

PREPARE



PREVENT



RESPOND



RECOVER



MITIGATE



2018

PENINSULA EMERGENCY PREPAREDNESS GUIDE

This publication aims to properly educate and prepare the people of Clallam and Jefferson counties for a Cascadia Subduction event to reduce risks and ensure our communities are well equipped to handle this worst-case scenario.



Community Emergency Response Team members treat "victims" of an earthquake during a 2017 drill. *Olympic Peninsula News Group file photos*



Content for this publication has been provided by Clallam County Fire District 3 in conjunction with Jim Buck, former state representative.

PENINSULA EMERGENCY PREPAREDNESS GUIDE

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Introduction to local preparedness

By Jim Buck, former state representative, and Blaine Zechenelly, Clallam County Fire District 3 disaster planner

For most of us, the greatest emergency we face is a personal one — a car accident, a house fire or a medical issue.

But that is not the only threat in our society.

More often, we see disaster caused by man-made events (chemical spills on the highway or an active shooter) or natural disasters (wildland fire or an earthquake/tsunami) that reaches a level that overwhelms our resources at a government level.

It is these events that call for a

level of knowledge and preparedness in all of us.

This material is designed to help you with this. It is designed to deal with the worst-case scenario, knowing that the preparations for it will allow us to deal effectively with lesser events.

For the citizens of Clallam and Jefferson counties, that worst-case scenario is a Cascadia Subduction Zone (CSZ) quake of a magnitude of 9 or greater.

In this publication, we will guide you through possible events, terminology, who will be affected and in what ways, preparing your home for a disaster, timeline of relief, volunteering opportunities and much more.



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Emergency Preparedness at Olympic Medical Center

Olympic Medical Center works with a multitude of community, state and federal agencies to ensure our hospital and clinics are prepared to provide a timely and coordinated response in the event of a disaster or local emergency.

Our leadership, providers and staff participate in disaster planning and training so that we're as ready as we can be. We encourage you and your family to do the same.



GLOSSARY

+ ACC

Area Command Center; used to coordinate emergency resources and actions in an area; usually an area of three to five micro-islands; there are five in Clallam County.

+ Air Bridge

Delivery of supplies via aircraft, primarily C-17 and C-130 at Fairchild International Airport in Port Angeles and retired Quilayute NAS in Forks.

+ CSZ

Cascadia Subduction Zone, an area where major quakes of 8 to 9+ magnitude occur off the Pacific Coast of Washington, Oregon, British Columbia and Northern California.

+ Lifelines

Makeshift road system suitable for only emergency services and supply trucks; comparable to a logging road; used to link micro-islands back together.

+ EOC

Emergency Operations Center; used to coordinate emergency resources at a county level.

+ FEMA

Federal Emergency Management Agency; responsible for the coordination of the federal response to a disaster.

+ HITRAC

Homeland Infrastructure Threat and Risk Analysis Center

+ Liquefaction

Area where soil is temporarily softened by water and forced up through the ground by earthquake activity.

+ Micro-island

Zone that has been isolated by tsunami, landslide or roadway or bridge collapse

+ Tsunami

Rising tide of water caused by an undersea movement of land caused by an earthquake; expected maximum height for CSZ event is 40 to 60 feet of water.

+ Rupture

Point where energy is released by movement of two tectonic plates; also know as fault line.

+ PNSN

Pacific Northwest Seismic Network; the earthquake study center at the University of Washington.

+ USGS

United States Geological Survey; the main federal geological science agency for earthquakes.

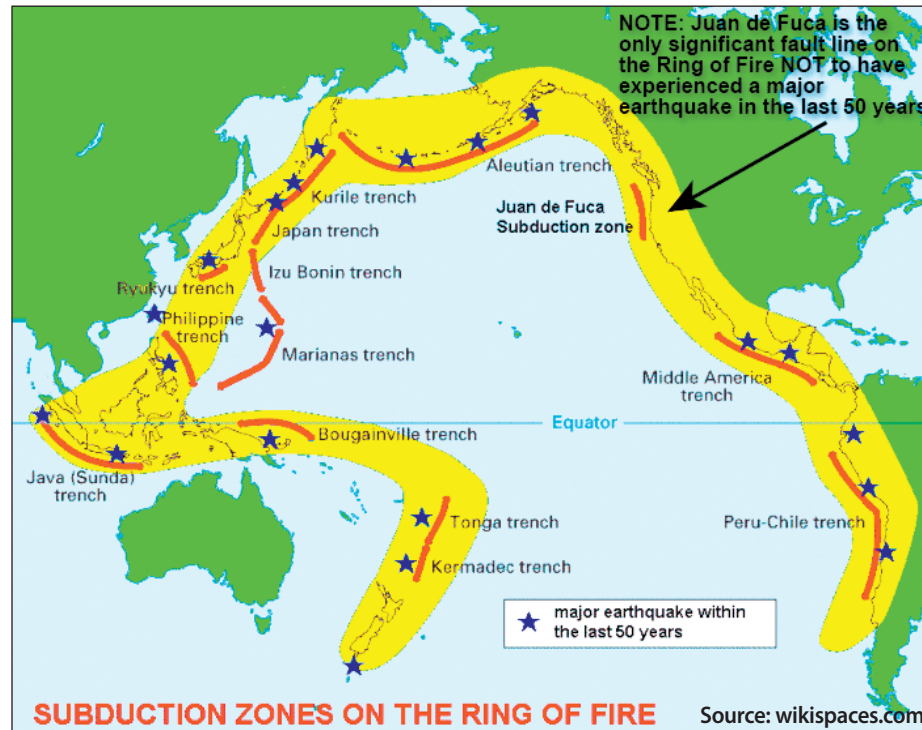
+ US&R

Urban search and rescue; involves the location, rescue (extrication) and initial medical stabilization of people trapped in confined spaces; multi-hazard discipline.

+ WMD

Washington Military Department; name of the state emergency management agency.

The Ring of Fire explained



+ The Ring of Fire accounts for 90 percent of all earthquakes and 81 percent of the world's largest earthquakes.

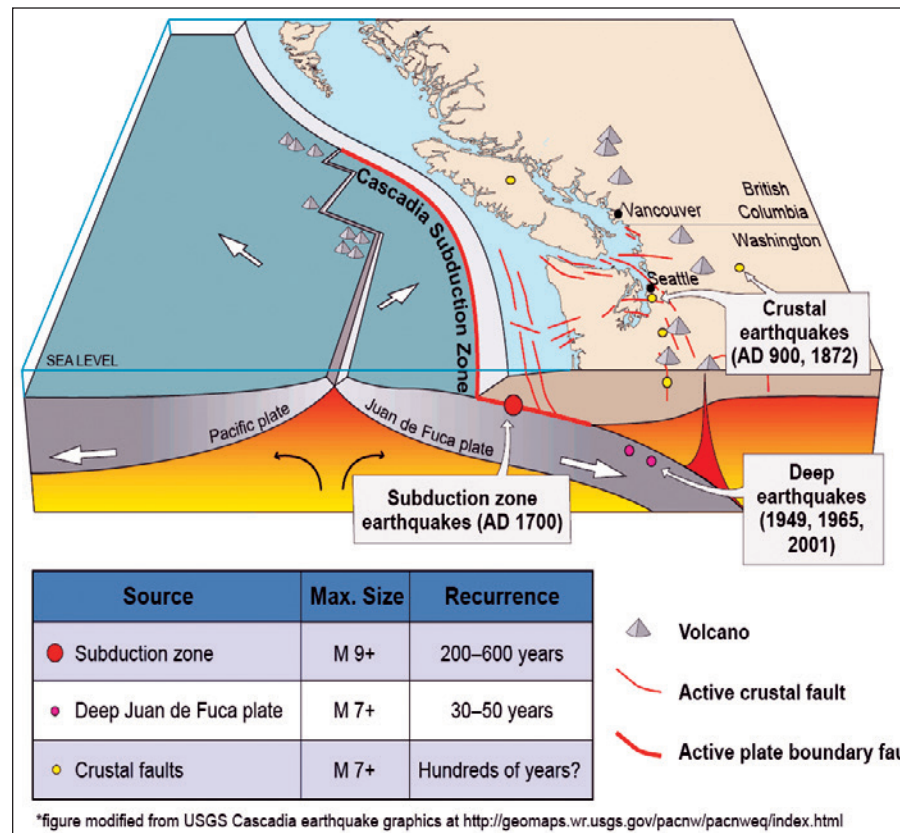
+ Subduction zones are shown in red.

+ 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).

+ The last event on the CSZ was Jan. 26, 1700 — more than 318 years ago.

Types of earthquakes in the Northwest



Three types of earthquakes are represented in this cutaway view of the ground beneath Western Washington.

Subduction earthquakes, which can reach magnitude 9+, involve slippage between the North American plate and the Juan de Fuca plate being pushed under it.

The last subduction quake in Western Washington occurred in 1700 and created a tsunami that washed up on the beaches of Japan.

Deep earthquakes, more than 15 miles down, have caused the most damage in recent history.

The 6.8 magnitude Nisqually quake in February 2001 was 32 miles deep.

Shallow earthquakes — less than 15 miles down — include those along the Seattle fault, which runs across Bainbridge Island and through Central Kitsap County.

About 1,100 years ago, an earthquake greater than magnitude 7 occurred on the Seattle fault, raising the south end of Bainbridge Island by 21 feet.

Seismic scenario and earthquake timeline

Data* from the Pacific Northwest Seismic Network (PNSN) indicate a 43 percent to 63 percent chance of a 8.0 to 9+ magnitude Cascadia event in the next 50 years.

