



PROJECT BRIEF

Tobin Bridge Instrumentation & Monitoring

PROJECT PROFILE

CLIENT:
Massachusetts Port Authority
(Massport)

LOCATION:
Boston, MA

VALUE:

- Smart technology helped to identify and alert Massport about the bridge's structural health

SERVICES PROVIDED:

- Provided continuous stream of real-time data
- Assess stress and loads affecting the bridge

“The team conducted a finite element analysis of forces and strains on the bridge using a three dimensional computer engineering model of the entire bridge.”



FINITE ELEMENT ANALYSIS & DESIGN, INSTALLATION AND MONITORING OF SENSORS

Geocomp designed and installed the sensor system which provided a continuous stream of real-time information about stresses and loads on the bridge as well as environmental and corrosion conditions. The computer modeling, calibration and installation of the sensors was completed by 2010. The contract called for the team to conduct a finite element analysis of forces and strains on the bridge using a three-dimensional computer engineering model of the entire bridge. The model was calibrated against actual conditions using measurements from wireless sensors attached to representative areas of the bridge.



BACKGROUND

The 58-year-old, 2.25-mile-long Tobin Bridge is a major artery connecting Boston to the North Shore for 80,000 motorists who use the bridge each day. In June 2008, the Massachusetts Port Authority (Massport) announced the implementation of a new structural monitoring system installed on the bridge for Massport to better understand the stresses on the bridge. The Tobin Bridge was the state's first “smart bridge” with technology that alerted Massport to stresses on the bridge, and will allow the authority to identify and address any concerns immediately.