The mission of the UVM Transportation Research Center is to conduct innovative interdisciplinary research, education and outreach programs that advance sustainable transportation systems.

The transportation industry is a major economic sector, and keeping it vibrant is critical to Vermont’s economy and our quality of life. The Transportation Research Center provides an excellent example of how UVM can partner with communities to advance Vermont and New England.

— Daniel Fogel
UVM President

Glossary of acronyms used in this report:
CAS - College of Arts & Sciences
CCMPO - Chittenden County Metropolitan Planning Organization
CCRPC - Chittenden County Regional Planning Commission
CDAE - Community Development and Applied Economics
CEMS - College of Engineering and Mathematical Sciences
COM - College of Medicine
NETC - New England Transportation Consortium
NETI - New England Transportation Institute
OSP - Office of Sponsored Programs
PHEV - Plug-in Hybrid Electric Vehicle
RITA - Research and Innovative Technology Administration
RPC - Regional Planning Commission
RSENR - Rubenstein School of Environment and Natural Resources
RSG - Resource Systems Group, Inc.
TRC - Transportation Research Center
USDOT - United States Department of Transportation
UTC - University Transportation Center
UVM - University of Vermont
VTrans - Vermont Agency of Transportation

This report is published on 100% post-consumer waste recycled paper which is FSC certified – supporting responsible use of forest resources – and processed without the use of chlorine. Photos on the cover and pages 1, 5 and 9 are used with permission from the Burlington Free Press.
Message from the Director

This past year was filled with tremendous growth at the UVM Transportation Research Center. It has been a privilege to host hundreds of individuals at our events and to work with so many different groups both within Vermont and beyond our borders.

In the fall of ’07, Dr. Richard Watts and I taught our second offering of our new transdisciplinary course, Critical Issues for Transportation in the 21st Century, to 23 graduate students enrolled in five different Colleges. By spring of ’08, one of these students who had not directly majored in transportation had accepted a position with a leading transportation consulting firm, establishing that our university research and education programs are indeed attracting new talent to professional service in the transportation sector. Coincidentally, in April the outreach team at our center was awarded a large competitive grant to focus on workforce development for the transportation sector in northern New England.

The Center’s research capacity has grown this past year with large increases in staff, graduate students and equipment. We’ve received the donation of a plug-in hybrid electric vehicle for field studies and equipment for the Transportation Air Quality Lab, both of which have created significant excitement.

Within the transdisciplinary research teams that we’ve built, new relationships have been sparked and existing ones have deepened. In March, these teams joined me to present our strategic vision and interim results to the US DOT during their site visit to Burlington. The visitors were impressed by our collaboration and invited me to present our “Signature Research Project” process to a national gathering of University Transportation Centers in San Jose, California in June, ’08.

Our external partnerships have also grown this past year, resulting in new grants and awards related to the energy and environmental aspects of transportation. Of equal importance is the recognition of our unique role as a university-based Center to the increasingly significant issue of sustainable transportation. Our work on the complex interconnections between community, mobility, public health, energy and environment is certainly timely.

While 2007-2008 consisted of building and growth, we are looking ahead to a year of research results. These results will no doubt enrich the ongoing conversation we share with you on how to develop a sustainable transportation system for our communities, both local and global.

Sincerely,

Lisa Aultman-Hall
Director, UVM TRC
Mobility requires energy, but not all energy sources are created equal in terms of social, environmental and financial costs. The complex questions regarding future transportation energy use require bridges across disciplines that bring researchers, educators and students together. In Vermont, transportation produces 44% of the state’s greenhouse gas emissions.

**RESEARCH PROJECT:**
Modeling Plug-In Hybrid Electric Vehicle Impacts

On February 21, UVM received a new PHEV—a modified Toyota Prius donated by Central Vermont Public Service (CVPS)—which TRC researchers are using to explore how a new generation of hybrid cars, which recharge from a standard electric outlet, perform in the cold, hilly conditions of Vermont.