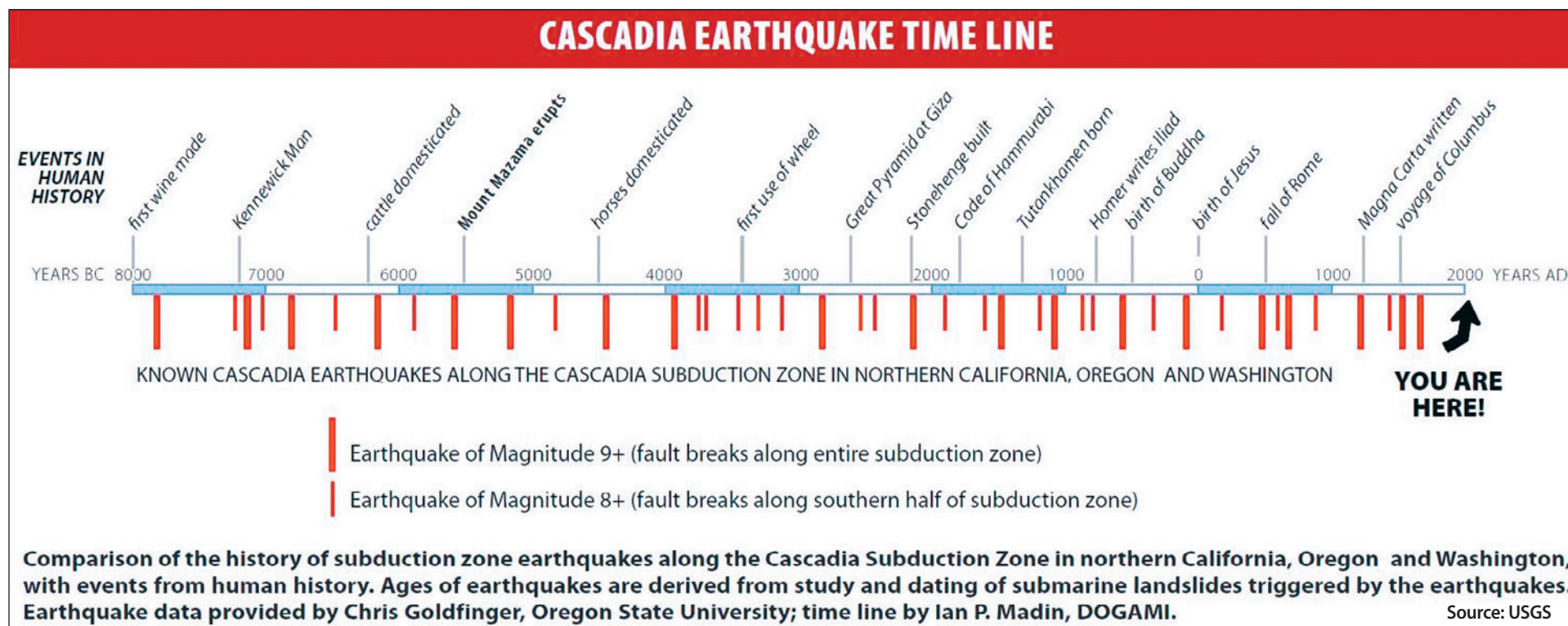
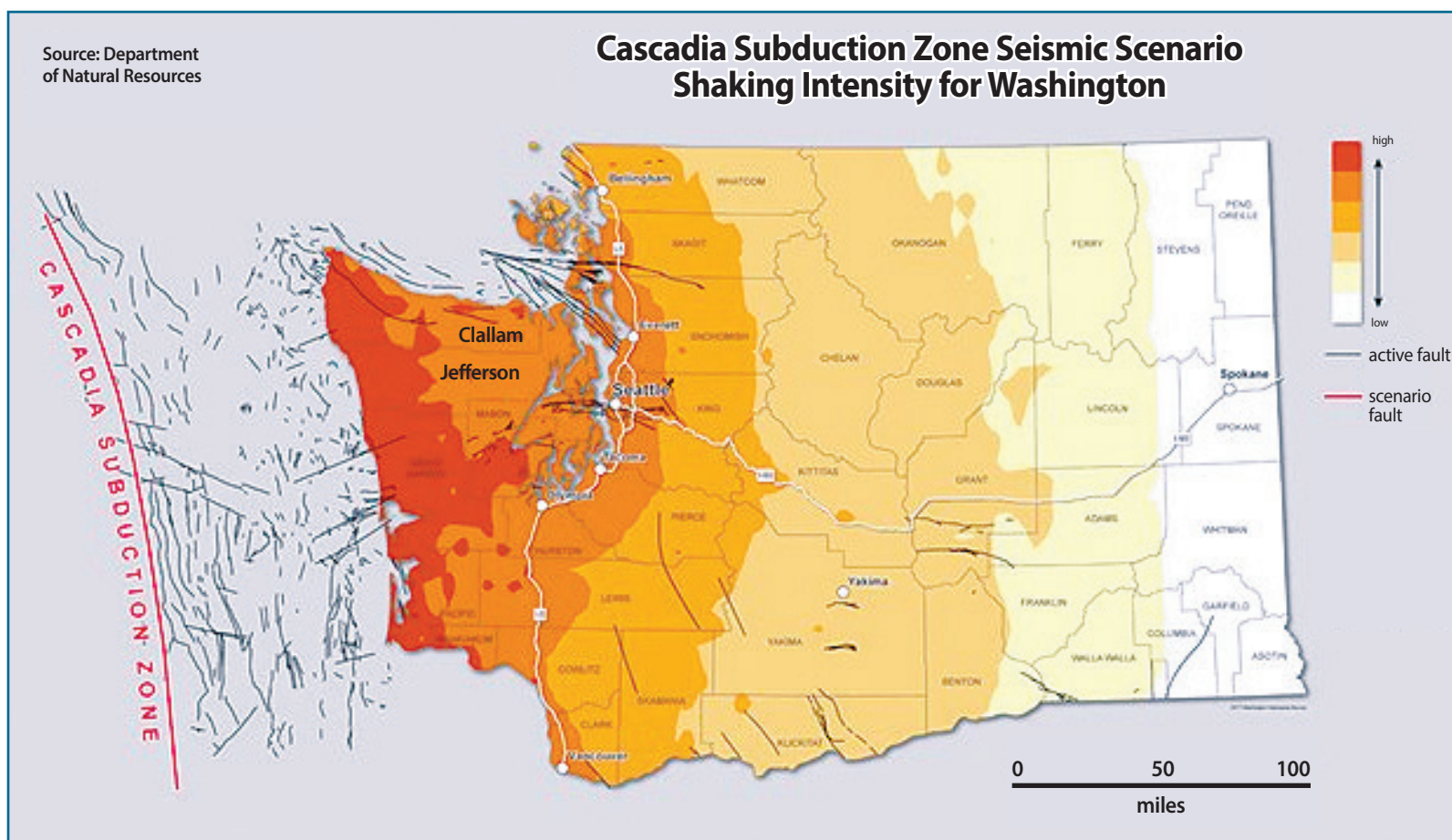
The probability of an event on the South Whidbey Island fault, Seattle fault or the Lake Creek Boundary fault adds to the chance of a seismic event in Clallam and Jefferson counties.

There have been 19 quakes of 9+ and 22 quakes of 8+ over last 10,000 years, averaging every 200 years.

The chances of earthquakes increase as other faults are considered, particularly Lake Creek Boundary.

Combining the risk of either Lake Creek Boundary Fault or a CSZ event raises Clallam County risk to higher than 50 percent in the next 50 years.

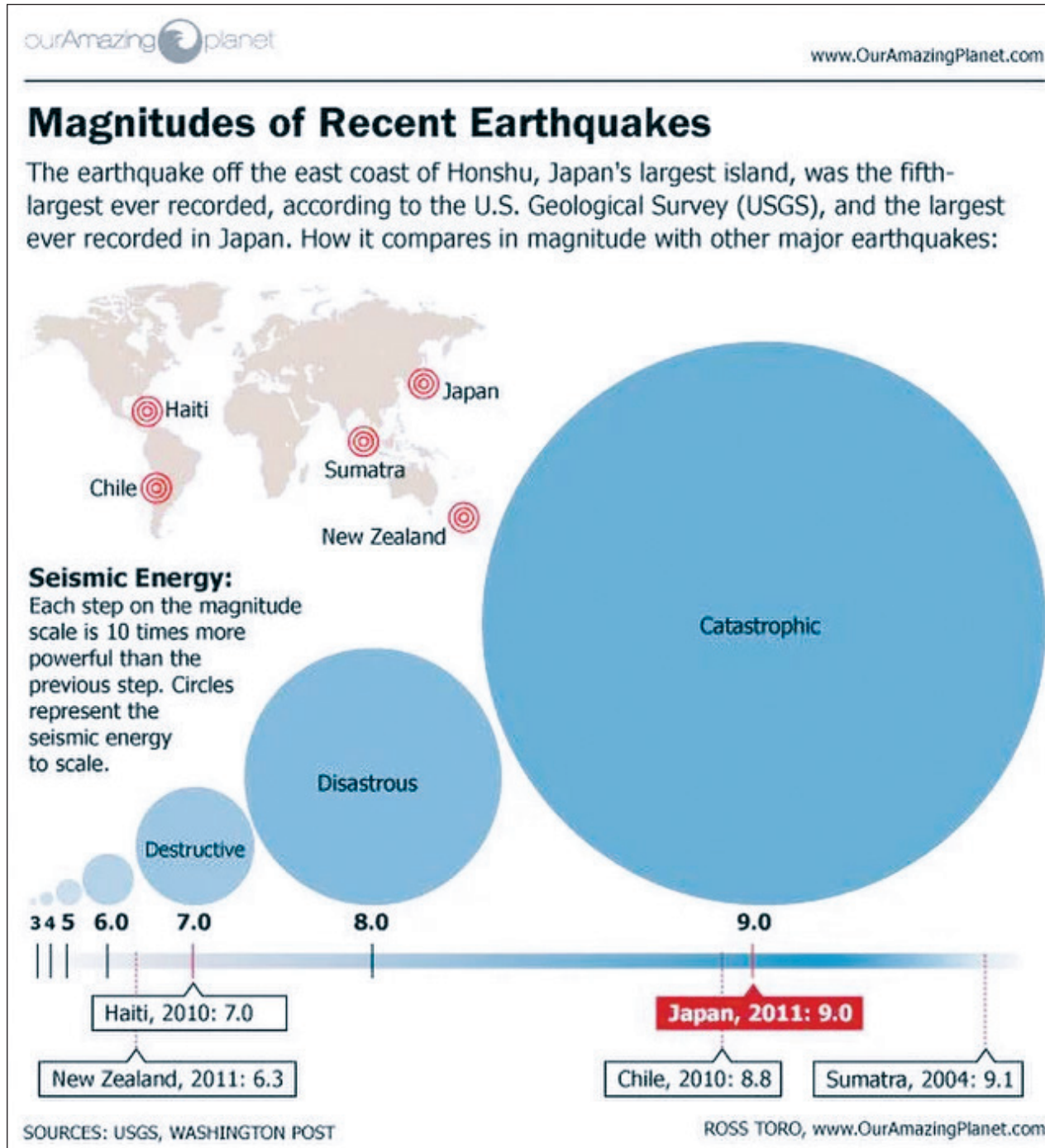
**Provided by John Vitale, director of the Southern California Earthquake Center, former director PNSN*



What does a magnitude 9.0 mean?

A 9.0 magnitude earthquake will be 100 times more powerful than the 6.8 Nisqually earthquake in 2001.

Earthquake aftershocks

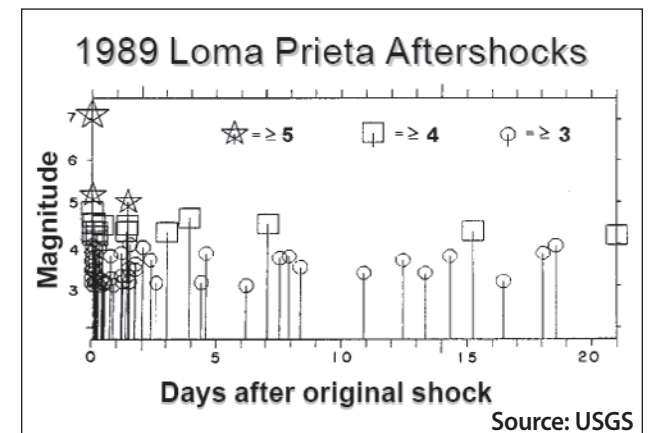


How Many Aftershocks ?

- USGS - Rule of Thumb
 - For every single decrease in magnitude, get 10 fold increase in number
- If original quake is M 7
 - 1 or so aftershock in range of M 6
 - 10 " " " " 5
 - 100 " " " " 4
 - 1000 " " " " 3

Source: USGS

Statistically, in the first week after a 9.0 earthquake, we can expect there will be one 8.0+ and ten 7.0+ aftershocks. The chart above shows the rule of thumb that the United States Geological Survey (USGS) uses.



Shown above is the number of aftershocks that actually occurred in San Francisco Bay's Loma Prieta quake of 1989.

The original magnitude was 7.0, which was later downgraded to 6.9.

As can be seen in the chart, there was a swarm of 5.0+ and 6.0+ quakes on the first, second and third days following the quake.

Most Americans are familiar with earthquakes in the 6- to 7-magnitude range. Few have experienced a quake greater than this. Yet the potential quake in the Northwest will make those feel minute by comparison.

Cascadia event will be staggeringly larger than others

Nisqually vs. Cascadia

MAGNITUDE:

Nisqually quake of 2001: **6.8**

Energy release equivalent to 17.6 million tons of TNT

Nisqually: 6.8



Cascadia megaquake: 9.0*

Energy release equivalent to 35.2 billion tons of TNT

* Cascadia figures are estimates from the Cascadia Rising Scenario

	Nisqually	Cascadia
DURATION:	30-40 seconds	4-5 minutes*
DEATHS:	1	13,000*
INJURIES:	400	30,000*
DAMAGES:	\$2 billion	Over \$80 billion*
BRIDGES DAMAGED:	66	7,000*
DISPLACED PERSONS:	120	915,000*

Sources: Cascadia Rising Scenario, Nisqually Earthquake Clearing House Group

Geologic forces that shaped many of Washington's beautiful features also give the state one of the highest earthquake hazards in the nation. The potential impacts of this hazard were demonstrated in 2001 by the Nisqually earthquake, which caused hundreds of injuries and inflicted damage serious enough to prompt federal disaster declarations in 24 counties, but this was not the most damaging earthquake we can expect.

— Resilient Washington State

With the Cascadia event, we can expect to see near total destruction of certain areas of Western Washington and encounter massive amounts of casualties. The impact of this event will be felt in myriad aspects of our daily lives. It will take years to rebuild what we currently have in our towns and cities.



