Annual Report - 2009

NCTR

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Message from the Director

Among the more than 60 university transportation centers in the United States, the National Center for Transit Research (NCTR) is the only one that focuses on research that helps public transportation agencies and commuter assistance programs work more effectively and attract more users. Since 1999, NCTR has produced an average of 10 research reports a year on subjects that deal with safety, management efficiency, marketing, demographic analysis, and technology applications that advance industry practices.

There has hardly been a more important time to be investing in research that makes public transportation and alternative forms of transportation more desirable. Our national awareness of carbon footprints, greenhouse gases, climate change, and the need for greater energy independence is increasing, and the current Congress and Administration are investing substantial amounts of funds in transportation systems and solutions that are more green and sustainable. It appears that the reauthorization of the Federal Surface Transportation Act will emphasize alternative transportation investments more than ever before.

The years of research and operations experience that NCTR’s research faculty bring to every project is leveraged by their engagement of students who represent the next generation of transportation professionals. These students not only get exceptional opportunities to learn about transportation systems, but they add great energy and creativity to each project. This past year more than 12 students assisted in the conduct of NCTR’s research funded by the Research and Innovative Technology Administration and the Florida Department of Transportation.

NCTR has proven to be exceptional at disseminating the results of its research through listservs, with more than 4,000 members, netconferences, and webinars; participation on professional committees; presentations at conferences throughout the country; and a website that is regularly updated to keep up with the vast amount of information that is generated.

We hope you enjoy reading this annual report, and we encourage you to visit our website at www.nctr.usf.edu on a frequent basis to peruse the new reports, papers in our Journal of Public Transportation, and webcasts that can be accessed there. If you have not done so already, please consider joining one or more of our many listservs. We need your ideas and input as we work with you to help develop the best information and solutions possible. Your ideas for future research topics are always welcome.

We are honored to be among the universities in the country to receive support from the USDOT’s Research and Innovative Technology Administration. The National Center for Transit Research is truly fortunate to have the support of the Florida Department of Transportation, which provides a full cash match to the federal funds we receive. Beyond the funding it provides, FDOT has earned the reputation of being a true multimodal agency, with professional staff very dedicated to providing alternative modes of travel for a balanced transportation network. We are honored to work with them in our mutual desire for a safer and more efficient transportation system.

Joel Volinski, NCTR Director
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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 enhance the performance and relevance of public transportation and alternative forms of transportation in urban areas.” NCTR focuses on these modes to help promote U.S. DOT’s strategic goals of safety, mobility, global connectivity, environmental stewardship, and security to help ensure the nation’s economic growth, development, and sustainability. Virtually all of the projects undertaken at NCTR are, and will continue to be, dedicated to improving the ability of operating agencies (transit authorities, commuter assistance programs, transportation management associations, Departments of Transportation, etc.) to provide their services in a manner that is efficient, productive, and attractive to the traveling public, and in a manner that adds value to the communities they serve.

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:

<table>
<thead>
<tr>
<th>Role</th>
<th>Name</th>
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<tbody>
<tr>
<td>Director</td>
<td>Joel Volinski</td>
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<tr>
<td>Administrative Director</td>
<td>Dennis Hinebaugh</td>
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<tr>
<td>Education Director</td>
<td>Steve Polzin</td>
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<tr>
<td>TDM Program Director</td>
<td>Philip Winters</td>
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<td>Transit Training Program Director</td>
<td>Lisa Staes</td>
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<tr>
<td>Transit Management and Innovation Director</td>
<td>Rob Gregg</td>
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<tr>
<td>NCTR Program Assistant</td>
<td>Lisa Ravenscroft</td>
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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, utilized, or otherwise applied.
Program Overview

Funding

NCTR has now completed its 9th 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 greater than 100 percent cash match from the Florida Department of Transportation (FDOT), creating more than a doubling of total program funding.

The FDOT funding used to match the U.S. DOT funds is made available at a 10 percent indirect rate, compared to the federal indirect rate of 45 percent, 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 it is important to note that the relationship remains strong, with FDOT remaining 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 Committee to help select future projects and guide the program.

