


UTC Project Information – National Transportation Center @ Maryland (NTC@Maryland)	
Project Title	Economic Impacts from Challenges in Pavement Engineering in an Uncertain Climate Future
University	Arizona State University
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PI(s) and Co-PI(s) Photo(s) Image should be 80width x 120height pixels. Allowed file types: png gif jpg jpeg .	
Funding Source(s) and Amounts Provided (by each agency or organization)	ASU: \$70,787
Total Project Cost	\$70,787
Agency ID or Contract Number	DTRT13-G-UTC30
Start and End Dates	1/1/16 – 12/31/16
Project Image (for website) Should be 233width x 155height pixels. Allowed file types: png gif jpg jpeg .	
Brief Description of Research Project	Climate change and extreme weather events have become issues of greater relevance to transportation engineering professionals (Meyer et al. 2014). However, there remains relatively weak science for how climate change hazards can impact transportation infrastructure, the personal and commercial use of the infrastructure, the economic disparities that may occur from inconsistent geospatial and temporal influences, and how these impacts should be best managed. Recently the National Cooperative Highway Research Program evaluated how climate change might introduce hazards to transportation infrastructure.

	<p>The outcomes provided, in very general terms, scenarios for the potential impact of these changes (Gaspard et al. 2007). While useful for planning, operations, and disaster management uses, these findings do not provide tangible information for designers on the engineering controls that may emerge in response to greater climatological uncertainty nor the economic impacts associated with the uncertainty. For example, in one scenario designs may adjust to a higher overall level of reliability, which will increase infrastructure costs and maintain current levels of performance. In an alternative vision the engineering could remain the same and performance could reduce by either overall system deterioration and/or increased frequency of catastrophic failures. Currently the knowledge to accurately assess the economic impact of these (or other) scenarios inclusive of user/freight delay does not exist.</p>
<p>Describe Implementation of Research Outcomes (or why not implemented)</p> <p>May Place Any Photos Here</p>	<p>The objectives of this study are twofold. The first objective is to evaluate the impacts of projected changes in climatological patterns on pavement performance and assess the immediate and long-term economic impacts. The second objective is to identify pavement analysis and design strategies that best mitigate these hazards. This study is needed because it is currently unknown how transportation agencies will respond to the forthcoming uncertainty and whether certain regions within the country will be particularly affected. Existing attempts to perform similar analysis generally falls short in terms of spatial resolution or extent, calculation transparency, and detailed enough project level performance assessment (Schweikert et al. 2014).</p>
<p>Impacts/Benefits of Implementation (actual, not anticipated)</p>	<p>Project has not begun yet, so no impacts have been realized.</p>

Web Links <ul style="list-style-type: none">• Reports• Project website	