

UTC Project Information	
Project Title	MPC-443 – Bridge Structure Alternative for Local Roads
University	South Dakota State University
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Funding Agencies	USDOT, Research and Innovative Technology Administration
Agency ID or Contract Number	DTRT12-G-UTC08, Modification No. 1
Project Cost	\$50,000
Start and End Dates	January 1, 2013 – December 31, 2013
Project Duration	1 Year
Brief Description of Research Project	<p>South Dakota local governments own 1,959 bridges 40 feet or less in length and nearly half need replacement soon. The South Dakota Department of Transportation’s Local Government Assistance office provides local government access to federal funding, technical expertise, and administrative assistance with bridge replacement projects, but current funding limits only allow assistance with approximately 30 bridge replacements statewide per year. Local government bridge replacement projects funded with federal aid must comply with current SDDOT design standards and federal regulations. Some federal requirements significantly increase a project’s construction time and cost, but if federal funds are not used, short span bridge projects could waive some requirements and potentially have significantly lower cost without compromising safety, structural capacity, or durability.</p> <p>Due to current federal funding limitations and increasing replacement needs, local governments are forced to make selective replacement decisions and delay many other bridge replacements by imposing load limits and closing bridges. Once the Local Government Assistance office has helped program a local bridge in the Statewide Transportation Improvement Plan (STIP), there is up to a ten year wait before a bridge will be replaced. Many bridges cannot wait for replacement without forcing local government decision makers to post load limits or close bridges. Local governments have an immediate need for low life-cycle cost bridge replacement alternatives.</p> <p>Knowledge of available alternatives and construction planning processes could enable South Dakota local governments to replace more structurally deficient local bridges with limited funds. Research is needed to develop guidance identifying applicable South Dakota local government bridge construction techniques, materials, and construction</p>

	<p>planning and administration process requirements to enable South Dakota local governments to more efficiently and cost effectively replace short span bridges.</p>
<p>Describe Implementation of Research Outcomes (or why not implemented)</p> <p>Place Any Photos Here</p>	<p>First, the off-system bridge catalog is to be used as a reference tool for determining which technique or system should be used on a given bridge construction project after the decision has been made that innovative off-system alternatives are applicable for the project. Second, the costs provided can be modified by the user to obtain current construction costs. Although the evaluation tool developed in this study laid out the framework for a simplified assessment for innovative off-system bridge applicability in South Dakota, the available data related to actual cost is very limited. It is recommended that through future use of the tool in realistic projects, additional data be collected and used to calibrate the weighting factors used in the evaluation tool. It will be beneficial to perform realistic project scenarios through the evaluation tool to see if the indicator reflects realistic decision making conditions.</p>
<p>Impacts/Benefits of Implementation (actual, not anticipated)</p>	<p>An evaluation tool with simple inputs for use by local government decision making was developed. The tool will lead decision makers through the process of cost evaluation, and finally recommend if a project should be completed using cost-saving innovative methods for bridge construction or by using conventional methods.</p>
<p>Web Links</p> <ul style="list-style-type: none"> • Reports • Project Website 	<ul style="list-style-type: none"> • MPC Research Report • SDSU Thesis