NCTR Advisory Committee

The NCTR Advisory Committee was created during the first six months of the program and consists of 13 experts in the public transportation community with knowledge in the areas of public transportation research and transit planning and operations. The members and their affiliations are as follows:

Joe Calabrese  
General Manager  
Greater Cleveland Regional Transit Authority

Mike Baltes  
ITS Program Manager  
Federal Transit Administration

Tim Garling  
Executive Director  
Pinellas Suncoast Transit Authority

Ed Coven  
State Public Transit Office Manager  
Florida Department of Transportation

Dr. Minnie Fells-Johnson  
Public Transportation Consultant

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

Richard Long  
Director, Office of Research  
Florida Department of Transportation

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

Joel Volinski  
Director, NCTR
Year 10 Accomplishments

Research

The 10th year of the NCTR program (FY 2009) supported 15 projects approved by the NCTR Advisory Committee. These projects consist of 5 core programs that will be conducted throughout the life of NCTR and 10 newly-selected research projects that explore methods to accomplish the goals of the U. S. DOT and the Center in enhancing the performance of public transportation.

Core program areas include continued development and maintenance of:

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

In FY 2009, 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 9 were selected for funding:

- Expanding the Google Transit Data Feed Specification to Support Operations and Planning (*Martín Catalá, CUTR, 77902*)
- Investigation of the Feasibility of Toll and Transit Data Feed Specification to Support Operations and Planning (*Steve Reich, CUTR, 77903*)
- 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*)
- Best Practices in Fixed-Route Bus Transit Dispatch—Management and Function (*William Morris, CUTR, 77907*)
- 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*)

The following indicates the titles and project numbers for the 12 NCTR research projects completed during FY 2009. A sample summary of three of these projects follows in the text below. These projects are available in html and pdf formats on our website at [http://www.nctr.usf.edu](http://www.nctr.usf.edu).
Summary of FY09 Completed Research Projects

<table>
<thead>
<tr>
<th>Project ID#</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>776-05</td>
<td>Impact of Employer-Based Programs on Transit System Ridership and Transportation System Performance</td>
</tr>
<tr>
<td>776-06</td>
<td>Creative Ways to Manage Paratransit Costs</td>
</tr>
<tr>
<td>776-07</td>
<td>Transit Ridership, Reliability, and Retention</td>
</tr>
<tr>
<td>777-03</td>
<td>Performance Measures and Best Practices for Incorporating Transit into the Florida Department of Transportation DRI Review Process</td>
</tr>
<tr>
<td>777-11</td>
<td>Travel Assistant Device (TAD) to Aid Transit Riders with Special Needs</td>
</tr>
<tr>
<td>777-20</td>
<td>Best Practices in Transit Service Planning</td>
</tr>
<tr>
<td>777-21</td>
<td>Impacts of More Rigorous ADA Paratransit Eligibility Assessments on Riders with Disabilities</td>
</tr>
<tr>
<td>777-14</td>
<td>Enhancing Transit Safety and Security with Wireless Detection and Communications Technology</td>
</tr>
<tr>
<td>777-15</td>
<td>Development of an NTD Tool for Vanpool Services</td>
</tr>
<tr>
<td>777-16</td>
<td>Integrating Transit and Urban Form</td>
</tr>
<tr>
<td>777-17</td>
<td>Programs that Match Seniors with Volunteer Drivers</td>
</tr>
<tr>
<td>777-23</td>
<td>Development of Comprehensive Guidance in Obtaining Service-Consumed Data for NTD</td>
</tr>
</tbody>
</table>

Summaries of Selected Completed Projects in FY09

**Programs that Match Seniors with Volunteer Drivers**  
Sara Hendricks, CUTR

Seniors need adequate transportation, not only to maintain their health and vitality, but also to stay active in the community and fully participate in life. The problem that this research project addresses is the documented general lack of transportation options suitable for seniors who are no longer able to drive, particularly those who are too frail to use public transportation. One solution to this problem has been the development and operation of volunteer driving programs for seniors. However, these programs encounter various operational challenges.

The senior population is increasing, both in absolute numbers and as a proportion of total population. Seniors are living longer and many prefer to age in place. Current seniors and the “Baby Boomer” population have generally not planned for their future transportation needs. This study found that volunteer driving programs strive to meet the needs of a particular market of seniors. These seniors generally are on a fixed income, which limits their transportation options. Seniors represent a broad range of physical abilities, and many develop disabilities in their later years. While travel generally decreases overall in later years, seniors have travel needs that still may include longer distance trips across jurisdictions. Many seniors have difficulty navigating the various available transportation options and their associated eligibility, application, and advance reservation requirements to arrange a ride.