Damage in Seattle's Pioneer Square after the Feb. 28, 2001, Nisqually Earthquake
FEMA news photo

FEMA's HITRAC Cascadia study

In 2011, FEMA (Federal Emergency Management Agency) — using its Hurricane based super-computers — decided to model a Northwest Cascadia Subduction Zone event (CSZ).

The modeling used the following assumptions:

- ✦ CSZ magnitude 9.0 earthquake and tsunami. It assumed February at approximately 9:30 a.m. on a weekday.

MODELLED IMPACTS

- ✦ Direct impact to three States and British Columbia.
- ✦ Complete rupture of the 800-mile fault line.
- ✦ Impacts affecting more than 140,000 square miles.
- ✦ Assumed early morning in February, no tourist on the beaches.
- ✦ Ground shaking lasts up to 5 minutes.
- ✦ Numerous aftershocks with several at 7.0+ magnitude

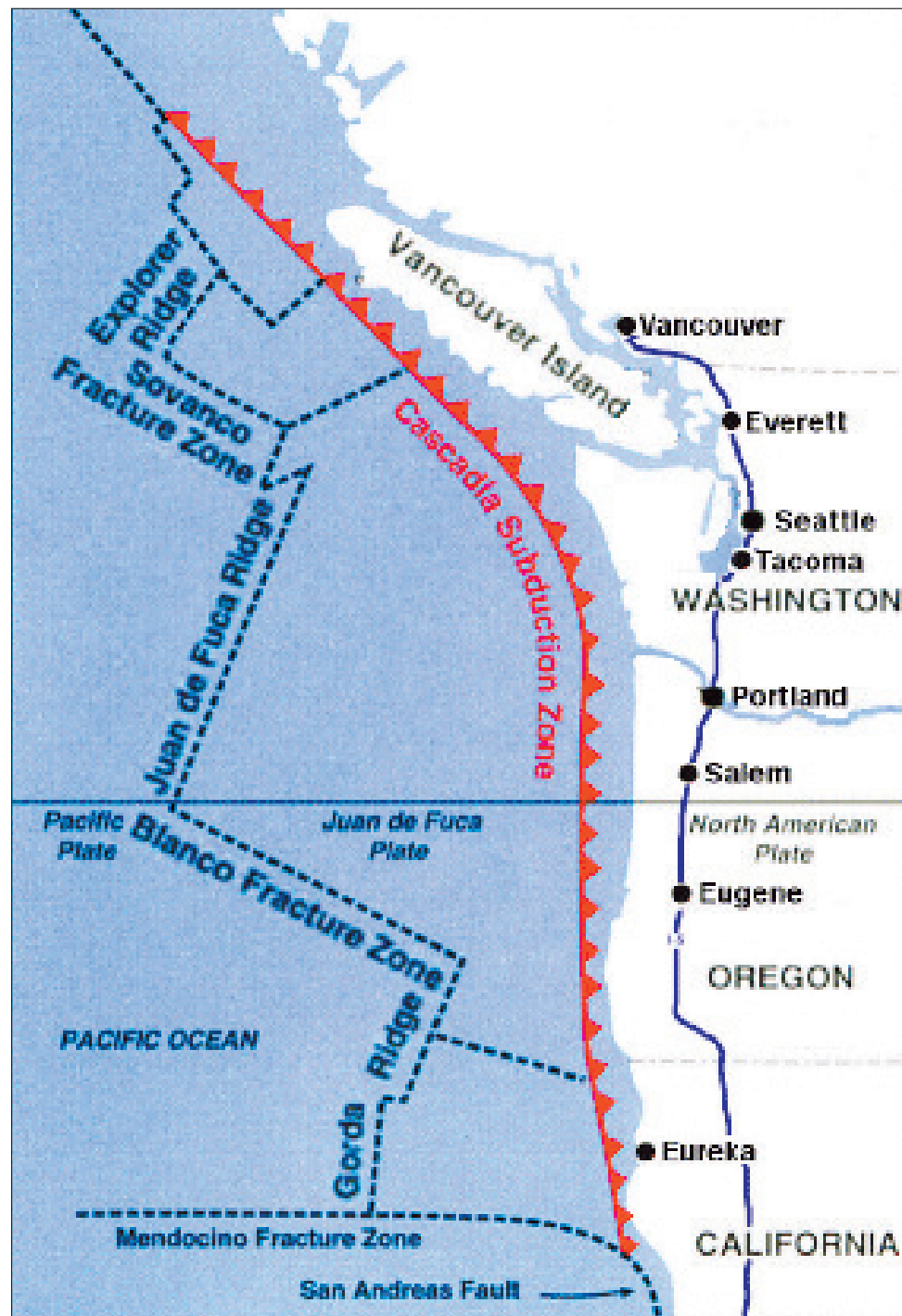
MODELLED ESTIMATES

- ✦ 1,000 fatalities from earthquake.
- ✦ 12,000 fatalities from tsunami.
- ✦ 30,000 injured.

Note: This scenario was considered a low-casualty scenario. Other scenarios were considerably higher.

Other scenarios included a quake starting at an 8.0 intensity, taking place in the summer (more people means more casualties). Tourist season affects the outcome greatly.

— From the Department of Homeland Security's Homeland Infrastructure Threat and Risk Analysis Center



The graphic to the left shows that the Cascadia fault runs from Northern California to the far northern end of Vancouver Island in Canada, and it will affect California, Oregon, Washington and British Columbia.

Impacts from the quake could disrupt the power grid west to east from the Pacific Ocean to a line near eastern Montana and north to south from Canada to Mexico, including both Central and Southern California.

What the modeling could not address

- ✦ Landslides
- ✦ Avalanches
- ✦ Aftershocks
- ✦ Aftershock tsunamis
- ✦ Propane leaks
- ✦ Fires
- ✦ River flooding
- ✦ Hazardous materials
- ✦ Contamination
- ✦ Lack of food and water
- ✦ Disease
- ✦ Exposure

All of the above will add to injuries, sickness, loss of life and property damage.



FEMA

Western Washington HITRAC results

HITRAC (Homeland Infrastructure Threat and Risk Analysis Center) studies, conducted by FEMA, indicated that much of Western Washington would sustain significant damage.

Red on the adjacent charts indicate severe or completely destroyed facilities. This is especially true for facilities west of the I-5 corridor.

Gray indicates it was unknown what the impact would be.

Further study on roads in Clallam County indicates the gray areas will not survive.

Not shown are hospitals, police stations, schools and senior living facilities.

Most hospitals and police stations will structurally survive, but it might take several days to clean them up and make them usable again.

Airports will lose buildings but can operate if runways are intact.

Schools, which double as shelters, and senior living facilities will be severely impacted.

*The HITRAC study is designed and intended to be **representative**, not **predictive**.*

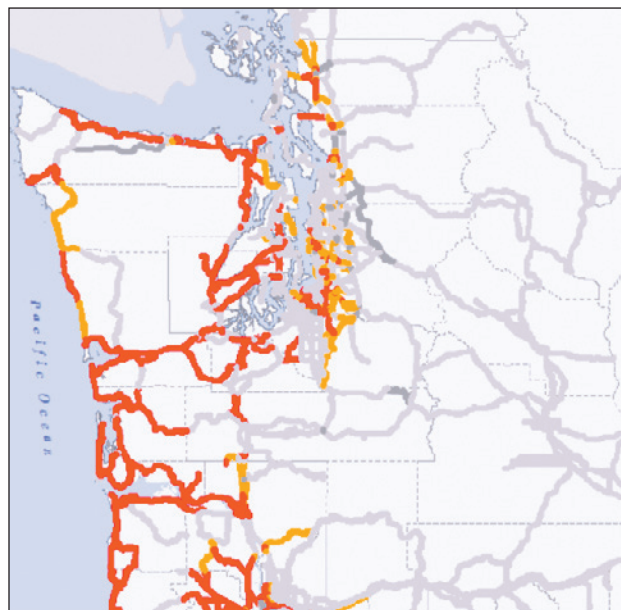


FEMA



HITRAC INFORMATION CONTINUES
ON PAGE 12

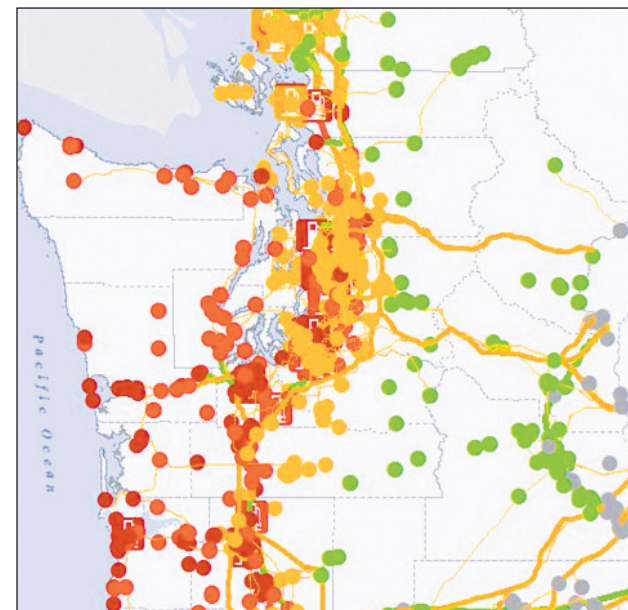
HIGHWAYS



The highway system will suffer the most damage in the vicinity of the coast from both earthquake and tsunami damage.

There are no surviving ground routes in the coastal region.

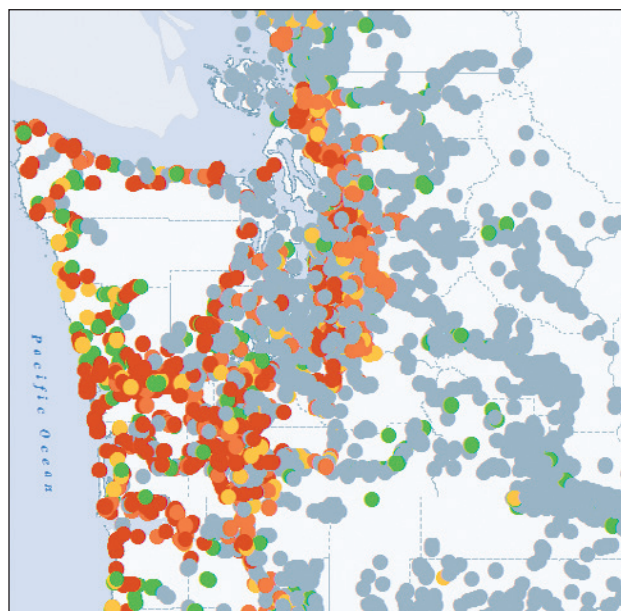
UTILITIES



Electrical, water and sewer systems will be out of service until significant repairs can be made.

Broken sewer lines have been a serious health issue in other earthquake events.

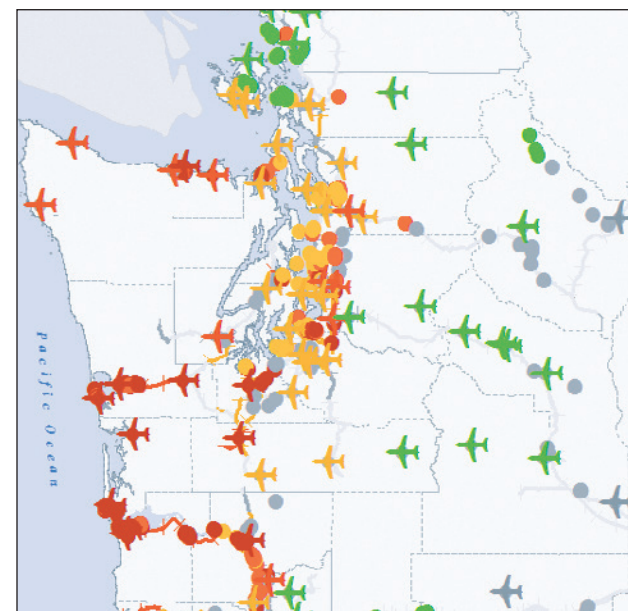
BRIDGES



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

Twenty-three percent of coastal bridges will be out of services for days. Fifty percent of them will be damaged/unusable.

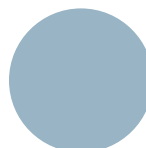
AIR TRANSPORTATION



Most airports along the I-5 corridor will suffer severe to moderate damage.

