



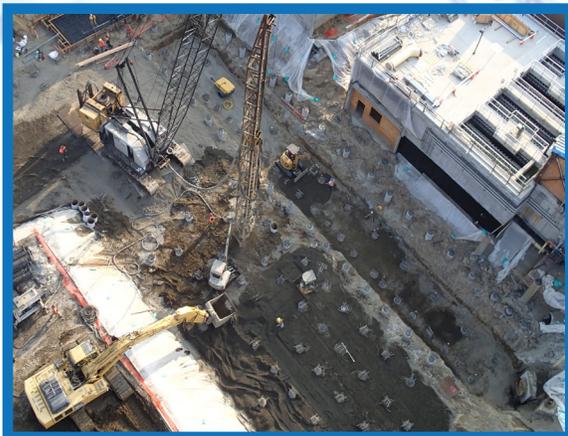
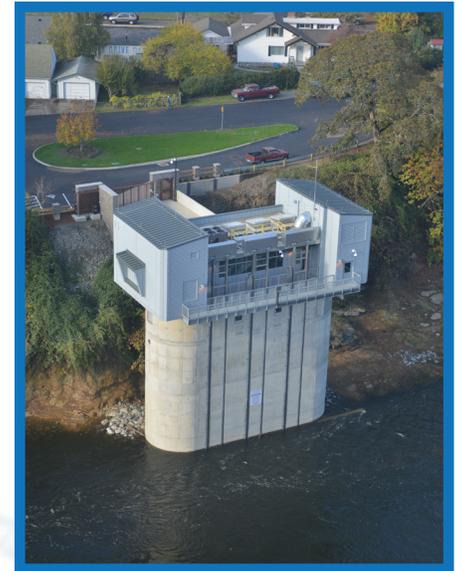
Built to Last

A new, resilient water system

With recent studies predicting a major earthquake occurring in the Pacific Northwest sometime within the next 50 years, the Lake Oswego Tigard Water Partnership has taken steps to ensure the survivability of its new drinking water system. By requiring each of its new water supply facilities to be designed and constructed to remain functional after a 9.0 magnitude earthquake, the Partnership has improved its odds of bouncing back quickly from a significant seismic event.

Key features include:

- All new facilities are designed to seismic standards above current codes.
- A new, reinforced concrete **river intake pump station** on the Clackamas River is anchored to basalt bedrock with fourteen ground anchors and retractable fish screens protect the pumps against river debris.



- Critical treatment facilities and pipelines at the new **water treatment plant** are supported by 1,110 deep reinforced concrete piles to keep them in place during shaking.
- Both the river intake and treatment plant include a redundant PGE electrical supply.



- The new 3.5 million gallon **Waluga Reservoir** utilizes seismic cable connections between tank walls as well as a foundation specially designed to move without cracking or leaking. Pre-stressed concrete is also used to increase resiliency as well as seismically-activated closure valves on inlet and outlet pipes, which protect against tank emptying should connecting pipes be damaged.

- The new **Bonita Pump Station** is also designed to be resilient against large seismic events, featuring discharge pumps with their own foundations and flexible couplings. These design features allow the pumps to move independently from the building during an earthquake. In addition, the building utilizes reinforced masonry shear walls that prevent crumbling.



- The new large-diameter **water pipelines** are made from steel with each joint double welded for added strength. This design is based on the performance of similar large pipelines that survived earthquakes in Japan.

After an earthquake, Lake Oswego and Tigard's water supply system will be in much better shape than most in the region because of the new, **robust 'backbone' infrastructure** that supplies and distributes water. With these new features, businesses and residents in Lake Oswego and Tigard are protected by the **most resilient water supply system in Oregon.**



lotigardwater.org • 503-697-6502 • @LOTwater
lotwater@ci.oswego.or.us