

## ConnDOT Complex Bridge Inspection & Structure Evaluation Statetwide, CT

### Location

Statewide, CT

### Owner

ConnDOT

### Duration

2002 – 2005

2006 – 2009

2010-2012

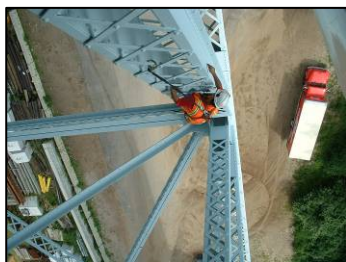
### Project Description:

The Connecticut Department of Transportation (ConnDOT) selected AI in 2002 (419 Bridges), in 2006 (650 Bridges) and again in 2009 (150 Bridges) to perform NBIS Bridge Inspection and Evaluations, Statewide. The projects involved inspection of highway, town, Metro-North and moveable bridges for both above and underwater inspection. The bridges included have been moderately complex and complex bridges. Field work included: scheduling of lane closures, utilizing safety personnel including flagmen, groundmen and troopers, providing maintenance and protection of traffic (MPT), utilizing specialized equipment for access and performing routine, in-depth, semi-final, fracture critical or special inspections.

In 2008, subsequent to the Minneapolis deck truss bridge collapse, AI was called to inspect two of the four Connecticut State deck truss bridges. These two bridges were the Commodore Hull Bridge in Shelton and Route 7 over the Housatonic River in Salisbury. Special attention was paid to gusset plates.

Inspection reports are submitted within 21 days of inspection completion date. The report includes an Executive Summary, structure inventory and appraisal sheet, Pontis, DOT Bridge Inspection (BRI) forms; maintenance memoranda if needed; load rating for certain bridges and electronic photos. Maintenance and flagging memoranda with recommendations are issued based on condition or degree of deterioration and the need for timely maintenance and repair. AI also performed the load rating for approximately 70 bridges.

We have supervisory level OSHA and ATSSA certified personnel who periodically monitor safety compliance during field operations.



### Salient Features

- Bridge Condition Inspection, including underwater and movable bridges
- Structure Inventory & Appraisal
- Load Rating
- NBIS Guidelines
- Special Access Equipment
- Structure Safety Flag
- Fracture Critical and Special Inspection
- MPT
- Maintenance Memorandum
- PONTIS

## ConnDOT Complex Bridge Inspection & Structure Evaluation (*continued*) Statewide, CT

The project team consists of experienced bridge/structural engineers who also perform maintenance and protection of traffic, for bridge inspection.

Signature Bridges included in this assignment:

**Arrigoni Bridge** is a thirty (30) span structure including two prominent tied steel thru truss arches carrying Route 66 over Route 9, the Providence and Worcester Railroad and the Connecticut River between Middletown and Portland, CT. In 2007, AI performed a regular bi-annual bridge inspection of the structure. In addition to this inspection, AI was tasked with the ultrasonic testing (UT) of the 14 inch diameter steel pins in the bottom chords and electromagnetic inspection of the steel hanger cables in the main spans both of which had never been performed. AI designed a plan which was used by various non-destructive and equipment subconsultants to perform the routine visual inspection and the UT pin and electromagnetic cable inspection of this prominent structure.



**Gold Star Memorial Bridge** carries I-95 over the Thames River, local roads and railroads between New London and Groton, CT. The bridge consists of 15 spans two main girder system and 11 spans of deck truss system. The approach spans were inspected using 60 ft. to 125 ft. boom lifts and a snooper. Some of the main girders had inspection bars along the webs, in these spans climbing and walking the bottom flanges was utilized. For the main spans, combinations of snooper inspection and climbing through the center catwalk were utilized to complete the inspection. In addition to that, at the continuous supports for the hunched bottom chord of the truss, rigging was required to be able to access and inspect those sections of the truss. There were pin connections at the suspended truss span sections which have monitoring points at the pins. Ultrasonic testing was used to detect any cracks or deficiencies in the pin connections.



**Moses Wheeler Bridge** is a thirty-four span structure carrying Interstate 95 over the Housatonic River and Naugatuck Avenue in Stratford, CT. The superstructure consists of a reinforced concrete deck supported by fourteen rolled steel girders (spans 1-7 and 29-34) and fracture critical main girder/floorbeam/stringer system (spans 8-28) with a structure length of 3196 ft. and a total curb to curb width of 81.7 ft. For the majority of the approach spans, the 60 ft. boom lift was utilized over land. For the main spans combinations of under bridge equipment (UBI) snooper and climbing certain section of the bridge through the middle sidewalk. The fender system around the substructure units in the main channel was inspected using a boat.



## ConnDOT Complex Bridge Inspection & Structure Evaluation (*continued*) Statewide, CT

**Baldwin Bridge** carries I-95 over Connecticut River and Ferry road in Old Saybrook, CT. The bridge consists of 11 spans of segmental box girders of total length of 2,531 ft. The underside of the bridge is equipped with motorized electrical inspection platforms (Travelers). These inspection platforms were used to inspect the outside of the segmental box girders. The inside of the segmental box sections was inspected using lighting equipment and walking through the boxes. During the inspection of the inside box girders, air quality meter was carried with the inspection crew to monitor the air quality inside the box girders. Also, crack monitor gages were used to measure the extent of the cracks width and length and compare it to the previous measurements.



**Commodore Hull Bridge** carries Route 8 over Route 110 (Howe Avenue), Hull Street, Riverdale Avenue and the Housatonic River in Shelton, CT. The Bridge consists of 3 spans deck truss/floorbeam/stringer systems and 9 approach spans multi girder system. The three main spans over the river were inspected using a barge with mounted bucket truck. In addition the main spans center catwalk was utilized to climb and inspect certain sections of the truss which were not accessible by the barge mounted truck. The approach spans were inspected using bucket truck. The project team consists of experienced bridge/structural engineers who also perform maintenance and protection of traffic, for bridge inspection.