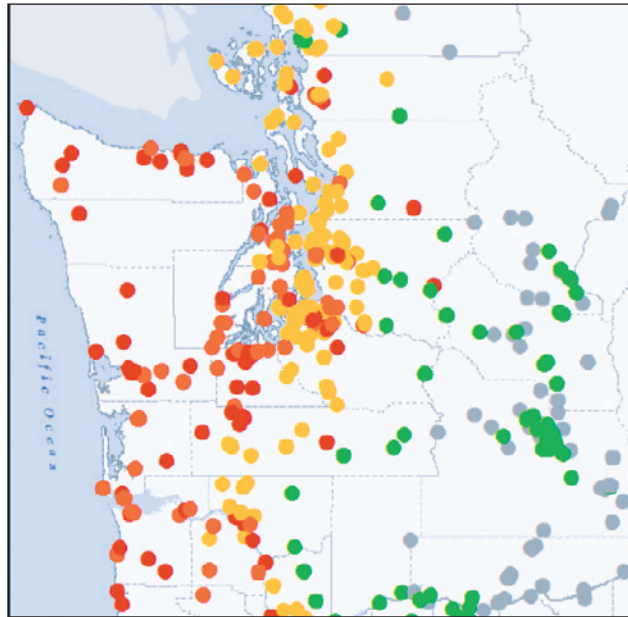
Most airports west of the I-5 corridor will suffer complete and severe damage.

UNKNOWN



COMPLETELY
DESTROYED

COMMUNICATIONS

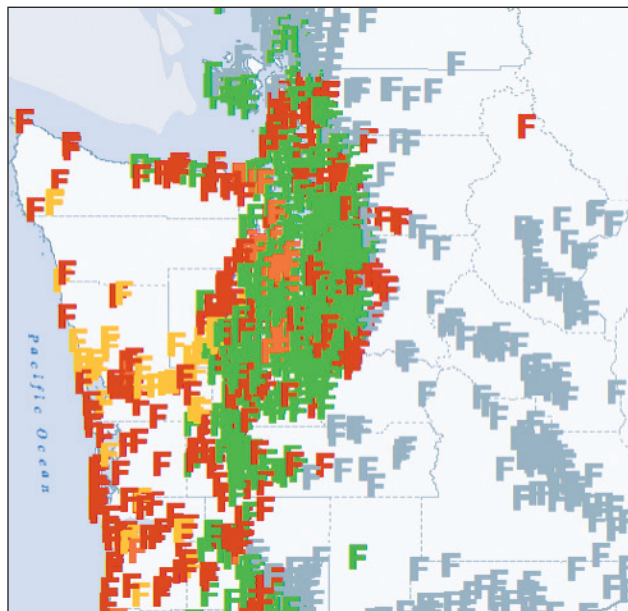


After the CSZ, the entire region will experience phone, cell phone, internet, radio and television outages for extended periods.

It might take days or weeks to restore 33 percent of coastal communications facilities.

Sixty-seven percent might need to be replaced.

FIRE STATIONS



Total reduction is assumed to be 33 percent of fire response capability in Washington.

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

This reduction, plus damage to highways, bridges and communications, renders mutual aid agreements impractical.

Micro-islands in Clallam and Jefferson counties

The 5 minutes of shaking resulting from a magnitude 9+ Cascadia Subduction Zone earthquake will significantly damage the road and bridge structures we depend on in our daily lives.

More than 600 tractor trucks alone traverse U.S. Highway 101 daily to both counties.

Those daily deliveries will stop for a period of months, and perhaps as long as a year.

In fact, on the day of the event, where you are is where you are.

If you are working in Port Townsend and live in Sequim, the only way home is walking home, because you will be unable to drive there.

With bridges and roads damaged, people will find themselves in isolated zones, where they are caught between bridges and roads that have failed or were destroyed by tsu-

nami events.

We call these zones “micro-islands.” Damaged roads and bridges from a CSZ earthquake are expected to divide Clallam County into at least 20 “micro-islands.”

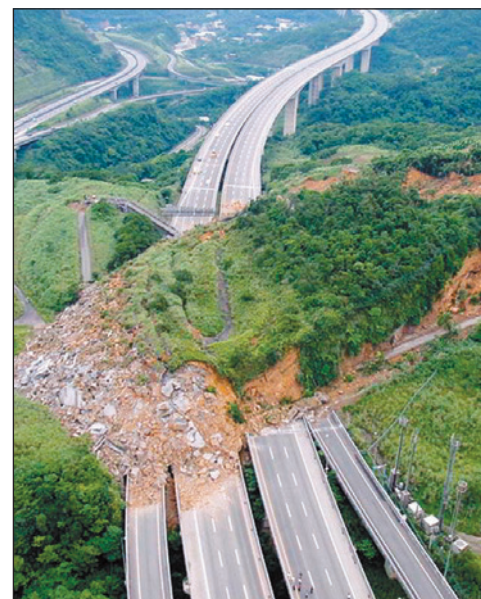
Port Angeles has two such islands separated by Peabody Creek — division N on the west and division O to the east — and eight “sub-micro islands” that would likely be separated by bridge and culvert failures.

Some areas at risk of landslides

- + Morse Creek
- + State Highway 112
- + State Highway 113
- + Lake Crescent
- + Lake Sutherland
- + U.S. Highway 101, east of Gardiner
- + Blyn
- + Black Diamond
- + Tumwater Truck Route
- + Hill Street
- + South Valley Street
- + Lee Creek
- + Peabody Creek
- + Ennis Creek
- + Elwha River Valley
- + Hoko-Ozette Road



Washington Department of Transportation



Above: In 2009, state Highway 112 sank up to 8 feet in some places after a landslide west of Joyce.

Left: A landslide covers a national highway in Taiwan.

Below: In 2015, state Highway 4 was washed out between Highway 101 and Highway 401 in Hoquiam after a landslide.



Washington Department of Transportation

What micro-islands will look like in Clallam and Jefferson counties

The concept of micro-islands is a new approach to recognizing that planning for the disaster needs to be done at a local level due to the inability to move from place to place.

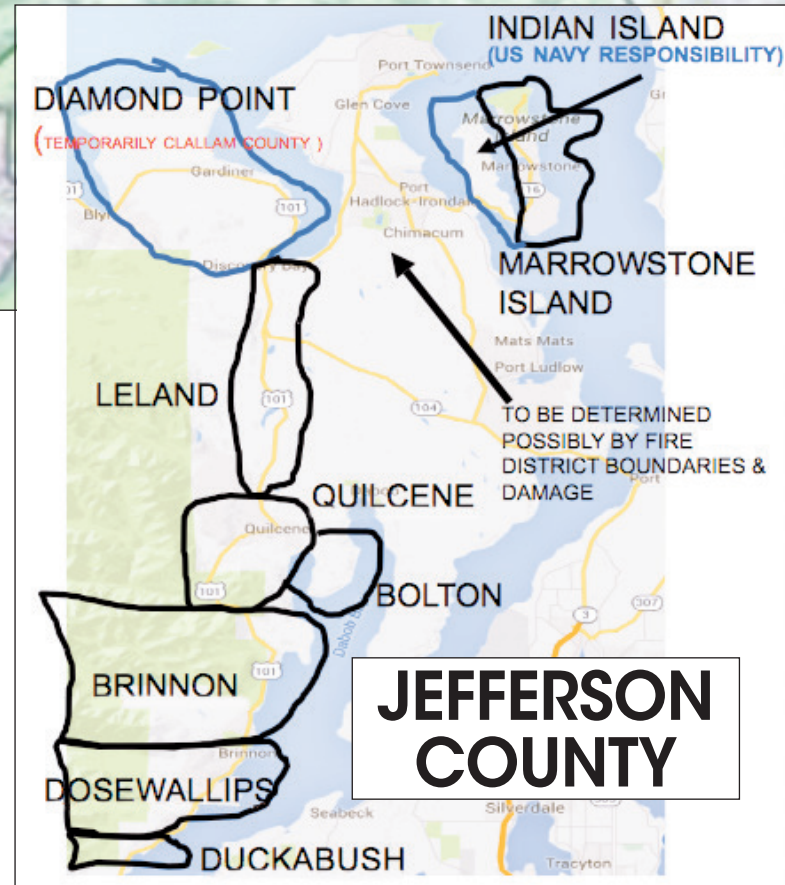
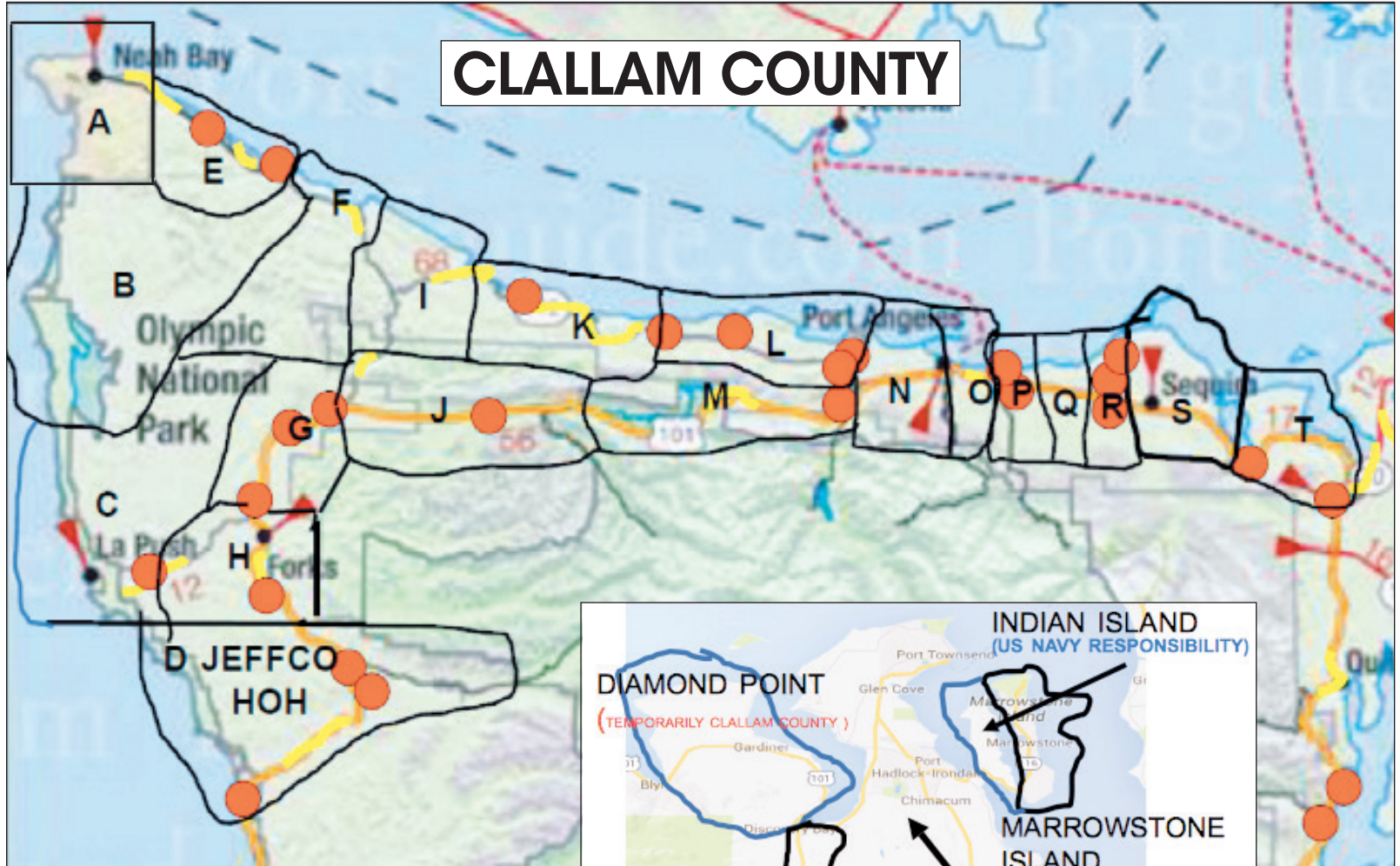
Clallam County is expected to have 20 micro-islands with even smaller zones inside the city of Port Angeles.

Rather than attempting to manage these islands from one location, Clallam County has adopted a strategy of five area commands to more effectively manage resources and disaster needs.