To meet the demand for transportation, many driving programs for seniors have been formed over the last several years, and there are now several hundred such programs nationwide. This
study complements existing implementation guides by examining the challenges that remain and proposing actions for overcoming these challenges and strengthening programs.

The issues with which volunteer driving programs struggle include a demand for service that is far greater than program capacity. These challenges involve configuring sustainable volunteer driving services within the limitations of scarce resources. While the issues facing volunteer driving programs are varied, the problem that stands out is insufficient numbers of volunteers. Second, while insurance and liability was cited as a serious problem by only one program reviewed for this study, other previous studies conducted in Florida contained numerous references of problems faced by volunteers and volunteer driving programs nationwide with regard to obtaining insurance. As a result, this study also concentrated on liability and insurance. Protecting the safety of riders and drivers and properly insuring a program are both fundamental to the success of a volunteer driving program.

Providing quality transportation through volunteer driving programs will require the collaboration of transit agencies, commuter assistance programs, Area Agencies on Aging, the volunteer driving programs, and community leaders. Support at the state and federal levels will further advance volunteer driving programs for seniors. Generally, communities that put the resources of interested organizations together can address liability and find more volunteers.

This study examined volunteer driving programs nationwide and identified several main service delivery models. The final report provides recommendations to volunteer driving programs for enhancing risk management, recruiting volunteers, and supporting their organizations. There are several appendices, including a legal analysis of risk associated with volunteer driving programs, prepared by an attorney. The report proposes an agenda for action to bolster volunteer driving programs and the important transportation services they provide.

**Development of Comprehensive Guidance in Obtaining Service- Consumed Data for NTD**

Xuehao Chu, CUTR

As a condition of getting federal funds, transit agencies report the annual use of their service to the Federal Transit Administration (FTA) through its National Transit Database in terms of both boardings and the cumulative miles their passengers travel (passenger miles). They often count every passenger who uses their service and report the resulting 100% count for boardings, but generally estimate passenger miles through random sampling. Estimating passenger miles through random sampling is costly; it includes not only the cost of developing data-collection plans, but also the significantly higher cost of collecting the sample data in terms of how many passengers use their service and where they use it. Agencies want to minimize these data collection costs, but, at the same time, their estimates must meet the minimum accuracy requirements that FTA imposes—there should be at least a 95% chance that the errors from sampling in an estimate do not exceed 10%.

To help transit agencies minimize their costs while ensuring the minimum accuracy requirements, CUTR recently developed the National Transit Database Sampling Manual. For three decades, FTA has provided guidance for transit agencies in Circulars 2710.1A and 2710.2A. However, previous research by CUTR revealed that the current guidance would better help transit agencies if it were updated with three essential features: providing a range of options on modern sampling techniques for data-collection plans, customizing data-collection plans to agency operating conditions, and being comprehensive for wide applicability. FTA asked CUTR to develop new guidance that includes these features.
Written in non-technical language and in a question-and-answer format, the new guidance in the National Transit Database Sampling Manual is comprehensive, covers all modes, and provides information for:

- directly-operated and purchased services
- existing and new services
- 100% counts and sampling-based estimates
- annual and monthly data
- sampling years and non-sampling years
- users of Circular 2710.1A plans and other agencies

In addition, all three steps of estimating annual data are included—getting a data-collection plan, collecting sample data, and estimating boardings and passenger miles, as are procedures for the development, certification, and updating of data-collection plans and for identifying and correcting potential errors in sample data.

The new guidance provides six modern sampling techniques for agencies to consider in developing data-collection plans. These techniques vary widely in their potential for agencies to reduce the amount of sampling while meeting the minimum accuracy requirements. This variation results from differences in both how sampling is done and how estimation must be done when applying these sampling techniques.

The new guidance is accompanied by an Excel template that is designed for transit agencies to develop data-collection plans that are customized to their own operating conditions. The template requires sample data from an agency’s service in terms of summary information for each unit in the sample. The template was applied to the actual sample data collected by a range of agencies for the National Transit Database for a range of modes and services. The potential cost savings from using the six sampling techniques are proportionally very large. The actual cost savings, however, are specific to individual cases. The Excel template removes the technical barrier for agencies to consider these sampling techniques and reduces the cost for exploring them. Agencies are encouraged to take advantage of this cost-effective tool in seeking the technique that reduces the amount of sampling for their mode, operating conditions, and administrative circumstances.

