

East Side Access Monitoring

The East Side Access (ESA) project in New York City will connect the Long Island Rail Road's (LIRR) Main and Port Washington lines in Queens to a new LIRR terminal beneath Grand Central Terminal (GCT) in Manhattan. The new connection will increase the LIRR's capacity into Manhattan, dramatically shorten travel time for Long Island and eastern Queens commuters traveling to the East Side of Manhattan, provide a new commuter rail station in Sunnyside, Queens, and much more.

Prior to starting construction, geotechnical instruments are being installed above ground and in the subway tunnels to measure any movement, settle-

ment, tilt, strain and induced vibrations from tunneling, excavation and construction activities.

Instruments include automated motorized total stations (AMTS) with reflective prismatic targets, manual survey points, inclinometers, extensometers, observation wells, tilt meters, seismographs, dynamic strain gages, and liquid level settlement systems (LLSS). Many of the instruments are designed to be read remotely and automatically.

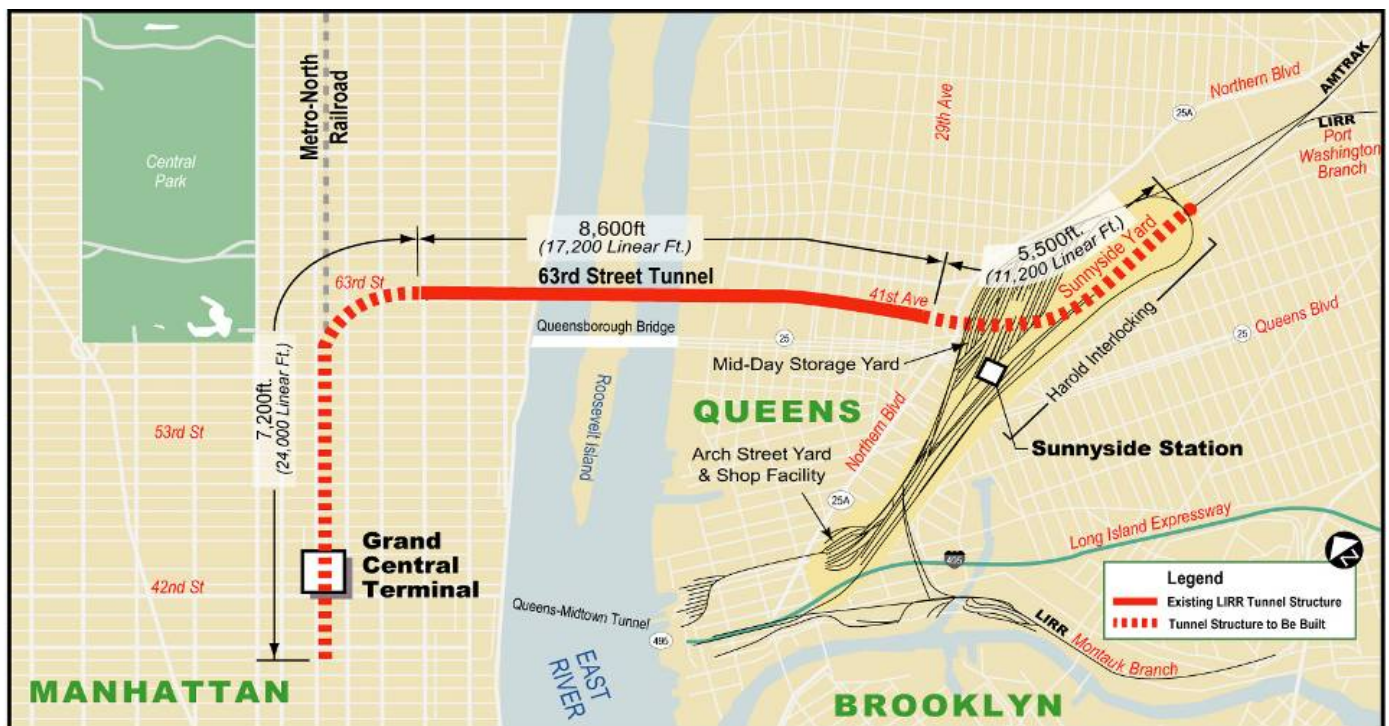
The ESA construction manager selected **Geocomp Corporation** to collect and manage the vast amount of data from these instruments, and to provide a web-based data management

system to ensure the data are processed, presented and reported in a timely, accessible and understandable manner.

To fulfill these project requirements, Geocomp is:

- providing professional staff in support of the geotechnical instrumentation aspects of this project as part of the ESA project team,
- providing iSiteCentral, the firm's web-based data management system,
- integrating and connecting all specified instrumentation, data handling, communica-

(continued)



East Side Access Monitoring, cont'd.

tion and computer equipment, and furnishing and installing application software,

- collecting readings from instruments which need to be read manually.

By monitoring all instruments and conducting continuous review of data collected and processed by Geocomp's team and iSiteCentral technology, the ESA Project Team will be able to determine whether excavation, tunneling or construction activities may have an adverse effect on surrounding structures.

With its highly qualified and experienced site personnel, backed by specialized staff based at the company's head office, Geocomp is meeting the client's needs for a complete geotechnical data management solution.

ESA TUNNELING/EXCAVATION PROJECTS

Geocomp is responsible for managing the geotechnical instrumentation data on the following ESA contracts:

Manhattan Approach Tunnels (CM009)

Tunnel boring machine (TBM) equipment has



CM009 assembly chamber excavation

been delivered and a TBM assembly chamber has been constructed. Following the construction of the TBM in the assembly chamber, tunnels will be bored via four TBM drives from the existing tunnel under 63rd Street and Second Avenue to

the south end of the GCT tail tracks. The work also includes excavation of cross passages between the tunnels and a central instrument room.

Queens Open-Cut Excavation (CQ028)

An open-cut structure is being created and then decked over to serve as the TBM launch area for the Queens tunnels prior to its permanent use as an interlocking and an emergency exit/ventilation facility. The shaft that was completed in November 2003 is being expanded via tunneling under Northern Boulevard (requiring underpinning of the Brooklyn-Manhattan Transit "BMT" structure) into LIRR's existing rail yard.



CQ028 open-cut