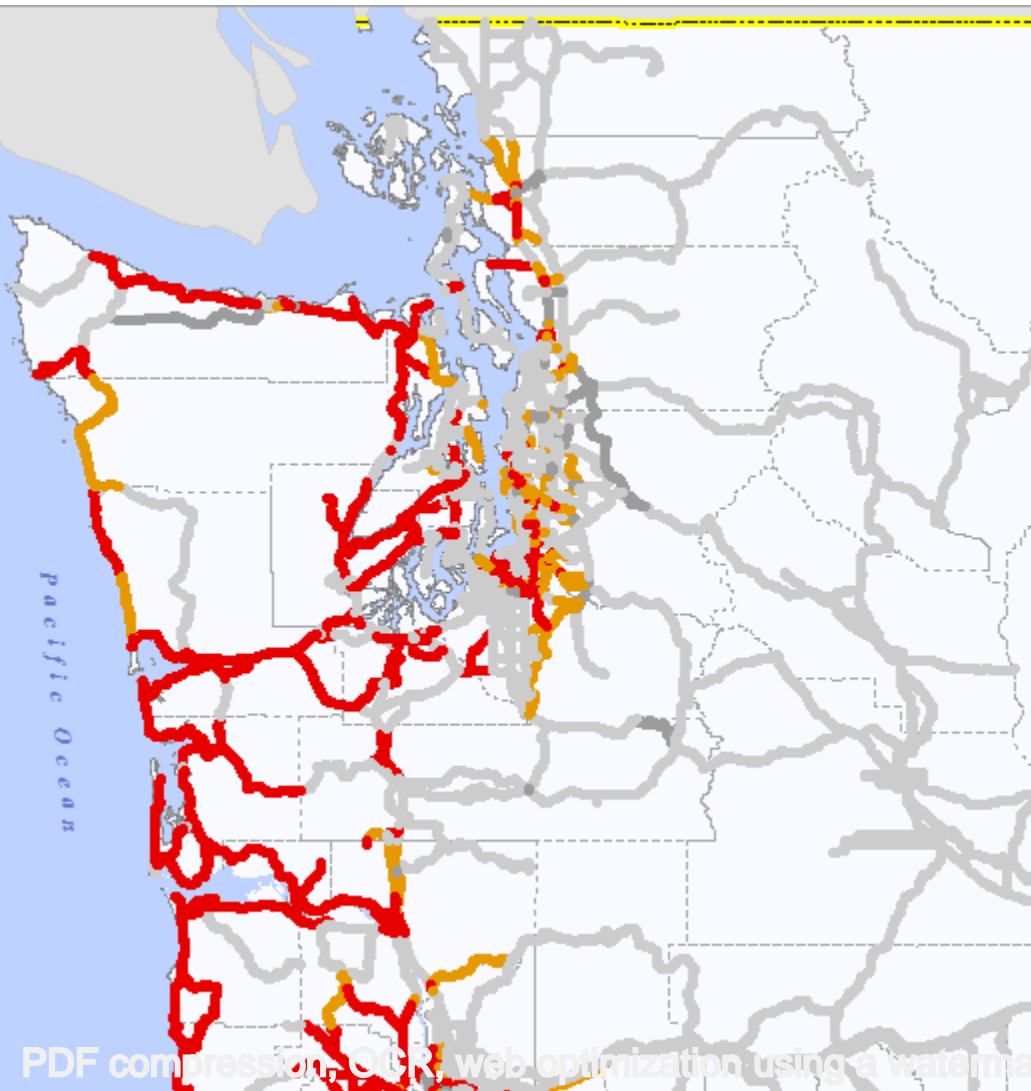
Most facilities west of the I-5 corridor suffer complete to severe damage

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

Transportation- Highways



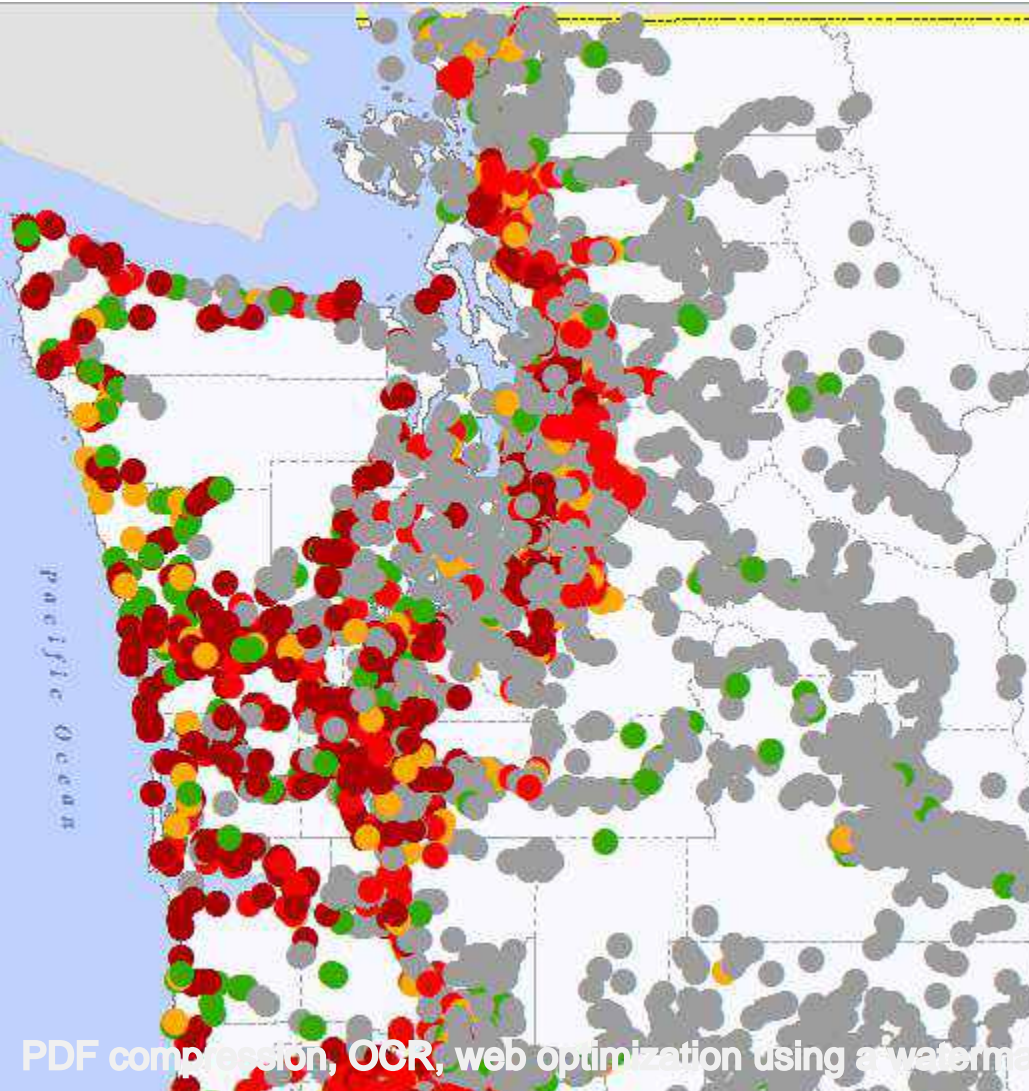
There is a vast network of County, State, and Federally maintained highways in the affected area. Ground transportation is the primary method of movement for most commodities.

