



Closed Henry Road Bridge in Mercer County, MI

Valmont™ Bridge Systems Case Study Mercer County

Mercer County Gets It Done

Henry Road Bridge Superstructure Replacement Project

In June of 2018, Brad Elder, Mercer County Bridge Department Engineer, traveled to the International Bridge Conference (IBC) in Orlando, FL hoping to find a solution for replacing his 34 structurally deficient bridge superstructures. Consisting of heavily deteriorated steel beams and an open steel grating bridge deck, these bridges were in such poor condition that many of them had been closed to traffic.



Deteriorated Existing Steel Grating Bridge Deck

Elder happened upon a seminar entitled Saving Time and Money in St. Clair County with Press-Brake-Formed Steel Tub Girders, presented by Guy Nelson of Valmont Structures and Mark Mellon of Valmont Coatings. Elder learned of an innovative and lightweight superstructure system that utilizes steel press-brake-formed tub girders and a precast concrete bridge deck. Immediately, he thought he found the solution to his deficient bridge inventory needs! Elder had high hopes for the Valmont Prefabricated Bridge System.

Utilizing county funds, Mercer County was ready to use the new Valmont



Closed Deteriorated Existing Henry Road Bridge.



Deteriorated Existing Steel Grating Guardrail Posts

Prefabricated Bridge System to replace the superstructure on one of its closed, structurally deficient, bridges.

An analysis of the existing substructure determined that the existing abutments could withstand an additional 20% increase in combined dead and live load. So, they decided to send out a low-bid solicitation for a superstructure replacement of the Henry Road Bridge with a requirement that the new superstructure could only increase the foundation pressure of the existing spread footing abutments by 20%. Mercer County wanted to determine if the Prefabricated Bridge system would be the lowest installed price for a contractor.

The solicitation went out on May 31, 2019. Jett Excavating, a local contractor, was

the low bidder and the Valmont Prefabricated Bridge System was the superstructure chosen by Jett Excavating. Valmon Valmont began the design, load rating and shop drawings of the new superstructure.

The Valmont system utilizes two methods of installation, Accelerated Bridge Construction (ABC) and Field Assembly (FA). The ABC method is comprised of fully assembled bridge units delivered to the site with the concrete driving surface already assembled. The FA method delivers the cambered, galvanized press-brake-formed steel tub girders to the project site separately from the precast deck panels for site assembly. Due to site constraints of this project site and the equipment lifting capabilities of the contractor, it was determined the most efficient method of installing the new superstructure would be the Field Assembly (FA) method.

By July 2019, shop drawings were approved and Valmont Structures began fabrication of the galvanized press-brake-formed-steel tub girders, while Faddis Concrete Products, a PennDOT approved precast company in nearby New Castle, PA, began precasting the eight full-depth, full-width precast concrete deck panels.

By Thursday, November 12th, the existing deteriorated superstructure was removed. The galvanized press-brake-formed steel tub girders were delivered to the construction site and installed on the existing concrete abutments. The following Tuesday, all 8 precast deck panels were delivered to the project site and installed on the new press-brake-formed steel tub girders the same day.

Over the next week, the shear stud pockets in the precast concrete deck panels and the transverse deck joints between the precast concrete deck panels were filled with high strength polymer concrete, the concrete brush blocks beneath the steel guide rails were cast with concrete and the steel guide rail was installed atop the concrete



High Strength Concrete Deck Joints and Casting Curb Under Guiderail

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High Strength Concrete Deck Joints and Casting Curb Under Guiderail



Installation of Precast Deck Panels on PBFTGs

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brush blocks.

By the middle of December, a bridge that had been closed for over 2 years was re-opened to traffic. Mercer County Bridge Division plans to place an epoxy overlay on the new precast concrete bridge deck to seal the joints and protect the new driving surface from chlorides.

Elder's trip to the International Bridge Conference had indeed delivered the solution he was looking for. The Valmont Bridge System worked for Mercer County because it delivers the total package - a fast, durable, and cost-efficient bridge replacement system.



Installation of Precast Deck Panels

Where can I get it?

Contact your Regional Sales Manager today to request a quote!

Or contact Valmont Structures at (402) 359-2201.



Completed Henry Road Bridge



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