

VEHICLE OWNER PERMISSION FORM

CANADA NATURALISTIC DRIVING STUDY

SPONSORS: Council of Deputy Ministers Responsible for Transportation and Highway Safety

INVESTIGATORS: Sheila Klauer, Jessica Rardin: Virginia Tech Transportation Institute

Lorin Elias, Valerie Thompson, Sarah Simmons: University of Saskatchewan

WHAT IS THE PURPOSE OF THIS RESEARCH?

The Canada Naturalistic Driving Study is a large research effort directed at improving Highway Safety in Canada where highway-related accidents accounted for over 2,200 fatalities and more than 11,200 serious injuries in 2010. The study will help researchers gain a deeper understanding of the interaction between the driver, vehicle and roadway and lead to safer roadways, vehicles, and driver training programs. The Canada Naturalistic Driving Study will look at how people normally drive by installing cameras and sensors in people's own vehicles. The study is being conducted in Saskatoon with 125 participants. Length of enrolment varies from one to two years.

WHAT PART WILL I AND MY VEHICLE PLAY IN THE STUDY?

1. A person who is the primary driver of your vehicle wishes to participate in this study. We are asking your permission to collect data (including video) whenever your vehicle is used. We will retain the data from any drivers of your vehicle who have consented to be in the study. If there are drivers of your vehicle who have not signed consent forms, we will delete their data from every trip in which they drove your vehicle.
2. There will be video of the driver's face, portions of his/her body, and the roadway. Audio will not be recorded unless the driver presses the red incident button. The video, audio, and other data that personally identifies the driver will be held under a high level of security at one or more data repositories.
3. All attempts will be made to not collect identifying video information on passengers in the vehicle; however, passengers sitting directly behind the driver will be the most vulnerable to being observed on video.
4. **You will be responsible for your insurance coverage for the duration of the project.**
5. You must indicate your intent to allow your vehicle to be used in the study for as long as the participant wishes to remain in the study. If you change your mind and wish to withdraw your vehicle from the study before the scheduled end date, you must agree to allow us to retrieve the data collection system from your vehicle as soon as is feasible.

WHAT WILL HAPPEN TO MY VEHICLE?

1. The participant will bring your vehicle to Saskatchewan Highways Maintenance Center at the scheduled day and time to have the data collection system installed. You may accompany the participant. The technicians will strive to complete each vehicle in less than four (4) hours, but it may take longer in rare cases.

- a. There are additional sensors that will be installed in your vehicle; they are unobtrusive and non-visible to you. They include: GPS (to assess location of vehicle at a particular point in time), lane tracker (machine vision software to automatically detect lane deviations), front radar (to detect presence and distance to forward vehicles), and accelerometers (to measure how hard your vehicle starts, stops, and turns). There will also be sensors for luminance (light), yaw (swerving), and temperature, and an incident pushbutton (for you to record audio in the case of a safety incident).
- b. Data recording will begin for each trip when the ignition is turned on and will end when the ignition is turned off.
- c. To date, there has never been a case of installation of VTTI-designed data collection equipment affecting a vehicle warranty. A few cases of residual damage have occurred where a piece of plastic or composite trim has broken (almost always in older vehicles where the material is degraded from sun damage and age). In these cases, we will replace the trim at no cost to you.

The system will require a connection to the vehicle power and your vehicle network box. These connections will provide additional data as well as power for the system; by allowing us to include your vehicle in the study you are providing us permission to get information from your vehicle network as well as to install new sensors. Before we begin installation, we will show the participant where we will place the system and also show the participant pictures of what the completed installation will look like. Your vehicle will be returned to its original state when the study is over.

2. You must allow our technicians to drive your vehicle as needed during the installation and testing process.
3. When your vehicle is ready, we will show the participant the data collection system and provide him/her with information about who to contact if there are any vehicle problems that could be related to the data collection system, or if there are any maintenance issues with the system (for example, a camera or device that comes loose).

WHAT DO I DO AFTER MY VEHICLE IS EQUIPPED FOR THE STUDY?

