



UNIVERSITY OF VERMONT

TRANSPORTATION RESEARCH CENTER

ANNUAL REPORT 2010 - 2011

TRANSPORTATION RESEARCH CENTER

MESSAGE FROM THE DIRECTOR



As I conclude my fifth year as Faculty Director of the University of Vermont Transportation Research Center (UVM TRC), I am truly proud, grateful and impressed by the accomplishments of the staff, students, and faculty. With so many new employees, some unfamiliar with the field of transportation or research, they jumped on board with abundant energy and together we learned and accomplished great things as we gained national attention as a unique Center. My heartfelt thanks go out to all of you.

Instrumental to the Center's success is undoubtedly the incredible transportation community in Vermont. Without the support and dedication of our diverse external advisors, including those from the private sector, our advance to a mature center could not have come so quickly. Moreover, without our external stakeholders, we could not have made our 1:1 cost share/match. In particular, I thank VTrans and the CCMPO for their enduring contributions.

Here at the UVM TRC, we have been responsible for managing a National UTC research program that has awarded 69 research project grants totaling more than \$8 million. We have funded 75 graduate students and hired three new transportation faculty. A strong history of successful seminars, workshops, conferences and educational outreach (both state, regional and national events) have attracted more than 3,200 participants; more than \$3.5 million have been awarded to UVM in new external grants; the Transportation Air Quality Lab in conjunction with UVM's College of Engineering and Mathematical Sciences was built; and a unique interdisciplinary graduate college certificate in sustainable transportation systems has been launched.

The UVM TRC has been one of many important steps in developing new research at UVM. The most significant challenges over the last five years have been learning how to fit the UVM TRC into the existing program portfolio at UVM. I acknowledge the support of the many UVMers who participated in this work with me. Those who carry UVM interdisciplinary research programs forward can look to the UVM TRC not only as a model but also for lessons learned.

Sincerely,

A handwritten signature in black ink that reads "Lisa M. Aultman-Hall".