Bob Young, president of CVPS, presented the vehicle to UVM’s President Dan Fogel and TRC director Lisa Aultman-Hall, as part of CVPS’s Plug’n Go™ program. PHEV’s can reduce driving costs and air pollution by substituting off-peak electricity for gasoline.

In this study, funded by the US DOT and Vermont
Utilities, volunteer drivers will use the PHEV for their regular daily travel, and from these trips, data will be collected about carbon emissions, electricity use, local variations in the electrical supply, and performance over differing distances and driving styles. The research also includes an on-going effort to determine the capacity of Vermont’s electric grid to handle 50,000, 100,000 or 200,000 plug-in hybrids.

“The first phase of this work,” said Dr. Richard Watts, Principal Investigator, “indicates that the Vermont electric grid could handle 200,000 PHEVs charged at night under direct utility control.”

OUTREACH PROGRAM:
Vermont Clean Cities Coalition

The mission of the Clean Cities program is to advance the economic, environmental and energy security of the U.S. by supporting local decisions to adopt practices that contribute to reduced petroleum consumption in the transportation sector.

The state of Vermont initiated its Clean Cities program in 2001 and on July 1, 2007, the UVM TRC became host for the Coalition. Since then, the Vermont Clean Cities Coalition has sponsored or co-sponsored the following events:

- Public Transit Roundtable (September 2007)
- Biodiesel Workshop (October 2007)
- Annual Stakeholders Meeting (April 2008)
- Vermont Clean Car Show (April 2008)

Other Clean Cities activities include publishing a twice monthly e-newsletter, writing grant proposals, producing the annual “Vermont Transportation Energy Report,” maintaining databases and providing representation to the federal Clean Cities program of the U.S. Department of Energy. More information about the program can be found online at www.uvm.edu/~cleancty.

STUDENT PROJECT:
Mapping Policy Drivers: Discourse Networks in the Formation of Vermont’s Transportation Energy Policy - Elaine Wang, Master’s Degree Candidate, RSEN

Transportation accounts for about a third of the energy that Vermonters use, more than any other sector. Most of this transportation energy relies on out-of-state petroleum, the use of which generates an array of policy issues.

A comparative case study approach was used to examine how Vermont policy makers frame the issue. Data sources included surveys, interviews, participant observation, and documents. Analysis concentrated on points of divergence and convergence within and between policy makers. The study also provided recommendations as to how gaps in understanding may be remedied to improve transportation energy policy for environmental sustainability.

OTHER PROJECTS OF NOTE:
(Funded by US DOT)

Multi-Scale Model of the U.S. Transportation Energy Market for Policy Assessment - Drs. Margaret Eppstein, Jeff Marshall, and Donna Rizzo, CEMS

Mechanical and Economic Performance of an Electric Car Utilizing the Zebra Battery Technology in Vermont - Dr. Walter Varhue, CEMS

Estimating An Incentive Elasticity of Demand for Non-motorized Transportation - Dr. Jane Kolodinsky, CDAE

Carbon Life-cycle Analysis of Organic Versus Conventional Biofuel Crop Production for Canola and Sunflower Crops Grown in the Northeast - Eleanor Campbell, Master’s Degree Candidate, RSENR

Industry-Partnered Senior Design Projects on Alternative Energy - Dr. Michael Rosen, CEMS

Facilitation of Behavior-Based Efficiency Opportunities in Vehicular Operations Through Retrofit Information Feedback Systems - Dr. Laura Solomon, Department of Psychology
Transportation networks and vehicles have a profound impact on the air, water and land systems. Yet, we lack complete information upon which to pursue best practices for programs and policies to minimize or eliminate these effects. University research is critical to filling these knowledge gaps.

