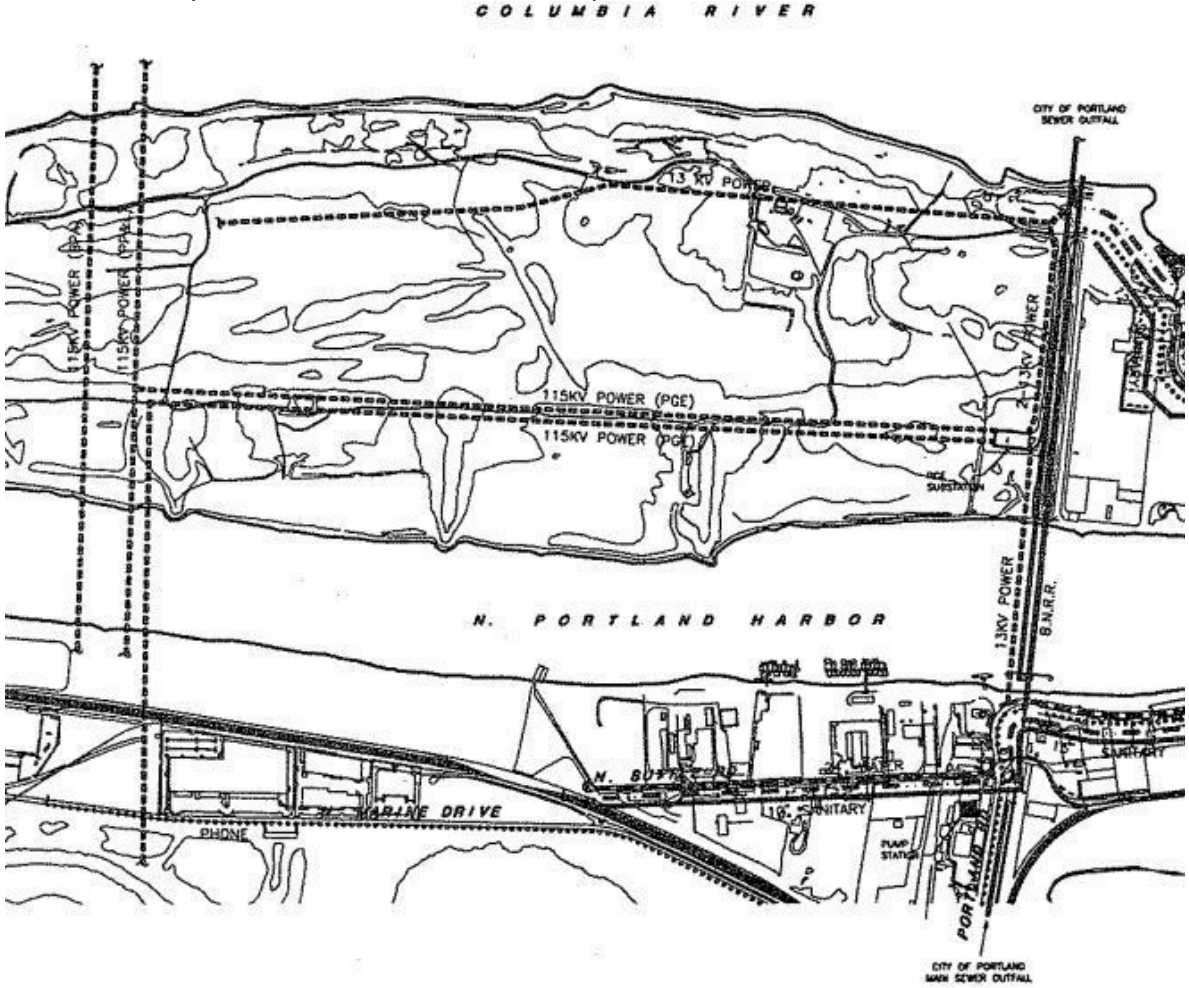
Hayden Island Hazard sites

by Sam Churchill June 29, 2016

1. Power:

A BPA study indicated the big 250KV power lines crossing West Hayden Island is one of their concerns due to liquefaction. Bonneville Power Administration (BPA) maintains a 115 kilovolt, three phase overhead transmission line which crosses West Hayden Island running north to south, midway between the west end of the island and the railroad tracks.Pacific Power and Light also owns an overhead 115 kilovolt, three phase line that crosses the island parallel to and 450 feet east of BPA's line.



