

# National Center for

## National Center for Transit Research



Annual Report  
October 2011

# Transit Reso

National Center for  
Transit Research

National Center

## Message from the Director—Research that Makes a Difference


The goal of the National Center for Transit Research (NCTR) at USF is to help develop public transportation services and alternative transportation options that are safe, efficient, effective, desirable, and secure. As funding for transportation becomes more difficult to secure due to a sluggish economy, the role of University Transportation Centers becomes even more important to our nation's transportation system. The research we conduct is intended to help transit agencies decrease the number of accidents, increase the number of riders, and improve the efficiency of their operations. All of our projects are intended to ultimately reduce transit operating costs, increase revenues, and improve the quality of service the public receives.

NCTR has always stressed the importance of sharing information and technology transfer, but we are giving even more attention to the dissemination of research results. Beyond the standard placement of research results on our website, NCTR has established a bi-weekly series of netcasts that is free for anyone to watch on a live basis or recorded basis. These netcasts summarize the results of research projects and allow for questions to be asked of the presenter. In addition to sharing NCTR research results, these netcasts provide opportunities for guest lecturers from other organizations to present results of their research or programs.

Education and training remain the bedrock purpose of all UTCs, and NCTR helps to enhance the skills of the current workforce while also preparing the future generation of public transportation professionals. The competition among the many professions for future talent remains high, even with a slow economy. NCTR faculty teach courses in public transportation that are offered on campus and through Internet-based distance learning classes. The results of research completed by NCTR are incorporated into the classes taught to help keep the content current and relevant to today's issues. USF is a contributor to the new national online Transportation Leadership Graduate Certificate Program developed for busy transportation professionals looking to keep their skills and knowledge current.

NCTR researchers are members of more than 40 state and national professional transportation committees and routinely exchange information with many hundreds of colleagues on a person-to-person basis. The number of transportation professionals and students who are members of NCTR-managed listservs now exceeds 5,200 and continues to grow. These listservs allow for fast and flexible opportunities to get answers to a variety of questions from fellow professionals who need solutions to local transportation challenges.

We express our gratitude to the U.S. DOT for entrusting NCTR to help it meet its goals of safety, state of good repair, economic competitiveness, livability, and environmental sustainability. We are also very grateful for the financial support received from the Florida Department of Transportation, which has provided the match to our federal grant and has managed and reviewed the vast majority of the research we have done. We are about to engage in our third competition to retain our status as a federally-funded University Transportation Center, and we hope we will continue to have the privilege of serving U.S. DOT, FDOT, the transportation community, and the general public.



Joel Volinski, Director  
National Center for Transit Research at USF



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## Introduction

In September 1999, the National Center for Transit Research (NCTR) was approved for funding by the U.S. Department of Transportation's Research and Special Programs Administration (since renamed the Research and Innovative Technology Administration, RITA). The NCTR program builds on the goals and philosophies of the National Urban Transit Institute, which was established at the Center for Urban Transportation Research (CUTR) at the University of South Florida (USF) in Tampa by the Intermodal Surface Transportation Efficiency Act of 1991.

## Theme of NCTR

The theme of NCTR is to make public transportation and alternative forms of transportation, including managed lanes, safe, effective, efficient, desirable, and secure. The goals of NCTR are to minimize traffic congestion, maximize mobility options, promote safety and security, improve the environment, and enhance community sustainability. This is accomplished by conducting applied and advanced research, energetically disseminating the results, and expanding the workforce of transportation professionals through education and training to address the challenges and opportunities of the future.

NCTR's theme is consistent with the strategic goals of the U.S. DOT. Public transportation must become a more prominent mode of transportation as our population increases and ages, funding of highway infrastructure becomes more expensive and difficult to secure, congestion reduces the efficiency of the economy, gas becomes scarcer and more expensive, concern for the environment continues to increase, and our reliance on oil puts our national security at severe risk. More attractive public transportation services and managed lanes can provide more choices to the traveling public and business community to complement and supplement the highway construction that will be undertaken.

NCTR also focuses on research that promotes travel choices for all trip purposes and improves transportation system reliability. Research includes enhancements in the use of alternative forms of travel and practices such as managed lanes, telework, flexible work hours, congestion pricing, traveler information, ridesharing, and bicycling and pedestrian modes. In addition, NCTR researchers conduct research that helps advance the use of alternative fuels and technologies that help protect the environment while enabling traffic to move more safely and smoothly.



## Organizational Structure of NCTR

NCTR is housed within the Center for Urban Transportation Research in the College of Engineering at the University of South Florida. Key personnel of NCTR include:

Director  
Administrative Director  
Education Director  
TDM Program Director  
Transit Training Program Director  
Transit Management and Innovation Director  
NCTR Program Assistant

Joel Volinski  
Dennis Hinebaugh  
Steve Polzin  
Philip Winters  
Lisa Staes  
Rob Gregg  
Lisa Ravenscroft

Being housed at CUTR gives NCTR the enormous advantage of being part of a large and extremely active transportation research center. The faculty and students at CUTR represent the largest concentration of public transportation researchers in a single university in the country, and possibly the world. This concentration of talent and research provides opportunities for education and professional capacity-building within the center. Extensive technology transfer activities ensure that research results are available to potential users in a form that can be implemented, used, or otherwise applied.

## Program Overview

### Funding

NCTR has completed its 12th year, having been approved for funding in September 1999. The federal funding for this program helps to significantly expand the area of public transportation research already conducted by CUTR researchers over the last 21 years. Federal funds for the program are matched with a 100% cash match from the Florida Department of Transportation (FDOT). These matching funds are made available at a 10% indirect rate, compared to the federal indirect rate of 49%, resulting in a significant increase in direct funds available for public transportation research. FDOT's commitment to match this grant was secured before July 1999, and the relationship remains strong, with FDOT committed to providing matching funds for the duration of the program. FDOT also has designated two senior members of its management staff to serve on the NCTR Advisory Board to help select future projects and guide the program.

### NCTR Advisory Board

The NCTR Advisory Board was created during the first six months of the program and consists of 14 experts in the public transportation community with knowledge in the areas of public transportation research, transit planning and operations, and alternative forms of transportation. The members and their affiliations are as follows:

*Mike Baltés*  
ITS Program Manager  
Federal Transit Administration

*Joe Calabrese*  
General Manager  
Greater Cleveland Regional Transit Authority

*Ed Coven*  
State Public Transit Office Manager  
Florida Department of Transportation

*Darryl Dockstader*  
Director, Office of Research  
Florida Department of Transportation

*Tim Garling*  
Executive Director  
Pinellas Suncoast Transit Authority

*Dr. Minnie Fells-Johnson*  
Public Transportation Consultant  
Board Chair, Project for Public Spaces

*Dr. Wendell Joice*  
Director, International Telework Assoc. &  
Council

*Perry Maull*  
Operations Manager  
Indiana University Campus Bus  
Service

*Bill McCloud*  
Senior Vice President & C.O.O.  
Veolia Transportation

*Jose-Luis Mesa*  
Director, Miami-Dade MPO

*Louis Sanders*  
Director of Research and Technology,  
APTA

*Eric Schreffler*  
Director of Research, TDM Institute  
Association for Commuter Transportation

*Donna Vlasak*  
Senior Program Officer  
Transportation Research Board

## Year 12 Accomplishments

### Research

The 12th year of the NCTR program (FY 2011) has supported 14 projects approved by the NCTR Advisory Board. These projects consist of 4 core programs that will be conducted throughout the life of the NCTR program and 10 newly-selected research projects that explore methods to accomplish the goals of the U. S. DOT and NCTR in enhancing the performance of public transportation.

