



East Link Extension

Seismic Retrofit

November 2017

Seismic Retrofits

A major component of East Link construction includes seismically retrofitting the existing I-90 structures that will house the future East Link track and stations. To bring the existing structures up to date with current seismic standards, Sound Transit will be retrofitting the existing I-90 structures: including the D2 Bridge (currently used by transit between Downtown Seattle and Rainier Avenue), Rainier Avenue Bridge, Homer M. Hadley floating bridge, and the East Channel Bridge.



Crews lower a steel anchor cap into the floating bridge

Why is Sound Transit installing seismic retrofits?

Seismic retrofits are standard design practices for seismically vulnerable areas, including the Pacific Northwest. Major structures are designed and built to current seismic codes and older structures are retrofitted to meet current standards. For East Link to operate on the floating bridge and other structures, and to meet Federal Transit Authority regulations, Sound Transit is retrofitting structures along the project's alignment.

What types of retrofit methods are being used on East Link?

There are various types of seismic retrofit methods dependent upon the type, age and construction method used for each individual structure. For East Link, steel restrainers, stiffeners, column jackets, micro piles and post tensioning will be used to retrofit structures supporting the track way.

To retrofit the floating bridge pontoons, Sound Transit is installing steel reaction frames inside 10 pontoons. Once they're installed, the pontoons will be post tensioned to add durability and longevity.



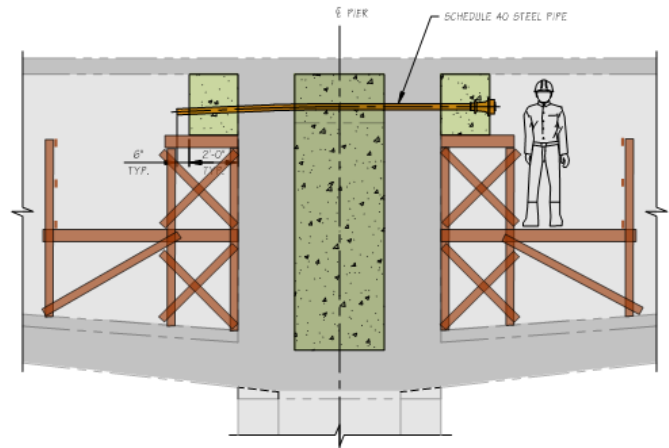
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What is post tensioning and what does it do?

Post tensioning is a method to strengthen concrete structures by adding steel strands. The steel strands form tendons which are anchored to the floating bridge. The steel tendons are then jacked to very high stresses, tied off, and then released. The end result compresses the concrete, increasing the durability of the structure and increasing its likelihood of surviving a seismic event for fixed structures and storm events for the floating bridge.



Illustrative cross section of pontoon post-tensioning

What happens when more weight is added to the floating pontoons?

All of the pontoons currently have ballast (i.e. gravel) that was placed when the bridge was constructed. Similar to the ballast in a boat, this allows the floating portion of the bridge to remain level. Since additional weight is being added to the bridge deck and in the pontoons, ballast will be moved and removed throughout floating bridge construction.

By The Numbers

- **10 Pontoons** to be post-tensioned
- **10 reaction frames** per pontoon
- Each frame weighs **17,500 lbs**
- Each pontoon is **360 feet long**
- **3,600 total feet** post-tensioned

For More Information

Please call our 24-hour construction hotline at 1-888-298-2395 / TTY Relay: 711.

For more information, please contact Zack Ambrose at 206-903-7176 or eastlink@soundtransit.org

East Link Extension is a key element of the regional mass transit system approved by voters in 2008. This 14-mile light rail line will benefit local communities and support regional growth with fast, frequent and reliable light rail service, connecting Seattle to the Eastside's biggest population and employment centers. The project builds on the Central Link light rail system running between Angle Lake and University of Washington. East Link is part of the new light rail extensions being built north, south and east from Seattle.