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| UTC Project Information | |
| Project Title | Comparison of SHRP2 Naturalistic Driving Data to Geometric Design Speed Characteristics on Freeway Ramps |
| University | Texas A&M University |
| Principal Investigator | Marcus Brewer |
| PI Contact Information | (979) 845-7321 m-brewer@tti.tamu.edu |
| Funding Source(s) and Amounts Provided (by each agency or organization) | State of Texas Matching Funds \$219,854 |
| Total Project Cost | \$203,978 Note that this project is supporting PhD work for PI plus graduate assistantship for master's student. |
| Agency ID or Contract Number | Grant No: 69A3551747115 Project: 165917-00123 |
| Start and End Dates | 4/1/2017-6/30/2018 |
| Brief Description of Research Project | <p>This study will examine driving data on freeway ramps from the SHRP2 NDS – speed profiles along with selected driver and vehicle variables – and compare that data to the design characteristics of the ramps traveled during the study. In addition to the SHRP2 data, the research will use detailed information from the road agencies in the SHRP2 participating states (New York, Indiana, Florida, North Carolina, and Washington) to document the ramps' design characteristics.</p> <p>The objective of the comparison will be to identify relationships between the factors used to select freeway ramp design speed (e.g., radius, superelevation, etc.) and the actual speeds of drivers traveling on those ramps and their associated behaviors (e.g., brake/accelerator use, steering wheel angle, etc.). The findings from the comparison will then be further compared to the findings from recent research to identify similarities, differences, and potential topics for future research or considerations for changes to existing design guidance.</p> |
| Describe Implementation of Research Outcomes (or why not implemented) | The research team will prepare a final report that documents the entire research effort and prepare the dataset and metadata for sharing with the VTTI Dataverse, in accordance with required procedures. |
| Place Any Photos Here | This project will incorporate the research activities for the Principal Investigator's Ph.D. dissertation. As appropriate, the findings from this research will also be used to suggest new or revised materials |

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| | <p>for professional development training and for course notes in geometric design classroom courses.</p> <p>In addition to the final research report and the PI's dissertation, researchers will submit technical papers for presentation and publication review to venues such as the TRB Annual Meeting and Transportation Research Record, ASCE Journal of Transportation Engineering, and similar professional conferences and publication series. The principal investigator will also share the suggested revisions to the AASHTO <i>Green Book</i> with AASHTO's Technical Committee on Geometric Design, either by correspondence or by presentation at a committee meeting.</p> |
| <p>Impacts/Benefits of Implementation (actual, not anticipated)</p> | <p>Improving the ramp design speed selection process to better resemble the natural driving behavior of those who use the ramps will improve operations and safety for ramps that are constructed or reconstructed in the future. There are also potential applications in using the findings to inform the decision-making algorithms that control automated and connected vehicles, in that if the design guidance and the algorithms are based on the same information, then the operation of the vehicles will also more closely resemble the operation of traditional human drivers. However, the primary motivation for the research is in identifying needed changes to geometric design guidelines such as those found in the AASHTO <i>Green Book</i> and state design manuals</p> |
| <p>Web Links</p> <ul style="list-style-type: none"> • Reports • Project website | <p>TBA</p> |