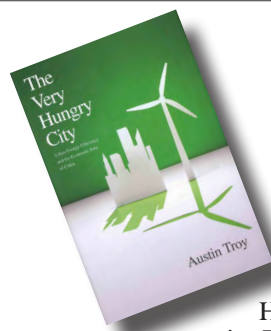


TRC Scholar Highlight

Phoebe Spencer is a Transportation Research Scholar at the UVM TRC and a first year MS student in Community Development and Applied Economics. At the TRC, she works with Drs. Richard Watts and Luis Vivanco exploring the social aspects of bicycle use. This team focuses on providing qualitative analyses of bicycle culture in a field that is often dominated by quantitative research. This year, Phoebe is focusing on the links between cycling and quality of life, as well as concerns of bike commuters in Vermont. This work will be used as a basis for her thesis project as well.

Phoebe was introduced to the transportation field through two summers as an archaeology intern at the Vermont Department of Transportation. She has also volunteered and worked for the Greater Burlington YMCA, participating in numerous service learning and leadership projects. Prior to her work at the TRC, she held a position at the Institute for Health and Social Policy in Montreal researching international child labor policies. Her academic interests include non-motorized transportation systems, public transit, spatial analysis, and public health needs. Phoebe's long-term goal is to promote healthier communities in Vermont.

Phoebe graduated from McGill University with a BA in Anthropology and Geography in 2011. Her Honours thesis was a spatial analysis of the spreading of historic fires in Montreal from 1845 to 1850. While at McGill, she was a member of the Flintknappers' Club and played baritone saxophone in her archaeology professor's metal cover band, Megalith. She is a native Vermonter who enjoys skiing and hiking.



The Very Hungry City

TRC Director Austin Troy has recently authored a book, entitled *The Very Hungry City*, to be released by Yale University Press in January 2012. *The Very Hungry City* looks at the concept of "urban energy metabolism," or the efficiency with which cities use energy to meet their basic functions - from heating and powering buildings, to transporting goods and people, to providing water. Troy contends that, while urban energy efficiency has traditionally been an environmental concern, it's about to become an economic one. With oil production peaking, constraints on other sources of fossil fuels, the possibility of greenhouse gas regulations, and big challenges to scaling up alternative sources of power, the growing consensus is that energy is going to be a lot more expensive in the future, perhaps indefinitely. As energy prices climb, urban energy metabolism will go from being just an environmental virtue to a core determinant of urban economic competitiveness. Efficient cities, those that are laid out and planned well, have efficient transportation systems, have a good mix of land use, and have efficient and well-designed building stock, will have a significant competitive advantage in attracting firms, employment and investment over those with a poor metabolism. Some cities will be able to adapt quickly, but others will face significant hurdles—particularly cities that are car-dependent, sprawling, low density, dominated by inefficient buildings, and located in energy-intensive climate zones.

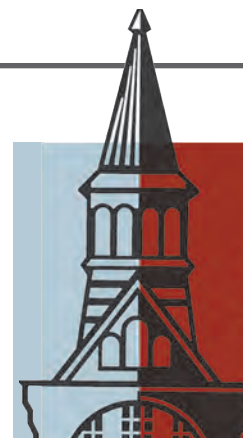
"The Very Hungry City is a readable analysis about why it makes sense to plan for our future now and that 'Smart Growth' does not mean 'no growth'. At a time when energy and environmental issues are being hotly debated in Congress, the author uses economics to make the case for sustainable development and, hopefully, will inform policy makers now, when it counts."
—Christine Todd Whitman, former Governor of New Jersey and Administrator of the EPA

TRC Research at the 91st TRB Annual Meeting

The Transportation Research Board (TRB) Annual Meeting held in Washington, D.C. each year is the largest annual gathering of transportation professional from around the world. This year's meeting expects to attract more than 4,000 presenters with approximately 650 workshops or sessions that cover all modes of transportation. Among the presentations by TRC graduate students, associated faculty and staff are the following.

