Greetings! As the newly appointed Director of the University of Connecticut’s UTC, I am happy to welcome you, and to invite you to explore the exciting activities underway in our laboratories and classrooms. By way of an introduction, I am an assistant professor of transportation engineering at the University of Connecticut, I earned my Ph.D. at the University of Texas and am an active researcher in traffic engineering and simulation as well as public transportation systems and transportation economics.

As Director, I am committed to helping our center grow and thrive, enhancing recognition for the cutting-edge research carried out by UTC researchers, fostering interdisciplinary research collaborations, and continuing to support the development and education of the next generation of transportation professionals. I would be remiss if I failed to express my thanks to Dr. Norman Garrick, who led our UTC for the last three years.

As we in the academic realm conclude our academic year, it is worthwhile to review some of the highlights of our center over the past year. 2009-10 saw the continuation of many exciting research projects, resulting in impactful publications and presentations across the country. Fifteen graduate students were supported through UTC funding, and the center attracted nine undergraduate students to transportation research through fellowships and competitive research funding. Our UTC
chose graduate student Craig Yannes as Student of the Year, for which he was formally recognized at the Council of University Transportation Centers winter meeting. Our dynamic transportation laboratory offers visitors a prime view of exciting hands-on research and also serves as a high-tech classroom, giving transportation faculty the opportunity to introduce software and interactive content into their courses. UConn also hosted the 6th Annual New England ITE Student Symposium in the spring, bringing the event to Connecticut for the first time – our UTC researchers and students participated in and helped organize and manage the event.

Third year competitive research projects have recently been selected and awarded:

- Quantifying Transit-Oriented Development’s Potential Contribution to Federal Policy Objectives on Transportation-Housing-Energy Interactions, PI: Carol Atkinson-Palombo
- Assessing the Relationship between Transportation Mode Choice and Transportation Land Consumption, PI: Norman Garrick
- Developing an Index for Comparing Sustainability of Statewide Transportation Systems, PI: Norman Garrick
- Transportation System Sustainability and Adaptation Using Physarum Polycephalum, PI: Nicholas Lownes

These five projects capture a wide range of important transportation topics and we can all look forward to the findings and results over the next year. We are enthusiastic about where we are headed. As we prepare for the coming year and reauthorization legislation, we have realigned our activities to better capitalize on resources and emerging trends. Most notably, the name of our center will change to the Center for Transportation and Livable Systems (CTLS), with the theme of “Sustainable, Livable and Secure Transportation Systems.” The primary focus of activities within the center will not change; however, it will allow us to better leverage some of the research and technical expertise at UConn within and beyond the School of Engineering toward addressing the pressing national issues and research needs.

I look forward to serving as Director of CTLS, and I anticipate many useful, interesting and engaging activities from our center this year. A revamped website and newsletter will be publicly launched soon, which will serve to connect our researchers with the rest of the world. We’ll have a variety of workshops, presentations and other opportunities to involve and appeal to a broad array of stakeholders. If you’d like to participate, please contact me, one of the researchers, or a member of our staff for assistance. Thank you. I hope you enjoy this edition of our newsletter.

Neighborhood Land Use and Spatial Inequalities

When people think of differences between neighborhoods, usually socioeconomic or racial characteristics come to mind. However, Dr. Carol Atkinson-Palombo and Brandon Cramer from the Department of Geography wanted to create a classification system for neighborhoods based on income levels and the land uses within them. Their study area was Maricopa County, Arizona, which includes most of the Phoenix Metropolitan Area. The county is experiencing rapid growth and has a particularly large Hispanic and Native American population.

Atkinson-Palombo and Cramer used census tracts to define neighborhoods in their analysis. K-means clustering was used to divide the census tracts into different neighborhood categories. The neighborhoods were initially divided into four income-level groups and further subdivided based on the types of land uses within them. A total of fifteen different neighborhood categories were found, reflecting the vast socioeconomic and environmental diversity of Maricopa County.

It was discovered that nearly 53% of Maricopa County’s population lives in neighborhoods where the land use is overwhelmingly residential. Over 70% of the population in these residential neighborhoods is White in low-income areas and over 90% of people are White in upper middle-class areas. Rural and mixed-use
neighborhoods were also identified from this analysis, though they were much less common than residential neighborhoods.

The poorest people tend to be located in neighborhoods with a large amount of industrial land. These areas are characterized by a large Hispanic population, small homes, and low rents. Neighborhoods were also found in middle-class areas that have significantly large amounts of recreational land such as parks, golf courses, and nature preserves. Among middle-class areas, neighborhoods near agricultural land had the highest poverty rates. This may suggest that low-income residents in these neighborhoods are employed by farmers to work in nearby fields.

