# RITA
## Intelligent Transportation Systems Joint Program Office

## Vision

Active acquisition and systematic provision of integrated, multisource data to enhance current operational practices and transform surface transportation systems management.

## Program Objectives

- Enable systematic data capture from connected vehicles (automobiles, transit, and trucks), mobile devices, and infrastructure.

- Develop data environments that enable integration of data from multiple sources for use in transportation management and performance measurement.

- Reduce costs of data management and eliminate technical and institutional barriers to the capture, management, and sharing of data.

- Determine required infrastructure for transformative applications implementation, along with associated costs and benefits.

## More Information

To learn more about this research, please visit: http://www.its.dot.gov/data_capture/data_capture.htm

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# Data Capture and Management Program

The Real-Time Data Capture and Management Program (DCM) aims to enable the active acquisition and systematic provision of integrated, multisource data to enhance current operational practices and transform surface transportation systems management

## RESEARCH PROGRAM

The Mobility Program area of the USDOT research initiative for wirelessly connected vehicles, travelers, and infrastructure includes the DCM program and the Dynamic Mobility Applications program (DMA). The DCM program addresses the capture, quality-checking, and integration of real-time data. Real-time data examples include vehicle status and location, transit data, weather data, and infrastructure data.
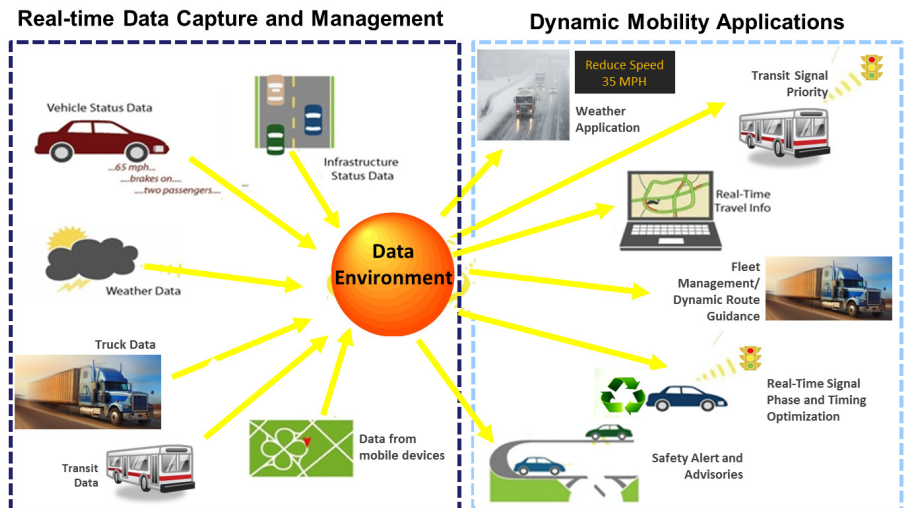
The DMA Program addresses the use of these data to develop and deploy enhanced or transformative mobility applications such as enhanced weather applications, real-time transit signal priority, traveler information, fleet management applications, and safety advisory systems.

A key concept of the DCM Program is the development of data environments. Data environments support the collection, management, integration, and application of real-time transportation data from fixed sensors, vehicles, and travelers for use by researchers, application developers, public sector system operators, and private sector information service providers. A variety of data types from multiple sources are captured, quality checked, and integrated into virtual data environments and made available to be used by multiple applications.

## DATA PRODUCTS AVAILABLE FOR RESEARCH

The extensive research behind these data environments is a multiyear effort.  The first of the data products, the Prototype Data Environment, is now available.  It will be expanded over the course of the next year.

*Where*:  Prototype Data Environment (PDE): https://datacapture.noblis.org/
The DCM Prototype Data Environment is a web-based resource supporting the sharing of both archived and real-time data from multiple sources (including vehicle probes) and multiple modes. The PDE serves as a test case useful in the evaluation of emerging data-related technologies and policies, as well as a model for the development of additional future data



Real-time Data Capture and Management     Dynamic Mobility Applications

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environments. The PDE supports the collection, management, and provision of multisource transportation data and also contains forums for researchers to register projects, flag erroneous data, and contribute analyses and data views.