Lisa M. Aultman-Hall, Ph.D.
Professor and Director

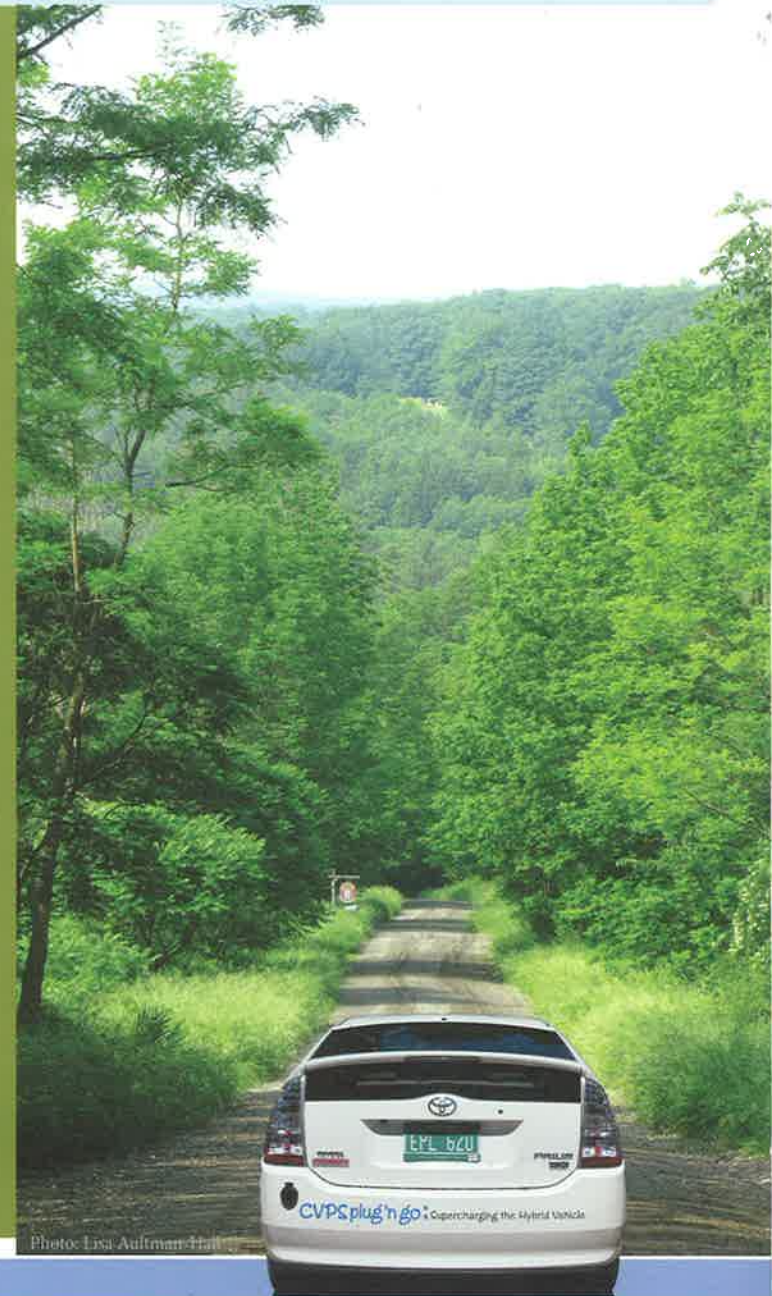


Photo: Lisa Aultman-Hall

MESSAGE FROM THE VICE PRESIDENT FOR RESEARCH

The University of Vermont is one of the nation's premier small public research universities, and one of the "crown jewels" of our research portfolio is the UVM TRC. Since its founding in 2006, the UVM TRC has attracted nearly four million dollars in external grant funds, funded dozens and dozens of graduate students and contributed extensively to the teaching mission of the university.

Much of this success can be attributed to the leadership and vision of the UVM TRC's Founding Director, Dr. Lisa Aultman-Hall. Because Dr. Aultman-Hall has chosen to step away from this administrative post and resume full-time research and teaching, I want to take this opportunity to thank her for her tireless efforts to further the mission and vision of this vitally important multi-disciplinary research center.

I know that Dr. Aultman-Hall will continue to play an important role in the center, and I look forward to working with the new leadership of the center as the UVM TRC faculty and staff continue to provide innovative and interdisciplinary research, education and outreach on sustainable transportation system solutions.

Sincerely,



Domenico Grasso
Vice President of Research



MESSAGE FROM THE PROGRAM MANAGER

For the past four years I've had the honor of watching the UVM TRC grow while working directly with our UTC, workforce development, DOE funded Clean Cities programs and several applied research projects for private and public agencies. The transportation system and program funding landscape has changed since our center was founded in 2006 and we are well qualified to take a leadership role as a university center.

The UVM TRC is an exciting and dynamic institution that is providing a critical role in understanding and spreading knowledge about the intersection of transportation and energy, environment, sustainability and livability. It is in this space that some of the most creative and innovative thinking is occurring and we at the UVM TRC look forward to continuing to be part of this discussion.

As we move forward making strategic plans and writing new grant proposals, we invite our stakeholders within Vermont and beyond to contact us to explore avenues of partnership and mutual growth.

Sincerely,



Karen Glitman
Program Manager



GRADUATE CERTIFICATE



From its inception, the UVM TRC has strived to create innovative graduate education opportunities in transportation. The UVM TRC has succeeded again. In February 2011, the UVM Board of Trustees officially approved TRC's Certificate of Graduate Study in Sustainable Transportation Systems and Mobility. The program proposal was prepared by Drs. Richard Watts and Lisa Aultman-Hall with support from the TRC Faculty Advisory Committee and three College deans.

As with all academic and research pursuits at the UVM TRC, the certificate is interdisciplinary in nature. With its core in mobility systems and policy, it provides a launching point for graduate students and transportation professionals seeking continuing education to advance the study of transportation. The certificate includes coursework in policy solutions, safety, mobility and access, environmental impacts and transportation energy use. Faculty expertise in Civil and Environmental Engineering, Community Development and Applied Economics, Natural Resources, Public Administration and beyond, all strengthen the certificate with electives, adding to the understanding of state of good repair, sustainability and livable communities, three key areas in transportation.