The highway system will suffer the most damage in the vicinity of the coast with both earthquake and tsunami damage. This will significantly impact any lifesaving or recovery operations, and will drive route clearance and roadway repair to a very high priority across the region.

In the I-5 corridor roads in areas of high liquefaction susceptibility are likely to prove impassable.

In the initial stages of the CSZ response the only method of reaching coastal communities will be by air. There are no surviving ground routes to the coastal region.

Transportation- Hwy Bridges

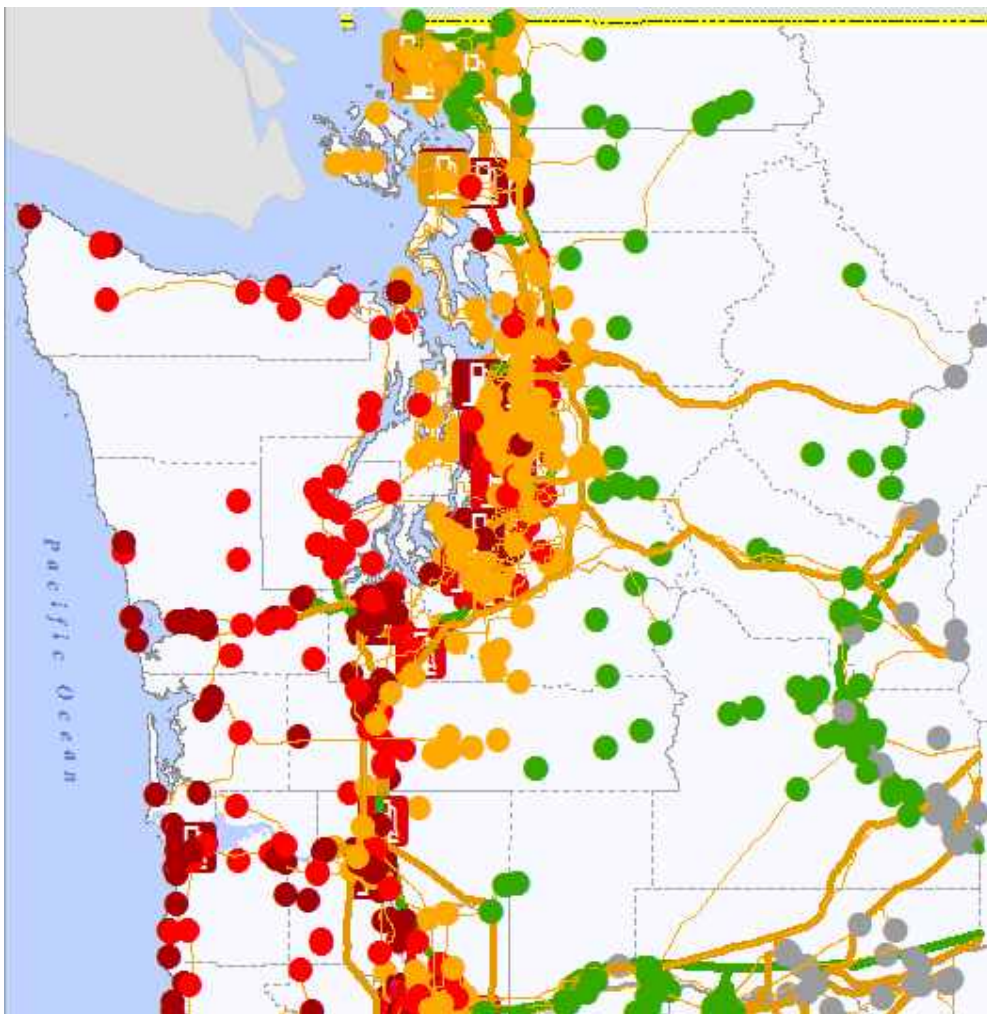


Virtually every highway crosses numerous bridges. Route identification that does not cross a bridge will not be possible when attempting to reach any isolated community. Bridges in the affected are predominantly old and were built prior to establishment of significant seismic building requirements.

The assessment of bridges as early in the IAA process as possible will be key to the development of routes into isolated communities. Identifying bridges that need the least repairs will speed up recovery operations.

The lack of suitable bridges will be a factor in the determination of the recovery efforts and timelines.

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.

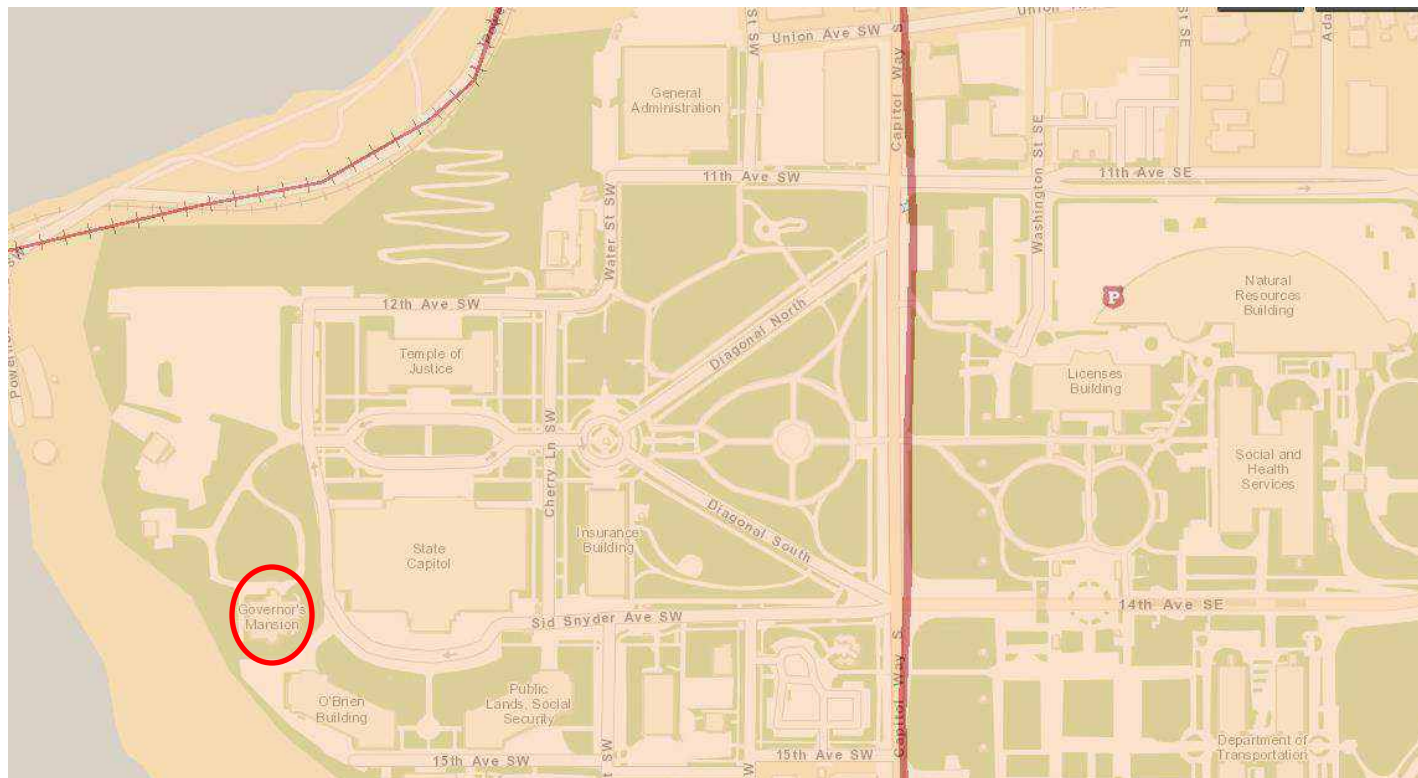
- There are approximately 440 major electrical facilities and a vast network of electrical power lines, both above and underground throughout the region.