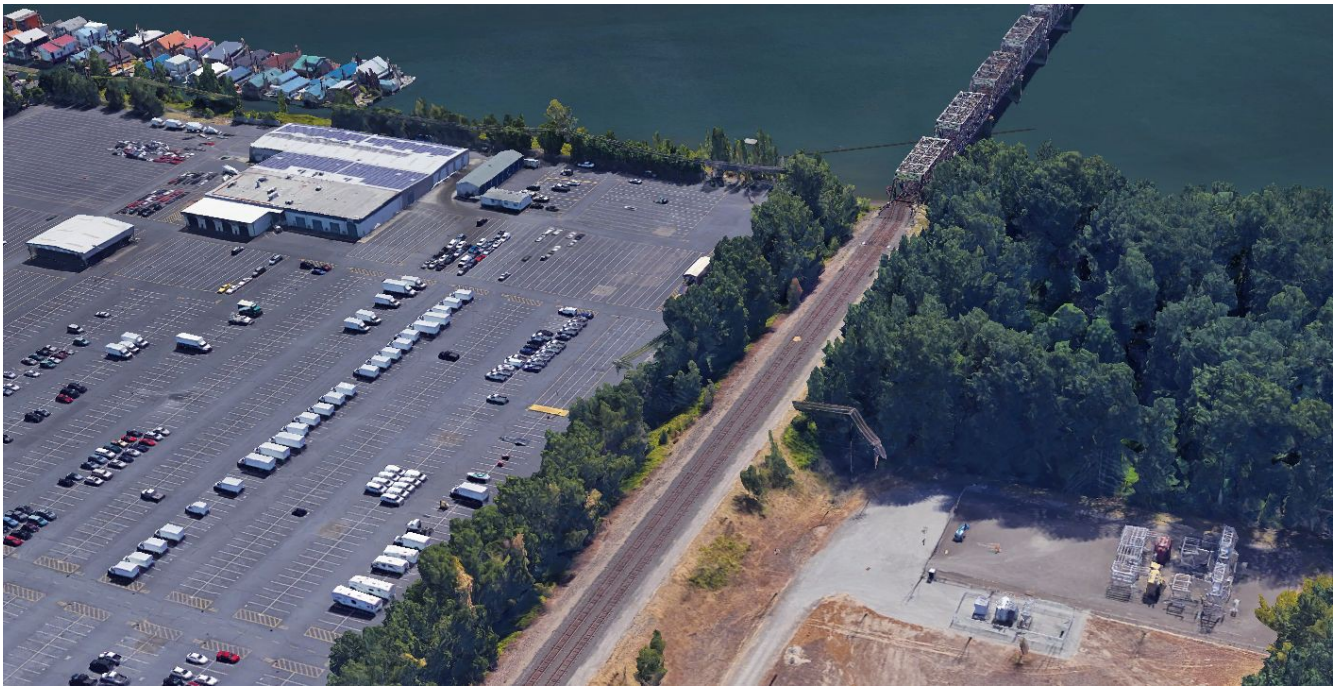
The East Hayden Island substation supplies two overhead, 13 kilovolt, 3 phase lines parallel the railroad. One of these lines heads west and serves the north shore of West Hayden Island while the other serves the Jantzen Beach area. An overhead 13 kilovolt, 3 phase line (Mainland Line) heads south from the substation parallel to the railroad. At the shoreline of the North Portland Harbor, the line drops into a vault and crosses the slough as a submarine line. The other serves the Jantzen Beach area.

The I-5 Bridge has power supplied by Vancouver to run the motors. It also has two backup generators on site. The lines seen on the East side lift are power. The lines on the West side lift are for communications, including Comcast and Telephone. After the lift, they continue along the Westside sidewalk. Communications lines on the S I-5 bridge are on the East side of the bridge and accessed through a utility vault near the terminus of the bridge sidewalk.

