

UTC Project Information	
Project Title	MPC-570 – Experiments and Modeling for Infrastructure Data-Derived Fuel Economy and Safety Improvements
University	Colorado State University
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Funding Source(s) and Amounts Provided (by each agency or organization)	USDOT, Research and Innovative Technology Administration \$60,000 Colorado State University \$60,000
Total Project Cost	\$120,000
Agency ID or Contract Number	69A3551747108
Start and End Dates	June 27, 2018 to July 31, 2024
Brief Description of Research Project	Connected and autonomous vehicles (CAV) are an important means by which the US can improve the safety, environmental compatibility, economics, and equity of personal transportation. This research seeks to synthesize both rich vehicle-level datasets derived from experiments with CAV sensors and systems and the state of the art transportation-system level datasets to compose second-by-second vehicle-level Lagrangian predictions of vehicle velocity trajectories, applicable to CAVs. We will seek to understand the role of ATMS (and other infrastructure) sensors, information, and infrastructure in advancing the safety and environmental benefits of CAVs.
Describe Implementation of Research Outcomes (or why not implemented) Place Any Photos Here	These were implemented in test vehicles, but implementation in original equipment manufacturer (OEM) vehicles is outside the scope of what we can influence from an R&D perspective.
Impacts/Benefits of Implementation (actual, not anticipated)	The report concludes that autonomous eco-driving control can significantly enhance vehicle energy efficiency (EE) with a 11% national impact on energy savings if widely adopted. It recommends the use of a genetic algorithm (GA) method with a road power cost function as the best trade-off for generating optimal eco-driving traces for urban battery electric vehicles (BEVs).
Web Links <ul style="list-style-type: none"> • Reports • Project Website 	<ul style="list-style-type: none"> • MPC Final Report – Real-Time Implementation Comparison of Urban Eco-Driving Controls