In a testament to speed and ingenuity, the city of Bettendorf, Iowa has completed a steel truss bridge using accelerated bridge construction techniques.

The bridge replacement for Tanglewood Road over Crow Creek was designed as a prefabricated steel truss—and installed in one day. Key in the success of the project was the selection of steel as the material of choice.

Kirk Nelson, PE, an engineer with Missman Stanley & Associates, the engineering consultant, says, “The bridge design created some challenges as the site is in a floodplain. This ruled out some options such as the use of pre-stressed girders. Steel girders required too much superstructure depth. Our options were steel trusses or a multi-span concrete flat slab.”

Nelson recalled that debris had historically been a problem at this location, so piers restricting the flow were undesirable. “When we compared steel versus concrete, the steel design was the most cost effective solution that met the project needs,” he says.

Missman specified a 76’ x 16’ prefabricated steel truss. The final design was developed by the
bridge supplier, Wheeler. The bridge was detailed to be fabricated and shipped as two modular units with a joint down the middle. Once delivered to the site, another contractor installed the two truss sections over the course of about 10 hours. The concrete deck was poured soon after.

“The prefab bridge was an effective solution for fast construction which minimized road closure. The project allowed the supplier to use typical details which help to control cost and expedite production and installation,” noted David Clemens of Wheeler.

The total construction cost for the bridge, installation, and temporary bypass was approximately $190,000.

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ABOUT THE SHORT SPAN STEEL BRIDGE ALLIANCE

The Short Span Steel Bridge Alliance (SSSBA) is the industry resource for information related to short span steel bridges in North America. SSSBA’s objective is to provide essential information to bridge owners and designers on the unique benefits, innovative designs, cost competitiveness, and performance related to using steel in short span installations up to 140 feet in length. Alliance partners include bridge and culvert industry leaders, including manufacturers, fabricators and representatives of related associations and government organizations. To learn more visit www.shortspansteelbridges.org or email dsnyder@steel.org.