

An Introduction to the U.S. DOT/Volpe National Transportation Systems Center



Advancing transportation innovation for the public good

Key Features of the U.S. DOT Volpe Center

- Government Partner
- Multimodal and Cross-disciplinary Expertise
- Strong, Collaborative Working Relationships Across U.S. DOT, AASHTO, State DOTs
- Federal Employees
- Cost reimbursable
- Non-profit Institution



What We Do

- Advanced Technology and Engineering
- Planning, Environmental and Economic Analysis
- Systems Development
- Inherently Governmental Work
- Independent Reviews and Investigations
- Staff Extension
- Convening/Best Practices/Peer Exchanges and Support
- Multi-modal Institutional Knowledge of US DOT

Volpe Workforce

- The Volpe Center's diverse workforce is made up of approximately **500 federal technical and mission support professionals**, supplemented by **400 contractors**.
- Staff Have Government Knowledge and Extensive Modal Experience.
- Nearly 50% of Staff Hold Advanced Degrees.



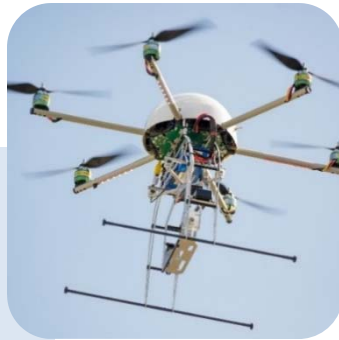
Areas of Expertise

- Engineering/Infrastructure solutions and response
- Safety across all Modes of Transportation
- Automation and Advanced Technology
- Cybersecurity and Resilience
- Environmental Streamlining and Economic Analysis
- Performance Management



Automation and Advanced Technology

- Analysis and Evaluation of Advanced Technologies
- Connected and Automated Vehicles
- Unmanned Aerial Vehicles and Systems
- Mobility-on-Demand and Smart Cities
- Human Factors and Systems Engineering

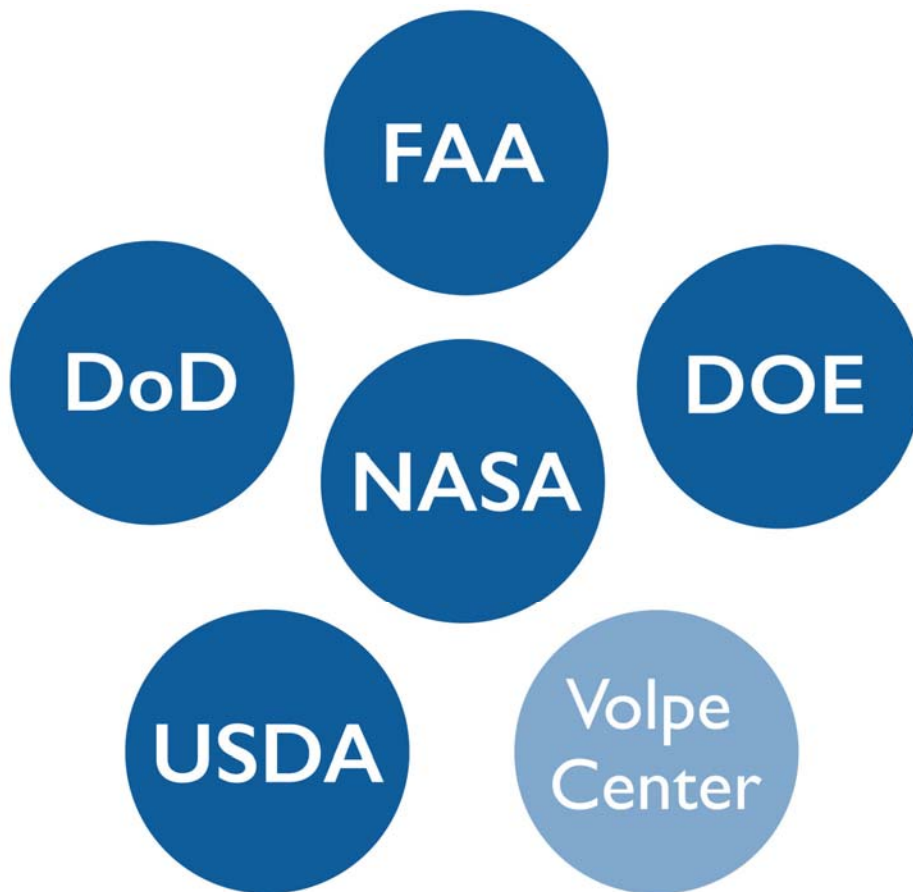


Environment and Energy

- Environmental Stewardship and Streamlining
- Noise and Air Quality Measurement, Modeling, and Simulation
- Energy Analysis, Assessment, Evaluation, and Forecasting
- Analysis of Transportation-related Energy Alternatives



Aviation: Safe Integration of Unmanned Aircraft Systems



Integration of Unmanned Aircraft Systems in national airspace: a shared responsibility.

