

**Ann Arbor Connected Vehicle Test Environment (AACVTE)  
Vehicle Awareness Device (VAD)  
New AACVTE Participants  
Informed Consent**

*Researchers:*

Principal Investigator: James R. Sayer, Ph.D., UMTRI; Dillon Funkhouser, M.S.E, UMTRI

*Description of research:*

Previously, The University of Michigan Transportation Research Institute (UMTRI) and the United States Department of Transportation (U.S. DOT) conducted a study of the potential safety benefits of connected vehicle safety technology. Connected vehicle safety technology allows vehicles to communicate wirelessly with other similarly equipped vehicles, and to communicate wirelessly with portions of the infrastructure—such as traffic signals. The Safety Pilot Model Deployment was a research study that featured a real-world implementation of connected vehicle safety technologies being used by everyday drivers in and around Ann Arbor.

The majority of the devices that were installed in vehicles only transmit information about that vehicle's location and speed, while some devices in vehicles both transmit and receive location and speed information. The devices capable of receiving location and speed information from other vehicles are designed to be able to provide warnings to the driver about the potential for a crash to occur.

Based on the success of the Safety Pilot Model Deployment, it has been decided that it is of interest to continue investigating wireless vehicle-to-vehicle communication, and thus UMTRI intends to maintain and grow a fleet of vehicles with the wireless equipment on-board around the city of Ann Arbor and eventually throughout all of Southeastern Michigan.

We are requesting permission to install the wireless equipment in your personal vehicle as part of the Ann Arbor Connected Vehicle Test Environment for one year.

*Description of your involvement:*

Because of where you drive, you have qualified to participate in a research study in which you are being asked to have a Vehicle Awareness Device (VAD) installed in your personal vehicle. The installation of the VAD takes about 45 minutes, and your initial visit should take about 1 hour in total.

The VAD is composed of a small box which will be installed in your vehicle (likely in the trunk or rear area) a small antenna which will likely be installed on or near the rear windshield and another small antenna which will be installed either on the trunk lid or the roof of your vehicle. A sample installation can be shown to you by a researcher before you complete this form. We also have sample antennas for you to look at.

Under the AACVTE, fleet participants like yourself will be asked to return to UMTRI once over the year to allow us to check the equipment on-board the vehicle and to download the collected data. The timing of this annual visit will be very flexible, and it will take about 30-45 minutes.

During this study you will not be asked to do anything outside of your normal routine (with the exception of the UMTRI visits). At no time during this study will you be asked to perform any unsafe driving actions. As always, you are free to withdraw your participation at any time.

If at any time you are no longer going to be driving the vehicle with the equipment installed (either because it was/will be sold, or because it was damaged and is no longer drivable) please contact UMTRI researchers so that we can work to find a convenient way for us to uninstall the equipment. It is likely we will ask you to return to UMTRI where we can best perform the removal.

*The data to be collected:*

The VAD continuously transmits speed and position data from your vehicle to other, similarly equipped vehicles, as well as into the surrounding environment where this information can be recognized by research equipment located along the road side and at intersections. While the data broadcast by your vehicle does include a unique identifier, only UMTRI will be able to link the unique identifier with your personal information (i.e. name, phone number, address, etc.). UMTRI will not share your personal information with any outside 3<sup>rd</sup> party.

*Confidentiality of records/data:*

During the study, we are gathering information on the performance of the connected vehicle technology, and not evaluating you as a driver. Your personal information (name, phone number, address, email address, etc.) will not be released to anyone outside of UMTRI. Your name will not appear in any project reports or published papers. However, it is possible that, if for example you were involved in a crash with the vehicle during testing, UMTRI could be forced to release data on your driving in response to a court order.

The data gathered in this experiment will be treated confidentially. One year after the study is complete, your name and all other personal information will be separated from your data and your personal information will be destroyed/deleted. A coding scheme will be used to identify the data by participant number only (e.g., Participant No. 1).

Data will be stored on a secure server located at UMTRI, and similarly secure facilities at partner institutions. The data will be retained indefinitely by UMTRI, as it represents a unique and irreplaceable dataset, and as such can be used long-term for exploratory analyses of driver behavior and the benefits of connected vehicle technology. Even if you withdraw from the study after you have begun participating, your data will be retained and may be the subject of analyses.

*Length of your participation:*

Your participation will last one year. You may choose to have the device removed from your vehicle and withdraw at any time.