TRC SIGNATURE PROJECT #2: Emissions & Performance of Alternative Vehicles in Northern Climates

The focus of this US DOT-funded project, led by Dr. Britt Holmén, is to quantify “real-world” emissions from hybrid versus non-hybrid vehicles. State-of-the-art micro-simulation models can replicate vehicle activity, fuel economy and emissions. Unfortunately, the factors used by such models are often based on data from laboratory tests conducted under ideal conditions. Existing emissions databases do not account for factors such as road grade and temperature. This project will collect tailpipe emissions data—including ultrafine particles (which pose a public health concern), carbon dioxide gas, and other air toxins—using on-board sampling while people drive on the real road network.

Dr. Holmén explains the tailpipe adapter used to gather emissions data to a student.
The second part of this project focuses on public understanding of emissions. The project’s behavioral scientists from CDAE and Sociology will first create a baseline defining public knowledge of tailpipe emissions, and then they will develop communication strategies to affect behavior related to vehicle emissions.

Partners: Vermont Agency of Natural Resources, Resource Systems Group (RSG), Inc., Udall Foundation, UVM Parking and Transportation

RESEARCH PROJECT:
Designing Sustainable Porous Pavements for Northern Communities

Stormwater runoff from traditional, non-porous pavement systems—including parking lots—significantly pollutes our rivers, lakes, and estuaries. Alternative porous pavement systems allow polluted water to pass through into the natural sub-base thereby reducing the quantity of stormwater and potentially improving water quality.

This UVM research project, led by CEMS faculty Drs. Dewoolkar and Pinder and funded by VTrans and US DOT, is characterizing the suitability of porous concrete pavements for northern communities. Research focuses on an instrumented park and ride facility built by VTrans. In addition to the basic mix design, of particular interest are the effects of factors such as freeze-thaw, wear and tear, and winter maintenance on the system properties. These determinations can then lead to development of more appropriate mix design specifications for our region. A numerical model for the overall system (pavement, sub-grade and sub-base) will be developed and will allow results to be transferred to other locations.

Students in the Summer Transportation Institute explore the properties of porous pavement materials.

TRC SIGNATURE PROJECT #1:
Integrated Land-Use, Transportation and Environmental Modeling

Travel patterns such as the distances we drive are directly related to the arrangement of land uses and activities where we live. Yet the models traditionally used in transportation planning simply assume a set arrangement of land use, neglecting the interactions between development patterns and travel. For example, building a road facilitates land development, which creates traffic and the congestion, in turn, might cause officials to expand the road or travelers to choose other destinations.

To capture the complex interactions of multiple players within the regional transportation-land use system, UVM researchers are using advanced computing to integrate several models which had typically been used separately (UrbanSIM, TRANSIM, activity models, traffic simulation models and demand forecasting models).

The research team is also developing metrics for the impacts of land use and transportation on stormwater, roadside plants, network robustness, greenhouse gas emissions, air toxics, and airborne ultrafine particles.

Most of the researchers working on metric development are new to transportation and are guided by experienced modelers Drs. Austin Troy (RSEN) and Adel Sadek (CEMS). The project is funded by the US DOT.

Partners: RSG, CEMPO, CRPC, and McMaster University

OTHER PROJECTS OF NOTE:
(Unless otherwise noted, funded by US DOT.)

Atmospheric Oxidative Chemistry of Organic Particulate Emissions from Fuel Combustion - Dr. Giuseppe Petrucci, Department of Chemistry

Integrating Ecosystem Service Impact Assessment into an Integrated Land Use/Transportation Modeling Framework - Ken Bagstad, Ph.D. Candidate, RSEN

Development of an Architecture for Generating Environmental Outputs from an Integrated Land Use and Transportation Model - Galen Wilkerson, Master’s Degree Candidate, RSEN

A Land Use-Based County-Level Carbon Budget for Chittenden County, Vermont - Erin Quigley, Master’s Degree Candidate, RSEN

Characterizing Older Driver Behavior for Traffic Simulation and Emissions Modeling - Dr. Lisa Aultman-Hall, TRC; Funded by NEUTC at MIT
Transportation and mobility contribute greatly to our quality of life. Through our research, we are looking to define elements that encourage, support, and enable increased vitality in our communities. The efficient movement of people and goods is critical to a vibrant and predictable economy. Our lives can be better if we are physically active and healthy, if we are connected to our neighbors, and if we have safe and convenient options for travel.