Core program areas include continued development and maintenance of:

- National Transportation Demand Management (TDM) and Telework Clearinghouse
- ongoing production of teleconferences and webcasting
- graduate student professional development
- *Journal of Public Transportation*

In FY 2011, in addition to projects that fall into these core program areas, research topics were solicited from public transportation professionals throughout the U.S. and Canada. More than 75 research ideas were received, and 10 were selected for funding:

- Best Practices in Bus Dispatch (*Chris Deannuntis, CUTR, 77930*)
- Assessing the Impact of Proposed Transit Investments and Public Policy Choices on Land Use Patterns (A Simulation Approach with UrbanSim) (*Chanyoung Lee, CUTR, 77931*)
- Estimating Costs and Benefits of Emissions Reduction Strategies for Transit by Extending the TRIMMS Model (*Sisinio Concas, CUTR, 77932*)
- Dynamic Delivery of the National Transit Database Sampling Manual (*Xuehao Chu, CUTR, 77933*)
- Analysis of the Implementation Status of the Impact of Transit Research (*Michael Audino, CUTR, 77934*)
- Development of a Regional Public Transportation GIS Architecture and Data Model (*Sean Barbeau, CUTR, 77935*)
- Quantifying the Benefits of the TRIP Program (*Jan Davis, CUTR, 77936*)
- A Guide to Design, Policies, and Operational Characteristics for Shared Bicycle/Bus Lanes (*Ed Hillsman, CUTR, 77937*)
- Field Evaluation of Yield-to-Bus Roadside Treatments and Bus Pullout Bays Design Characteristics (*Pei-Sung Lin, CUTR, 77938*)
- Forecasting Paratransit Services Demand - Review and Recommendations (*Jay Goodwill, CUTR, 77939*)

The following indicates the titles and project numbers for the 10 NCTR research projects completed during FY 2011. A sample summary of three of these projects follows in the text below. All of these projects are available in HTML and PDF formats on the NCTR website at [www.nctr.usf.edu](http://www.nctr.usf.edu).

#### **Summary Listing of Completed Research Projects in FY2011**

- Travel Assistant Device - Deployment to Transit Agencies (*Sean Barbeau, CUTR, 77904*)
- Evaluation of Camera-Based Systems to Reduce Transit Bus Side Collisions (*Pei-Sung Lin, CUTR, 77905*)
- Assessing Air Quality Impacts of Managed Lanes (*Amy Stuart, Environmental Engineering, 6402-1041-00*)



- Developing a Framework for a Toolkit for Carbon Footprint that Integrates Transit (C-FIT) (*Sara Hendricks, CUTR, 77909*)
- Moving the Bus Back into Traffic, Phase 2 (*Pei-Sung Lin, CUTR, 77910*)
- Development of a Program Assessment Instrument for the Certified Transit Technician Program, Phase One (*Steve Reich, CUTR, 77911*)
- Florida Bus Maintenance Staffing Practices (*Jay Goodwill, CUTR, 77924*)
- Exploration of Transit's Sustainability Competitiveness (*Steve Polzin, CUTR, 77925*)
- Enabling Cost-Effective Multimodal Trip Planners through Open Transit Data (*Ed Hillsman, CUTR, 77926*)
- High Speed Rail (HSR) Station Area Access (*Rob Gregg, CUTR, 77928*)

### **Summaries of Selected Completed Projects in FY2011**

#### *Evaluation of Camera-Based Systems to Reduce Transit Bus Side Collisions*

Mirror-based systems have evolved over the years because of the need to provide a better view to the driver and now include more than one mirror with different magnifications. However, current mirror-based systems have several limitations. First, they do not cover the whole side area of the vehicle, thus leaving what are referred to as “blind zones.” This brings the bus driver into situations where he/she cannot see vehicles approaching from the side in some situations, especially during lane-changing maneuvers. Second, they are less effective during adverse weather, such as rain or fog. And finally, they are required to be large in size and extend out of the vehicle’s perimeter in order to provide the necessary view to the driver. Since transit buses come very close to the edge of the pavement to pick up standing pedestrians and passengers, a mirror that extends out of the bus footprint is not desirable. There have been reported cases where a pedestrian was struck by the mirror from a passing bus.



A potential countermeasure to this problem is the use of camera-based systems. The camera-based system for transit buses under evaluation in this study is a system that incorporates video cameras installed on the outside walls of the bus, aimed at the left and right rear sides of the bus, and two monitors connected inside the bus to provide the driver with an image from the cameras. This study evaluated the effectiveness of camera-based systems to reduce transit bus side crashes by measuring the reduction of blind zones and analyzing the results of controlled driving tests and driver surveys using sideview video systems.

This project had five primary objectives: Compare available systems, including mirror-, sensor-, and camera-based technologies, to reduce transit bus side and other collisions; measure blind zone reductions on the side of common types of transit buses using camera-based systems; conduct and analyze transit bus driving tests with and without camera-based systems in a controlled environment; conduct and analyze transit bus driver surveys on driver satisfaction for using camera-based systems on lane changes; and provide major findings and recommendations.

The comparison of mirrors and camera systems from this study showed that the side blind zones that exist due to the mirrors’ inability to cover the area were greatly reduced or eliminated when using the sideview video system with wide-angle cameras. The result from volumetric measurements of blind zone reduction from this study showed that the camera-based system with a regular-angle lens (no distorted image) can reduce about 64% of the blind zones of a flat mirror system. It can reduce about 43% of blind zones of a common combined flat and convex mirror system. Using a wide-angle lens, the blind zones on both sides of transit buses can be completely eliminated.

The camera-based technology for transit buses to reduce blind zones is fairly new, so there are no crash data associated with the implementation of the technology. The approach selected in this study was to closely evaluate the aftermarket sideview video system using a controlled driving test that simulated reality scenarios. A total of 28 bus drivers performed the controlled driving tests using and not using the sideview video system. It was found that most bus drivers were able to adapt to the sideview video system and quickly learn how to use the system to drive without mirrors. While using the video system, the bus drivers could perceive distances similar to the mirrors while the bus was in motion. By using the sideview system, bus drivers could still see the vehicle in the blind zone of the mirrors; thus, the controlled driving test confirmed the great potential of camera-based systems to reduce transit bus side collisions caused by the blind zones of mirrors.

Driver surveys were taken by the drivers before and after the controlled driving test to provide valuable feedback on the sideview video system. It was found that bus drivers valued the benefits of having the sideview video system. The majority of drivers agreed that the sideview video system can be useful in helping them to see passengers better and to observe vehicles in the next lanes during lane changing maneuvers. They agreed that the system can minimize or eliminate the side blind zones of the bus. The majority agreed that the mirrors become less effective during rainy weather and that it is difficult to identify a person with them at night. It was observed in this study that the sideview video system with infrared sensors could perform better than the mirrors in dark conditions and in rain. Also, the wide field of view provided the drivers with a much better sideview, thus creating great potential to avoid vehicles during lane-changing maneuvers. Overall, the majority of the participating bus drivers valued and liked the sideview video system, but they were not completely confident about replacing the mirrors with the system used in the controlled driving test without further enhancement. The survey result suggested that the reliability of the sideview video system needs to be further explored and that the system setup can be further improved.

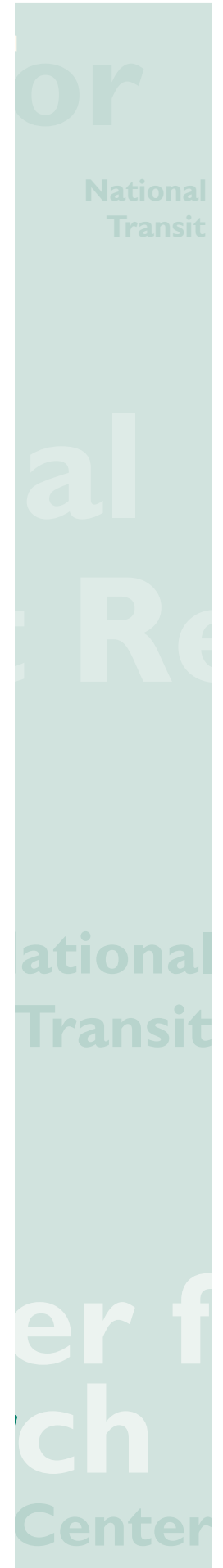
The reduction of transit bus side collisions can significantly improve the safety of transit bus operations and save lives. It is also important to note that the sideview video systems tested in this study were available as aftermarket systems designed and manufactured to provide additional side views of the vehicle, but were not perfect and were not designed to be used in place of mirrors. Therefore, the existing sideview video system has great potential to be further enhanced and evaluated for use in the field to replace mirrors.

If sideview video systems can be enhanced and implemented in a widespread manner in the future, they can save lives, significantly reduce the number of side crashes due to blind zones of mirrors, decrease crash-related costs, and eliminate the possibility of hitting waiting passengers with mirrors. The successful implementation of sideview video systems on transit buses in Florida will have considerable safety, economic efficiency, and reputation benefits.

This NCTR research project was conducted by Dr. Pei-Sung Lin (PI), Dr. Chanyoung Lee, Dr. Achilleas Kourtellis, and Ms. Meeta Saxena under the guidance of Ms. Erin K. Schepers, FDOT Project Manager. For more information, contact Dr. Lin at [lin@ctr.usf.edu](mailto:lin@ctr.usf.edu).