A large range of inequalities exist in Maricopa County neighborhoods, particularly in things like the amount of recreational and industrial land. Positive and negative externalities in people’s neighborhoods can greatly affect their health, activities, and lifestyle. For example, the childhood asthma hospitalization rate is 47% higher in low-income industrial neighborhoods compared to affluent residential neighborhoods. Understanding differences in the neighborhood environment may be a key first step in eliminating spatial inequalities.

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Delivering Green: Shrinking the Footprint of Downtown Storrs’ Food Delivery Sector

With air pollution continually rising and fossil fuel supplies dwindling, the use of the automobile in American society is becoming more and more difficult to sustain. The issue has gained prominence, but productive solutions are difficult to come by, and even more difficult to fund.

The Green Modes of Transportation: Connecticut’s Mixed Use Developments grant provided by the University of Connecticut UTC, encourages implementing smart growth transportation principles as well as interdisciplinary cooperation. The study is a research endeavor which professors at UConn have undertaken as an idea-to-implementation project. It focuses on the food delivery sector of Downtown Storrs; determining the sustainability and efficiency of the existing delivery infrastructure and then attempting to provide ‘green’ alternative systems. Currently, downtown Storrs delivery services generate anywhere from 50,000-100,000 deliveries per year with an average of 136-272 per day. On some of the busiest days of the year food delivery can top 1000 trips. The use of zero/low emission vehicles such as pedal bikes or electric cars could have a significant impact on lessening Downtown Storrs’ carbon footprint.

Led by Associate Professor Peter Miniutti, students and faculty from the School of Business, the School of Fine Arts, Department of Civil and Environmental Engineering, and Department of Plant Science and Landscape Architecture (acting in part as facilitators) came together to assess the feasibility of green modes of transportation in Downtown Storrs’ food delivery services. With this range of expertise, the team has efficiently collected data on the existing conditions of the Downtown Storrs business environment and opportunities to accommodate zero/low emission vehicles. To date the project has produced business modifications for consideration, graphic representation and communication methods, surveys and interviews for potential participants, and studies of what modes of transportation would be effective for implementation. Ultimately this will lead to the implementation of a pilot project, working with business owners to

<table>
<thead>
<tr>
<th>Mode</th>
<th>Climate</th>
<th>Infrastructure</th>
<th>Speed</th>
<th>Cost</th>
<th>Sustainability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human-Powered Bike</td>
<td>Lack of climate control can make delivery less convenient during periods of inclement weather but can be augmented.</td>
<td>Potential need for additional infrastructure (e.g. bicycles and tailgates)</td>
<td>Human powered deliveries are not as fast as cars but could be more efficient for campus deliveries.</td>
<td>Cost for bicycles is the second most expensive form of transportation for business owners and includes no fuel costs.</td>
<td>Reduces emissions and facilitates the cultural change needed for transportation in mixed use developments.</td>
</tr>
<tr>
<td>Human-Assisted Electric Bike</td>
<td>Lack of climate control can make delivery less convenient during periods of inclement weather but can be augmented.</td>
<td>Potential need for accessories to support program needs (e.g. carryons, tailgates) but not need for additional infrastructure.</td>
<td>Faster than human powered bikes but can travel at high speeds or ranges like a car.</td>
<td>Cost is relatively inexpensive ranging from 1,000 to 3,000 dollars. Cheaper than electric cars and also requires no fuel costs.</td>
<td>Reduces emissions and facilitates the cultural change needed for transportation in mixed use developments.</td>
</tr>
<tr>
<td>Electric Bike</td>
<td>Lack of climate control can make delivery less convenient during periods of inclement weather but can be augmented.</td>
<td>Potential need for accessories to support program needs (e.g. carryons, tailgates) but not need for additional infrastructure.</td>
<td>Faster than human powered bikes but can travel at high speeds or ranges like a car.</td>
<td>Cost is relatively inexpensive ranging from 3,000 to 7,000 dollars. Cheaper than electric cars and also requires no fuel costs.</td>
<td>Reduces emissions and facilitates the cultural change needed for transportation in mixed use developments.</td>
</tr>
<tr>
<td>Electric Car</td>
<td>Climate control makes delivery more convenient during periods of inclement weather such as rain and snow.</td>
<td>No need for additional infrastructure and storage space for delivery goods is plentiful.</td>
<td>Fastest form of transportation in terms of speed and also has greatest length second only to a normal car.</td>
<td>The most expensive form of transportation for any one individual business owner with prices starting around 7,000 dollars.</td>
<td>Reduces emissions but perpetuates reliance on cars, parking lots, and impervious surfaces.</td>
</tr>
<tr>
<td>Gas-Powered Bike</td>
<td>Lack of climate control can make delivery less convenient during periods of inclement weather but can be augmented.</td>
<td>Potential need for accessories to support program needs (e.g. carryons, tailgates) but not need for additional infrastructure.</td>
<td>Faster than human powered bikes and more range than electric bikes.</td>
<td>Cost is relatively inexpensive ranging from 3,000 to 7,000 dollars. Cheaper than electric cars but requires fuel costs.</td>
<td>Petroleum based form of transportation not ecologically sound. Also perpetuates reliance on cars, parking lots, and impervious surfaces.</td>
</tr>
<tr>
<td>Gas Powered Car</td>
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Vehicle Suitability Chart indicating how appropriate each mode is relative to pertinent delivery factors
This spring the UTC hosted two outstanding speakers from Portland, Oregon who spoke on different aspects of the transportation revolution that is occurring in that city.