- 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.

Capitol Campus



Ground Motion:

MMI: Strong to Very Strong Shaking,
(M7.0 to 8.0 for 5 minutes)

Liquefaction: Medium Potential (Bad)

Landslide: None

Tsunamis: None

Forecast Impacts:

Road network partially unusable

Severe building damages

Severe power network damages

Severe Rail damages

50% area hospitals destroyed

Survivability Outlook:

Power – Nil

Mobility – Poor

Police Response – Poor

Fire Response – Poor

Medical – Moderate

Washington Military Department

"ALWAYS READY, ALWAYS THERE" – GUARDIANS!



<i>EFFECTS</i>	WA - Coastal	WA - I-5 Corridor	Oregon (totals)
Population exposed to tsunami	42,973	7,217	22,200
Residential buildings damaged (slight- complete)	94,858	401,674	453,206
People needing short-term sheltering	124,002	285,109	523,027
Injuries	4,413	7,693	15,206
Hospital evacuation requirements	493	10,611	8,948
Nursing home patient evacuation needs	1,870	48,555	30,144
Building debris (in thousands of tons)	7,896,038	24,001,503	18,747,845

Washington deaths estimated at 8440 from earthquake and tsunami – although this could be extensively higher during summer months.



Governor and Cabinet Engagement

- Immediate, intense focus on state leadership
 - National-level attention
 - Potential unifying voice with local jurisdictions
- Increased need for interagency coordination
 - Interdependency emphasized by infrastructure damage
 - Situation by nature chaotic
 - Washington Restoration Framework (in development) provides guidance for restoration
- Planning lays groundwork for rapid response
 - Federal, state and local on 'same page'
 - Train to establish shared expectations
- Need to plan integration of private business
 - Simple way to integrate into various operations



Key Actions

- Relocate state agency operations under COOP
 - Must develop, refine, and rehearse a Continuity Of Gov't (COG) plan.
- Rapidly resolving key policy issues affecting response
- Reestablish service on main roads in Western WA
- Rapidly expand response operations using state and regional task forces for major activities
- Apply Governor's Emergency Powers
 - Suspend/alter certain rules (coord. w/fed. agencies)
 - Reestablish local governments where applicable
- Delegations of authority (especially for spending)
- Establish clear processes for prioritizing relief
- Conduct state-level operations in partnership with local jurisdictions
- **IMPLEMENT** Resilient Washington



Cascadia Subduction Zone Planning

State and National Guard Response



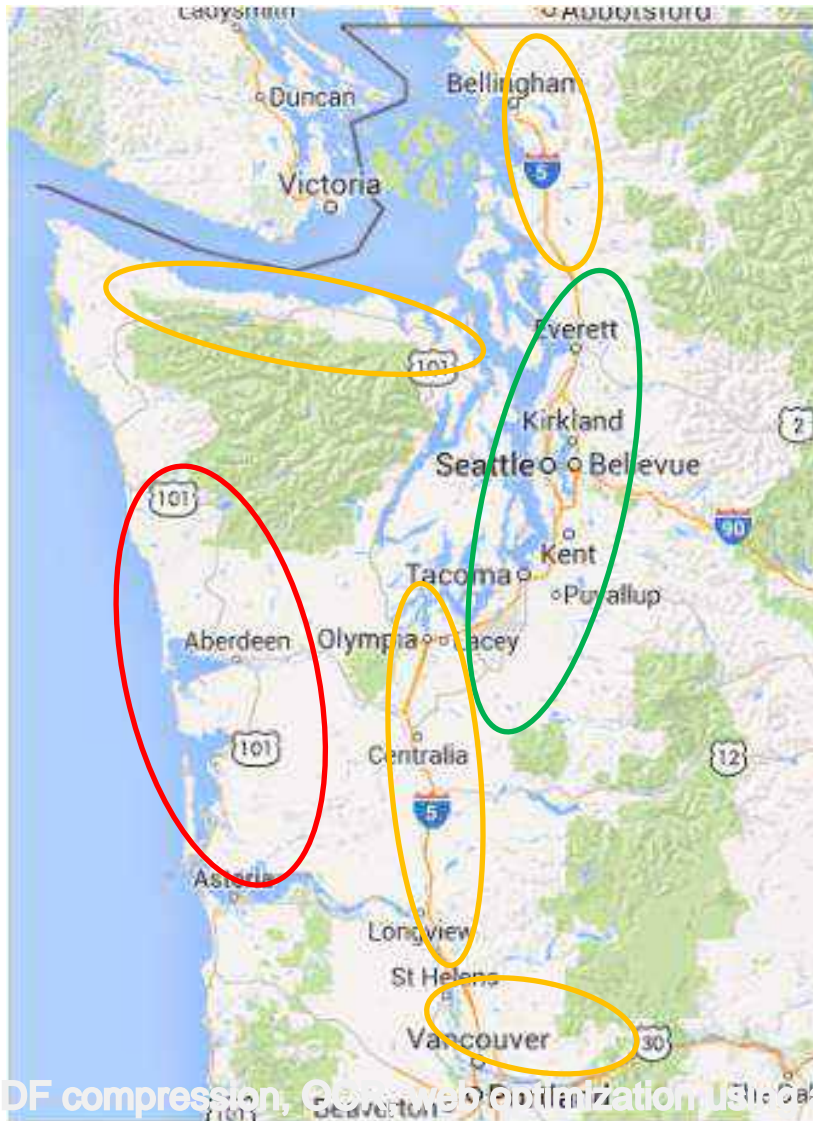
Planning Direction

- A joint planning team (JPT) to create the State and National Guard response plan for a CSZ rupture.
- This JPT is working with the following entities to create a coordinated plan:
 - DOD
 - NorthCom
 - ArNorth
 - MarNorth
 - AFNorth
 - 3rd Fleet / 1st MEF
 - Navy Region NW
 - 1st Corps
 - NGB
 - Civil Air Patrol
 - States
 - Oregon
 - Idaho
 - Alaska
 - California
 - Hawaii
 - State Agencies
 - Dept of Health
 - Dept of Transportation
 - Dept of Commerce
 - Dept of Natural Resources
 - Wa State Patrol
 - Wa Military Dept
 - Federal Agencies
 - DHS - FEMA
 - DHS – USCG (D13)
 - Federal Aviation Admin
 - Health and Human Svcs
 - ATF
 - Local Municipalities & Groups
 - City of Tacoma EM
 - City of Seattle EM
 - Grays Harbor County EM
 - King County EM
 - NW Regional Aviation
 - Pacific County EM
 - Pierce County EM
 - WA Airport MGRs Assoc
 - Washington Pilots Assoc
 - Tribes
 - Quinault Nation
 - Shoalwater Nation
 - Muckleshoot Nation

