UTC Project Information	
Project Title	Development of A Simulation Tool for Planning On-Demand Urban Air Mobility
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Funding Source(s) and Amounts Provided (by each agency or organization)	USDOT: $86,257 University of South Florida: $43,129
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Brief Description of Research Project	Urban air mobility (UAM) is an emerging concept proposed in recent years that uses electric vertical take-off and landing vehicles (eVTOLs) for passenger and cargo transport in low-altitude airspace. UAM provides disruptive innovation not only to aviation but also to mobility systems and urban planning. Although there are still technical challenges and implementation constraints towards large scale applications of UAM, it is undoubtedly anticipated to have significant impact to current multimodal transportation systems. However, given UAM is an emerging transportation mode with unknowns, it is challenging to include it into existing transportation planning and policy making processes. In our previous research, the network design of UAM on-demand service is examined, with a particular focus on the use of integer programming and a solution algorithm to determine the optimal locations of vertiports, user allocation to vertiports, and vertiport access- and egress-mode choices while considering the interactions between vertiport locations and potential UAM travel demand. A case study based on simulated disaggregate

	travel demand data of the Tampa Bay area in Florida, USA was conducted to demonstrate the effectiveness of the proposed model.
	The objective of this proposed research is, based on the outcomes of the previous research, to develop a simulation tool of on-demand UAM. The simulation tool will be composed of different modules for generating passengers and trips, tracking and updating the states of different functional spaces of vertiports (including take-off-and-landing pads and charging stations) and eVTOLs, implementing operational management strategies, and calculating system performance metrics.
	The tool will be used for performing some what-if scenario analyses, e.g., with different number and locations of vertiports, with different design of vertiport functional space, with different operational management strategies. System performance metrics of on-demand UAM will be obtained for the what-if scenario comparison.
Describe Implementation of Research Outcomes (or why not implemented) Place Any Photos Here	
Impacts/Benefits of Implementation (anticipated)	
Web Links • Reports • Project website	https://ctech.cee.cornell.edu/final-project-reports/