*What*: Data in the PDE include:

- Archived, simulated, and real-time vehicle probe data from ongoing research activity in the V2V/V2I Test Bed (Michigan).

- Real-time vehicle probe data feed from ongoing field testing at the FHWA Saxton Transportation Operations Laboratory Test Bed (Virginia.

- The Road Weather Management program Integrated Mobile Observations (IMO) Test  data from wirelessly connected snowplows and maintenance trucks.

- Integrated multimodal data from vehicles and roadside sensors in four test data sets (Seattle, Portland, Pasadena, San Diego). Data includes vehicle (light vehicle, truck, and transit), weather, freeway/arterial sensor, and traffic signal data.

- Vehicle data from the 2011 World Congress Demonstration.

- Traveler, vehicle, and infrastructure sensor data from other demonstrations and DMA research.

## RESEARCH QUESTIONS

A list of research questions that can be addressed using data from the PDE data are available at: https://datacapture.noblis.org/content/research-ideas

The research questions cover the areas of:

- Fundamental understanding of the use of Dedicated Short-Range Communications (DSRC) for Mobility applications.

- Use of vehicle probe data for potential mobility, safety, and environmental  applications.

- Integrating data from simulations and field tests to cost-effectively address issues associated with incremental technology adoption and implementation.
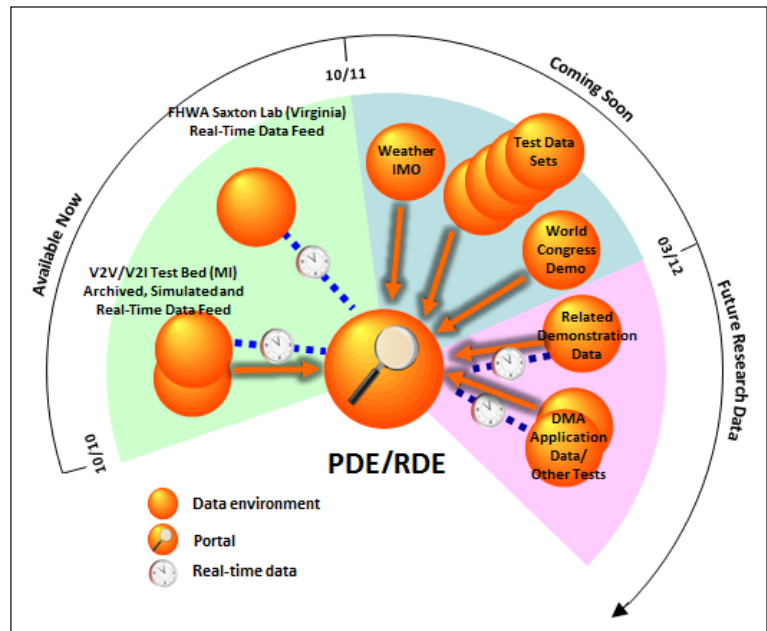


## NEXT STEPS

Data and other capabilities resident in the PDE will be transitioning to a next-generation data management system, the Research Data Exchange (RDE).  The RDE embodies a connected system of data environments needed to support application research and development. The RDE will not be a single, centralized repository, but rather a *system of systems* linking multiple data management systems some of which will be maintained and controlled outside of the USDOT, through a common web-based Data Portal.

- PDE-to-RDE transition (March 2012)

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**The U.S. Government's Role**

The U.S. DOT's Research and Innovative Technology Administration's (RITA's) Intelligent Transportation Systems (ITS) Joint Program Office fosters the development and future deployment of these connected vehicle technologies. But connected vehicle research involves all agencies within U.S. DOT including National Highway Traffic Safety Administration, the Federal Highway Administration, the Federal Motor Carrier Safety Administration, Federal Transit Administration, and the Federal Railroad Administration.

U.S. DOT and its public and private partners are working to address the technical, safety, and policy challenges and are helping to create the standards and the wireless architecture that will be the backbone of the system.

Connected vehicle research will leverage the potentially transformative capabilities of wireless technology to make surface transportation safer, smarter, and greener. If successful, connected vehicles will ultimately enhance the mobility and quality of life of all Americans while helping to reduce the environmental impact of surface transportation.