

PROJECT BRIEF

Central Artery Tunnel Instrumentation & Monitoring

PROJECT PROFILE

CLIENT:

Massachusetts Department
of Transportation (MassDOT)

LOCATION:

Boston, MA

VALUE:

- Monitoring system detected movement and initiated project alerts
- Completed work for substantially less than contract amount, allowing for an additional 25 years of monitoring

SERVICES PROVIDED:

- Data integration and reporting
- Geotechnical instrumentation and monitoring
- Helped avoid major cracking of adjacent structures

“The real-time data provided the contractors timely feedback on the impact of their work on the adjacent structures, which allowed the contractors to adjust their methods as necessary and reduce potential for damaging adjacent sensitive structures.”



INSTALLATION OF GEOTECHNICAL INSTRUMENTS & DATA MANAGEMENT COLLECTION

Geocomp provided the Massachusetts Turnpike Authority (now MassDOT) with structural and vibration monitoring services for the Central Artery/Tunnel (CA/T) project that spanned over a 9 year period. The instrumentation system was designed by each independent section designer, one component of which included vibration monitoring of 150 historic structures. The real-time data provided the contractor timely feedback on the impact of their work on the adjacent structures, which allowed the contractors to adjust their methods as necessary and reduce potential for damaging adjacent sensitive structures. The readings were verified by Geocomp's project team and then transmitted electronically to the Program Manager's GIS database. Data was then further distributed to abutters, contractors, managers and owners. Geocomp successfully met all the objectives outlined at the start of the project and routinely collected large quantities of data that were validated and entered into the project database.



BACKGROUND

The “Big Dig” project in Boston, MA is a massive road infrastructure project that began in the early 90s to improve the flow of traffic and alleviate commuter congestion. Early in the project, occupants of the historic buildings began complaining about large vibrations and damage occurring to their buildings. The geotechnical instrumentation program led by Geocomp was invaluable to the success of the Central Artery/Tunnel project. During the monitoring period, no significant damage occurred to facilities outside the work area. We attribute this in large part to the use of the data from the instrumentation to keep construction movements within tight tolerances established in the contract documents.