



## **BRIEFING TO NEIGHBORHOOD ASSOCIATION CHAIRS**

**October 15, 2016**

**By Jan Castle and Rick Eilers**

**Co-chairs of PrepLO**

### **INTRO**

PrepLO grew out of this group. It was started by Rick 3 years ago when he was chair of the Palisades Neighborhood Association, for chairs who were interested in getting their neighborhoods organized, and has attracted individuals from different NAs who have done varying levels of organizing in their neighborhoods. For the last year we have been devoting our meetings primarily to educating ourselves by having individuals make presentations on the various topics like food, water, first aid, electricity and by having city staff members come share their plans for their departments' response and hear questions from us. We communicate regularly with the city's Emergency management Team which consists of:

- Assistant City manager Megan Phelan
- Fire Chief Larry Goff
- Information Officer Bonnie Hirschberger

We've had Megan and Larry come talk to us, as well as Larry's new Assistant Fire Chief, David Morris, to whom he has turned over a lot of his day-to-day emergency preparation activities, police Capt. Dale Jorgensen, and Public Works Director Anthony Hooper.

We also routinely now participate in the city's Emergency Preparation and Public Safety Fairs.

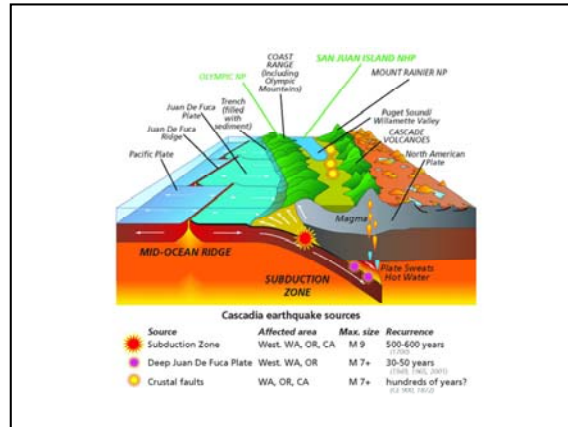
We can leverage the information we've gathered to function as a link between the city and the residents and are now ready to move out into the neighborhoods with a more focused effort to get some organization started in each NA.

## Agenda

- Brief overview of the Cascadia Subduction Zone earthquake
- Description of where Neighborhood Associations are in the response structure
- Report on recent improvements in the readiness of the city's infrastructure
- Check-in with each chair on what kind, if any, organization already exists in your NA and what assistance you might need.

- Brief overview of the earthquake itself
- Description of where NAs are in the chain of command for emergency preparation
- Report on all the recent improvements in the readiness of the city's infrastructure
- Check-in with each chair on what kind, if any, organization already exists in your NA. How to organize your neighborhoods

Goal: for each of you to leave here with some action you can take to move your neighborhood to the next level of emergency preparation.



We are a very fortunate generation of Oregonians and the first generation to recognize the risk associated with living here. The **Cascadia Subduction Zone (CSZ)** is a 600-mile long "megathrust" fault that stretches from Northern Vancouver Island to Cape Mendocino California.

Describe components:

Juan De Fuca plate

North American plate

Subduction

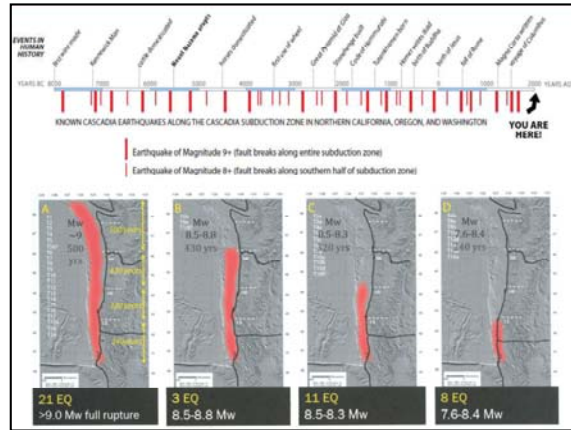
Trench

Missoula floods from the last ice age

Plates are stuck and pressure is building

The plates are moving about the same speed as your fingernails grow or about 1 inch a year. Multiply that by 316 years and you have about 30 feet of stress built up.

