ABC Innovative Projects

I-15 / Sam White Lane Bridge						
Location	On Sam White Lane over I-15 in the city of American Fork in Utah County, 30 miles south of Salt Lake City					
State	Utah					
Owner	State					
Year Built	2011					
State ID #	MP-I15-6(178)245					
NBI #	0C 989					
Coordinates	***Latitude:***	40.35554444	***Longitude:***	-111.77736667		
Contact Person	Carmen Swanwick, P.E. Chief Structural Engineer Utah Department of Transportation Phone: 801-965-4981 Email: cswanwick@utah.gov					
Mobility Impact Time	***ABC:***	overnight closure of I-15 (8 hrs)	***Conventional:***	Six additional full nighttime I-15 closures		
Impact Category	***Tier 1***	*Tier 2*	*Tier 3*	*Tier 4*	*Tier 5*	
	I-15					
Primary Driver(s)	Reduced onsite construction time; reduced traffic impacts; improved work-zone safety; improved site constructability; improved material quality and product durability					
Description	• 354-ft long and 76.8-ft wide two-span continuous steel plate-girder bridge (177 ft – 177 ft) roll-in; 48º skew; 1,910-ton self-weight • Urban location • Average Daily Traffic count: 1,710 (Sam White, 2008); 65,800 (I-15, 2008) • Traffic management alternative, if constructed conventionally: would have impacted I-15 traffic (extended use of multiple lane closures) ***Existing Bridge:*** The existing four-span bridge was 325 ft long and 34 ft wide with a minimum vertical clearance of 14 ft-7 inch. It was demolished in 2008 after being severely damaged by a collision. ***Replacement Bridge:*** The Sam White Bridge is the longest bridge in the US to be moved into its final location using self-propelled modular transporters (SPMTs). It crosses I-15 at a high skew and on a sharp vertical curve. The bridge has two 12-ft-wide traffic lanes in each direction, a 14-ft-wide turn lane, and a 12-ft-wide shoulder and 6-ft-wide sidewalk on each side. The 7-ft-deep cross-section consists of six steel plate girders at 13.5-ft spacing with 4.67-ft overhangs and a 10-inch-thick cast-in-place lightweight concrete deck. It has a 17.25-ft vertical clearance above I-15. ***Construction Methods:*** From August 2010 to March 2011, the bridge was built on the east side of I-15 approximately 500 ft from the bridge location. The abutments and interior support were constructed conventionally with concrete-filled pipe pile foundations. The interior support consists of six individual 4-ft-square cast-in-place concrete columns spaced at 20 ft. Each girder was set directly on a column. Each girder was connected to the						

	column with an over-sized interlocking sole plate on a steel-reinforced elastomeric bearing pad; the connection accommodated setting tolerances during the bridge move as well as subsequent loading due to girder rotation and movements due to temperature and seismic effects. *Saturday Evening* On March 26, I-15 was closed at 11 pm. At the bridge temporary location the two-span unit was lifted off the temporary supports on four lines of self-propelled modular transporters (SPMTs) (two lines per span), and moved 500 ft across eight lanes of I-15 to the final bridge location. *Sunday Morning* The bridge was set in place at approximately 4 am. I-15 was re-opened at 7 am, three hours ahead of schedule. The abutments were made integral after the move, and a thin-bonded polymer overlay was placed.
High Performance Materials	• Lightweight concrete deck • 70 ksi high performance steel (HPS) in girder flanges over the interior support
Photos Additional photos	  

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

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

Structural Solutions	***Prefabricated Bridge Elements & Systems***			***Construction***
	Elements	***Systems***	***Miscellaneous***	• SPMTs
	•	• Full-width beam span with deck	• CIP reinforced concrete closure joints • Thin-bonded epoxy overlay • LWC deck	

Costs	This bridge is part of the $1.7 billion Utah County Corridor Expansion (CORE) design-build project. The construction cost of the bridge was $5.09 million. The estimated cost of accelerated techniques was approximately $1.75 million.

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

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

Contract Plans	**Complete Set:**	Design Plans (link to pdfs)	**ABC *:**	
Specifications	**Complete Set:**		**ABC *:**	Special Provisions (link to pdf)
Bid Tabs	Not available.			

Schedule	**Engineer's:**		**Actual:**	Schedule (link to pdf)
Other Related Information	UDOT Sam White Website [http://www.i15core.utah.gov/bridge/] UTUBE video–Sam White animation [http://www.youtube.com/watch?v=6yAlAGnKxSY] UTUBE video–Sam White live [http://www.youtube.com/watch?v=IqyZ1HT0yMA] UDOT ABC website [http://www.udot.utah.gov (Inside UDOT / Project Development / Structures Design and Bridge Operations / ABC)]			
Photo Credits	Utah Department of Transportation			

* Specific to the ABC used in the project.