This is a partial list



Planning Framework



LARGEST RESPONSE

- Majority of Urban SAR
- Majority of ground distribution capability (Largest population)
- More people, less vehicles (Most stuff)
- Most civilian assistance
- Limited Aerial Distribution (Rotary Wing)
- Majority of Security Force capability
- Level III Medical capability
- Large scale evacuation capability
- Minimal Route Clearance effort
- Most civilian assistance

MOST CRITICAL

- Majority of Aerial SAR
- Majority of Aerial distribution (Rotary Wing)
- Limited ground distribution capability (Smallest population)
- Less vehicles, less people (Least stuff)
- Least civilian assistance
- Limited Security Force capability
- Level I and II Medical capability
- Moderate evacuation capability
- Maximum Route Clearance effort
- Least civilian assistance

MOST SPREAD OUT

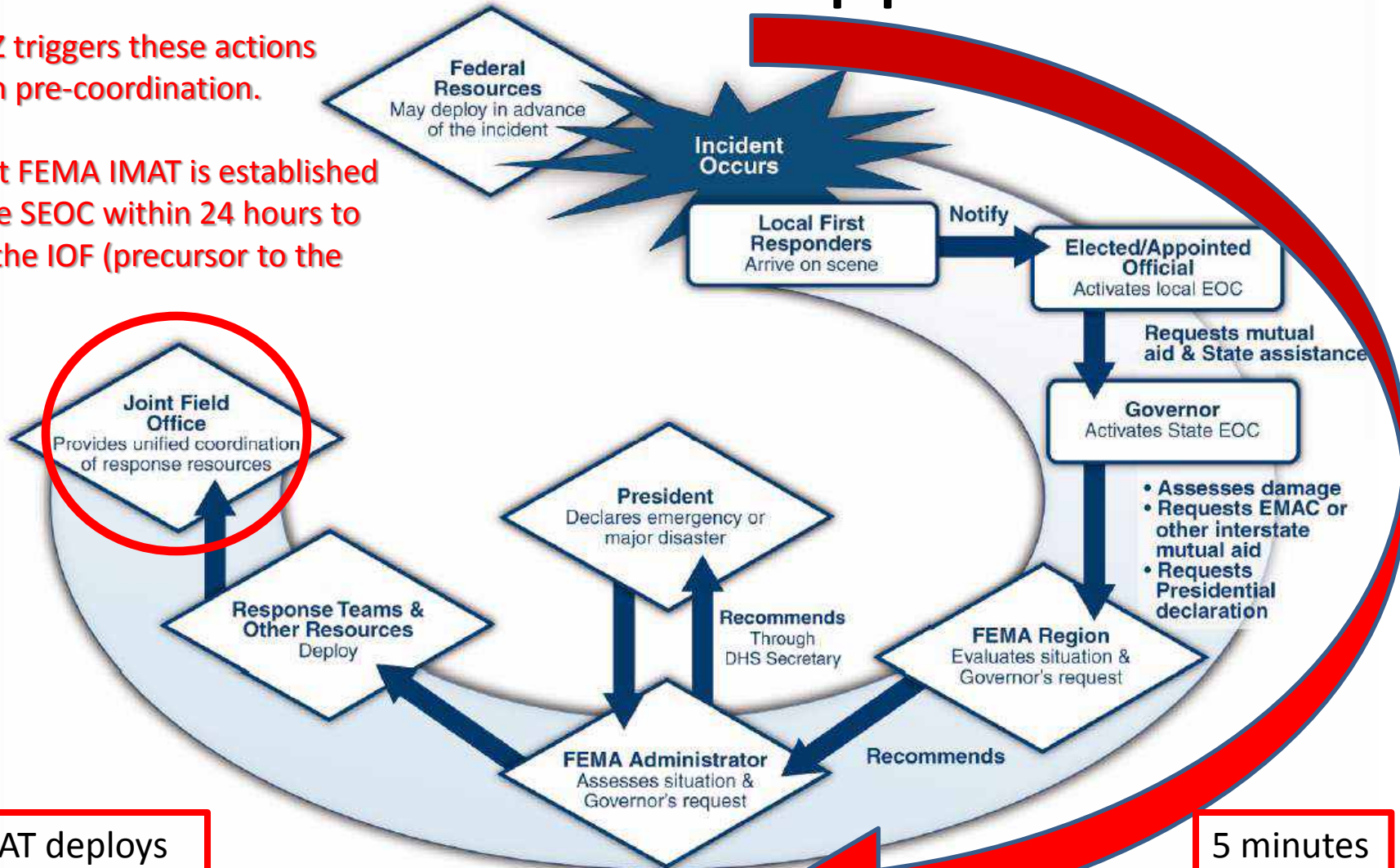
- Minimal Urban SAR
- Moderate ground distribution capability (Significant population)
- More vehicles, less people (Medium stuff)
- Limited Aerial Distribution (Rotary Wing)
- Moderate Security Force capability
- Level I and II Medical capability
- Minimal evacuation capability
- Minimal Route Clearance effort
- Significant civilian assistance



Stafford Act Support

The CSZ triggers these actions through pre-coordination.

The first FEMA IMAT is established with the SEOC within 24 hours to create the IOF (precursor to the JFO).