**TRC SIGNATURE PROJECT #4: Seasonal and Built Environment Impacts of Mobility**

The climate and development patterns of rural northern communities make mobility particularly challenging and often cost prohibitive. This project, led by Drs. Jane Kolodinsky (CDAE) and Brian Flynn (COM), focuses on how weather impacts three aspects of mobility: un-served travel demand, bicycle travel and pedestrian transportation.

First, in partnership with the New England Transportation Institute (NETI), using new survey data and existing Center for Rural Studies (CRS) built environment data, team members are measuring and describing the effects of weather on both revealed and un-served travel demand in rural northern communities.

Focus groups and surveys are measuring the seasonal variation in bicycle travel demand as well as the associated causes of this variation in order to recommend policies and programs that might promote year-round use. A continuing analysis of pedestrian volume data has already indicated that weather can account for 30% of volume variation. The Project is funded by US DOT.

Partners: VTrans, NETI and RSG, Inc.
TRC SIGNATURE PROJECT #3: Sustainable Transportation for Tourism

Transportation engineers often study patterns for routine daily travel: to work, to school, for social activities and errands. In this project, funded by US DOT, an experienced interdisciplinary team, led by Dr. Robert Manning (RSEN), tackles the issue of sustainable transportation in the context of tourism. They propose a model built on a matrix-based approach to define varying levels of sustainability where “indicators” are organized into a three-fold framework of environmental, social, and economic considerations. A range of “standards” for these indicators is arrayed across the matrix. Researchers are focusing on three types of geography where tourism travel is significant: tourist towns, scenic corridors and national parks. By incorporating indicators and standards a level of Service (LOS) style metric can be extended to tourist travel.

Researchers are also considering marketing aspects of tourist travel behavior. Provision of more sustainable transportation such as a certified Green Coach is hypothesized to not only affect tourist travel decisions but to also provide public education and community/economic development.

OUTREACH PROJECT: Transportation Workforce Development

A new four-year workforce development project, funded by a grant from the US DOT, will help develop innovative programs to attract and retain skilled workers in the transportation sectors of Vermont, New Hampshire and Maine.

Given northern New England’s demographic changes and the turbulent nature of our 21st century transportation system, the transportation sector will require a comprehensive workforce development plan. The TRC will create four new programs to help transportation leaders attract and maintain workers in this challenging environment.

1. The Transportation Systems Institute will focus on maintaining or recruiting new talent to the DOT workforce in the three northern New England states.
2. The Second Careers in Transportation Program will focus on attracting retirees from other industries to bring their skills to bear on the 21st century challenges in transportation.
3. The Transportation Systems Academy will provide hands-on training for transportation industry jobs to students at technical high schools or within state corrections systems.
4. A National Transportation and Community College Summit will enable facilitated discussions to create an action blueprint for enhancing the role of community colleges in all types of transportation workforce development.

OTHER PROJECTS OF NOTE:

(Unless otherwise noted, funded by US DOT.)

Application of The Network Robustness Index to Identify Critical Road Network Links - Drs. David Novak and Lisa Aultman-Hall, School of Business Administration and School of Engineering

Pupil Transportation: Travel Behavior, Traffic Impacts and Potentials For Improvement - Dr. Qingbin Wang, CDAE

Measuring the Effect of Passengers on the Safety of Older Drivers - Dr. Lisa Aultman-Hall; Funding Agency: New England UTC at MIT

Using a Regional Microscopic Simulation Model to Evaluate Potential Work Zone Control Strategies - Drs. Sadek, Patil and Watts; Funding Agency: VTrans

Scenario Land Use and Transportation Modeling for Community Engagement and Understanding at Regional and Local Scales of Governance - Alexandra (Lexie) Reiss, Master’s Degree Candidate, RSEN

