



Award of Excellence

Angus L. Macdonald Bridge Suspended Spans Superstructure Replacement – “The Big Lift”



Consultant

COWI North America Ltd.

Owner/Client

Halifax Harbour Bridges

Category

Transportation and Bridges

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The Angus L. Macdonald Bridge is a vital link in the Halifax and Dartmouth communities, providing vehicles, cyclists and pedestrians with access to the downtown core. COWI North America (formerly Buckland & Taylor) completed the detailed design of the bridge, developed the erection sequence for the replacement of the entire superstructure and addressed the major challenges associated with extending the life of the bridge while minimizing the impact to the public and shipping traffic.

The main scope of work included removing and replacing 20 m and 10 m long deck segments. Due to heavy daily usage of the bridge, it was essential that daytime traffic continued to flow during construction. Keeping the bridge open during the day and replacing the entire superstructure during weekends minimized the effects on the local economy. Week night closures were also required to prepare for weekend replacements.

The scope also included raising the bridge superstructure to accommodate larger vessels passing into the harbour and installing a main cable dehumidification system, which is the first of its kind in Canada. COWI designed the new superstructure with the erection sequence and the need to raise the bridge deck in mind. The replacement segments were designed so that they could be replaced during weekend closures with minimum impact on the traveling public. The same temporary equipment that was used to replace the superstructure segment, the “hanger extensions”, was used to raise the bridge to its final profile.