



Center for Advanced Multimodal Mobility Solutions and Education

UTC Project Information – CAMMSE @ UNC Charlotte	
Project Title	A New Method for Estimating Truck Queue Length at Marine Terminal Gates
University	Texas Southern University
Principal Investigator	Yi Qj, Mehdi Azimi and Qun Zhao
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Funding Sources and Amount Provided (by each agency or organization)	The University of North Carolina at Charlotte: \$52,402 Texas Southern University: \$29,300
Total Project Cost	\$81,702
Agency ID or Contract Number	
Start and End Dates	10/01/2019 – 09/30/2021
Brief Description of Research Project	As international trade and freight volumes increase, there is a growing port congestion problem, leading to the long truck waiting lines at US marine terminal gates, which sometimes causes traffic problems in the adjacent roadway network. To solve this problem, an accurate model for estimating the truck queue length and waiting time is needed. However, the existing methods, such as fluid flow model, stationary queuing models, non-stationary queuing models, simulation models and regression models, all have their limitations and cannot provide accurate queue length estimation under certain conditions. The proposed project is to develop a new method for estimating terminal gate truck queue length that can fill the gaps in



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	<p>the existing methods. To evaluate the accuracy of the developed method, simulation-based numerical experiments will be conducted to compare the estimated queue lengths of different methods under various customer demand and service rate conditions. The developed method can be used for assessing the effectiveness of various countermeasures for reducing truck queue length and waiting times at marine terminals.</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><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-2020-UTC-Project-Information-13-Qi.pdf</p> <p>https://cammse.uncc.edu/sites/cammse.uncc.edu/files/media/CAMMSE-UNCC-2020-UTC-Project-Report-13-Qi-Final.pdf</p>