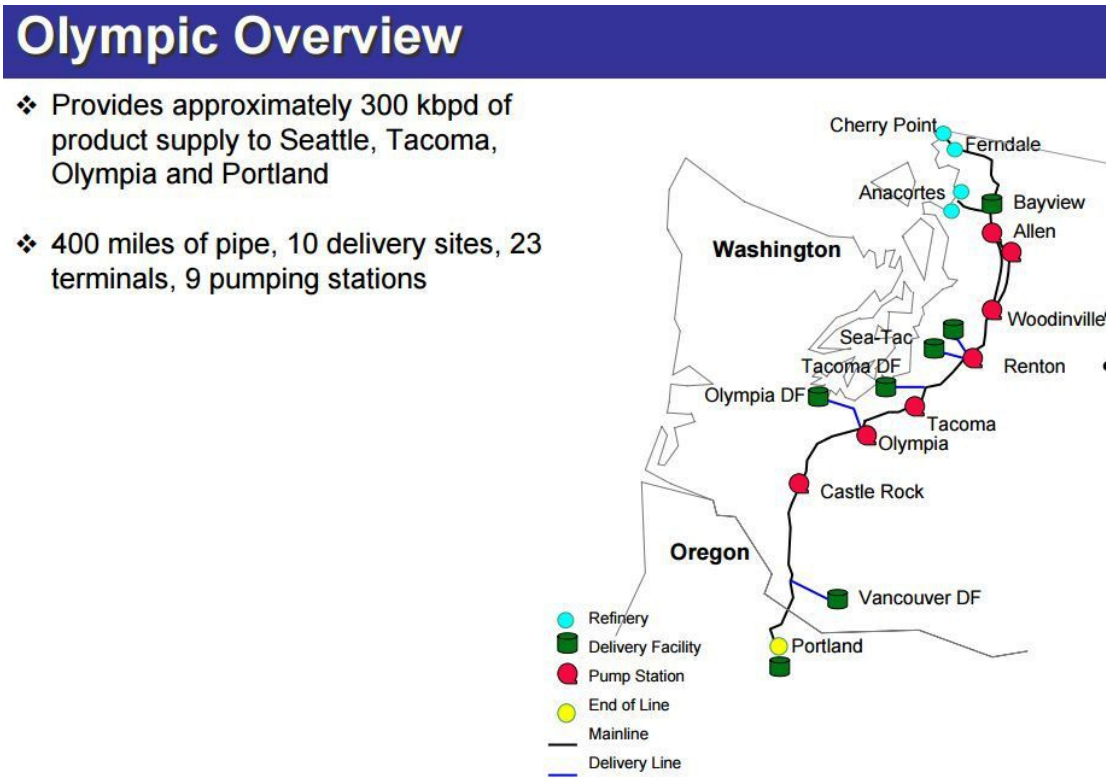
Hayden Island is fed by Comcast and CenturyLink fiber running through a conduit on the East side of that bridge and branches to a terminating point under the AT&T tower on the West side for both cable and phone service. Additional power and communications lines are run under North Portland Harbor. Comcast's small, green distribution points connect to a dozen or more homes in each neighborhood.

Manheim's auto auction facility on the extreme West end of the island has 200 kilowatts of solar power on the roof of their storage facility. That's enough to power 20 homes. Normally it goes back into the grid but with lines down, it may provide an alternative source of power. Manheim is also storing about 100, Car2Go vehicles at the Schooner Creek storage facility across the street.

SPECULATION; If you had 20 electric Car2Gos, charging up their 24 KW/hr batteries, the cars might supply mobile high capacity power thoughout the island to power comms and refrigeration.



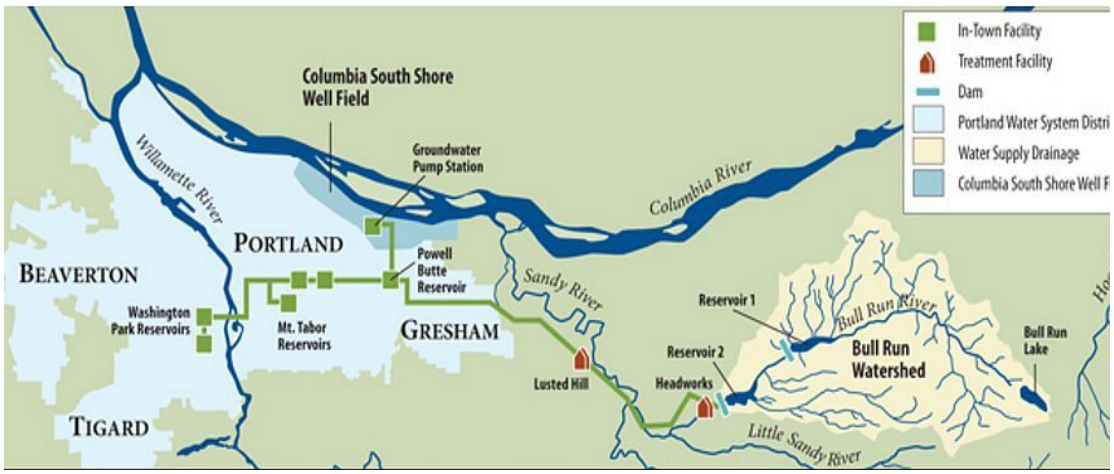
2. Fuel
Oregon gets 75% of its oil and gas over pipelines, mostly through the 400 mile long Olympic pipeline which links four refineries in Pudget Sound and terminates in Portland. The other 25% of oil and gas comes in on tankers to Energy Infrastructure Hub.



