

# FLOW

*Moving People and Ideas*



Center for Urban  
Transportation Research  
University of South Florida

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## Technology Transfer Activities at NCTR a Top Priority

One of NCTR's missions is to conduct widespread technology transfer activities to share the results of its research with the profession and others. Through listservs, netconferences, research reports, and its website, NCTR fulfills this goal, providing information throughout the U.S. and the world. Following is information on NCTR's technology transfer activities in 2009.

### Current Listservs

NCTR currently has nearly 4,100 active subscriptions to its public trans-

portation-related listservs, an overall net increase of 550 subscriptions (16%) in FY09.

### Netconferences in 2009

#### "Connecting TDM and Climate Change" Netconference

This netconference was held on February 12, 2009, by the National Center for Transit Research's National TDM and Telework Clearinghouse and the Association for Commuter Transportation (ACT).

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<i>Listserv</i>	<i>Type</i>	<i>Subscribers (as of 6/30/09)</i>	<i>FY09 Net Change in Subscribers</i>
BFM-General (transit maintenance)	Discussion Forum	252	+22%
Bus Rapid Transit (BRT)	Discussion Forum	356	+6%
Journal of Public Transportation (JPT)	Announcement	408	+5%
National Center for Transit Research (NCTR)	Announcement	933	+6%
Parking Management (Parking)	Discussion Forum	198	+36%
Rural Transit Assistance Program (RTAP)	Discussion Forum	91	+6%
Sustainable Transport Indicators	Discussion Forum	145	+26%
Telework	Discussion Forum	261	+15%
Transportation Demand Management (Transp-tdm)	Discussion Forum	1453	+25%

To subscribe to any of the above listservs, go to [http://lists.cutr.usf.edu/read/all\\_forums](http://lists.cutr.usf.edu/read/all_forums)

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**We're on the web!**  
[www.nctr.usf.edu](http://www.nctr.usf.edu)

NCTR is located at the University of South Florida's Center for Urban Transportation Research and is a federally-designated University Transportation Center, receiving annual grant funding from the Research and Innovative Technology Administration of U.S. DOT, with matching funds from the Florida Department of Transportation.



**NCTR's Strategic Theme**

*"To enhance the performance and relevance of public transportation and alternative forms of transportation in urban areas."*

## Director's Message

As the Obama administration and Congress go about the business of writing a new surface transportation authorization bill, many questions on how it will be funded have yet to be resolved. At this stage, it appears there is considerable support for increased investment in public transportation. Major committee chairs and administration officials all seem to understand and articulate the important links between transportation, energy, land use, climate change, and the economy. There is also a new emphasis on results-oriented investments in terms of reducing carbon emissions, highway congestion, and the use of foreign energy sources. This re-examination of the purpose of transportation investments is the most exciting development in transportation policy since the decision to fund the Interstate Highway System 50 years ago.

NCTR concentrates on research intended to advance the state of the practice of public transit, alternative means of transportation, and managed lanes. On average, we produce a new research report each month to help improve the performance and relevance of these modes of transportation and their interaction with the other modes of our transportation system. Recently, NCTR completed reports that provide the best practices in transit service planning and the provision of paratransit services in an efficient and fair manner. NCTR research faculty and student assistants are finding new ways to provide enhanced security for transit facilities and passengers through inexpensive sensor-based intrusion

detection systems that remotely monitor and notify on- and/or off-site personnel of incidents to significantly multiply the observational effectiveness of safety or security personnel. Our faculty also have worked with the Federal Transit Administration to develop more efficient and accurate ways for all transit agencies to record their ridership for the purposes of comparing performance and fulfilling federal requirements for continued funding.



Our *Journal of Public Transportation* continues to be published quarterly, with more than 2,000 subscribers worldwide, and more than 4,000 professionals and students share information through our listservs. Students from many disciplines continue to contribute to research as they pursue their degrees in fields related to transportation. The transportation courses being offered here at USF are described in this issue, and all but one can be taken via distance learning. We are also preparing for our fourth "GIS in Transit" conference to be held in St. Petersburg in November.

