



1999 Sedley Bridge

Description

Meta Fields

Project Summary : This project was the first use in Indiana of precast post-tensioned concrete through-girders with full-depth precast post-tensioned concrete deck panels.

Project Location : Sedley Road (CR 475W) over the Norfolk/Southern/CSX railroad tracks near Wheeler in northern Indiana

Impact Category : Tier 6 (longer but reduced by months/years)

Dimensions : 110.5-ft-long and 39.3-ft-wide single-span precast post-tensioned concrete through-girder bridge

Average Daily Traffic At Time Of Construction : 2200

Traffic Management : extended use of 3-mile detour

Existing Bridge Description : The existing one-lane nine-span timber trestle bridge was 201 ft long and 21.2 ft wide with a bridge roadway width of 14 ft. Built in 1915, the bridge had only one lane for traffic and also had a vertical clearance of only 19 ft over the railroad tracks, and required replacement.

Replacement Or New Bridge : The precast elements were post-tensioned edge girders and drop-in deck panels. The bridge has two 12-ft-wide traffic lanes, a 3-ft-wide shoulder, and a 3.83-ft-wide shoulder. The cross-section consists of two 3.08-ft-wide, 6.56-ft-deep precast post-tensioned concrete box girders spaced at 36.5 ft and connected at the bottom by twelve 34-ft-long by 8-ft-wide by average 1.14-ft-deep precast post-tensioned deck panels cast with a crown at the middle of the roadway. This cross-section maximized the vertical clearance under the bridge; the distance from the top of the deck to its lowest point was only 14 inches.

Construction Method : The existing bridge was closed and traffic detoured. The bridge was demolished conventionally. The new bridge substructure was comprised of 14-inch steel-encased concrete piles with MSE walls on concrete leveling pads. First the deck panel and work platform support assemblies were installed on the girders. The girders were then erected with cranes onto the abutment bearings. Steel struts were attached at the abutments as temporary lateral supports, and the first stage of post-tensioning was done. The deck panels were erected with a crane onto temporary wooden shelves that were attached to the girder bottoms with high-strength steel bars. After all panels were placed, the closure joints between the panels and girders were grouted, and the bridge was post-tensioned transversely and longitudinally. Post-tensioning ducts and recess pockets were then grouted. Traffic barriers and microsilica overlay were installed. The temporary deck panel support assemblies were removed and the bridge was opened to traffic. The project was let on February 23, 1999. The Notice to Proceed was given on March 29, 1999. The construction was substantially complete on March 3, 2001. The last work was on March 18, 2002. The contract allowed 140 work days; 136 work days were used.

Stakeholder Feedback : Use of the through-girder with its shallow depth below deck resulted in significant cost savings. The north approach construction alone was reduced in length by almost a quarter mile.

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Costs : The engineer's estimate for the project was \$2.35 million. The low bid was \$2.29 million (\$64,000 = 2.7% lower than engineer's estimate). There were six bidders. The overall cost was \$1 million less than the next alternative design solution. Funding: Other - 80% federal and 20% local

Funding Source : Other

Contract Plans : 1

Construction Schedule : 1

Year Abc Built : 1999

State : IN

Owner : County

Location : Rural

Spans : One-span

Beam Material : Concrete

Max Span Length Ft : 110.5

Total Bridge Length Ft : 110.5

Construction Equipment : Conventional