Rapid innovations are enabling a revolution in unmanned aircraft.

U.S. DOT Volpe Center experts are working with several Federal agencies on challenges and opportunities related to UAS.

Highway Safety Advancements: Motor Vehicle Crash Avoidance

If completely effective, the full suite of safety technology — V2V, V2I, and in-vehicle crash warning systems — could potentially address about

95 percent

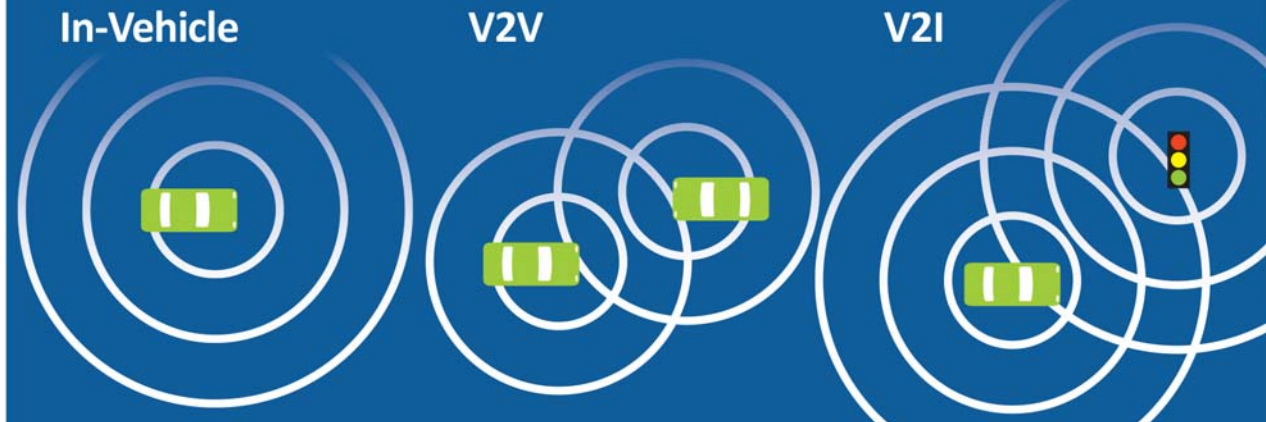
of all vehicle crashes involving unimpaired drivers.

The front line of crash avoidance technology

In-vehicle warning systems use radar, cameras, and other sensors to scan the roadscape and warn drivers — with visual, auditory, and physical alerts — of impending crashes.

With **vehicle-to-vehicle** (V2V) technology, vehicles within range communicate wirelessly to exchange information such as speed and location to help drivers avoid catastrophic crashes.