Staple Foods and Transportation: An Institutional Analysis of Local Versus Conventional Supply Chains on Carbon Emissions - Alek Antczak, Master’s Degree Candidate, RSEN

Access to Health Care: Does Transportation Play a Role? - Jane Roodenburg, Master’s Degree Candidate, School of Nursing

Multiple Model Framework of Extended Kalman Filtering for Predicting Vehicle Location Using Latest Global Positioning System - Cesar Barrios, Master’s Degree Candidate, CEMS

Intelligent Traffic Signals: Extending the Range of Self-Organization in Models - Dan Brown, Master’s Degree Candidate, Dept. of Mathematics and Statistics

Transportation Equity and Communities at Risk: Refugee Populations and Transport - Dr. Pablo Bose, Department of Geography

Summer Transportation Institute - Karen Giltman, TRC; Funding Agency: VTrans & FHWA

Demographics of Transportation in the Two Rivers Area - Dr. Richard Watts; Funding Agency: Two Rivers RPC

Transportation Impacts of Transit-oriented Development in Rural Towns - Dr. Watts; Funding Agency: ME DOT
External Funding by source (FY08)

- Federal: 86%
- Private: 9%
- State: 1%
- Other: 3%

Expenditures by category (FY08)

- Research: 60%
- Administration: 13%
- Education: 17%
- Outreach: 10%
- Other: 3%

Total: $2,650,042
The UVM TRC brings together graduate students from across campus to study and research different aspects of the transportation system and its impacts. In problem-based courses, students consider critical issues for transportation in the 21st century and move away from the engineering-dominated transportation focus of the Interstate era. These new generation professionals are from science, engineering, health and social science backgrounds. The transdisciplinary struggles these students and their faculty face in the classroom reflect those now present in our transitioning transportation agencies and firms.

A new course in transportation air quality has been established and taught twice by Dr. Britt Holmén. In 2008 Dr. Holmén presented the course 100% on-line and will expand this opportunity beyond UVM in future years. The course emphasizes the need to integrate the modeling approaches of traffic engineering and environmental engineering.

The Honors College was established in 2004 at UVM to serve outstanding students in a learning-residency environment. In spring 2008, an interdisciplinary team of faculty offered the first case-based course for Honors students on sustainable transportation. The course focused on students determining if the decision to build a controversial regional freeway was an advance or failure in terms of sustainable transportation.

Find out more! Go to www.uvm.edu/transportationcenter and click on “Graduate Studies”

TRC Associated Graduate Students (L to R): Jennifer Kenyan (Master’s in Public Administration), James Sullivan (CEMS), N. Tucker Stevens (CEMS), Joseph Bartlett (RSEN), Elaine Wang (RSEN), Eleanor Campbell (RSEN), Shan Huang (CEMS), Alexandra Reiss (RSEN)
**FACULTY & STAFF**

**TRC Staff (left to right)**
- Gopal Patil, Postdoctoral Researcher
- Kim Mercer, Communications Coordinator
- Debra Kobus, Business Manager
- Richard Watts, Research Director
- Lisa Aultman-Hall, Director and Professor, School of Engineering and CDAE
- Karen Glitman, Program Director
- Julia Kirby, Office Assistant
- Damon Lane, Research Engineer

