



Fact Sheet

About DriveOhio

DriveOhio is the new center for all things smart mobility in Ohio. DriveOhio brings together government, industry and research partners to enhance Ohio's infrastructure for autonomous & connected vehicles and development of smart mobility technologies. DriveOhio makes our state a leader in transportation technology, allowing technological investment across Ohio that can drive economic growth in a new and surging industry.

Housed within the Ohio Department of Transportation, DriveOhio is a partnership between ODOT, the Department of Public Safety, the Department of Administrative Services, the Ohio Turnpike Infrastructure Commission, the Public Utilities Commissions of Ohio, the Department of Insurance, the Governor's Office of Workforce Transformation and the Ohio National Guard's Office of the Adjutant General.

Why Ohio for Smart Mobility?

Ohio has an unparalleled mix of assets and resources that make it an exceptional location for any organization ready to invest in smart mobility. No other state can match what's available in Ohio. Take a look at what's already happening:

1. Six Smart Mobility Projects

- **U.S. 33 Smart Mobility Corridor** – The 35-mile stretch of U.S. 33 between Dublin and East Liberty (through Marysville) will be one of the longest "autonomous ready" highways in the country. The Ohio Department of Transportation is equipping the four-lane, divided highway with fiber-optic cable and wireless roadside sensors to allow open-road testing of autonomous vehicles.
- **I-90 Lake Effect Corridor** – Part of I-90 runs through the Lake Erie "snow belt," a geographic region that receives significantly more snow than the rest of northeast Ohio. The Ohio Department of Transportation is equipping a 60-mile stretch of the interstate with short-range digital communications units. It's also going to test wireless technologies designed to send and receive data from those units as from units on public service vehicles. The data, combined with new variable speed limit signs, will help local officials and law enforcement better manage the roadway to reduce crashes and fatalities.
- **I-670 Smart Lane** – The Ohio Department of Transportation is starting construction on the state's first "smart lane," a nine-mile stretch of I-670 between downtown Columbus and the John Glenn Columbus International Airport. The Ohio Department of Transportation is turning the eastbound shoulder into a smart lane that drivers can use during peak congestion. The Smart Lane will also be equipped with high-resolution cameras to monitor conditions from the statewide traffic management center and digital messaging boards to manage traffic speeds and incidents.
- **Ohio Turnpike** – The 241-mile turnpike is long, flat and straight, making it an ideal open-road site for testing autonomous and connected vehicles. In fact, the turnpike already has been used to test truck platooning. The turnpike is outfitted end to end with fiber-optic cable. Roadside units will be installed in a 60-mile stretch of the turnpike, and onboard units will be installed in public fleet vehicles, giving the Ohio Turnpike and Infrastructure Commission the ability to better monitor and manage driving and road conditions.
- **Connected Marysville** – Marysville is installing dedicated short-range communications units in its traffic signals, which will be able to communicate with up to 1,500 public and private vehicles equipped with onboard units. The pilot is designed to test and fine-tune how connected vehicles interact in order to improve safety and congestion and to reduce emissions.
- **Smart Columbus** – The city of Columbus, named the winner of U.S. Department of Transportation's first "Smart City Challenge," is creating a first-of-its-kind smart mobility system that will improve safety, mobility, access to opportunity and sustainability to improve quality of life.

2. The Transportation Research Center (TRC)

- TRC is the largest independent automotive proving ground in the North America. This world-renowned testing facility has 4,500 acres of road courses and a 7.5-mile, high-speed oval test track, making the TRC the best place to test and validate nearly any vehicle in a controlled environment.



- The state of Ohio, The Ohio State University and JobsOhio invested \$45 million in the first phase of the Smart Mobility Advanced Research and Test Center (SMART), a state-of-the-art hub at the TRC for automated and autonomous testing. When finished, the 540-acre SMART Center will test new technologies and highly automated vehicles in a closed, safe, secure and real-world environment.
- The TRC is home to the National Highway Traffic Safety Administration (NHTSA) Vehicle Research and Test Center, the only federal vehicle test laboratory in the nation. It conducts research and vehicle testing in support of NHTSA's mission to save lives, prevent injuries and reduce traffic-related health care costs.

3. The Center for Automotive Research (CAR)

Ohio State's Center for Automotive Research (CAR) is a pre-eminent research center focused on intelligent transportation systems, advanced vehicle safety and sustainable mobility.

4. The Smart Belt Coalition

Smart Belt Coalition is a partnership between government agencies and academic institutions in Ohio, Pennsylvania and Michigan working together to support the research and testing of autonomous and connected vehicles. This first-of-its-kind coalition is also working toward the creation of a smart corridor that will eventually stretch from the East Coast to Detroit and Chicago.