Coastal uplift and coast range tipping east



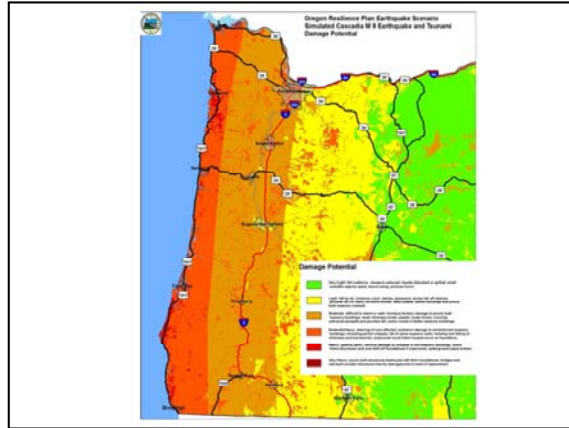
Stress relieved

Earthquakes always start from the south

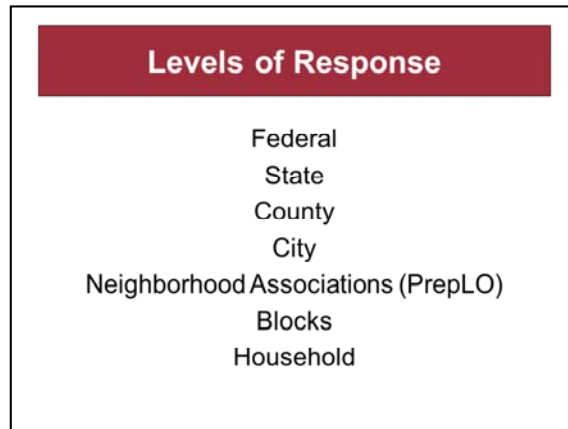
North America jumping 30 feet to the West

Coastline sinks 4-6 feet

Lots of aftershocks



The further you get from the fault, the less damage occurs



**Federal**- Many agencies, including American Red Cross, coordinated by FEMA

**State** – Oregon Resilience Plan completed in 2013 – Goal: for Oregon to be as prepared in 50 years as the Japanese are today, since it took them 50 years to get that way. They were back up to 80-90% of capacity within a few weeks after their 2011 EQ. So the goal of our Resilience plan is to ultimately be able to be up and running within about two weeks.

**County** – Regional working groups formed to develop plans.

**City** – Emergency response is coordinated by Fire Dept., assisted by Police, reporting to City Manager and City Council.

**Neighborhood Associations, coordinated by PrepLO** – facilitate organizing by:

**Blocks** – *Map Your Neighborhood* meetings

**Household** – Individual preparations

## Maintenance Center



We can expect to lose all of our services when this earthquake hits.

THE RESTORATION OF ALL SERVICES DEPENDS ON THE CITY GETTING THE ROADS CLEARED. This is the responsibility of the Public Works Department, which operates out of this dilapidated facility on Jean and Pilkington Roads. Anthony Hooper is the director of the department.

## Public Works & Parks Facility



Construction is now underway on the new Maintenance Center, which will also house Parks and Rec Maintenance, and the name will probably be changed to Public Works and Parks Facility. When this is completed next August (2017), LO will be in an enviable position for emergency response. This facility will be built to the highest seismic standard, called Immediate Occupancy, so it can be in continual use, and outfitted with cots and enough food and water to last the crew at least two weeks. Immediate Occupancy is the standard for critical facilities such as police and fire stations and hospitals. Maintenance centers are now considered to be critical facilities.