**External Board of Advisors**
- Teresa Adams - University of Wisconsin-Madison
- Thomas Adler - Resource Systems Group, Inc.
- William Ahearn - Vermont Agency of Transportation
- Ernie Blais - US DOT FHWA Vermont
- Dan Brand - CRA International
- Cindy Burbank - Parsons Brinckerhoff
- John Collura - University of Massachusetts-Amherst
- Katherine Decarreau - University of Vermont
- Michael Demetsky - University of Virginia
- Lawrence Dwyer - US DOT FHWA Vermont
- Harold Garabedian - Vermont Agency of Natural Resources
- Steve Hackett - Hackett, Valine & MacDonald, Inc
- Susan Handy - University of California-Davis
- Leon W. Heyward - NYC Department of Transportation
- Jose Holguin-Veras - Rensselaer Polytechnic Institute
- Scott Johnstone - Chittenden County MPO
- John Kassel - Shems Dunkiel Kassel & Saunders PLLC
- Charles Luce - USDA Forest Service
- James Mahoney - University of Connecticut
- Matt Mann - Windham Regional Planning Commission
- Glenn McRae - Snelling Center for Government
- Kevin Moore - Bentley Systems Inc.
- Elaine Murakami - US DOT FHWA Office of Planning
- Erral Noel - Howard University
- Robert Penniman - Campus Area Transportation Management Association
- Peter Plumeau - Resource Systems Group, Inc.
- Kathleen Ross - LaSalle Bank Surface Transportation
- Brian Searles - Burlington International Airport
- Louise Stoll - Independent Consultant
- Richard Tetreault - Vermont Agency of Transportation
- Paul Toussaint - University of Kentucky
- Judith Van Houten - Vermont EPSCoR
- Jennifer Wallace-Brodeur - VT-AARP
- Mark Zydel - McFarland-Johnson, Inc
Associated Faculty

Pablo Bose - Dept. of Geography
Roelof Boumans - Gund Institute, RSENR
William Bowden - RSENR
Lisa Chase - UVM Extension, VT Tourism Data Center
Bernard Cole - Dept. of Mathematics & Statistics
Robert Costanza - Gund Institute, RSENR
Chris Danforth - Dept. of Mathematics & Statistics
Mandar Dewoolkar - School of Engineering
Peter Dodds - Dept. of Mathematics & Statistics
Margaret Eppstein - Dept. of Computer Science
Brian Flynn - Office of Health Promotion Research
Jeff Frolik - School of Engineering
Lynn Gregory - CDAE
Paul Hines - School of Engineering
Britt Holmén - School of Engineering
Dryver Huston - School of Engineering
Jennifer Jenkins - RSENR
Robert Jenkins - School of Engineering
Jane Kolodinsky - CDAE
Chyi-Lyi Liang - CDAE
Sarah Taylor Lovell - Dept. of Plant & Soil Science
Thomas Macias - Dept. of Sociology
Robert Manning - RSENR
Jeff Marshall - School of Engineering
Deborah Neher - Dept. of Plant & Soil Science
David Novak - School of Business Administration
Giuseppe Petrucci - Dept. of Chemistry
George Pinder - School of Engineering
Donna Rizzo - School of Engineering
Adel Sadek - School of Engineering
Frederick Schmidt - CDAE
Richard Sicotte - Dept. of Economics
Julia Smith - Dept. of Animal Science

Faculty Advisory Committee

Meghan Cope - Dept. of Geography
Christopher Koliba - CDAE
Jane Kolodinsky - CDAE
Robert McCullough - Dept. of History
David Novak - School of Business Administration
Adel Sadek - School of Engineering
Austin Troy - RSENR

TRC Associated Faculty (L to R): Mandar Dewoolker, Chris Danforth, Maggie Eppstein, Lynn Gregory, Britt Holmén and Paul Hines
## A LOOK BACK AT 2007-2008

