UTC Project Information – **Center for Transportation, Environment, and Community Health**	
Project Title	An Agent-based Travel and Charging Behavior Model for Forecasting High-resolution Spatio-temporal Battery Electric Vehicle Charging Demand
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Funding Sources and Amount Provided (by each agency or organization)	USDOT: $15,326
Total Project Cost	$15,326
Agency ID or Contract Number	Sponsor Source: Federal Government CFDA #: 20.701 Agreement ID: 69A3551747119
Start and End Dates	05/21/2021 – 08/20/2021
Brief Description of Research Project	The novelties of this work are twofold. First, we proposed an agent-based battery electric vehicle charging demand simulation model integrating travel and charging behaviors, which was able to estimate the high-resolution spatio-temporal distribution of charging demand. Second, we constructed a novel charging behavior model for charging mode choice, which was able to capture non-linear charges in random utility, and the impact on charging choice of various factors, namely risk sensitivity, range buffer, and preference for charging rate. It focused on the modeling and forecasting of renewable energy consumption in the transportation sector, which could be directly applied in the optimal design of energy supply systems and the modeling framework allowed it to be generally adopted for broad application.
Describe Implementation of Research Outcomes (or why not implemented) *Place Any Photos Here*	Our research outcome was to build a simulation platform that helps to increase understanding of the fine-resolution spatio-temporal distribution of future EV charging demand in real-world cases. Implementation of this outcome has been the implication for Atlanta's metropolitan area and the results can be directly used in EVSE planning and electricity load prediction. The main finding was presented via a poster at the TRB 2022 Annual Meeting. A website is being created to reach a broader audience, that explains the purpose, method, and will present results (e.g., regions of this research).
Impacts/Benefits of Implementation (actual, not anticipated)	The main benefit of the finding is to build a modeling platform that can be directly used for charging infrastructure planning and electricity load predictions, which also leads to research plans for follow-up studies, such as optimal charging station placement and related policy implications.

Web Links • *Reports* • *Project website*	http://ctech.cee.cornell.edu/final-project-reports