

UTC Project Information

Project Title	Development of Objective Methods for Determining Damage Accumulation in Pavements Prior to Visual Distress Becoming Apparent
University	University of Minnesota
Principal Investigator	Lev Khazanovich, Ph.D. Professor University of Minnesota
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Funding Source(s) and Amounts Provided (by each agency or organization)	\$187,685 USDOT \$93,843 In-Kind and UMn
Total Project Cost	\$281,528
Agency ID or Contract Number	DTR13-G-UTC44
Start and End Dates	May 15, 2014 – May 14, 2016
Brief Description of Research Project	The pavement preservation research roadmap involves the need to nondestructively quantify the current condition of existing pavements. The purpose of this project is to develop testing procedures and data analysis techniques to allow for evaluation of subsurface damage in concrete pavement prior to arrival at the surface. This will involve use of emerging array technology. Ultrasound wave phenomena will be used to interrogate the pavement as a core replacement or core limiting technology. This project will also include incorporation of electromagnetic wave phenomena to interrogate the pavement in a faster, more continuous way that allows for identification of general trends in the pavement subsurface condition. These emerging technologies will specifically be applied for joint conditions assessment and tie bar evaluation. Based on the results of the field evaluations and subsequent analysis tool development, test procedure recommendations on type and frequency of nondestructive tests will be provided. These recommendations will be tailored to the various types of subsurface distresses and proposed preservation technique.
Describe Implementation of Research Outcomes (or why not implemented)	N/A

Place Any Photos Here

Impacts/Benefits of
Implementation (actual, not
anticipated)

The following potential benefits can emerge from the research project to the state-of-the-art and the state-of-the-practice: A systematic implementable framework for non-destructive monitoring and evaluation of concrete pavement deterioration will assist highway agencies in adopting cost effective preservation practices.. In this case, the means by which the evaluation will be done is non-invasive by nature to provide the added benefit of replacing destructive methods such as coring. As a result the following benefits will be achieved:

- Highway agencies will be able to obtain information allowing for selection of an appropriate preservation treatment and timing based on the pre-existing pavement conditions determined by heuristic procedures.
- Guidelines for data collection and delivery of recommendations for treatment life extensions across various climatic zones and states.

Web Links

- Reports
- Project website

<www.chpp.egr.msu.edu>