| UTC Project Information | |
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| Project Title | MPC-590 – Impact of Connected Vehicle Technology on Traffic Safety under Different Highway Geometric Designs |
| University | University of Utah |
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| Funding Source(s) and Amounts Provided (by each agency or organization) | USDOT, Research and Innovative Technology Administration \$40,000 Utah Department of Transportation \$50,000 |
| Total Project Cost | \$90,000 |
| Agency ID or Contract Number | 69A3551747108 |
| Start and End Dates | January 12, 2019 to July 31, 2022 |
| Brief Description of Research Project | With the recent rapid development of wireless communication and computing techniques, connected vehicle (CV) technology has reached a level of maturity and it can be expected that CVs will soon go beyond testbeds. Early deployments of CV technology have shown its great potential on improve highway safety performance. In this project, our research team aims to analyze the CV impacts on crash prevention under different highway geometric designs. Considering the strong correlations between highway geometric features and crash severity, this project will particularly study the impact of lane width, shoulder width, and alignment design on crash severity and provide guidance on methods that can be used in the impact evaluation. Grounded on a well-calibrated microscopic simulation model, this project will implement vehicle-to-vehicle (V2V) communication technologies to acquire real-time vehicle trajectory data. The collected information will further be used to analyze impacts of CVs on potential crash rate and severity with three types of surrogate measures of safety: standard deviation of speed, standard deviation of headway, and potential rear-end crash rate. |
| Describe Implementation of Research Outcomes (or why not implemented) | This research hasn't been implemented yet. The current study is mainly based on simulation. More field tests will be needed. |
| Place Any Photos Here | |
| Impacts/Benefits of Implementation (actual, not anticipated) | This project can help study the safety benefits of connected automated vehicles (CAV) under various driving conditions. The expected impact of this project will give better insights into how road |

| | geometric designs can affect CAV safety performance. Also, the penetration rate of CAV plays a key role in affecting road safety as well. |
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| Web Links | MPC Research Report – <u>Impact of Connected Vehicle</u> |
| • Reports | <u>Technology on Traffic Safety under Different Highway</u> |
| • Project Website | <u>Geometric Designs</u> |