DriveOhio Deploys Connected and Automated Vehicles on 33 Smart Mobility Corridor

DriveOhio's Rural Automated Driving Systems (Rural ADS) project is using the 33 Smart Mobility Corridor in The Beta District to demonstrate how connected and automated semi-trucks and passenger vehicles could improve safety for drivers, passengers and other travelers in rural settings.

ABOUT THE PROJECT

In 2019, the U.S. Department of Transportation awarded a $7.5 million Automated Driving Systems (ADS) grant to DriveOhio and the Transportation Research Center (TRC) to demonstrate how connected and automated vehicles could improve safety for drivers, passengers, and other travelers in rural settings.

Most testing of automated driving systems has been conducted in urban environments that have very little variation (visible lane markings, mild weather, clear line-of-sight, etc.) Testing in rural locations with four-season weather and diverse landscapes will help these systems learn how to overcome challenges related to connectivity, lighting, and sight distance around curves or over hills.

Southeast Ohio is an ideal testing area to collect data due to its four-season climate and a diverse landscape of level and steep terrain.
Before DriveOhio deployed Rural ADS in Athens and Vinton counties, they used The Beta District and its smart mobility ecosystem to prepare.   The automated passenger vehicles and truck platoons were rigorously tested in The Beta District at the Transportation Research Center, Inc. (TRC). Then the vehicles, operated at all times by professional drivers, were deployed on the 33 Smart Mobility Corridor, where operations further tested in a this highly monitored setting.

> "Automated driving systems are expected to transform roadway safety in the future, and the data collected with this project will be used to refine the technology to maximize its potential."
>
> **Preeti Choudhary**
> **DriveOhio Executive Director**

KEY FACTS

» Funded by a $7.5 million grant from the U.S. Department of Transportation

» Focuses on 32 Ohio counties

» 97% of land is rural nationwide

» Most automation testing to date is in urban areas

PARTNERS

DriveOhio · BOSCH · TRCnext · EASE · OHIO UNIVERSITY

OUR APPROACH

Drive Ohio's Rural Automated Driving Systems project Includes two deployments to gather data that will help define future technology needs. The first of the two includes three passenger vehicles equipped with AutomouStuff technology traveling on divided highways and rural two-lane roads in Athens and Vinton counties. They are being tested in different operational and environmental conditions, including periods of limited visibility and in work zones. When the automated driving system is engaged, the technology will control steering, acceleration, and braking. Throughout the year-long deployment, a professional driver will always be in the driver's seat with their hands on the wheel, ready to take over if needed.

In addition to rigorous testing at TRC, the deployment relies on high-definition mapping of specific routes that is then verified by professional drivers before engaging the automated technology. These maps provide the advanced driving system precise information about the surrounding environment including explicit roadway characteristics such as lane widths and the location of signals, crosswalks, and nearby buildings. As this automated vehicle technology matures, it will become crucial to enhancing mobility for people in rural communities that have been historically underserved.
The second deployment features a pair of 53-foot platoon-equipped tractor-trailers connected by technology that enables them to travel closely together at highway speeds. When the trucks are connected, the lead vehicles control the speed, and the following vehicle will have precisely matched braking and acceleration to respond to the lead vehicles movement.
The trucks used in this project are equipped with radar to detect other vehicles. This technology allows the trucks to monitor and react to the environment around them in certain ways, such as following the lead vehicle and responding to slower moving traffic; however, human engagement in the driving task is critical. Like the first deployment, a professional driver will always be in the driver's seat with their hands on the wheel.
The trucks were first deployed on the 35-mile U.S. 33 Smart Mobility Corridor, specifically designed for testing smart and connected vehicles. Fleet operator Ease Logistics starting using the trucks in their day-to-day business operations in spring, 2023.

> "This project holds great promise for the future of transportation and the economic wellbeing of rural communities, while strengthening Ohio's historic reputation as a world leader in transportation safety and innovation."
>
> Brett Roubinek
> President and CEO, TRC Inc.

> "This project gives us an incredible opportunity to test automated vehicles in rural areas and gather data to demonstrate the unique challenges and work towards solutions. Our goal is to bridge the technology gap in rural Appalachian communities so automated vehicles can improve quality of life throughout the region."
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> Dr. Jay Wilhelm, Associate Professor of Mechanical Engineering at Ohio University

THE OUTCOMES

Data Is being collected throughout the demonstrations and will be reported In late 2024. Findings from these and other research efforts across the U.S. are expected to Inform USDOT rule-making for connected and automated vehicles.

KEY LEARNINGS

TBD - check back in late 2024

ABOUT DRIVEOHIO

Ohio is home to dozens of public and private entities all involved in the designs, development, testing, use and regulation of automated, connect, electric, and advanced air mobility technologies. DriveOhio, the state's center for smart mobility, connects all of these organizations to advance this technology across the state. An integral part of the Ohio Department of Transportation, DriveOhio fosters cooperation and collaboration, offers faster access to resources and improves efficiency for people and organizations that are looking to be part of this industry.

BETA DISTRICT

BETA DISTRICT
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The Beta District is an innovative technology hub with live testing labs throughout the Columbus, OH region.