*Risks and discomforts of participation:*

While participating in this study, you will be subject to all risks that are normally present while driving. While UMTRI is confident in its ability to install and remove the equipment without causing any damage to your vehicle, any damage to your vehicle as a result of UMTRI's operations installing, uninstalling or through a problem with the installation will be remediated by UMTRI.

*Expected benefits to you or to others:*

The results of this study will provide UMTRI and the U.S. DOT with valuable information for the development of future vehicle-to-vehicle communication-based driver assistance and safety systems for passenger vehicles. It will also provide information about driver acceptance of these types of systems. While there are no direct benefits to you, by participating in this deployment you are lending your experience and expertise as a driver to support safety research.

*Cost to you resulting from participation in the study:*

UMTRI and the U.S. DOT will bear all of the costs associated with performing this study. You will be responsible to pay for gasoline and your vehicle's normal maintenance while participating in this study.

## *FCC Compliance*

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

The VAD complies with FCC rules for dedicated short range communication (DSRC) devices. The VAD is matched to the antenna and coaxial antenna cable that is factory installed in the vehicle, in order to achieve maximum transmit power without violating FCC rules. The VAD is designed to become totally inoperable if tampered with, via redundant lockdown features. VAD installation and repair are only permitted by UMTRI's technical staff. Any attempted modifications to this system, including parts replaced with non-certified components, will result in an FCC rule violation and an inoperable system.

RF exposure warning statements: This equipment complies with FCC and ICSED radiation exposure limits set forth for an uncontrolled environment. End users must follow the specific operating instructions for satisfying RF exposure compliance. This VAD must be at least 20 cm from the user and must not be co-located or operating in conjunction with any other antenna or transmitter.

## *Innovation, Science and Economic Development Canada*

This device complies with Innovation, Science and Economic Development Canada license-exempt RSS standard(s). Operation is subject to the following two conditions:

1. This device may not cause harmful interference;
2. This device must accept any interference received, including interference that may cause undesired operation of the device.

Cet appareil est conforme à Industrie Canada une licence standard RSS exonérés (s). Son fonctionnement est soumis aux deux conditions suivantes:

1. Cet appareil ne doit pas provoquer d'interférences
2. Cet appareil doit accepter toute interférence reçue, y compris les interférences pouvant provoquer un fonctionnement indésirable de l'appareil.

## *Mexico*

It is illegal to drive in Mexico with a VAD operating. As such, if you plan to drive your vehicle to Mexico, please contact us before your trip and we will disconnect the VAD.

*Payment for participation in the study:*

Participation in this study is voluntary. No direct payment for participation is offered.

UMTRI researchers retain the right to terminate the study at any time.

The person in charge of this testing is:

Dillon Funkhouser  
Engineer in Research Senior  
The University of Michigan Transportation Research Institute  
Human Factors Division  
2901 Baxter Rd., Ann Arbor, MI 48109-2150  
Phone: (734) 936-0410

If you have questions about your rights as a research participant, or wish to obtain information, ask questions or discuss any concerns about this study with someone other than the researcher(s), please contact the University of Michigan Health Sciences and Behavioral Sciences Institutional Review Board, 540 E Liberty St., Ste 202, Ann Arbor, MI 48104-2210, [\(734\) 936-0933](tel:7349360933)

**Privacy Act Statement (5 U.S.C. § 552a, as amended):** AUTHORITY: Section 5306 of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users, (P.L.109-59, Title V, 2005) authorizes DOT to conduct operational tests of intelligent vehicles as part of its intelligent transportation system research. PURPOSE(S): DOT will use the information provided to, determine participant eligibility, evaluate technologies used by drivers during the study, and identify driver behaviors, and for other purposes as described in the DOT Privacy Act Notice. ROUTINE USE(S): In accordance with DOT's system of records notice, DOT/RITA 001 – Vehicle and Driver Research, Test, and Evaluation Records, the information provided may be disclosed to, parties conducting research on behalf of DOT, government officials in order to determine the suitability of an individual to participate in the research activity, members of the DOT workforce including contractors, consultants and others performing work on behalf of the Department, and for other uses as described in the “Prefatory Statement of General routine Uses” (available at <http://www.dot.gov/privacy/privacy>). DISCLOSURE: Provision of the requested information is voluntary; however failure to furnish the requested information may result in an inability of the Department to include you in the research activity.

