

Marble Falls Bridge

by Aaron Garza, Texas Department of Transportation



Completed twin segmental box-girder bridges at Marble Falls, Tex. Photo: Archer Western Contractors.


In October 2014, the second of two new twin bridges crossing the Colorado River in Marble Falls, Tex., was opened to traffic. Construction began in April 2013, following demolition of the original steel truss bridge. By applying lessons learned during construction of the first bridge, the contractor and construction engineer sped up production time and completed the second bridge 6 months ahead of schedule.

Designed by the Texas Department of Transportation's Bridge Division, these three-span, variable-depth bridges span 958 ft and provide the city of Marble Falls with a safe, effective, and aesthetically pleasing design.

Each bridge carries two travel lanes, wide shoulders, and a 6-ft-wide sidewalk that protects pedestrian traffic. The twin-bridge concept prevents head-on collisions and provides a detour option if one bridge is closed. The bridges were constructed using the balanced-cantilever construction method, via two form travelers (one each side of the pier). The contractor checked elevations and camber and made adjustments as each new concrete segment was placed.

"There was a learning curve associated with the construction of the first bridge, but the key to the project's success was our ability to have the same crew throughout the entire

project," says Eric Hiemke, project manager with Archer Western Contractors. "The biggest lesson learned was improving our material quality control. We ordered reinforcement for the segments early, which allowed our team to perform an extensive quality control check on the reinforcement bends and act proactively if there was a problem." Additionally, the contractor learned from the difficulties of drilling shafts on the first bridge and was able to develop means and methods to efficiently remove the underlying dolomite, a hard rock making up most of the bed rock.

Of the 53,000 bridges serving the state of Texas, 22 are segmental structures, and less than 10 are made of cast-in-place concrete. Not only is the design of these bridges unique to the area, but so too is the method of construction. Because of limited access, the need for longer spans, and the desire for a minimal footprint, the cast-in-place concrete segmental design provides a creative solution while maintaining safe and efficient travel along a major north-south highway thoroughfare. 

Aaron Garza is with the bridge division of construction and maintenance with the Texas Department of Transportation in Austin, Tex.

EDITOR'S NOTE

For more information on this bridge, see the article in the Spring 2013 issue of ASPIRE.™

Full cantilever at pier 2 of the Marble Falls Bridge. Segment construction is beginning at pier 3. Photo: Aaron Garza.

