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| **UTC Project Information** |
| Project Title | MPC-591 – Reliability-Based Traffic Safety Risk Assessment of Traffic System in Hazardous Driving Conditions to Promote Community Resilience |
| University | Colorado State University |
| Principal Investigator | Suren Chen |
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| Funding Source(s) and Amounts Provided (by each agency or organization) | USDOT, Research and Innovative Technology Administration$56,000Colorado State University$56,000 |
| Total Project Cost | $112,000 |
| Agency ID or Contract Number | 69A3551747108 |
| Start and End Dates | February 26, 2019 to July 31, 2022 |
| Brief Description of Research Project | Traffic crash risks considerably increase on bridges and connecting roadways under various hazardous driving conditions before and following some natural hazards, such as earthquakes, hurricanes, and snowstorms. During different phases of natural hazards, appropriate preparation, response and recovery efforts to improve the community resilience all depend on safe and efficient transportation even under hazardous driving conditions. This project will develop a basic framework to model traffic safety risk based on reliability theory by considering various adverse driving conditions, potential vehicle safety risks and associated uncertainties. |
| Describe Implementation of Research Outcomes (or why not implemented)Place Any Photos Here | The proposed model may help future traffic safety modeling and prevention. |
| Impacts/Benefits of Implementation(actual, not anticipated) | It will provide an integrated tool with more accurate consideration of various adverse driving conditions, including those in work zones. |
| Web Links* Reports
* Project Website
 | * MPC Research Report – [Reliability-Based Traffic Safety Risk Assessment of Traffic System in Hazardous Driving Conditions to Promote Community Resilience](https://www.ugpti.org/resources/reports/details.php?id=1094)
* CSU Doctoral Dissertation – [Multi-Scale Traffic Performance Modeling of Transportation Systems Subjected to Multiple Hazards](https://hdl.handle.net/10217/199830)
* Journal Article – [Study of Work Zone Traffic Safety under Adverse Driving Conditions with a Microscopic Traffic Simulation Approach](https://doi.org/10.1016/j.aap.2020.105698)
* Journal Article – [Framework of Simulation-Based Vehicle Safety Performance Assessment of Highway System under Hazardous Driving Conditions](https://doi.org/10.1016/j.trc.2019.05.035)
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