1. We will make an appointment with the participant to collect the driving data from your vehicle about once every 3 to 6 months. These appointments will typically take about 15 minutes, but could take up to one hour depending on what needs to be done.
2. While your vehicle is in the study, please advise all drivers **not** to drive your vehicle into any areas where cameras are not allowed, including any international border crossings or military installations.

WHAT HAPPENS WHEN THE STUDY IS OVER?

After the planned term of enrolment is complete, the participant will be asked to return to Saskatchewan Highways Maintenance Center so that we may remove the system from your vehicle. This process is expected to take about two hours.

WHAT ARE THE RISKS OF PARTICIPATING IN THIS STUDY?

The operation or drivability of the vehicle will not be affected by the instrumentation, and thus carries a similar risk as when the vehicle is operated normally. However, if the driver violates province or local driving laws (such as driving under the influence, exceeding posted speed

limits, or driving while distracted), the instrumentation could record evidence of these violations. This has the potential to pose greater than minimal risk of legal harm. A variety of strategies and procedures have been developed to reduce the potential for legal or economic harms. These strategies include encrypting the data obtained by sensors and cameras and using a code number to identify the driver with the code key maintained in a secure location.

All data collection equipment is mounted such that, to the greatest extent possible, it does not pose a hazard or problem for the driver. None of the data collection equipment should get in the way of the driver's normal field of view.

In the vast majority of cases, placing the data collection system in the vehicle will not affect its operating or handling characteristics. In some rare cases, the electromagnetic signals generated by the data collection system may cause interference with the vehicle's radio, keyless entry key fob, or other electronic components or sensors, such as the tire pressure monitoring system. If this happens in your vehicle, the research team will use engineering countermeasures to attempt to minimize the interference to an unnoticeable level. If your vehicle experiences this type of problem, the primary participant will be given the option to continue participation with the problem unresolved or to leave the study.

There are non-driving risks resulting from participation. Five cameras will be placed in your vehicle. If your vehicle is driven into an area where cameras are not allowed, including international border crossings, certain military and intelligence locations, and certain manufacturing plants, there is a risk that the driver may be detained or arrested or that your vehicle may be impounded. For this reason, by signing this Permission Form and thereby agreeing to allow your vehicle to be used in the study, you also are agreeing to advise drivers of your vehicle not to drive into any such areas. We have provided a letter for the glove box which can be used to explain your vehicle's role in the study while still maintaining participant privacy and confidentiality.

WHAT TYPE OF DATA WILL BE COLLECTED IN MY VEHICLE AND HOW WILL IT BE PROTECTED?

While driving the vehicle, a camera will videotape the driver's face with some added space around the head to handle any head movements. An example is shown below. Also, video cameras will capture views of the forward view, the rear view, an external view to the right, as well as a dashboard/lap-belt view. A camera will also periodically take a permanently blurred snapshot of the vehicle interior which will allow researchers to count the number of passengers and make rough estimates of age, gender, and seatbelt use. Passenger identification will not be possible from these blurred snapshots. All video will be captured and stored in digital format (no tape copies will exist).

There will also be an ambient atmospheric analyzer that is capable of detecting the presence of alcohol in the passenger compartment under certain conditions. It may not be able to distinguish whether the alcohol was imbibed or applied (as in hand sanitizer), and it will be unable to determine whether it is emanating from the driver or a passenger. However, this sensor will flag the data for possible indications of impaired driving.

If a safety-related incident or crash occurs, the participant is asked to press a button on the unit mounted near the rearview mirror. This will allow researchers to find the incident in the database after the data have been collected. Also, pressing the button starts a microphone for 30 seconds so the participant can tell us what happened.

During the data collection phase of this study, all data collected from your vehicle will be encrypted (made unreadable) from the time of its creation and then stored in a specific password-protected project folder on a secure server; the driving data will only be decrypted (made readable) once it has been stored in this folder.



If the participant is 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 event. The driver is under **NO LEGAL OBLIGATION** to voluntarily mention the data collection equipment or participation in this study at the time of a crash or traffic offense. We have provided a letter which should be kept in your vehicle's glove box for these cases. The letter describes your vehicle's role in the study without identifying the driver as a participant in the study.

