



Center for Advanced Multimodal Mobility Solutions and Education

UTC Project Information – CAMMSE @ UNC Charlotte	
Project Title	Modeling the Macroscopic Effects of Winter Maintenance Operations on Traffic Mobility on Washington Highways
University	Washington State University
Principal Investigator	Xianming Shi
PI Contact Information	(509)-335-7088 / xianming.shi@wsu.edu
Funding Sources and Amount Provided (by each agency or organization)	The University of North Carolina at Charlotte: \$75,000 Washington State University: \$37,505
Total Project Cost	\$112,505
Agency ID or Contract Number	
Start and End Dates	10/01/2017 – 09/30/2019
Brief Description of Research Project	<p>In the northern states and other cold regions, winter maintenance operations play a significant role in how effective or ineffective the transportation system is during snowy or icy weather. Data modeling and analytical tools are much needed to optimize passenger and freight movements, taking into consideration the impacts of winter weather as well as winter maintenance operations.</p> <p>Recent years have seen increased use of anti-icing strategy and smart snowplow technologies for highway winter maintenance operations. When implemented appropriately, anti-icing (a</p>



Center for Advanced Multimodal Mobility Solutions and Education

	<p>proactive strategy) has demonstrated significant benefits in traffic mobility and safety, compared with conventional deicing (a reactive strategy). Smart snowplow technologies have shown their benefits in improving the level of service on winter highways as well. The mobility effects of such best practices, however, remain anecdotal and need to be systematically investigated and quantified.</p> <p>It is the intent of this study to lay the foundational work for modeling the macroscopic effects of winter maintenance operations (including the aforementioned best practices) on traffic mobility in the Pacific Northwest, with the first case study conducted on Washington highways.</p>
<p><i>Describe Implementation of Research Outcomes (or why not implemented)</i></p> <p><i>Place Any Photos Here</i></p>	
<p><i>Impacts/Benefits of Implementation (actual, not anticipated)</i></p>	<p>Project has not begun yet, so no impacts have been realized.</p>
<p><i>Web Links</i></p> <ul style="list-style-type: none"> • <i>Reports</i> • <i>Project website</i> 	<p>https://cammse.uncc.edu/sites/cammse.uncc.edu/files/media/CAMMSE-UNCC-2018-UTC-Project-Information-17-Shi.pdf</p>