

ABC Innovative Projects

Illinois Route 29 Bridge over Sugar Creek					
Location	1 mile east of Springfield, in Sangamon County				
State	Illinois				
Owner	State of Illinois				
Year ABC Built	2001				
State ID #	084-0039 (eastbound) and 084-0040 (westbound)				
Federal ID #					
Coordinates	Latitude: 39.780439N		Longitude: 89.589744W		
Contact Person	Tom Domagalski, P.E. Illinois Department of Transportation Phone: 217-785-2913 Email: domagalskitj@nt.dot.state.il.us				
Mobility Impact Time	ABC:		Conventional:		
Impact Category	<i>Tier 1</i>	<i>Tier 2</i>	<i>Tier 3</i>	Tier 4	<i>Tier 5</i>
				X	
Benefits	reduced onsite construction time; reduced traffic impacts				
Description	<ul style="list-style-type: none"> Two adjacent bridges: <ul style="list-style-type: none"> 253.1-ft long and 37.4-ft wide five-span eastbound bridge 251.0-ft long, 37.4-ft wide four-span westbound bridge Rural location Average Daily Traffic count: 8,650 Traffic management alternative, if constructed conventionally: not available <p>Existing Bridge: The two adjacent four-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.</p> <p>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-in-diameter high-strength steel bars at 18-inch centers.</p>				
High Performance Materials	None				

Photos				
Project Planning	<i>Decision-Making Tools</i>	<i>Site Procurement</i>	Project Delivery	<i>Contracting</i>
	•	•	• Design-bid-build	•
Geotechnical Solutions	<i>Foundations & Walls</i>		<i>Rapid Embankment</i>	
	•		•	
Structural Solutions	Prefabricated Bridge Elements & Systems			<i>Construction</i>
	Elements	<i>Systems</i>	<i>Miscellaneous</i>	•
	<ul style="list-style-type: none"> • Full-depth precast deck panels with post-tensioning 	•	<ul style="list-style-type: none"> • CIP reinforced concrete closure pours • Overlay – standard concrete 	
Costs	<p>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.</p> <p>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.</p>			
Funding	<i>Federal only</i>	<i>State only</i>	<i>Federal and State</i>	<i>Other</i>
Incentive Program (\$)	<i>Highways for LIFE</i>	<i>IBRD</i>	<i>SHRP2</i>	<i>Other</i>
Contract Plans	Complete Set:	Not available.	ABC *:	WB Plans (link to pdf)
Specifications	Complete Set:	Not available.	ABC *:	Not available.
Bid Tabs	Bid Tabs (link to pdf)			
Schedule	Not available.			
Other Related Information	Video of Construction [http://www.fhwa.dot.gov/bridge/prefab/videos.cfm]			
Photo Credits	Illinois Department of Transportation			

* Specific to the ABC used in the project.