

Shenandoah River Bridge

Jefferson County, WV



The new Shenandoah River Bridge rises 200 ft over the Shenandoah River in Jefferson County, West Virginia. The 1400 ft long bridge superstructure is supported by five lines of delta legs. Each leg covers a vertical distance of 150 feet and a horizontal distance of 150 feet, creating a girder span of 300 feet between the delta legs.

The substructure consists of two abutments and four piers, utilizing 560,000 pounds of epoxy-coated reinforcing steel, 7,700 cubic yards of concrete and 43,000 square feet of formwork.

While there are no navigation requirements for the river, the environmental constraints for the project and the relatively high cost of substructure units located in the valley dictated that the main span be approximately 600 ft in length.

When the West Virginia Department of Transportation set out to construct a new bridge across the Shenandoah River in the state's panhandle, it had a conventional deck truss structure in mind. But when bidders began considering alternatives, an unlikely design was deemed to be at once more visually striking and more cost effective.

The bridge carries more than 22,000 vehicles a day on the 5 mile stretch between Charles Town and the Virginia state line. The Shenandoah River Bridge was constructed as part of a larger effort to upgrade Route 9.

Team

Owner:

West Virginia Department of Transportation

Engineer:

HDR Engineering

General Contractor:

Trumbull Corporation, Pittsburgh

Design Criteria:

- Provide a small site footprint to cope with fluctuating river levels.
- Provide an economical structure.

Total Project Cost:

\$40 million

Total Size:

LENGTH: 1400 ft

WIDTH: 85 ft

Epoxy-coated Reinforcing Steel:

560,000 pounds

Photography:

hdrinc.com