

ABC Innovative Projects

US 27 Bridge over Pitman Creek					
Location	Somerset, in Southern Kentucky				
State	Kentucky				
Owner	State				
Year ABC Built	1993				
State ID #	10000027B00032				
Federal ID #					
Coordinates	Latitude:	37.003333	Longitude:	-84.615000	
Contact Person	Mark Hite, P.E. Director, Division of Structural Design Kentucky Transportation Cabinet Phone: 502-564-4560 Email: Mark.Hite@ky.gov				
Mobility Impact Time	ABC:	overnight deck replacement over multiple nights with one of two lanes kept open	Conventional:	months	
Impact Category	Tier 1	Tier 2	Tier 3	Tier 4	Tier 5
	X				
Benefits	reduced traffic impacts due to modular construction; improved site constructability due to lighter deck weight with less dead load on the truss				
Description	<ul style="list-style-type: none"> • 700-ft long and 36.3-ft wide three-span continuous deck truss bridge (200 ft – 300 ft – 200 ft) • Urban location (town of Somerset) • Average Daily Traffic count: 25,000 (2001) • Traffic management alternative, if constructed conventionally: extended detour <p>Existing Bridge: The two-lane bridge is heavily used by vehicular and truck traffic and provides a major north-south road for the area. Its deck was deteriorated and required replacement.</p> <p>Construction Methods: The exodermic replacement deck consists of a 4.25-inch-thick steel grid with 4-inch-thick precast reinforced concrete composite topping. The plans required that the grid be produced by a member of the Bridge Grid Flooring Manufacturers Association licensed to produce exodermic bridge decks. The steel grid was galvanized in accordance with ASTM A123, and the steel reinforcement was epoxy coated. The concrete was cast on the steel grid and fully cured prior to placement of the grid deck.</p> <p>The Kentucky Transportation Cabinet opted to replace the existing 33.2-ft wide bridge deck during nighttime hours, keeping both lanes open during the day and one lane open at night. Traffic was routed to one lane at 6:00 pm and opened back to both lanes at 6:00 am. The slab between floor beams (spaced at 25 ft) was removed and replaced with the full-depth deck panels. Using high-early-strength concrete allowed the joints between deck panels to be poured and opened to traffic the next morning. Precast New Jersey barrier railing was attached, and a latex-modified concrete overlay was placed.</p>				
High	•				

Performance Materials				
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>
	<i>Elements</i>	<i>Systems</i>	<i>Miscellaneous</i>	
	• Exodermic deck	•	<ul style="list-style-type: none"> • CIP reinforced concrete closure joints • Prefab parapets • Overlay – latex-modified 	
Costs	Not available.			
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:	Contract Plans (link to pdf)	ABC *:	
Specifications	Complete Set:	Not available.	ABC *:	
Bid Tabs	Not available.			
Schedule	Engineer's:	Not available.	Actual:	Not available.
Other Related Information	Video of Construction [http://www.fhwa.dot.gov/bridge/prefab/videos.cfm]			
Photo Credits	Kentucky Transportation Cabinet			

* Specific to the ABC used in the project.