These five area commands are Clallam Bay #1 (A, B, E, F, I), Forks #2 (C, D, G, H, J), Joyce #3 (K, L, M), Port Angeles #4 (N, O) and Sequim #5 (P, Q, R, S, T).

These area commands are responsible for the residents in those micro-islands assigned to them.

Jefferson County also is adopting the micro-island approach in its planning, but it has not been fully finalized as of yet.



Damaged roads and bridges will divide Clallam County into at least 20 micro-islands

Similar to Clallam, Jefferson County also will be divided into micro-islands due to terrain and road loss

Tsunami and liquefaction zones

Port Angeles, Sequim and Port Townsend will all be affected by tsunami waves.

These areas will have approximately one hour after the earthquake to evacuate.

Port Angeles and Sequim will also be affected by the liquefaction.

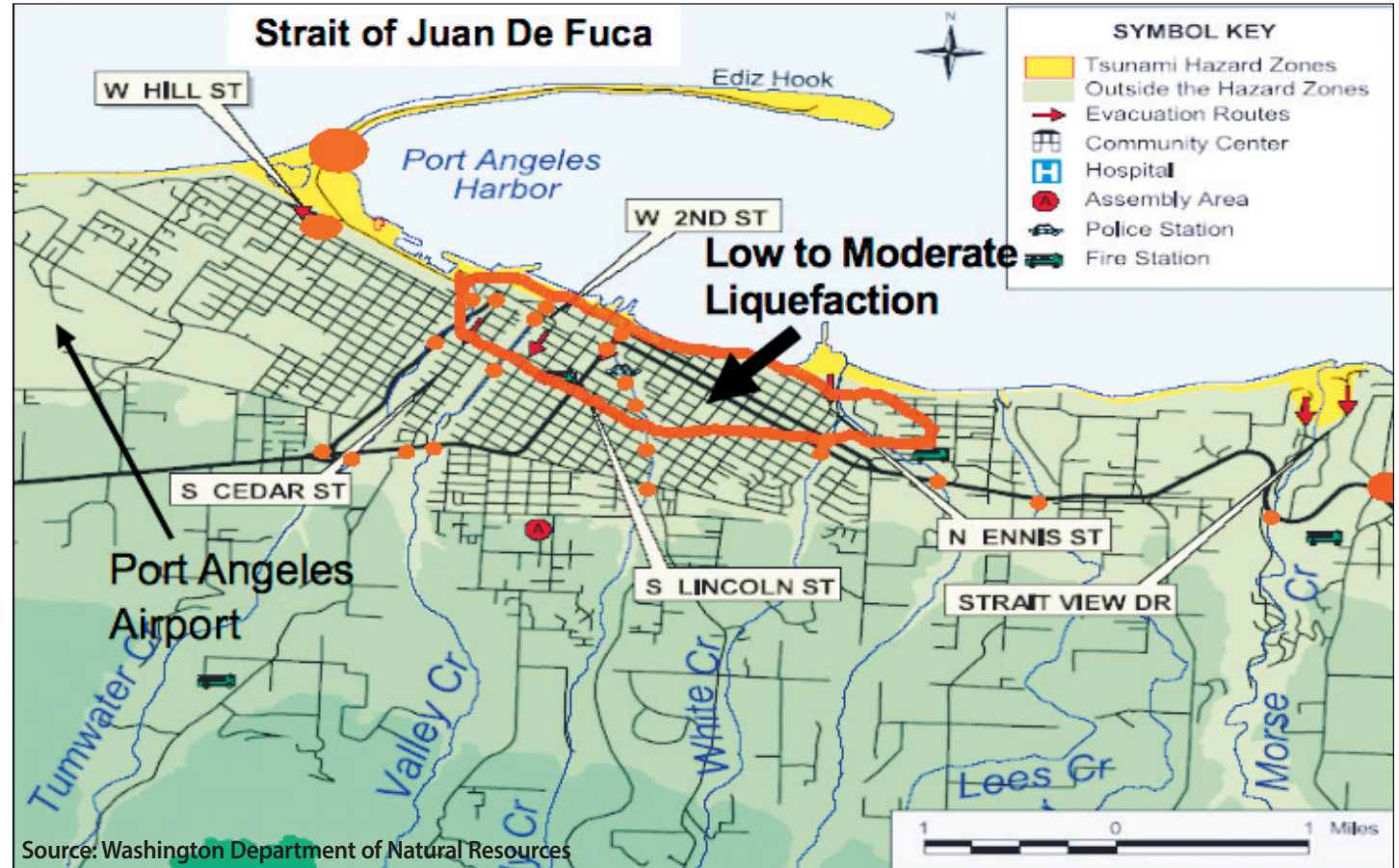
This is due to the fact that much of Port Angeles was canyons that were filled in by sluicing dirt.

In the case of Sequim, it is part of an alluvial plain for the rivers and creeks.

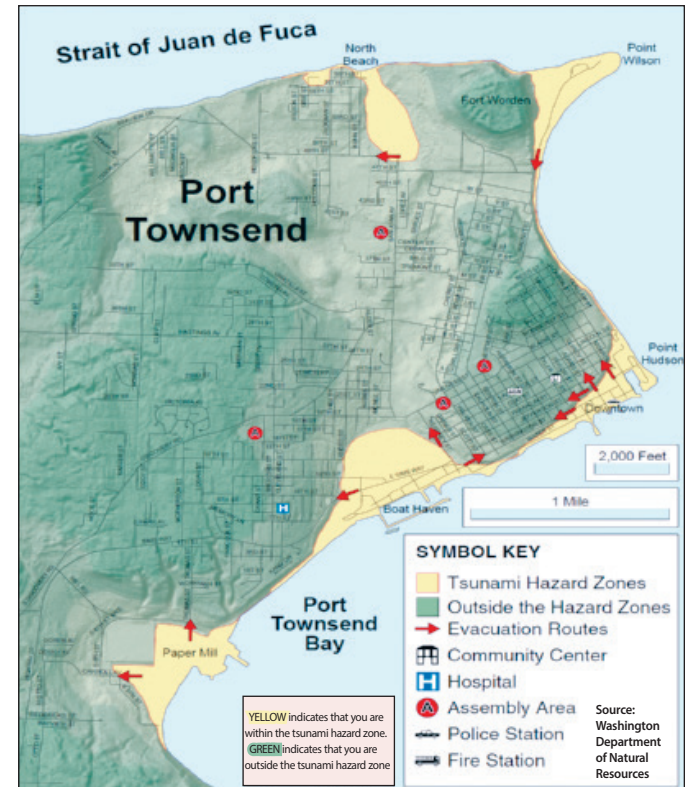
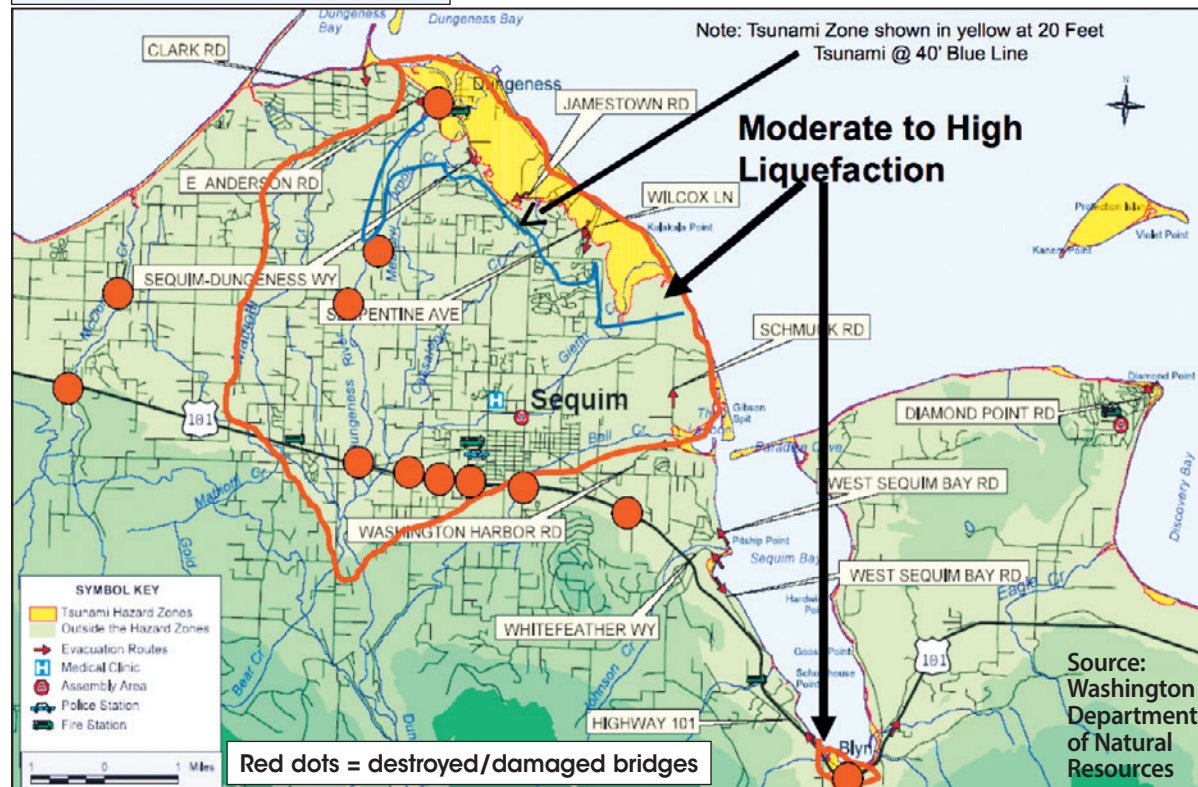
An alluvial plain is a largely flat landform created by the deposition of sediment over a long period of time by one or more rivers coming from highland regions, from which alluvial soil forms.

Port Townsend has liquefaction only in the low-lying tsunami area.

The red dots shown on these maps of the Port Angeles and Sequim areas are the bridges expected to be lost in the quake.



Damage Summary: East Clallam



More on tsunami and liquefaction zones

Port Angeles tsunami evacuation routes

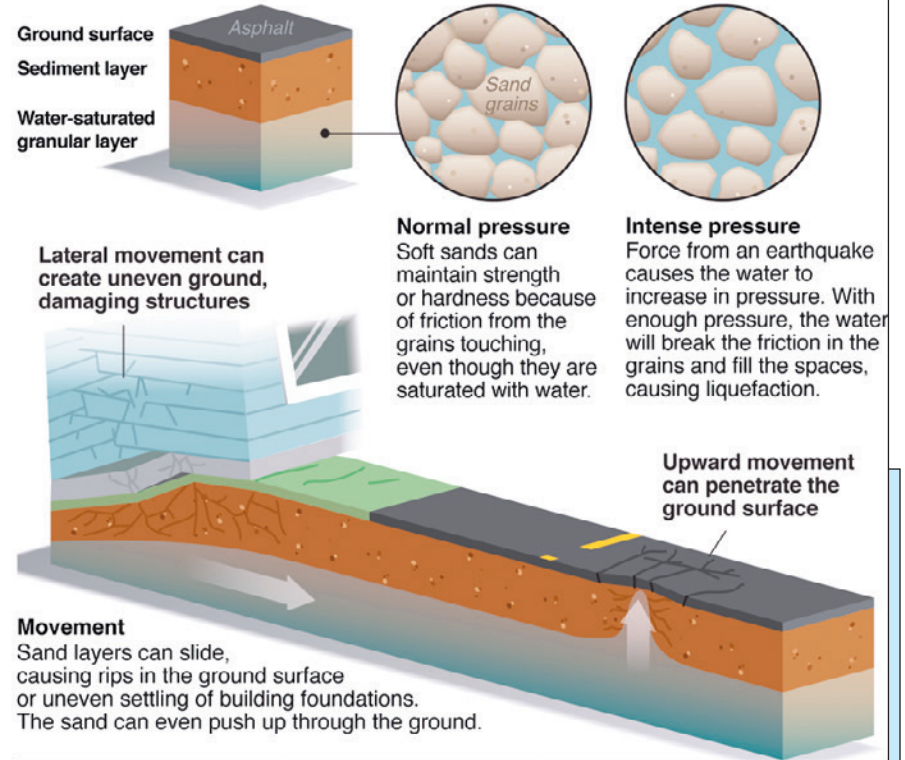
- 1 West Fourth Street: vertical evac; foot traffic only
- 2 Fifth Street: no evac; bridge destroyed
- 3 Tumwater Truck Route: possible vehicle evac to Eighth Street bridge; foot traffic
- 4 Cedar Street: vertical evac, foot traffic only
- 5 South Valley Street: possible vehicle evac to Eighth Street bridge; foot traffic
- 6 West Second Street/Cherry Street: vertical evac; possible vehicle evac; foot traffic
- 7 and 8 Oak Street and Laurel Street: no evac south; stairs destroyed
- 9 Lincoln Street: no evac south; road destroyed from harbor to Eighth Street
- 10 First Street: vertical evac east; foot traffic only
- 11 Front Street: vertical evac east; foot traffic only
- 12 Francis Street Park: vertical evac south; foot traffic only
- 13 North Ennis Street: vertical evac south; foot traffic only

Tsunami evacuation will be the most difficult in Port Angeles due to earthquake debris and hillsides that fail, which limit normal exits from the harbor.

