Center for Advanced Multimodal Mobility Solutions and Education

UTC Project Information – CAMMSE @ UNC Charlotte	
Project Title	Forecasting Bicycle Facility Demand to Estimate Societal Impacts
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: $75,000 City of Austin: $37,500
Total Project Cost	$112,500
Agency ID or Contract Number	
Start and End Dates	10/01/2018 – 09/30/2020
Brief Description of Research Project	In 1994 President Clinton issued Executive Order 12898 which directs Federal Agencies to identify and avoid negative impacts: "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations". The EO directs each Federal Agency to "make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations," including tribal populations. Although the EO is clearly aimed to identify and reduce negative impacts, provision of bicycle facilities to EJ as well as other population segments may have significant, identifiable

positive impacts but very little has been done to document positive bicycle facility impacts. A first step toward identifying positive impacts is estimation of usage by EJ as well as the population in general.

There has been some work performed to estimate impacts of bicycle facilities but very little has directly examined impacts on EJ or other specific population segments and available tools for forecasting numbers of bicycle users, much less, estimating impacts are relatively scarce. Most methods for estimating impacts of bicycle facilities have been focused on very large-scale analyses, however, impacts of specific bicycle facilities or impacts upon specific population segments are rarely reported. Potential positive impacts of bicycle facilities are dependent upon the numbers of bicycle riders who actually use the facility once it is constructed. Predictive models for bicycle facility usage are developed using a combination of bicycle facility user counts, origin-destination surveys and socioeconomic data. A direct estimation method as well as a two-step estimation procedure are developed to estimate usage of a proposed bicycle facility. The use of zonal socioeconomic characteristics as predictor variables is intended to enable the models to predict bicycle facility usage by population segments. Usage predictions can form the basis for broad spectrum estimates of bicycle facility impacts upon health, food availability, employment access and ultimately regional

	sustainability.
Describe Implementation of Research Outcomes (or why not implemented) *Place Any Photos Here*	
Impacts/Benefits of Implementation (actual, not anticipated)	Project has not begun yet, so no impacts have been realized.
Web Links • *Reports* • *Project website*	https://cammse.uncc.edu/sites/cammse.uncc.edu/files/media/CAMMSE-UNCC-2019-UTC-Project-Information-05-Machemehl.pdf