Please take a few moments to scan our newsletter and see if what we have done recently could be useful to you or others with whom you work. As always, we invite you to visit our website at [www.nctr.usf.edu](http://www.nctr.usf.edu).

**Joel Volinski**  
 Director, NCTR

*As energy prices skyrocket and global climate change becomes an increasing concern, there has been a focus on alternative fuels and smart-growth land-use practices to address green house gas emissions.*

*Technology Transfer—from page 1*

According to the U.S. EPA, the transportation sector directly accounted for approximately 28 percent of the total U.S. green house gas (GHG) emissions in 2005 – higher than that of the industrial, commercial, and residential sectors. Transportation is the largest end-use of carbon, which is most prevalent in GHG. Simultaneously, our urban and suburban areas are expanding, causing an increase in vehicle miles traveled (VMT). VMT per household increased from 12,400 miles per year in 1969 to 21,200 miles per year in 2001, a 70% increase. During the same period, VMT for commuting to work increased from 4,180 miles to 5,720 miles (37%).

As energy prices skyrocket and global climate change becomes an increasing concern, there has been a focus on alternative fuels and smart-growth land-use practices to address green house gas emissions. Both are valuable tools in tackling climate change. But these are only two legs of a three-legged stool. Many businesses, organizations, and communities are focusing their efforts on providing alternative options, incentives, and enhanced infrastructure that



promote and foster non-single-occupant vehicle commuting – in other words, transportation demand management (TDM).

This netconference panel framed the connection between TDM and climate change and showcased businesses and communities that have developed and implemented sustainable TDM programs that reduce mobile source green house gas emissions, create improved access, reduce energy consumption, and achieve cost savings.

Speakers:

- **Dr. Daniel Rodriguez of the University of North Carolina** provided the overview and context.
- **Paulo Nunes-Ueno of Seattle Children's Hospital** provided details about their Corporate TDM Program and associated carbon benefit.
- **Erika Vandenbrande of the City of Redmond (Washington) Planning Department** presented information on an excellent municipal TDM program that promotes TDM and collects CO2 reductions.

The on-demand streaming recording of this 74-minute netconference can be found at <http://www.nctr.usf.edu/clearinghouse/netconference/netconnectingtdm.htm>.

**"Strategic Marketing: The Truth About Gender and Generational Commuting Trends – and Its Consequences" Netconference**

This netconference was held on May 27, 2009, by the National Center for

*A recent ACT survey found that nearly 9 out of 10 members agreed that it is important to customize TDM marketing messages for each generation, but very few do.*

Transit Research's National TDM and Telework Clearinghouse and the Association for Commuter Transportation (ACT).

While traffic may be standing still, changes in gender and generational commuting trends are not. These changes will provide significant marketing challenges and opportunities for the transportation demand management (TDM) and public transportation communities. A recent ACT survey found that nearly 9 out of 10 members agreed that it is important to customize TDM marketing messages for each generation, but very few do. This session provided information to improve understanding of those gender and generational trends as TDM and transit agencies develop strategic marketing plans.

#### **Speakers:**

- **Dr. Randall Crane of UCLA** presented "Does Gender Matter? Changes, Choices and Consequences for Transportation Policy." He reviewed the broad demographics of travel demand and identified which demographics will influence demand the most – and the least. He discussed why gender travel patterns change, how these changes are influencing demand, and what the implications are for influencing travel behavior. He briefly discussed what transportation agencies can do to plan for these changes.
- **John W. Martin of Southeastern Institute of Research & The Boomer Project** presented "Using A Generational Lens to Advance Non-Drive Alone Alternatives in America," includ-

ing an overview of the four generations of commuters: Silent, Boomers, Gen Xers, and Millennials (Gen Ys). He shared an easy way to understand their differences and what motivates them to rideshare and concluded with recent findings of a survey that examined the willingness and propensity of the various generations for using alternatives to driving alone.

