

## ADS Demonstration Grants Program Overview

The Automated Driving System (ADS) Demonstration Grants Program – Public Law 115-141, Division L, Title I – appropriates funding for a “highly automated vehicle research and development program” to fund planning, direct research, and demonstration grants for Automated Driving Systems and other driving automation systems and technologies.

Of the total amount provided, \$60,000,000 must be used for demonstration grants that test the safe integration of ADS into our Nation’s on-road transportation system.

The three goals of the ADS program are:

- **Safety:** Fund projects that demonstrate how challenges to the safe integration of ADS into the Nation’s on-road transportation system can be addressed.
- **Data for Safety Analysis and Rulemaking:** Ensure significant data gathering and sharing of project data with USDOT and the public throughout the project.
- **Collaboration:** Create collaborative environments that harness the collective expertise, ingenuity, and knowledge of multiple stakeholders.

## ADS Program Focus Areas

The ADS program identifies seven different focus areas.

**Significant Public Benefit:** Fund a select number of larger-scale projects that result in a significant benefit(s) to the public.

**Addressing Market Failure and Other Compelling Public Needs:** Fund projects where industry lacks adequate incentives to participate. This includes areas where cost, risk, or complexity are too significant for any single private sector entity or where a lack of private sector investment has not proven sufficient to support particular groups.

**Economic Vitality:** Recognizing Executive Order 13788, proposed projects must support economic vitality at the national and regional level, including advancing domestic industry and promoting domestic development of intellectual property.

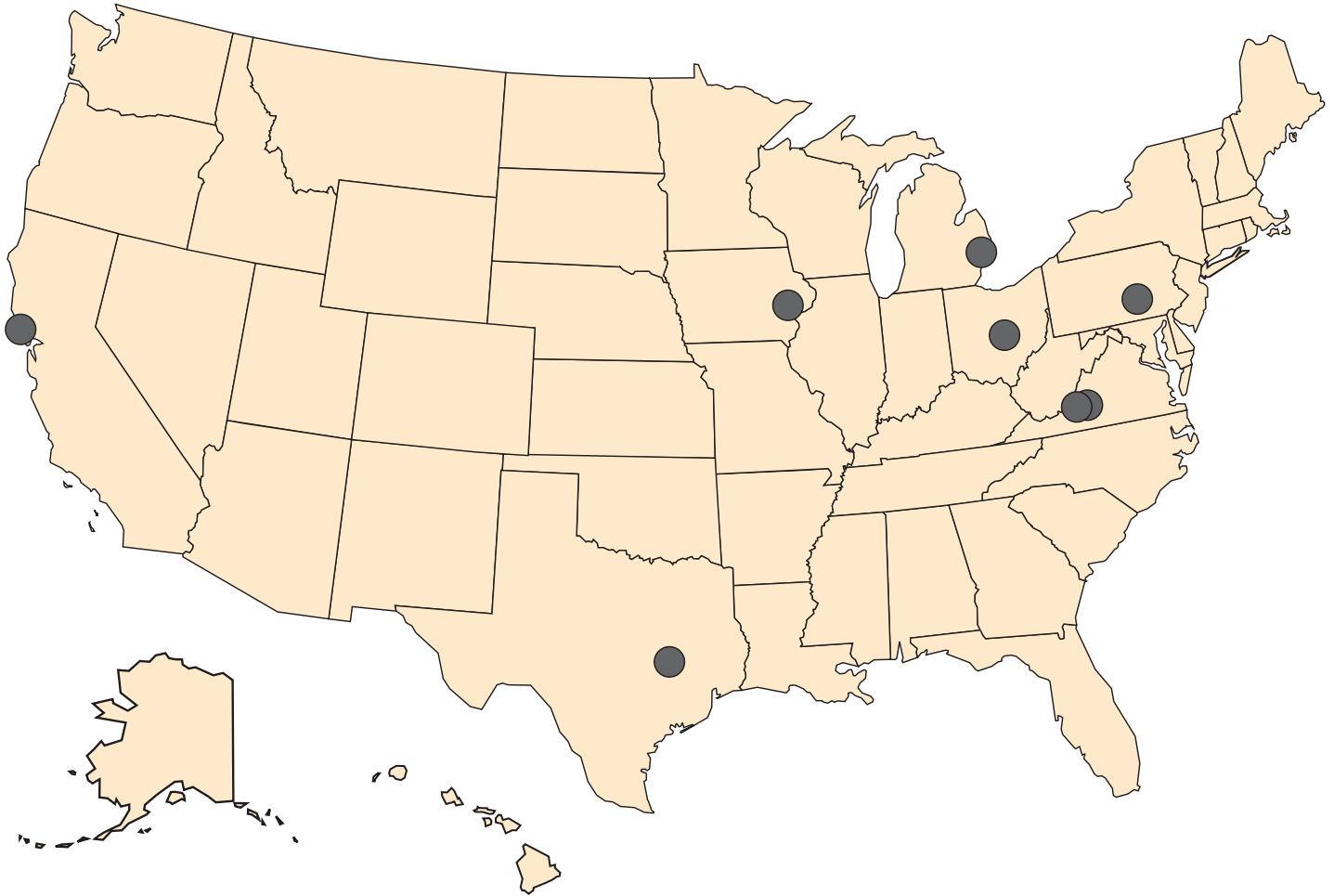
**Complexity of Technology:** Fund a collection of projects that demonstrate automation, with preference for demonstrating L3 or greater automation technologies.

