

PROJECT BRIEF

CT I-84 Superstructure Instrumentation & Monitoring

PROJECT PROFILE

CLIENT:
Northern Construction
Services, LLC

LOCATION:
Southington, CT

VALUE:

- Real-time data to ensure that stresses induced by moving operations did not exceed present limits
- The monitoring system allowed controlled transport and lifting operation to proceed without delays within the narrow time frame

SERVICES PROVIDED:

- Strain, deflection and rotation monitoring of superstructures
- Real-time optical survey monitoring during bridge move
- Avoid superstructure damage

“Real-time strain measurements were monitored via Geocomp’s data management system, iSiteCentral during move operation to identify unanticipated stress on the new structures.”



INSTALLATION OF GEOTECHNICAL INSTRUMENTS & DATA MANAGEMENT COLLECTION

Geocomp installed instrumentation to provide real-time strain, deflection, and rotation monitoring of the new I-84 eastbound & westbound superstructures during the transportation operations in advance of the superstructure replacement. Real-time strain measurements were monitored via Geocomp’s data management system, *iSiteCentral*® during move operation to identify unanticipated stress on the new structures. Geocomp previously installed strain gages in the girders and deck. A set of intersecting wire lines (X pattern on the bridge deck) on both eastbound and westbound decks were installed to determine twist of the deck. The wire was set to only touch if deck twist exceeds predicted value during the move. Wire lines were electrified and controlled by an alarm system.



BACKGROUND

The two bridges carried I-84 eastbound & westbound over Marion Avenue, Southington, CT. On a scale of zero to nine, both bridges received a superstructure rating of 4. This was due to diagonal cracks as well as exposed reinforcement and tendons. In order to replace these superstructures, Self Propelled Motorized Transporter (SPMT) platform vehicles were used to lift out the existing structures and set the new structures. This procedure took place over 56 hours, minimizing road closure of I-84 and related public disruptions.