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Acrow Detour Bridges Lessen Impact of Multi-Year Interstate Renovation in Massachusetts

Two heavy-duty structures maintain heavy traffic during bridge replacement project

In Northampton, Massachusetts, four aging bridges on I-91 were slated for replacement. Two bridges carry traffic over Route 5 and tracks of the B&M Railroad and the other two over Hockanum Road, a short distance to the north. Because maintaining the route is so critical, two temporary detour bridges were specified to accommodate heavy traffic during the multi-year project.

Acrow's modular bridges were purchased by contractor J.F. White Contracting Co. and installed in the median at each location to maintain two lanes of uninterrupted traffic flow whilst each set of northbound and southbound bridges are replaced in sequence. The detour structure over Route 5 and the railroad tracks consists of five spans with a total length of 500 feet (152.4m) and is supported on eight Acrow towers ranging from 23 feet (7.01m) to 33 feet (10.06m) in height. The second Acrow bridge, over Hockanum Road, is a 140-foot-long (42.67m) clear span. Both bridges are 30 feet (9.15m) wide between curbs and have asphalt overlay deck surfaces.

The longer structure was installed with a full cantilever launch and the bridge over Hockanum Road used a crane-assisted launch method. The bridge over Route 5 and railroad tracks was installed in full coordination with the railroad and MassDOT; the location posed unique complexities. The space between Acrow's structures and the existing bridges was extremely limited, and the roadway and rail track below – as well as utilities – needed to be avoided. Acrow's launch sequence provided a seamless installation between existing bridges. Further, Acrow provided temporary support towers on skewed piers that avoided the obstacles below.

Northbound traffic shifted to the temporary roadway and bridges in May 2022 during the construction of the two permanent northbound structures. Acrow's bridges then accommodated the rerouting of southbound traffic in July 2023 to allow the construction of the permanent southbound structures. They will remain in place until July 2024, with project finishing late 2024.

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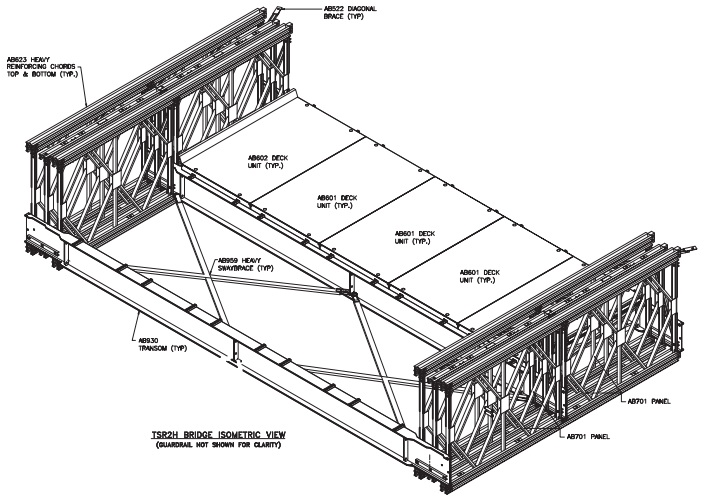
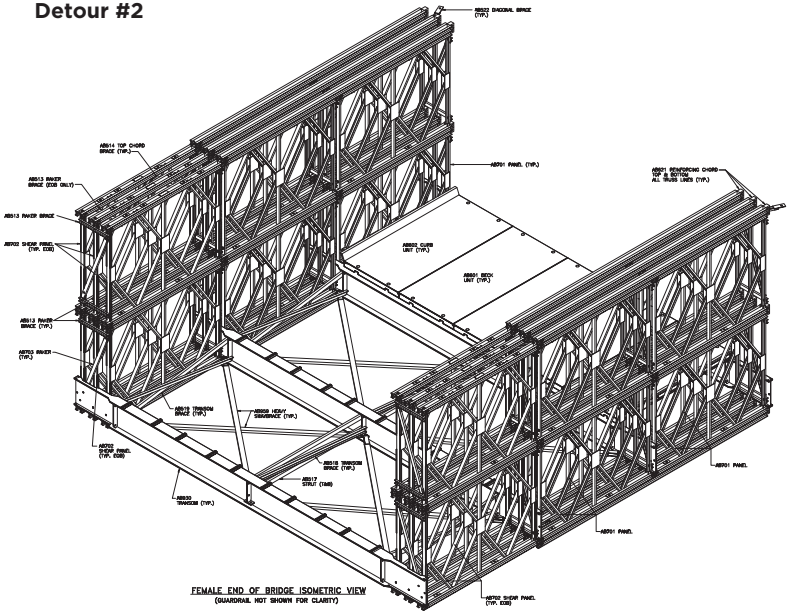
Detour #1



Detour #2



Specifications

Bridge length:

Detour #1 – 500′ (152.4m) five span
Detour #2 – 140′ (42.67m) clear span

Roadway width:

30′ (9.15m)

Guide rails:

TL-4

Deck surface:

Asphalt overlay

Bridge erection method:

Detour #1 – Full cantilever launch
Detour #2 – Crane-assisted launch

Design load:

2 lanes of HL-93

Standard Acrow bridge finish:

- All major components galvanized to AASHTO M111-ASTM A123
- All bolts are hot-dip galvanized
- All pins are electrogalvanized

Standard Acrow bridge specification:

(A) Panel chords, diagonals, verticals, reinforcing chords, rakers to AASHTO M223 GD 65

(B) Raker braces, transoms, top chord braces, swaybraces, transom braces, diagonal chord braces, decking to AASHTO M223 GD 50

(C) Panel pins to ASTM A 193 GD B7

(D) Bolts to AASHTO M164M – A325

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