Drs. Watts and Aultman-Hall developed and co-taught the first TRC graduate course "Critical Issues in Transportation," one of the required courses in the Certificate Program. This course has been offered every fall since 2007. Unique new electives such as Dr. Brian H. Y. Lee's "Design for Bicycle and Pedestrian Facilities" (Spring 2011) and "Travel Choice Models" (Spring 2010) have already been offered. The certificate's one-credit seminar course, led by Dr. Watts, rotates through four partner groups covering food systems, community development, energy and leadership. Another course, "Transportation Air Quality" taught by Dr. Britt Holmén, has been offered on-line.

The TRC Graduate Certificate can be pursued on its own or as a full graduate degree (Master's or Ph.D.). This is UVM's seventh Graduate Certificate. As the certificate program grows, it will provide a base for the graduate cohort, many of whom have student offices together in the interdisciplinary "grad hub" at Farrell Hall. Funding for students will be provided through the US DOT UTC grant as well as other projects.

OUTSTANDING STUDENT OF THE YEAR

UVM TRC by the NUMBERS 2010 - 2011

Graduate Students Funded	32
UVM Colleges Involved in UVM TRC Projects	6
Attendees at UVM TRC Hosted Events	1699
Conferences, Workshops & Hosted Events	48



PROGRAMS

- University Transportation Center (UTC)
Lisa Aultman-Hall
- Transportation Education Development Pilot Program (TEDPP)
Glenn McRae
- Vermont Clean Cities Coalition (VCCC)
Tom McGrath
- New England Transportation Consortium (NETC)
Karen Glitman
- National Summer Transportation Institute (NSTI)
Glenn McRae



Nathan Belz, middle, with master's advisor Dr. Per Garder from U of Maine, and Ph.D. Advisor Dr. Lisa Aultman-Hall.

Each year at the Transportation Research Board (TRB) Annual meeting in January, one student from each US Department of Transportation University Transportation Center is recognized as the most outstanding student of the year. This year, at the 90th TRB annual meeting held in Washington, DC, Nathan Belz, a Doctor of Philosophy candidate in Civil Engineering, won this award.

During his first two years at the UVM TRC, Belz's research efforts focused on the GIS modeling of transit viability in rural areas, and characteristics of second-by-second driving style, including a large field data collection. At the 89th annual TRB meeting in January 2010, Belz presented "Spatial Models for the Statewide Evaluation of Transit-supportive Zones." He recently presented

this work at the 19th TRB Rural Public and Intercity Bus Transportation Conference held in Burlington, Vermont, where he won the student paper award. His primary areas of transportation expertise include driver behavior and gap-acceptance at roundabouts, operational analysis and modeling of roundabouts, and transportation applications of GIS.

Belz received his bachelor's and master's degrees in civil engineering from the University of Maine in 2006 and 2008, respectively. In September 2008, Nathan Belz began pursuing a Ph.D. in civil engineering with a transportation engineering concentration at the University of Vermont. As a professional and personal commitment to transportation and sustainability, Belz volunteers for the local Car-Share Vermont program and is an active member of both the Vermont and Maine ASCE chapters. He often participates in public meeting and forums related to land use and transportation policy in local communities.



JULY

AUGUST

SEPTEMBER

OCTOBER

NOVEMBER

DECEMBER

The UVM TRC hosts another year of the National Summer Transportation Institute (NSTI) funded by FHWA through VTrans. The NSTI is a two-week residential camp that introduces Vermont high school students to careers in transportation.

The UVM TRC continues its Summer Brown Bag series (the initiative of UVM TRC Associate Professor Richard Watts) with guest discussion leaders, Jason Shafer of Lyndon State College, who spoke about Road Weather Information Systems, and Ahmed El-Geneidy of McGill University, who led a discussion about Quebec-Vermont transportation research connections.



In its ongoing growth as a research center, the UVM TRC hires University of Wisconsin alumnus George Lu, Ph.D. Lu joined the UVM TRC as a staff researcher and brings his traffic simulation expertise to the Vermont transportation community.