Downtown Port Townsend on Water Street will have similar challenges. In all tsunami zone areas, residents and workers will have to walk out of the areas within an hour of the quake.

Soil liquefaction

Liquefaction is a phenomenon in which water-saturated sandy layers of earth act like liquids due to the pressure created by earthquakes.



Source: California Watch research

BRIAN CRAGIN / CALIFORNIA WATCH



When is help coming?

Working with the state National Guard, Washington formulated a plan to address a Cascadia subduction event and exercised that plan in June 2016.

The plan calls for an air-bridge (delivering of supplies by airplane) to resupply and bring personnel in to assist.

Naval assets will be able to help in about 30 days.

National Guard units will be under the control of local government and will work in partnership with agencies to restore the community.

Key to this effort at the state and federal levels is the expectation that local government and citizens can open their airports and take charge in distributing supplies at drop points through a basic lifeline corridor of roads suitable to emergency vehicles.

There is no expectation

that private vehicles will be on the roads, due to fuel shortages.

This process also will move injured people to more stable medical care facilities when possible.

Given the loss of roads and bridges, an air-bridge is the fastest way to bring help.

It is the local government's job, along with our emergency services, to have the airfields ready to receive aircraft and have road corridors organized between islands to distribute the supplies.

Washington National Guard has assigned a brigade to Clallam and Jefferson counties with dedicated units to assist us.

Citizen soldiers also will be deployed from all over the country.

These forces will be self-contained and bring their own food, water and shelter with them.

Special Operations Brigade Pacific: Ranger, Airborne, Special Forces*

NEAH BAY

- 10K gallon fuel farm, based on need, established via above ground fuel bladders, fueled by rotary wing or over-the-ground when available.
- Level I augmented aid station with civilian doctors and nurses.

QUILLAYUTE

- 20K gallon fuel farm (minimum) established via above-ground fuel bladders (1x 20K bladders minimum), fueled from fixed wing.
- Tactical Air Control Party
- Pararescue jumpers

FORKS

- 10K gallon fuel farm, based on need, established via above ground fuel bladders, fueled by rotary wing

or over-the-ground when available.

PORT ANGELES

- Level II aid station: co-located with Tier 2 & 3 bases (Area Support Medical Company).
- Water purification and distribution center.
- 20K gallon fuel farm (minimum) established via above-ground fuel bladders (1x 20K bladders minimum), fueled from fixed wing.
- Tactical Air Control Party.
- Pararescue jumpers.
- Joint incident site communications capability.

SEQUIM

- 10K gallon fuel farm, based on

need, established via above ground fuel bladders, fueled by rotary wing or over-the-ground when available.

PORT TOWNSEND

- 10K gallon fuel farm, based on need, established via above-ground fuel bladders, fueled by rotary wing or over-the-ground when available.
- Joint incident site, communications capability (Port Hadlock).

NOT YET PLACED

- Military security assets.
- Engineer unit.
- Transportation/distribution unit.
- Civil affairs.
- Urban Search & Rescue Teams
- Military Task Force headquarters
- Joint incident site communications capability.

The Tiered Air Base Concept

Supplies will flow through a Tier Airbase Distribution System

+ TIER 1 AIRBASE

747/C-5A capable with ground support and logistics facilities (SEATAC)

+ TIER 2 AIRBASE

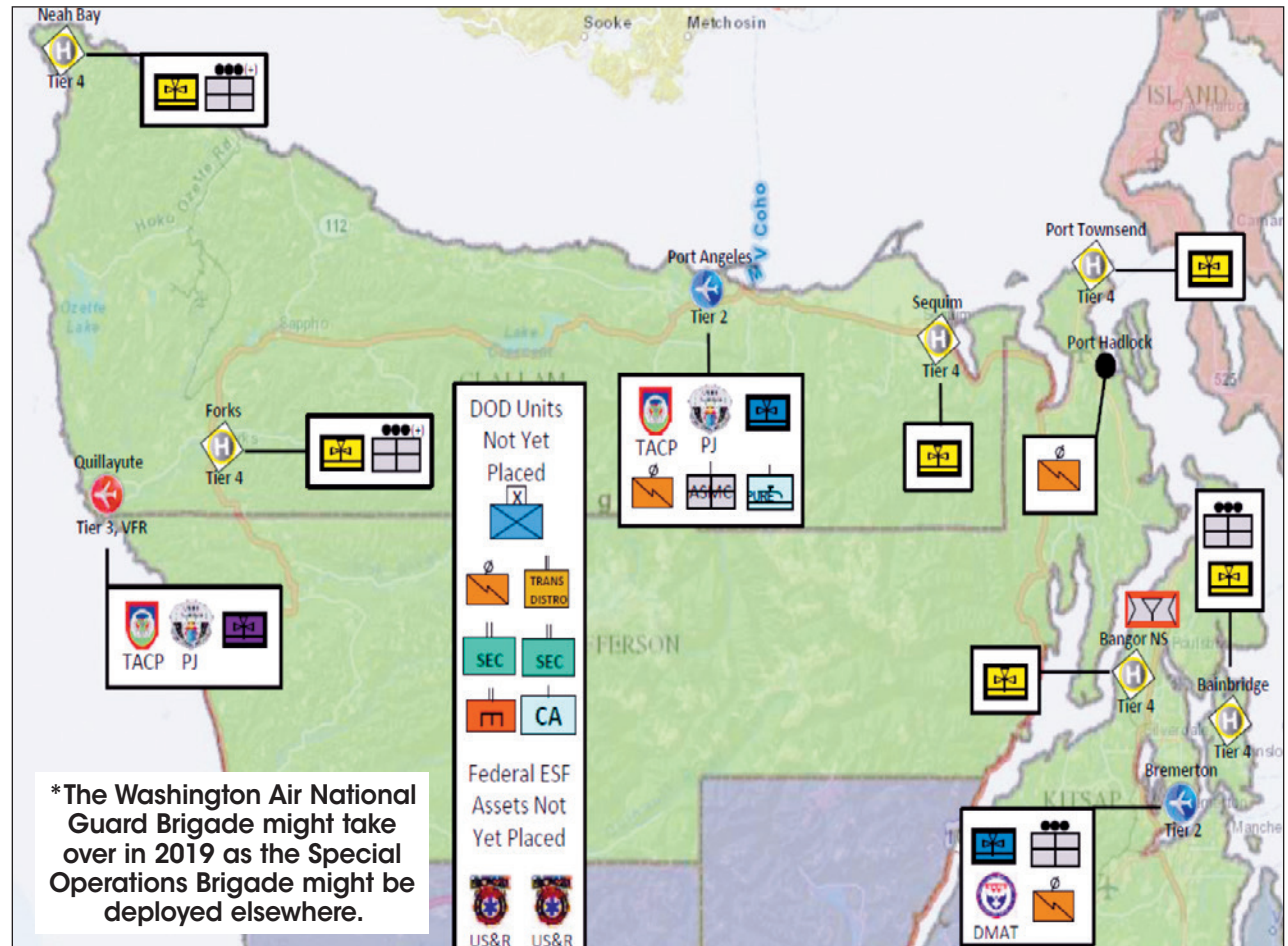
C17/C130 capable with ground support and logistics facilities (Fairchild and Quillayute NAS)

+ TIER 3 AIRBASE

Small plane and helicopter capable (Sekiu, Sequim, Forks, Port Townsend and Diamond Point)

+ TIER 4 AIRBASE

Helicopter capable (a helicopter landing zone)



Clallam County Area Command 4 Port Angeles



Detailed Ground Truth

The key for Port Angeles citizens' survival is the airport, which can land large cargo planes, as road re-supply is virtually impossible for at least 90-180 days. Naval resupply is likely to come sooner than ground transport.

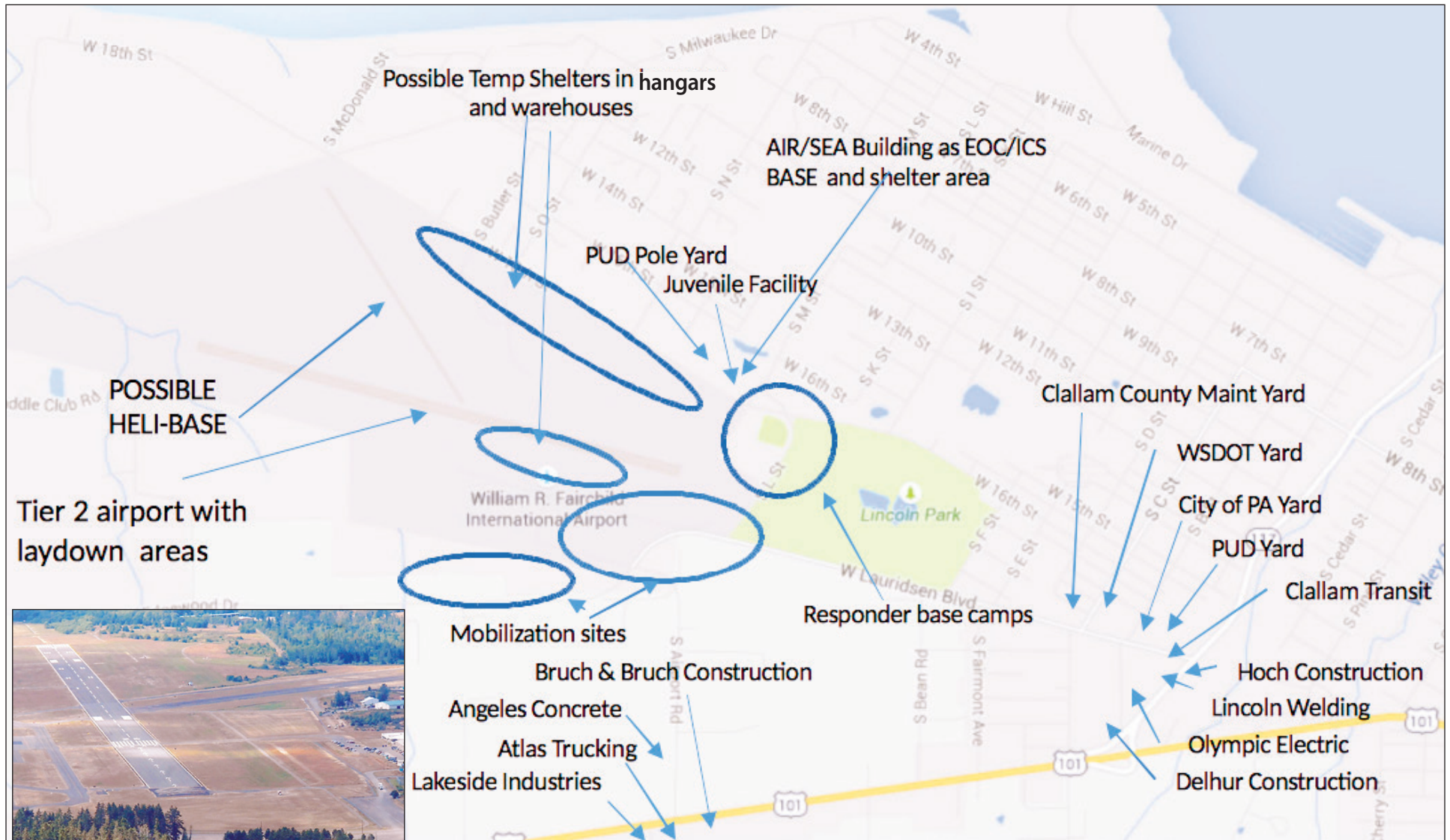


Photo by Keith Thorpe, Peninsula Daily News

William F. Fairchild Airport as Emergency Operations Base makes good sense based on the number of assets around the airport and the soil quality in the area.