#### *USF Licenses NCTR's Travel Assistance Device Technology*

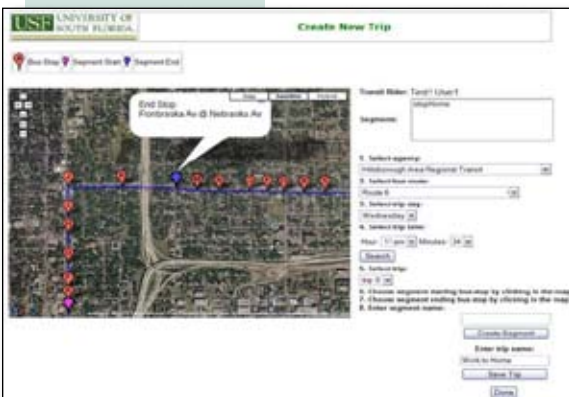
For individuals with cognitive disabilities, it is especially daunting to plan and execute a trip via public transportation without any personal assistance, especially on their first few trips. Transit agencies are also frequently overwhelmed with the cost of providing paratransit (door-to-door) service (~\$27.31 per trip) when a rider cannot use regular fixed-route transit services (~\$2.75 per trip). Paratransit can also be limiting to riders, since advance registration of 24 hours is often required to book trips and there are often long waiting times. Therefore, it is



in the interest of both the transit rider and the transit agency to support technologies that can aid individuals to travel independently using fixed-route public transportation.

The Travel Assistance Device (TAD) is a patent-pending mobile application for global positioning system (GPS)-enabled cell phones that helps transit riders navigate the public transportation system. TAD prompts the rider in real-time with a recorded audio message (for example, “Get ready” and “Pull the cord now!”), visual images, and vibration alerts when the rider should pull the stop request cord to exit the bus. Personalized trips are planned for each traveler using the TAD web page. Automated alarms can be triggered and the travel trainer and/or parent/guardian remotely alerted in case a rider wanders off his/her pre-determined path. Traditional phone communication is possible between the rider and the trainer, allowing guidance of the rider to the correct location if lost.

USF developed the initial TAD prototype in 2008 under a research project funded by NCTR and FDOT. Hillsborough Area Regional Transit Authority (HART) assisted USF in successfully testing the TAD mobile app on an actual transit system to ensure that technology developed in the lab would be useful in the real world.



In 2010, USF completed a follow-up project funded by NCTR and FDOT that successfully tested deployments of TAD in Miami-Dade, Broward, Sarasota, and Pinellas counties in Florida. USF developed a software tool to import each agency’s General Transit Feed Specification (GTFS) data in order to automatically add and update transit data for each public transportation system, a critical feature for TAD deployments to many different cities. Using off-the-shelf, GPS-enabled phones with the TAD mobile application, testers at each participating agency were able to successfully receive the prompts to exit the bus at the expected locations.

In FY2011, USF’s Division of Patents and Licensing partnered with DAJUTA, a Tampa-based company that works hand-in-hand with CUTR, USF’s Department of Computer Science and Engineering, and the USF Location-Aware Information Systems Laboratory to commercialize technology researched and developed by the university, to commercialize the TAD software application and the underlying intelligent software framework that supports the TAD technology. USF’s licensing agreement with DAJUTA includes the complete TAD software system (the TAD mobile phone application, TAD web services, TAD database processing toolkit, and TAD website software) as well as portions of the underlying Location-Aware Information Systems Client (LAISYC) mobile phone software framework that supports intelligent real-time location-aware applications. In addition to the software itself, a portfolio of intellectual property that was developed through NCTR research was also licensed, including pending patents on the TAD system design and the real-time algorithm used to notify the transit rider when to exit the bus. Three pending patents on the LAISYC framework were also included in the licensing agreement, including GPS-Auto Sleep (which enables dynamic GPS sampling frequencies to save battery life) and the Critical Point Algorithm (which reduces the amount of location data sent over the cellular network during device tracking). The research team is continuing to identify additional applications of the underlying technologies to additional markets as well as areas for improvement.

For more information on TAD and related work, go to [www.locationaware.usf.edu](http://www.locationaware.usf.edu) or contact Sean Barbeau at CUTR at [barbeau@cutr.usf.edu](mailto:barbeau@cutr.usf.edu).

### *Enabling Cost-Effective Multimodal Trip Planners through Open Transit Data*

This study examined whether multimodal trip planners can be developed using open-source software and open data sources, focusing on the following:

- OpenStreetMap (OSM), maintained by the non-profit OpenStreetMap Foundation, is an open, freely available international repository of geographic data that individuals contribute about their communities. Individuals may contribute data based on their own direct observations (for example, bicycle lanes, sidewalks, or bus stop locations) by tracing aerial imagery donated to OSM or from data files in the public domain.
- In the transit industry, Google's offer of a free online transit trip planner based on the General Transit Feed Specification (GTFS) has made GTFS a de facto standard for describing transit systems and a data platform for many other web and mobile applications. More than 125 public transportation agencies in the U.S. have put their data into GTFS format. Bus stop locations can link OSM and GTFS data.
- OpenTripPlanner is an open-source multimodal trip planning software system with an active developer community.

The research team set up an instance of OpenTripPlanner for Tampa using biking and walking data from OSM and GTFS data from local transit agencies to examine the tool's ability to route using multimodal data. The study team also recorded multimodal data for the Tampa region in OSM to examine the current OSM coding conventions and determine the coding system's ability to support functions required of a multimodal trip planner, such as providing information on access to transit, wheelchair accessibility, or conditions that could affect the safety of a trip (such as intersection crossings). This study also investigated the use of open-source software to quickly increase the amount of multimodal data available in OpenStreetMap. The research team created GTFS-OSM-Sync (GO\_Sync), a framework and open-source software tool for synchronizing transit data between a transit agency's official GTFS dataset and OSM. GO\_Sync connects the wealth of data from GTFS datasets to the ability of the OSM community to augment and improve the data. During a test deployment of GO\_Sync in Tampa, OSM users corrected 173 bus stop locations.

The project demonstrated that it is feasible to implement a multimodal trip planner using open-source software and open data sources. Based on existing practices regarding GTFS and OpenTripPlanner, transit schedule and route data are best obtained directly from transit agencies' GTFS files. Data on infrastructure for walking and cycling can be obtained from OSM or from other locally-available public-domain data. The project identified a few changes to the OSM coding conventions that would improve OSM's ability to meet the needs of a multimodal trip planner. The principal barrier to developing a multimodal trip planner remains the availability of data and, when using OSM as a source of data, the relatively low participation of U.S. residents in the project, compared to Europe. The OSM community recognizes this as a problem, but additional research is needed on how best to overcome it. Additional research also is needed on how best to communicate results from a trip planner to users who may have varying skill and comfort levels when it comes to bicycling and walking.

This NCTR research project was conducted by Dr. Edward Hillsman (PI) and Sean Barbeau (Co-PI) at CUTR under the guidance of Mr. Tom Kelly and Ms. Amy Datz, FDOT Project Managers. For more information, contact Dr. Hillsman at [hillsman@cutr.usf.edu](mailto:hillsman@cutr.usf.edu).

### **FY 2012 Research Program**

In July 2011, NCTR completed the process to solicit and select research ideas for the FY 2012 program year. Requests for research ideas and proposals were sent to all Florida transit agency directors, MPO directors, and FDOT public transit managers. Idea requests also were sent to all public transportation-related committees of TRB, APTA committee chairs, Leadership



APTA alumni, and national listservs. The NCTR Advisory Committee provided assistance in selecting 4 core program area and 10 research projects for funding in FY 2012.

## Education

NCTR and its parent organization, the USF Center for Urban Transportation Research, continue to support initiatives to enhance professional development of the current and next generation of transportation professionals. These initiatives constantly are modified to reflect evolving needs and resources. Student interest in transportation remains strong, with many professionals updating their credentials to remain competitive in a more challenging employment environment. There is a growing recognition of the role public transit will play in transportation in the future and an awareness of how issues such as economic competitiveness, sustainability, funding, and climate change will influence transportation, which has led to growing interest in public transportation and related courses that incorporate a holistic multidisciplinary perspective on transportation.