USDOT RITA Administrator Peter Appel visits the UVM TRC as part of a USDOT University Transportation Centers tour. After participating in a graduate student roundtable he visits the Transportation Air Quality Lab and takes a ride in the modified Toyota Camry used for emissions research.



Vermont Clean Cities Coalition hosts a Fuel Economy & Idle Reduction Workshop with an agenda to address technologies, practices, and fuel economy success stories.



The UVM TRC and VTrans participate as cooperating agencies, and UVM TRC's Karen Glitman serves on the host committee for the 19th National Conference on Rural and Intercity Bus Transportation. This year the conference addressed intelligent transportation systems, regional systems, networks and coalitions, alternative fuels and rural policy and planning.

UVM TRC Founding Director Lisa Aultman-Hall chairs TRB conference in Washington DC on Transportation for Livable Communities. Focusing on how transportation researchers, planners and implementers can create better interdisciplinary models and data for research projects, this conference also addressed the role University Transportation Centers play in advancing the research agenda for livable communities.



Jennifer Dill, Director of OTREC speaks at the UVM TRC regarding Bike/Pedestrian modes of travel and their contribution to livability. Dr. Dill also meets with UVM graduate students at a student roundtable to discuss some of the planning successes implemented in Portland.

UVM TRC presents its research on Quantifying Vermont Transportation Safety Factors: Young Drivers and Departure from Lane to the Vermont Driver and Traffic Safety Education Association.

Outreach Professional Tom McGrath assumes role of Vermont Clean Cities Coalition Coordinator and takes over the management of the DOE Clean Cities grant.

UVM TRC holds its annual Critical Issues Panel, featuring Matt Coogan, Director of NETI; Maren Outwater, Director Resource Systems Group, Inc and David C. Dill, Former Vermont Secretary of Transportation.

Lisa Aultman-Hall conducts a transportation and health seminar at the Rubenstein School of the Environment and Natural Resources.

JANUARY

FEBRUARY

MARCH

APRIL

MAY

JUNE

Lisa Aultman-Hall and Karen Glitman update the Vermont House and Senate Transportation Committees on the progress of UVM TRC's research and education programs. Representatives asked many questions including technical ones about roundabouts and were very interested in the workforce development.

At Canaan High School in Vermont, a Transportation 101 presentation is given as part of their TSA program, one of the Transportation Education Development Pilot Program workforce development program initiatives.

The UVM TRC participates in the planning meeting for a new Comprehensive Energy Plan for Vermont. The Vermont Energy Report #10-017 serves as a major reference for the planning team.

UVM TRC presents at the Department of Energy Sandia National Lab/UVM Powering the Future Conference held in Burlington, VT.

UVM TRC faculty and associated faculty attend the 90th Annual Meeting of the Transportation Research Board in Washington, DC.

UVM TRC Researchers Jim Sullivan and Justine Sears submit a final report on seniors and livability to the AARP.

Eric Hernandez, joins the school of engineering and begins a research project for VTrans instrumenting the I-89 bridge in Richmond, Vermont.



Dr. John Senders, a James Marsh Professor-at-Large and international expert on human error, visits UVM. Sender's talk encompassed motor vehicle crashes and driver distraction.

Graduate students from UVM TRC Scholarship and research projects participate in the UVM Student Research Conference presenting on topics such as Food Access and Food Deserts, Governance Networks for Transportation Funding and Behavior of Porous Concrete.



The UVM TRC with the Vermont Clean Cities Coalition and the City of Burlington's Community and Economic Development Office hold a stakeholders meeting regarding fleet fuel reduction.

Dr. Joseph Schofer visits UVM TRC as part of the Burack President's Distinguished Lecture Series. Joseph Schofer discussed the future of transportation and led a student round table.



The UVM TRC presents at National Association for Workforce Improvement (NAWI) national conference on the success of the Transportation Education Development Pilot Program.

UVM TRC is featured in UTC Spotlight for their work in the on-campus TAQLab research facility, which houses instrumentation used to collect real-world, on-board and lab-based emissions from light-duty gasoline vehicles and diesel engines running on various biodiesel fuels. The TAQLab team studies both the carbon emissions that have the impacts...

