TRANSPORTATION RESEARCH CENTER

Message from the Director

We at the TRC sometimes have rough roads exploring what transportation research is. We often say that it is the study of our decisions and travel patterns and the way they change of the quality of life, the productivity of our nation, the safety of our communities, and the ability of the transportation sector to center and deliver the mobility that society truly needs and deserves.

In Fall 2006, when UAM and TRC partners met to extend or selecting fellowships to fund the expansion of our group, we choose quality of life—mobility, safety, travel time, urban growth, air quality, and alternative energy. And at this time, universities were aiming to go there. The transportation research will also be conducted at various levels, from smaller-scale regional and local studies to large urban areas where high levels of commuter and walking are used. In some cases, the TRC has become a driving force in the national debate on city planning, but the route to cover more of our work, and the threat of climate change, alternative energy, and other local issues.

During the next 20 years, our partner organizations will work with the TRC to expand our understanding of the various issues and to generate knowledge that can help us make better decisions. We look forward to many more years of productive research and to the continued support of our sponsors.

Sincerely,

Lise M. Authaud, Ph.D.
Professor and Director

Message from the Vice President for Research

This year, a significant portion of the UAM faculty and administration toward a increased share of the TRC’s Transdisciplinary Research in Transportation, otherwise known as the “Trans” of Excellence is a core part of the TRC. The TRC’s core mission is to develop research that is focused on transportation research, education, and outreach on sustainable transportation policies.

Funded by the National Science Foundation, the TRC has brought together researchers and students from across disciplines to advance our understanding of transportation principles, policies, and applications. In its first 20 years, the TRC has developed a strong reputation for cutting-edge research in the areas of transportation engineering, urban planning, and policy.

In 2010, the TRC will celebrate its 20th anniversary with a series of events to commemorate its achievements and look toward the future. We invite you to join us as we reflect on the past and look forward to the opportunities that lie ahead.

Sincerely,

Domenico D’Andrea
Vice President for Research

TRC COURSE DEVELOPMENT

Transdisciplinary Graduate Course Development Continues

Part of the TRC’s mission is to develop new educational partnerships with colleges and departments at UAM to broaden transportation-related curriculum at the University. Transportation systems provide on excellent focus for considering the complex interplay between public health, environment, economic, and quality of life.

This year, three new courses were approved by the UAM Graduate College, marking the first of the three uses of TRC.

TRC10 Transportation Systems Seminar
TRC125 Geographical Information Science in Transportation
TRC134 Travel Safety and Human Factors

Even before the official course numbers were approved, the 2009-2010 academic year was marked with two pilot offerings of TRC courses. In conjunction with the UAM department, Dr. Richard Wooldredge introduced a seminar on Transportation and Community Development in Fall 2009. In Spring 2010, the topic was Transportation and Health Systems. TRC125 has now been offered every Fall semester since 2006 under a temporary number.

In Fall 2010, Dr. Wooldredge will lead a seminar in partnership with the College of Medicine and the College of Nursing and Health Sciences on the topic of Mobility for Active Populations. This course will examine the impact of demographic changes on the delivery of health services and health policy. The TRC plans to establish a two-year rotation through five UAM departments for the innovative seminar course. Members of the public are welcome at seminars when guest speakers are featured.

Eco Driving Workshops

As part of our commitment to reduce petroleum consumption and greenhouse gas emissions, we offer a variety of workshops and training programs to help individuals and organizations reduce their carbon footprint. These workshops are designed to educate participants on sustainable practices and provide guidance on how to make a positive impact on the environment.

• Road test and measure the mix of geology participants with a scan app to demonstrate how Eco Driving techniques affect performance.
• Create a personal eco-driving action plan for reducing fuel consumption.
• Review a tire pressure gauge to demonstrate effective eco-driving in their vehicle.

SCHEDULE

General Public: Eco-driving workshops have been given in Jersey, TX and Theford, TX, organized by the Illinois Energy Task Force. Theford, TX is scheduled to have an Eco-driving workshop in the coming year.

Local Meetings: More than 300 Central Texas Public Service (CEP) employees have been trained in Eco Driving by the end of September 2010. These workshops were conducted by the national eco-driving organization that provides large group programs specifically for their employees in Eco Driving.

Transport Education: Primary contacts and coordinators have been made with other education partners with the goal of introducing the program to their curriculum, either as a separate course or strand for the EM course.

