

Best Use of Technology & Innovation

Broadway Bridge Over Arkansas River

The Broadway Bridge on Highway 70 across the Arkansas River served as one of the primary structures for pedestrians, cyclists, and motorists traveling between Little Rock and North Little Rock for almost a century. By 2011, the bridge had become structurally deficient and officials determined renovation would be too costly. The Arkansas State Highway and Transportation Department developed plans to replace the deteriorating structure. The \$98 million replacement bridge consists of twin 448-foot basket-handle network tied arches, which provides travelers with an aesthetically pleasing and reliable structure connecting the two downtown areas which have a combined population of over 260,000.

Approximately 24,000 vehicles traverse the bridge daily. Since the bridge was out of service during reconstruction, traffic was detoured to alternate routes. Therefore, it was imperative to minimize the closure period. This fact resulted in the use of incentive/disincentive bidding. The successful contractor bid a 180 calendar day closure period. Through the use of innovative construction methods, the reconstruction was completed 28 calendar days early. Specialized drilling equipment designed to be used in low-overhead situations was used to install the drilled shaft foundations beneath the existing bridge which allowed the majority of the river foundations to be constructed while maintaining traffic on the existing structure. In addition, the Accelerated Bridge Construction (ABC) technique of pre-assembly of the tied arches on barges to facilitate float-in installation was also employed to facilitate the short closure time.

The combination of innovative methods and techniques allowed the bridge to be opened ahead of an already ambitious schedule resulting in a final product that exceeded the expectations of the traveling public. The early opening of the bridge was a welcome event for the thousands of commuters who travel daily between the two cities and for business owners near the bridge.