FTA has expressed interested in formally adopting a shortened version of the new guidance. The new guidance and related template can be found in “Development of Comprehensive Guidance on Obtaining Service Consumed Data for NTD” at http://www.nctr.usf.edu/publications.htm#nctrfinalreports.

Travel Assistant Device (TAD) Aids Transit Riders with Special Needs
Sean Barbeau, CUTR

Passengers with cognitive disabilities have difficulty using public transportation and often must travel with a personal assistant to ensure that they get to their destinations. But recent advances in mobile technology may soon lessen the need for such assistance.
Global Positioning System (GPS)-enabled cell phones are being used for a variety of novel services based on the phone’s ability to pinpoint geographic locations. One such service is the Travel Assistant Device (TAD), a software system designed to aid transit riders with special needs. TAD provides the riders with customized real-time audio, visual, and tactile prompts to aid them in their travels.

The goal of the Americans with Disabilities Act (ADA) is to provide equal opportunity, full participation, and independence to persons with disabilities. However, for the cognitively impaired, the inability to travel, or the lack of knowledge in accessing available transportation, frequently translates into difficulty finding employment, seeking medical services, and participating in educational or vocational training. Skilled travel trainers teach people with cognitive disabilities to read a bus schedule, pay the fare, plan and practice transit trips, and develop other skills needed to effectively and confidently use a transit system. Any tool a travel trainer can use to help a trainee become confident in possessing and using these skills lessens the burden of caregivers; frees up time for trainers, who can then turn their attention to others in need; and advances the mission of the ADA.

TAD provides the rider with customized audio, visual, and tactile prompts. For example, TAD could be used to signal the rider when he/she should exit the transit vehicle by literally announcing “Get Ready...” and “Pull the cord now!” Future versions of TAD could use Bluetooth™ wireless headsets so that audio would be heard privately by the rider through a headset, something that field test participants stated would be preferable. Additionally, the TAD system provides alerts to the rider, caretaker, and travel trainer when the rider has deviated from his/her planned route. A website allows easy access for the creation of new trip itineraries and allows the monitoring of the rider’s location by authorized personnel in real-time from any computer. While TAD was designed to aid transit riders with special needs to increase their level of independence, any transit rider can benefit from its service—particularly those who are new to a transit system or are uneasy using it.

To date, qualitative results indicate that TAD works precisely and is able to deliver notifications to the user in the exact location chosen by the travel trainer via the web page. After overcoming institutional barriers and putting research subject protections in place, limited field tests with six cognitively disabled young adults successfully demonstrated the proof-of-concept of the TAD system. Trip planning functionality could eventually be integrated into the TAD website, e.g., using Google Transit software, eliminating the need for prior knowledge of a bus system’s routes and schedules to set up a trip. Using a source and destination address, software would automatically plan a trip and set up the proper routes and schedules for download by the TAD mobile application.

Integrating TAD into travel training curriculums will require input from multiple parties, including special education professionals and travel trainers. The tracking feature and automated route deviation alert are designed to aid the travel trainer and/or guardian in case the rider becomes lost; however, trainers should adequately prepare the rider for such an occurrence. TAD has the potential to significantly improve the lives of people with cognitive disabilities by improving their ability to travel independently. Independent travel enhances their ability to be contributing members of society by getting disabled individuals to work, school, or wherever they might need or want to go.
Education

NCTR and its parent organization, the USF Center for Urban Transportation Research, continue to support various initiatives to enhance professional development of the current and next generation of transportation professionals. These initiatives are constantly updated to reflect evolving needs and resource impacts on various programs. Student interest in transportation remains strong, with many professionals exploring the possibility of updating their credentials to remain competitive in a more challenging employment environment and the strong attention to transportation’s role in economic competitiveness and global environmental health spurring interest in transportation. The continuing extreme budget pressures on university resources and costs are pushing technology solutions and innovative strategies to the forefront.

Student involvement in project research continues to be a priority of CUTR and the NCTR program. During FY 2009, graduate and undergraduate students were involved in ongoing public transportation research projects and were 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, business, geography, and public administration. Through research and professional experiences, NCTR helps develop well-informed, educated individuals, several of whom have gone on to work on 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 remains strong, with a continuing shift to higher shares of part-time, certificate, and distance-learning students and fewer full-time graduate students. Job placement is more challenging than in the past but remains stronger than most professions. Planning-focused professionals appear to have a stronger employment environment than do design- or engineering-focused students. The program continues to be proud of its placement record, with numerous students finding increasingly prestigious employment opportunities.