Photo by Andy Dubak

TRANSPORTATION RESEARCH CENTER

ANNUAL REPORT 2009-2010

00

02

Photo by Andy Dubak
A LOOK BACK: 2009-2010 AT A GLANCE

July 2009
Parsons high school students attend the National Science Transportation Institute (NSTI), which aims to provide awareness about the critical transportation system upon which we rely.

August 2009
This is the 14th TCB and the 2009 TCB conferences. The Mathematical Science Council of the STC hosted a student conference to teach transportation systems in the field of engineering.

September 2009
In October, University of Maine traffic engineer, Chris Engler, spoke about the importance of transportation to the College of Natural Resources.

October 2009
This is the 14th TCB and the 2009 TCB conferences. The Mathematical Science Council of the STC hosted a student conference to teach transportation systems in the field of engineering.

November 2009
This is the 14th TCB and the 2009 TCB conferences. The Mathematical Science Council of the STC hosted a student conference to teach transportation systems in the field of engineering.

December 2009
This is the 14th TCB and the 2009 TCB conferences. The Mathematical Science Council of the STC hosted a student conference to teach transportation systems in the field of engineering.

January 2010
Yousef Jameel, Director of the New York City Department of Transportation, speaks about the role of transportation in the New York City Department of Transportation.

February 2010
The 14th TCB and the 2009 TCB conferences. The Mathematical Science Council of the STC hosted a student conference to teach transportation systems in the field of engineering.

March 2010
The 14th TCB and the 2009 TCB conferences. The Mathematical Science Council of the STC hosted a student conference to teach transportation systems in the field of engineering.

April 2010
The 14th TCB and the 2009 TCB conferences. The Mathematical Science Council of the STC hosted a student conference to teach transportation systems in the field of engineering.

May 2010
The 14th TCB and the 2009 TCB conferences. The Mathematical Science Council of the STC hosted a student conference to teach transportation systems in the field of engineering.

June 2010
The 14th TCB and the 2009 TCB conferences. The Mathematical Science Council of the STC hosted a student conference to teach transportation systems in the field of engineering.

Transportation Research Center Annual Report 2009 - 2010
Strong Partnership with VTRC to Key to TRC’s Success

In August 2005, when UVM received its first University Transportation Center (UTC) grant from the U.S. DOT to start the TRC, the Vermont Agency of Transportation (VTRC) was quick to offer its support to VTRC. Within two years, the TRC’s executive committee and I had a vital role in shaping the focus on this. This close partnership has been key to the TRC’s significant accomplishments, a few of which are mentioned here.

The annual ‘National Highway Traffic Safety’ (NHTSA) conducted by the federal Highway Administration provides comprehensive data on U.S. travel and transportation patterns. In previous surveys, few observations were collected in Vermont. However, in 2009 the TRC, VTRC, and the Chittenden County Metropolitan Planning Organization (MPO) purchased their Vermont survey, an addition of 1,500 households-541 in Chittenden County and 959 in the rest of the state. This resulted in a Vermont sampling rate that is more than five times the national average. This data will be invaluable for assessing new ways to provide mobility to rural residents, measure the greenhouse gas impact of the transportation sector, increase access to Vermont households, measure the impact of transportation fees and taxes on Vermont households, as well as many other policy applications.

As a rural state, Vermont faces significant obstacles to improving transportation system efficiency. In recent decades, nationwide, communities have seen a drastic increase in the average number of passengers per vehicle. This growth has been driven by one of the TRC’s most significant projects at the TREC. The VTRC and TREC have joined forces to manage the energy savings cost. Vermont would need to do so in order to avoid a significant increase in costs to maintain personal vehicles, access to services, reduce environmental and infrastructure impacts, reduce individual transportation costs, and save energy.

In addition, the TRC and VTRC are working together on the following projects:

- Reducing polluting stormwater runoff from traditional pavement systems (such as parking lots) by developing Alternative Pavement Systems.
- Expanding high school students to careers in the transportation industry during the National Summer Transportation Institute (NSTI), a two-week long intensive program at the UVM campus.
- Addressing key issues in VTRC’s “Strategic Highway Safety Plan,” which focuses on preventing vehicle driving under the influence of drugs or alcohol.
- Maintaining the Statewide Travel Demand Forecasting Model, which uses the latest passenger travel data and provides travel demand updates on a trip-generation and travel-behavior data. The model is also used for teaching and graduate research.

Note: The most successful transportation research centers are those that closely work with their state’s department of transportation. Since its inception, TREC has leveraged a strong working relationship with VTRC in order to gather and analyze data that will assist in policy decisions to increase transportation efficiency and accessibility for all Vermonters.

