

Participant ID \_\_\_\_\_

This collection of information is voluntary and will be used for formative purposes only so that we may develop vehicle safety programs designed to reduce the number of traffic-related injuries and deaths. A federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with a collection of information subject to the requirements of the Paperwork Reduction Act unless that collection of information displays a current valid OMB Control Number. The OMB Control Number for this information collection is 2127-XXXX. Public reporting for this collection of information is estimated to be approximately twenty-five minutes per response, including the time for reviewing instructions, completing and reviewing the collection of information. All responses to this collection of information are voluntary. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to: Information Collection Clearance Officer, National Highway Traffic Safety Administration, 1200 New Jersey Ave, S.E., Washington, DC, 20590

## VIRGINIA TECH

### Informed Consent for Participants in Research Projects Involving Human Participants

**Title of Project:** Field Study of Heavy Vehicle Crash Avoidance Systems

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#### I. Purpose of this Research/Project

The purpose of this study is to evaluate the reliability of the newest generation of Automatic Emergency Braking (AEB) systems offered on heavy vehicles. AEB systems, also called Collision Mitigation Technology, are systems that alert a driver to an impending crash and can automatically engage the truck's brakes to mitigate a collision and provide a driver additional time to respond. The focus of the study is to document how these systems perform in the real world, understand the conditions in which they activate, and understand how they can provide a safety benefit to drivers.

#### II. Procedures

If you agree to participate in this study, you will be asked to do the following:

1. Read and sign this Informed Consent Form.
2. Fill out a W-9 form.
3. Complete the Demographics Questionnaire and the Initial CAS Technology Questionnaire.
4. Allow VTTI to install a small data collection system in your vehicle and take a photograph of your face. This photo will be used to identify you as a participant in our study from anyone else who may use the vehicle. If anyone not matching our photos uses the vehicle their data will be deleted and will not be included in the study. The photos will be transferred to VTTI's secure servers and will be protected like all other data collected in the study.

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5. Drive an instrumented vehicle for up to 3 months on your normal route(s). The vehicle instrumentation includes videotaping you (your face and the forward roadway only) when the vehicle is on and in motion. The vehicle instrumentation also includes collecting data from the truck such as how hard you brake, your speed, forward radar, etc.
6. Allow us, and the project sponsor, to potentially use short video clips of you performing various behaviors for research-related presentations (such as at scientific conferences).
7. Allow us to access your vehicle to swap or perform maintenance on the data collection system, if needed. This process will involve you meeting with a study experimenter at your carrier's local maintenance shop, parking lot, or fueling station. The entire hard drive swap process should take approximately thirty minutes.
8. Allow VTTI access to your vehicle to remove data collection equipment after three (3) months and complete the Final CAS Technology Questionnaire.

For this study we will be collecting data from approximately 175 commercial-vehicle drivers like you. The starting day of data collection is determined by the date when you start driving an instrumented vehicle after you have signed this form.

### **III. Risks and Discomforts**

There are some risks and discomforts to which you may be exposed to in volunteering for this research. These risks include:

1. The risk of a crash associated with driving a commercial vehicle as you usually do.
2. Stress associated with being continuously recorded while driving (the video will show your face, a forward view of the road, and your actions in response to the driving situation).
3. If you drive into an area where cameras are not allowed, including international border crossings, certain military and intelligence locations, and certain manufacturing facilities, there is a risk that you may be detained or arrested or that your vehicle may be impounded.
4. There is an additional risk not encountered in everyday driving. While you are driving the instrumented vehicle, cameras will record continuous video of you, your actions, and surrounding traffic. In the event of an accident, there is a risk that the video and vehicle parametric data could be obtained in conjunction with a government inquiry, or in litigation or dispute resolution. However, under normal circumstances your identity and the company you work for will be kept confidential.
5. The data acquisition system is small enough that it can be removed from the vehicle with a participant's encrypted data in its memory. This puts the participant's data at a slightly higher risk of theft.
6. Your consent materials, survey materials, or data from VTTI's collection systems may be shipped via FedEx back to Virginia Tech rather than placed in checked luggage if you are being consented outside of Blacksburg VA. In this case there is a small risk your materials could be lost in transit.

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The following precautions will be taken to ensure minimal risk to the participants:

1. You will be instructed to follow your company's safety protocol.
2. Your participation in (or withdrawal from) this study does not have any influence on your status as an employee with your current company.
3. All data collection equipment will be mounted such that, to the greatest extent possible, it will not pose a hazard in any foreseeable way. Larger equipment will be mounted away from the cab occupants and rigidly fastened to the cab structure.

#### **IV. Benefits**

No promise or guarantee of benefits is being made to encourage you to participate. Past experiences with similar studies, involving heavy-vehicle drivers, indicate that you may find the study interesting and you may be provided with a safety benefit from having the AEB systems installed in your vehicle.

#### **V. Extent of Anonymity and Confidentiality**

The data gathered in this experiment will be treated with confidentiality. Shortly after participating, your name, your photo, and the company you work for will be separated from the data and replaced with a number. That is, your data will not be attached to your name, but rather to a number (e.g., Driver 001, Location A). It is possible that the Institutional Review Board (IRB) may view this study's collected data for auditing purposes. The IRB is responsible for the oversight of the protection of human subjects involved in research.