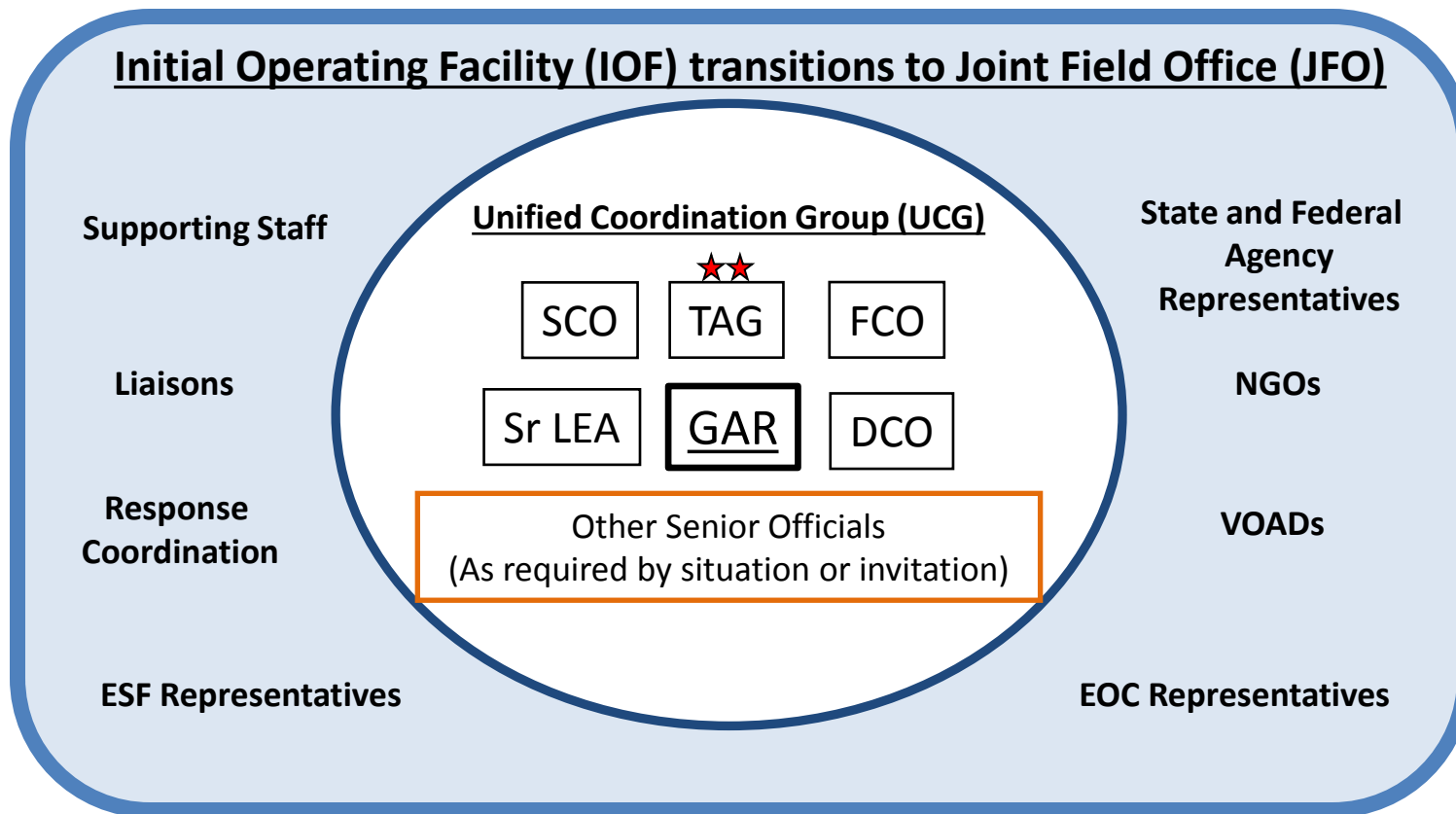


IMAT deploys within 24 hours

5 minutes of shaking



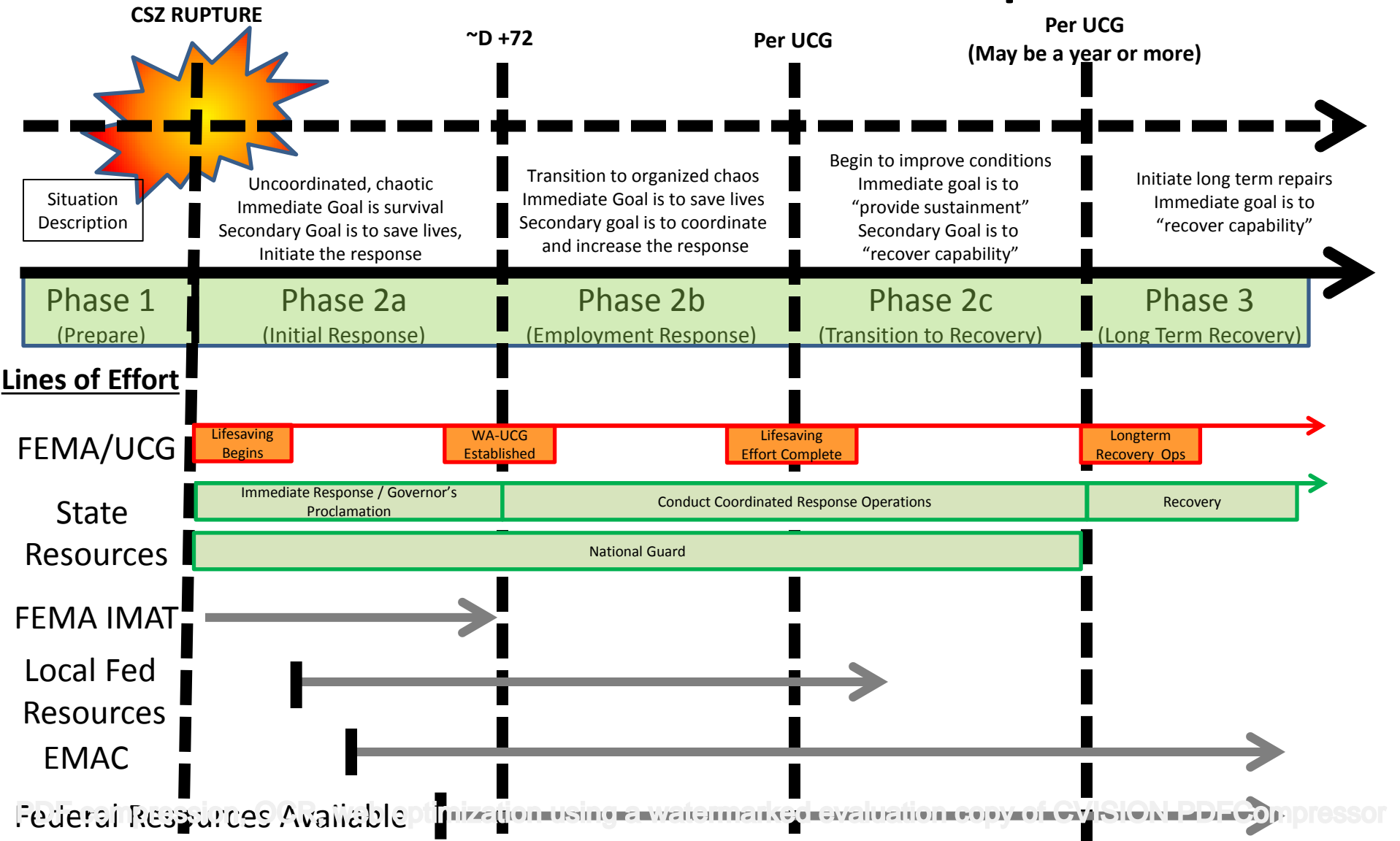
JFO / UCG Construct



A JFO may (**will**) be established locally to provide a central point for Federal, State, tribal, and local executives to coordinate their support to the incident. The Unified Coordination Group leads the JFO. The Unified Coordination Group typically consists of the **FCO**, **SCO**, and **senior officials** from other entities **with primary statutory or jurisdictional responsibility and significant operational responsibility** for an aspect of an incident. This group meets to develop a common set of objectives and a coordinated initial JFO action plan.