The on-demand streaming recording of this 76-minute netconference can be found at <http://www.nctr.usf.edu/clearinghouse/netconference/netgendermarketing.htm>.

## **Research Reports**

### **"Impacts of More Rigorous ADA Paratransit Eligibility Assessments on Riders with Disabilities"**

Due to the ever-increasing demand for complementary ADA paratransit trips, transit agencies have instituted a number of actions related to reducing the costs of this type of service, including steps to limit the demand through stricter and more complex ADA paratransit eligibility processes. This document summarizes these actions.

### **"Best Practices in Transit Service Planning"**

The provision of cost-efficient and effective bus transit service is the basic premise upon which transit service is developed and the goal that all public transportation agencies strive to achieve. To attain this goal, public transit agencies must design their services around clear and defined principles, as well as a process to monitor the results achieved and re-

respond accordingly. This requires service design standards, an effective performance measurement system, and a systematic and continuous service evaluation methodology. This report summarizes the best practices in transit service planning.

### **“Development of an NTD Tool for Vanpool Services”**

The National Transit Database (NTD) has requirements for how providers of vanpool services collect and report data on service consumed and service provided. Current practices, however, often deviate from these require-



ments. Such deviations lead to poor data for policy decision-making and can result in less funding from the Urbanized Area Formula Grant Program. This report provides a spreadsheet template and related guidance to help providers of vanpool services better meet the NTD requirements.

### **“Integrating Transit and Urban Form”**

This study developed an integrated behavioral model of transit patronage and urban form. Although focused on transit, the framework easily can be generalized to study other forms of travel. Advanced economic models are used to test specific behavioral hypotheses developed in the theoretical models. Findings are then sum-

marized in a succinct fashion showing the relevance and magnitude of the impact of land use on transit demand. The empirical models also quantify these relationships in the form of point elasticity estimates that can be used as indicators of the relevance of transit supply measures. This work summarizes the study results, an exposition of the methodology, and provides tables that lay out the findings in a readily accessible format.

### **“Development of Comprehensive Guidance on Obtaining Service-Consumed Data for NTD”**

This document proposed to establish a National Transit Database Sampling Manual. It was developed for the Federal Transit Administration to replace its current guidance (circulars 2710.1A and 2710.2A) to transit agencies on how they may estimate service consumed data through random sampling for the NTD. It is accompanied by an Excel-based template for transit agencies to develop customized sampling plans with sample data from their own services. The FTA is expected to formally adopt a shortened version of this proposed NTD Sampling Manual. The best practices presented and the template are useful for transit agencies to reduce their reporting burdens while meeting FTA’s requirements.

### **“Enhancing Transit Safety and Security with Wireless Detection and Communication Technologies”**

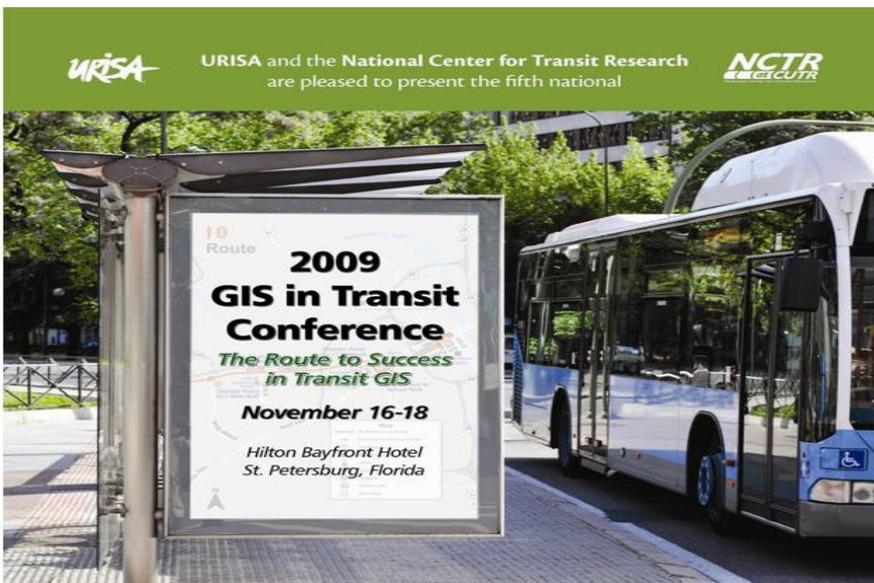
Public transportation systems are among the most open public facilities in the world and susceptible to breaches of security. Reconciling the

