

Transportation Innovation

at the U.S. Department of Transportation (USDOT)



Photo Source: USDOT

The USDOT is one of the biggest sources of funding for intelligent transportation system (ITS) research and development nationwide. We have invested over \$100 million per year to spur technology innovation and accelerate technology deployment. Our vision is to bring connectivity to transportation through the use of advanced wireless technologies. We are working to connect our vehicles, connect our infrastructure, and connect our cities—leveraging technology to maximize the safety, mobility, and environmental sustainability of our transportation network. Thus, we have become a global leader in large-scale connected vehicle pilot deployments, which is helping to make talking cars a reality for everyone.

And our plans don't end there. Over the next 5 years, our priorities will focus on connected vehicles, automation, enterprise data, emerging technology, interoperability, and deployment.

The USDOT's research is critical to developing innovative solutions to transportation's toughest challenges—and to ensuring seamless technology deployment.

Innovation through Connectivity – Connected Vehicles

Cars that connect to the Internet are already here. The USDOT is working on connecting our cars to everything around it, including other vehicles, traffic signals, stops signs, school zones, and more. Soon, our cars, trucks, buses, and other vehicles will “talk” to each other, to our road infrastructure, and to our mobile devices, continuously sharing important safety, mobility, and environmental information. Together, they

will create an environment of connectivity on our roads that will transform the way we travel for generations to come.

Most of us are familiar with the benefits of apps such as Waze, Inrix, AirSage, or HERE, which provide traffic and navigation information to travelers with just a touch of a button on a smart phone. A system of connected vehicles improves upon these benefits by empowering travelers with real-time information that can help prevent crashes and save lives, as well as improve mobility and enhance our overall livability.

Connected vehicles are coming. But there are still opportunities to get involved in shaping the future of this exciting new innovation...

The USDOT has extensively researched and tested the potential of connected vehicles to save lives, as well as improve mobility and fuel efficiency. We are now passing the torch to the industry to advance what we started through the **Connected Vehicle Pilot Deployment Program**. The pilots are expected to showcase a myriad of exciting new transportation applications in several communities throughout the United States.

With the connected vehicle pilots, we are opening up the field to cities and communities nationwide, inviting them to build on the research and data and bring connected vehicles to their regions even sooner—to be at the forefront of this revolutionary transformation of our transportation system.

Learn more at: www.its.dot.gov/pilots

The vehicle information communicated will not identify the driver or vehicle, and technical controls have been put in place to help prevent vehicle tracking and tampering with the system.

Innovation through Automation

Connectivity is an important input to automated vehicles, and the USDOT is leading the way forward in integrating connected and automated vehicle technologies. Automated vehicles are



those in which at least some aspect of a safety-critical control function (e.g., steering, throttle, or braking) occurs without direct driver input. Automated vehicles may be autonomous (i.e., use only vehicle sensors) or may be connected (i.e., use communications systems such as connected vehicle technology). Connectivity is an important input to realizing the full potential benefits and broad-scale implementation of automated vehicles. The technology we are developing today will help automated vehicles by being aware of the vehicles and infrastructure around them that cannot be addressed by current sensor technology.

Automated vehicle benefits could include crash avoidance, reduced energy consumption and vehicle emissions, reduced travel times, improved travel time reliability and multi-modal connectivity, and improved transportation system efficiency and accessibility, particularly for persons with disabilities and the growing aging population. The pace of research, development, and commercialization of automation technologies has increased rapidly in recent years. While technologies available today require a human driver to monitor the roadway and be prepared to take control, research into the development of fully self-driving vehicles is underway.

Innovation through Integration – Integrated Corridor Management (ICM)

Through the ICM initiative, the USDOT is promoting innovation in the development of new approaches for efficiently managing existing assets within a corridor. The initiative has resulted in the successful launch of two ICM demonstration sites in Dallas, TX, and San Diego, CA. The nation is watching as government agencies in these regions work closer than ever to empower travelers and provide a more predictable travel experience for all. These

agencies cooperate to manage freeways, parallel side roads, and bus and rail lines as an integrated transportation network, instead of separate systems. They use leading-edge technologies to continuously monitor and predict traffic conditions, keep traffic moving smoothly through traffic signal timing, and inform the traveling public of travel conditions and more travel options than ever before via websites and mobile apps. They are pioneering some of the nation’s first decision support systems to operate our multimodal surface transportation system.

ICM not only provides travelers with better information to make better decisions, it also saves money. Taxpayers in regions with ICM reap 10 times the amount they invest in ICM as a result of fuel savings, less congestion, and fewer toxic emissions.¹ ICM is about working together to benefit the traveler.

Innovation through Coordination – Mobility Services for All Americans (MSAA)

Many Americans have difficulty accessing some of their basic needs because they must rely on human service transportation systems that are often fragmented, unreliable, and inefficiently operated. Through the use of advance transportation technologies and applications, the USDOT is trying to improve transportation services and access to employment, healthcare, education, and other community activities for the people who need the services most—particularly seniors, persons with disabilities, and the economically disadvantaged.

The USDOT’s MSAA initiative is coordinating services and integrating technology to develop a physical or virtual travel management coordination center that networks all parties together to ensure access to transportation for the disadvantaged. Opportunities abound

to get involved and contribute to this centralized network of services and applications. Help us improve the future of transportation for all.

Innovation through the USDOT

Our efforts at the USDOT aim to continue the advancement of research and technology so that innovators and thought leaders around the country can springboard off the research and data that we are investing in and launch pioneering ITS initiatives in their own cities and communities. This partnership of research and deployment is how technology and innovation proliferate and evolve.

To view our new *ITS Strategic Plan*, visit: <http://www.its.dot.gov/landing/strategicplan2015.htm>.

Check out the following fact sheets to learn more about the USDOT’s efforts to spur innovation in transportation:

- **How Connected Vehicles Work**
www.its.dot.gov/factsheets/pdf/JPO_HowCVWork_v3.pdf
- **Connected Vehicle Test Bed**
www.its.dot.gov/factsheets/pdf/ConnectedVehicle_testbed.pdf
- **Mobility Services for All Americans**
www.its.dot.gov/factsheets/pdf/JPO-074_MSAA.pdf
- **Integrated Corridor Management Analysis, Modeling and Simulation**
www.its.dot.gov/factsheets/pdf/icm.pdf
- **Automated Vehicle Research at the USDOT**
www.its.dot.gov/factsheets/pdf/AutomationUSDOT.pdf

[1] Based on modeling results. Read more at: http://www.its.dot.gov/factsheets/pdf/ICM_DemoSites_V7.pdf.



For More Information, Contact:

Mike Pina, Program Manager, Communications and Outreach

ITS Joint Program Office | (202) 366-3700 | mike.pina@dot.gov | www.its.dot.gov

