

UTC Project Information	
Project Title	MPC-440 – Tolerances for Placement of Tie Bars in Portland Cement Concrete Pavements
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	\$150,000
Start and End Dates	January 1, 2013 - December 31, 2013
Project Duration	1 Year
Brief Description of Research Project	<p>Tie bars provide load transfer along longitudinal joints and prevent lane separation in jointed concrete pavements. Tie bars are normally located within the middle third of the pavement thickness and span the longitudinal joint of two slabs. Tie bars are placed by staking or by using tie bar baskets prior to the placement of the concrete or during paving via automatic inserters. Inspection of South Dakota pavements after construction using ground penetrating radar (GPR) has revealed that many bars were misaligned or missing. More bars were reported missing or misaligned when automatic inserters were used. Many states, including South Dakota, have banned the use of automatic inserters based on a lack of confidence regarding the placement of tie bars. The long-term effect on the pavement from misaligned or missing bars is unknown, but it can be assumed that additional maintenance costs and reduced pavement life are both possible.</p> <p>Developing an understanding of misplaced tie bars and placement tolerances is important to the South Dakota Department of Transportation (SDDOT). The financial impacts of misplaced tie bars are unknown. Misplaced tie bars could be costing the department substantial amounts of money in the long-run if undetected or uncorrected during construction.</p>
Describe Implementation of Research Outcomes (or why not implemented)	The South Dakota Department of Transportation is considering modification of its current specifications for upper limits of tie bar misalignment.
Place Any Photos Here	
Impacts/Benefits of Implementation	With millions of dollars spent each year on concrete pavement maintenance, the financial impacts of misplaced tie bars could be

(actual, not anticipated)	costing the SDDOT a substantial amount of money in the long term. This study will help SDDOT set acceptable tie bar misalignment limits during construction of highway concrete pavement.
Web Links <ul style="list-style-type: none">• Reports• Project Website	https://www.ugpti.org/resources/reports/details.php?id=993