need for workplace safety and security with budgetary pressures requires new approaches to increase the effectiveness of existing solutions while preserving flexibility and low costs. An inexpensive sensor-based intrusion detection system that remotely monitors and notifies on- and/or off-site personnel of incidents can significantly multiply the observational effectiveness of a few onsite safety or security personnel monitoring a facility. The advancement in the miniaturization of circuits has produced small computing devices allowing the development of pervasive applications that only a few years ago were not possible. The combination

of such devices with wireless networks and micro-electro-mechanical systems technology provides a new platform for research and development of innovative monitoring applications.

### “Synthesis of Research on Value of Time and Value of Reliability”

The objective of this study was to compile and synthesize current and past research on the value of time (VOT) and the value of reliability (VOR). Findings are summarized into an application-oriented document to provide practitioners with applicable ranges of estimates that can be used in project evaluations.



## 2009 GIS in Transit Conference

URISA and NCTR are pleased to present the **5th National (2009) GIS in Transit Conference: The Route to Success in GIS** from Nov. 16-18 in St. Petersburg, Florida. Don't miss this one-of-a-kind conference, which offers GIS in transit professionals an excellent opportunity to learn from industry experts, attend professional development training, learn about research up-

dates and new technologies, and network with their peers.

Session topics include:

- Asset Management - Planning, Strategy, and Implementation
- Free and Open Source GIS
- Transportation Spatial Database Design
- Analysis of Fare Data
- Marketing and the Customer
- Network Modeling
- Google Transit - GTFS Data Standards with Open Innovation
- Data and Systems Management
- Software Route & Trip Planning
- ITS/AVL/CAD
- Planning Transit Access
- Transit Map Making
- Enterprise Data Model

Ms. Polly Okunieff of ConSysTec will be the keynote speaker.

To register for the conference, visit [http://www.urisa.org/gis\\_transit](http://www.urisa.org/gis_transit)



## **NCTR Student of the Year 2009**

### **Sean Barbeau**

Sean Barbeau has been selected as NCTR's Student of the Year for 2009. He is pursuing a Master's degree in Computer Science and a Ph.D. in Computer Science and Engineering at USF and is a member of the CUTR and NCTR research faculty.

Activities Sean conducts as both a student and a researcher include researching and developing location-aware cell phone technology, supervising students on software engineering project tasks, and managing intellectual property and information technology infrastructure for projects. He is a co-founding faculty member of the USF Location-Aware Information Systems Laboratory. His research includes serving as the Principal Investigator or co-PI on several NCTR projects that have focused on innovative uses of Global Positioning System (GPS)-enabled cell phones to solve transportation problems. These projects include "Testing the Impact of Personalized Feedback on Household Travel Behavior (TRAC-IT Phase 2)," "Smart Phone Application to Influence Travel Behavior (TRAC-IT Phase 3)," "Enhancing Transit Safety and Security through Wireless Detection and Communication Technologies," and "Travel Assistant Device (TAD) to Aid Transit Riders with Special Needs."

