

Project Information Form

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| Project Title: | Roadway Characteristics Contributing to Emissions Differences Between Conventional and Hybrid-Electric Vehicles |
| University: | University of Vermont |
| Principal Investigator: | James L. Sullivan |
| PI Contact Information: | Phone: 802-656-9679 Email: james.sullivan@uvm.edu |
| Funding Source(s) and Amounts Provided (by each agency or organization): | US DOT: \$29,701 UVM: \$29,589 |
| Total Project Cost: | \$59,290 |
| Agency ID or Contract Number: | DOT 69A3551747114 UVM-DOT-403 |
| Start and End Dates: | July 1, 2017 - June 30, 2018 |
| Brief Description of Research Project: | <p>The purpose of this project is to classify roadway segments by the physical characteristics that contribute to problematic emission rates from conventional vehicles and hybrid-electric vehicles. This project will use second-by-second (SbS) vehicle-activity and emissions data obtained from a series of 75 test runs driven by a single driver over 18 months in 2010 and 2011 to test the influence of roadway characteristics on emissions rates. In the prior project, the research team developed a robust method of analyzing the relationship between vehicle-activity differences and roadway segment characteristics. In previous results, roadway characteristics were compared to SbS vehicle performance characteristics (speed, acceleration, vehicle-specific power) using the Kolmogorov–Smirnov test (K–S test), a nonparametric test of the equality of continuous, one-dimensional probability distributions that can be used to compare two samples. For this project, the researchers will translate that approach to an identification of characteristics that contribute to emissions differences between the hybrid-electric vehicle and the conventional vehicle. The project will advance existing work by the UVM Transportation Air Quality Lab and will make policy recommendations that are relevant for autonomous-vehicle emissions and HEV market penetration.</p> |



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| Describe Implementation of Research Outcomes (or why not implemented): | |
| Impacts/Benefits of Implementation (actual, not anticipated): | |
| Web Links Reports Project website | https://ncst.ucdavis.edu/project/roadway-characteristics-contributing-to-emissions-differences-between-conventional-and-hybrid-electric-vehicles/ |