



2019 ?? U.S. 183/412 Bridge over Wolf Creek Rehabilitation

Description

Meta Fields

Project Summary : In 2019 the Oklahoma Department of Transportation (ODOT) replaced the cracked live-load continuity connections between precast girders in the three middle spans of this 5-span bridge. UHPC was used to restore live-load continuity in this accelerated repair project.

Project Location : on U.S. 183/412 over Wolf Creek, southeast of the town of Fort Supply in northern Oklahoma

Impact Category : Tier 4 (within 1 month)

Dimensions : 425-ft-long, 5-span prestressed concrete beam bridge (5 @ 85 ft), with three middle spans continuous for live load; no skew

Average Daily Traffic At Time Of Construction : 4700

Existing Bridge Description : The existing bridge was built in 1985. It has five spans, each 85 ft long, with three continuous-for-live-load middle spans and simply-supported end spans. Its cross-section consists of five AASHTO Type IV prestressed beams spaced at 9.25 ft with 9.25-inch-thick reinforced concrete deck. The precast girders in the three continuous-for-live-load spans were connected with individual blocks of conventional concrete. Cracking had occurred in the continuity connections due to time-dependent effects, resulting in a loss of continuity in the three middle spans.

Replacement Or New Bridge : This 2019 project rehabilitated the existing bridge. The continuity connections were removed and replaced with ultra-high performance concrete (UHPC).

Construction Method : The live-load continuity connections were replaced between the precast girders in the three middle spans. Formwork was provided around the impacted connections, and ultra-high performance concrete (UHPC) was poured through holes cored through the top deck until the forms were filled. The UHPC was used to restore continuity, create a durable connection, and accelerate repairs by allowing material placement through the small holes cored through the bridge deck. Elastic level load tests were performed to evaluate the effectiveness of the UHPC at reestablishing continuity, and the joints were monitored over time.

High Performance Material : Ultra-high performance concrete (UHPC)

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Costs : [Pay Quantities](#)

Funding Source : Federal and State

Additional Information : [ABC-UTC December 2022 Monthly Webinar, UHPC Connections for Accelerated Restoration of Live Load Continuity Oklahoma's U.S. 183/412 Bridge over Wolf Creek](#)•

Year Abc Built : 2019

State : OK

Owner : State

Location : Rural

Spans : > Three-span

Beam Material : Concrete

Max Span Length Ft : 85

Total Bridge Length Ft : 425

Construction Equipment : Conventional

Nbi # : 21124

Latitude : 36.566350

Longitude : -99.552115

Project Delivery : design-bid-build

Miscellaneous Prefabricated : UHPC closure joint, other closure joint/connection - UHPC live-load continuity connection repair between spans