Natural Gas mostly comes in on the William's 4,000 mile Northwest Pipeline which crosses the Columbia near Troutdale and across Sauvie Island. Northwest Natural Gas owns a four inch class "B" 57 psi line that runs along N. Hayden Island Dr. It terminates near the railroad.

Oregon's Critical Energy Infrastructure Hub, near the St. John's Bridge, may be profoundly affected by a large quake. It could make oil, natural gas and other fuels critically short for months, statewide.

3. Drinkable Water
Portland's 130,000 westside customers could be without potable water for six months or longer after a big quake. The Bull Run dams are expected to survive, but 65 percent of the city's water mains are brittle cast iron. Reservoirs will crack; treatment facilities and pump stations will fail. Portland Water Bureau is lead.



The City of Portland maintains a 16 inch waterline which crosses the North Portland Harbor via the 1-5 bridge to service East Hayden Island. This water line feeds a 12 inch pipe that runs along North Hayden Island Drive terminating at the end of the road, about 200 feet east of the Burlington Northern railroad tracks. We get our water, gravity fed, from a reservoir in North Portland. The reservoir by Denny's is non-funtional. Another non-funtional reservor (with water in it) is hidden under the tennis court, just North of the Holiday Inn and west of the RV park.

4. Sewage: Waste water treatment is overseen by Portland Environmental Services which owns and operates nearly 100 sewage pump stations around Portland, including five on Hayden Island. Two of them pump sewage to the Safeway Pump Station. The Safeway facility then pumps sewage to the Hayden Island Pump Station, which pumps it into a large gravity sewer that carries sewage to the treatment plant.

One of the main pump stations on Hayden Island is just west of Home Depot, near JBMI. Another one is at the enterance to South Shore near NW Rugs. The Safeway pump station facily is getting another pump soon.

The City of Portland maintains two outfall pipes, 54 inch and 72 inch, which cross West Hayden Island parallel to and 600 feet west of the railroad. These pipes dump clean water back into the Columbia after treatment by the Columbia Boulevard Wastewater Treatment Plant.

Storm pipes are a separate entity and carry off excess storm water. They sometimes go directly into the river. They often get clogged with debris. Water, sewage and storm pipes are often owned and maintained by private entities.

The map (above) shows private pipes in red and storm drainage in green. Yellow is the sewage upflow. PortlandMaps.com has more information.

5. Fire:
The oil train threat to Hayden Island and Kenton is real. The Oregon Fire Marshall recommends that in the event of a large oil train incident/spill, downwind evacuation should be at least 1,000 feet and if it involves a fire, evacuation for 0.5-mile in all directions is recommended. The Columbia River is about 1000 ft wide (.2 mi).

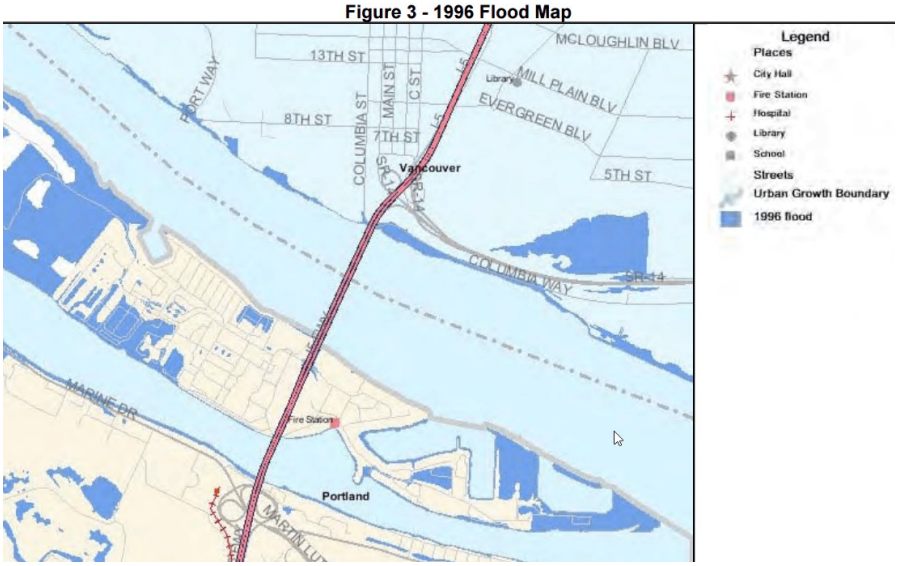
Most of Hayden Island will be affected if the BNSF mainline in Vancouver or UP, using the railroad bridge, has an oil train fire. Firefighters need water. Firestation 17 on the island has at least 3 boats, but they are likely be be utilized downtown or near the Critical Energy Infrastructure, where they will be needed to pump water from the river to firetrucks.