Sean's contributions to NCTR were nationally and internationally recognized in 2008 with seven peer-

reviewed papers and presentations for a variety of organizations, including the 15<sup>th</sup> World Congress on Intelligent Transportation Systems, *Computer Communications* magazine, and UBICOMM 2008, The Second International Conference on Mobile Ubiquitous Computing, Systems, Services, and Technologies in Valencia, Spain. The "Travel Assistant Device" project, which aimed to increase the independence and quality of life for special-needs transit riders, continues to receive attention and was recognized in the "2008 TCRP Synthesis 73 – AVL System for Bus Transit: Update, the Microsoft Research Workshop on Intelligent Systems for Assisted Cognition," as well as local print and broadcast media.

Sean was a co-recipient of USF's 2008 Excellence in Innovation Award for the work performed on NCTR projects. Also in 2008, he was issued one copyright and filed five patents on location-aware technology produced under the NCTR projects. He is a member of the Java Specification Request (JSR) 293: Location API v2.0 international expert group, which is responsible for defining the next-generation software standard for Java Micro Edition (Java ME) for mobile phones.

NCTR has recognized Sean's outstanding dedication to excellence and innovation and looks forward to his continued contributions to the world of public transportation.

## ***USF/CUTR Graduate Transportation Course Offerings for Fall Semester 2009***



USF offers a variety of graduate transportation courses to support professional development and academic advancement. Shifting national priorities, increasing interest in transportation infrastructure investment, urban development and sustainability concerns, transportation safety worries, and the pending reauthorization of federal transportation legislation all suggest a growing reliance on well-informed transportation professionals. There is no better time than now for professionals to update their skills and knowledge base. Also, it has never been more convenient, with opportunities to attend evening classes at USF or participate via distance learning using the internet at whatever time and place are convenient.

### **Course Descriptions**

**TTE 5205:** Covers a range of transportation engineering concepts including fundamental traffic models, capacity and level-of-service analysis, intersection analysis, traffic signal timing, and traffic simulation.

**TTE 5501:** Presents an overview of urban transportation planning and transportation systems evaluation including travel demand modeling based on trip generation, trip distribution, modal choice, and trip assignment.

**TTE 6270:** Deals with ITS, ITS architecture design and evaluation, simulation and modeling, advanced traffic management systems, traveler information systems, vehicle control systems, etc.

**CGN 6933:** Covers a range of theories, concepts and models of land-use and urban transportation interactions and relevant transportation planning and policy discussions.

**TTE 6505:** Presents methods of data analysis and statistical modeling of travel behavior using discrete choice modeling methods (such as multinomial logit models of mode choice, and destination choice) and software.

**Non Degree-Seeking Students:** Non-degree seeking students can submit an enrollment application form prior to course registration at <http://www.usf.edu/Admission/non-degree-seeking.asp>. Once the application is processed and the \$30 fee is submitted, registration is allowed for classes through USF's OASIS system beginning August 17.

For questions and approvals before enrolling in a course, non-degree seeking and non-engineering students are encouraged to contact Dr. Abdul Pinjari in the USF College of Engineering ([apinjari@eng.usf.edu](mailto:apinjari@eng.usf.edu); 813/974-9671) or Dr. Steve Polzin at CUTR ([polzin@cutr.usf.edu](mailto:polzin@cutr.usf.edu); 813/974-9849).

<b>Course</b>	<b>Number</b>	<b>Schedule</b>	<b>Instructor</b>
Traffic Systems Engineering*	TTE 5205	Tue 5:15 – 8:00pm	Dr. John Lu
Transportation Planning and Economics*	TTE 5501	Mon 6:20 – 9:05pm	Dr. Chanyoung Lee
Intelligent Transportation Systems*	TTE 6270	Wed 6:20 – 9:05pm	Dr. John Lu
Land Use and Transportation*	CGN 6933	Thu 5:15 – 8:00pm	Dr. Steve Polzin
Discrete Choice Models of Travel Behavior	TTE 6505	Mon 3:05 – 5:50pm	Dr. Abdul Pinjari

\* These four courses are offered for distance-learning students also (via video streaming of the lectures on the internet). Students can listen to the recorded lectures at a time convenient for them. For more information on registering for distance-learning, contact APEX at 813-974-3783 or <http://apex.eng.usf.edu/>