



2009 – I-80 Bridge over 2300 East

Description

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Abc Construction Equipment : Lateral slide w/pad (skids)

Miscellaneous Prefabricated : precast approach slab; LWC deck

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

Contracting : full lane closure; incentive / disincentive clause

Project Delivery : design-build (low bid)

Decision Making Tools : State process

Longitude : -100

Latitude : 40.7128906

Nbi # : Eastbound: 2F 793 ; Westbound: 4F 793

State Id # : F-180-3(148)128

Construction Equipment : Lateral Slide

Total Bridge Length Ft : 80

Max Span Length Ft : 80

Beam Material : Concrete

Spans : One-span

Location : Urban

Owner : State

State : UT

Year Abc Built : 2009

Other Related Url : 2

Contract Plans : 1

Incentive Program : Other: ARR Act (ARRA - American Recovery and Reinvestment Act)

Funding Source : Federal and State

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.

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High Performance Material : Lightweight concrete deck

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.

Construction Method : 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.

Existing Bridge Description : 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.

Traffic Management : Traffic management alternative, if constructed conventionally: shift lanes to eastbound bridge for westbound bridge replacement, and vice versa

Average Daily Traffic At Time Of Construction : 26630

Dimensions : 80-ft long and 62.83-ft wide single-span bridge slide-in; 650-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 2 (within 3 days)

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

Project Location :

Salt Lake City