



NEWS RELEASE

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STC releases “Top 20 Innovations for Rural Bridge Replacement and Repair”

Ankeny, Iowa — Rural roads and bridges serve as the initial link in the overall supply chain – allowing the soybeans and grain produced on a farm to be eventually consumed by both domestic and international customers. Of the bridges in the country classified as deficient and, in many cases, subject to closures or restricted access, a significant percentage are located in rural areas.

“Our nation’s rural bridges serve as the initial step in a lengthy journey to the ultimate customer,” explains Mike Steenhoek, executive director of the Soy Transportation Coalition (STC). “Unfortunately, the region of the country in which bridge conditions are most severe – rural areas – also happen to be the region in which available funding to improve these conditions is stagnant or on the decline. The concern remains that if this starting line for farmers is not well-maintained, soybeans and grain will not effectively reach the finish line in delivering to our customers.”

Given the significance of this need and the limited resources to address it, a potential response by bridge owners is to simply close or restrict access to existing bridges or hope federal, state, or local government will be willing and able to supply the necessary revenue. While pursuing increased investment is appropriate and closing or placing restrictions on certain rural bridges may be prudent, increased energy and attention must be devoted to addressing the cost side of the equation and making existing tax dollars stretch further.

In the effort to promote more cost-effective approaches to replacing and repairing rural bridges without compromising safety, the STC has released the report, “The Top 20 Innovations for Rural Bridge Replacement and Repair.” The report features the following ten rural bridge replacement and ten rural bridge repair innovations.

Bridge Replacement Innovations

- Railroad Flat Car Bridges
- Geosynthetic Reinforced Soil – Integrated Bridge System (GRS-IBS)
- Vibratory H-Piling Drivers
- Buried Soil Structures
- All Steel Piers
- Galvanized H-Piling
- Press Brake Tub Girders
- Galvanized Steel Beams
- Prestressed Precast Double Tees
- Precast Inverted Tee Slab Span Bridges

Bridge Repair Innovations

- Piling Encasements
- Concrete Pier Piling Repairs
- Driving Piling through Decks
- Epoxy Deck Injections
- Deck Overlays with Type O Concrete and Plasticizers
- Deck Patching
- Thin Polymer Concrete Overlays
- Penetrating Concrete Sealers
- Spot Cleaning Painting Steel Beams
- Concrete Overlay on Adjacent Box Beams

“Many of the innovative concepts featured in this report can result in a 50% or greater cost savings for rural counties,” says Jonathan Miller, a soybean farmer from Island, Kentucky, and chairman of the Soy Transportation Coalition. “This can easily result in replacing a bridge for \$100,000 to \$150,000 compared to the prevailing method of \$250,000 to \$400,000. Farmers understand with their own operations that simply spending our way out of a problem will rarely be successful. We also need to embrace innovative ways to save our way out of a problem. This approach that works so well on the farm also applies to maintaining and improving our infrastructure.”

In order to select the featured innovative concepts, the STC assembled a group of 13 bridge engineers and experts (listed below) from the 13 states that comprise the organization. Three engineers served as principal analysts for the project with the remaining ten engineers or experts serving as advisory committee members.

The innovative concepts for bridge replacement and repair featured in the project are not an exhaustive and comprehensive catalog. Numerous other innovative concepts exist and are worthy of being explored. The goal of the principal analysts and advisory committee members was to highlight a relatable number of innovative concepts that 1.) Will provide initial or lifecycle cost savings, 2.) Have been validated by a credible engineering entity or organization, and 3.) Are accessible in a large section of rural America. The featured bridge replacement and repair concepts reflect the broad consensus of the principal analysts and advisory committee members. Readers should not assume the bridge replacement and repair concepts featured in the above list are in complete alignment with the lists of each individual principal analyst or advisory committee member.

A document highlighting the innovate bridge replacement and repair concepts, expected cost and time savings, and links to validating research can be accessed at www.soytransportation.org.

Principal Analysts:

- Indiana: Pat Conner, P.E. (Lead Engineer, Asset Management, Local Technical Assistance Program at Purdue University)
- Iowa: Brian Keierleber, P.E. (County Engineer, Buchanan County, Iowa; President of the National Association of County Engineers – 2017-2018)
- North Dakota: Kelly Bengtson, P.E. (Bridge and Pavement Engineer – Upper Great Plains Transportation Institute at North Dakota State University)

Advisory Committee Members:

- Illinois: Duane Ratermann, P.E. (County Engineer, Knox County, Illinois; President of the National Association of County Engineers – 2015-2016; President of the Illinois Association of County Engineers – 2019-2020)
- Kansas: Calvin Reed, P.E. (Director of Engineering and Design – Kansas Department of Transportation)
- Kentucky: Duane Campbell, P.E. (County Engineer, Boyle County, Kentucky; President of the Kentucky Association of County Engineers and Road Supervisors)

- Michigan: Dave Juntunen, P.E. (former Bridge Engineer – Michigan Department of Transportation; Bridge Management Practice Lead – The Kercher Group)
- Minnesota: Dave Conkel, P.E. (State Aid Bridge Engineer – Minnesota Department of Transportation)
- Missouri: Derin Campbell, P.E. (former County Engineer, Boone County, Missouri; Project Manager – Allstate Consultants, LLC)
- Nebraska: Josh Steelman, P.E. (Associate Professor, Civil Engineering – University of Nebraska)
- Ohio: Warren Schlatter, P.E. (County Engineer, Defiance County, Ohio)
- South Dakota: Andrew Peterson (Field Services Manager – Local Technical Assistance Program at South Dakota State University)
- Tennessee: Matt Cate, P.E. (Director, Tennessee Transportation Assistance Program – University of Tennessee)

Principal Analyst Quotes:

“This project benefitted from the participation of a diverse group of thought leaders on the topic of rural infrastructure. Assembling 13 engineers and experts and expecting complete consensus is nearly impossible. I have nonetheless been impressed with the broad consensus and enthusiasm among the principal analysts and advisory committee members to shine a spotlight on innovative approaches that will allow states, counties, and municipalities to more effectively maintain and improve their rural bridge inventory.” Kelly Bengtson, P.E.; Bridge and Pavement Engineer – Upper Great Plains Transportation Institute, North Dakota State University

“One of the reasons I have been supportive of this important project is the opportunity to partner with soybean farmers in promoting these innovative concepts. Having both engineers – those constructing and maintaining rural bridges – and farmers – those utilizing rural bridges – working together on this effort will create a true win-win outcome. We need more of this collaborative approach when tackling the important challenges facing our rural infrastructure.” Pat Conner, P.E.; Lead Engineer, Asset Management – Local Technical Assistance Program, Purdue University

“Many of these innovative concepts have been implemented in certain areas of the country. However, one of the things I’ve learned is that just because a good idea is being practiced in one area, it does not mean it will be practiced in another area. I am excited that this project has the potential to increase awareness throughout rural America of many of these innovative approaches to replace and repair rural bridges. We need to be open to opportunities to get more bang for the taxpayer dollar.” Brian Keierleber, P.E.; Engineer, Buchanan County, Iowa; President of the National Association of County Engineers – 2017

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Established in 2007, the Soy Transportation Coalition is comprised of thirteen state soybean boards, the American Soybean Association, and the United Soybean Board. The goal of the organization is to position the soybean industry to benefit from a transportation system that delivers cost effective, reliable, and competitive service.