Student involvement in project research continues to be a priority of CUTR and the NCTR program. During FY 2011, graduate and undergraduate students were involved in ongoing public transportation research projects supported by funding from NCTR and numerous other sponsors. The major areas of study of these students are multidisciplinary in nature, including engineering, economics, anthropology, urban planning, business, geography, and public administration. Through research and professional experiences, CUTR and NCTR help develop well-informed, well-educated individuals, many of whom have gone on to work in public transportation and multimodal planning environments, while others, even if not directly employed in the transportation sector, will carry out their career activities with a far richer understanding and appreciation of public transportation.

Course enrollment has shown a slight weakness due to higher tuition and less support for continuing tuition reimbursement of part-time students by employers and a stronger University focus on Ph.D. students. Interest by part-time students, students pursuing a certificate credential, and distance-learning students remains active. Job placement is more challenging than in the past but remains stronger than in many professions. The program continues to be proud of its placement record, with numerous students finding increasingly prestigious employment opportunities.

CUTR faculty continue to supplement the academic teaching faculty, offering a breadth and depth of teaching and research opportunities well beyond that which could be supported by the tenure-track faculty alone. The bi-weekly NCTR webinar series complements the education program offering additional materials for students. CUTR/NCTR continue to participate in an active graduate transportation seminar series.

## Transportation Certificate Programs

CUTR's newest certificate in Transportation Systems Analysis has been well received, with ongoing inquiries and a growing roster of students. The distance learning feature makes it particularly attractive for continuing education for working professionals. CUTR/USF courses are among the offerings of the new award-winning national Transportation Leadership Graduate Certificate, and stronger distance learning interest is anticipated from being part of this initiative.

## Other Education Initiatives

Several other initiatives continue to receive attention. The undergraduate course Transportation and Society, designed to introduce transportation to undergraduates from various dis-

ciplines, remains popular and is now being offered as a distance learning course. This course has introduced students to transportation who have subsequently joined graduate degree programs in transportation.

Distance learning delivery has transitioned to use Elluminate Live™ software to enable an easier, more flexible, and lower-cost method for delivering distance learning courses. More courses are being taught through distance learning.

### **2010 NCTR Student of the Year: Enrique Gonzalez-Velez**

Enrique Gonzalez-Velez is a Doctoral Candidate student in the USF Civil and Environmental Engineering Department. He is employed at CUTR as a Graduate Research Assistant in the ITS Traffic Operations and Safety group and has worked with NCTR for several semesters, during which he has developed an impressive set of credentials, worked on several safety topics, made presentations, and authored papers.

Enrique earned a Master of Science degree at the University of Puerto Rico at Mayagüez and received the Dwight David Eisenhower Transportation fellowship for a Hispanic Serving Institution. During pursuit of his Ph.D., he received the Southeastern Transportation Center Outstanding Student Award–Region 4, the Anne Shanklin Brewer Scholarship from the Intelligent Transportation Society of Florida, and the Georgia Brosch Memorial Transportation Scholarship from CUTR. In the past year, he assisted in the research of two NCTR projects, Moving the Bus Safely Back into Traffic and Evaluation of Camera-Based Systems to Reduce Transit Bus Side Collisions. Both of these projects proved through rigorous field testing that accidents and traffic delays could be reduced through the utilization of new equipment and technology on transit buses.

Enrique presented the results of his research on Moving the Bus Safely Back into Traffic at two professional conferences in 2010 and presented findings at the TRB Annual Meeting in 2011. He has been an active member of the ITE Student chapter and served in several officer positions. In addition, he is a Young member of the TRB Committee on Visibility (AND40) and the Transportation Safety Council of the Institute of Transportation Engineers.

A diligent worker, Enrique hopes to perform more research in areas such as transit safety and has a strong interest in the evaluation and implementation of new technologies that can be used to improve the operation and safety of the transit industry.

### **Technology Transfer**

Excellent research is of limited value if the results are not made available to as many parties as possible that might benefit from the findings. Extensive technology transfer is a key determinant of NCTR's value. The following sections summarize specific accomplishments in the area of technology transfer over the last year.

### **Professional Activities**

NCTR researchers continue to have significant involvement with partners in the public transportation industry, including serving on Transportation Research Board (TRB) committees and holding leadership positions in the American Public Transportation Association (APTA), the Association for Commuter Transportation (ACT), and the Institute of Transportation Engineers (ITE). This has created an opportunity to tout the NCTR program through solicitation of project ideas from organization members and in the transfer of research results. Following is a summary of the participation by NCTR staff as members of industry associations:



*NCTR Student of the Year Enrique Gonzalez-Velez (second from left)*

- Akerman, Martin: Member & Webmaster, Committee ABJ50–Information Systems & Technology, TRB
- Audino, Michael: Panel Chair, Project 06-02, Airport Leadership Development Program, ACRP; Panel Chair, Project 11-03, Synthesis of Aviation Workforce, ACRP; Panel Chair, Project 03-08, Passenger Air Service Development Techniques, ACRP; Board, Iowa Transportation Museum
- Barbeau, Sean: Expert Group, Java Spec Request 293; Observers List for Java Specification Request 249 , Mobile Service Architecture 2; Research & Technology Committee, APTA; Reviewer, Urban Transportation Data & Information Systems Committee, TRB; Panel, Building a Global Community of Practice Around Accessible Transportation: How to Create a Foundation for Evidence-based Practice, TRB
- Bart, Ed: Bus Standards Policy/Planning Steering Subcommittee, APTA; Transit Fleet Maintenance Committee, TRB; Florida Paratransit Maintenance Committee, FDOT; Florida Maintenance Consortium, FDOT; Statewide Roadeo Committee, FPTA; Transportation and Aging Interest Group, Geron
- Begley, Justin: ITS Subcommittee, TBARTA
- Bond, Alex: Committee ADD30, Transportation and Land Development, TRB; Vice-Chair for National Planning, APA Intergovernmental Planning; Legislative Policy Committee, FAPA; NCHRP #20-59(42), Regional Transportation Disaster Response, TRB; Young Member Council, TRB
- Bond, Julie: Sustainability Transportation Subcommittee, USF; SIFE Business Advisory Board, USF; Co-Chair, Conference Program Committee ACT
- Brosch, Gary: Editorial Board, *Journal of Safety & Security*
- Byrnes, Diana: Senior Associate Staff Instructor, U.S. DOT Transportation Safety Institute
- Catalá, Martin: Committee ABJ60, Geographic Information Systems & Applications, TRB; Co-Chair, National Transit GIS Conference, National Transit Institute; Charter Transit GIS Clearinghouse, GIS Clearinghouse
- Chu, Xuehao: Editorial Board, *Journal of Safety & Security*
- Concas, Sisinnio: TDM Committee, TRB; Reviewer, Travel Behavior and Values Committee, TRB; Reviewer, Transportation & Economic Development Committee, TRB; International Association of Travel Behavior Research, TRB; Proposal Reviewer, USF Internal Awards
- Davis, Jan: Panel SA-16, Synthesis on Uses of Higher Capacity Buses in Transit Service, TCRP
- Fabregas, Aldo: Institute for the Operations Research and Management Sciences, INFORMS; Chair, Traffic Simulation Subcommittee, ITE
- Flynn, Jennifer: Committee on Major Activity Center Circulation, TRB
- Gonzalez-Velez, Enrique: Young Member, Committee AND40, Committee on Visibility, TRB; Transportation Safety Council, ITE
- Goodwill, Jay: Chair, FPTA Annual Conference, Panel, Project B-40, Strategy Guide to Enable and Promote the Use of Fixed-Route Transit by People with Disabilities, TCRP; Manager, Florida RTAP
- Gregg, Rob: Coordinator, Florida Transit Planning Network
- Hendricks, Sarah: Co-Chair, Telework Council, ACT; Sustainability Initiatives Steering Committee, USF; Co-Chair, Sustainable Transportation Subcommittee, USF; Region Team Resilient Tampa Bay, USF Patel Center for Global Solutions
- Hillsman, Ed: Committee ABE50, TDM, TRB; Committee ADC70, Transportation Energy, TRB; Sustainability Energy Subcommittee, USF; Bicycle & Pedestrian Advisory Committee, Hillsborough County MPO