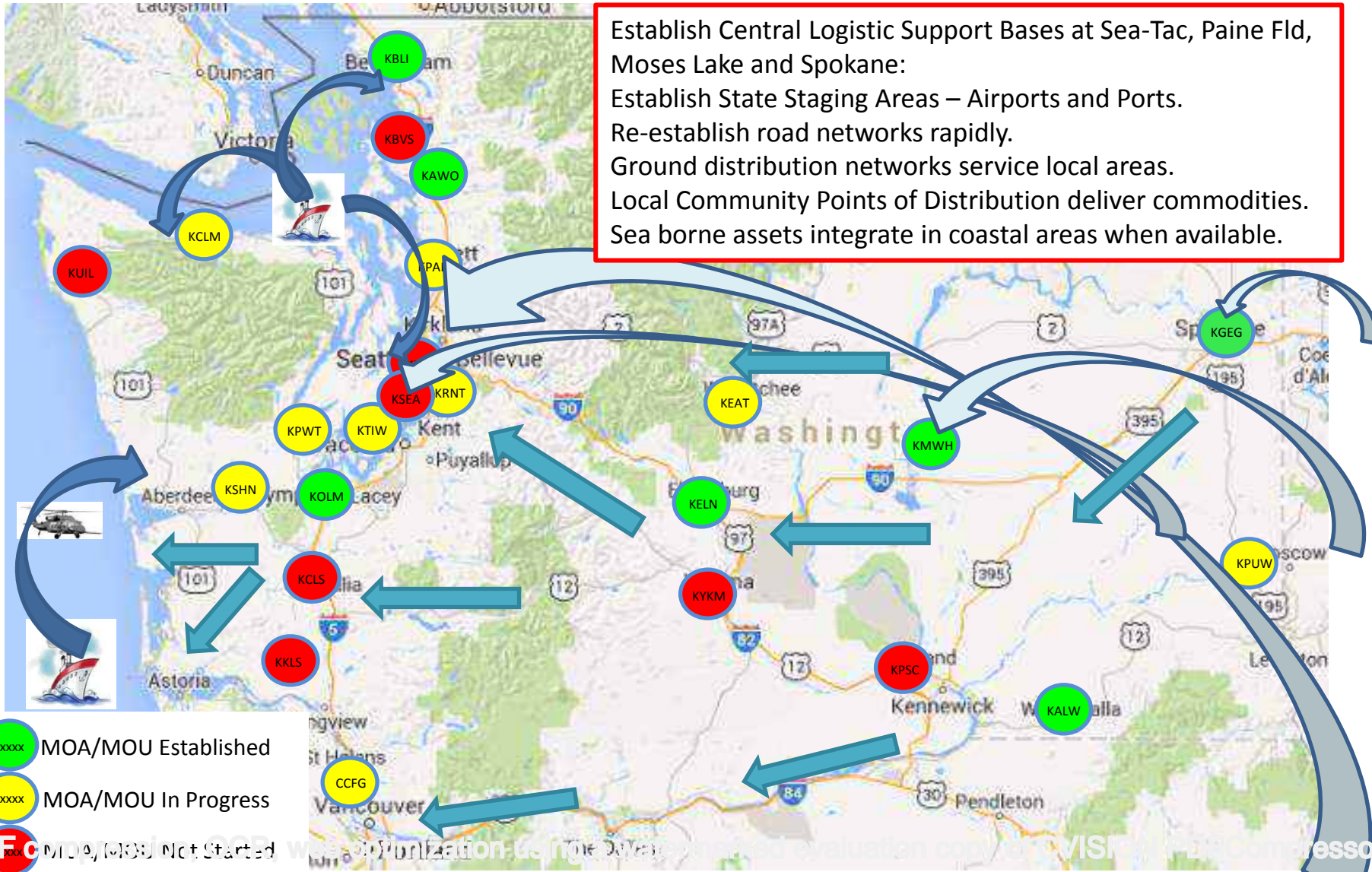
FEMA Phases-State Response





State Response Concept

Establish Central Logistic Support Bases at Sea-Tac, Paine Fld, Moses Lake and Spokane:
Establish State Staging Areas – Airports and Ports.
Re-establish road networks rapidly.
Ground distribution networks service local areas.
Local Community Points of Distribution deliver commodities.
Sea borne assets integrate in coastal areas when available.





State Priorities

- Transportation
 - Restore at least minimal capacity for semi-truck travel E-W & N-S
 - Temporary repair/bypass of road sections & bridges for connectivity
 - Air - Rapid assessment to establish air bridge operations
 - Marine – Restore capacity & open intermodal routes
 - Rail – Facilitate reopening routes to marine terminals
- People
 - Move people to safe locations
 - Augment local/community response for shelter & support
- Security – Augment law enforcement and tribal police personnel
- Health
 - Transfer patients to maximize care & resources
 - Authorize crisis standards of care to facilitate broadest medical response
 - Integrate health providers/resources credentialed elsewhere
- Schools - restore school operations as quickly as practicable.
- Electricity
 - Install generator capacity at key sites
 - Facilitate commercial/PUD distribution network
- Communication
 - Facilitate reestablishment of basic communication connectivity
- Water/Waste Water
 - Facilitate reestablishment minimal service



The Guard Response

A DOD Coordination Effort



Guard Plan / DOD Missions



Establish Tier 1-4 Logistic Support Bases:
Initiate distribution networks from tiered bases.
Ground distribution networks service accessible areas.
Rotary wing expand the network to areas that are isolated or non-reachable by ground.
Navy assets integrate in coastal areas when available.

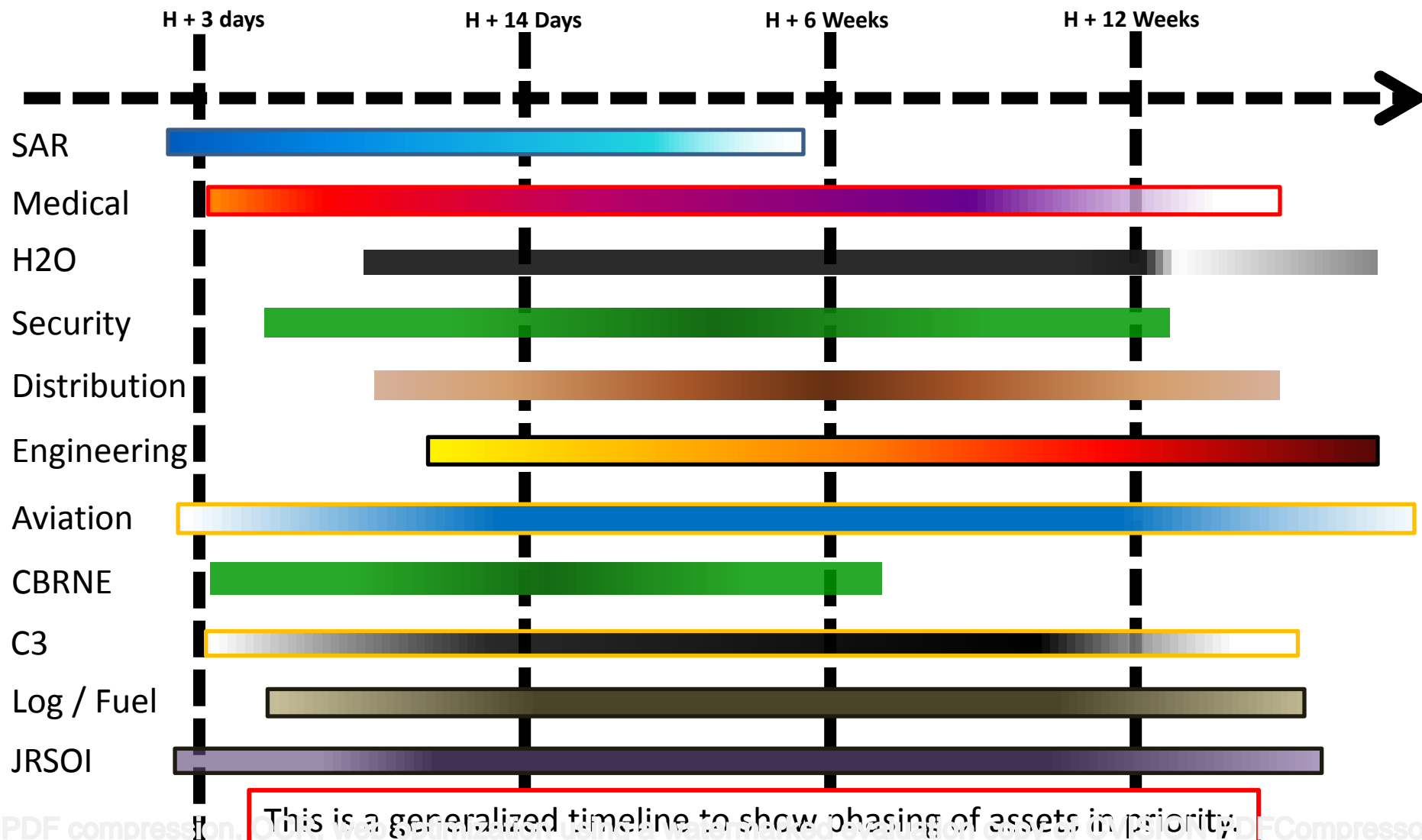
<C130 Capable, IFR

<C130 Capable, VFR

Rotary Wing Only



Operational LOE



This is a generalized timeline to show phasing of assets in priority.



