



2001 - Illinois Route 29 Bridge over Sugar Creek

Description

Meta Fields

Project Summary : Illinois' first deck replacement with full-depth precast post-tensioned concrete deck panels

Project Location : 1 mile east of Springfield

Impact Category : Tier 5 (within 3 months)

Dimensions : Two adjacent bridges: (1) 253.1-ft long and 37.4-ft wide five-span eastbound bridge; (2) 251.0-ft long, 37.4-ft wide four-span (58.3 ft - 67.2 ft - 67.2 ft - 58.3 ft) westbound bridge

Average Daily Traffic At Time Of Construction : 8650

Traffic Management : not available

Existing Bridge Description : The two adjacent multi-span continuous steel superstructures on stub abutments and solid stem piers on steel piles were built in 1961. Their reinforced concrete decks were deteriorated and required replacement.

Replacement Or New Bridge : Deck replacement on existing bridges

Construction Method : The existing decks of the two adjacent bridges were removed and replaced with full-depth precast post-tensioned concrete deck panels. The 7.5-inch thick, full-width precast concrete deck panels had a concrete strength of 5000 psi and were typically 7.6 - 8.2 ft long. The eastbound bridge was re-decked with 29 panels, and the westbound bridge with 31 panels. The existing steel beams were reused and made composite with the panels. Shear keys were cast between the panels, and the panels were post-tensioned longitudinally with 1-inch-diameter high-strength steel bars at 18-inch centers. A micro-silica concrete overlay was placed on top of the panels.

High Performance Material : None

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Costs : The low bid for bridge pay items was \$1.08 million, and the total contract was \$6.77 million including roadwork and two additional bridges built with conventional decks. Cost was \$57 per sq ft of bridge deck area, compared to the average re-decking cost at that time of \$35 per sq ft. The additional costs can be attributed to first use; the Illinois DOT believes those costs will go down with increased usage and contractors becoming more accustomed to this type of work.

Funding Source : Federal and State

Contract Plans : 1

Year Abc Built : 2001

State : IL

Owner : State

Location : Rural

Spans : > Three-span

Beam Material : Steel

Max Span Length Ft : 67.2

Total Bridge Length Ft : 253.1

Construction Equipment : Conventional

State Id # : 084-0039 (EB) & 084-0040 (WB)

Latitude : 39.780439

Longitude : -89.589744

Project Delivery : design-bid-build

Prefabricated Bridge Elements : full-depth precast deck panel w/PT

Miscellaneous Prefabricated : CIP reinforced closure joint, micro-silica concrete overlay

Abc Construction Equipment : Conventional