The Oregonian created this Google Map flyover (http://goo.gl/lxP7Zw) of the 3 routes oil trains take through Portland. The above map shows a fire evaculation zone on the Vancouver WA side. It blankets Hayden Is.

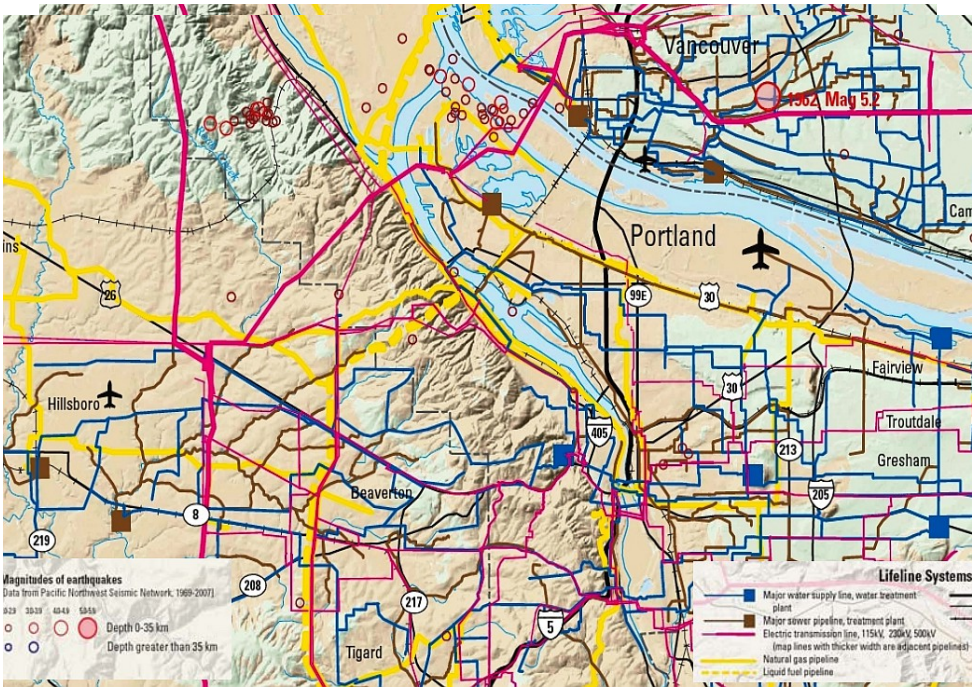
6. Flooding:

Sever flooding in 1996 was found on Hayden Island along JBMI and the South side of the island while the north side was largely confined to smaller pockets. The levee has since been upgraded and a levee protection agency is active in Portland.

Figure 3 - 1996 Flood Map



7. Other energy lifelines: Here is a map of some major energy lifelines. Most skirt Hayden Island, such as the big Williams Natural Gas pipeline and the Olympic gas and oil pipeline. Ruptured pipelines will be difficult to repair or stop after a megaquake.



8. Propane and other dangers.

Chevron near Safeway has propane tanks and underground gasoline storage, Home Depoit has propane tanks, paint and flamable chemicals. Boat maintenance shops have chemicals for cleaning and painting. Vancouver's sewage treatment facility is across the Columbia as is the one in Camas. They also have Clorine gas and other dangerous chemicals. The PDX jet fuel storage facility has hundreds of thousands of gallons stored over ground prone to liquefaction. Vancouver BNSF has large fuel storage facilities near the RR bridge.

9. Summary:

If a 9.0+ megaquake happens, many experts say it would be the worst disaster in the history of the United States. Lots of bad things could happen - both short term and long term. The worst place to be would be the coast of Oregon and California. We on Hayden Island might be comparitively well off. We've got water for drinking and transportation and the I-5 bridge will be a national priority. We'll have lots of help.