



Technologies to manage risk for infrastructure

# Instrumentation & Monitoring

## Our Services

Geocomp designs, installs and manages comprehensive, web-based performance monitoring programs for all types of civil engineering structures.

Geocomp provides instrumentation and monitoring services to owners and contractors on projects from small to large.

- Design monitoring systems
- Provide data collection and management
- Review and evaluate data from instrumentation systems
- Troubleshoot and upgrade existing systems
- Provide real-time web-based monitoring and warning services
- Provide turnkey web-based, real-time monitoring services

Geocomp provides monitoring services for dams and levees, tunnels, bridges, pipelines, buildings, excavation support systems, slopes, embankments, MSE walls, utilities, piles and foundations.

Using our comprehensive data collection and visualization platform, *iSiteCentral*<sup>™</sup>, avoids costly delays and/or impact on adjacent structures through implementation of real-time alarm programs that warn of unexpected performance.

Geocomp's *iSiteCentral*<sup>™</sup> measures ground and facility performance before, during and after construction. Some examples of what we monitor for:

- Noise & dust
- Vibration
- Subsidence
- Heave and settlement
- Tilt/foundation deformation
- Cracking
- Groundwater flow and pore pressure
- Horizontal movement below ground
- Stress and strain in structural members



Boston

Atlanta

Chicago

Los Angeles

New York

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## Our Representative Experience

Geocomp has been successful at implementing complex real-time monitoring systems with numerous sensors, delivering timely warnings and reports, and expanding system to meet changing project needs. Over the past two decades, Geocomp has been involved in some of the largest and most complex infrastructure projects in the world including:

**Second Avenue Subway - New York City, NY** - Geocomp installed and is monitoring instruments to safeguard buildings and utilities surrounding the project site. A key component to this monitoring program is the networked series of 29 automated total stations that provide precise measurements of the existing above ground infrastructure. Other instruments include: inclinometers in soil, inclinometers in slurry walls, borehole piezometers and observations wells, strain gages, tiltmeters, noise and vibration monitoring, crack gages, prisms and automated motorized total stations.

**East Side Access - Queens, NY** - Geocomp is monitoring over 12,000 instruments throughout 35,000 linear feet of new tunnel and providing continuous review of data collected using *iSiteCentral*<sup>™</sup> technology enabling the project to determine whether excavation, tunneling or construction activities are having adverse impacts on surrounding structures.

**North Shore Connector - Pittsburgh, PA** - Geocomp is using *iSite*<sup>™</sup> dataloggers along with the *iSiteCentral*<sup>™</sup> web-based system to provide real-time data on a 24/7 basis. Geocomp monitored the existing bridge piers while the load was transferred to the new supports using a complex post-tensioning process. Any movement greater than 6 mm triggered alarms alerted the team immediately so work could be halted.

**Central Artery/Tunnel - Boston, MA** - Geocomp completed a \$10.6M contract with the Massachusetts Turnpike Authority (now MassDOT) to provide structural and vibration monitoring services for the Central Artery/Tunnel project. This contract required that collected data be processed within 4-16 hours, resulting in 26 million readings from over 4,000 different instruments.

**I-10 Twin Span Bridge - New Orleans, LA** - Following the damage of Hurricane Katrina, the I-10 bridge was replaced over Lake Pontchartrain. Geocomp installed instrumentation into the bridge components to monitor long-term structural health of this newly constructed bridge. The sensors included strain gages cast inside concrete girders and foundation piles, water pressure cells to measure wave forces, inclinometers and accelerometers to measure lateral movements of piles, corrosion meters to monitor performance of the rebar and a weight-in-motion system.

**Intelligent Levee (iLevee) - New Orleans, LA** - Geocomp has been working with Louisiana's Coastal Protection and Restoration Authority (CPRA) to design and install an Intelligent Flood Protection Monitoring, Warning and Response System Prototype – iLevee – after the catastrophic failure of several major levees led to historic flooding of the area post-Hurricane Katrina. The system will provide operational status information, event information, historical information, and a project database with drill-down capability to call up any information relevant to a specific component of the flood protection system.