Geocomp
A SERCEL COMPANY

PROJECT BRIEF

Governor Mario M. Cuomo Bridge

Largest Structural Health Monitoring System in the U.S.

PROJECT PROFILE

CLIENT:
Tappan Zee Constructors, LLC
Welsbach Electric Corporation

LOCATION:
South Nyack & Tarrytown, NY

VALUE:

- Establish performance baseline from the beginning of construction
- Record of the short and long-term response of the bridge
- Help mitigate risks to the bridge by providing real-time monitoring through *i*SiteCentral®
- Enable engineers to make decisions related to operations, inspection, maintenance and rehab for the service life of the bridge with real-time and cumulative data

SERVICES PROVIDED:

- Design, install, and maintain entire system
- Integrated electrical and fiber optic sensor technologies from installation to data acquisition
- Deployed the fast, secure and flexible *i*SiteCentral® software to explore and manage data
- Provided continuous and proactive maintenance of the entire system

"Geocomp's end-to-end structural health monitoring system covers all aspects from selection and integration of reliabile sensing hardware to providing insightful performance indicators through *i*SiteCentral® software platform."

DESIGNING & INSTALLING THE MONITORING SYSTEM ON THE LARGEST DESIGN-BUILD STRUCTURE

Geocomp designed, installed and commissioned the Strucutral Heath Monitoring (SHM) system to this signature project from integration and design to state-of-the-art software. The system is composed of a monitoring portion and evaluation.

- The monitoring portion is the real-time data collection from approximately 1,000 sensors measuring the bridge response to load and environmental effects. The majority of the data acquisition systems were built by Geocomp with elements synchronized to within 3 milliseconds.
- The evaluation part is the reporting of the current load and health conditions through Geocomp's fast, secure and flexible *i*SiteCentral® software platform. The key parameter display and reporting fuctions of *i*SiteCentral® provide various performance metrics such as geometrical displacement, vibrations, expansion joint performance, fatigue, etc.

BACKGROUND

Governor Mario M. Cuomo Bridge replaced the Tappan Zee Bridge crossing the Hudson River between Tarrytown & Nyack located 20 miles north of New York City. The new bridge is a 3.1 mile long cable-stayed twin span structure designed for a 120 year service life to remedy the issues of the highly deteriorated old bridge. Geocomp worked with the bridge designer, HDR, and the owner, NY State Thruway Authority to finalize the design of a SHM system that would serve the design objectives. Geocomp procured, installed, and commissioned all elements of the system and now provides maintenance and assessment.