2011 â?? I-15 / Sam White Lane Bridge

Description

Meta Fields

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Project Location :

On Sam White Lane over I-15 in the city of American Fork in Utah County, 30 miles south of Salt Lake City

Mobility Impact Time : ABC: overnight closure of I-15 (8 hrs); Conventional: Six additional full nighttime I-15 closures
Impact Category : Tier 1 (within 1 day)
Dimensions : 354-ft long and 76.8-ft wide two-span continuous steel plate-girder bridge (177 ft â?? 177 ft) roll-in; 48Âº skew; 1,910-ton self-weight
Average Daily Traffic At Time Of Construction : 65800
Traffic Management : Traffic management alternative, if constructed conventionally: would have impacted I-15 traffic (extended use of multiple lane closures)
Existing Bridge Description : 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 Or New 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 Method : 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 EveningOn 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 MorningThe 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 Material : Lightweight concrete deck, 70 ksi high performance steel (HPS) in girder flanges over the interior support
Contacts : Carmen Swanwick, P.E. Chief Structural Engineer Utah Department of Transportation cswanwick@utah.gov 801-965-4981
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 Source : State Only
Construction Schedule : 1
Other Related Url : 4
Year Abc Built : 2011
State : UT
Owner : State
Location : Urban
Spans : Two-span
Beam Material : Steel
Max Span Length Ft : 177
Total Bridge Length Ft : 354

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