

Long Span Rail Bridge Allows for Innovative Structure Replacement

An Acrow 700XS panel bridge was recently used in Columbus Ohio to provide temporary uninhibited travel for rail traffic, while a new permanent vehicular underpass was constructed.



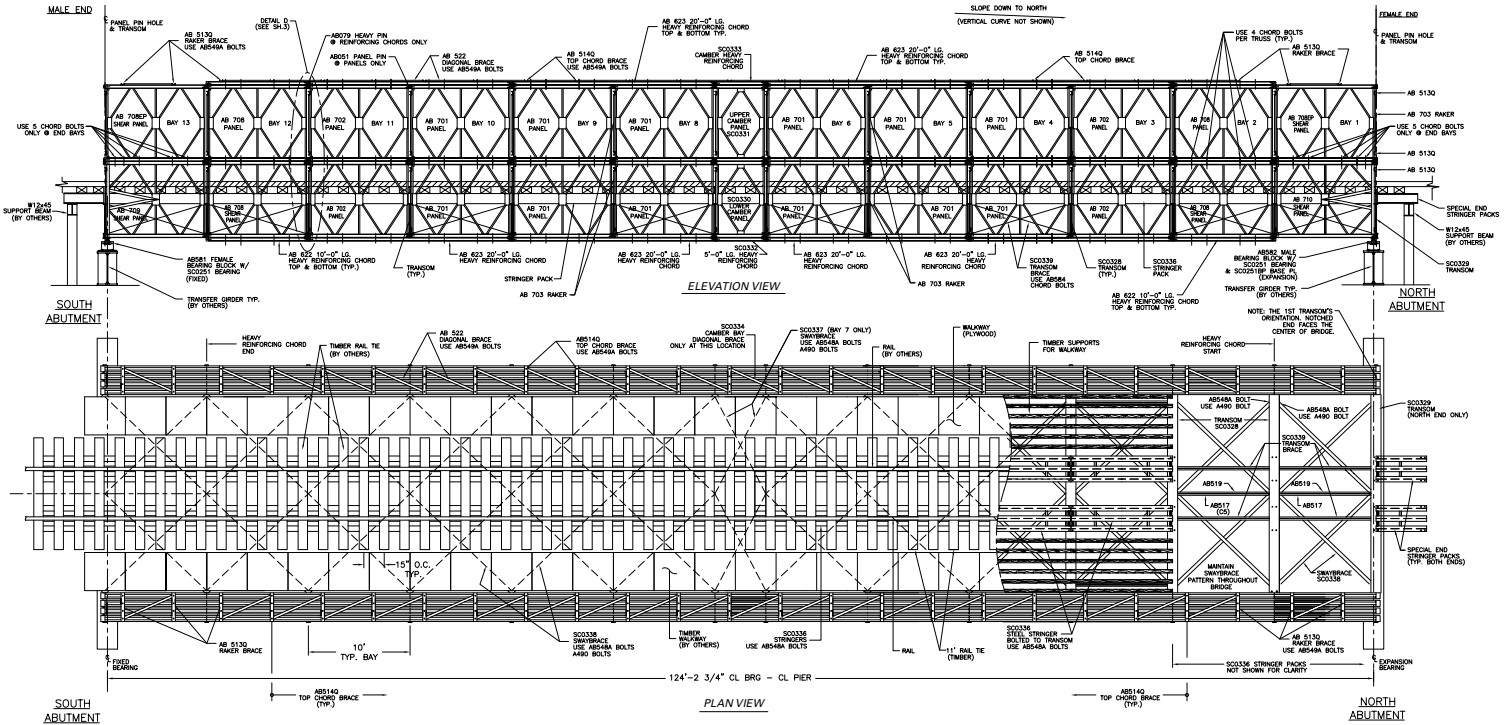
While Acrow Panel bridges are common to vehicular applications, they are also used to carry extremely heavy rail traffic; even Cooper E80 loading requirements. In a combined project with TranSystems (permanent and temporary bridge engineer) Shelly and Sands Construction (bid winning contractor) and Franklin County (owner), Acrow was able to provide a 125 foot clear span bridge capable of carrying the rail owned by the Indiana and Ohio Railway.

The railroad bridge over Alkire Road was a simple stone tunnel that served users well for more than 100 years. However, changes in horizontal and vertical clearance requirements and roadway capacity necessitated a replacement of the bridge to provide a safer environment for motorists. The existing structure was built in 1902, with a span of 19.25 feet between the stone-faced abutments. The posted minimum vertical clearance at the spring line of the arch was 12.17 feet, which required many trucks, school buses and emergency vehicles to travel the middle of the roadway, forcing oncoming traffic to stop suddenly. The structure was hit several times throughout its life, so widening the roadway was a crucial adjustment.

The project began design in 2003. TranSystems Inc requested a quote from Acrow for a temporary structure capable of carrying a Cooper

E80 load and spanning a 125 foot gap. As with all complex jobs, there were many obstacles that were in the way for the replacement of the existing structure including railroad outing restrictions, right of way traffic limitations, the proximity of two large stone culverts over the tributary to Scioto Big Run and construction cost limitations. The use of an Acrow panel bridge minimized these issues allowing the project to be completed within the established time given, and reducing the costly "car rerouting" expenses that the rail line imposed on the contractor should it be necessary. Additionally, with the limited time given by the rail line, only a fast modular system like Acrow's panel bridge could be installed in the narrow 6 day timeframe given for the initial temporary replacement. The speed of the install was amplified during the removal; the entire Acrow structure was "picked" and disassembled offline and thus streamlined the swap of the permanent placed structure. The total cost of the project was \$6.1 million;

This project won an award from the Regional ASHE Organization and continues to be recognized in the greater Ohio area for its on time completion and innovation. It was also submitted for the National ASHE recognition.



Specifications

Bridge length:

Acrow supplied 125 linear feet of bridging that was comprised of a single span.

Bridge width:

The Acrow bridge was 18 feet between the trusses to support a single track and a worker access walkway.

Deck surface:

Rail with timber walkway

Bridge erection:

Segmental lift in

Live Load:

Cooper E-80 Train Load per AREMA

Bridge design:

- (A) Panel Chords, Diagonals and Verticals, Panel Reinforcing Chords, Raker, Diagonal Chord Brace AASHTO M223 Gd 65
- (B) Raker Brace, Transom, Stringers Top Chord Brace, Swaybrace, Transom Brace AASHTO M223 Gd 50
- (C) Panel Pins ASTM A 193 GD 87
- (D) Bolts AASHTO M164M A325

Bridge finish:

- All major components galvanized to AASHTO M111-ASTM A 123
- All bolts are hot dipped galvanized
- All pins are electro galvanized



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