UTC Project Information	
Project Title	MPC-641 – Design and Evaluate Coordinated Ramp Metering Strategies for Utah Freeways
University	University of Utah
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Funding Source(s) and Amounts Provided (by each agency or organization)	USDOT, Office of the Assistant Secretary for Research and Technology $70,000 Utah Department of Transportation $40,000 University of Utah $60,000
Total Project Cost	$170,000
Agency ID or Contract Number	69A3551747108
Start and End Dates	October 30, 2020 to July 31, 2023
Brief Description of Research Project	During the past decades, ramp metering (RM) control has been widely implemented in many states of the U.S., including Utah. In practice, it can reduce overall freeway congestion by managing the amount of traffic entering the freeway and by breaking up platoons that make it difficult to merge onto the freeway. RM controllers can be implemented as coordinated or uncoordinated systems. When operating an uncoordinated RM, the metering rate and on/off statuses will be determined by local traffic conditions. Uncoordinated RM strategies include fixed, local, and corridor-responsive systems. Despite the improvements to the operational efficiency of mainline flows, RM will inevitably create additional delays to the ramp flows. As traffic demand for a freeway facility increases, mitigating mainline congestion could go beyond the capability of uncoordinated RMs. Recognizing such limitations, the proposed research aims to assist the on-going and future efforts to deploy coordinated RM systems and evaluate the performance of deployed systems. The research can benefit the transportation community by helping 1) understand potential ramp delays to achieve a target mainline congestion level; 2) identify the locations that would benefit from coordinated RMs; and 3) evaluate the system performance from both operational and safety aspects.

Describe Implementation of Research Outcomes (or why not implemented) Place Any Photos Here	The research results will be passed to the Traffic Operation Center at the Utah Department of Transportation, which will help them determine the deployment plan of coordinated ramp metering in Utah.
Impacts/Benefits of Implementation (actual, not anticipated)	This research project can help UDOT identify freeway bottleneck locations that are suitable for coordinated ramp metering control and evaluate both the safety and operational performances of the system. This research project can also study the additional delay created to the ramps by ramp metering controls when a certain congestion level on the freeway mainline is expected to be achieved.
Web Links • Reports • Project Website	• MPC Research Report – Design and Evaluate Coordinated Ramp Metering Strategies for Utah Freeways