Center Basics
The Center for Truck and Bus Safety (CTBS) specializes in providing high quality education and research focusing on safety issues involving Commercial Motor Vehicles (CMV). The center’s mission is to conduct research and development efforts that advance knowledge in the CMV safety domain and provide solutions to real-world problems.

Research Capabilities
- Two instrumented Class-8 heavy trucks
- A state-of-the-art, unobtrusive data acquisition system (DAS) that collects driver input, performance and behavior data.
- A highly advanced laboratory facility used to reduce, analyze and archive data.
- An advanced data storage and analysis system for use with large datasets (see Data Services fact sheet).
- The ability to secure specialized equipment for project needs, including school buses, additional trucks, etc.
- Vehicle instrumentation team with the ability to custom instrument loaned experimental vehicles (or client vehicles) as necessary.
- Confidentiality agreement and privacy processes for proprietary research.

Research Topics
- Assessment of driver workload and distraction
- Analysis of safety-critical events, including crashes and near-crashes
- Analysis of light-vehicle/heavy-vehicle interactions
- Modeling of the characteristics of safety-critical events
- Assessment and implementation of safety management techniques
- Design, development and testing of advanced safety technologies
- Assessment of driver fatigue and the development of fatigue-related countermeasures

Research Examples
Driver Distraction in Commercial Vehicle Operations
This project investigated the impact of driver distraction in CMV operations. Safety-critical events and baseline epochs (i.e., normal driving) were analyzed from two earlier naturalistic studies. Driver inattention was characterized by identifying secondary and tertiary tasks and other activities in which drivers were engaged prior to event involvement. This project was sponsored by the Federal Motor Carrier Safety Administration (FMCSA).

Defensive Driving Tips for CMV Drivers: An Internet-Based Approach
The purpose of this project was to develop a website to raise the awareness of CMV drivers about common driving errors and to provide valuable driving tips on preventive measures CMV drivers can take to help avoid crashes. The website provides driving tips, interesting facts, video clips, a video description and training exercise questions. This project was sponsored by FMCSA.

The Comparative Analysis of the Large Truck Crash Causation Study and Naturalistic Driving Data
The purpose of this project is to compare the results of the Large Truck Crash Causation Study and the naturalistic driving studies conducted by VTTI. The inherent, contrasting strengths and weaknesses of these two fundamental approaches provide an opportunity for synergistic comparisons to complement each approach and may lead to a better understanding of crash genesis and potential countermeasures. This project is sponsored by FMCSA.

Enhanced Rear Signaling for Heavy Trucks: Phase III
This project is directed at investigating methods of reducing or mitigating those crashes where a heavy vehicle has been struck in the rear by another vehicle. The purpose of the current effort, Phase III, focuses on exploring the benefits of countermeasures and developing a plan for a large-scale Field Operational Test (FOT). This project is sponsored by FMCSA.
The objectives of this project are twofold. The first is to synthesize findings relating to cell phone use in automobiles and any research findings and conclusions relating to commercial vehicle operations. Second, the project will identify current practices of truck and bus fleet managers to assess the impact of these practices (including limitations on use of PDAs) on overall driving safety. This project is sponsored by FMCSA.

Onboard Monitoring System Field Operational Test

The purpose of this project is to determine whether onboard monitoring will reduce at-risk behavior among CMV drivers and improve driver safety performance. In addition to collecting event-based data to be used for driver coaching, this study will also collect continuous, naturalistic data to be used in future data mining efforts. This project is sponsored by FMCSA.

Driver Behavior in Traffic

The purpose of this project is to characterize driver behavior under naturalistic driving experiences with respect to critical parameters related to freeway driving, including target speed selection, speed change accelerations, lane changing behavior, car-following distance, response times and emergency stopping behavior for representative freeway state conditions. This project is sponsored by the Federal Highway Administration (FHWA).

Commercial Motor Vehicle Driving Simulator Validation ("Sim Val") Study Phase II

This project is designed to test the effectiveness of a driver training simulator for purposes of CMV driver training and testing. This project is sponsored by FMCSA and is conducted in support of the commercial driver safety program of FMCSA.

Field Test of an Advanced Heavy Vehicle Indirect Visibility System (IVS)

The purpose of this project is to assess safety and driver performance benefits of enhancing the west coast-style mirrors with an IVS in a real-world, revenue-producing environment. Specifications for the IVS being tested were developed during a previous project. The development project and the current naturalistic data collection effort are sponsored by the National Highway Traffic Safety Administration (NHTSA) and FMCSA.

Development and Assessment of a Driver Fatigue Monitoring System

The objective of this project was to develop a prototype integrated system that combines machine vision-based drowsy driver monitoring technology and analysis of operator/vehicle performance parameters to reliably assess driver fatigue. This project was sponsored by FMCSA.

Field Evaluation of Alternative Automated Systems for Reducing Illegal Passing of School Buses

This project involved researching system possibilities for reducing illegal school bus passing. A prototype of this system was developed, and a pilot field test of the system was conducted. This project was sponsored by NHTSA.

Research to Identify Factors that Affect the Service Life of Cargo Tanks

This project studied the factors that affect the service life of cargo tanks. The overall goals of the project were to increase awareness of factors that affect service life of cargo tanks and improve industry practices and procedures for testing, inspections and repairs of cargo tanks. This project was sponsored by FMCSA.