



Research Program



Who We Are

California Department of Transportation's (Caltrans) Division of Research, Innovation and System Information (DRISI) provides solutions and knowledge that improve California's transportation system.

DRISI plays a critical role in advancing California's transportation system, developing comprehensive transportation solutions, and creating and disseminating transportation-related knowledge. Through research efforts, DRISI develops innovative and sustainable solutions that address a wide range of transportation challenges vital to enhancing California's economy and livability.



What We Do

We manage an extensive portfolio of research projects that develop, test, and evaluate transportation innovations sought by our customers. DRISI, in cooperation with our partners, creates new or improved products, policies, and processes for Caltrans programs. These innovations in methods, materials, and technologies enable Caltrans to provide continual improvement to the management of public facilities and services, protect public investment in transportation infrastructure, and enhance mobility and safety.

Staff

Our staff is our greatest asset. The research program includes a Division Chief and both engineering and planning staff that participate as project and task managers and provide the technical support necessary for successful research. DRISI builds and leverages mission-critical skills and knowledge and organizes staff and resources to deliver the highest quality transportation solutions to our customers.

Funding

DRISI's two main research funding sources are the federal State Planning and Research (SP&R) Part II and the State Highway Account (SHA). In addition, the research program manages research funded by federal grants. These funds support researching new knowledge areas, developing technologies that turn findings into practical applications, and transferring these technologies and innovations through dissemination, demonstration, training, and adoption.

Expertise

DRISI funds a balanced, comprehensive transportation research program to efficiently administer research from idea to implementable product for customers in Caltrans' programs and districts. The research program is multi-modal and multidisciplinary with an emphasis on applied research to solve transportation problems.

- Design
- Construction
- Environmental
- Geotechnical / Structures
- Maintenance
- Modal
- Pavement
- Planning, Policy, and System Information
- Right of Way / Land Surveys
- Rural
- Strategic Management
- Transportation Safety and Mobility

Crash Testing

The Roadside Safety Research Group evaluates the crash worthiness of safety technology, such as barriers, guardrails, crash cushions, bridge rails, sign supports, and other hardware. They conduct full-scale crash tests on roadside safety hardware designs developed by Caltrans to ensure that these designs comply with applicable crash performance criteria.



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The group also evaluates the crash worthiness of proprietary hardware developed by others to ensure that it is acceptable for use on state highways. In addition, the group provides support to Caltrans Legal Division in tort liability cases by conducting crash tests and delivering technical assessments and expert witness testimony.

Research Centers

UCPRC

University of California Pavement Research Center (UCPRC) focuses on improving the durability and management of pavements. UCPRC is multidisciplinary, addressing the areas of pavements, structures, materials, mechanical, environmental, transportation, geotechnical, and chemistry, with research programs at both UC Davis and UC Berkeley. Its goals include implementing mechanistic-empirical design, incorporating recycling and sustainability, developing quieter pavements, enhancing construction practices and project delivery, and implementing smoothness. UCPRC provides expertise in areas that Caltrans requires to maintain this critical transportation infrastructure.

PATH

Partners for Advanced Technology (PATH), a research and development center at UC Berkeley, is a leader in Intelligent Transportation Systems (ITS) research, working in conjunction with experts in the fields of information technology, electrical engineering, electronics engineering, mechanical engineering, economics, transportation policy, and behavioral studies. In close collaboration with Caltrans, PATH executes a diverse portfolio of multidisciplinary transportation research projects and provides Caltrans the tools needed to meet its safety and mobility goals.

AHMCT

The Advanced Highway Maintenance and Construction Technology (AHMCT) Research Center, located at UC Davis, performs research leading to the development of innovative technologies, data, and methods for highway and civil infrastructure. It uses advanced robotics, automation, sensing, networking, and information technologies in developing methods for highway and civil infrastructure construction, maintenance, and operations. AHMCT's helps Caltrans improve the safety, mobility, and reliability of California highways, achieve lean operations, and minimize the environmental impacts, while considering sustainability and cost-benefit analysis.

PEER

The Pacific Earthquake Engineering Research Center (PEER)-Lifelines Program, located at UC Berkeley, is a partnership between lifeline providers that share a common interest in improving the response to seismic hazards. The multi-institutional research and education center develops statistical models that characterize various earthquake-related hazards to improve the understanding of where these high-risk locations are and how large the seismic demands might be. These models are then incorporated into Caltrans design procedures to advance cost-effective mitigation strategies.

UTCs

University Transportation Centers (UTCs) are fully integrated within institutions of higher learning and provide a vital source of leaders prepared to meet the need for safe, efficient, and environmentally sound movement of people and goods. DRISI works in partnership with three UTCs, primarily in the areas of mass transportation, rail, traffic operations, and transportation planning. Our UTC partners include the Pacific Southwest Region University (PSR UTC); the Mineta Consortium for Transportation Mobility (MCTM); and the National Center for Sustainable Transportation (NCST).

Contact Us

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