

UTC Project Information	
Project Title	MPC-542 – Exploratory Modeling and Analysis for Automated Vehicles in Utah
University	University of Utah
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Total Project Cost	\$100,000
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Start and End Dates	November 15, 2017 to July 31, 2022
Brief Description of Research Project	<p>Technological advances are impacting transportation across many dimensions. Private industry is driving one of the major advances, automated vehicles (AVs), with a number of companies ranging from Google to Audi testing cars with full automation (SAE Level 5). The organizations tasked with planning for transportation facilities – DOTs and MPOs – are in a reactive mode in figuring out how best to respond.</p> <p>AV will impact mobility, congestion, and safety, and their introduction into the vehicle fleet clearly brings a great deal of uncertainty with respect to forecasting travel demand and vehicle operations. AVs will deliver mobility to historically low mobility demographics such as the elderly, disabled, and children. AVs will also reduce the burden of long travel times by enabling passengers to focus on tasks other than driving. Both of these effects suggest that AVs will amplify growth in Vehicle Mile Traveled (VMT) that is already projected to increase due to population growth in Utah. Utah is currently the fastest growing state in the U.S., and this growth will most certainly translate into higher levels of VMT in the future. AVs are likely to reinforce the traditional source of VMT growth from population and economic growth. The timing and magnitude of this VMT-augmentation are not well understood, however.</p>
Describe Implementation of Research Outcomes (or why not implemented) Place Any Photos Here	Using the WF region in the State of Utah as a case study, we captured the effects of SAVs on travel behavior through modifying its regional travel demand model. The model modifications were made mainly on the trip generation and mode choice modules. In the trip generation module, trip rates of households with children,

	<p>elderly, and mobility-impaired members were increased to reflect the improved mobility that the AV technology can offer. In the mode choice module, a new mode - MaaS - was added, which competes with the conventional modes – automobile, transit, and non-motorized.</p>
<p>Impacts/Benefits of Implementation (actual, not anticipated)</p>	<p>While it is foreseen that SAVs could potentially be on the market in a decade or two, Metropolitan Planning Organizations (MPOs) and Departments of Transportation (DOTs) are just beginning to estimate the impacts of SAVs on travel behavior. This research fills this gap by investigating the impact of SAVs on travel demand in Utah in the 2040 horizon year. The results will assist public agencies in understanding the impacts of SAVs on travel patterns to further consider the special needs of AV technology in long-range cost estimates and programming processes.</p>
<p>Web Links</p> <ul style="list-style-type: none"> • Reports • Project Website 	<ul style="list-style-type: none"> • MPC Research Report – Exploratory Modeling and Analysis for Automated Vehicles in Utah • UDOT Research Report – Impact of Shared Autonomous Vehicles on Vehicle Miles Traveled in Utah