

# Central Artery / Tunnel Instrumentation Monitoring Contract

## Client:

Massachusetts Department  
of Transportation (MassDOT)

## Location:

Boston, MA

## Services Provided:

- Instrumentation and monitoring
- Data integration
- Reporting

## Value Provided:

- Monitoring system detected movement and initiated project alerts
- Automated data logging allowed for multiple daily readings in critical or restricted construction areas
- Helped avoid major cracking of adjacent buildings
- Completed work for substantially less than contract amount; allowing for an additional 25 years of monitoring

## Background & Project Challenges

Early in the project, occupants of the historic buildings began complaining about large vibrations and damage occurring to their buildings. 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 challenge was to develop a single platform to aggregate, reduce and display data from highly variable sources outside of Geocomp control.

## Geocomp Role & Accomplishments

The readings were verified by Geocomp's project team and then transmitted electronically to the Program Manager's Oracle 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.

The geotechnical instrumentation program was invaluable to the success of the CA/T 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.

Geocomp collected readings from the instrumentation, processed the data and provided status reports within 4-16 hours. The collection intervals were modified to provide data and reports by 4PM of the same day. This data was then used to answer each complaint with specific information.

