

SERVICES

Structural Monitoring



 **Geocomp**
A Sercel Business

Gold Star Memorial Bridge monitoring / geocomp.com

Structural Monitoring Solutions

At Geocomp, we provide structural diagnostic testing and performance monitoring solutions to help you manage risks and enhance maintenance to your structures. Whether your project is located in the U.S. or anywhere around the globe, our experts integrate extensive knowledge in structural engineering with state-of-the-art monitoring technology to keep your projects on schedule, cost-efficient, and safe.

Why Choose Geocomp Monitoring?

Geocomp provides industry-leading technology, system integration, and data management to help you accomplish your project goals effectively. Our real-time monitoring programs deliver critical data for performance assessments and risk management.

Global Expertise: We have been trusted with high-profile projects around the world, leveraging advanced technology to address complex infrastructure challenges with precision and reliability.

Customized Monitoring Solutions: Our team designs and implements monitoring systems tailored specifically to your project needs. We incorporate the most reliable and cost-efficient sensing and data acquisition systems to our solutions.

Proactive Maintenance: Geocomp's monitoring systems are designed to provide reliable and continuous data allowing you to monitor safety and performance metrics and respond accordingly.

Real-Time Access with iSiteCentral®: Our long-term monitoring solutions integrate with iSiteCentral® data management platform, giving you real-time web-based monitoring with automated alerts, charts, tables, maps, photos, and reports provided through a geographic information system (GIS) interface.

Applicable Across Multiple Sectors

Geocomp delivers structural testing and monitoring systems across many project types:

- Bridges
- Wind Towers
- Buildings & Stadiums
- Airports/Ports
- Railways
- Highways
- Pipelines
- Dams & Levees



Fred Hartman Bridge



I-84 bridge move

Structural Testing and Monitoring

Our testing and monitoring services are focused to support you in making critical infrastructure decisions with objective information based on reliable data. We help you effectively manage your assets and enhance project outcomes.

Load Rating: We provide instrumentation and data collection for diagnostic and proof load tests to help you verify the performance, update the rating, or demonstrate that your structure can carry the required load.

Life Extension: Geocomp solutions help in assessing the condition and limit states of infrastructure systems before they reach a critical state. They are also used to validate less costly structural retrofits versus complete replacement.

Root-Cause Analysis: We help identify and address the root causes of structural issues such as cracking and shifting, enabling you to implement effective remediation and repairs.

Reliable. Trusted. Value-driven. Innovative.

For more than 40 years, Geocomp has been a trusted partner in advising clients on risk identification and mitigation.



Onshore wind farm in Texas

Cable Tension Estimation - Geocomp delivers precise cable tension estimation for bridges and towers using advanced vibration-based methods. Our approach provides accurate in-situ force measurements to verify design assumptions, monitor long-term performance, and proper tensioning for structural safety.

Modal Analysis - We perform modal analysis to evaluate a structure's dynamic response to vibration and environmental loads. By identifying natural frequencies, mode shapes, and damping ratios, we help clients detect potential issues, validate models, and enhance structural reliability.

Lifetime Monitoring: Our comprehensive monitoring solutions provide critical insights throughout the life of your structures, allowing you to make informed maintenance and asset management decisions.

EXAMPLE PROJECTS

Gov. Mario Cuomo Bridge (NY)
Fred Hartman Bridge (TX)
CT I-84 Bridge (CT)
Zakim Bridge (MA)
Honolulu Airport (HI)
I-10 Twin Span Bridge (LA)

Huey P. Long Bridge (LA)
Walt Whitman Bridge (PA)
Gold Star Memorial Bridge (CT)
Bayonne Bridge (NY)
NASA Bridge (FL)
Middlebury Bridge/Rail (VT)

I-69 Pavement Instrumentation (IN)
UNI Dome (IA)
Sherman Minton Bridge (KY)
Tobin Bridge (MA)
Charter Oak Bridge (CT)
Hale Boggs Bridge (LA)

Instrumentation & Monitoring



Williams Pipeline



Onshore wind farm foundation monitoring

The Importance of Monitoring

At Geocomp, we are dedicated to partnering with you to enhance project performance and ensure the safety, performance, and longevity of your structures by leveraging the best structural monitoring technology available to monitor key risk indicators and optimize operations.

- **Early Detection of Issues:** Our structural monitoring solutions provide real-time data for early identification of potential issues like cracks, excessive stress, settlement, or deformation, preventing escalation into critical problems.
- **Safety Assurance:** Continuous monitoring of vital structures such as bridges and tunnels allows for prompt detection of performance changes due to environmental factors or material degradation, reducing the risk of sudden failures and keeping the public safe.
- **Optimized Maintenance:** Accurate data on your structures' condition enables a shift from reactive to predictive maintenance, minimizing unnecessary repairs, reducing downtime, and extending asset life for significant cost savings.
- **Performance Validation:** Our monitoring validates the performance of newly constructed or rehabilitated structures against design expectations, verifying quality and making sure safety standards are met.
- **Risk Management:** Structural monitoring during extreme weather or seismic events assesses resilience and provides real-time insights, supporting informed decision-making and minimizing potential damage.
- **Asset Management:** Monitoring data is invaluable for asset management, enabling better planning and resource allocation. Owners can prioritize maintenance activities and optimize long-term performance.

iSiteCentral®

iSiteCentral® is a cloud-based automated data management system that collects data from sensors and automatically issues alerts of unexpected infrastructure performance in time for corrective action. iSiteCentral® is used on many of Geocomp's structural monitoring projects, helping our clients make informed decisions in near real-time.



