UTC Project Information – **Center for Transportation, Environment, and Community Health**	
Project Title	Development of Framework for Identifying Mobility Desert *or* Identifying multi-modal deserts: a multivariate outlier detection approach
University	University of South Florida
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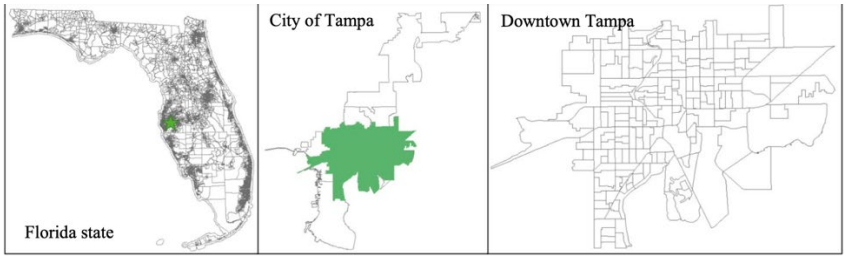
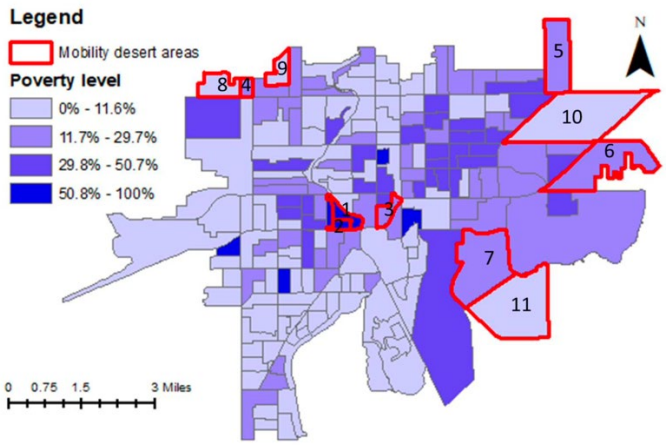
Funding Sources and Amount Provided (by each agency or organization)	USDOT: $74,398 USF: $37,199
Total Project Cost	$111,597
Agency ID or Contract Number	Sponsor Source: Federal Government CFDA #: 20.701 Agreement ID: 69A3551747119
Start and End Dates	10/01/2020 – 12/31/2021
Brief Description of Research Project	Providing all means of travel facilitates people's access to jobs, healthcare, critical activities, and other services. To enable equal multi-modal mobility services to the public, it is important to evaluate equity in accessing different travel modes. In this study, we proposed a concept called "multi-modal deserts" and developed an approach to identify them. Multi-modal deserts refer to areas with limited mobility services that constrain people from accessing services and opportunities. Framed under multi-modality, multivariate outlier detection was applied to identify areas' mobility services that significantly deviate from other areas by analyzing road network factors and travel modes. Downtown Tampa, Florida, was selected as an empirical case to demonstrate the proposed method, and 11 multi-modal deserts were identified among 182 Census Block Groups. In addition, spider charts were used to illustrate and compare the features of these multi-modal deserts. The results show that two multi-modal deserts in central Downtown Tampa have the highest poverty ratios and have very limited access to all travel modes. For such multi-modal deserts, transit and shared micromobility need to be better served in a way to enrich the travel mode choices for low-

	income residents. Other multi-modal deserts are at the edge of Downtown Tampa, which has no access to shared micromobility and limited access to transit. The results will help local authorities identify mobility gaps by better allocating resources and improving equal access to opportunities for all citizens.
Describe Implementation of Research Outcomes (or why not implemented) *Place Any Photos Here*	The method is used for the case study of Tampa Downtown, where there are public transit, shared micromobility, and other ground transportation modes.  Figure 1: Study area  FIGURE 4: Multi-modal deserts in Downtown Tampa
Impacts/Benefits of Implementation (actual, not anticipated)	This study developed a new method to evaluate the combined effect of multimodal transportation options, which advances the knowledge in this field and provides a tool for local transportation agencies to make decisions on transportation project priority and countermeasures to improve transportation equity.
Web Links • *Reports* • *Project website*	http://ctech.cee.cornell.edu/final-project-reports