- Hinebaugh, Dennis: Chair, Bus Transit Systems Committee, TRB; Panel A-23: Cost Effectiveness of Selected BRT Components, TRB; Chair, BRT Conference Development Committee, TRB/APTA; Panel D-13, Guide for Implementing Bus on Shoulder Systems, TCRP; BRT Task Force, APTA; Bio Bus Operations Committee, APTA
- Kramer, Jeff: Metropolitan Policy, Planning & Processes, TRB; Technical Committee, AMPO; Friend, Committee ABC10, Strategic Management, TRB
- Lee, Chanyoung: Winter Maintenance Committee, TRB
- Lin, Pei Sung: Chair, Intelligent Traffic Signal Operations Committee, ITE; Executive Committee, Management & Operations/ITS Council, ITE; Transportation Management Center Committee, ITE; Traffic Engineering Council, ITE; Traffic Signal Operations Committee, FDOT; Second Vice President, International Chinese Transportation Professionals Association; Editor, Bi-Monthly Newsletter, Chinese Transportation Professionals Association; Technical Committee, 25th Annual Conference, ICTPA
- Mierzejewski, Ed: Project 8-44: Incorporating Safety into Long-Range Planning, NCHRP; Committee on Transportation Programming/Planning/System Evaluation, TRB; SHRP-2 Expert Task Group, Project CO1: A Framework for Collaborative Decision Making on Additions to Highway Capacity, TRB; SHRP-2 Technical Coordinating Committee on the Capacity Program, TRB; Panel 8-59, Transportation Cost Implications of New Development, NCHRP
- Mistretta, Mark: Sustainability Transportation Subcommittee, USF
- Morris, Bill: Committee APO30, Marketing and Fare Policy, TRB
- Perk, Vickie: Reviewer, Committee ADD20, Social/Economics Factors, TRB; Multimodal Operations Planning Technical Forum, APTA; Instructor, National Transit Institute; Member/Paper Review Coordinator, Transit Capacity & Quality of Service Committee, TRB; Intermodal Transfer Facilities Committee, TRB
- Polzin, Steve: Policy & Planning Committee, APTA; Chair, Committee ABJ99D, Using National Household Travel Survey Data for Transportation, TRB; Board of Directors, Hillsborough Area Regional Transit; Chair, Planning Committee for NHTS Policy Conference 2010, TRB; Committee on Strategies for Improved Passenger and Freight Travel Data, TRB; Editorial Board, *Journal of Public Transportation*; Education Board, Transportation; Education Committee, Southeastern Transportation Center; Chair, ABJ10, National Travel Data Committee, TRB; ABJ30, Urban Transportation Data/Information Systems, TRB; Conference Planning Committee for Using Census Data for Transportation, TRB; Planning Committee for Census Data for Transportation Applications Conference 2011, TRB; Public Transportation Planning & Development, TRB; Oversight Board for the Census Transportation Planning Products, AASHTO; State, Transit, and University Representative, TRB
- Reep, Amber: Associate Staff, Federal Transportation Safety Institute; Bus Operations & Bus Safety Working Group, Green Jobs Initiative, APTA; Standards Development Program, APTA; Associate Program Selection Panel, Transportation Safety Institute; Friend, Committee ABG20, Transportation Education & Training, TRB; Chair, Florida Operations Network; Advisory Board, Florida Rural Transit Assistance Program Network; Friend, Bus Transit Systems, TRB; NCHRP Panel 20-59(43), TRB; Paul S. Sarbanes Transit in Parks National Peer/Working Group, FTA
- Reich, Steve: Director of Research, TEAM Florida Board of Directors
- Sapper, Debbie: Committee on Public Transportation Safety & Security Task Force, AASHTO; Synthesis Study SA-24, Rail Security: ROW Surveillance Cameras and Vehicle Security Cameras, TCRP
- Saxena, Meeta: Young Committee Member, AHB70, Access Management, TRB
- Seggerman, Karen: Committee ADD30, Transportation and Land Development,



TRB; Panel 25-36, Travel Impacts & Greenhouse Gas Benefits of Rural and Smaller Community Land Use Strategies, NCHRP; Chair, Planning Council, District 10, FSITE

- Staes, Lisa: National Peer Review Panel, Instructor's Course on Paratransit Operations, TSI; Panel B-36, Updated Methodology for Forecasting Demand, TCRP; Alternative Transportation in Parks & Public Lands National Working Group, FTA; Transportation Work Group, American Cancer Society; Friend, Standing Committee on Rural Public and Intercity Bus Transportation, TRB
- Thole, Cheryl: Committee ADD50, Environmental Justice in Transportation, TRB
- Volinski, Joel: Transit Ambassador Emeritus, TCRP; Friend, Commuter Rail Committee, TRB; Friend, Transit Bus Systems Committee, TRB; Friend, Transit Fare and Marketing Committee, TRB; Board of Directors, FPTA; Committee AP060, Paratransit, TRB; Human Resources Committee, APTA; Research & Technology Committee, APTA; Research Proposal Screening Committee, TCRP; President, Leadership Alumni Association, APTA
- Williams, Kristine: Chair, Access Management Committee, TRB; Panel 03-99, NCHRP; Urban Planning Peer Review Committee, Fulbright; Co-Chair, First International Access Management Conference in Athens, Greece
- Winters, Phil: Secretary, Board of Directors, TDMI; 2010 Conference Breakout Session Planning Committee, ACT; Secretary, Transportation Planning Council, ITE; Sustainability Transportation Subcommittee, USF; Member Emeritus, TDM Committee, TRB
- Zambito, Vicki: International Bus Roadeo Committee, APTA; Florida Transit Maintenance Consortium & Statewide Bus Roadeo Com, FDOT
- Zhou, Huaguo: Traffic Signal Operations Committee, ITE; Board of Directors, NA Chinese Overseas Transportation Association

### Publications and Presentations

During FY 2011, NCTR researchers were active in publishing and presenting at state and national conferences and meetings.

#### Publications

- Barbeau, "Building a Global Community of Practice around Accessible Transportation," *Compendium*, 90th Annual TRB Meeting
  - Barbeau, Georggi, Winters, "Global Positioning System Integrated with Personalized Real-Time Transit Information from Automatic Vehicle Location," *Transportation Research Record*
  - Barbeau, Georggi, Winters, Labrador, "Participatory Sensing: Smart Phones as Sensors in a Connected World," "From Idealism to Realism: Lessons Learned from Development of Standards-Based Software for APTS," *Compendium*, 90th Annual TRB Meeting
  - Boelechala, Miltenberger, Barbeau, Gordon, "Evaluating the Effectiveness of Travel Assistance Device on Bus Riding Behavior of Individuals with Disabilities," *Compendium*, 90th Annual TRB Meeting
  - Concas, "Estimating the Social Costs and Benefits of TDM Programs Using the TRIMMS Model," *Proceedings*, First International Symposium on Advances in Transportation Sustainability
- Cusack, Sapper, Staes, "Evaluation of Electronic Data Recorders for Incident Investigation and Driver Performance," *Accident Reconstruction Journal*
- Fabregas, Lin, Gonzalez-Velez, Zhou, Datz, "Safety and Operational Assessment of Yield-to-Bus LED Warning Signs on Transit Buses," *Compendium*, 90th Annual TRB Meeting



- Fabregas, Lin, Zhou, Datz, “Improving Transit Safety in Florida through Implementing Yield-to-Bus LED Signs,” *ITE 2011 Technical Conference Compendium*; “Measuring the Effectiveness of LED Yield Signs on the Back of Buses,” *FLITE*
- Fabregas, Pedro, Labrador, “An Optimal Solution to the MCDS Problem for Topology Construction in Wireless Sensor Networks,” *Proceedings, IEEE Latin America Conference on Communications*
- Fabregas, Lin, Gonzalez, Datz, Georggi, Barbeau, Gordon, Winters, “Evaluating the Deployment of a Mobile Navigation Device at Four Transit Agencies in Florida,” *Compendium, 90th Annual TRB Meeting*
- Hendricks, Audino, “Liability Issues of Volunteer Driving Programs,” *Compendium, 90th Annual TRB Meeting*
- Kourtellis, Lin, Lee, “Evaluation of Camera-Based Systems to Reduce Bus Side Collisions,” *Compendium, 90th Annual TRB Meeting*
- Lin, Fabregas, Zhou, Datz, “Moving Buses Safely Back into Traffic Using LED Yield Signs,” *Conference Proceedings, ICTPA 24th Annual*
- Lin, Zhou, Gonzalez-Velez, “Development of an Integrated MOT Training Program for Incident Responders to Improve Traffic Safety and Mobility,” *Conference Proceedings, ICTPA 24th Annual*
- Perez, Labrador, Barbeau, “G-Sense: A Scalable Architecture for Global Sensing and Monitoring,” *IEEE Network Magazine*
- Perk, “Development of TCRP G-II Transit Agency Peer-Grouping Methodology,” *Compendium, 90th Annual TRB Meeting*
- Perk, Thole, “Land Use Impacts of Bus Rapid Transit,” *Public Sector Digest*
- Polzin, Taniguchi, “Ridership Trends for New Start Rail Projects,” *APTA Rail Conference Proceedings*
- Sapper, Cusack, Staes, “Evaluation of Electronic Data Recorders for Incident Investigation and Driver Performance,” *Accident Reconstruction Journal*
- Sapper, Cusack, Staes, “Understanding Transit Scenes: A Survey on Human Behavior Algorithms,” *IEEE Transactions on Intelligent Transportation Systems*
- Thole, Perk, “Policies and Practices that Affect Development Around Transit,” *FLITE*
- Winters, Barbeau, Georggi, Labrador, “Travel Assistance Device to Help Transit Riders,” *Compendium, 90th Annual TRB Meeting*
- Zhou, Bromfield, “An Overview of Yield-to-Bus Programs in Florida,” *Journal of Public Transportation*

