Center for Transportation and Urban Planning

Annual Report for Year II
2008-2009

for the

University of Connecticut

University Transportation Center (UTC)
We are pleased to present the second annual report of the Center for Transportation and Urban Planning – Connecticut’s University Transportation Center. The Center for Transportation and Urban Planning (CTUP) at the University of Connecticut began full-scale operations following the approval of our strategic plan in October 2007. The theme for our center is “Transportation for Smart Growth,” and in relatively short order CTUP has established a reputation as an important resource for the state of Connecticut as it grapples with the issue of smart growth.

The backdrop for the work at CTUP is the fact that over the last 60 years, vehicle miles traveled in the USA have increased almost 13 times – much faster than the rate of population growth, which has merely doubled. This rate of motorization is one reason why today, transportation accounts for 30% of USA carbon production. This continued trajectory of increased motorization also means that transportation is one of the few sectors of the economy where carbon production is still growing rapidly. Finding ways to provide people with options to meet their need for access is a core strategy for addressing carbon production and the climate change challenge. The work at CTUP is at the forefront of this effort, directly focused on finding and promoting ways to reduce motorize travel by facilitating walking, biking and transit.

The second year of operation for CTUP was highlighted by a number of national awards and recognition for CTUP researchers and students. This year CTUP researchers Wesley Marshall, Gilbert Hansen and Norman Garrick were the recipients of the Transportation Research Board’s Wootan Award for outstanding paper in policy and operations. In addition, incoming graduate student Jason Billings was awarded both an Eisenhower and an Institute of Transportation Engineering Burton Marsh Fellowship, and M.S. student Craig Yannes was the winner of the student paper competition at the 18th Annual Rural Public Transportation Conference in Omaha, Nebraska.

The year also saw the graduation of the first class of CTUP graduate students, with degrees awarded to one Ph.D. and two M.S. transportation students. In addition we also saw the graduation of our first batch of undergraduate student interns. Of this group, two elected to continue their education with CTUP faculty, joining a total of eight new students in the transportation graduate program. With this record group of new students we look forward to a successful and productive third year of operation of CTUP.

**Center Theme**

The theme of the Center for Transportation and Urban Planning is **Transportation for Smart Growth.** The theme, which directly includes the modes of walking, bicycling, transit and automobile transportation, represents the intersection of expertise of university faculty, critical needs within the State of Connecticut and the strategic goals of the Research and Innovative Technologies Administration (RITA) and the USDOT. It also provides common foci for the following core activities of the Center:

1. Competitive research grant program
2. Undergraduate multidisciplinary fellowships and internships
3. Development of a transportation lab
4. Seminar series in transportation and urban planning
5. Professional development courses and workshops

Together these activities allow the CTUP to advance research and promote transportation education, technology transfer and workforce development initiatives.

Management Structure and Principal Center Staff

The Center for Transportation and Urban Planning operates as an independent unit within the university but as a strategic partner to the Connecticut Transportation Institute (CTI). The CTUP and CTI work collaboratively on program activities in areas of overlapping interest for the two organizations.

The Center Director is Norman W. Garrick. Dr. Garrick is responsible for implementing the Center’s Strategic Plan, ensuring compliance with UTC program requirements, and representing the CTUP at internal and external meetings.

Dr. Garrick is assisted in direction and oversight of funds, personnel, and programs by a primary administrative staff from the Connecticut Transportation Institute. The Center’s day-to-day operations and activities are implemented by Program Coordinator, Stephanie Merrall, Financial Assistant, Lori Judd, and Program Assistant, Vivian Castelli.

Affiliated Faculty

The Center’s diverse group of internal and external faculty embodies a wealth of expertise in a broad range of fields.

The Center’s internal core faculty members include:

- Norman W. Garrick, Associate Professor, Civil and Environmental Engineering

- Carol Atkinson-Palombo, Assistant Professor, Geography
  Areas of Expertise: Smart Growth, Sustainable Cities, Spatial Analysis, Geographic Information Systems, Light Rail Transit, TOD

- John N. Ivan, Associate Professor, Civil and Environmental Engineering
  Areas of Expertise: Statistical Modeling of Transportation Systems, Highway Crash Prediction; Traffic Flow Characteristics and Safety, Highway Safety and Land Use

- Nicholas E. Lownes, Assistant Professor, Civil and Environmental Engineering
  Areas of Expertise: Transit Network Modeling and Optimization, Traffic Microsimulation and Driver Behavior, Traffic Engineering and Operations, Public Transportation Systems

External faculty affiliated with the Center’s research activities include:

- Amvrossios Bagtzoglou, Associate Professor, Civil and Environmental Engineering
Research Advisory Panel

