



PROJECT BRIEF

North Shore Connector Instrumentation & Monitoring

PROJECT PROFILE

CLIENT:
Port Authority of Allegheny County

LOCATION:
Pittsburg, PA

VALUE:

- Results for more efficient and cost effective Asset Management decisions

SERVICES PROVIDED:

- Installation of 17 strain gages and 54 tilt meters on selected bent structures to monitor deflections during excavation
- Automated total stations and reflective prisms used to measure displacements during the load transfer of the underpinning elements
- Data aggregation, reduction, and display using iSiteCentral

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INSTALLATION OF GEOTECHNICAL INSTRUMENTS & DATA AUTOMATION

Geocomp deployed its iSite® data logging system along with the iSiteCentral® web-based data management program to deliver data to the engineers on a real time basis, 24/7. Over two weekends in March 2008, the existing supports under the SR 65 North and South approaches to Ft. Duquesne Bridge were cut away, allowing the load transfer of the highway structures above to new foundation elements. The old foundations had to be removed to make room for the new light rail tunnels. Geocomp engineers and technicians were on-site for 24-hour shifts monitoring the piers while the load was transferred using a complex post-tensioning process. Any movement greater than 6 mm triggered an alarm and work was immediately halted. The measured movements were less than 3 mm, and the work proceeded without incident.



BACKGROUND

The North Shore Connector project extended the Port Authority of Allegheny County’s Light Rail Transit system 1.2 miles from the Gateway Subway Station located in downtown Pittsburgh to the North Shore. While remaining underground in twin-bored tunnels along the North Shore, the alignment would transition to an elevated alignment before terminating near the West End Bridge. The project supported the effort to revitalize downtown Pittsburgh and the North Shore’s residential areas, business districts, educational institutions, and entertainment developments. The Connector enabled the Port Authority to construct extensions of the transit system to other destinations within Allegheny County. With many historical buildings and elevated highway bents located along the alignment of the project, care needed to be taken to assess that they were not affected by construction activities.