They have their own fuel tank which is oversized because it used to be the fueling site for the school bus fleet. We are one of the few cities that even has their own fuel supply, let alone one this large. It's enough to last from 2-5 weeks, depending on the fuel level when an event occurs, and longer if rationed.

The new center will be powered by a 500 KW diesel generator which has its own fuel storage.

They also have their own shop and have welders who can fix and fabricate parts for equipment. These guys were busy 'round the clock during the Christmas storm of 2008, and one guy even cannibalized his own truck for parts to keep a dump truck going. They have a very can-do attitude, partly because they have a shop in which they actually can do the things they need to. Again, few cities have their own shop.

At this point Anthony estimates it would take 3 months to 1 year to fully restore all services. Let's take a look at each of them.



## ROADS AND BRIDGES



The city has a limited number of pieces of heavy equipment which can be used to clear roads, and at this point most of them reside at the Maintenance Center on Jean Road and Pilkington. There is now a backhoe on the east end of the South Shore landslide area. They'll be out clearing as soon as humanly possible. They have 31 employees. 4 of them live in LO, including Anthony. Jim Bateman, who will run field operations lives on the east side and plans to take his boat across the river. Most of the rest of them live in the Canby area.

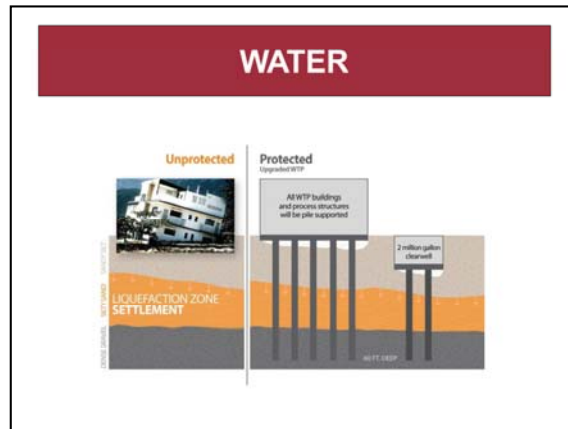


As roads are cleared they expect to accumulate 66 acres of debris. A plan for management of the debris has just now been completed and they have designated four sites around town to deposit it: Luscher Farm, George Rogers Park, East Waluga Park and Westlake Park.

Also new is the completion of a study of the condition of our bridges (we have 9), which tells us what work needs to be done to stabilize them. Police and firefighters are trained to do spot inspections of bridges, and their vehicle computers are loaded with a program that will tell them what to look for in every bridge in the city, county and state. The assessments have to be redone after every aftershock.



Do not plan to be able to drive very far initially. THERE WILL BE NO GASOLINE SHIPMENTS FOR QUITE SOME TIME SINCE IT ALL COMES INTO PORTLAND THROUGH A SINGLE PIPE FROM ANACORTES TO A STORAGE AREA IN THE NORTHWEST INDUSTRIAL AREA ON A BANK OF THE WILLAMETTE THAT CAN BE EXPECTED TO LIQUIFY.



Our new Water Treatment Plant is now on-line and is built to withstand a major earthquake, as are the main lines feeding off of it. We are the only municipality that has that at this point. Others will follow as they rebuild their aging water systems. Here's how they stabilized the plant to survive a 9.0:

- The first 25 feet is good soil
- The next 25 feet is soil that is expected to liquefy.
- The third 25 feet is stable soil.
- They sunk pilings 60 feet down to stabilize the plant.

The reason the plant is on unstable soil is that water plants tend to be close to their source of water, and river banks frequently have unstable soil. The banks of the Willamette consist of layers of sand and gravel deposited over many iterations of the Missoula Floods during the last ice age, which necessitates digging down to an appropriate level of sediment.

Since the treatment plant as well as all the main lines leading off of it are built to with withstand the earthquake, the backbone of our system should survive intact.