Local government ideal response plan & timing

Shown here is Oregon's Office of Emergency Management expected response to an event and its timing, which is consistent with what most emergency experts would want to achieve.

Ideally, this chart serves as a road map for what our local officials should be striving for in their response.

Local governments and agencies in Clallam and Jefferson counties are at various level of preparations in meeting this timeline, although none are fully there yet.



Initial response in the event of ...

<ul style="list-style-type: none"> Initial notification Emergency declarations Activate emergency response systems 	<ul style="list-style-type: none"> Life safety missions Search and rescue Medical care Scene stabilization Emergency communications 	<ul style="list-style-type: none"> Establish contact with affected areas Establish lifeline routes Assess impacts, damage 	<ul style="list-style-type: none"> Establish shelters Transport displaced people Vulnerable populations Medical care at shelters Mass feeding Animal care 	<ul style="list-style-type: none"> Initiate resource requests Establish state staging areas Locate, receive supplies Points of distribution 	<ul style="list-style-type: none"> Identify critical service outages Prioritize emergency repairs Contingency plans Emergency contracting DMORT* operations 	<ul style="list-style-type: none"> Mobilize heavy equipment, personnel Clear debris Repair essential systems JIC** operations 	<ul style="list-style-type: none"> Receive federal resources Expedite out-of-area utility repair crews Volunteers, donated goods Track federal assets, activation levels 	<ul style="list-style-type: none"> Community planning needs Identify recovery priorities Begin restoring community services Identify human services needs Start restoring critical systems
PLAY 1	PLAY 2	PLAY 3	PLAY 4	PLAY 5	PLAY 6	PLAY 7	PLAY 8	PLAY 9
Notification, activation, authorities	Life safety	Damage assessment	Mass care, sheltering	Logistics, resource management	Planning, prioritization	Emergency repairs	Outside assistance	Begin recovery
0-30 min	0-72 hrs	6 hrs-30+ days	12 hrs-30+ days	12 hrs-30+ days	18 hrs-30+ days	20 hrs-7 days	1-30+ days	8-180+ days

*Disaster Mortuary Operational Response Team **Joint Information Center

Get Vital Information Fast!



Sign up for emergency alerts pertaining to the Jefferson County and surrounding area via text messages on your mobile phone or email. The service is free and can be canceled at any time. (Normal text message fees may apply.)

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Jefferson County
Dept. of Emergency
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Personal preparedness

WHAT TO DO DURING AN EARTHQUAKE



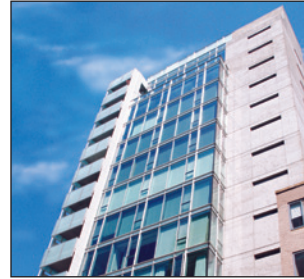
INDOORS

- ✦ Get under a table and hold on or move to an inside wall.
- ✦ Move away from windows, bookcases, heavy mirrors and other objects that might fall.



KITCHEN

- ✦ Move away from the refrigerator and overhead cupboards.
- ✦ Open cabinets with caution.
- ✦ Watch for falling objects.



HIGH-RISE BUILDING

- ✦ Get under a desk or crouch near an inside wall.
- ✦ Stay away from windows and outside walls.
- ✦ Stay inside.
- ✦ Do not use the elevators.



OUTDOORS

- ✦ Move away from trees, signs and downed electrical wires or poles.
- ✦ Near buildings, duck into the doorway to protect yourself from falling bricks, glass and other debris.



STORES

- ✦ Do not rush to an exit.
- ✦ Move away from display shelves.
- ✦ Stay away from windows.
- ✦ Protect your head with your arms.



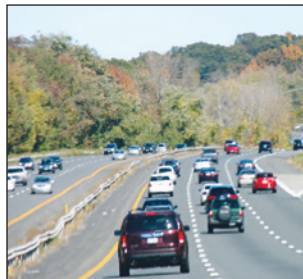
WHEELCHAIR

- ✦ Stay in your wheelchair.
- ✦ Move to safe cover, if possible.
- ✦ Lock the wheels.
- ✦ Protect your head with your arms.



STADIUM OR THEATER

- ✦ Stay in your seat or get under your seat.
- ✦ Protect your head with your arms.
- ✦ Do not leave until the shaking is over.
- ✦ Leave in an orderly manner.



DRIVING

- ✦ Drive to the side of the road with caution.
- ✦ Avoid bridges, overpasses, power lines and other roadway hazards.
- ✦ Stay inside your vehicle until the shaking stops.



REMEMBER: Drop down onto your hands and knees so the earthquake doesn't knock you down. Drop to the ground and cover your head with your arms.

Why do you need to prepare?

- ✦ Local Resources will be overwhelmed.
 - Eastern Clallam County has more than 36,000 in its population.
 - Fire District 3 has eight career firefighters and a duty chief on any given day.
 - Three Olympic ambulances.
 - Eight law enforcement officers (city of Sequim, sheriff, state patrol).
 - Other areas have even fewer resources.
- ✦ Little outside help will arrive prior to one week. Most help becomes present after the event, between 21 and 30 days. Poor weather to fly would delay this further.
- ✦ Mutual aid from other areas cannot reach us by road, nor can we move internal resources easily around in the counties.
- ✦ Medical care will be "limited." There will be mostly first aid care over the first week.
- ✦ Stores will close and have only "just-in-time" inventories on hand (one to three days).
- ✦ Infrastructure will be broken (water, wells, sewer, septic, roads and bridges).
- ✦ Electric, propane and fuel will be gone or very limited.
- ✦ Communications will be down (cell, TV, radio and 911).
- ✦ What you have with you or at home is "what you have."
- ✦ There will be limited materials to repair damage for 30 days or more.
- ✦ Resupply will be at least 30 days out after the quake for basic commodities.

"Disaster Preparedness for Seniors" Are you prepared?

Get a Kit:

For your safety and comfort, have a disaster supplies kit packed and ready in one place before a disaster hits.

- You may want to consider storing supplies in a wheeled container.
- Be sure your bag has an ID tag.
- Label any equipment, such as wheelchairs, canes or walkers, that you would need with your name, address and phone numbers.



Make a Plan:

Planning ahead reduces anxiety. Be sure to include any caregivers in your meeting and planning efforts.

- Meet With Your family and friends to explain your concerns to your family and others in your support network and work with them as a team to prepare.
- Choose an out-of-town contact person. After a disaster, it is often easier to make a long-distance call than a local call from a disaster area.
- Arrange for someone to check on you at the time of a disaster.
- Carry family contact information in your wallet.

Make a Medical Plan:

If you take medication or receive regular medical treatments-such as dialysis, chemotherapy or even physical therapy - talk to your medical provider about a back up plan.

- Keep an up-to-date file of all of your medical history including doctors, prescriptions and dosages, as well as regular medical treatments.
- Include a copy in your disaster kit and make sure that a family member or good friend has a copy.



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Sheltering: Camping in your house

Assess your shelter



You need to assess your house to see if it is safe to stay in.

There will be aftershocks that could cause further damage and unsafe conditions.

If the house looks like the one on the left, you'd better find another place.

At best, you might be able to salvage materials from this house to construct an emergency shelter and recover essential survival supplies.

You might still be able to shelter on the property in a camper or outbuilding.

If your house looks like the one on the right (minor damage to home), you might consider cleaning up the rooms, putting plastic on the windows, fixing the chimney and shoring up the structure so you can stay in it until help from the rest of the country arrives.

Items handy for repair

Handy items to have in your emergency stash include plumber's tape. This stuff is very effective for making temporary repairs to walls and ceilings.

Tarps and plastic are great for fixing roofs, patching windows and building emergency structures.

Timberlock screws are magic for joining broken structural members or building strong frames. You will need a charged electric screwdriver to use these or a good socket wrench.

Plastic snap ties with duct tape are legendary in emergencies for everything from fixing airplane wings to making bandages.

Predrilled metal channels make excellent structural clips when used with nails or sheetrock screws.

No. 9 tie wire allows you to tie almost anything together quickly.

High-strength fishing line, bailing twine and string are all cheap alternatives to high-priced rope.



Repair your shelter

You will need to make sure your house is safe from aftershocks and other hazards before you can move back in.

Unsafe conditions include partially collapsed masonry chimneys, facades and walls.

Also look for items that can fall on you, such as cabinets, pictures, ceiling panels, lighting fixtures and game heads.

Repairs can be done in stages. Pick one room that will provide safe shelter from wind, rain and inclement weather. Remove the hazards. Perform any needed shoring and carpentry activities.

If necessary, place tarps over the roof to stop leaks, and cover the windows with transparent plastic.

Once you have a secure place, you can branch to other parts of the home to improve your position.

There will be little else to do during the first few days after the quake.

Repairs will have to be examined after each aftershock to make sure weakened and damaged walls, ceilings and roofs are still safe.

Human waste disposal

You need to think about what you are going to do with your waste after the earthquake.

Remember: Christchurch, New Zealand, and Haiti experienced extreme sanitation problems after their earthquakes. They led to life-threatening disease outbreaks.

We need to limit the amount of sewage flowing through our communities as much as possible.

There is no getting around the fact that each of us passes about half a gallon of urine and 1 pound of feces a day.

We are so used to flushing a toilet that we don't think about waste disposal. Our waste disposal system depends on flush water. No flush water means no working sewer system.

Broken sewer pipes complicate your problem. If you have a septic system, you can collect your waste, open the top of the septic tank and pour the waste into the tank.

If you don't have a septic system, there is a different way to deal with the waste.

This involves dry composting.

Urine and feces are collected in separate buckets. This limits unpleasant odors.

The feces is placed in a heavy-duty trash bag and mixed with an equal part of sawdust, peat moss or wood chips.

Store the bag in a sheltered place until it can be collected.

Urine can be disposed of in a designated place in your garden or neighborhood.

Handling 30 days on your own

Disaster prep supplies

There are six categories of items you should have in your home:

- ✦ Food
- ✦ Water
- ✦ First aid supplies
- ✦ Clothing and bedding
- ✦ Tools and emergency supplies
- ✦ Special items

Keep the items you would most likely need during an evacuation in an easy-to-find or easy-to-carry container, such as a large covered trash container, a backpack or a duffle bag.

Food for 30 days

Store a 30-day supply of nonperishable foods that require no refrigeration and little or no water, preparation or cooking. If you must heat food, pack a few cans of Sterno (a fuel made from denatured and jellied alcohol. It is designed to be burned directly from its can.)

Select food items that are compact and lightweight.

Include a selection of the following:

- ✦ Ready-to-eat canned meats, fruits and veggies
- ✦ Canned juices, milk and soup (if powdered, store extra water)
- ✦ Salt, sugar and pepper
- ✦ High-energy foods: peanut butter, jelly, crackers, granola bars and trail mix
- ✦ Vitamins
- ✦ Food for infants, elderly people or those with special diets
- ✦ Comfort/stress foods: cookies, hard candy, sweetened cereals, lollipops, instant coffee and tea bags



Clothing and bedding for 30 days

Include at least one complete change of clothing and footwear per person.

- ✦ Sturdy shoes or work boots
- ✦ Rain gear
- ✦ Blankets or sleeping bags
- ✦ Hats and gloves
- ✦ Thermal underwear
- ✦ Sunglasses

Special items for 30 days

Remember family members with special requirements, such as infants and elderly or disabled people.



FOR BABY

- ✦ Formula
- ✦ Diapers
- ✦ Bottles
- ✦ Powdered milk
- ✦ Medications

FOR ADULTS

- ✦ Heart and high blood pressure medication
- ✦ Insulin
- ✦ Prescription drugs
- ✦ Denture needs
- ✦ Contact lenses and supplies
- ✦ Extra eyeglasses

ENTERTAINMENT

- ✦ Games and books

IMPORTANT FAMILY DOCS

(keep these records in a waterproof, portable container)

- ✦ Will, insurance policies, contracts, deeds, stocks and bonds
- ✦ Passports, Social Security cards and immunization records
- ✦ Credit card account numbers and companies
- ✦ Inventory of valuable household goods and important telephone numbers
- ✦ Family records (birth, marriage and death certificates)

While this might seem like a lot of meals to buy, it is possible to purchase enough food to feed two people for a week for about \$45. By shopping smart and buying the least expensive options (regardless of ingredients), you can prepare enough meals to get you through a disaster.

