ABC Innovative Projects

Kimberly Bridge					
Location	Oregon Highway 19 over the John Day River one mile south of the community of Kimberly in Grant County				
State	Oregon				
Owner	State				
Year ABC Built	2008				
State ID #	02398				
NBI #	02398				
Coordinates	***Latitude:*** 44.755989		***Longitude:*** -119.638939		
Contact Person	Bruce V. Johnson, P.E. State Bridge Engineer Oregon Department of Transportation Phone: 503-986-3344 Email: bruce.v.johnson@odot.state.or.us				
Mobility Impact Time	***ABC:*** 2 weeks		***Conventional:*** one year		
Impact Category	*Tier 1*	*Tier 2*	***Tier 3***	*Tier 4*	*Tier 5*
			X		
Primary Driver(s)	• reduced onsite construction time • improved work-zone safety • improved site constructability				
Description	• Two 29-ft-wide prestressed slab beam approach span replacements (19-ft-long Span 1 and 42-ft-long Span 5) • Rural location • Average Daily Traffic count: 240 (2007) • Traffic management alternative, if constructed conventionally: extended use of 100-mile detour ***Existing Bridge:*** The existing six-span 387-ft-long and 29-ft-wide bridge consisted of a three-span steel haunched girder unit (107.75-ft-long spans) on concrete piers founded on spread footings and three approach spans constructed of timber stringers with concrete deck on timber pile foundations (19-ft-long Span 1, 21-ft-long Span 5, and 21-ft-long Span 6). The bridge has two 12-ft-wide traffic lanes and two 1-ft-wide shoulders. Built in 1937, the bridge's three approach spans were deteriorated and required replacement. ***Construction Methods:*** The pretensioned slab beams and precast reinforced concrete abutment caps were fabricated in the field and trucked a short distance to the site. The edge beams was fabricated complete with concrete curb and anchor bolts for traffic railing extending from the curbs. Using single-lane closures, the contractor drove steel pipe piles for the approach spans. Traffic was then detoured and the bridge closed. Spans 5 and 6 were demolished. The ground surface at the abutment piles was graded. Steel support collars for the cap were installed on the piles. A crane was used to erect the cap onto the piles, and the space between the pile and the pocket cast into the cap was filled with grout. The precast slab				

	beams were erected. The contractor then similarly replaced Span 1. Transverse connections between beams were made with tensioned rods, and keyways between the beams were grouted. Steel posts for the traffic railing were attached to the curbs, and the railing was installed. The wingwalls were constructed conventionally. The precast slabs were covered with a waterproofing membrane and 2-inch-thick asphalt overlay in Spans 1 and 5. Microsilica overlay was installed in Spans 2, 3, and 4 as part of rehabilitating the existing deck. The contract allowed an 18-day maximum closure time. Liquidated damages of $700 per day were to be assessed for each day of closure beyond 18 days. The bridge was opened to traffic in two weeks.
High Performance Materials	•

Photos

Additional photos



Project Planning	***Decision-Making Tools***	*Site Procurement*	***Procurement***	***Contracting***
	• State process	•	• Design-bid-build	• Full lane closure

Geotechnical Solutions	*Foundations & Walls*	*Rapid Embankment*
	•	•

Structural Solutions	***Prefabricated Bridge Elements & Systems***			*Construction*
	Elements	*Systems*	***Miscellaneous***	•
	• Adjacent slab beams • Precast abutment caps	•	• Grouted keys • CIP pockets in precast substructure • Asphalt overlay w/ membrane (Spans 1 & 5 only) • Precast curbs	

Costs	The engineer's estimate for the project was $ 531,000. The low bid was $663,000. There were 2 bidders. The cost per square foot of bridge was $195 compared to $125 for conventional construction in this region in 2008.

Funding	*Federal only*	*State only*	***Federal and State***	*Other*
			X	

Incentive Program ($)	*Highways for LIFE*	*IBRD*	*SHRP2*	*Other*

Contract Plans	**Complete Set:**	Plan Sheets (link to pdf)	**ABC *:**	
Specifications	**Complete Set:**	Not available.	**ABC *:**	
Bid Tabs	Not available.			
Schedule	**Engineer's:**	Engineer's Schedule (link to pdf)	**Actual:**	Actual Schedule (link to pdf)
Other Related	ODOT Region 5 Kimberly Bridge Rapid Reconstruction PowerPoint Presentation (link to			

Information	pdf) ODOT Bridge Engineering Website [http://www.oregon.gov/ODOT/HWY/BRIDGE/]
Photo Credits	Oregon Department of Transportation

* Specific to the ABC used in the project.