UVM TRC Outreach team members meet with Community Colleges of Vermont, Vermont Technical Colleges and Transportation Industry representatives to develop Community College Workforce Development programs for expansion and replication of Transportation Education curricula for Vermont State and Community Colleges.

A replication of the Transportation Systems Academy, a TEDPP Program initiative, is launched at the Community High School of Vermont in Rutland in partnership with Vermont Associates in Training and Development.

After a successful competition among six New England states, the UVM TRC becomes the host for the New England Transportation Consortium. The NETC is a collaboration of the Departments of Transportation and State Universities in the six New England states brought together for development of research and...

Photo: Lisa Aultman-Hall

UVM TRC PARTNERSHIPS

Since the founding of the UVM TRC, Vermont transportation organizations have played a major role in the success of the UVM TRC's research initiatives. From nominating members for service on the UVM TRC's External Board of Advisors to participating in research partnerships, the Vermont Agency of Transportation (VTrans) and the Chittenden County Metropolitan Planning Organization (CCMPO) have been major advocates and partners of the UVM TRC. Most recently VTrans, CCMPO and the UVM TRC have collaborated on several new data initiatives.

As part of the 2010 National Household Travel Survey, VTrans, CCMPO and the UVM TRC jointly funded additional data collection in Vermont, which resulted in 1690 Vermont households taking part in the survey. This year with the NHTS add-on data, UVM TRC researcher Jim Sullivan updated the VTrans statewide travel model. Improvements to the trip-generation model sub-module included new regression factors, updated trip rates, regression equations, friction-factor equations, vehicle occupancies and transit fractions.

The UVM TRC also has been using pedestrian count data collected at intersections throughout Chittenden County by CCMPO. For the past ten years, CCMPO has been collecting pedestrian data along with motorized data. UVM TRC Researcher George Lu has led the spatial modeling effort to assess how land use can be used to estimate pedestrian volumes. Several built-environment factors, such as the number of buildings, number of intersections, and distance from the Burlington centroid, have significant spatial and non-stationary influences on non-motorized travel demands in Chittenden County. Additional year round counts by the CCMPO with joint CCMPO and UVM TRC equipment have allowed the UVM TRC to develop seasonal and daily correction factors to estimate the annual bicycle/pedestrian and miles of travel in the county. Undergraduate researcher Ben Rouleau helped install cameras to gather counts in more rural areas to ensure that all types of pedestrian travel routes would be included in the data. Preliminary results show that annual bicycle/pedestrian miles traveled could exceed 70,000,000, consistently higher than previously estimated, but still only a small fraction of the estimated 1.5 billion vehicle miles traveled.

The UVM TRC with the support of VTrans and CCMPO continues to use and collect unique travel data to strengthen its value for policy makers and transportation agencies such as VTrans. Additional data on Vermonters' travel can be found in the New England Transportation Survey (NETS) and the Travel in Your Life survey (TIYL). NETS was co-funded by the UVM TRC and administered by the New England Transportation Institute in 2008 to collect information from more than 3,500 residents of northern New England. The TIYL survey was funded by the UVM TRC through the UTC grant and conducted by the UVM Center for Rural Studies in 2009 - 2010 to collect data from approximately 1,400 individuals in northern New England. These data are currently being used to answer rural mobility research questions by UVM teams preparing NIH proposals.



UVM TRC Researcher Jim Sullivan and undergraduate student Ben Rouleau mount a motion activated camera on a utility pole in Williston, Vermont as part of a research project to count bike and pedestrian traffic in Chittenden County.



BUILDING CAREER PATHWAYS IN TRANSPORTATION

Transportation jobs are ubiquitous and hidden throughout many economic sectors. They can be unnoticed by the public. But nationally, 40 - 50% of the current transportation workforce is expected to retire in the next decade. In Vermont, New Hampshire and Maine, a similar trend is occurring. The challenges of designing and maintaining a transportation system to meet the needs of the coming decades requires a skilled, motivated and sustainable workforce.

