WHO WE ARE

The Virginia Department of Transportation (VDOT) has supported a strong, innovative research program since 1948.

The Virginia Center for Transportation Innovation and Research (VCTIR), VDOT’s research division, builds on this tradition through its applied, practical research and the strong emphasis placed on implementing its findings.

VCTIR works with VDOT to develop, implement and transfer beneficial innovations and improved engineering and technology into agency practice. Its staff also provides immediate-response technical assistance and engineering expertise for VDOT divisions and districts when they encounter issues requiring a rapid solution as well as in-depth knowledge of VDOT policies and practices.

Located at the University of Virginia, VCTIR is expanding its collaborations with other Virginia universities. Originally solely focused on its cooperative agreement with U.Va., VCTIR is engaged in a similar arrangement with Virginia Tech. It also has research partnerships with other state schools. These are key to the training of future transportation professionals, another part of VCTIR’s mission.

Using this proven, sound and successful business model, VCTIR continues to find new ways to extend the service life of the commonwealth’s roads and bridges and other highway assets, to make them safer and to improve mobility.

WHAT WE DO

Strategic focus
• Increase infrastructure service life
• Develop cost-effective innovative materials and designs
• Improve mobility and mitigate congestion

• Create multimodal solutions for a more efficient statewide transportation system
• Reduce crash and fatality risk
• Improve transportation planning
• Preserve the environment and historic resources
• Improve agency business practices
• Conduct special studies for Virginia General Assembly, transportation secretary and VDOT
• Train future transportation professionals through university partnerships
• Transfer knowledge within VDOT to where it can best be used

VDOT Research Library
• Nation’s largest state transportation department library, as reflected in total Online Computer Library Center holdings
• First such library to digitize its research holdings from 1979 to the present (> 2,000 reports)
• Collaborates with USDOT’s National Transportation Library through an agreement to catalogue copies of these research reports
• More than 33,000 titles and 45,000 items
• Provides VDOT with access to six full-text subscription databases covering thousands of journals
• Interlibrary transactions have a global reach

HOW WE’RE FUNDED

VCTIR receives state funding from VDOT, federal funding from FHWA’s State Planning and Research program and funding from other sources.

Additionally, VCTIR has successfully secured external funding from the FHWA’s Innovative Bridge Research and Deployment program, pooled fund studies, NCHRP studies and other federal, state and private grants to address issues important to VDOT.
STAFF

VCTIR has 50 full-time staff conducting research and leading the knowledge-management program, plus several part-time employees in technician and support positions.

Through its partnership with the University of Virginia, VCTIR also has four faculty research professors and a number of graduate and undergraduate research assistants conducting projects with its staff at any given time.

EXPERTISE

Research and innovation areas

Structures, pavements and geotechnical engineering – innovative “in-place pavement recycling” project on Interstate 81, full-depth reclamation, partnering with FHWA on Long-Term Bridge Performance Program, jointless bridges (integral abutments), precast concrete pavements for rapid replacement

Materials – warm-mix asphalt, high-volume recycled asphalt pavement (RAP), high-performance concrete and quiet pavements, end-result specifications for contractors, non-destructive evaluation, corrosion-resistant reinforcement for bridges

Safety, operations and traffic engineering – signal-system effectiveness, coastal evacuation studies, data collection and management, active traffic management, nighttime visibility, causes of crashes, connected vehicle technology

Environment, planning and economics – multimodal planning studies, various methods to compost animal carcasses from roadways, recycling brine runoff from road-salt storage facilities, cost-benefit analyses for all research, overweight vehicle fees, non-public funding options for interstate rest areas, legislative and policy studies

Knowledge management – implementing ways to increase the use of VDOT’s expertise, of both its people and its information, to improve business practices and retain critical knowledge

External contributions

Researchers provide their expertise to numerous TRB and AASHTO committees, NCHRP panels and other professional transportation organizations. In 2011, for example, VCTIR scientists contributed to six TRB “practice-ready” papers.

FACILITIES

VCTIR is housed in the 48,023-square-foot Shelburne Building, which has five separate laboratories for concrete, asphalt, binder, corrosion and geotechnical/soils research.

In addition, VCTIR collaborates with the University of Virginia in the Smart Travel Lab in the Center for Transportation Studies in the U.Va. Civil and Environmental Engineering Department.

VCTIR also conducts collaborative research with Virginia Tech. This is through its Civil and Environmental Engineering Department, particularly with the Virginia Cooperative Center for Bridge Engineering, and the Virginia Tech Transportation Institute at Virginia’s Smart Road, a VDOT asset, in Blacksburg.

FHWA’s Turner-Fairbank Highway Research Center provides yet another venue for collaborative research for VDOT and VCTIR.

Contact Information

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