



2011 – I-15 / Sam White Lane Bridge

Description

Meta Fields

Other Related Url 0 Other Related Link : <http://www.udot.utah.gov>

Construction Schedule 0 Construction Schedule File : 2536

Specifications 0 Spec File : 2532

Abc Construction Equipment : SPMT(s)

Miscellaneous Prefabricated : CIP reinforced concrete closure joints; Thin-bonded epoxy overlay; LWC deck

Prefabricated Bridge Systems : FDcBs (full-width concrete-decked steel beam unit)

Contracting : Full lane closure

Project Delivery : Design-build

Decision Making Tools : State process

Longitude : -100

Latitude : 40.355545

Nbi # : 0C 989

State Id # : MP-I15-6(178)245

Construction Equipment : SPMTs

Total Bridge Length Ft : 354

Max Span Length Ft : 177

Beam Material : Steel

Spans : Two-span

Location : Urban

Owner : State

State : UT

Year Abc Built : 2011

Other Related Url : 4

Construction Schedule : 1

Funding Source : State Only

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.

Contacts : Carmen Swanwick, P.E. Chief Structural Engineer Utah Department of Transportation
cswanwick@utah.gov 801-965-4981

High Performance Material : Lightweight concrete deck, 70 ksi high performance steel (HPS) in girder flanges over the interior support

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 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.

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.

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.

Traffic Management : Traffic management alternative, if constructed conventionally: would have impacted I-15 traffic (extended use of multiple lane closures)

Average Daily Traffic At Time Of Construction : 65800

Dimensions : 354-ft long and 76.8-ft wide two-span continuous steel plate-girder bridge (177 ft – 177 ft) roll-in; 48° skew; 1,910-ton self-weight

Primary Drivers : Reduced onsite construction time; reduced traffic impacts; improved work-zone safety; improved site constructability; improved material quality and product durability

Impact Category : Tier 1 (within 1 day)

Mobility Impact Time : ABC: overnight closure of I-15 (8 hrs); Conventional: Six additional full nighttime I-15 closures

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