**Diversity of Projects:** Fund a collection of projects that serve a variety of communities, including urban, suburban, and rural environments, and that serve a variety of transportation markets including freight, personal mobility, and public transportation.

**Transportation-challenged Populations:** Fund projects that test applications with the greatest potential to service transportation-challenged populations, including older adults and individuals with disabilities.

**Prototypes:** Fund projects that include technologies that are, at a minimum, in limited prototype state suitable to support safe demonstrations but do not need to be ready for broader deployment.

## Awards



Applicant	State	Award Amount
Texas A&M Engineering Experiment Station	Texas	\$7,063,787
University of Iowa	Iowa	\$7,026,769
Virginia Polytechnic Institute and State University Transportation Institute	Virginia	\$7,500,000
Virginia Polytechnic Institute and State University Transportation Institute	Virginia	\$7,500,000
Ohio Department of Transportation (through DriveOhio)	Ohio	\$7,500,000
Pennsylvania Department of Transportation	Pennsylvania	\$8,409,444
City of Detroit, MI	Michigan	\$7,500,000
Contra Costa Transportation Authority, CA	California	\$7,500,000

## Texas A&M Engineering Experiment Station "AVA: Automated Vehicles for All"

**ADS Grant Award: \$7,063,787**

**Total Project Cost: \$7,063,787**

### Project Description:

The project will develop and test ADS for rural roads without high-definition maps and with no or low-quality road signs or markings in Texas, Washington, D.C., and Northern Virginia. The project will evaluate ADS based on safe interactions with non-motorized modes of transportation and cooperative automated vehicles (CAVs) to target the challenges of current deployment efforts.

### Project Highlights and Benefits:

The project aligns with the "diversity of projects" focus area because it will support rural transportation, which is often overlooked by ADS deployment efforts. The demonstrations will be conducted in both urban and rural areas; involve a diverse range of motorized and non-motorized users; and include testing in adverse conditions. The project is expected to yield beneficial data for future DOT efforts and, therefore, advances the "data for safety analysis and rulemaking" goal. Additionally, the project supports the "collaboration" goal by engaging researchers from three academic institutions across two states and Washington, D.C.



