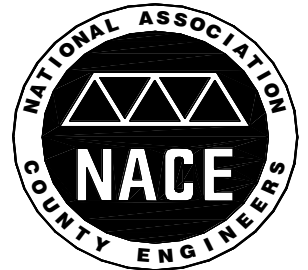


# *IOWA COUNTY ENGINEERS ASSOCIATION*



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## **NEWS RELEASE**

### **Iowa county bridge innovations**

**Posted on: January 9, 2017**

Iowa County Engineers are always looking for better ways to rebuild bridges faster, more economically, and reliably. They need to replace 300 structures per year in order to keep overall serviceability stable and minimize the need for load postings.

Research and experimentation in methods, materials and designs is always ongoing. Some of the ideas that are being or have been tried are formless decks, winter fabrication of deck panels - by county forces - for summer installation, geo-fabric reinforced abutments, high performance concrete, railroad flatcars, and proprietary products.

But it turns out that one of Iowa's most significant tools for economical bridge construction lies in a practice that commenced over 100 years ago: use of standard bridge designs. Instead of preparing a custom design for each site, Iowa road engineers long ago hit upon the idea of pre-designing a set of standard bridges. This consists of a collection of plan sets for bridges for a selection of predetermined lengths and widths. With such options available, the site designer can pick the length and width that best fits. In turn, bridge contractors can get set up to build the standard designs and reuse components and equipment across multiple projects – which leads to lower bids.

The result is that less time is needed for design and construction can be performed more efficiently.

The standard bridge, and culvert, plans have evolved over the years, as new technologies and methods came along. The original standards were for concrete decks on steel beams – for use on main roads, and timber bridges for local access. Over the years, the counties and DOT added in continuous slab bridges rolled steel beam structures, multiple span designs, concrete beams, and precast culverts.

The standard designs are typically procured by hiring a bridge design consulting firm to perform all necessary structural load, stress and deflection calculations and then lay out plans than enable field designers to select length and width to quickly determine construction quantities. Local Public Agencies often don't have staff that can structurally design a bridge or culvert, but they are able to perform the hydraulic designs by utilizing programs developed by Iowa DOT.

What is the result: Every year, the FHWA conducts a survey of each state's construction unit costs for bridges. For Iowa, the bridges that are not on the National Highway System are the second cheapest in the country, costing just slightly more than bridges in Mississippi. The very low unit costs are achieved via extensive use of bridge standards and long standing partnerships between the Iowa DOT, local agencies, and the construction industry.

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