The weak spots in this system are the older pipes carrying water from those main lines into our neighborhoods, some of which are sure to break. The type of pipe has changed over the years. Since 1990 they've been using PVC, and most recently started using HDPE which is considered the best seismically. Our older pipes need to be replaced, and a lot of them already have been.

When Joel Komarek was Public Works director 8 years ago, before he took over management of the Lake Oswego-Tigard Water Project, he was very aggressive in water pipe replacement, and had all of our asbestos pipe taken out. They have a guestimate of \$40M in pipe replacements, but Joel will start drafting a Water Master Plan as he wraps up the LOT project, so planning for that project is in the works.

Bottom line for citizens: you need to have a supply of water at your home to last about thirty days. The city has a portable filtration truck that can be moved around to filter water from the lake or river, but it's by no means enough for the whole town. There is the possibility of being able to tap the city's reservoirs, but we only have one reservoir with the appropriate valve and they're very expensive. That will be addressed in the Water Department's 20 year plan which they'll be working on next year (2017).



Very similar situation here: the new LOIS interceptor is built to withstand a 9.0, as are the lines leading off of it, but the rest of the lines are vulnerable, so there will for sure be interruption in sewer services. The Tryon Creek Waste Water Treatment Plant in Foothills is in the process of being upgraded, so when it is, that part will be stable as well. The weak link is all the lines through the city. A Waste Water Master Plan was finished in 2013, which identified \$80M in sewer line replacements. Note that this is twice as much pipe replacement as they expect for water lines and it is important that they match. The city cannot turn your water back on, even if the lines are OK, until your sewer service has been restored, because there is no place for your waste water to go. Service for both will be restored when both sewer and water lines in your area are repaired, so restoration will be section by section.

The majority of that pipe is over 50 years old. Some areas have already been replaced, such as First Addition and Old Town. Neighborhoods built in the 80s have ductile iron pipes which are very good. In areas with corrosive soil, they use HDPE (high density polyethylene) pipes instead, which are more corrosion resistant. Plans are underway to launch this project. It will require the hiring of a major consulting firm, and contractors to do the installation.

The City Council is on board with this approach, which is different than doing it with our own FTEs. They are expected to approve funding for the consultants, and the fee level in the Waste Water Fund is adequate to pay for the work. It will take a couple of decades to replace all the lines, and then there will be continual yearly work on Inflow and Infiltration maintenance. That is ongoing. But the further along we are in replacement, the less time it will take to repair lines that are broken in an earthquake, because some will always be.

Bottom line for citizens, be able to provide for your own waste collection using a 5 gallon bucket, plastic bag and toilet seat. A plan for the collecting and disposal of your waste is being finalized by a regional working group right now.

## ELECTRICITY



The entire western electric grid is expected to go down, potentially everything west of the Mississippi, initially.

PGE will get their crews out and about as soon as they are able to move around. They have said they could restore power within 3 weeks providing they can get around, but no one knows how long it will take to clear the roads. Again, Anthony estimates it could take 3 months to a year to restore city services after the earthquake, maybe less in some places or at a lesser magnitude. PGE employees with bucket trucks live out in communities and take the trucks home with them at night. This increases their response time.



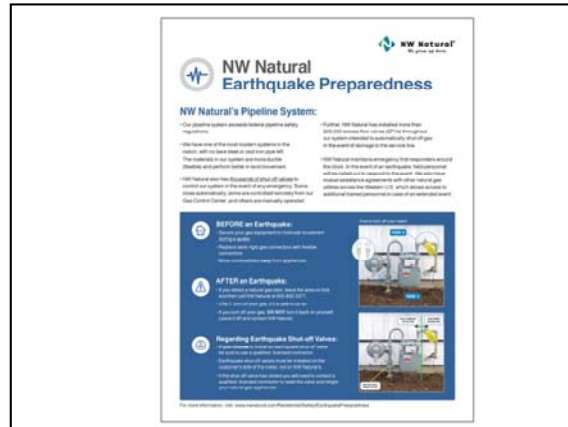
A good strategy for homeowners is to have a portable solar panel that you can use for some amount of electricity.

