ABC Innovative Projects

I-80 Bridge over 2300 East					
Location	Salt Lake City				
State	Utah				
Owner	State				
Year Built	2009				
State ID #	F-180-3(148)128				
NBI #	**Eastbound:**	2F 793	**Westbound:**	4F 793	
Coordinates	***Latitude:***	40.712889	***Longitude:***	-111.822639	
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:***	Partial slides on Friday nights reduced I-80 from 3 to 2 lanes during day on Saturday; I-80 closed 8 hrs; 2300 East on-ramp closed 14 days; bridges were skid into place over two weekends; total construction time was 4.5 months	***Conventional:***	6 to 7 months of I-80 reduced lanes and traffic shifts with phased construction	

Impact Category	*Tier 1*	***Tier 2***	***Tier 3***	*Tier 4*	*Tier 5*
		I-80	2300 East		

Primary Driver(s)

- reduced onsite construction time
- reduced traffic impacts
- improved work-zone safety
- improved site constructability
- improved material quality and product durability

Description

- 80-ft long and 62.83-ft wide single-span bridge slide-in; 650-ton self-weight
- Urban location
- Average Daily Traffic count: 26,630 on I-80 and 9,482 on 2300 East
- Traffic management alternative, if constructed conventionally: shift lanes to eastbound bridge for westbound bridge replacement, and vice versa

Existing Bridge:
The twin single-span three-lane eastbound and westbound bridges were each 80-ft long and 62.83-ft wide. Built in 1965, they were deteriorated and required replacement.

Construction Methods:
The replacement superstructure spans each consisted of nine 36-inch-deep AASHTO Type II prestressed girders at 7.08-ft spacing with an 8-inch-thick cast-in-place lightweight concrete deck. The spans were constructed, complete with approach slabs, adjacent to the existing bridge on elevated shoring towers. A steep grade combined with ramp access to I-15 on the north side of the westbound bridge resulted in the need to build the new westbound span five feet higher in elevation. Substructures for the replacement bridges were built low enough underneath the existing bridges, while traffic was maintained, to act as permanent slide guides for the new spans.

	To replace the two spans, I-80 was closed from 10 pm on Saturday until 6 am the next day on two consecutive weekends in October 2009. The existing bridges were demolished conventionally. Cast-in-place post-tensioned concrete abutments were constructed under the existing bridges prior to the bridge slide. The new spans were then slid off the temporary abutments and onto the new abutments, with the new westbound span jacked down from its elevated location before being slid into place. ***Stakeholder Feedback:*** The design-build method with selection based on lowest bid was selected for this project to benefit from contractor innovation. The contract allowed an I-80 maximum closure of 18 hrs and a 2300 East on-ramp maximum closure of 14 days. UDOT imposed incentives and disincentives of $7,500 per 15-minute period, with a maximum incentive of $150,000. The 2300 East Bridge required completion in less than 13 hrs to receive the maximum incentive. I-80 was closed for 8 hours. A partial slide occurred on the Friday night which reduced the three lanes down to two lanes all day on Saturday. This enabled the contractor to shorten the Saturday night closure. It was a balance of reducing risk and minimizing the impacts to traffic.
High Performance Materials	• Lightweight concrete deck
Photos Additional photos	

Project Planning	***Decision-Making Tools***	*Site Procurement*	***Project Delivery***	***Contracting***
	• State process	•	• Design-build (low bid)	• Full lane closure • Incentive / disincentive clauses
Geotechnical Solutions	*Foundations & Walls*		*Rapid Embankment*	
	•		•	
Structural Solutions	***Prefabricated Bridge Elements & Systems***			***Construction***
	Elements	***Systems***	***Miscellaneous***	• Transverse skids
	•	• Full-width decked beam unit (FDc^{L}Bc)	• Precast approach slabs • LWC deck	
Costs	$5 million construction cost. The contractor priced the risk and staff hours into the bid for accelerated construction. The estimated cost of accelerated techniques is approximately $1.0 million.			

Funding	*Federal only*	*State only*	***Federal and State***	*Other*
			X	
Incentive Program ($)	*Highways for LIFE*	*IBRD*	*SHRP2*	***Other***
				ARRA

Contract Plans	**Complete Set:**	As-Builts_04-23-10	**ABC *:**	

		(link to pdf)		
Specifications	**Complete Set:**	No additional special provisions were created for the project.	**ABC *:**	
Bid Tabs	Not available, as this project utilized low bid design-build contracting.			
Schedule	**Engineer's:**	Not available.	**Actual:**	Not available.
Other Related Information	UTUBE video [http://www.youtube.com/watch?v=IMDIMdAKHcs] 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.