



Maple Leaf Portal



Roosevelt station



## HISTORICAL LANDMARKS

Seattle is developing its public transportation network by connecting surrounding urban centres. Sound Transit is therefore extending the existing Light Link Rail, connecting the Northern suburbs of the King County to the city centre and to the SEATAC airport.

This new 3.6 mile section consists of an alignment of 21-foot diameter twin tunnels, two new deep stations (Roosevelt and U-District) and a new portal (Northgate) at the North end, where the tunnels reach the surface. The construction started in October 2013 for 3 years and is scheduled to open for operation in 2021.

There are several critical locations though, with highly sensitive buildings, located close to the tail walls and heads walls of the new deep stations, among which historical landmarks and the Washington University tower.

## ACCESS LIMITATION

The design of the monitoring system not only considered the geotechnical risk but also the desire to reduce the intrusion of the construction related crews in the residential areas. For this reason, the instrumentation around the station is mostly automated while the design of the monitoring system within the residential areas is a combination of automated and manual monitoring.

The whole instrumentation program is made available to the main contractor, to the owner and to all other partners involved in the project, through the web-based GIS GEOSCOPE, providing 24/7 real time data from all the sensors installed on site.

Tunnelling started in June 2014. The instrumentation program was installed and base lined in due time by SIXENSE. GEOSCOPE is now providing useful information to the TBM crews as they go deeper beneath Seahawks fans house.



**107**

MPBX

**24**

inclinometer in slurry walls

**9**

inclinometers drilled around stations



200 utility settlement points



1 400 structure settlement points



377 surface settlement points

**15**

tiltmeters

**2**

automatic crack gauges