Tiered Base Concept

FEMA Basing Terms:

ISB – Incident Support Base – First level of logistical distribution. Provides distribution to FSAs. All handled commodities belong to FEMA until assigned to an FSA. One ISB is tentatively allocated to Wash State in CSZ.

FSA – Forward Staging Area – Second level of distribution, provides distribution to State Staging Areas. Doctrine is changing to create three sub-types of FSA (Type, 1, 2, 3, based on capacity). Two FEMA FSAs are tentatively allocated to Wash State in the CSZ.

RBC – Responder Base Camp – Third level of FEMA basing. This is where out-of-state responders are based upon arrival. These are the State's responsibility to manage.

CPOD – Community Point of Distribution - This is the final step in the logistical distribution. It is the responsibility of the local EM / IC to coordinate.

National Level
"Point of Origin"

Tier 1

- Based on existing airports
- Largest capability (747/C5)
- Identified now
- Preplan usage now
- Pre-coordinate design now
- Acts as all Tiers
- Provides distribution to local communities

Flow of Logistics and Inbound Resources

Tier 2

- Based on existing airports
- 2nd largest capability (C17/C130)
- Identified now
- Preplan usage
- Pre-coordinate design
- Serves as log base and RBC
- Provides distribution to local communities

Tier 3

- Based on existing airports
- 3rd largest capability (<C130)
- Identified now
- Preplan usage
- Pre-coordinate design
- Serves as log base and RBC
- Provides distribution to local communities

Tier 4

- Rotary Wing / Vertical Lift
- Same capabilities, less capacity
- Location selected ICW local EM
- Template now, confirm later

Tier 5

- Final Point of Distribution
- Identified by Local EM
- Established daily





Tiered Base Concept

- **Tier 1** (BSI/ISB/SSA)
 - JRSOI/RIP
 - Equipment staging & bed down
 - Resource transfer (H2O, CL I-IX)
 - Refuel (Ground & Rotary Wing)
 - Medical triage / treatment / transfer (Level III)
 - Limited human & pet sheltering
 - Responder sustainment
 - Distribution LOD for local area
 - 747/C5 capable
 - Possible Railhead / Trucking depot
- **Tier 2** (BSI/FSA/SSA)
 - JRSOI/RIP
 - Equipment staging & bed down
 - Resource transfer (H2O, CL I-IX)
 - Refuel (Ground & Rotary Wing)
 - Medical triage / treatment / transfer (Level II)
 - Limited human & pet sheltering
 - Distribution LOD for local area
 - Responder sustainment
 - C17 / C130 capable
 - Possible railhead / truck depot
- **Tier 3** (FSA/SSA)
 - JRSOI/RIP (Limited)
 - Equipment staging & bed down
 - Resource transfer (H2O, CL I-IX)
 - Refuel (Ground & Rotary Wing)
 - Medical triage / treatment / transfer (Level II)
 - Limited human & pet sheltering
 - Distribution LOD for local area
 - Responder sustainment
 - Less than C130 capable (C23)
 - NOT rail or truck capable (Isolated)
- **Tier 4** (SSA/RBC)
 - Equipment staging & bed down
 - Resource transfer (H2O, CL I-IX)
 - Refuel (Ground & Rotary Wing)
 - Medical triage / treatment / transfer (Level I)
 - Limited human & pet sheltering
 - Responder sustainment
 - Distribution LOD for local area
 - Rotary Wing / vertical lift capable
- **Tier 5** (CPOD)
 - Community Points of Distribution
 - Medical CCPs (Basic First Aid)
 - Waste Collection Points (SAR)



DOD Task Force Composition

Region 2

DOD Forces

Region 1

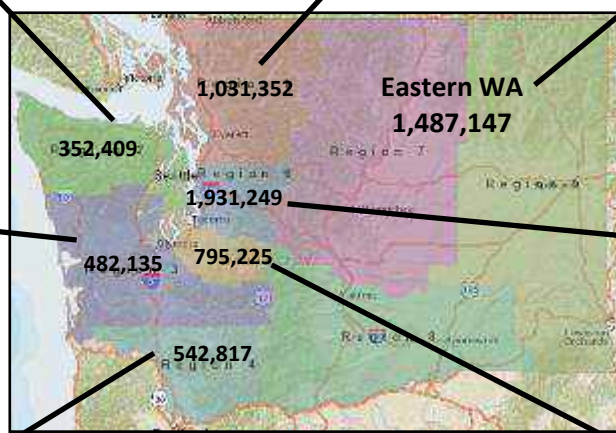
DOD Forces

East

DOD Forces

Region 3

DOD Forces



Region 6

DOD Forces

Region 4

DOD Forces

DOD Personnel Requirement

Region 1: 5,637	Region 6: 6,260
Region 2: 2,881	East: 2,896
Region 3: 6,891	TF Aviation: 2,689
Region 4: 3,610	TF CBRNE: 4,152
Region 5: 5,059	Total: 40,075

Region 5


















DOD Forces



DOD Forces Required

The JPT has conducted in depth analysis to determine force structure required. Calculations are detailed further in the COA descriptions. Four counties were analyzed in depth (King, Pierce, Grays Harbor, and Pacific) and that data was used to extrapolate across the entire region, based on population density and infrastructure.

The following slides detail the results of that analysis.

