



# SAFETYPILOT

CONNECTED VEHICLE TECHNOLOGY

## QUESTIONS & ANSWERS About DOT's Safety Pilot "Model Deployment"

### ABOUT THE PROJECT

**Q:** What federal agencies are sponsoring the model deployment?

**A:** The U.S. Department of Transportation's National Highway Traffic Safety Administration (NHTSA), Research and Innovative Technology Administration (RITA), Federal Highway Administration (FHWA), Federal Motor Carrier Safety Administration (FMCSA), and Federal Transit Administration (FTA).

**Q:** Who is conducting the model deployment test?

**A:** The University of Michigan Transportation Research Institute (UMTRI).

**Q:** Where is the model deployment taking place?

**A:** Ann Arbor, Michigan.

**Q:** How much will the model deployment cost?

**A:** The model deployment is a \$25-million pilot effort with approximately 80 percent of the funding provided by the U.S. DOT.

**Q:** How long will the model deployment last?

**A:** One year (August 2012 to August 2013).



### ABOUT THE VEHICLES

**Q:** How many vehicles are participating in the model deployment?

**A:** Approximately 2,800 cars, trucks and transit buses.

**Q:** What are dedicated short-range communications?

**A:** Dedicated short-range communications (DSRC) are two-way, short-range (approximately 200 to 300 meters) wireless communication capabilities that permit secure, very fast data transmission critical in communications-based, active safety applications. The Federal Communications Commission allocated 75 MHz of spectrum in the 5.9 GHz band for use by Intelligent Transportations Systems (ITS) vehicle safety and mobility applications. DSRC was developed with the goal of enabling technologies that support safety applications and communication between vehicle-based devices and infrastructure to reduce collisions.

**Q:** What is a basic safety message?

**A:** A basic safety message (BSM) contains vehicle-safety-related information such as speed and location that is broadcast 10 times per second to surrounding vehicles.

**Q:** What are "fully integrated" vehicles?

**A:** "Fully integrated" vehicles have electronic devices (integrated safety systems, ISS) installed during vehicle production. Integrated safety systems are connected to proprietary data busses and provide

highly accurate information using in-vehicle sensors. The ISS both broadcasts and receives BSMs and can process the content through visual, sound, and/or haptic warning of received messages to alert the vehicle driver. These are being developed for light vehicles and trucks.

**Number of “fully integrated” vehicles:**

Cars .....	64
Trucks.....	3

**Q: What is an aftermarket safety device?**

**A:** An aftermarket safety device (ASD) is installed after initial vehicle manufacture and can send and receive BSMs from other vehicles over a DSRC wireless communications link. An ASD has a driver interface, runs V2V and V2I safety applications, and issues audible and/or visual warnings to the driver of the vehicle through the ASD.

**Number of vehicles with ASDs:**

Cars .....	300
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**Q: What is a retrofit safety device?**

**A:** A retrofit safety device is an electronic device installed specifically in a truck or bus by an authorized service provider at a service facility after the vehicle has completed the manufacturing process (retrofit). This type of device is connected to a vehicle data bus and can provide highly accurate information from in-vehicle sensors. The integrated device has a working driver interface, both broadcasts and receives BSMs, and can process the content of received messages to provide warnings to the driver of the vehicle. These are being developed for transit buses and trucks.

**Number of vehicles with retrofit safety devices:**

Trucks.....	16
Transit buses .....	3

**Q: What is a vehicle awareness device?**

**A:** A vehicle awareness device (VAD) is an aftermarket electronic device installed in a vehicle without connection to vehicle systems. The VAD is only capable of sending the BSM over a DSRC wireless communications link. A VAD does not generate warnings, but transmits a vehicle’s speed and location only. They may be used in any type of vehicle.

**Number of vehicles with VADs:**

Cars .....	2,305
Trucks.....	60
Transit buses .....	85

**Q: How many messages are expected to be communicated between the vehicles?**

**A:** Each transmitter will emit 10 messages per second.

*Drivers will experience the following safety applications:*

- ▶ **Forward Collision Warning (FCW)** – Warns the driver if he/she fails to brake when a vehicle in the driver’s path is stopped or traveling slower and there is a potential risk of collision.
- ▶ **Lane Change Warning/Blind Spot Warning (LCW/BSW)** – Warns the driver when he/she tries to change lanes if there is a car in the blind spot or an overtaking vehicle.
- ▶ **Emergency Electric Brake Light Warning (EEBL)** – Notifies the driver that there is a vehicle ahead (or several vehicles ahead) that the driver can’t see, but which is braking hard for some reason.
- ▶ **Intersection Movement Assist (IMA)** – Warns the driver when it is not safe to enter an intersection—for example, when something is blocking the driver’s view of opposing or crossing traffic.

## ABOUT THE INFRASTRUCTURE

**Q:** How many miles of roadway are in the model deployment area?

**A:** 73 lane-miles.

**Q:** What is a roadside equipment device?

**A:** A roadside equipment (RSE) device sends messages to vehicles, such as signal phase and timing (SPaT), curve speeds, etc., to help improve safety and traffic flow using DSRC.

### Number of RSE devices in the model deployment area: 29

Signalized intersections . . . . .	21
Curves with curve speed warning devices . . . . .	3
Freeway sites . . . . .	5

**Q:** What is signal phase and timing?

**A:** Signal phase and timing (SPaT) describes the traffic signal phase (green, yellow/amber, or red) and the amount of time remaining until the light changes at an intersection. This information can be used in applications to help increase fuel efficiency, safety, and mobility for all road users.

**Q:** Number of corridors where SPaT information will be communicated to vehicles:

**A:** Two corridors with 12 intersections; six intersections per corridor.

## FOR MORE INFORMATION:

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