#### **Presentations**

- Audino, “A Multi-Modal Approach to Conflict Management,” “Create Your Future: Integrated Strategic Planning,” National Transit Trainers’ Workshop, FDOT/FPTA/CUTR Professional Development Workshop
- Barbeau, “Building a Global Community of Practice Around Accessible Transportation: How to Create a Foundation for Evidence-based Practice,” 90th Annual TRB Meeting
- Barbeau, Georggi, Winters, Labrador, “From Idealism to Realism: Lessons Learned from Development of Standards-Based Software for Advanced Public Transportation Systems,” “Participatory Sensing: Smart Phones as Sensors in a Connected World,” 90th Annual TRB Meeting
- Bart, Parsons, “Leveraging Technology for State of the Art Training,” National Transit Trainers’ Workshop, FDOT/FPTA/CUTR Professional Development Workshop
- Bolechala, Miltenberger, Barbeau, Gordon, “Evaluating Effectiveness of Travel Assistance Device on Bus Riding Behavior of Individuals with Disabilities,” 90th Annual TRB Meeting





- Bond, A., “Independent and Hosted Metropolitan Planning Organizations,” “Hosting and Organizational Structure of MPOs,” Association of Collegiate Schools of Planning; “Establishing an MPO Program: Issues to Consider for Emerging Regions,” National Association of Development Organization Transportation Peers
- Bond, A., Morris, “Implications of Urban Area Reclassification: Census 2010,” National Transit Trainers’ Workshop, FDOT/FPTA/CUTR Professional Development Workshop
- Bond, J., “Developing a Successful Pedestrian Campaign in Your Community,” SEACT/ Chesapeake TDM Symposium
  - Byrnes, “Substance Abuse Management and Program Compliance,” National Transit Trainers’ Workshop, FDOT/FPTA/CUTR Professional Development Workshop
  - Catala, “Travel and Transit Planning Technology,” National Transit Trainers’ Workshop, FDOT/FPTA/CUTR Professional Development Workshop
  - Concas, “Life-Cycle Assessment of Alternative Fuels for Mass Transit Systems,” “Estimating the Social Costs and Benefits of TDM Programs using the TRIMMS Model,” First International Symposium on Advances in Transport Sustainability
  - Fabegras, “Safety and Operational Assessment of Yield-to-Bus LED Warning Signs on Transit Buses,” 90th Annual TRB Meeting
  - Fabregas, Lin, Seggerman, Lee, Pinjari, “Internal Trip Capture in Multi-Use Developments,” 2010 Florida Section ITE 50th Anniversary Meeting
- Flynn, “Tangible and Intangible Service Attributes: Quantifying the Importance of Image and Perception of Bus Rapid Transit,” TRB Annual Analysis (TRAC) Meeting
- Georggi, Barbeau, Gordon, Winters, “Evaluating the Deployment of a Mobile Navigation Device at Four Transit Agencies in Florida,” 90th Annual TRB Meeting
- Gregg, “Florida Transit Marketing Network: Understanding the Principles of Market Research,” “Whole Brain Thinking,” National Transit Trainers’ Workshop, FDOT/FPTA/ CUTR Professional Development Workshop
- Hendricks, “Programs that Match Seniors with Volunteer Drivers,” Transportation Systems for Livable Communities; “Integrating Climate Considerations into Transportation Planning,” 2010 Florida Section ITE 50th Anniversary Meeting; “Liability Issues of Volunteer Driving Programs,” 90th Annual TRB Meeting
- Hillsman, Barbeau, “Using Open Data to Develop Multimodal Trip Planners for Livable Communities,” Transportation for Livable Communities
- Hinebaugh, moderator, “Innovations in Bus Rapid Transit Operations,” 90th Annual TRB Meeting
- Jackman, “How to Organize Bike Trains,” Safe Routes to School National Partnership
- Nelson, McMullen, Barbeau, “Location-Based Services,” Sprint Open Developer’s Conference
- Perk, Thole, “BRT and Land Use,” FDOT District 5 Quarterly Training Workshop
- Polzin, “Travel Demand and Land Use Impacts of Transit,” AIA Subcommittee on Transportation; “The Future of Transportation,” American Dream Conference; “The Future of Travel Behavior and Transportation and Land Use,” American Highway Users Alliance; “Transit Data and Livability,” “Baseball, Hot Dogs, Apple Pie and Livability,” 90th Annual TRB Meeting; “The Future of Transportation” (keynote), American Bus Association BOD Annual; “Exploring Changing Travel Trends (plenary session keynote), TRB Workshop
- Polzin, Taniguchi, “Ridership Trends for New Start Rail Projects,” APTA Rail Conference

- Reep, “Distracted Driving: The Age of Information Overload,” APTA and Paratransit Conference
- Reep, Goodwill, “FDOT Rural Assistance Program,” National Rural Transit Assistance Program
- Reep, Pine, Mine, “Transit Operator Pre-Employment Testing and Retention, National Transit Trainers’ Workshop, FDOT/FPTA/CUTR Professional Development Workshop
- Reep, Sapper, Dallman, “Curbing Transit Operator Distracted Driving Training Programs,” National Transit Trainers’ Workshop, FDOT/FPTA/CUTR Professional Development Workshop
- Sapper, Reep, “FDOT’s Wireless Distractions Training Resource for Transit,” TRB Rural & Intercity Bus Conference
- Staes, “Florida Heartland Rural Mobility Plan,” TRB Rural & Intercity Bus Conference; “Update on TRIP Training Programs,” National Transit in Parks Peer Group Meeting
- Staes, Goodwill, Audino, “Alternative Mobility Approaches,” National Transit Trainers’ Workshop, FDOT/FPTA/CUTR Professional Development Workshop
- Thole, “Innovations in Bus Rapid Transit,” “FTA Overview of Public Bus Transit Operations,” 13th Annual Transportation Summit; “Bus Rapid Transit,” American Dream Conference
- Tran, Barbeau, Hillsman, Labrador, “Research Today to Increase Accessibility Tomorrow: The Cutting Edge of Wayfinding Technology,” National Conference on Undergraduate Research
- Volinski, “Public Transit Research at CUTR,” APTA Annual Meeting; “Careers in Transit,” TRB Rural & Intercity Bus Conference; “Best Practices in Communicating with Bus Operators,” “Lessons Learned in Transit Efficiencies and Revenue Generation,” FPTA Annual Meeting; “Duplication of Research at UTCs: Myth or Fact?” CUTC Annual Meeting; “Managing During Tough Times: Lessons Learned in Transit Efficiencies,” USDOT and NY State Public Transportation Association
- Winters, “Introduction to TRIMMS, a Cost/Benefit Tool for TDM,” SEACT/Chesapeake TDM Symposium; “Creative Thinking for Transportation Professionals,” “Florida Commuter Assistance Program Network,” National Transit Trainers’ Workshop, FDOT/FPTA/CUTR Professional Development Workshop
- Winters, Barbeau, Georggi, Labrador, “Travel Assistance Device to Help Transit Riders,” 90th Annual TRB Meeting

## Training

During FY 2011, NCTR researchers were active in either providing or facilitating the following training sessions.

