

Jefferson Street Bridge: The "Million Dollar Bridge" Listed on the National Register of Historic Places

by Bill Fortuna



Dubbed the "million dollar bridge" by town residents, referring to the cost of building the structure in 1921, the Jefferson Street Bridge in Fairmont, WV, is a three-span reinforced concrete arch bridge that crosses the Monongahela River. Listed on the National Register of Historic Places, the bridge was originally designed by The Steel Engineering Company of New York and was dedicated to the town of Fairmont on May 20, 1921. The John F. Casey Company of Pittsburgh completed the original construction.

Having been used by Fairmont residents for more than 70 years, the Jefferson Street Bridge needed restoration work to ensure the continued safety of the structure. The goal of the restoration project was to take down 80% of the structure with only the original arches remaining intact, reconstruct the bridge with new materials, and retain the same appearance as the original 1921 design.

In 1998, the Mosites Construction Company of Pittsburgh began the two-year restoration project. Working with architectural firm Howard Needles Tammen & Bergendoff (HNTB) of Alexandria, VA; engineering firm Gannett-Fleming of Pittsburgh; and RCS Consulting of Ripley, WV, Mosites Construction Company had to overcome numerous challenges related to the design and location of the bridge. Before any demolition could be done, precautions were taken to protect a communications fiber optic cable that ran under the south sidewalk of the bridge. Also, to preserve the six original arches, special engineering methods were employed to keep the demolition of other areas of the bridge from harming the arches. To duplicate the original appearance of the structure parapet and light poles, special architectural precast forms were designed.

To help restore the piers and arches, Mosites Construction Company turned to The QUIKRETE® Companies for its high-quality commercial-grade products. Using 6400 m² (69,000 ft²) of 37.5 mm (1.5 in) thick pneumatically applied QUIKRETE® Gunite MS®, Mosites successfully restored all four sides of the existing arches. The original



specification called for form and pour repairs on the piers. The use of dry-mix shotcrete resulted in cost savings and reduced time spent on repairs while providing a high-quality repair solution. The shotcrete portion of the project was a major part of the bridge restoration.

After structural repairs on the arches were completed, the Cathodic protection was installed. "Cathodic protection has been used on many commercial projects; however, this process had never been attempted from hanging stages 9 to 27 m

(30 to 90 ft) over water," said Ray Schallom of RCS Consulting, Inc. "The Jefferson Street Bridge project was one of the first attempts at using Cathodic protection with a dry-mix shotcrete application on a job of this magnitude anywhere in the world." Whereas most Cathodic systems are placed on deck surfaces or pier faces, the Jefferson Street Bridge project used the system for work on the top and bottom of the arches. Special procedures were written and developed to minimize surface delamination on the top of these arches. In addition,



major changes to the anchor placement were made for the shotcrete to be properly applied.

Newly restored, the Jefferson Street Bridge reopened to the public on October 27, 2000. The bridge stands as a symbol of the past as well as an important bridge to the future for Fairmont, WV, residents. Another project is currently underway to connect Interstate Route 79 to the Jefferson Street Bridge. This connector will further contribute to the future growth of Fairmont, WV.

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