RESEARCH DATA EXCHANGE

The Research Data Exchange (RDE) is a web-based resource that collects, manages, and provides access to multi-source and multi-modal transportation data to support the development and testing of intelligent transportation system (ITS) and connected vehicle applications. This data-sharing capability allows researchers, application developers, and others to significantly reduce the cost and time required to collect and compile data for analyzing or conducting research for connected vehicle-related ITS applications.

The RDE currently has ITS and connected vehicle data from 11 locations to support the analysis and development of connected vehicle applications. The RDE is continuously evolving, and has recently launched Release 2.0 with new features and data. Data accessible through the RDE is quality-checked, well-documented, and freely available to the public.

The RDE provides access to connected vehicle and passenger related data involving transit vehicles, maintenance vehicles, probe vehicles, traffic monitoring and reporting devices, incident detection systems, traffic signals, and weather and other types of ITS sensors. These types of data enable the analysis and research of a wide range of issues and factors.

The RDE’s data sets contain various types of information, such as highway detector data, travel times, traffic signal timing data, incident data, and weather data. The collections of data sets from the same location and time period are called data environments. Data may be searched by location or data type. Registered users can download individual data files or groups of files.

ITS researchers are invited to recommend or submit data for potential inclusion. The U.S. Department of Transportation (USDOT) has developed procedures for assessing the value and quality of potential data for inclusion in the RDE. When submitted data passes these criteria, RDE management adds the data to the RDE.
Data Available for Research

- **Probe Message Data**: Actual and simulated vehicle trajectories and probe snapshot messages in SAE J2735 format from three tests at the Connected Vehicle Test Bed in Novi, MI.

- **Vehicle and Roadside Device Data**: Integrated multimodal data from vehicles and roadside sensors from four test sites (Seattle, Portland, Pasadena, and San Diego). Data includes light and transit vehicles, incidents, weather, freeway and arterial travel times, and traffic signal data.

- **Connected Maintenance Vehicles**: Real-time and archived data from wirelessly-connected snowplows and maintenance trucks operated by the Minnesota Department of Transportation.

- **Basic Safety Message (BSM) Data - Orlando**: BSM data collected every 0.1 second from transit vehicles at the 2011 World Congress Demonstration in Orlando, FL.

- **BSM Data - Leesburg**: BSM data collected every 0.1 second from a device in a vehicle in the vicinity of Leesburg, VA (see below).

- **Connected Vehicles and Roadside Device Data**: One day of connected vehicle, roadside equipment and contextual data (weather, traffic signal data, and traffic volumes) from the Safety Pilot Model Deployment in Ann Arbor, MI.

**Connected Vehicle Data from Leesburg, VA**

- Data collected for 144 trips using a Vehicle Awareness Device installed on one test vehicle over a 2-month period from Oct. 18 to Dec. 19, 2012, in Leesburg, VA.
- The BSM data is in the SAE J2735 format expected to be used for future connected vehicle deployments, so it will be useful for developing or evaluating connected vehicle applications.
- Data records are provided in text format and in pcap (packet capture) format every 0.1 second.

Other RDE Resources

- An advanced tool to search for ITS and connected vehicle data by keyword (arterial, incident, collection frequency, etc.) or by use of a map.
- Standard metadata documentation
- Frequently Asked Questions (FAQs)
- Related external links
- Feedback to the USDOT
- Research project feature, enabling registered users to share and collaborate

For more information about this initiative, please visit [www.its.dot.gov/data_capture/data_capture.htm](http://www.its.dot.gov/data_capture/data_capture.htm) or contact:

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