## University of Iowa "ADS for Rural America"

**ADS Grant Award: \$7,026,769**

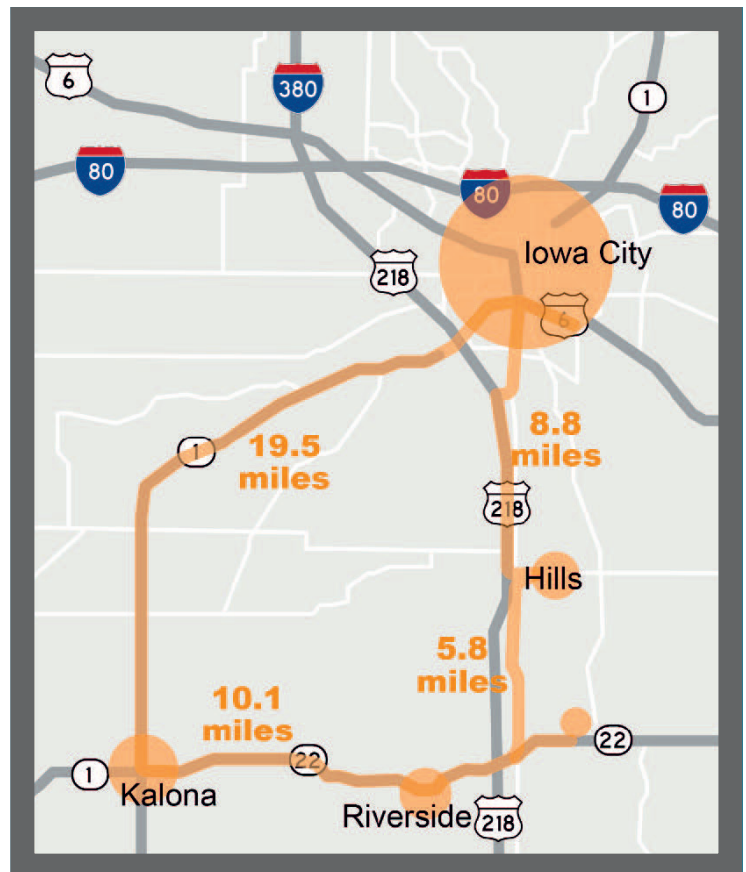
**Total Project Cost: \$7,849,513**

### Project Description:

The project will connect rural, transportation-challenged populations using a mobility-friendly ADS built on a commercially available platform. The demonstration will drive in a loop from Iowa City through rural areas and small towns, providing an example for how ADS can connect rural populations.

### Project Highlights and Benefits:

This project seeks to examine ADS deployments in a predominantly rural setting that is representative of much of rural America with its variable seasons, rural roads, and roadway hazards; therefore, it aligns with the "diversity of projects" focus area. The project also aligns with the "transportation-challenged populations" focus area because it specifically tests applications with rural, transportation-challenged populations. It advances the "collaboration" and "data for safety analysis and rulemaking" goals because it will create a framework for storing and sharing data that is expected to be useful to the DOT, other agencies, and the research community to support the needs of this project, as well as its scalability and adaptation for future projects.



## Virginia Polytechnic Institute and State University Transportation Institute (VTI) “Safely Operating ADS in Challenging Dynamic Scenarios: An Optimized Automated Driving Corridor Demonstration”

**ADS Grant Award:** \$7,500,000

**Total Project Cost:** \$13,696,491

### Project Description:

The project will define, develop, and demonstrate key dynamic scenarios and their potential solutions for safe interaction of ADS-equipped vehicles in a Northern Virginia corridor optimized for vehicle automation. With the overarching vision of a transportation system where ADS-equipped vehicles operate safely and predictably in highly dynamic interactive scenarios, this project will collect data for ADS development, safety analyses, and rulemaking considerations.

### Project Highlights and Benefits:

The project advances the “data for safety analysis and rulemaking” and “collaboration” goals. The innovative concept, which includes input from original equipment manufacturer (OEM) participants, has the potential to clarify the relationship between information, operational design domains (ODDs), and safe navigation. The proposal includes a detailed approach to data generation, storage, and sharing. Additionally, the proposal aligns with the “transportation-challenged populations” focus area because it supports specific accessibility goals by including the development of user interfaces in ADS-equipped vehicles for visually and hearing-impaired individuals.

Responding to an Incident	Securing a Scene	Traffic Direction and Control	Traffic Stops and Checkpoints	Abandoned or Unattended Vehicles	Work Zones
					
Domains: Law Enforcement Fire and Rescue EMS	Domains: Law Enforcement Fire and Rescue EMS	Domains: Law Enforcement Fire and Rescue EMS	Domains: Law Enforcement	Domains: Law Enforcement	Domains: IOOs

## Virginia Polytechnic Institute and State University Transportation Institute (VTI) "Trucking Fleet CONOPS for Managing Mixed Fleets"

