

# Temporary Multi-Span Continuous Panel Bridge

Saves Construction Time During I-75 Widening and Renovations



The 320 foot long Acrow 700XS 3-span bridge being used on Interstate 75 over Bruce B. Downs Boulevard was purchased by the Florida DOT. It provides for north bound traffic on I-75 allowing for the replacement of the existing bridge and improvements to the Bruce B. Downs Boulevard intersection.

The total project construction cost is \$95.6 million and covers 11.4 miles. The Florida DOT is widening I-75 from four to six lanes from Fowler Avenue in Hillsborough County to State Road 56 in Pasco County. When finished there will be at least three through-lanes in each direction, with auxiliary lanes near interchanges to improve traffic flow entering and exiting the highway. Included in the project are three new bridges including the replacement of the bridge over Bruce B. Downs Blvd as well as improvements to the intersections of I-75 at Fowler Avenue, Bruce B. Downs Blvd and the westbound Fowler Ave bridge over the Hillsborough River.

The bridging purchased by the Florida DOT is the first Acrow 700XS series bridge purchased and owned by the Florida DOT. The main reason for specifying a panel bridge was founded in the history of the Florida DOT's utilization of state owned Acrow 300 Series bridging.

The state purchased their 300 Series bridging in the 1980's and 1990's and has successfully utilized their inventory for planned detours and emergency response, which includes 3,400 feet of the I-10 bridge over Pensacola Bay after Hurricane Ivan in 2004. The Florida DOT currently maintains an inventory of close to 8,000 feet of Acrow 300 series bridge that is regularly used throughout the state. All of the inventory of 300 series bridge has a roadway width of 24 feet and is only designed and rated for an HS-20 live load and bridge spans no longer than 60 feet. The recently purchased 700XS bridging is significant in that it indicates the state's desire to continue utilizing truss panel bridging for detours on roadways, including highways. Truss panel bridging has the versatility to meet today's heavy loads and guard rail requirements, provide longer spans, and offer a choice of widths to accommodate varying levels of daily traffic volume.

Once the designs were finalized, contract documents were published and the project was advertised for bidding. The state awarded the \$95.6 million project to Prince Contracting with Corporate offices located in Tampa, Florida. The Florida DOT, purchased the Acrow bridge which was installed in January 2012.



# **Specifications**

# Bridge length:

Acrow supplied 320 linear feet (97.5M) of bridging that was comprised of three continuous spans. The span arrangement was 120 feet (36.6M) - 110 feet (33.5M) and 90 feet (27.4M).

# Bridge width:

The Acrow bridge has a 36 foot (11M) wide roadway between the guide rails which provided two northbound, 12 foot (3.6M) travel lanes and shoulders of 4 feet (1.2M) and 8 feet (2.4M).

# Guide rails:

A test level 4 (TL4) guide rail system was supplied by Acrow for the bridge.

#### Deck surface:

Contract documents required an asphalt overlay to provide a slight super-elevation to the roadway surface of the bridge. Additionally, due to the high traffic volume, a membrane was first applied to the steel deck to assist in adhesion of the asphalt overlay to the steel deck.

#### Bridge erection:

Full cantilevered launch.

# Live Load:

The bridge was designed in accordance with AASHTO LRFD bridge design specifications second edition to HL93 vehicular and cycles for traffic in excess of 75,000 ADT.

# Bridge design:

- (A) Panel chords, diagonals 7 verticals, panel reinforcing chords, Rakers to AASHTO M223 GD 65
- (B) Decking, raker brace, transom, top chord brace, swaybrace, transom brace, diagonal chord brace to AASHTO GD 50
- (C) Panel pins to ASTM A 193 GD b7
- (D) Bolts to 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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Acrow Bridge www.acrow.com sales@acrow.com

+1.973.244.0080