

UTC Project Information	
Project Title	Special Provisions for Intelligent Compaction of Stabilized Soil Subgrades
University	The University of Oklahoma
Principal Investigator	PI: Sesh Commuri, Ph.D., M.ASCE, The University of Oklahoma Co-PI: Musharraf Zaman, Ph.D., P.E., F.ASCE, The University of Oklahoma Co-PI: Manik Barman, Ph.D., The University of Oklahoma
PI Contact Information	Sesh Commuri, commuri@ou.edu Musharraf Zaman, zaman@ou.edu Manik Barman, barmanmanik@ou.edu
Funding Source(s) and Amounts Provided (by each agency or organization)	SPTC/Oklahoma Department of Transportation: \$167,978 Volvo Construction Equipment, Shippensburg, PA.: \$267,268 Haskell Lemon Construction Company: \$240,000
Total Project Cost	\$675,246
Agency ID or Contract Number	ODOT SPR 2160(A) SPTC14.2-03
Start and End Dates	October 1, 2014 – September 30, 2016
Brief Description of Research Project	<p>PROBLEM: Roadway pavements play a critical role in the transportation infrastructure of our nation. These pavements are typically constructed on top of stabilized (soil) subgrades and their performance and longevity are influenced by the quality of construction, notably compaction. Lack of adequate tools to determine the quality of compaction during construction is one of the leading causes of early deterioration of pavements. Poor quality not only increases the cost of construction and maintenance of pavements but also makes them susceptible to extreme weather conditions (increased wet-dry and freeze-thaw cycles, hotter summer and colder winter, excessive rainfall, drought).</p> <p>PROPOSED SOLUTION: Intelligent Compaction (IC) of soil and asphalt mixes is an innovative approach that has been utilized to achieve uniform, adequate compaction of pavement layers during construction. Commercially available IC products provide machine-specific compaction values that are indirectly related to the compaction quality (stiffness) of the pavement layers. Additional methods must be developed in order to relate these compaction values to standardized tests used to verify pavement quality during construction. The Federal Highway Administration (FHWA) has drafted <i>Generic IC specifications</i> for soils and asphalt pavements to facilitate the early adoption of this technology. These generic specifications are expected to serve as guidance to individual state Departments of Transportation (DOTs) in the development of specifications relevant to the respective states. The lead researchers of this study have developed and demonstrated Intelligent</p>

	<p>Compaction Analyzer (ICA) technology, where a roller instrumented with ICA could estimate the modulus of the pavement layers during compaction. Further, the ability of ICA to improve the quality of compaction of asphalt layers and stabilized subgrade during construction has also been demonstrated. In this study, the objective will be to develop and validate Oklahoma Department of Transportation “Special Provisions” for the use of IC rollers during compaction of stabilized subgrades.</p>
<p>Describe Implementation of Research Outcomes (or why not implemented)</p> <p>Place Any Photos Here</p>	
<p>Impacts/Benefits of Implementation (actual, not anticipated)</p>	
<p>Web Links</p> <ul style="list-style-type: none"> • Reports • Project website 	