Reports

- Vermont Transportation Energy Report 2009
  - Author(s): Kenyon, J., Gilmartin, K., Green, R., Hoch, M., Stetson, J.
- Transportation Impacts of Smart Growth Development in Madision
  - Author(s): Weeks, A.
- Modeling the Emissions of Heavy-Duty Diesel Vehicles on Interstates 89/91 in VT
  - Author(s): Sthir, F., Weeks, A., and Gilmartin, K.
- Plug-in Hybrid Electric Vehicle Research Project: Phase II Report
  - Author(s): Gregory, J., Jones, J., Hahn, F., Shanes, K., and Stahley, P.
- Transportation Workforce Development at Community Colleges
  - Author(s): Gilmartin, K., Munsil, P.
- Estimating Tourism Expenditures for the Burlington-Vermont-Montpelier Region and the Island Line Trail
  - Author(s): Wang, J., Caves, S., and Gilmartin, K.
- Analysis of Miles Driven on Vermont Roads by Fuel Efficiency in Gas-Powered Cars
  - Author(s): Somers, J., Landy, M., and Schick, M.
- Gasoline Tax: An Examination of News Media Discourse Related to Gas Tax Funding Initiatives in Six States
  - Author(s): Work, R., Gilmartin, K., and Hoch, M.
- Vermont Statewide Travel Demand Model - A Preliminary Evaluation
  - Author(s): Weeks, A., and Gilmartin, K.
- Application of the Network Robustness Index to Identifying Critical Road Network Links in Chittenden County, Vermont
  - Author(s): Sullivan, J., A., and Gilmartin, K.

Finances

- State 9%
- Federal 89%
- Other 2%

Programs

- University Transportation Center (UTC) Lisa Auld-Ahlback
- Vermont Clean Cities Coalition Lisa Eckerlin
- Transportation Education Development Pilot Program Lisa Eckerlin
- National Summer Transportation Institute (NSTI) Tae McGrath

Expenditures by category (FY 06)

<table>
<thead>
<tr>
<th>Category</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education*</td>
<td>$4,229,875</td>
</tr>
<tr>
<td>Outreach</td>
<td>$296,413</td>
</tr>
<tr>
<td>Administration</td>
<td>$124,997</td>
</tr>
<tr>
<td>Research</td>
<td>$13,482</td>
</tr>
</tbody>
</table>

* Scholarships and Grants

Photo by Andy Stahley

ANNUAL REPORT 2009 - 2010

TRANSPORTATION RESEARCH CENTER
The University of Vermont Transportation Research Center (UVM TRC), located in Farrell Hall, is a hub for research, education and outreach related to sustainable transportation. The TRC serves as the host of the National University Transportation Center (UTC), funded by the US Department of Transportation, as well as the Vermont Clean Cities Coalition, funded by the US Department of Energy and the Vermont Department of Public Service.

**UVM’s goals with the TRC**

- To build graduate research.
- To build an interdisciplinary team of transportation researchers that contribute solutions to critical transportation problems, improving our health and our environment.
- To have a sustainable, diversely funded Center at the end of the first UTC grant period.

---

**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 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.
- Ernie Blais - Federal Highway Administration Vermont Division
- Michele Boomhower - Chittenden County Metropolitan Planning Organization
- Dan Brand - CRA International
- Cindy Burbank - Parsons Brinckerhoff
- Gina Campoli - Vermont Agency of Transportation
- Matt Chase - National Association of Development Organizations
- Chris Cole - Chittenden County Transit Administration
- Matt Coogan - New England Transportation Institute
- Lawrence Dwyer - Federal Highway Administration Vermont Division
- Kevin Gardner - University of New Hampshire
- Barbara Grimes - Burlington Electric Department
- Leon W. Heyward - NYC Department of Transportation
- Dick Mudge - Delcan Corp.
- Robert Penniman - Campus Area Transportation Management Association
- Peter Plumeau - Resource Systems Group, Inc.

---

**www.uvm.edu/trc**

Cover photo by Andy Duback. Back cover photo by Chris Duerth. All other photos by Kim Mercure unless otherwise noted.

---

Printed on 100% Consumer Recycle Paper

UVM Transportation Research Center
University of Vermont
210 Colchester Avenue, Farrell Hall (Trinity Campus)
Burlington, VT 05405

802.656.1312 | 802.656.9892 fax | transctr@uvm.edu