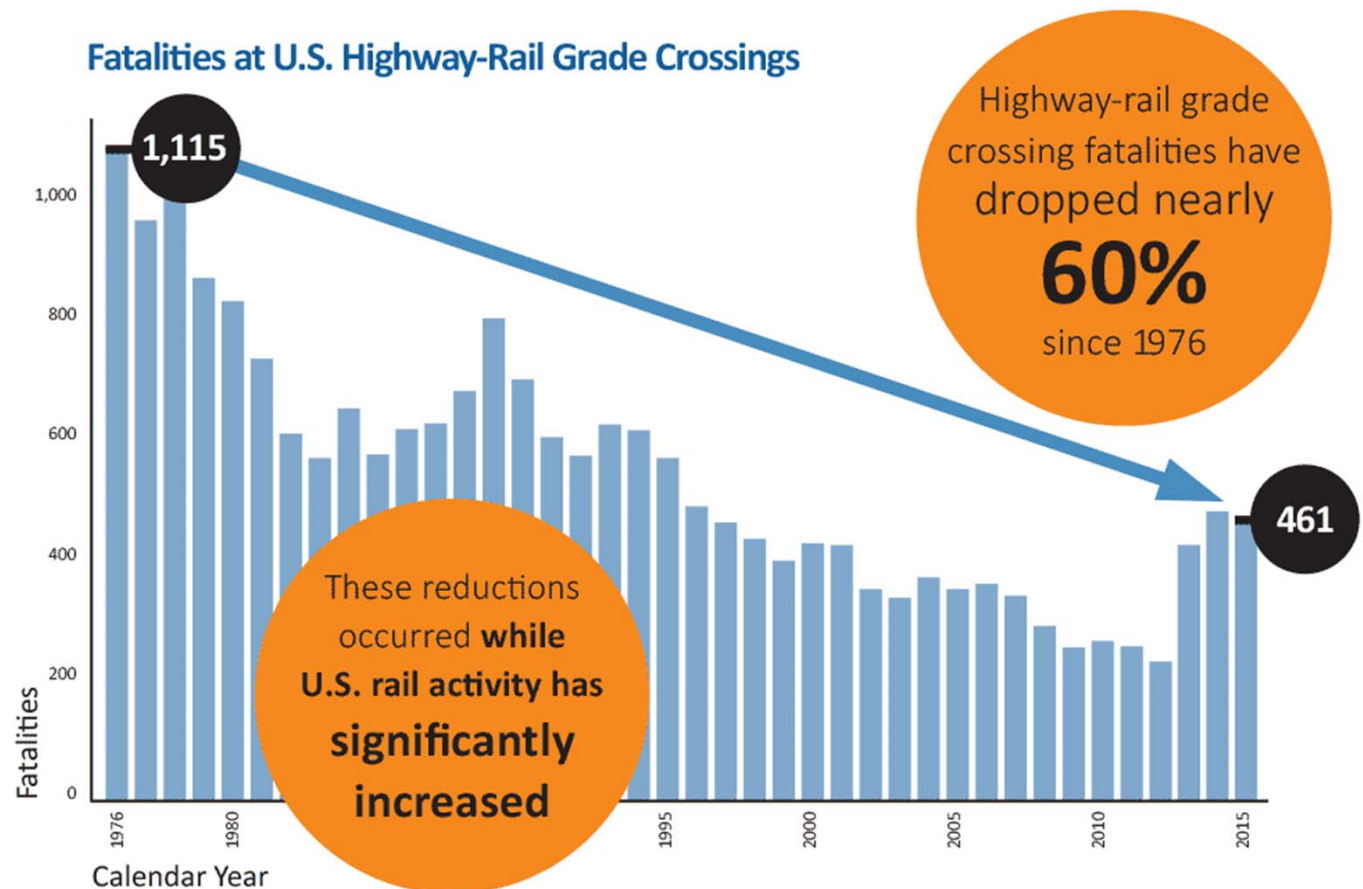
Similar to V2V, **vehicle-to-infrastructure** (V2I) is a wireless info-swap between vehicles and roadside fixtures, such as traffic signals and signs.



With 35,092 people dying on U.S. roads in 2015, **U.S. DOT sees great potential in the ability of automated technologies to save lives.**

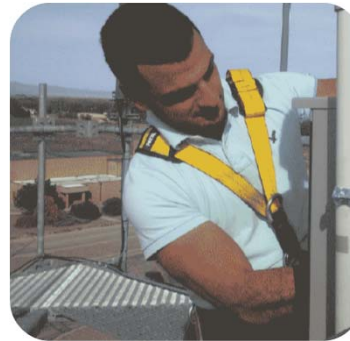
Keeping People Safe Around Trains: Highway-Rail Grade Crossing Safety and Trespass Prevention

Highway-rail crossing and trespasser deaths account for 95% of all rail-related deaths — and most of these deaths are avoidable.



Volpe and State DOTs

- Work Zone Safety, Traffic Incident Management
- Training, Best Practices, Peer Exchanges, Facilitation
- Environmental Streamlining, NEPA Assignment
- Asset Management/Life Cycle Planning
- Transportation Finance, Engineering Investigations
- Pooled Fund Studies, Traffic and Noise Modeling



Recent Volpe Partnerships

- ❑ MassDOT
- ❑ AASHTO
- ❑ FHWA
- ❑ Massport
- ❑ MBTA
- ❑ Minnesota DOT
- ❑ Arizona DOT
- ❑ Maryland State Highway Administration



Thank you