### Training Courses

- Assessing Financial Sustainability for Transit Major Capital Projects
- Diesel Engine Electrical/Electronics Technology
- Disability Etiquette Course
- Evaluating Effectiveness of Travel Assistance Device on Bus Riding Behavior of Individuals with Disabilities
- Fatigue Awareness for Transit Agencies
- FCC Narrowbanding: Are You Prepared?
- Florida Paratransit Driver’s Qualification Training Workshop
- Fundamentals of Bus Collision Investigation
- Instructor’s Course in I-Day Paratransit Operator Training



- Instructor's Course in Bus Operator Training
- Instructor's Course in Excellence
- Introduction to Public Records
- Introduction to TRIMMS
- National Transit Trainers' Workshop
- NTD Training
- NTI Implementing Rural Transit Technology
- Planning for Changing Travel Behavior
- REACT DVD Training
- Reasonable Suspicion Determination for Supervisors
- Reasonable Suspicion Drug & Alcohol Testing Referrals
- Runcutting
- Steering/Suspension OJT
- Substance Abuse Management Program Compliance
- Supervised OJT
- TBEST Training
- TDP Training
- Transit Basic Electrical Systems
- Transit Drivetrain Technician
- Transit Hydraulics Technology
- Transit Improvements from the Urban Partnership Agreement Program: What Have We Seen So Far?
- Transit Steering and Suspension
- Transit Supervisor Certification Course
- Trends Affecting Transportation Systems
- TSI Rail System Safety
- Wheelchair Lift/Ramp

***CUTR Webcasts/Online Training***

- Alternative Fuels and Public Transportation: Evaluating the Economic Impacts of Transportation Capital Investments
- American Community Survey Statistical Analyzer
- Bicycle & Pedestrian Programs
- BWC Ridesharing in the Facebook Generation
- Car Sharing
- Developing a Successful Pedestrian Campaign in Your Community
- Electric Vehicles
- Enhancing Livability in Your Community: Recent Developments in Cost-Effective Multimodal Trip Planners
- Evaluation of Camera-Based Systems to Reduce Bus Side Collisions
- Grant Writing
- Green Transit Toolkit—Helping Systems Turn the Corner
- Instant Car Pooling
- Introduction to TRIMMS
- Location Aware Technology

- Managing During Tough Times: Lessons Learned in Transit Efficiencies and Revenue Generation
- Mobility Planning Strategies and Concepts
- Moving the Bus Safely Back Into Traffic
- Planning Theory
- Reasonable Suspicion Drug & Alcohol Testing Decision Training
- Research Today to Increase Accessibility Tomorrow: The Cutting Edge of Wayfinding Technology
- Social Marketing for Voluntary Travel Behavior
- Technology for State-of-the-Art Training
- Traffic Management and ITS
- Transit Boardings Estimation and Simulation Tool (TBEST)
- Transit GIS Clearinghouse
- Transit Vehicle Alternative Fuels Analysis Training
- Trends in Travel Behavior
- Trip Reduction Impacts for Mobility Management Strategies
- University Bicycle Sharing
- Vehicle Assist Automation Tech in Bus Revenue Services
- Walk-Wise: A Grassroots Pedestrian Safety Campaign

#### **Commuter Choice**

- Access Management
- Commuter Tax Benefits
- Establishing Program Goals and Objectives
- Incorporating TDM in the Planning Process
- Innovations in Bus Rapid Transit
- Institutional Arrangements
- Introduction to Basic Marketing
- Land Use Impacts of Bus Rapid Transit
- Location Aware Technology
- Ride Sharing
- Senior Ride Sharing
- Social Marketing–Voluntary Travel Behavior Change
- Social Media/Marketing
- Support Smart Commute
- Transportation Planning Tools

#### **Journal of Public Transportation**

The *Journal of Public Transportation* is a respected international journal containing refereed papers on current, original research and case studies associated with public transportation and related policy issues. Topics are approached from disciplines including economics, engineering, planning, BRT, GIS, finance, and safety, and include methodological, technological, and financial perspectives, with emphasis on the identification of innovative solutions to public transportation problems. The journal has nearly 2,200 subscribers from all around the world and boasts a distinguished editorial board.



## **FLOW Newsletter**

NCTR's e-newsletter, *FLOW: Moving People and Ideas*, is another example of how NCTR shares the information generated through its research. The newsletter summarizes recently-completed projects, provides updates on the NCTR education program and student accomplishments, and directs subscribers on how to access NCTR's wealth of information.

## **Net Conferencing: Learn More—Travel Less**

Netconferences provide a cost-effective method for reaching large groups of transportation professionals in real-time, requiring only a telephone, computer, and an Internet connection. All NCTR netconferences are available for on-demand viewing after the live presentation from the NCTR website at [www.nctr.usf.edu](http://www.nctr.usf.edu).

NCTR continues to partner with other groups to expand our reach, such as with chapters of ACT to host netconference events in the cities of ACT members and non-members. These events are held at up to 50 locations and attract up to 200+ people for each event. In FY 2011, NCTR sponsored three netconferences in partnership with ACT:

### ***How to Integrate TDM in the Planning Process (June 2011)***

Three speakers provided an overview of the transportation planning process and discussed how to develop relationships with area MPOs to integrate key TDM policy objectives into the long-range planning process, including Egan Smith, P.E., PTOE, Community Planner, Office of Planning, Environment and Realty, Federal Highway Administration, U.S. DOT; Sandi Moody, Director of Programs and Operations, Tampa Bay Area Regional Transportation Authority (TBARTA); and Beth Alden, AICP, Group Leader, Multimodal Systems Group, Hillsborough County Metropolitan Planning Organization.

### ***Instant Carpooling—Just Add Passengers and Go: The Phenomenon That Is Casual Carpooling (March 2011)***

This netconference featured three presenters who highlighted the use of casual carpooling or “slugging” in Northern Virginia, Houston, and San Francisco Bay Area. They discussed how these ad hoc, informal carpools are formed, who uses them, and what differentiates “sluggers” or casual carpoolers from a traditional carpooler. Speakers included Marc Oliphant, U.S. Department of the Navy, who described how “slugging” works in Northern Virginia; Mark Burris, Ph.D., Texas A&M, who discussed the evolution of slugging in Houston before and after the opening of managed lanes; and Susan Heinrich, Metropolitan Transportation Commission, who discussed casual carpooling in the San Francisco Bay Area, including the response from introducing tolls for carpoolers across the Bay Bridge in July 2010.

### ***Getting Ready for Electric Vehicles— A New Transportation Alternative (December 2010)***

Two speakers discussed the introduction of electric vehicles into the U.S. fleet and opportunities for TDM professionals. Matt Mattila of the Rocky Mountain Institute reviewed Project Get Ready, a non-profit initiative whose purpose is to create a dynamic “menu” of strategic plug-in readiness actions for communities including the “business case” for each action using grassroots public/private partnerships in a growing number of cities with utility companies, planning agencies, and large employers. Syd Pawlowski, Supervisor of Rideshare Operations with the King County Department of Transportation (Seattle), discussed the County's plans and learning experiences as it prepares to take delivery of 5 electric fleet vehicles and 30 electric vehicles for the Metro Transit commuter vanpool fleet.



## NCTR Website ([www.nctr.usf.edu](http://www.nctr.usf.edu))

The NCTR website was revamped in FY2011 to make it easier to find research reports, publications, tools, and other products. NCTR’s website attracted nearly 24,000 unique visitors in FY 2011, with 72% being new visitors. The top web pages visited are as follows:

1. *Journal of Public Transportation* (full issues, individual articles and submission requirements)
2. National TDM and Telework Clearinghouse (including ridematching systems and commuter tax benefits)
3. Information about NCTR-hosted listservs
4. Enabling Cost-Effective Multimodal Trip Planners through Open Transit Data (report)
5. Travel Assistant Device—Deployment to Transit Agencies (report)
6. Programs That Match Seniors With Volunteer Drivers (report)
7. Guidebook on Using American Community Survey Data for Transit Planning
8. Dynamic Travel Information—Personalized and Delivered to Your Cell Phone (report)
9. Quantifying Net Social Benefits of Vehicle Trip Reduction Impacts (report)
10. Boosting Morale, Performance, and Savings via Compressed Workweeks (netconference recording)
11. Moving the Bus Safely Back into Traffic, Phase II (report)
12. Exploration of Transit’s Sustainability Competitiveness (report)
13. Economics of Travel Demand Management

## Peer-to-Peer Exchanges

NCTR continues to expand its use of social media with the addition of a Twitter account (@NCTRUSF) and the creation of LinkedIn group for the TDM listserv to help promote job openings. NCTR’s Best Workplaces for Commuters also uses Facebook, Twitter, and LinkedIn.