## NATURAL GAS



NW Natural has now replaced all their distribution lines with flexible HDPE pipe that has a much better chance of surviving this quake than rigid pipe. This vastly reduces the chances of fire. The pipe leading into your home is probably not flexible unless your house is new, so it's really important that you know how to turn your gas off, and that your neighbors know how to turn each other's gas off. That's one of the features of the Map Your Neighborhood exercise, which we'll talk about later. You can also have your pipe replaced with a flexible line.





NW Natural has a telemetry system that is capable of knowing where leaks are happening and shutting off gas to those sections remotely. There will still be gas in the lines, however, so you will need to shut off your own gas if you smell it.

Whether or not to turn your gas OFF is a big question, because **YOU SHOULD NOT TRY TO TURN YOUR GAS BACK ON**. Let the gas company make sure the lines are safe so you don't cause any additional fires or explosions. The Oregon Office of Emergency Management says turn it all off. NW Natural says only turn it off if you smell gas, partly because they know how long it will take them to turn it all back on. This is an individual decision which you should talk over with your neighbors, keeping in mind there will be multiple aftershocks, and one person's fire could spread to other houses.

Northwest Natural has an underground storage facility at Mist, Oregon, 60 miles northwest of Portland, and about 20 miles from Vernonia and St. Helens. These storage wells were drilled starting in 1989. The Mist storage field has a total working capacity of about 16 billion cubic feet.

## COMMUNICATIONS

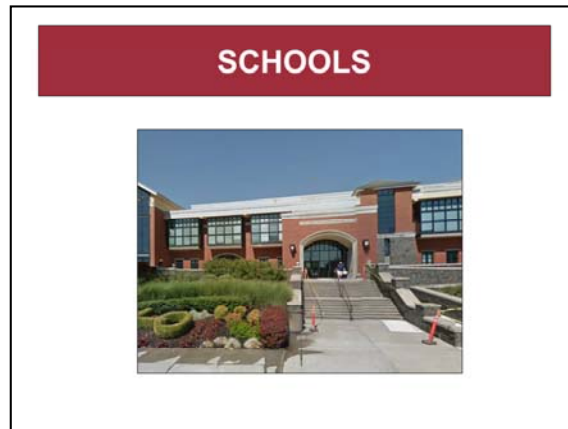


The phone grid will go down, including cell and emergency communications, because the relay towers will be damaged. Currently, emergency communications will be by ham radio. The city has a cadre of ham radio operators ready to make their way to the nearest fire station as soon as they have secured their own homes. They will set up their equipment, in a tent if necessary, and relay messages back and forth to the Emergency Operations Center (EOC) which will be at the main fire station until the new Police/LOCOM building is finished in a couple of years. Once they have emergency procedures established, they will be able to relay personal messages to your contacts.



However, the voters in Clackamas County recently approved a new hardened emergency communications system, which should be up in 2021. It involves new earthquake hardened towers, electronic upgrades, back-up power supplies and is expected to be operational even when cell service is not. The improvements are county wide and are connected to Washington County's systems as well. This would be huge to have emergency communications functioning after an earthquake, so damage can be quickly assessed and resources dispatched. This could free the hams to relay personal messages sooner. Hams will still serve as back-up, as will the 4 satellite phones the city owns (police, fire, Public Works and the EOC have them).

The Lake Oswego Communications system (LOCOM) will be housed in the new police station that is in the planning stages for the property right next to City Hall, and it will be built to Immediate Occupancy, so the guts of our system will be protected. LOCOM and C-COM, Clackamas County's emergency system, serve as backup for each other so we have redundancy built in.



Schools are now being considered as critical facilities because they are located in all quadrants of a city and have large open spaces where helicopters could land. This makes them good spaces to use for emergency shelters or from which to dispense supplies or services.

