Note that this form is to be kept up to date regularly (at least every quarter**). Safe-D administrators may access your form on your Project Site at any time and pull for information reported to USDOT OST-R, use information for internal or external reports or presentations, etc.

Date of Last Update (edit each time): **12/21/2017**

UTC Project Information	
Project Title	Automated Truck Mounted Attenuator: Phase 2 Performance Measurement and Testing
University	Virginia Tech
Principal Investigator	Mike Mollenhauer
PI Contact Information	mmollenhauer@vtti.vt.edu
Funding Source(s) and Amounts Provided (by each agency or organization)	Safe-D (Federal): $50,000 VDOT/VTRC match source (Non-Federal): $224,974
Total Project Cost	$274,974
Agency ID or Contract Number	Grant No: 69A3551747115 Project:
Start and End Dates	01/01/2022 – 03/09/2023
Brief Description of Research Project	Truck-Mounted Attenuators (TMAs) are energy-absorbing devices added to heavy shadow vehicles to provide a mobile barrier that protects work crews from errant vehicles entering active work zones. In mobile and short-duration operations, drivers manually operate the TMA – keeping pace with the work zone as needed to function as a mobile barrier protecting work crews. While the TMA is designed to absorb and/or redirect the energy from a colliding vehicle, there is still significant risk of injury to the TMA driver when struck. TMA crashes are a serious problem in Virginia where they have increased each year from 2011 (17 crashes) to 2014 (45 crashes),2 despite a decrease in the number of active construction sites between 2013 and 2014. Although various efforts have been made to improve TMA driver crashworthiness (e.g., by adding interior padding, harnesses, and supplemental head restraints),1 the most effective way to protect TMA drivers may be to remove them from the vehicle altogether. Recent advances in automated vehicle technologies—including advanced sensing, high-precision differential GPS, inertial sensing, advanced control algorithms, and machine leaning—have enabled the development of automated systems capable of controlling TMA vehicles. Furthermore, the relatively low operating speeds and platoon-like operating movements of leader-follower TMA systems make an automated

	control concept feasible for a variety of mobile and short-duration TMA use cases. This project seeks to develop an automated control system for TMA vehicles using a short following distance, leader-follower control concept which will remove the driver from the at-risk TMA vehicle.
Describe Implementation of Research Outcomes (or why not implemented) Place Any Photos Here	• Final report • Final dataset • Publication / technical memo • ATMA Test Plan for closed-course testing and results presented to the ATMA2 Consortium Demonstration of the system on the Smart Roads to ATMA consortium members • ATMA Test Plan for a live work zone on a public roadway and results presented to the ATMA2 Consortium • Conduct Webinar • Conduct stakeholder outreach workshop
Impacts/Benefits of Implementation (actual, not anticipated)	TMA crashes are a serious problem in Virginia where they have increased each year from 2011 (17 crashes) to 2014 (45 crashes), despite a decrease in the number of active construction sites between 2013 and 2014. Although various efforts have been made to improve TMA driver crashworthiness (e.g., by adding interior padding, harnesses, and supplemental head restraints), the most effective way to protect TMA drivers may be to remove them from the vehicle altogether. It is anticipated that the use of automated (driverless) TMA trucks will reduce the number of injuries and deaths related to TMA crashes in Virginia and throughout the country wherever ATMAs are implemented.
Web Links • Reports • Project website	Sharepoint Project Site