

# Commercial Motor Vehicle Roadside Technology Consortium (CMVRTC)

The Commercial Motor Vehicle Roadside Technology Consortium (CMVRTC) is a series of specially equipped testing facilities at inspection stations located in Georgia, Kentucky, Mississippi, North Carolina and Tennessee to demonstrate, test, evaluation, and showcase innovative commercial motor vehicle (CMV) safety technologies under real-world conditions in order to improve commercial truck and bus safety. The CMVRTC is located on specific interstate roadways within these states.

The CMVRTC is operated by the Center for Transportation Analysis (CTA) at Oak Ridge National Laboratory (ORNL) for the Federal Motor Carrier Safety Administration (FMCSA).

The primary mission of the FMCSA is to reduce crashes, injuries, and fatalities involving large trucks and buses.

FMCSA's Office of Analysis, Research, and Technology (ART) is pursuing a strategic initiative to accelerate FMCSA's mission and ART's goal of expediting the deployment of safety technologies by directing research within CMVRTC to test and evaluate new safety technologies and procedures.

## Background

FMCSA launched the CMVRTC on August 7, 2007, in partnership with the Tennessee Departments of Safety and Transportation, and ORNL to further enable the FMCSA testing of current, new to market and emerging CMV safety technologies and to promote their usage and acceptance by stakeholders.

The CMVRTC is managed via an interagency agreement with the Department of Energy (DOE)/ORNL. Since 2007, ART has established internal partnerships with the FMCSA Offices of Bus and Truck Standards and Operations, Enforcement and Compliance, and Safety Programs in Headquarters and with the Southern Service Center in the Field. The CMVRTC is available to these and other FMCSA offices with

management support provided by ORNL. The ART has established an external partnership with DOE's Office of Energy, Efficiency, and Renewable Energy to collect CMV safety sensor data from a DOE partner fleet. This data will be used to support the objectives of the CMVRTC.

In 2013, the Consortium expanded to include additional states in the southeast.

Since its commissioning in 2007, testing has been conducted in the CMVRTC to:

- Study the wear and performance of brake drums/rotors and lining/pads of four different vocations of Class-8 CMVs;
- Correlate Performance-Based Brake Tester (PBBT) results with North American Standard (NAS) Level-1 inspection results relative to CMV brakes;
- Support the supplanting of the PBBT test in lieu of physical brake stroke measurements in the NAS Level-1 inspection;
- Determine the out-of-service (OOS) rate of the mainline on I-81 southbound (Greene County CMV IS);
- Determine and contrast the OOS rates for the other fixed inspection sites with that of Greene County site;
- Support the development of functional specifications for a Smart Infrared Inspection System (SIRIS) for brakes, tires, and bearings;
- Determine the OOS rate for overweight vehicles (permitted and unpermitted) in Tennessee and throughout the continental United States;
- Prove the viability of the Wireless Roadside Inspection (WRI) Concept;
- Test system loading, end-to-end functioning, and end-user acceptance of WRI using commercial mobile radio services; and
- Determine the stopping distance for class-8 five and six axle combination vehicles load from 60,000 to 114,000 pounds with and without defective brakes.

## Contact

**Gary Capps**  
Research R&D  
Center for Transportation Analysis  
Oak Ridge National Laboratory  
865.946.1285  
cappsgj@ornl.gov

[cta.ornl.gov](http://cta.ornl.gov)

ORNL is managed by  
UT-Battelle for the  
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A quarterly newsletter describing the current research within the CMVRTC is published via ORNL/FMCSA and posted to the ART webpage at:

<http://www.fmcsa.dot.gov/technology/roadside-technology-consortium/commercial-motor-vehicle-roadside-technology-consortium-0>

## Benefits

1. Showcase inspection technologies and highlight their systematic integration with existing enforcement operations and highway information systems by our State partners at the Tennessee Department of Safety and Tennessee Department of Transportation;
2. Collect data on CMV safety technologies of interest to FMCSA and assess their viability for deployment;

3. Provide a technology transfer function for new to market and emerging technologies by collection operational data for the development of functional specifications to support MCSAP grant applications; and
4. Collect data to support FMCSA enforcement and compliance programs, State safety programs, policy research, and future rulemaking activities.

## Vision

The vision of the CMVRTC is to have a series of specially-equipped testing facilities at weigh stations to demonstrate, test, evaluate, and showcase innovative safety technologies under real-world conditions in order to improve commercial truck and bus safety. Additionally, the CMVRTC plays a prominent role in supporting the Agency's technology transfer activities, enabling the accelerated deployment of proven safety technologies.

**Commercial Motor Vehicle Roadside Technology Consortium**

FOR MORE INFORMATION PLEASE VISIT [WWW.FMCSA.DOT.GOV](http://WWW.FMCSA.DOT.GOV)

A series of mobile and stationary facilities equipped to test and evaluate advanced enforcement technologies for commercial motor vehicles in a real-world setting

**BENEFITS**

- Provides quantitative assessment of technology benefits and cost
- Supports technology deployment decisions
- Supports multi-state, multi-agency testing and data collection
- Expedites technology testing
- Addresses the flexibility needed for testing multiple technology types
- Provides gratis partnerships with technology providers and commercial vehicle fleets
- Provides a test bed for major national field operational testing such as the Wireless Roadside Inspection and the Smart Roadside Initiative Programs

**FACILITIES AND CAPABILITIES**

- 30 Fixed Inspection and Weigh-In-Motion Sites
- On-Highway Testing
- Test Track Testing
- Real-World Data Collection
- Oak Ridge National Laboratory
- National Transportation Research Center

**SUPPORTS**

- Policy and Rulemaking
- Technology Promotion and Adoption
- Technology Provisioning
- End-User Operation Modeling and Integration

**CORE FUNCTIONS**

- Technology Downselection
- Proof-of-Concept Testing
- Pilot Testing
- Field Operational Testing
- Technology Certification
- Demonstration Projects
- Technology Transfer

Logos: FMCSA, Federal Highway Administration, Oak Ridge National Laboratory, Tennessee State Trooper Highway Patrol, and other state agencies.

Collaborations with FMCSA, FHWA, OBN, and state agencies in Georgia, Kentucky, Mississippi, North Carolina, and Tennessee developing advanced commercial vehicle safety inspection and enforcement technologies.