The first speaker, Rick Gustafson of Portland Streetcar Inc visited on March 19. Mr. Gustafson presented the story of how a modern low-floor streetcar was used by the City of Portland as a key part of their development strategy for the Central City of Portland. He reported that this strategy has been wildly successful. The Portland streetcar, which began operations in 2001, has been credited with sparking a renaissance in the Central City with $3.5 billion in new development and 10,000 new residential units within 750 feet of the new streetcar line. This experience has been repeated in Seattle where a new line was opened in 2007 and now has 5,000 new residential units and over 3 million square feet of new office development.

Mr. Gustafson spoke at the 3rd Annual Connecticut Smart Growth Conference where he was the keynote speaker before a crowd of over 300 attendees. The group 1000 Friends of Connecticut organizes the Smart Growth Conference each year – this year the UConn UTC was happy to work with them to bring Mr. Gustafson to Connecticut. As part of this visit, Rick Gustafson, along with Professor Norman Garrick, appeared on the public affairs program “Where We Live” on Connecticut Public Radio Network.

The second speaker from Portland, Greg Raisman, visited UConn on March 23 where he spoke at the UConn UTC graduate seminar and at a transportation graduate class. Mr. Raisman, who is a traffic safety specialist with the Portland Office of Transportation, focused on the development of the bike network in Portland and their newly adopted bicycle master plan. This plan, which is the most ambitious in the country, is a $600 million plan designed to increase bicycle mode share in Portland to 25% by 2030. Portland, where bicycle use in the city has increased threefold over the last 15 years, is incorporating new strategies to attract a wider segment of the population to using bikes for most of their transportation needs. Mr. Raisman spoke on the details of this plan, including a new emphasis on the creation of bicycle boulevards that are also designed to be green streets with new approaches to handle stormwater.
New England ITE Student Research Symposium

The University of Connecticut Institute of Transportation Engineers (ITE) student chapter hosted the 6th annual New England ITE Student Research Symposium in Storrs, CT on April 7, 2010. The symposium focused on displaying research activities of students from across New England. Two research sessions over the course of the day – each with 3 parallel tracks – covered 22 presentations from students at four different institutions throughout New England: UConn, University of Massachusetts–Amherst, Northeastern University and University of Rhode Island. Students were asked to prepare a lecture and poster presentation, which allowed for the traditional format to be coupled with interaction with symposium attendees at the posters.

Graduate student, Jason Zheng, presented on his UTC-funded research project “Development and Application of a Composite Index for Transportation Sustainability,” which focuses on developing, creating and testing a comprehensive metric for assessing the broader outcomes of transportation systems.

The keynote speaker at lunch was Connecticut Department of Transportation Commissioner Joseph Marie who spoke candidly about the current economic situation and its effect on transportation, and the role of graduate student research in the future of transportation. There were over 100 people in attendance during his address – a turnout that exceeded expectations.

UConn UTC Director Nick Lownes provided the dinner address, “Transportation Research: UConn’s Role in a National Challenge,” discussing the resources and talent available through the UConn transportation centers, thoughts on the national transportation research agenda, and how industry-academia partnerships present exciting opportunities for collaboration.

The ITE Student Research Symposium series is an annual event that rotates among the New England ITE institutions, and we hope to see it back in Connecticut again soon.