Authors and Presenters	Title of Research
Nathan Belz and Brian Lee	Composition of Vehicle Occupancy for Journey-to-Work Trips: Evidence of Ridesharing from the 2009 National Household Travel Survey Vermont Add-on Sample
Jonathan Dowds and James Sullivan	Applying a Vehicle-Miles of Travel Calculation Methodology to a County-Wide Calculation of Bicycle and Pedestrian Miles of Travel
Lisa Aultman-Hall, Justine Sears, Jonathan Dowds and Paul Hines	Travel Demand and Charging Capacity for Electric Vehicles in Rural States: A Vermont Case Study
Justine Sears, Brian S. Flynn, Lisa Aultman-Hall, and Greg S. Dana	To Bike or Not to Bike: Seasonal Factors For Bicycle Commuting
George X. Lu, James Sullivan, and Austin Troy	Impact of Ambient Built-Environment Attributes on Sustainable Travel Modes: A Geospatial Analysis of Chittenden County, Vermont
Jane Kolodinsky, David Proppen, Erin Roche, Thomas De Sisto, William Sawyer, and Matthew Putnam	A Structural Equation Modelling Approach to Measure the Effect of Mobility on Quality of Life in a Northern Rural Climate

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UNIVERSITY OF VERMONT
TRANSPORTATION RESEARCH CENTER

Newsletter Volume 11, Winter 2011

Dr. Austin Troy Enters New Role

Five years ago when I learned that the University of Vermont was planning to create a Transportation Research Center (TRC) from a US DOT National University Transportation Center (UTC) grant, I was thrilled. Today that thrill returns as I am now the Interim Director of the Center. Taking over the reins from Dr. Lisa Aultman-Hall, her tremendous energy and leadership during the past five years has turned the TRC into a thriving hub of research, innovation, education, and workforce development.

For those of you who do not know me, I have been an Associate Professor in the Rubenstein School of Environment and Natural Resources since 2001, and the Director of the UVM Spatial Analysis Lab. My research focuses on spatial analysis methods (GIS, remote sensing, and modeling) and urban/regional planning and I am particularly interested in the interplay between transportation and land use.

Before becoming Interim Director, I was a frequent visitor to the TRC as part of a core group of campus faculty participating in transportation-related research. Several years before the TRC was established, I had initiated a research project funded by the US DOT looking at integrated modeling of land use and transportation and it was natural for me to become actively involved in this new center. I became Principle Investigator of one of the signature project grants, an offshoot of my previous US DOT research.

Around this same time, the TRC asked me to serve on its board of faculty advisors and during the years that followed, my connection to the TRC grew. Many of my graduate advisees received UTC Scholar funding. I began working more with TRC research staff, presented to the external board of advisors, reviewed graduate applications and collaborated with TRC faculty on grant proposals. When Lisa Aultman-Hall announced that she would be stepping down after years of dedicated service, I was humbled when asked to take on the position of Interim

Director and officially began my post on September 1, 2011.

Although I came to the position believing that I knew a lot about the TRC, it turns out that my knowledge only scratched the surface. These past few months have been spent learning about the TRC's programs, its partners, procedures, and people. Thankfully, TRC's staff and affiliated faculty are absolutely top-notch and have made this transition easy, efficient and enjoyable.

Much change has been afoot at the TRC. We officially became the lead institution for the New England Transportation Consortium (NETC) and hired Amanda Hanaway-Corrente as its Coordinator. After years of planning, we launched the Graduate Certificate in Sustainable Transportation Systems and Mobility and shifted Dr. Glenn McRae's responsibilities to put him in charge of that program in addition to his workforce development programs. I look forward to teaching my course on Land Use Policy and Economics (NR377) next year as one of the certificate's core courses. We have applied for the next round of UTC funding, built consortia with other New England educational entities, and started a new proposal development team. But there is still much more to do and I look forward to working with our terrific faculty and staff, as well as our many external collaborators, to address the 21st century's transportation challenges.



NETC Coordinator Amanda Hanaway-Corrente



The UVM TRC was awarded \$3 million by the State of Vermont to provide grant management and coordination services on behalf of the New England Transportation Consortium (NETC). The NETC helps New England states meet their special transportation research needs by pooling resources and expertise and is a valuable regional partnership for the identification, prosecution and dissemination of shared research initiatives that provides financial leveraging opportunities and regional partnerships, stronger partnerships between university faculty and state DOTs, user-defined diverse research topics and opportunities for research dissemination and training to practitioners in the field.

On December 1st, Amanda Hanaway-Corrente joined the UVM TRC as the NETC Coordinator. Additionally, she will be working closely with the Vermont Agency of Transportation on Research Advisory Council Projects. Amanda has a Bachelor's of Science in Civil Engineering from the University of Vermont, Masters of Business Administration from the University of Rhode Island, and is licensed as a Professional Engineer in the State of Vermont. She is also Vermont's 2011 Young Engineer of the Year. Amanda has filled several positions including an assistant traffic engineer for the Rhode Island Department of Transportation, transportation staff engineer for Stantec Consulting Services, and more recently, project manager for Utility Risk Management Corporation. Amanda also served as the 2009-2010 President for the Vermont section of the American Society of Civil Engineers. She is a great addition to the TRC and we are looking forward to having her on our team.

