Toyota Helps Turn Ann Arbor into World's Largest Connected Car Proving Ground

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Ann Arbor, Mich. (April 13, 2016) – On the heels of last week's announcement that Toyota is putting more boots on the ground in Ann Arbor to study fully autonomous driving and advanced mobility, Toyota also will be deploying cars on the road for real world testing. Toyota, in partnership with the University of Michigan Transportation Research Institute (UMTRI), is transforming the streets of Ann Arbor, Mich. into the world's largest operational, real-world deployment of connected vehicles and infrastructure.

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 Ann Arbor Connected Vehicle Test Environment (AACVTE) is a real-world implementation of connected vehicle safety technologies being used by everyday drivers in Ann Arbor and around Southeast Michigan. AACVTE will build on existing model deployment in Ann Arbor, including an upgraded and expanded test environment, making it the standard for a nation-wide implementation.

This research will elevate UMTRI and U.S. Department of Transportation (US DOT) real-world exploration of connected vehicle technology. The current limitation of connected vehicle testing outside of a closed circuit test tracks is the lack connected vehicles. In order to move autonomous driving toward reality, testing requires more cars, more drivers and more day-to-day miles travelled than any combination of research facilities could support. The AACVTE begins to solve this problem.

Ann Arbor is already the largest Dedicated Short Range Communication test bed in the world, and the Michigan State government is very active in expanding deployment throughout the State of Michigan.

As part of its partnership agreement with UMTRI, Toyota will invite team members and their families to participate in the AACVTE initiative. The Toyota participants will allow their vehicles to be equipped with devices to support accelerated research and deployment of advanced Vehicle-to-Vehicle (V2V)/Vehicle-to-Infrastructure (V2I) systems in the region. The goal is to deploy 5,000 vehicles with vehicle awareness devices throughout the Ann Arbor area. The Ann Arbor deployment is one stepping stone toward achieving the U.S. Department of Transportation's vision for national deployment of V2V/V2I vehicles.

"Ann Arbor is an international hub for connected vehicle technology and research, and it has everything to do with the community. Toyota is again demonstrating their commitment to the community by their investment in the recently announced TRI, and by encouraging employees to participate in cutting edge research," said James R. Sayer, director, UMTRI.

The vehicle awareness device to be installed on participating vehicles is a small box, hidden out of sight in the vehicle's trunk or rear area, with two small antennas – one on or near the rear windshield and another either on the trunk lid or the vehicle's roof.

The device continuously transmits speed and position data from the participating 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 roadside and at intersections. The information transmission in this study occurs during the participant's usual everyday driving.

While the data broadcast by the vehicles does include a unique identifier, the data gathered in this experiment will be treated confidentially. The results of this study will provide UMTRI and the U.S. Department of Transportation with valuable information for the development of future V2V/V2I communication-based driver assistance and safety systems for passenger vehicles.

Wayne Powell, Toyota Technical Center vice president said, "We are thrilled to help UMTRI expand vehicle-to-vehicle testing well beyond the test track and on to the streets of Ann Arbor."

In 2012, UMTRI and the USDOT launched SPMD, a $30M connected vehicle research project, Safety Pilot Model Deployment (SPMD). SPMD included nearly 3,000 vehicles, the majority of which were owned by families in the AAPS. The research area was situated in northeast Ann Arbor, UMTRI. Building on the success of SPMD, UMTRI and its partners will expand the existing infrastructure footprint from northeast Ann Arbor to the entire 27-square miles of the City of Ann Arbor. Additional vehicles also will be deployed at the rate of 1,500 per year. AACVTE will move from a model deployment to an early operational deployment.