



National Transportation Research Center

A Window to Transportation Research at ORNL and UT

The National Transportation Research Center (NTRC) offers one of the largest concentrations of transportation researchers in the United States, housing research and development programs and laboratories from Oak Ridge National Laboratory (ORNL) and The University of Tennessee (UT). It is a U.S. Department of Energy National User Facility, meaning that its laboratories and equipment are available to qualified users from the private and public sectors.

The NTRC was established to develop and evaluate advanced transportation technologies and systems, and to help the transportation industry deal with technology issues. The NTRC seeks to assist industry by utilizing state-of-the-art hardware and computing technologies to address problems of national and international significance such as declining air quality, dependence on unstable oil supplies, traffic congestion, highway safety, and national security.



Completed in the fall of 2000, the NTRC contains 83,000 square feet of space. Two-thirds of it is dedicated to research laboratories, and the rest is meeting space and office space for about 200 staff. An annex to be constructed adjacent to the NTRC will provide expansion room for the Fuels, Engines, and Emissions Research Center and the Heavy Vehicle Safety Research Center; and will accommodate research and development on hydrogen and fuel cell systems for transportation applications.

The NTRC houses 12 research and development laboratories that focus on different aspects of transportation.

Commercial Vehicle Operations

The CVO Laboratory analyzes equipment and technologies for making commercial vehicles safer and more efficient.

Composite Materials

The Composite Materials Laboratory conducts controlled, programmable analysis of the deformation and failure response of composite automotive components in relation to impact velocity.

Defense Logistics Agency Supply Chain Management Advanced Research and Technologies

The DLA SMART Laboratory supports the U.S. Department of Defense through research and development to establish systems to move hazardous materials through the Department of Defense supply chain safely and efficiently.



The Composite Materials Laboratory has state-of-the-art equipment for conducting high-force, high-rate crashworthiness experiments on automotive materials and structures.

Defense Transportation and Logistics

The Defense Transportation and Logistics Laboratory provides analytical and operational support to the defense transportation community through development of innovative, practical tools and techniques for the analysis and management of transportation and logistics systems.

Fuels, Engines, and Emissions Research Center

The FEERC houses ORNL's vehicle and engine dynamometers and unique analytical equipment used in research, development, and evaluation of advanced fuels, engines, vehicles, and emission control systems.



Instrumenting a vehicle on the FEERC's chassis dynamometer

Geographic Information Systems

The GIS Laboratory develops innovative ways to plan, manage, and track information using geography-based decision support systems.

Heavy Vehicle Safety Research Center

A major initiative of the NTRC, the HVSRC contributes to meeting national goals related to the reduction of truck-related fatalities, while maintaining and enhancing the economic viability of the U.S. trucking industry.

Infrastructure Materials

The Infrastructure Materials Laboratory tests and evaluates materials such as concrete and asphalt and other media used in bridges, culverts, highways, roadbeds and other parts of the transportation infrastructure.

Intelligent Transportation Systems

The ITS Laboratory provides an advanced, real-world environment for evaluating and applying ITS technologies to improve the efficiency, productivity, and safety of transportation facilities, and to alleviate the impact of transportation on the environment.

Packaging Research Facility

The Packaging Research Facility helps clients develop safe, efficient, and economical solutions for the shipment of hazardous and high-value materials.



Power electronics are enabling technologies for hybrid electric and fuel cell vehicles

Photonics and Remote Sensing

The Photonics and Remote Sensing Laboratory conducts research on a wide range of applications, focusing primarily on remote sensing, weigh-in-motion, spectroscopy, full-spectrum solar energy, and sensors.

Power Electronics and Electric Machinery Research Center

The PEEMRC develops and prototypes the next generation of cost-effective converters, adjustable-speed drives, electric utility and distributed-generation applications, motor controls, and efficient, compact electric machines.

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