Guest Lecturers



Dr. Richard Watts and Susan Handy

Reduce Driving and Promote Active Travel

The Transportation Research Center hosted Dr. Susan Handy as part of the Dan and Carole Burack President's Distinguished Lecture Series on September 27, 2011, with a roundtable discussion at the TRC the following day. Dr. Handy, Chair of the Department of Environmental Science and Policy and the Director of the Sustainable Transportation Center at the University of California Davis presented to a standing room only audience, "The Role of the Built Environment in Reducing Driving and Promoting Active Travel." Her research interests focus on the relationships between transportation and land use, and she is internationally known for her studies of the connection between neighborhood design and travel behavior.

Former TRC Scholar Visits the TRC

Former TRC Scholar, Russ Mills, Ph.D. visited the TRC on November 7, 2011 to present "Get that Pig Off My Road, Bridge, Runway or Rail! The Effect of Politics and Pork on Transportation Financing in the 21st Century". Dr. Mills, a Visiting Professor at Kent State University, a UVM graduate of the Masters of Public Administration Program, and a Policy Analyst with the Federal Aviation Administration, addressed the political environment of transportation financing and the current transportation funding in the US. Before delivering his presentation, Dr. Mills lead a roundtable at the TRC. Dr. Mills work as a graduate student at UVM led to the publication of several papers including one with TRC Faculty Adviser, Dr. Christopher Koliba on accountability in governance networks, based on experiences from Hurricane Katrina.



Dr. Russ Mills with staff and students at the TRC.



Brian Searles, Secretary of VTrans

VTrans Brian Searles Revisits Tropical Storm Irene

Two hundred and sixty roads and 33 state highway bridges were closed, 13 communities were cut off from the state highway system, culverts failed or were compromised, debris was strewn everywhere, the Emergency Operation Center was flooded and had to be abandoned, and that was just the beginning. "We knew the storm was coming and we knew it was going to be trouble," said Brian Searles, Secretary of Vermont Agency of Transportation (VTrans), in his presentation "Tropical Storm Irene and Vermont's Transportation System: A look back and a look forward" on November 16, 2011. Prior to Secretary Searles' talk, the Office of the Vice President for Research at UVM had convened a meeting of researchers, including representatives from the TRC, interested in looking at continuing work to support efforts to understand, plan and better respond to events such as Irene.

Outstanding Student of the Year

Jonathan Maddison has been named the University Transportation Center 2011 Student of the Year. As a UTC Scholar, Maddison's research focuses broadly on the social construction of knowledge around transportation policy issues. Working closely with his research advisor Dr. Richard Watts, Maddison conducted novel research that applies political science and media theories to understand how transportation issues are framed in the national news media. This research has resulted in two journal articles where Maddison is the lead author (Source Diversity in News Media Coverage of Motor Vehicle Emissions 2000-2008 and The Technology Fix as a Frame in Media Debates about Tailpipe Emissions). "The TRC gave my advisor and I the support to study transportation from an alternative perspective; it's not every day that transportation researchers study the social construction of transportation policy," he stated.

Maddison began pursuing a Masters in Public Administration at the University of Vermont in September 2009 after completing a bachelor's

degree in Community and International Development. During his studies, Maddison worked as a research assistant at the TRC. "The TRC provided an engaging interdisciplinary environment in which I regularly gained insight and ideas from staff researchers, affiliated professors, invited guests and students with a diversity of perspectives," he said.

Maddison is currently living in Ithaca, NY where he is working part-time for the Americorp and American Red Cross helping communities in New York become more prepared for disasters. He also is continuing to conduct research as an independent research consultant.



