Center for Advanced Multimodal Mobility Solutions and Education

UTC Project Information – CAMMSE @ UNC Charlotte	
Project Title	Development of Guidelines for Implementation of Contraflow Left-Turn Lanes at Signalized Intersections
University	Texas Southern University
Principal Investigator	Yi Qi, Mehdi Azimi and Qun Zhao
PI Contact Information	(713)-313-6809 / qiy@tsu.edu
Funding Sources and Amount Provided (by each agency or organization)	The University of North Carolina at Charlotte: $54,052 Texas Southern University: $26,899
Total Project Cost	$80,951
Agency ID or Contract Number	
Start and End Dates	10/01/2018 – 09/30/2020
Brief Description of Research Project	Recently, an innovative intersection design, contraflow left-turn lane (CLL) design has been increasingly implemented at the signalized intersections in China. It was designed for solving the problem that the capacity of the existing regular left-turn lanes is insufficient for the increasing left-turn demand at a signalized intersection. The basic idea of this design is to provide additional capacity to left-turning vehicles by making use of the opposing lanes dynamically. With the CLL design, more existing lanes (i.e. opposing through lanes) can be used for moving left-turn vehicles, thereby increasing the efficiency and capacity of the intersections and reducing the left-turn queue lengths at the intersections. In addition, this new design can be easily

	implemented without modifying the intersection in a way that requires major constructions. To introduce this cost-effective new design to the transportation practitioners in USA, the proposed study will systematically analyze the impacts of CLL on the intersection operational performance and will develop a model for estimating the length of the CLL that will maximize the operational benefits of this new design. In addition, traffic simulation based study will be conducted to valid the modeling results. After that, a step by step design procedure for converting an existing conventional LT intersection to a CLL will be developed. The outcome of the project will provide tools and design guidelines to the traffic engineers for appropriately implementing of this innovative intersection design in USA in the future.
Describe Implementation of Research Outcomes (or why not implemented) *Place Any Photos Here*	
Impacts/Benefits of Implementation (actual, not anticipated)	
Web Links • *Reports* • *Project website*	https://cammse.uncc.edu/sites/cammse.uncc.edu/files/media/CAMMSE-UNCC-2019-UTC-Project-Information-12-Qi.pdf https://cammse.uncc.edu/sites/cammse.uncc.edu/files/media/CAMMSE-UNCC-2019-UTC-Project-Report-12-Qi-Final.pdf