The UVM TRC Transportation Systems Institute (TSI) is working with VT, ME and NH DOT employees on maintaining, motivating, and transferring knowledge within the state DOT workforces. The TRC partnered with Vermont Technical College (VTC) to attract new talent and retain current expertise within the state DOTs. Graduates return to their roles at state transportation agencies better prepared and more informed in the increasingly uncertain environment of infrastructure, workforce and fiscal challenges.

The Transportation Systems Academy (TSA) provides hands-on training for high school age students. The first successful TSA at the Northern State Correctional Facility in Newport with the Community High School of Vermont (CHSVt) resulted in CHSVt adopting the program into their curriculum statewide and launching a new academy in Rutland this summer. The program was also adopted by the Canaan Career Center for implementation. Leaders from both schools presented their results at the National Association for Workforce Improvement.

The Second Careers in Transportation (SCT) initiative assesses the public and private sector workforce needs of the transportation industry in VT, NH and ME and focuses on attracting retirees from other industries and workers who are seeking a second career. In partnership with AARP-VT and Vermont Associates in Training and Development, SCT efforts provide these workers with transportation career awareness to make the transition from one field to another. The project is testing an intergenerational training effort and is looking to encompass displaced and non-traditional workers, including veterans and New Americans.

The TRC has advanced a Community College Initiative with Community College of Vermont and the Vermont State Colleges to embed core educational

modules on transportation in various degree programs to provide both a career pathway to specific transportation jobs for incoming students as well as a bridge option for second career workers looking to transfer skills to the field.

The National Summer Transportation Institute (NSTI) offers an interactive residential experience held at the University of Vermont campus for students entering 10th, 11th, or 12th grade. Interactive labs, field trips, and guest speakers engage students as they drive a big rig in the CDL simulator, visit mass transit systems, and learn how bridges are designed and built. Exploring energy, the environment, and eco-friendly transportation systems gives focus to how math, science, English, and history all relate to transportation careers.

TRC's workforce development efforts are currently funded by the US DOT Transportation Education Development Pilot Project (TEDPP), the US DOT UTC program and the FHWA through the Vermont Agency of Transportation.



A CDL simulator provides high school students with hands-on experience as part of the NSTI program.



2011 TSI Graduates

NEW TRC FACULTY

The UVM TRC is continually growing and attracting new exciting faculty involvement from across the disciplines at UVM. The following faculty recently joined UVM TRC activities and their presence has contributed to a more robust coverage of critical issues in transportation.

Naomi Fukagawa
Professor
College of Medicine

Dr. Fukagawa is working with the TAQLab on the health effects of petro diesel and biodiesel exhaust, epigenetic mechanisms related to petro/biodiesel combustion products on asthma, mechanisms for particle-related lung and systemic inflammation, age-related changes in biological responses to particulate matter, effects of maternal exposure to petro/biodiesel emissions on offspring and the nutritional modulation of biological effects of exposure to exhaust and biomass particulates.

Eric Hernandez
Assistant Professor
School of Engineering

Dr. Hernandez's research interests are related to structural dynamics, smart structures, structural health monitoring and reliability of aging civil infrastructure systems. He has started a bridge monitoring project in partnership with UVM TRC and VTrans. His research optimally combines a finite element model of the bridge with measured vibration signals in order to increase the amount of structurally useful information that can be extracted from ambient or random vibration tests.

Paul Hines
Assistant Professor
School of Engineering

As part of his power systems research, Dr. Hines works with UVM TRC staff and faculty in the area of plug-in hybrid electric vehicles (PHEVs), especially their impact on the transmission and distribution infrastructure. Dr. Hines' group has developed a method to identify grid infrastructure that will need to be upgraded to accommodate significant PHEV charging. The group also has modeled the impacts of PHEV



charging on the market price for electricity when greenhouse gas emissions are constrained.

Luis Vivanco
Associate Professor
Department of Anthropology

Dr. Vivanco focuses on the cultural and political aspects of nature conservation in Costa Rica and Mexico. This research explores how meanings of nature and social change are debated, negotiated, imposed, and resisted in the context of environmental and indigenous social movements, ecotourism, and sustainable development. His work with UVM TRC includes the culture of bicycle transportation and the development of new courses on bicycle transportation.