 EN BN PAX: 432  1 X HORIZ CO PAX: 162 VHCL: 112  1 X VERTICAL CO PAX: 162 VHCL: 22	 1 X MANEUVER BN PAX: 650 VHCL: 86	 TRANS/DISTRO BN PAX: 526 VHCL: 160 1 X DIST CO PAX: 142 VHCL: 57	 1 X QM CO WATER PUR & DIST PAX: 130 VHCL: 57  1 X MORTUARY AFFAIRS CO PAX: 155 VHCL: 64	 1 X JISCC PAX: 5 VHCL: 2  1 X CIVIL AFFAIRS CO PAX: 31 VHCL: 7 (Five 4-man teams)	 CBT SPT HOSPITAL PAX: 244 VHCL: 35  ASMC PAX: 75 VHCL: 26  MED PLT PAX: 32 VHCL: 8	 BDE TF HQ PAX: 61 (Includes 16 AF Weather Det PAX)	 MANCHESTER FUEL FARM PAX: 30  TIER 1 FUEL FARM PAX: 30  TIER 2/3 FUEL FARM PAX: 20  TIER 4 FUEL FARM PAX: 10
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Regionally Aligned Federal Resources

Region 2
Federal ESF Assets

US&R DMAT

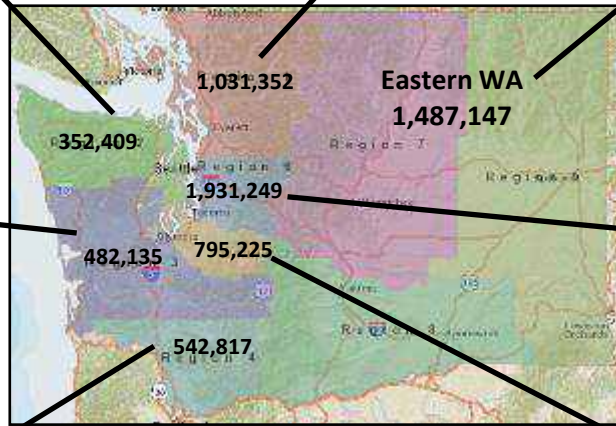
Region 1
Federal ESF Assets

US&R DMAT

East
Federal ESF Assets

Region 3
Federal ESF Assets

US&R DMAT



Region 6
Federal ESF Assets

US&R DMAT

Region 4
Federal ESF Assets

US&R

Non-DOD Personnel Requirement

Region 1: 513	Region 5: 363
Region 2: 292	Region 6: 734
Region 3: 442	East: 0
Region 4: 300	Total: 2,644

Region 5
Federal ESF Assets

US&R DMAT



Federal ESF Assets Required

ESF 1

ESF 2

ESF 3

ESF 4

ESF 5

ESF 6

ESF 7

ESF 8



DMAT

1 X DISASTER
MEDICAL
ASSISTANCE TEAM
PAX: 150
VHCL: 0

ESF 9



US&R

1 X FEMA URBAN
SEARCH & RESCUE
TEAM
PAX: 71
VHCL: 15 OR
4 HELO

ESF 10

ESF 11

ESF 12

ESF 13

ESF 14

ESF 15



Exercises

- FY 15 Washington Military Department Rehearsal (Evergreen Tremor)(17-25 JUN 2015)
 - Limited participation from State and Federal agencies
 - Limited participation with specific local EMs
- FY 16 Statewide (Becoming Regional to National) Exercise
 - Full state agency and EMD participation
 - Not only for main event, but also for ramp up exercises
 - Maximum participation from local municipalities
 - Maximum participation from federal partners
 - DOD - ARDENT SENTRY, VIGILANT GUARD, ULTIMATE CADEUCES, JLOTS
 - Others - TBD
 - CSZ response rehearsal
 - Possible National Exercise Program Capstone Event (NEPCE)



Wrap Up



Specific Requests

- Short Term
 - Place increased emphasis on Continuity of Government (COG) requirements
 - Place increased emphasis on Cabinet and State Agency participation in the FY16 Cascadia exercise
- Longer Term
 - Work toward sustainable funding for statewide emergency management
 - Provide funding for National Guard State Active Duty for preparedness activities
 - Increase resources for Catastrophic Planning in Washington
 - Provide resources for a designated State Continuity Program Manager
 - Develop a subcabinet Working Group to implement Resilient Washington
 - Emphasize Emergency Management / Preparedness for all State Agencies
 - Participate in Cascadia Exercise – early June 2016



News

INFRASTRUCTURE

Picking Up Good Vibrations From Napa Post-Quake Report



HEADS UP UC Berkeley's early-warning system detects more benign fast-moving shock waves (yellow) in advance of slower vibrations, which cause more damage (red).

An earthquake-detection system under development by the University of California's Berkeley Seismological Laboratory proved its mettle on Aug. 24 by issuing a warning 10 seconds before a magnitude-6 tremor struck south of Napa, Calif. The alert could have gone out 2.5 seconds sooner if the ShakeAlert system, based on Japan's primary-wave detection system, were funded, and the lab were able to install more sensors, says a lab spokesperson.

"It was definitely a great proof-positive that the system works just like we'd hoped," says Jennifer Strauss, the lab's external relations officer. "One of the things the Napa quake did show us is you need to make sure there are enough sensors," says Strauss.

Bay Area Rapid Transit is testing the alert system and received eight seconds' warning, but none of its trains were running when the quake hit at 3:30 a.m.

California State Legislature unanimously passed Senate Bill No. 135 last year, which calls for the development of a comprehensive statewide earthquake early-warning system to alert Californians

in advance of dangerous shaking. But funding has not yet been found.

"It's an unfunded mandate, stipulating that we can't use general funds for the system," says Strauss. "Both Mexico and Japan built their early-warning systems after massive damaging earthquakes. This is the chance for California to build one before such a damaging quake."

Schools Undamaged

The epicenter of the American Canyon quake was at the heart of the Napa school district's 30 campuses. Subsequently, three architectural and engineering teams assessed "every room in every school" and observed no structural damage following the quake, says Mark Quattrocchi, principal of Kwok Quattrocchi Architects and one of the survey team members. "There was not even a single panel of cracked drywall," he says.

The schools performed so well because they are built or retrofitted according to much stricter seismic codes than commercial and residential buildings.

"There was no structural damage to

any school in the district, even the ones built to older codes in the 1940s, 1950s and 1960s," says Quattrocchi. "Part of this is because seismic upgrades at the schools are treated the same as building an entirely new facility," he adds.

Schools fared well for three reasons: seismic building codes that are more stringent than those for commercial buildings, methodical reviews by the Division of the State Architect and "full-time" state inspection on school construction sites, Quattrocchi says.

A 2006 California Seismic Safety Commission report—the most recently published data on unreinforced masonry buildings in the state—says approximately 70% of California's 26,000 brick buildings have been demolished or retrofitted. About 8,000 brick buildings remain at risk, the report said.

In Napa, city inspectors remained at work tagging structures on the second round of damage evaluations. "As of 1 p.m., there are 1,053 structures in the city that have been tagged—153 are on the red-tag list and around 900 are on the yellow-tag list," the City of Napa reports. "It is possible these numbers will rise as more structures receive their second inspection and interiors are seen."

Ronald O. Hamberger, a senior principal with seismic structural engineer Simpson Gumpertz & Heger, says buildings in general fared well. "Overall, the performance of buildings in the Bay Area is a tribute to the effectiveness of building codes in general and seismic retrofit techniques," he says. Except for unreinforced or poorly retrofitted masonry buildings and older houses not bolted to their foundations, "buildings did very well, despite ground accelerations, locally in Napa, that approached design levels. In part this was due to the relatively short duration (10 seconds of strong motion) of this earthquake, but also, at least in part, it is a tribute to the effectiveness of western U.S. design practices." ■

By Luke Abaffy and Nicholas Zeman, with Nadine M. Post



Resilience IS Achievable!

"The epicenter of the quake was at the heart of the Napa school district's 30 campus. Subsequently, three architectural and engineering teams assessed "every room in every school" and observed no structural damage."

"There was not even a single panel of cracked drywall."

"There was no structural damage to any school in the district, even the ones built to older codes...Part of this is because seismic upgrades at the schools are treated the same as building an entirely new facility."

Concluding Remarks Questions / Discussion



Thank you for your time!

