Center for Advanced Multimodal Mobility Solutions and Education

UTC Project Information – CAMMSE @ UNC Charlotte	
Project Title	Corridor Level Adaptive Signal Control (Phase III)
University	The University of Texas at Austin
Principal Investigator	Randy Machemehl
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Funding Sources and Amount Provided (by each agency or organization)	The University of North Carolina at Charlotte: $77,000 City of Austin: $38,500
Total Project Cost	$115,500
Agency ID or Contract Number	
Start and End Dates	10/01/2019 – 06/30/2021
Brief Description of Research Project	Traffic congestion in Austin Texas is becoming more problematic as the City continues growing rapidly. Current estimates indicate over 150 people per day are moving to Austin. To deal with the growing congestion problem in many travel corridors, the City is proposing adaptive traffic signal systems for several routes. The first pilot test is to be on a north-south route (Lamar Blvd) that experiences congestion particularly during the AM peak time. Before-after assessments of the proposed timing methodology will be developed from field observations and form the basis for improving the concept. The chosen corridor is an excellent test bed since it features hard-wire connected signal controllers and video surveillance. Street geometry includes two lanes each direction

	with a continuous two-way left turn lane. The adaptive signal technology development addressed in previous tasks offers potential for reducing traffic delay and improving travel times within the typical urban network. However, implementation of the technology in a large urban signal network usually cannot be accomplished in one step and adaptive technology may actually not be appropriate for every signal. For example, the City of Austin Transportation Department is responsible for installing and maintaining over 1000 signals and although they are interested in adaptive control they wish to have guidance regarding priorities for adaptive control implementation. Therefore, this task will develop a methodology for prioritizing the implementation process. Since adaptive technology provides enhanced responsiveness to changes in traffic demand, methodological development will consider traffic demand changes across a variety of time frames including hours, days, weeks and longer time durations as potential indicators of implementation priority. Another consideration, related to time-based coordination, is the characteristics of signal groups in which prospective adaptive controllers are located. Generally, for coordination purposes, signals in each area-wide group have common cycle lengths and constraining an adaptive controller to maintain an existing group cycle length could reduce the potential efficiency. The desired product of this task is a methodology for developing a priority order for adaptive control implementation.

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-2020-UTC-Project-Information-06-Machemehl.pdf https://cammse.uncc.edu/sites/cammse.uncc.edu/files/media/CAMMSE-UNCC-2019-UTC-Project-Report-06-Machemehl-Final.pdf