NCTR has nearly 5,200 active subscriptions to its public transportation-related listservs, an overall net increase of 400 subscriptions (8%) in FY 2011.

Listserv	Type	Subscribers 6/30/11	FY2011 Net Change	Subscribers 6/30/10	FY 2010 Net Change
Bus Fleet Maintenance (BFM-General)	Discussion Forum	316	+17%	270	+7%
Bus Rapid Transit (BRT)	Discussion Forum	447	+17%	381	+7%
Journal of Public Transportation (JPT)	Announcement	469	+10%	425	+4%
NCTR	Announcement	1,174	+4%	1,134	+10%
Parking Management (Parking)	Discussion Forum	272	-6%	288	+19%
Sustainable Transport Indicators (STI)	Discussion Forum	232	+29%	180	21%
Telework	Discussion Forum	360	+3%	348	+7%
TDM (Transp-tdm)	Discussion Forum	1,894	+9%	1,735	+13%

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). All NCTR abstracts, announcements, and listserv postings also are published as RSS feeds. This method allows NCTR to deliver information to the desktop of transportation professionals and others (such as customized Google or Yahoo home page) without cluttering email inboxes.

## **NCTR National TDM and Telework Clearinghouse**

NCTR does not pretend to be a one-stop shop with all the answers; we do, however, seek to be the first stop. We strive to make it easier for transportation professionals to quickly get answers to their questions. The listservs described above help foster peer-to-peer interactions and get immediate answers, and we also use a customer relationship management (CRM) solution to provide intelligent self-service options for people to search frequently-asked questions drawn from many of the questions posed via the listservs. This approach allows NCTR to respond promptly to customer questions while keeping costs low and provides a means to reduce the total number of basic inquiries or repeat requests that require personal attention by NCTR researchers. Questions to NCTR also help identify research needs and topics for netconferences.

## **Best Workplaces for Commuters™ ([www.bestworkplaces.org](http://www.bestworkplaces.org))**

Best Workplaces for Commuters™ is an NCTR-supported initiative to reach out to private and public employers that meet the National Standard of Excellence as established by the U.S. Environmental Protection Agency in the provision of commuter benefits. Among the benefits of membership in the program are national public recognition for being commuter-friendly and socially-responsible; participation in web conferences and training to help worksites implement commuter benefits; access to web-based tools help calculate the overall financial, environmental, and traffic improvements associated with commuter benefits; and a help desk and networking opportunities with peers and experts in the field.

Examples of web BWC conferences held in FY 2011 include:

### ***Beyond the Spin on University Bike Sharing and Bike Loan Programs***

Two presenters discussed the successes and learning experiences of establishing these types of programs on university campuses. Michael Davis, Interim Manager of Transportation Demand Management at the University of California, Irvine, discussed UCI's ZotWheel, the first self-service bike-share program in California. Alison Carpenter, AICP, Transportation Planner/Wolftrails Manager, and David Crye of North Carolina State University talked about WolfWheels, a bike-rental program that offers a unique, innovative approach to sustainable transportation at NC State.

### ***Spotlight on Boeing Company and IBM Commuter Programs***

Presentations were given by Barbara Disser, Southwest Region Commuter Program Manager for The Boeing Company, and Douglas Johnson, Program Manager for Energy Management at IBM.

### ***Ridesharing in the Facebook Generation***

This netconference featured two universities and a regional rideshare program and presented methods used to encourage ridesharing at the workplace. Presenters included Jeff Shields, Associate Director, and Lev Vanshelbaum, Alternate Commute Coordinator, of the University of Southern California; Josh Cantor, Director of Parking & Transportation at George Mason University; and Jeremy Holmes, Transportation Alternatives Coordinator, RIDE Solutions, Roanoke Valley-Alleghany Regional Commission.

Approximately 300 workplaces are members ([www.bestworkplaces.org](http://www.bestworkplaces.org)) including Apple, The Boeing Company, Cisco Systems, Consumers Union, Discovery Communications, Fairfax County (VA) Government, Google, IBM, Lockheed Martin, Mayo Clinic, Metropool, Microsoft, National Geographic Society, Pfizer, Inc., Stanford University, Tampa Bay Area Regional Transportation Authority, University of South Florida, Virginia Tech, and Yale University.



## Patents Pending

The following are patents pending filed by USF's Division of Patents & Licensing in coordination with NCTR researchers that are a direct or indirect result of NCTR projects:

- System and Method for Transportation Demand Management (TRACIT w/Expert System)
- Technology to Assist Transit Riders with Special Needs (Travel Assistant Device)
- Transit Stop Detection and Rider Notification Method to Instruct a Transit Rider to Initiate a Stop Request at the Appropriate Time (TAD Component)
- Wireless Reporting System for Civilian-to-Law Enforcement Communications (Wi-Via)
- Hurricane Evacuation Zone Finder, a GPS-enabled cell phone application (subproject of Wi-Via)
- Dynamic Ridematching Algorithm, online carpool matching system which takes actual travel path into account.
- System and Method for Real-time Travel Path Prediction & Automatic Incident Alerts, TRACIT system that predicts where someone may be headed in real-time based on their past travel behavior, looks to see if there are any incidents along this path, and then alerts the driver if there are problems along their predicted path.
- System and Method for Automatically Determining Purpose Information for Travel Behavior
- System and Method to Utilize Pattern Recognition in Real-time Location-Based Services
- System and Method to Optimize Location-Aware Application Performance Through Parallel State Machines (PATENT AWARDED)
- System and Method for Determining Critical Points in Location Data Generated by Location-Based Applications
- System and Method for Adaptive Location Data Buffering for Location-Aware Applications
- System and Method for an Efficient General Architecture in Support of Real-time Location-Aware Applications
- Geotella, a distributed and decentralized location-aware architecture
- System and Method for Spatial Point-of-Interest Generation and Automated Trip Segmentation using Location Data



## Conclusion

At the completion of its 12th year, CUTR's National Center for Transit Research continues to produce a large volume of high-quality research of practical value to public transportation agencies throughout the country. The results of the research are being effectively distributed through a variety of means, including new electronic techniques that allow fast and flexible access to the information NCTR is producing. The program is helping to cultivate the next generation of transportation professionals by providing opportunities for students who assist in the research being conducted. The vast majority of them are joining public and private sector transportation agencies upon graduation. NCTR also contributes to a national interdisciplinary transportation certificate program that will attract students and current practitioners to upgrade their skills and credentials.

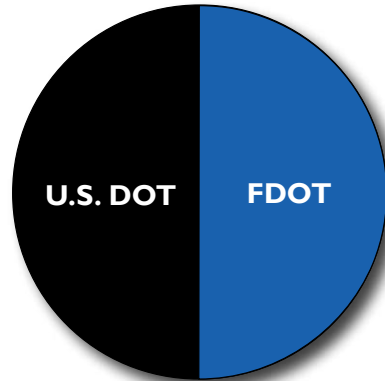
NCTR has always enjoyed a strong relationship with the Florida Department of Transportation and is leveraging UTC program funds through partnerships and contracts with transportation authorities and the Federal Transit Administration. The research faculty and students of

NCTR look forward to contributing to the rising success of public transportation agencies throughout the nation.

### Financial Summary

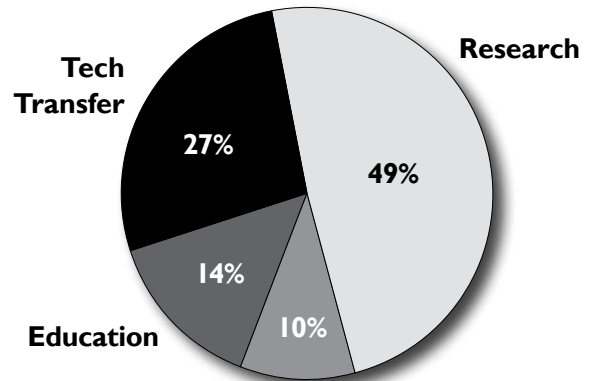
The following charts present the funding sources for FY 2011, the 12th year of the NCTR program, and FY 2011 expenditures based on the key areas of the NCTR Program.

**\$926,700 (50%)**



**\$926,700 (50%)**

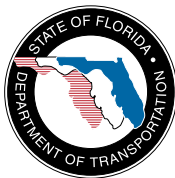
**NCTR Funding Sources  
FY 2011**



**Administration**

**NCTR Expenditures  
FY 2011**

National Center for Transit Research partners:



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