Accessible

Single platform enabling access anytime, 24/7 from anywhere, on any device.

Universal

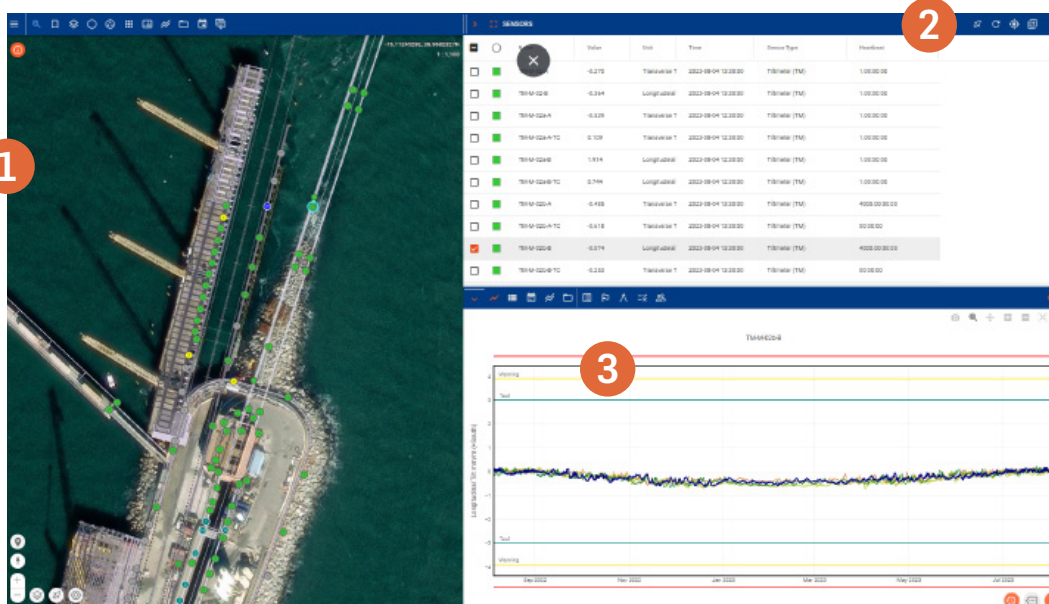
Can be scaled to support both small and large infrastructure projects on a global scale.

Web-based

Secure access, password protected web interface or task-specific application via desktop, tablet, or mobile device.

Integrated data

Provides automated data, documents, maps, and photos to support rapid evaluation and interpretation of info.



iSiteCentral® sensor readings and dashboard view

iSiteCentral®

- 1 GIS image of the project in birds-eye view and sensor locations mapped out.
- 2 Project specific sensor data and information in the dashboard view.
- 3 Graph of sensor data over time, indicating pre-established thresholds.

Experience you can trust

For more than 40 years, Geocomp has helped clients overcome structural monitoring challenges by providing tailored, technology-driven solutions. We work closely with our clients to identify their specific needs and deliver innovative, cost-effective services that keep their projects on schedule and completed safely and efficiently.

Fred Hartman Bridge

Geocomp deployed S-lynks wireless vibration measurement and data analysis solution on the Fred Hartman Bridge in Texas. Geocomp utilized S-lynks to gather data from the Southbound deck, North Tower, and 192 stay cables of the bridge with minimal traffic disruption. The data was analyzed using in-house software for Operational Modal Analysis and Cable Tension Estimation. The final report provided insights into the bridge's resonant frequencies, cable forces, damping ratios, and the dynamic interaction between the deck and cables, establishing a dynamic baseline for future comparisons.



Gov. Mario M. Cuomo Bridge

Geocomp delivered a sophisticated Structural Health Monitoring (SHM) system for the New York State Thruway Authority (NYSTA), providing continuous real-time data and advanced analytics to maximize the lifespan of the largest bridge project in New York history. By integrating approximately 1,000 sensors with Geocomp's state-of-the-art iSiteCentral® software platform, the system enables the NYSTA to monitor critical performance metrics, such as load responses, temperature effects, seismic activity, and wind impact. This actionable data empowers bridge owners to proactively address potential issues, optimize maintenance budgets, and ensure the long-term safety and performance of the structure, resulting in significant cost savings and enhanced decision-making capabilities.



Geocomp provides cutting-edge solutions leveraging the latest technological advancements to help clients achieve their goals. To learn more visit [geocomp.com](https://www.geocomp.com)

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