

**Project Information Form**

Project Title	Automated Vehicle Scenarios: Simulation of System-Level Travel Effects Using Agent-Based Demand and Supply Models in the San Francisco Bay Area
University	University of California, Davis
Principal Investigator	Caroline Rodier
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Funding Source(s) and Amounts Provided (by each agency or organization)	California Department of Transportation (Caltrans) - \$83,270.84
Total Project Cost	\$83,270.84
Agency ID or Contract Number	UCD-CT-TO-034.5 Caltrans 65A0527 Task Order 034.5
Start and End Dates	January 9, 2017 - March 31, 2018
Brief Description of Research Project	<p>In much the same way that the automobile disrupted horse and cart transportation in the 20th century, automated vehicles hold the potential to disrupt our current system of transportation in the 21st century. Experts predict that vehicles could be fully automated by as early as 2025 or as late as 2035. Methods are needed to help the public and private sector understand automated vehicle technologies and their system-level effects. First, the researchers explore the effects of automated vehicles using the San Francisco Bay Area Metropolitan Transportation Commission's activity-based travel demand model (MTC-ABM). The simulation is unique in that it articulates the size and direction of change on travel for a wide range of automated vehicles scenarios. Second, they simulated the effects of the introduction of an automated taxi service on conventional personal vehicle and transit travel in the San Francisco Bay Area region and used new research on the costs of automated vehicles to represent plausible per mile automated taxi fares. The team used an integrated model for the San Francisco Bay Area that includes the MTC-ABM combined with the agent-based MATSim model customized for the region. This model set uses baseline travel demand data from the region's official activity-based travel model and dynamically assigns vehicles on road and transit networks by the time of day. Third, the researchers used the MTC-ABM and the MATSim dynamic assignment model to simulate different "first" mile transit access services, including ride-hailing (Uber and Lyft) and ridesharing (Uber Pool/Lyft Line and Via) with and without automated vehicles. The results provide insight into the relative benefits of each service and automated vehicle technology and the potential market for these services.</p>



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Describe Implementation of Research Outcomes (or why not implemented)  (Attach Any Photos)	
Impacts/Benefits of Implementation (actual, not anticipated)	
Web Links <ul style="list-style-type: none"><li>• Reports</li><li>• Project website</li></ul>	<a href="https://ncst.ucdavis.edu/project/automated-vehicle-scenarios-simulation-system-level-travel-effects/">https://ncst.ucdavis.edu/project/automated-vehicle-scenarios-simulation-system-level-travel-effects/</a>  <a href="https://escholarship.org/uc/item/4dk3n531">https://escholarship.org/uc/item/4dk3n531</a>