An advisory panel, comprising leading representatives from national and statewide groups, supports the Center by evaluating and selecting research projects to be funded. Members include:

- A.F.M. Anwar, Associate Dean, School of Engineering, University of Connecticut
- Toni Gold, Senior Associate, Project for Public Spaces
- David Kooris, Connecticut Office Director, Regional Plan Association
- Daniel Morley, Policy Development Coordinator, Connecticut Office of Policy and Management
- Frederick Riese, Senior Environmental Analyst, Connecticut Department of Environmental Protection
- Michael Sanders, Transit Administrator, Connecticut Department of Transportation
- Peter Simmons, Office of Responsible Development Director, Connecticut Department of Economic and Community Development
- Philip Smith, Under Secretary, Connecticut Office of Policy and Management
- P. Christopher Zegras, Urban Planning and Transportation Assistant Professor, Massachusetts Institute of Technology
YEAR II ACCOMPLISHMENTS

The Center for Transportation and Urban Planning’s principal programs stress interdisciplinary collaboration and are designed to attract talented students and faculty from a variety of fields within the university to use their skills and training to tackle transportation problems. Our past year’s accomplishments in the areas of Research, Education and Technology Transfer reflect that effort.

RESEARCH

CTUP Transportation Sustainability Index

CTUP is currently working on developing an index for transportation sustainability. The basis the work is the recognition that although transportation has a significant impact on the environmental, social and economic sustainability of the society, there is a gap in the existing metrics to assess the degree to which transportation planning leads to sustainable outcomes.

The focus of the work is to help to fill this gap by developing a process for evaluating the sustainability of transportation at the statewide level. We reviewed the existing literature on indicator selection criteria, examined the construction of composite indices, and explored existing rating systems. Building on that knowledge, we created a systematic tool for assessing sustainable transportation called the Composite Index of Transportation Sustainability.

We plan to release our first ranking of the states in terms of transportation sustainability next summer. We hope that the index will call attention to the differences between the states in terms of transportation sustainability and will help to highlight the policies and practices that promote sustainable outcomes.

CTUP Funded Research Projects

In March, the CTUP issued its second annual call for research program proposals that focus on the following target areas within the Smart Growth for Transportation theme:

- Document, evaluate and disseminate transportation and land use policies that support the goals for smart growth
- Evaluate the impact of various transportation and land use systems on economic, environmental, and societal sustainability
- Develop operating protocols and designs that maximize the efficiency, convenience and competitiveness of green modes of transportation

The second call attracted five pre-proposals. Following an initial review, two full proposals were developed and submitted for consideration. In May, the CTUP Research Advisory Committee convened for a one-day meeting to evaluate progress on the existing projects and recommend new projects to be funded based on the following criteria:

1. Does the project involve both undergraduate and graduate students in research?
2. Does the project encourage cross-disciplinary and multi-school collaboration?
3. Is the project truly relevant to the CTUP theme?
4. Is the project relevant to broad, national strategic planning goals of the US Department of Transportation for research and development, including the UTC program?
5. Does the project have the potential to make fundamental research, education and policy contributions, as well as offer technology transfer and community outreach?
6. Is the project feasible within the time frame presented?

The RAC did not recommend either of the new project proposals for funding; however, they did endorse the work being done by the four existing projects and recommended that they be funded for a second year:

- **Assessing the Impact of Light Rail Transit on Land Values and Tax Revenues**
  Research Team: Carol Atkinson-Palombo, John Clapp, Nicholas Lownes, Robert Cromley

- **Green Modes of Transportation for Connecticut’s Mixed Use Developments**
  Research Team: Peter Miniutti, Edvin Yegir, Dimo Dimov

- **Reversing Urban Sprawl: A Reclaimability Index Approach for Reviving Downtown Brownfields**
  Research Team: Maria Chrysochoou, Amvrossios Bagtzoglou, Kathleen Segerson, Norman Garrick

- **A Public Transit Design for Smart Growth: Using Choice Experiments to Quantify Tradeoffs, Values and Funding Implications**
  Research Team: Nicholas Lownes, Robert Johnston, Norman Garrick

**EDUCATION**

**Interdisciplinary Graduate Seminar Series**

In conjunction with the departments of Civil and Environmental Engineering and Geography, the CTUP continued its series of educational seminars. Experts from across the nation presented the following topics designed to reinforce the smart growth in transportation theme:

- **Bridge Health Monitoring in Connecticut**
  Richard Christenson, University of Connecticut

- **21st Century Climate and Implications for Transportation**
  Anji Seth, University of Connecticut

