

Innovative Beam Launcher Helps Small Cranes Make a Big Impression

by Philip Radler



The nearly completed West Pioneer Road Bridge spans the East Branch Fond du Lac River. When weather warms, the contractor will stain the formed stone finish to replicate the limestone rock found in the area. Photo: Paul Sponholz, Fond du Lac County, Wis.

Wisconsin's Fond du Lac County and the city of Fond du Lac had a problem: A two-lane bridge carrying 15,000 vehicles per day along West Pioneer Road and over the Fond du Lac River was rapidly deteriorating. Holes in the top flange of the box had been covered with steel plates to maintain traffic, but the old structure was posted with a load limit of 10 tons. This impeded a vital transportation corridor linking residential neighborhoods, business districts, and industrial areas in the city.

Gremmer & Associates Inc. was selected as project engineer to complete roadway design and manage construction of the new bridge. Subconsultant AECOM designed the 88-ft-wide, single-span, precast, prestressed concrete girder replacement bridge, which provides for five traffic lanes, a sidewalk, and a multi-use trail across the 99-ft-long span.

AECOM worked with the Wisconsin Department of Transportation to incorporate the state's new 36-in.-deep, 34-in.-wide girder section (36W[®]), eliminating the need for costly full-retaining abutments. The 8-in.-thick composite concrete deck is supported by fifteen 99-ft-long concrete girders that weigh almost 66,000 lb each.

To handle beam placement, Pfeifer Brothers Construction Company Inc. designed and built an adjustable beam launcher. Weighing just 22,275 lb, the launcher is a track-like structure

that can be set across the span with just one crane, yet it is strong enough to support the girders. Once the launcher is in place, one end of a beam is lifted and secured to a trolley that rolls on rails atop the launcher. With the other end of the beam still secured to the delivery truck, the truck backs up to roll the beam across the launcher, putting it within reach of a crane at the opposite abutment. That crane picks up one end of the beam, and works in tandem with the first crane to put each beam in position. This innovative solution allowed the girders, manufactured by Spancrete of Green Bay, Wis., to be set over just a 2-day period, and using smaller cranes.

Now one of the biggest

and the busiest bridges owned by the county, the completed structure features an additional parapet on the deck that separates live traffic from the multi-use trail. The abutments and parapets are accented with rustic ashlar concrete form liners and decorative black combination railings.

Philip Radler is a freelance writer in Hawthorne, Calif.



The leading end of the beam was mounted on a trolley on the beam launcher. The delivery truck pushed it across the Fond du Lac River until it could be reached by the near crane. Together, the two cranes lifted and set the beam in place. Photo: Steve Hinkley, retired, city of Fond du Lac, Wis.



The 8-in.-thick composite deck is shown being formed on the Wisconsin 36W[®] beams. Epoxy-coated reinforcement was used to help ensure a long service life. Photo: Jim Lucht, AECOM.