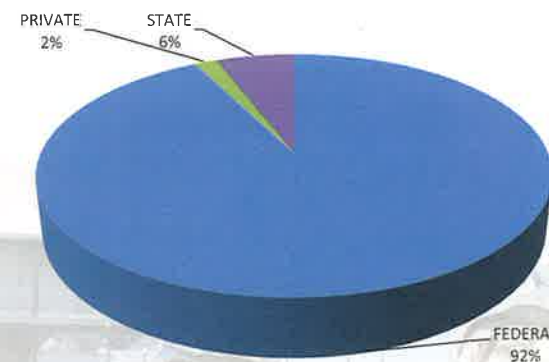


Asim Zia
Assistant Professor
Community Development and Applied Economics

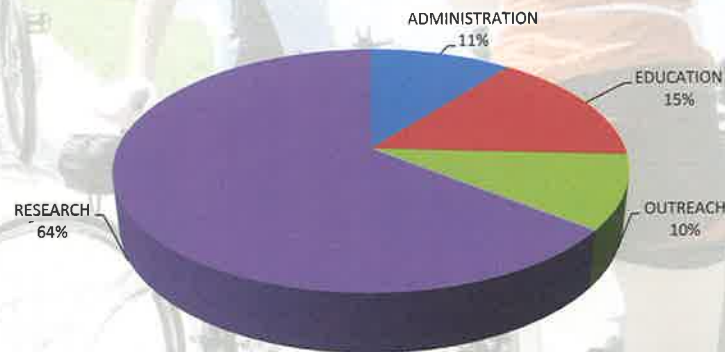
Dr. Zia investigates the role of adaptive decision making in the design, implementation and evaluation of public policies at multiple governance levels. His research includes the evaluation of policies that are implemented at state and national levels to reduce greenhouse gas emissions and other smog-forming criteria pollutants from transportation activities. In particular, he is working on activity-based models to generate agent-based simulations for evaluating alternate policy interventions in transportation and land-use systems. He is also using these models to study how transportation and land use systems impact human health.

FINANCIALS

Funding by Source (FY 11)



Expenditures by Category (FY 11)



REPORTS

A Travel-Livability Index for Seniors, Phase 1: Livability Attribute Importance

Authors: Sullivan, Jim; Sears, Justine; Glitman, Karen
UVM TRC researchers used existing AARP surveys and provided data analysis to assess the needs and preferences of seniors in specific regions that directly and indirectly relate to transportation in considering livable communities for seniors.

Integrated Land-Use, Transportation and Environmental Modeling: Validation Case Studies

Authors: Sullivan, Jim; Aultman-Hall, Lisa; Troy, Austin; Azaria, Dale; Lawe, Stephen
This study examines the forecast output from a range of contemporary model integrations to assess how accuracy has been added relative to the effort required to develop the integrations.

Increasing Carpooling in Vermont: Opportunities and Obstacles

Author: Watts, Richard
The GoVermont program, a state managed rideshare matching program, was used as a window into the obstacles and opportunities to increase carpooling in Vermont.

Quantifying Vermont Transportation Safety Factors: Young Drivers and Departure from Lane

Authors: Sears, Justine; Glitman, Karen; Aultman-Hall, Lisa
UVM TRC researchers identified factors which increase the likelihood of young drivers being at fault and those factors which contribute to more severe (fatal or incapacitating) crashes involving young drivers.

The On-Board Tailpipe Emissions Measurement System (TOTEMS): Proof-of-Concept

Authors: Holmén, Britt; Robinson, Mitchell; Sentoff, Karen; Montane, Paul; Hathaway, Kevin
This report summarized the measurement of the on-board tailpipe emissions instrumentation system that was designed, assembled and tested as proof-of-concept for the University of Vermont's Transportation Research Center (UVM TRC) Signature Project #2 "real-world" vehicle emissions data collection effort.