While you are driving the vehicle, a camera will continuously videotape your face and the forward roadway. An example is shown below. All continuous video and other data from this study will be stored in a secured area at Virginia Tech. Access to the continuous digital video files will be under the supervision of the Principal Investigator and lead VTTI researchers involved in the project. All data will be encrypted at the time of data collection and will be decrypted only for approved analyses.

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One set of data will be permanently housed at Virginia Tech under the supervision of the Virginia Tech Transportation Institute, the organization overseeing the data collection for the entire study. It is possible that, after data collection is complete one copy of study data will be transferred to the U.S. Department of Transportation for permanent storage and oversight. Please note that they will follow the same procedures for protecting participant confidentiality.

Authorized project personnel and authorized employees of the research sponsors will have access to the study data that personally identifies you or that could be used to personally identify you. VTTI and the project sponsor may present video clips of your driving at research-related presentations (such as scientific conferences). The video clips will not be released at these presentations, and will remain in the secure possession of VTTI staff and/or the sponsor of the study. Video clips used for conferences and presentations will be temporarily stored on a laptop or tablet computer and will be deleted from that computer after the presentation or conference is complete. As explained below, other qualified research partners may also be given limited access to your driver data, vehicle data, driving data, and additional crash data, solely for authorized research purposes and with the consent of an IRB. This limited access will be under the terms of a data use license (DUL) or contract that, at a minimum, provides you with the same level of confidentiality and protection provided by this Consent Form. However, even these qualified

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researchers will not be permitted to copy raw study data that identifies you or that could be used to identify you. A de-identified public use dataset may be online and made available for download.

It is expected that the data we capture throughout the course of the entire study, including that from all the approximately 200 participants, will be a valuable source of data on how drivers respond to certain situations and how the roadway and vehicle might be enhanced to improve driver safety. Researchers who study traffic congestion and traffic patterns may also find the data useful. Therefore, it is expected that there will be follow-on data analyses using all or part of the data for up to 30 years into the future. These follow-on analyses will be conducted by qualified researchers with IRB approval and a DUL, as required by law, who may or may not be part of the original study team. In consenting to this study, you are consenting to future research use of the information and videos we gather from you, consistent with the protections described above and elsewhere in this document.

If you are involved in a crash while participating in this study, the data collection equipment in your vehicle will likely capture the events leading up to the crash. You are under NO LEGAL OBLIGATION to voluntarily mention the data collection equipment or your participation in this study at the time of a crash or traffic offense.

We will do everything we can to keep others from learning about your participation in the research. We may disclose information about you as required by law, in conjunction with a government inquiry, or in litigation or dispute resolution. You should understand that this informed consent does not prevent you or a member of your family from voluntarily releasing information about yourself or your involvement in this research.

This Informed Consent Form does not prevent the researchers from disclosing voluntarily matters such as child abuse, or subject's threatened or actual harm to self or others. This could also include behaviors such as habitually driving under the influence of drugs or alcohol, allowing an unlicensed minor to drive the vehicle. If this type of behavior is observed, we reserve the right to remove you from the study and inform the appropriate authorities of what we have observed. In most cases, we will notify you first of the behaviors we have observed prior to removing you from the study or informing others of our observations. If you are removed from the study, your compensation will be prorated based on the time you have already spent as a participant in the study.

## **VI. Compensation**

You will receive \$100 at the beginning of the study for signing the consent form, completing the Demographic Questionnaire, completing the Initial CAS Technology Questionnaire, and allowing VTTI to install data collection equipment. You will also receive \$100 a month for up to three (3) months for having your video and vehicle data recorded. This money will be paid to you monthly. You will also receive \$100 at the end three (3) months for allowing VTTI to

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remove the data collection equipment and completing the Final CAS Technology Survey. Total payment for full and complete participation will thus be \$500. If you elect to withdraw from the study or if your employment is terminated, you will be compensated for the amount of time you have participated up to that time, rounded to the nearest completed week. Compensation will be paid via a reloadable debit card.

### **VII. Freedom to Withdraw**

Participation in this research is voluntary. You are free to withdraw at any time without penalty. If you withdraw, are dismissed from the study, or if your employment is terminated, we will retain data collected before that time, but delete any data collected in the interval between when we become aware of the withdrawal/dismissal and before we are able to remove the data collection equipment. If you withdraw from the study, or if your employment is terminated, you will be paid for the amount of time that you have participated, based on the amount of time you have participated, rounded to the nearest completed week. Withdrawal from this study will not adversely affect your employment status.

### **VIII. Questions or Concerns**

Should you have any questions about this study, you may contact one of the research investigators whose contact information is included at the beginning of this document.

Should you have any questions or concerns about the study's conduct or your rights as a research subject, or need to report a research-related injury or event, you may contact the Virginia Tech Institutional Review Board at [irb@vt.edu](mailto:irb@vt.edu) or (540) 231-3732.

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**X. Participant's Permission**

I have read the Consent Form and conditions of this project. I have had all my questions answered. I hereby acknowledge the above and give my voluntary consent:

\_\_\_\_\_  
*Participant's signature*

\_\_\_\_\_  
Date

\_\_\_\_\_  
*Participant's printed name*

\_\_\_\_\_  
*Experimenter's signature*

\_\_\_\_\_  
Date

\_\_\_\_\_  
*Experimenter's printed name*