The Vermont Transportation Energy Report



The Vermont Transportation Energy Report is a yearly publication of the UVM Transportation Research Center and the Vermont Clean Cities Coalition, whose mission is to reduce

the state's reliance on fossil fuels for transportation. This annual report is a comprehensive look at transportation energy use and expenditures in the state and provides policy makers with relevant and timely data on topics related to transportation energy use, including levels of fuel consumption, trends in vehicle fleet composition and Vermonters' travel patterns. The State of Vermont Comprehensive Energy Plan uses data from the Vermont Transportation Energy Report for analysis and recommendations. The large percentage of energy consumed and emissions generated by the transportation sector in Vermont makes it an important policy focus within the state. uvm.edu/trc our work/publications

New Connections for Research and Education



Glenn McRae joined the TRC in February 2011 in efforts to advance the Transportation Education Development Pilot Program (TEDPP), a multi-year collaborative initiative across northern New England. TEDPP identifies and tests innovative strategies to provide sustainable career pathways for

new workers in the transportation sector, and develops training opportunities to explore organizational leadership and growth in an increasingly complex environment. In addition, he now has taken on the leadership role for overseeing key outreach initiatives and the newly created Graduate Certificate in Sustainable Transportation Systems and Mobility at UVM.

The Graduate Certificate in Sustainable Transportation Systems and Mobility is designed to bring an interdisciplinary perspective and skill set to address the opportunities and challenges of sustaining and reinventing our transportation systems on local, regional and global levels. Students currently enrolled in the degree program have the option of transferring credits. The certificate is being promoted with allied departments within UVM to bring a new cohort in the fall of 2012.

McRae's energy has been instrumental in building momentum in the Transportation Systems Academy (TSA), a program designed to create awareness and opportunities for youths to explore and obtain jobs in transportation related fields. Working with the Community High School of Vermont, the TRC

has integrated a set of modules that provide stepping stones to align those employment opportunities with future education and training necessary to advance to careers in the field. The TSA is suited to easily adapt to different educational settings and to support a wide range of educational outcomes. Last summer, Vermont Associates (vermontassociates.org) teamed up with the Community High School of Vermont to run an intergenerational TSA to provide training and skill development for mature workers seeking employment and career shifts in the transportation field. The TSA now is being considered for integration into the curriculum at Vermont's network of career and technical centers.

McRae also oversees the Vermont Clean Cities Coalition (VTCCC) whose mission is to advance the economic, environmental and energy security of the U.S. by supporting local decisions to adopt practices that contribute to the reduction of petroleum consumption in the transportation sector. The VTCCC supports, promotes and helps coordinate Vermont's efforts related to fuel efficiency, alternative fuels and vehicles, transportation choices, anti-idling campaigns, reduced vehicle miles, and funding opportunities and programs that address the Clean Cities mission to disseminate research and information to communities and agencies seeking to build and maintain sustainable transportation systems.

McRae holds a doctorate in Anthropology, is a member of UVM's graduate faculty and has been an adjunct faculty in the Masters of Public Administration program at UVM. He was a member of the inaugural External Advisory Committee for the UVM TRC during his tenure as director of public policy programs at the Snelling Center for Government. During the past 30 years, McRae has provided leadership in Vermont and nationally in advancing capacity building programs for the nonprofit sector, and has worked globally to reinvent organizational approaches to managing the environmental footprint of the healthcare industry.

Electric Vehicles: The Future or Fad?



Are electric vehicles (EVs) the future of transportation or merely a fad that ebbs and flows with the price of gasoline? The answer depends on many factors, including social acceptance of charging vs. refueling, changes in battery technology, and policy incentives. However, one of the chief factors that could either inhibit or facilitate this transition is the ability of the electric power grid to adapt to new electricity demand associated with electric vehicles.

Prof. Paul Hines, associated faculty to the TRC, and TRC Graduate Student Scholar Alex Hilshey are looking into this question. In an early phase of research, Hines worked with Dr. Richard Watts to characterize the ability to charge electric vehicles from existing generation capacity in Vermont and the surrounding region. This analysis indicated that there is capacity to support a significant number of EVs, but only if the vehicles delayed their charging to off-peak periods. Furthermore their analysis found that because carbon emissions are constrained in the electricity industry through a New England regional cap-and-trade scheme, as well as renewable portfolio standards, moving energy consumption from gasoline to electricity could have unexpected cost impacts on the electricity sector.

In more recent work, the team has been studying the effects of electric vehicles on neighborhood power distribution networks. The group has found that EV charging could result in excessive thermal stress on some of the distribution equipment (particularly in warm climates), but that this problem can be alleviated with a bit of Smart Grid technology, the use of technology and incentives to get EVs to shift their charging to less heavily loaded time periods.

In future work the team is hoping to better understand the interactions between travel demand/infrastructure and electricity demand and infrastructure, in order to provide concrete policy advice to facilitate cleaner transportation energy solutions.



Spark the UVM TRC PHEV