5. The Unmanned Aircraft Systems (UAS) Center

The Unmanned Aircraft Systems (UAS) Center at the Springfield-Beckley Municipal Airport supports the research and development, testing, certification and commercialization of UAS systems. It has a ground-based sense-and-avoid radar system that gives the airport a unique testing capability to fly drones beyond the operator's visual line of sight.

6. The Air Force Research Laboratory's Sensors Directorate

The Air Force Research Laboratory's Sensors Directorate, located at Ohio's Wright Patterson Air Force Base, leads the discovery and development and integration of sensors for military use.

7. Ohio's outstanding assets include:

- A geography, location, weather conditions and mix of urban and rural areas that provide a diverse landscape for researchers and manufacturers to test and develop smart transportation technologies.
- A competitive business climate, a balanced state budget and a favorable tax structure.
- A regulatory environment conducive to innovations in smart mobility and intelligent transportation.
- A sum of public and private investments exceeding \$500 million for the development, testing and manufacturing of smart mobility technologies in Ohio.
- A collaborative environment where private and public entities work together on smart mobility technologies.
- A transportation infrastructure that is ready for autonomous technologies; Ohio has invested \$14 billion in nearly 7,000 infrastructure projects since 2011.
- An innovative automotive industry that continues to invest in new technologies.
- A strong auto industry that is the No. 1 U.S. producer of engines and transmissions, is the No. 2 U.S. manufacturer of light vehicles, and represents the entire automotive supply chain,
- A large concentration of well-trained and highly skilled automotive, manufacturing, R&D and advanced sensor engineering talent.



The Future of Smart Mobility

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Frequently Asked Questions and Answers

1. What is smart mobility?

In simple terms, smart mobility means using emerging technologies to improve the mobility of people and goods. It's the use of new technologies to move things from point A to point B in the safest, most convenient and most cost-effective way. Smart mobility encompasses everything from car-sharing programs, on-demand ride services and better access to public transportation to drones, autonomous and connected vehicles, and a transportation infrastructure that's connected, automated and intelligent.

2. What are autonomous and connected vehicles?

Even though "autonomous" and "connected" are often used in conjunction with each other, they mean different things.

A fully autonomous vehicle can literally drive itself without any human involvement. An autonomous vehicle is equipped with the technical systems necessary to sense its environment and make decisions based on what it detects. Advanced driver-assisted systems, such as adaptive cruise control, automatic parking and collision avoidance, are the first autonomous systems starting to appear in cars.

Connected vehicles are equipped with Wi-Fi and dedicated short-range radio communication (DSRC) devices that enable communication and data sharing with other connected vehicles (vehicle to vehicle or V2V), with the transportation infrastructure (vehicle to infrastructure or V2I), with both vehicles and infrastructure (V2X), and with passengers' smart phones. Drivers can receive alerts about accidents, hazardous road and weather conditions, and other potentially treacherous situations, giving them more time to react. All of the data collected from connected infrastructure and vehicles is stored, shared and analyzed for the purpose of improving the safety and efficiency of the transportation system.

Vehicles can and will have either or both autonomous and connected features.

3. How will autonomous and connected vehicles improve safety and congestion?

In 2016, there were more than 300,000 crashes on Ohio roads, 94 percent of which were caused by driver error. Research indicates that 80 percent of those crashes could have been avoided or mitigated with autonomous and connected vehicle technologies.

These technologies enable vehicles and the transportation infrastructure to constantly transmit, receive, monitor and respond to signals about road conditions, traffic flow, accidents, bad weather and other driving hazards. This type of vehicle-to-vehicle and vehicle-to-infrastructure data sharing helps drivers avoid dangerous situations and allows traffic monitors to make better decisions about traffic management.

4. What is the role of infrastructure in smart mobility?

Autonomous and connected vehicles drive on roads, bridges and highways just like regular cars do, but they need additional infrastructure to work.

Autonomous, or self-driving, vehicles operate by onboard systems that can sense the environment around them and make decisions based on what's detected. They don't typically need additional infrastructure. Instead, they benefit from relatively simple road upgrades, such as better striping and pavement markings.

Connected vehicles, however, require an enhanced technology infrastructure to function. Fiber-optic cable, for example, is essential to handle the tremendous amount of data from connected vehicles that has to be collected, shared, stored and analyzed. Cellular telecommunications, roadside units with radio frequency and satellite communications are also needed to accommodate the use of connected vehicles.

The Ohio Department of Transportation is deploying these technologies – where they make sense – to improve Ohio's transportation infrastructure for connected vehicles.

5. What is "dedicated short-range communication" (DSRC)?

Dedicated short-range communication (DSRC) is a two-way, short- to medium-range wireless communication system that permits the transmission of very large amounts of data. In simpler terms, it's a secure and reliable wireless communications technology that allows connected vehicles and connected infrastructure to talk to each other. Using onboard units and roadside units, DSRC alerts drivers to hazardous conditions and situations and allows transportation monitors to better manage traffic.