**ADS Grant Award: \$7,500,000**

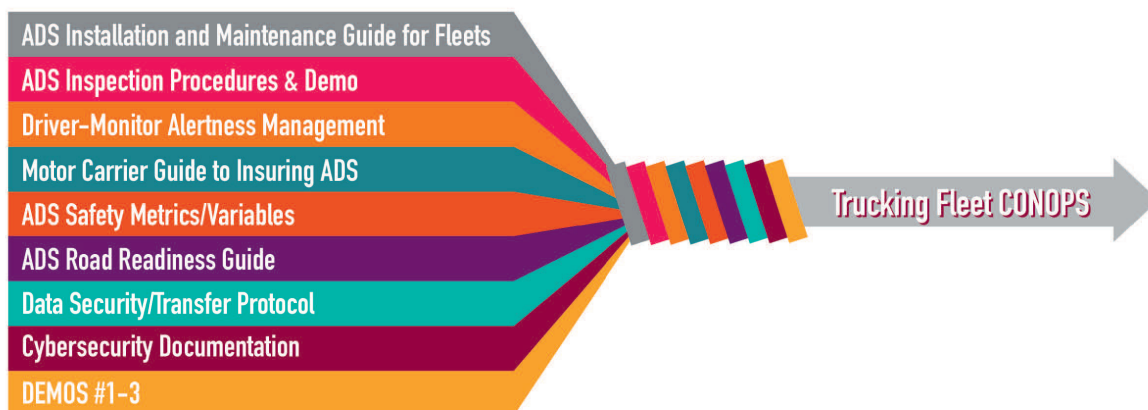
**Total Project Cost: \$13,455,912**

### Project Description:

The project will develop and demonstrate a Fleet Concept of Operations (CONOPS) to provide the trucking industry with clear guidelines on how to safely implement, and benefit from, ADS-equipped trucks.

### Project Highlights and Benefits:

The project focuses on automated trucking and aligns with the "data for safety analysis and rulemaking" goal. The project will assess ADS data collection, safety data analysis, data repositories, naturalistic driving, roadway infrastructure, statistical methods, and truck fleet operations through real-world demonstrations, which are expected to inform future DOT activities. The proposed demonstrations have the potential to optimize supply chain and logistics through truck fleet automation integration, and highlight the connections between ADS, economic vitality, and safety. The project aligns with the goal for "collaboration" and supports a partnership that includes six State DOTs, academia, and industry. The project will develop manuals, guidelines, and other practical materials that could be used by a wide variety of freight stakeholders and serve numerous transportation markets. The freight focus of the project also addresses the "diversity of projects" focus area.