<table>
<thead>
<tr>
<th>July</th>
<th>August</th>
<th>September</th>
<th>October</th>
<th>November</th>
<th>December</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SUMMER</strong></td>
<td><strong>Brown Bag Discussion Series: “Critical Issues in Transportation”</strong></td>
<td><strong>9 • 20 • 07</strong> Seminar: “The Changing Face of Highway Safety in Vermont” with Kevin Marshia, VTrans</td>
<td><strong>9 • 21 • 07</strong> Roundtable Discussion: “Rural Public Transportation: Challenges and Opportunities”</td>
<td><strong>10 • 9 • 07</strong> CCMPO hosts Senator Bernie Sanders at TRC</td>
<td><strong>11 • 10 • 07</strong> TRC awarded first NETC grants</td>
</tr>
<tr>
<td><strong>7 • 30 / 7 • 31 • 07</strong> Center for Excellence in Rural Safety (CERS) Conference co-hosted with University of Minnesota</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>12 • 6 • 07</strong> Panel Discussion: “Critical Issues in Transportation” with Neale Lunderville, VT Secretary of Transportation; Cindy Burbank, Parsons Brinkerhoff; and Peter Plumeau, RSG</td>
</tr>
<tr>
<td><strong>9 • 25 • 07</strong> Dr. Gopal Patil defends Ph.D. at RPI and joins TRC as a research engineer</td>
<td></td>
<td></td>
<td><strong>11 • 10 • 07</strong></td>
<td></td>
<td><strong>12 • 11 • 07</strong> PHEV Event with Nancy Gioia, Ford Motor Company</td>
</tr>
</tbody>
</table>

### TRC by the numbers

- Graduate students funded: 27
- Faculty on TRC projects: 40
- Colleges involved in TRC projects: 7
- Attendees at outreach events: 1,691
- New staff hired: 5
- Transportation research papers presented at conferences: 17
<table>
<thead>
<tr>
<th>January</th>
<th>February</th>
<th>March</th>
<th>April</th>
<th>May</th>
<th>June</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1•31•08</strong> &lt;br&gt; Elaine Wang honored as a UTC Outstanding Student of the Year at the Council of UTCs 11th Anniversary Annual Banquet in Washington, D.C.</td>
<td><strong>2•13•08</strong> &lt;br&gt; Seminar: Dr. Joseph Sussman of MIT on “Where is Transportation Going in the ‘Complex, Large-Scale, Interconnected, Open, Sociotechnical’ Systems Era”</td>
<td><strong>2•21•08</strong> &lt;br&gt; PHEV transfer of title ceremony with CVPS President Young, UVM President Fogel and VT Governor Douglas</td>
<td><strong>3•20•08</strong> &lt;br&gt; tRC co-hosts grant writing workshop at UVM with CAS and OSP</td>
<td><strong>4•10•08</strong> &lt;br&gt; Seminar: “Rural Roads &amp; Water” - Charles Luce, USDA Forest Service</td>
<td><strong>5•12•08</strong> &lt;br&gt; tRC partners with Maine DOT to study rural transit-oriented development</td>
</tr>
<tr>
<td><strong>5•12•08</strong> &lt;br&gt; VT Clean Cities Coalition Stakeholders annual meeting</td>
<td><strong>4•10•08</strong></td>
<td><strong>5•16•08</strong> &lt;br&gt; Seminar: “Merging Epidemiologic Methods with Transportation Data: the Example of the Black Women’s Health Study” - Dr. Patricia Coogan, Boston University</td>
<td><strong>5•30•08</strong> &lt;br&gt; tRC completes first project for VTrans involving traffic simulation on I-89</td>
<td><strong>6•15•08</strong> &lt;br&gt; 1st Annual Transportation Research Expo</td>
<td><strong>6•16•08</strong> &lt;br&gt; Kick-off of the Summer Transportation Institute</td>
</tr>
<tr>
<td><strong>3•27•08</strong> &lt;br&gt; US DOT RITA site visit</td>
<td><strong>3•20•08</strong></td>
<td><strong>5•16•08</strong></td>
<td><strong>4•29•08</strong> &lt;br&gt; tRC Awarded $1 million grant for “Transportation Workforce Development”</td>
<td><strong>6•16•08</strong></td>
<td><strong>6•24•08</strong> &lt;br&gt; tRC hosts Institute of Transportation Engineers (ITE) meeting</td>
</tr>
</tbody>
</table>

ANNUAL REPORT 2007 - 2008
related to sustainable transportation. The TRC, founded in 2006, serves as the host of the National University Transportation Center (UTC), funded by the U.S. Department of Transportation. The UVM Transportation Center is a UVM Matrix Center with a clear mission to involve all colleges in all aspects of Center programs and projects.