30 days on your own (continued)

Water or filter for 30 days

Store water in glass or heavy plastic containers or filter. Avoid using containers that will break or decompose, such as milk cartons.

A normal, active person needs 1.1 gallons of water each day for drinking and food items.

First aid supplies for 30 days

Assemble a first aid kit for your home and one for each car.

A first aid kit should include:

- ✦ Sterile adhesive bandages in assorted sizes
- ✦ Assorted sizes of safety pins
- ✦ Cleansing agent/soap
- ✦ Latex gloves (2 pairs)
- ✦ Sunscreen
- ✦ 2-inch sterile gauze pads (x4-6)
- ✦ 4-inch sterile gauze pads (x4-6)
- ✦ Triangular bandages (3)
- ✦ Nonprescription drugs
 - Aspirin
 - Anti-diarrhea medication
 - Antacid
 - Syrup of ipecac (to induce vomiting if advised by the Poison Control Center)
 - Laxative
 - Activated charcoal (use if advised by the Poison Control Center)
- ✦ 2-inch sterile roller bandages (3 rolls)
- ✦ 3-inch sterile roller bandages (3 rolls)
- ✦ Scissors
- ✦ Tweezers
- ✦ Needles
- ✦ Moistened towelettes
- ✦ Antiseptic
- ✦ Thermometer
- ✦ Tongue blades (2)
- ✦ Tube of petroleum jelly or other lubricant

Tools and supplies for 30 days

- ✦ Mess kits, or paper cups, plates and plastic utensils
- ✦ Emergency preparedness manual
- ✦ Battery-operated radio and extra batteries
- ✦ Flashlight and extra batteries
- ✦ Cash or traveler's checks, change
- ✦ Nonelectric can opener, utility knife
- ✦ Fire extinguisher, small canister ABC type
- ✦ Plastic or tarps to cover windows
- ✦ Tent (to set up in your house)
- ✦ Hammer
- ✦ Crowbar
- ✦ Pliers
- ✦ Duct tape
- ✦ Compass
- ✦ Matches in a waterproof container
- ✦ Aluminum foil
- ✦ Plastic storage containers
- ✦ Signal flare
- ✦ Paper, pencils
- ✦ Needles, thread
- ✦ Medicine dropper
- ✦ Shut-off wrench (to turn off household gas and water)
- ✦ Whistle
- ✦ Pry bar
- ✦ Plastic sheeting
- ✦ Map of the area
- ✦ Sanitation supplies
 - Toilet paper, towelettes
 - Soap, liquid detergent
 - Personal hygiene items (pads, tampons)
 - Plastic garbage bags, ties
 - Plastic bucket with a tight lid
 - Disinfectant
 - Household chlorine bleach

***A good rule of thumb is to purchase an item or two for your emergency kit each time you go to the store**

Volunteering saves lives

In the event of a Cascadia quake, more than 35,000 households will need to be searched in Clallam County alone, plus all commercial buildings and public buildings (schools, for example).

With less than 30 engine companies in all of Clallam County and a seven-day survival time frame, it would be impossible to save the majority of the trapped survivors.

However, if citizens were trained and integrated into the response plan, then

they will be able to assist both injured and trapped individuals in over 80 percent of the households.

If you are interested in starting Map Your Neighborhood or joining a Community Emergency Response Team (CERT) program and live in Joyce or Fire District 3 (between Deer Park Road in Clallam County and Gardiner in Jefferson County), contact Cindy Zechenelly of Clallam County Fire District 3 at czechenelly@ccfd3.org.

TIME UNTIL RESCUE	SURVIVAL RATE
30 MINUTES	99.3%
1 DAY	81.0%
2 DAYS	36.7%
3 DAYS	33.7%
4 DAYS	19.0%
5 DAYS	7.4%



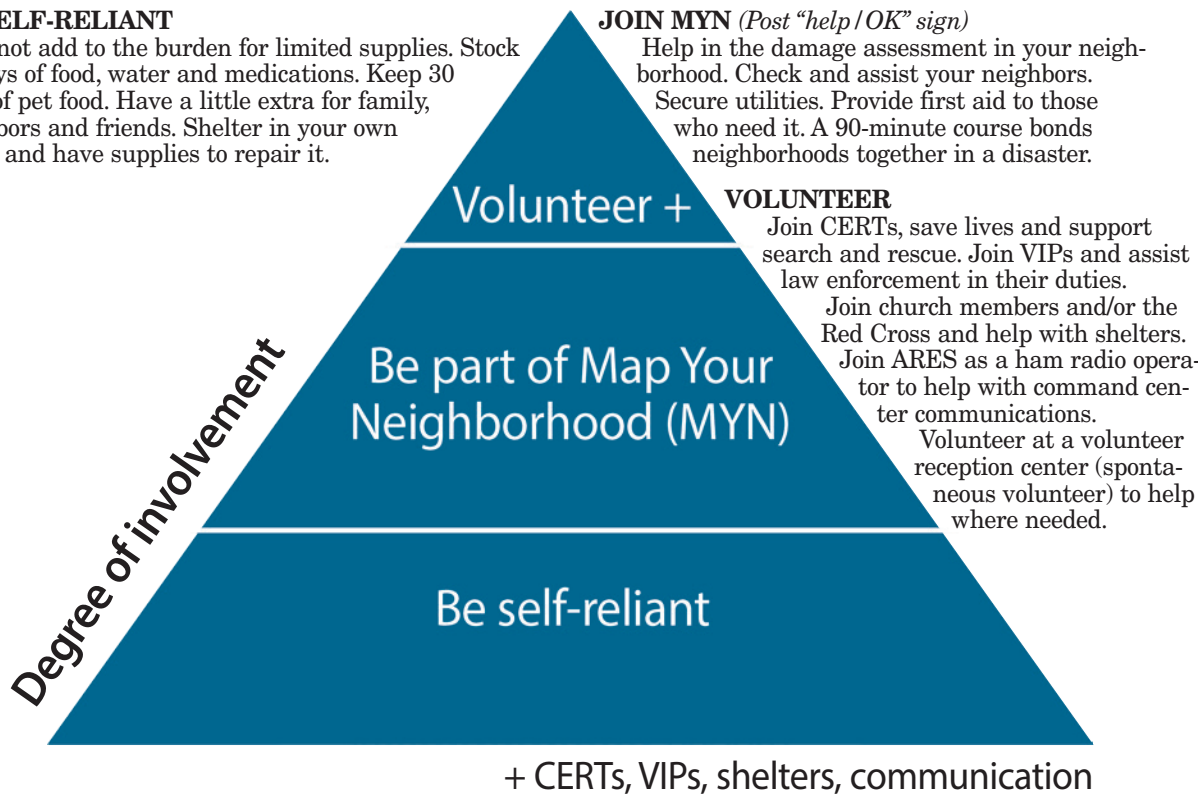
How can citizens help?

BE SELF-RELIANT

Do not add to the burden for limited supplies. Stock 30 days of food, water and medications. Keep 30 days of pet food. Have a little extra for family, neighbors and friends. Shelter in your own house and have supplies to repair it.

JOIN MYN (Post "help/OK" sign)

Help in the damage assessment in your neighborhood. Check and assist your neighbors. Secure utilities. Provide first aid to those who need it. A 90-minute course bonds neighborhoods together in a disaster.



Citizens must help in the life safety aspects of the plan for the community. Remember there is only one emergency responder (local, state and federal) per 180 people in Clallam County and only one-third are on duty.

Jefferson County does not have a CERT program yet. For Jefferson County citizens outside of Clallam County Fire District 3, contact Lynn Sterbenz of Jefferson County Emergency Management at 360-385-9368 or jcdem@co.jefferson.wa.us for additional information.

Those who live within the district can contact Cindy Zechenelly at czechenelly@ccfd3.org for information.



EAST JEFFERSON FIRE RESCUE

For emergency information in East Jefferson County, follow us on Twitter

@EastJeffFirePIO



Map Your Neighborhood (MYN)

In a disaster, the neighbors living around you are your most immediate source of help. Traditional 9-1-1 responders (police, fire, medical and utility) are quickly overwhelmed by demand. Knowing what to do could save a life, reduce the severity of injuries and reduce the amount of damage that you, your family and neighbors sustain.

Goal: To prepare neighborhoods to be self-reliant during the first hours.

- Learn nine steps to take immediately.
- Identify skills and equipment.
- Literally map your neighborhood: who needs extra help, find where utilities are shutoff.
- Pick locations for neighbors to gather.

About CERT

The Federal Emergency Management Agency began promoting nationwide use of the Community Emergency Response Team (CERT) concept in 1994.

Benefits: Emergencies occur in our communities every day, and a large-scale disaster (such as an earthquake) will quickly overwhelm local professional responders. CERT provides

a bridge to these professional responders.

CERT training provides practical skills necessary to: safely assist family and neighbors; become better prepared for disaster; and support professional responders, as directed, once they arrive at the scene.

Mission: safely respond to natural disasters/emergencies and conduct timely, safe and effective search and rescue operations.

Informational contacts

You can clip and save these contact lists where all members of your household can quickly refer to them.

FIRE & RESCUE

For questions regarding insert materials or for group presentations, contact:

CLALLAM COUNTY FIRE DISTRICT 3

323 N. Fifth St., Sequim, WA 98382

Website: www.ccf3.org

Dan Orr, assistant chief: 360-683-4242, ext. 114,

dorr@ccfd3.org

Blaine Zechenelly, disaster planner/EMT

bzechenelly@ccfd3.org

Clallam County Fire District 4 inquiries also can be routed to them.

COMMUNITY EMERGENCY RESPONSE TEAM (CERT)

For eastern Clallam County (east of Deer Park), Joyce, Gardiner and west Discovery Bay in Jefferson County, contact:

Cindy Zechenelly, coordinator: czechenelly@ccfd3.org

JOYCE PREPAREDNESS

For questions from Joyce residents, contact:

JOYCE EMERGENCY PLANNING AND PREPAREDNESS (JEPP)

Websites: www.jeppgroup.org or www.facebook.com/JEPPgroup

Jim Buck: 360-808-2105

buckdj@olypen.com

CLALLAM COUNTY

CLALLAM COUNTY EMERGENCY MANAGEMENT (CCEM)

223 E. Fourth St., Suite 12, Port Angeles, WA 98362

Email: ccem@co.clallam.wa.us

Website: www.clallam.net/EmergencyManagement

Ron Cameron, undersheriff/emergency manager: 360-417-2544,

rcameron@co.clallam.wa.us

Jamye Wisecup, program coordinator: 360-417-2483,

jwisecup@co.clallam.wa.us

COMMUNITY EMERGENCY RESPONSE TEAM (CERT)

For Port Angeles (west of Deer Park) and western Clallam County (except Joyce)

Jamye Wisecup, coordinator: 360-417-2483,

jwisecup@co.clallam.wa.us

MAP YOUR NEIGHBORHOOD (MYN)

Ron Cameron, 360-417-2544

CLALLAM COUNTY ALERT SYSTEM

Get alerts about emergencies and other important community news by signing up on the Clallam County Alert System. Messages will be delivered wherever you specify (home, mobile or business phones; email; texts; and more.) To sign up, visit www.tinyurl.com/PDN-ClallamAlerts.

JEFFERSON COUNTY

JEFFERSON COUNTY, DEPARTMENT OF EMERGENCY MANAGEMENT

81 Elkins Road, Port Hadlock, WA 98339

Lynn Sterbenz, director

Phone: 360-385-9368

Website: www.co.jefferson.wa.us/950/Dept-of-Emergency-Management

Email: jcdem@co.jefferson.wa.us

NIXLE TEXT MESSAGING IN JEFFERSON COUNTY

Residents can sign up for NIXLE to receive Jefferson County Department of Emergency Management's emergency alerts by text and/or by email.

Visit www.co.jefferson.wa.us/950/Dept-of-Emergency-Management and click on the NIXLE link near the top right of the page to sign up.