## Ohio Department of Transportation (through DriveOhio) "D.A.T.A. in Ohio: Deploying Automated Technology Anywhere"

**ADS Grant Award: \$7,500,000**

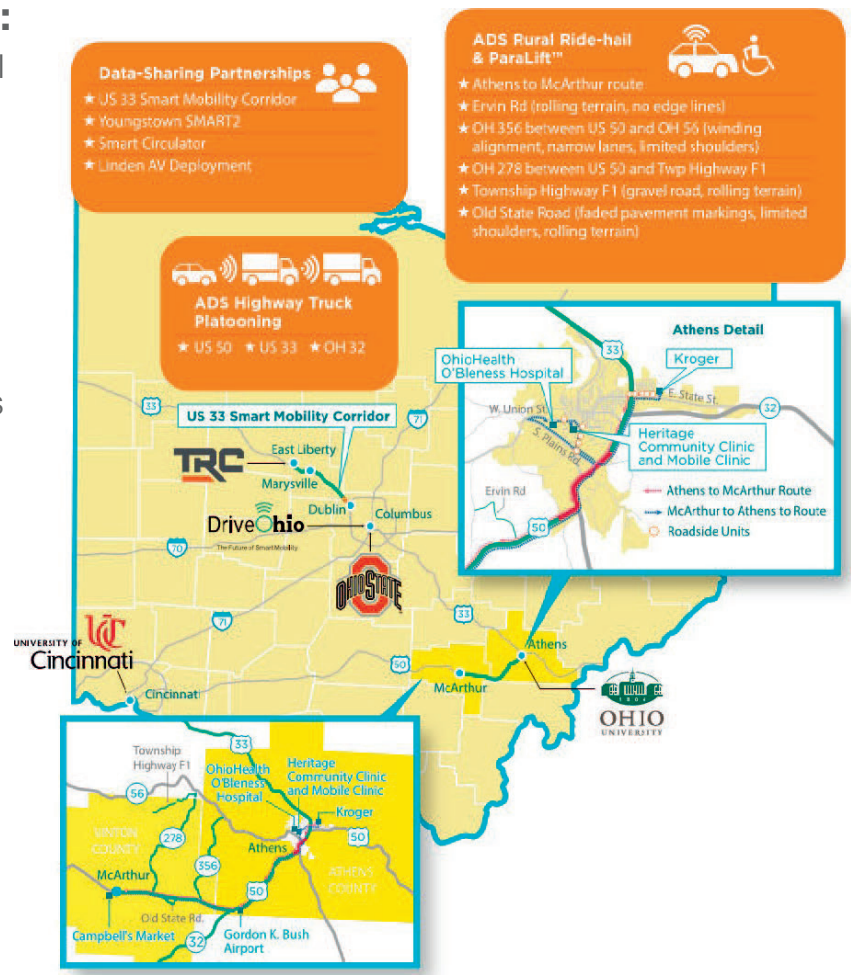
**Total Project Cost: \$17,791,062**

### Project Description:

The project will conduct a multi-pronged demonstration approach focusing on rural environments, cooperative automation, and a robust data collection. The data and insights gathered through the project is expected to enable local, State, and Federal agencies to develop more effective and informed ADS policies that benefit all regions of Ohio and the Nation.

### Project Highlights and Benefits:

The project uses a thorough technical approach and methodology to implement a comprehensive automated mobility system for all transportation users, addressing the "diversity of projects" focus area. The applicant takes into consideration weather, work zones, and other disruptions to traffic. The project also advances the "data for safety analysis and rulemaking" goal, as the data achieved in this project is expected to be useful in developing guidance for ADS in rural areas, which are often underrepresented in ADS research activities.





## **Pennsylvania Department of Transportation "Safe Integration of Automated Vehicles (AV) in Work Zones"**

**ADS Grant Award: \$8,409,444**

**Total Project Cost: \$12,401,393**

### **Project Description:**

The project will explore safe integration of ADS into work zones by examining connectivity, visibility, and high-definition mapping technologies. The project will incorporate the following technologies: connectivity between the vehicles, traffic control devices, construction workers, and construction vehicles using a single device with DSRC/CV2X radio; innovative coating for pavement markings, traffic control devices, construction workers, and construction vehicles; and high-definition work zone mapping using radar, LiDAR, and cameras.

### **Project Highlights and Benefits:**

The project will test common work zone scenarios/configurations in different urban, rural, and suburban settings. These distinct settings address the "diversity of projects" focus area. Furthermore, the project addresses a known safety and technology need, therefore aligning with the "addressing market failure and other compelling public needs" focus area and the "data for safety analysis and rulemaking" program goal. The project is expected to provide a better understanding of how ADS-equipped vehicles operate and how infrastructure can enable safer, more efficient operations through work zones. This is a key gap in ADS research that could serve a variety of transportation markets, potentially resulting in significant benefits to the public.



## City of Detroit, MI "Michigan Mobility Collaborative - ADS Demonstration"

**ADS Grant Award: \$7,500,000**

**Total Project Cost: \$17,653,438**

### Project Description:

The project will implement the Cooperative Automation Research Mobility Applications (CARMA) Level 3 software platform for demonstration testing focused on mobility, safety, and endurance. The project's 4-year plan includes safety testing to demonstrate the vehicles' ability to handle common daily driving scenarios and selected corner cases; week-long demonstrations, some with riders; and an iterative 6-month deployment cycle to gather long-term, continuous service to the senior mobility-challenged community.

### Project Highlights and Benefits:

The project supports mobility goals and provides potential for real-time data that could develop a replicable framework for ADS in the future, advancing the "data for safety analysis and rulemaking" program goal and potentially resulting in significant benefits to the public. The project has an innovative safety testing and monitoring approach that is anticipated to inform critical self-certification safety testing needed for industry-based consensus standards.



## Contra Costa Transportation Authority, CA "Contra Costa Transportation Authority's ADS Demonstration Program"

**ADS Grant Award: \$7,500,000**

**Total Project Cost: \$29,734,422**

### Project Description:

The project will demonstrate Level 3 and Level 4 vehicles using shared on-demand, wheelchair accessible ADS-equipped vehicles. The project includes real-world demonstrations that take a unique data-driven approach to finding proper solutions for key safety measures.

### Project Highlights and Benefits:

The demonstration of Level 3 and Level 4 vehicles addresses the "complexity of technology" focus area. The project will provide data, data access, and information to DOT and the public that is expected to help to develop safety performance measures, thereby advancing the "data for safety analysis and rulemaking" program goal. Additionally, the project supports specific accessibility goals by focusing on ADS services that support medical patients, to include disabled, impaired, aging, low-income, and mobility-challenged riders. This project is expected to increase transit accessibility for the elderly community using shared, on-demand, wheelchair accessible, ADS-equipped vehicles.

