



PROJECT BRIEF

Bayonne Bridge Instrumentation & Monitoring

PROJECT PROFILE

CLIENT:

Port Authority of NY & NJ

LOCATION:

Bayonne, NJ and Staten Island, NY

VALUE:

- Value performance assumptions used in the design of the raised roadway
- Real-time data to evaluate construction effects on the existing bridge
- Continuous assessing of bridge health to help assure public safety during the continued operation of the structure during construction

SERVICES PROVIDED:

- Instrumentation, monitoring and data management system
- SMART BRIDGE system

“Instrumentation was installed to monitor the effects constructing the new foundation and elevated roadway had on the existing bridge piers and adjacent structure(s). All data was gathered remotely and displayed in real-time on *iSiteCentral*®, our data management system.”



INSTALLATION OF GEOTECHNICAL INSTRUMENTS & DATA MANAGEMENT COLLECTION

Geocomp was engaged in two critical areas of work on this challenging project. The first was providing instrumentation and monitoring services during construction of the new foundations for the bridge and the raising of the roadway. Instrumentation was installed to monitor the effects constructing the new foundation and elevated roadway had on the existing bridge piers and adjacent structure(s). All data was gathered remotely and displayed in real-time on *iSiteCentral*®, our data management system. The second major item of work was to provide the “SMART BRIDGE” system for this historic structure. The system facilitated the analysis of the effects of transferring loads from the original application points to new points 64-ft higher on the steel arch structure. It also provided a comparison between the design assumptions and the actual field conditions during and after construction.



BACKGROUND

The historic arch bridge, the fourth largest in the world, had its deck raised 64-ft (from 151-ft to 215-ft) above the Kill van Kull while remaining open to traffic. The deck was raised to accommodate super vessels traveling to and from the New Jersey marine terminals through the upgraded Panama Canal. This project was the first of its kind, installing a new roadway above the existing one with traffic remaining operational during construction. The new roadway is hung from the original steel arch via steel cables. The \$1.3 billion project was completed in 2017.