Center for Advanced Multimodal Mobility Solutions and Education

UTC Project Information – CAMMSE @ UNC Charlotte	
Project Title	Prediction of Traffic Mobility Based on Historical Data and Machine Learning Approaches
University	Washington State University
Principal Investigator	Xianming Shi
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Funding Sources and Amount Provided (by each agency or organization)	The University of North Carolina at Charlotte: $62,271 Washington State University: $31,136
Total Project Cost	$93,407
Agency ID or Contract Number	
Start and End Dates	10/01/2021 – 09/30/2022
Brief Description of Research Project	Traffic mobility plays an important role in the intelligent transportation system (ITS). As a factor significantly affecting road safety and efficiency (as well as environmental stewardship), prediction of traffic mobility has attracted continuous attention over the past decades. Especially with the rapid development of machine learning (ML) techniques, the accuracy and stability of predictive models for traffic mobility have been improved dramatically. Responding to the CAMMSE theme of "Developing data modeling and analytical tools to optimize passenger and freight movements", this proposed work will develop predictive models that use ML techniques for improved traffic mobility in the

	Pacific Northwest.
	In a previous CAMMSE research project titled "Modeling the macroscopic effects of winter maintenance operations on traffic mobility on Washington highways", macroscopic effects of winter road maintenance (WRM) operations on the characteristics of traffic operations have been identified and evaluated. In this proposed work, they will be further explored with other influential factors such as climatic and pavement surface conditions for comprehensive and representative predictive models for traffic mobility in the Pacific Northwest.
	The major tasks of this work include data mining on historical records, variable selection and ML model development, comparison and ensemble with the case study conducted on Washington highways.
Describe Implementation of Research Outcomes (or why not implemented) *Place Any Photos Here*	
Impacts/Benefits of Implementation (actual, not anticipated)	
Web Links	https://cammse.uncc.edu/sites/cammse.uncc.edu/files/media/CA

• *Reports*	MMSE-UNCC-2022-UTC-Project-Information-15-Shi.pdf
• *Project website*	https://cammse.uncc.edu/sites/cammse.uncc.edu/files/media/CAMMSE-UNCC-2022-UTC-Project-Report-15-Shi-Final.pdf