The LO School Board will send to the voters next May the first of three planned bonds which, over the course of 18 years, will replace 5 of their 10 schools with buildings built to Immediate Occupancy. (The code requires a lesser standard, called Life Safety, which means the building won't collapse, so it can be safely evacuated, but is expected to be badly enough damaged that it can't be reoccupied until repairs are made or the building is replaced.) The remaining 5 schools will be retrofitted to the Life Safety standard, but each will have their gym retrofitted to Immediate Occupancy.

This means that there will be at least a gym in each section of town that could be used as an emergency shelter, or as an emergency center from which to distribute supplies and services. We are only the second school district in the state—Beaverton is the first—to shoot for that much Immediate Occupancy coverage. Emergency use will be short term. But the real value of this is that we can expect to reopen those new schools as soon as critical services are restored, rather than wait months or years to repair or replace them. Even if half our schools have to wait for that, we could conceivably run half days at the open schools.

And if the economics of solar technology continues to improve, those new buildings could conceivably be able to run on solar alone, so there would be a place in each part of town with electricity, even when the grid is down. That could be life saving.

So if the voters approve this bond and the subsequent two, LO will be far, far ahead of other towns in terms of emergency centers and reopening of school.

## Summary

### Within 5 years LO will have

- A new LOCOM/police facility
- New waste water treatment facility
- New county-wide communication network
- New maintenance facility
- New water treatment plant
- New sewer interceptor
- One new junior high school/emergency shelter

All built to withstand a 9.0 earthquake

Within 5 years LO will have

- A new LOCOM/police facility
- New waste water treatment facility
- New county-wide communication network
- New maintenance facility
- New water treatment plant
- New sewer interceptor
- One new junior high school/emergency shelter

All built to withstand a 9.0 earthquake.



Let's make it our job to have all of our neighborhoods organized and citizens prepared by 2021

## How to organize your NA

**No one answer** – each has done it differently

**Common elements:**

- **A driving force** – one or two people who are passionate about it.
- **Divide neighborhood into sections.**
- **Educational gatherings**
  - Large group for a speaker at NA general meetings
  - Small group classes on different subjects

**No one answer** – each has done it differently

**Common elements:**

- A driving force – one or two people who are passionate about it.
- Divide neighborhood into sections.
- Educational gatherings
  - Large group for a speaker at NA general meetings
  - Small group classes on different subjects

## Goals

- Individuals prepare their own homes and families
- Individuals make plans with their immediate neighbors
- Develop a communication system for reporting to the closest fire station

**Overarching goal: make everyone feel like they will be taken care of and have a part to play in recovery.**

### Goals:

Get individuals to prepare their own homes and families

Get individuals to make plans with their immediate neighbors

Develop a communication system for reporting to the closest fire station

**Overarching goal: make everyone feel like they will be taken care of and have a part to play in recovery.** (this statement distills what we know about emergency psychology)



## Tools

**Individuals**

- Websites - [www.preporegon.org](http://www.preporegon.org)
- *Living on Shaky Ground* brochures available from Bonnie Hirschberger at City Hall
- Educational gatherings
- Handout

**Immediate neighbors (blocks)**

- *Map Your Neighborhood* exercise – available at Main Fire Station

**Communication System**

- Will develop as a result of dividing up, and activating, sections of your neighborhood

## Tools

### Individuals:

Websites - [www.preporegon.org](http://www.preporegon.org)

*Living on Shaky Ground* brochures available from Bonnie Hirschberger at City Hall

Educational gatherings

*How to Prepare for an Earthquake* handout (see accompanying document)

### Immediate neighbors (blocks)

*Map Your Neighborhood* exercise – booklets available at Main Fire Station. Instructions on how to arrange and conduct a meeting available at [www.preporegon.org](http://www.preporegon.org)

### Communication System

Will develop as a result of dividing up, and activating, sections of your neighborhood