The obligation to protect participant confidentiality 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 behaviours such as habitually driving under the influence of drugs or alcohol, allowing an unlicensed minor to drive the vehicle, or habitually running red lights at high speed. Such behaviours may result in the participant's removal from the study and reporting of the behaviour to the appropriate authorities. In the event of a crash, it may not be possible to prevent the equipment and the data from falling into the hands of the police or an insurance company; if this happens, however, the data are still encrypted and inaccessible and unreadable to these individuals.

You **will not** have access to the data collected in your vehicle during this study. The protections described herein may not apply to passengers or drivers of the vehicle who have not consented to being in this study. For this reason, consent will be sought from all other adults who drive the vehicle.

WILL I RECEIVE PAYMENT FOR ALLOWING MY VEHICLE TO BE USED IN THIS STUDY?

There will be no compensation for owners who allow their vehicles to be used in this study. However, the participant will be compensated at a rate equivalent to \$450 per year.

WHAT ABOUT INSURANCE?

You will be responsible for your insurance coverage for the duration of the project. Neither study personnel nor their respective organizations are responsible for the expenses that are caused by a crash involving your vehicle. In the event of a crash, neither you nor the driver is responsible for any damage to the data collection system that is installed into your vehicle.

AM I FREE TO WITHDRAW MY VEHICLE FROM THIS STUDY AT ANY TIME?

In order for your vehicle to be included in this study, you must indicate willingness to extend this permission for the length of time that the participant plans to participate. However, the participant is free to withdraw at any time without penalty. If you change your mind and choose to end your vehicle's role in the study earlier than originally planned, or if the participant withdraws or is dismissed from the study, we will need to schedule a time to remove the data collection system from your vehicle. The participant will not be able to receive his/her final payment until we have removed the instrumentation from your vehicle.

HAS THIS RESEARCH BEEN APPROVED?

Before this experiment begins, the research must be approved by the Institutional Review Board for research involving human subjects at Virginia Tech; you should know that this approval has been obtained. The research has also been approved by the Research Ethics Board at the University of Saskatchewan on the date listed in the participant's consent form; any questions about your rights as a participant may be addressed to them by calling 306-966-2975 or by email: ethics.office@usask.ca.

HOW DO I PROVIDE MY PERMISSION?

I _____ (vehicle owner) have read and understand this Permission Form. I freely agree to allow my vehicle to be used in this study. I certify that I am the owner, co-owner, or lessee of the vehicle that will be used in the study and that I am permitting the instruments and sensors to be installed in the vehicle. If I lease my vehicle, I certify that I have carefully reviewed my lease agreement to be sure that the installation of the instruments and sensors is allowed under the terms of my lease. I certify the vehicle that will be used in the study has at least the minimum amount of liability insurance required by the province in which it is registered.

NOTE: If permission is verified via phone call, a witness must also be included on the phone call, and the witness will then sign on behalf of the vehicle owner. In this case, a signed copy of this form must be mailed or faxed to the vehicle owner within three working days.

_____ Vehicle Owner (Print Name)	_____ Signature	_____ Date
____/____/20____ Begin Date	____/____/20____ Intended End Date (12-24 months from begin date)	

_____ Investigator (Print Name)	_____ Signature	_____ Date
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_____ Witness (Print Name)	_____ Signature	_____ Date
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Should I have any questions about this research or its conduct, I may contact:

Sheila Klauer Project Director (540)231-1564
cklauer@vti.vt.edu

Lorin Elias Site Director (306) 966-6670
lorin.elias@usask.ca

Sarah Simmons Site Manager (306)964-1203
sms838@mail.usask.ca

Research Ethics Office (306) 966-2975
ethics.office@usask.ca Toll free: 888-966-2975

Research Ethics Office
Box 5000 RPO University
Saskatoon, SK Canada S7N 4J8

The Participant Must Be Provided With A Copy Of This Consent Form.