



East Side Access New York Metropolitan Transportation Authority Capital Construction / Long Island Rail Road

Location: New York, New York

Date: 2001 – Present

Structure: Manhattan Running Tunnels, Crossover Caverns, GCT Station Caverns

Length: Approximately 25,000 feet (7,620 meters)

Cross-Section: 350 – 4,200 square feet (33 – 390 square meters)

Geology: Schist, Schistose Gneiss, Gneiss, Granofels, Amphibolite, and Pegmatite

Cost: Approximately \$8.4 Billion

Client: General Engineering Consultant (GEC) a JV of Parsons Brinckerhoff, STV, and Parsons

Owner: Metropolitan Transportation Authority / Long Island Rail Road (MTA / LIRR)



Figure 1. West-bound GCT Cavern arch rock bolt installation.

Expert Consulting, Tunnel Design, and Construction Support Services:

East Side Access (ESA) is one of the most complex, ongoing transportation projects in the United States. The project 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 and dramatically shorten travel time for Long Island and eastern Queens commuters traveling to the East Side of Manhattan.

Gall Zeidler Consultants (GZ) has been involved in the tunnel engineering and construction support for this project for more than fifteen years and has advised on the design, structural and geotechnical instrumentation and monitoring programs, construction, and waterproofing and final lining alternatives. Construction used two hard rock Tunnel Boring Machines (TBMs) for running tunnels and drill and blast methods for the caverns, cross passages, shafts, and ventilation structures.

The ESA Project entails excavating tunnels approximately 120 feet beneath Manhattan streets for a length of about 25,000 feet. All of the Manhattan tunnels and station excavations were successfully completed. The project has an estimated completion date of 2019.



Figure 2. TBM emerging into Crossover Cavern. (Courtesy of MTACC)