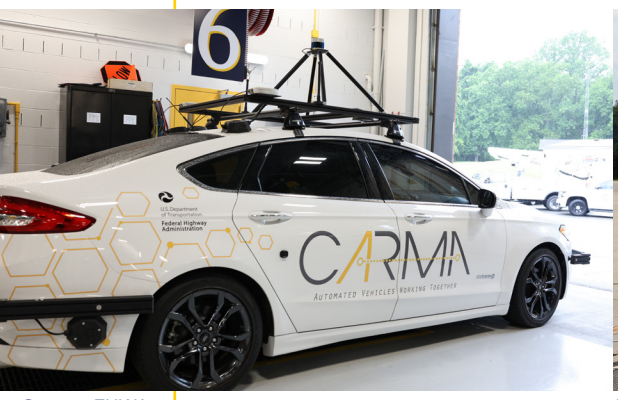
Turner-Fairbank
Highway Research Center

The Federal Highway Administration's (FHWA) Turner-Fairbank Highway Research Center (TFHRC) is the premier center for infrastructure, operations, and safety highway research that advances innovations to benefit the traveling public. The facility houses 15 state-of-the-art laboratories that address some of the Nation's most pressing transportation issues. We provide objective, high-quality technical expertise, research, and leadership to ensure a safer, equitable, and efficient transportation system. Our work enhances the quality of life of all Americans by improving their everyday interactions with the highway system.



Source: FHWA.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ABOUT US

TFHRC LABORATORIES

AGGREGATE AND PETROGRAPHIC LABORATORY

This laboratory evaluates, prepares, and tests the components of materials used in roadway construction to uncover vulnerabilities and evaluate durability. Bringing together the expertise of accomplished geologists and petrographers, this laboratory studies the materials that will make American roadways safe, reliable, and durable well into the future.

ASPHALT BINDER AND MIXTURES LABORATORY

By closely examining the physical properties of paving materials, researchers in this laboratory can determine the strength, stiffness, and ductility (i.e., the degree to which a material can be drawn or plastically deformed under stress before failure) of our Nation's roadways. This laboratory's primary mission is to characterize the behavior of paving materials to ensure the highest level of resiliency.

CHEMISTRY LABORATORY

This laboratory investigates the impact that chemical changes have on roadways to understand the causes of road failure and damage and discover potential performance enhancements. Focusing on both current and future transportation systems, researchers in this laboratory conduct offsite studies and chemical research for government agencies and private companies.

COATINGS AND CORROSION LABORATORY

Daily use, weather exposure, and environmental erosion can significantly deteriorate the integrity of the Nation's bridges and roadways. The work in this laboratory focuses on mitigating that damage by developing and analyzing innovative coatings to prevent corrosion and maintain structural integrity.

CONCRETE LABORATORY

Studies in this laboratory investigate concrete materials, mixture design and analysis, and forensics to develop more durable, cost-effective, and sustainable concrete infrastructure. The innovators here continually develop and evaluate new test methods, collaborate with academia and private industry, and share their capabilities with State and other Federal agencies.

FEDERAL OUTDOOR IMPACT LABORATORY (FOIL)

Researchers at FOIL study crash events to understand the dynamics of an impact. The accredited facility stages high-speed motor vehicle collisions to measure the resulting impact, confirm computer-generated predictions, and create mathematical models. Ultimately, safety is the primary focus of FOIL.

ABOUT US

GEOMETRIC DESIGN LABORATORY

The design elements of highways determine key roadway safety, efficacy, and longevity issues. Focusing on these elements, the Geometric Design Laboratory assists in the use and development of tools, such as interactive analytic software and the *Highway Safety Manual*, that serve both design and research communities.[1]

GEOTECHNICAL LABORATORY

This laboratory's researchers study the interaction between soil and other materials, such as steel, concrete, and timber, to understand vulnerabilities that may exist in bridge foundations and retaining walls. By leveraging TFHRC testing facilities and modeling, this laboratory discovers innovative solutions to practical transportation issues.

SAXTON TRANSPORTATION OPERATIONS LABORATORY (STOL)

STOL serves as a test hub for cutting-edge transportation services and technologies prior to large-scale research, development, testing, and deployment. At this laboratory, Federal researchers, contractors, and academic personnel collaborate on complex issues related to transportation system performance, traffic networks, and connected vehicles.

HUMAN FACTORS LABORATORY

This laboratory studies the Nation's roadway users—drivers, passengers, pedestrians, and bicyclists—to optimize their experience and safety. Such studies cover roadway design, signage, and transportation technology, leveraging technologies like virtual reality and real-world fieldwork to fully consider the roadway user experience.

J. STERLING JONES HYDRAULICS RESEARCH LABORATORY

By studying the performance of highway drainage, this laboratory aims to limit the extensive damage flooding can cause to our highway infrastructure. This facility investigates critical issues, such as bridge scour, using physical experiments and modeling to understand the impact of water flow on our roadways.

NONDESTRUCTIVE EVALUATION (NDE) LABORATORY

This world-class national laboratory is tasked with uncovering weaknesses in the Nation's roadways without impacting their structural integrity. The NDE Laboratory focuses on both existing and emerging technologies to improve highway infrastructure assets with recently upgraded state-of-the-art tools.

PAVEMENT TESTING FACILITY

The full-scale testing that simulates the impact of long-term road use performed at this laboratory helps measure the durability of the Nation's roadways. Stress-test data collection for new and existing pavement materials provides insight into the development of smoother, more cost-effective highways.

SAFETY TRAINING AND ANALYSIS CENTER (STAC)

STAC systems and staff make decades of valuable research on roadway safety accessible to highway safety stakeholders—primarily State departments of transportation employees. In concert with the Second Strategic Highway Research Program's Naturalistic Driving Study and the Roadway Information Database, STAC furthers the mission of highway safety throughout the transportation community.[2,3]

STRUCTURES LABORATORY

This laboratory's focus on the behavior of bridge systems is vital to the Nation's transportation system and its approximately 600,000 bridges. Studies conducted here find ways to improve the safety, durability, reliability, and cost effectiveness of bridge systems as well as upgrade design specifications for future bridges.

Source: FHWA.

REFERENCES:

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TFHRC: Innovating the Future of Transportation.

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Visit https://highways.dot.gov/research

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