- **Difference in Gap Acceptance of Elderly Drivers**
  Jennifer Hongmei Zhou, University of Connecticut

- **Developing a Framework for Sustainable Transportation Indicators**
  Jenna Nichols, University of Connecticut
Student Achievements

Wesley Marshall, now Assistant Professor of Civil and Environmental Engineering at the University of Colorado-Denver, was named the CTUP 2008 UTC Outstanding Student of the Year while finishing his transportation engineering doctorate. Wes earned his master’s degree from the University of Connecticut in 2006 and is a 1998 graduate of the University of Virginia. While at UConn, Wes received the Dwight D. Eisenhower Transportation Fellowship as well as the Charley V. Wootan Award for Outstanding TRB Paper in the field of Policy and Organization. Wes specializes in transportation planning, safety, and sustainability as well as urban design, congestion pricing, and parking. His recent research has included defining and measuring the street network and an empirical study considering the role of street patterns, connectivity, and network density in road safety and sustainability. Related research has focused on analyzing parking at mixed-use centers in small New England cities, investigating the effects of parking on urbanism, a reassessment of on-street parking, and developing a child pedestrian safety curriculum for the Connecticut Transportation Institute. On the basis of time spent with Sasaki Associates and Clough, Harbour and Associates, Wes has been working on planning and site design issues related to civil and transportation engineering for more than the last ten years.

Jenna Nichols and Craig Yannes were the first CTUP project supported students to graduate with MS degrees. Jenna’s thesis, “Developing a Sustainable Transportation Composite Index for Transportation Planning,” focused on developing a systematic measuring tool with the goal of evaluating the sustainability of transportation at the statewide level. In January, Jenna presented findings from this study at the annual Transportation Research Board Meeting in Washington, DC. Jenna is a 2007 graduate from the University of Connecticut with a BS in Civil and Environmental Engineering. In September, she began a career at the URS Corporation in their Rocky Hill, Connecticut office.

Craig’s thesis “The Public Value of Transit,” was based on work he performed with the CTUP project “Public Transit Design for Smart Growth.” Craig was instrumental in the organization and implementation of focus groups, pilot studies and final the full survey that was
distributed as part of this project. As an MS student, Craig also participated in studies involving traffic microsimulation and the usage of GPS in public transit network design. For his work in the latter, he won the student paper competition at the 18th Rural Public Transportation Conference in Omaha, Nebraska in October 2008. Upon completion of his studies, Craig accepted a position with Dewberry in New York City, a transportation consulting firm.

Transportation Lab

In fall 2008, we opened the CTUP Intelligent Transportation Systems for Transit Lab which features state of the art equipment and software. The lab has been used for a new transportation class and is also used heavily by the Transportation and Urban Engineering graduate students for GIS research and course work.

TECHNOLOGY TRANSFER/PUBLIC OUTREACH

Public Information and Outreach

- The CTUP web site was revised to include sections for Resources and Upcoming Events http://www.ctup.uconn.edu/


- Several presentations and media pieces were produced by Norman Garrick on issues relating to the Center’s theme of smart growth and transportation.

Invited Talks

“Re-Urbanism in America”, 2009 Lyceum Forum, Partnership for Strong Communities, March 2009, Hartford, CT


“Can Rail Save Connecticut Cities?” 16th Gallivan Conference, School of Law, University of Connecticut, February 2009, Hartford, CT
"Community Design, Transportation and Sustainability", School of Engineering Seminar, University of Vermont, October, 2008, Burlington, VT

Press Articles


FINANCIALS

Funding Sources

School: 50%  University: 50%  Federal: 50%

Expenditures

Research: 8%  Administration: 4%  Education: 24%  Technology Transfer: 64%
The U.S. Department of Transportation supports a network of University Transportation Centers throughout the nation to advance technology and expertise in transportation through combined efforts of research, education, and technology transfer. The Center for Transportation and Urban Planning began operations following enactment of the federal SAFETEA-LU legislation designating a University Transportation Center at the University of Connecticut.

**CONTACT**

**Director**  
Norman W. Garrick, Ph.D.  
Department of Civil & Environmental Engineering  
University of Connecticut  
261 Glenbrook Road Unit 2037  
Storrs, CT 06269-2037  
Phone: 860-486-2990  
Fax: 860-486-2298  
Email: Norman.Garrick@uconn.edu  
www.engr.uconn.edu/~garrick/

**Program Coordinator**  
Stephanie G. Merrall  
Connecticut Transportation Institute  
University of Connecticut  
270 Middle Turnpike Unit 5205  
Storrs, CT 06269-5202  
Phone: 860-486-6446  
Fax: 860-486-2399  
Email: Stephanie.Merrall@uconn.edu