Advanced Development and Calibration of the Network Robustness Index to Identify Critical Road Network Links
Authors: Novak, David; Sullivan, Jim; Aultman-Hall, Lisa
Transportation flexibility and reliability concepts are extended and applied to a new method for identifying the most critical links in a road network.

Vermont Transportation Energy Report 2010

Authors: Sears, Justine; Glitman, Karen
This annual report provides policy makers with relevant and timely data on the status of fuel consumption, vehicle purchases, transportation expenditures, and travel behavior.

Is There a Link between Highway Funding, Construction Costs and Employment?

Authors: Sicotte, Richard; Glitman, Karen
Perhaps at no other time since the inception of the interstate system has there been such a keen interest to maximize the effectiveness of government highway spending. This study contributes to this interest by examining the relationship between government highway expenditures and construction costs.

Design and Collection of the NET! New England Travel Survey

Authors: Coogan, Matthew; Gibson, Lucy; Campbell, Margaret
Applying the concepts of both "mobility" and "accessibility," this study explored the issue of "rural isolation," and how perceptions of isolation differ given age and location of residence in rural versus suburban and urban areas.

More Robust Spatial Sampling Strategies for Non-motorized Traffic

Authors: Zhang, Chen; Jennings, Lance; Aultman-Hall, Lisa
This research used continuous non-motorized traffic counts collected along four shared use paths in Chittenden County, Vermont and analyzed the association between hourly (volume percentages of daily total) distribution patterns at each count station and land uses in the adjacent areas.

Transportation, Equity, and Communities at Risk: Refugee Population and Transportation Accessibility in Vermont

Author: Bose, Pablo
While issues of transportation access are of importance to all members of any community, there are some specific implications with regard to mobility for refugees in their adjustment to a new life in Vermont.

Phase 1 Report: Integrated Land Use, Transportation and Environmental Modeling

Authors: Troy, Austin; Voigt, Brian; Sadek, Adel; Lawe, Stephen; Yu, Jun; Yang, Yi; Hershey, David; Grady, Brian; Broussard, John; Lobb, John
Land use and transportation are inextricably linked. Models that capture the dynamics and interactions of both systems are indispensable for evaluating alternative courses of action in policy and investment.





UVM TRC Faculty and Staff

Photo by Nathan Belz

From left to right: Julia Kirby, Jody Ciano, Lisa Aultman-Hall, Jonathan Dowds, Brian H. Y. Lee, George Lu, Karen Glitman, Jim Sullivan, Donna Aguiar, Glenn McRae, Debra Kobus, Kathi Zink, Jacob Leopold, Tom McGrath. Not shown: Richard Watts, Justine Sears & Margo Baxter.

The University of Vermont Transportation Research Center is a hub for research, education and outreach related to sustainable transportation. The UVM TRC serves as the host of the National University Transportation Center funded by the US Department of Transportation as well as the Vermont Clean Cities Coalition funded by the US Department of Energy.

uvm.edu/trc



Faculty Advisory Committee

- Meghan Cope - Department of Geography
- Mandar Dewoolkar - School of Engineering
- Christopher Koliba - Community Development and Applied Economics (CDAE)
- Jane Kolodinsky - Community Development and Applied Economics (CDAE)
- Robert McCullough - Department of History
- David Novak - School of Business Administration
- Austin Troy - Rubenstein School of Environment and Natural Resources
- Brian H. Y. Lee - School of Engineering
- Britt Holmén - School of Engineering
- Richard Watts - Community Development and Applied Economics (CDAE)

External Board of Advisors

- Thomas Adler - Resource Systems Group, Inc.
- Michele Boomhower - Chittenden County Metropolitan Planning Organization
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- Cindy Burbank - PB International
- Gina Campoli - Vermont Agency of Transportation
- Matt Chase - National Association of Development Organizations
- Chris Cole - Vermont Agency of Transportation
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- Leon W. Heyward - NYC Department of Transportation
- Dick Mudge - Delcan Corp.
- Robert Penniman - Campus Area Transportation Management Association
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FROM RURAL ROADS TO CITY STREETS
SPARK THE UVM TRC PHEV
DONATED BY CENTRAL VERMONT PUBLIC SERVICE



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