The transportation faculty of the USF Civil & Environmental Engineering Department remain in a growth mode, with two new faculty in 2008 now established and an additional faculty position to be filled in 2009-2010. CUTR faculty continue to supplement the tenure-track 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.

Transportation Certificate Program
CUTR’s newest certificate, the Transportation Systems Analysis Certificate, is being well received, with frequent inquires and a growing roster of students pursuing the certificate. Individuals can complete the certificate via distance learning, making it particularly attractive for continuing education for working professionals. CUTR is exploring adding a complementary Transportation Planning Certificate that would target both engineers and non-engineers and may include a partnership with the new Urban Planning Master’s Program introduced at USF in Fall 2009.

Exploration of Additional Public Transportation Graduate Courses
The first step toward expanding public transportation course offerings has been to increase the frequency and enrollment of the current “Public Transportation” course. NCTR has continued to explore mechanisms that would enable more graduate students in other programs...
to take the course and have it be easily accepted as credit toward their degree at their primary university. To this end, CUTR is participating in the Transportation Leadership Graduate Certificate Program, www.transleader.org/index.php, a national initiative to encourage and enable students to take specialized courses at various universities that are eligible towards a national certificate. It remains to be seen if this new initiative will generate student interest. At this point, USF has offered two courses, “Transportation and Land Use” and “Public Transportation” as certificate-eligible courses.

Other Education Initiatives

Several other initiatives continue to receive attention. The undergraduate course “Transportation and Society,” designed to introduce transportation to undergraduates from various disciplines, remains popular and is now being offered as a distance learning course. Inquiries have been received about possible internships at public transit agencies, and the economics of such arrangements are being explored. Distance learning delivery has been restructured to use Elluminate Live™ software and enable an easier, more flexible, and lower-cost method for delivering distance learning courses. More distance learning course opportunities are envisioned in the future, and this software will be used to enhance seminar and webinar offerings as well.

2009 NCTR Student of the Year: Sean Barbeau

Sean Barbeau was named 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.

Sean’s contributions to NCTR were nationally and internationally recognized in 2008 with seven peer-reviewed papers and presentations for a variety of organizations. 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.

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

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 19 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:

Barbeau: Member, Expert Group, Java Spec Request 293
Bart: Member, Bus Standards Policy/Planning Steering Subcommittee, APTA; Florida Paratransit Maintenance Committee, FDOT; Florida Maintenance Consortium, FDOT; Statewide Roadeo Committee, FPTA; Member, Transit Fleet Maintenance Committee, TRB
Bond, A.: Vice-Chair for National Planning, APA Intergovernmental Planning; Member, Committee on Transportation and Land Development ADD30, TRB
Bond, J.: Co-Chair, Conference Program Committee, ACT; Member, Bicycle & Pedestrian Advisory Committee, Hillsborough County MPO; Sustainability Transportation Subcommittee, USF
Brosch: Editorial Board, Journal of Safety & Security
Byrnes: Associate Staff Instructor, U.S. DOT Transportation Safety Institute
Cain: Road Pricing Subcommittee, TRB; Managed Lanes Joint Subcommittee, TRB
Chu: Editorial Board, Journal of Safety & Security
Concas: Member, TDM Committee, TRB; Reviewer, Travel Behavior and Values Committee, TRB; Reviewer, Transportation and Economic Development Committee, TRB
Davis: Panel SA-16, Synthesis on Uses of Higher Capacity Buses in Transit Service, TCRP
Fabregas: Member, Institute for the Operations Research and Management Sciences, INFORMS
Flynn: Member, Committee on Major Activity Center Circulation, TRB
Goodwill: Co-Chair, FPTA Annual Conference
Gregg: Coordinator, Florida Transit Planning Network
Hendricks: Co-Chair, Telework Council, ACT; Sustainability Transportation Subcommittee, USF; Faculty Advisory Board, USF Patel Center for Global Solutions
Hillsman: Member, Bicycle & Pedestrian Advisory Committee, Hillsborough County MPO; Member, TDM Committee ABE50, TRB; Member, Transportation Energy Committee ADC70, TRB; Sustainability Energy Subcommittee, USF
Hinebaugh: Member, BRT Task Force, APTA; Panel D-13, Guide for Implementing Bus on Shoulder Systems, TCRP; Member, Bus Transit Systems Committee, TRB; Panel A-23: Cost Effectiveness of Selected BRT Components, TRB; Chair, BRT Subcommittee, TRB
Kramer: Technical Committee, AMPO; Member, Metropolitan Policy, Planning & Processes,
Lee: Winter Maintenance Committee, TRB
Lin: Member, Traffic Signal Operations Committee, FDOT; Chair, Intelligent Traffic Signal Operations Committee, ITE; Member, Traffic Engineering Council, ITE; Member, Transportation Management Center Committee, ITE; Member, Steering Committee, TSM&O Guidelines, ITE; Executive Committee, Management & Operations/ITS Council, ITE
Mierzejewski: Constitutional Amendments Committee, ITE; Student Chapter Award Committee, ITE; Project 8-44: Incorporating Safety into Long-Range Plans, NCHRP; Panel 8-59: Transportation Cost Implications of New Development, NCHRP; Committee on Transportation Programming, Planning, System Evaluation, TRB
Mistretta: Website Manager, Suncoast APA; Sustainability Transportation Subcommittee, USF
Morris: Member, Marketing and Fare Policy Committee APO30, TRB
Perk: Member, Intermodal Operations Technical Forum, APTA; Instructor, National Transit Institute; Reviewer, Social/Economics Factors ADD20, TRB; Member, Transit Capacity and Quality of Service Committee, TRB
Polzin: Oversight Board for the Census Transportation Planning Products; AASHTO; Member, Policy & Planning Committee, APTA; Transit and Urban Form Working Committee, APTA; Board of Directors, Hillsborough Area Regional Transit; Editorial Board, Journal of Public Transportation; Education Committee, SE Transportation Center; Member, Urban Transportation Data and Information Systems, TRB
Reep: Associate Staff, Federal Transportation Safety Institute; Chair, Florida Operations Network; Member, Advisory Board, Florida Rural Transit assist Program Network
Reich: Director of Research, TEAM Florida Board of Directors
Sapper: Member, Committee on Public Transportation Safety & Security Task Force, AASHTO
Seggerman: Member, Transportation Planning Division, APA; Member, Congress for New Urbanism; Chairperson, Planning Council, District 10/FSITE; Member, NCHRP Panel 08-67
Staes: Transportation Work Group, American Cancer Society; Member, Panel B-36, Updated Methodology for Forecasting Demand, TCRP; Member, National Peer Review Panel, Instructor’s Course on Paratransit Operations, TSI
Thole: Young Member, Environmental Justice in Transportation (ADD50), TRB
Volinski: Member, Research & Technology Committee, APTA; Member, Human Resources Committee, APTA; President, Leadership Alumni Association, APTA; Board of Directors, FPTA; Co-Chair, FPTA Annual Conference; Transit Ambassador Emeritus, TCRP; Member, Research Proposal Screening Committee, TCRP; Member, Public Transportation Planning & Development, TRB; Member, Transit Management and Performance Com-
Publications and Presentations

During FY 2009, NCTR researchers were active in publishing and presenting at state and national conferences and meetings, as follows:

Publications

Barbeau, Labrador, Georggi, Winters, and Perez, “TRAC-IT: A Software Architecture Supporting Simultaneous Travel Behavior Data Collection & Real-Time Location-Based Services for GPS-Enabled Mobile Phones,” TRB Proceedings


Ferraro, Concas, Reich, Davis, and Best, “A Heavy-Duty Transit Bus Size Decision Support Tool,” Proceedings, 50th Annual Transportation Research Forum

Goodwill and Staes, “Florida Heartland Mobility Plan Effort,” Proceedings, TRB 11th National Tools Conference

Lin, Salari, and Rai, “Managing Traffic Impacts from Special Events for Small Cities,” Proceed-
Presentations


Barbeau, Labrador, Georggi, Winters, and Perez, “TRAC-IT: A Software Architecture Supporting Simultaneous Travel Behavior Data Collection and Real-Time Location-Based Services for GPS-Enabled Mobile Phones,” TRB


Barbeau and Georggi, “Travel Assistant Device to Aid Transit Riders,” UCF Campus and Community Sustainability Conference

Bart, “Technical Training: Knowledge Learned is Credit Earned,” Washington State Public

Bond, A., “Will Generation Y Use Transit?” TRB Special Conference on Changing Demographics of the Transportation System

Byrnes, “Substance Abuse Management Regulations Compliance Training,” FDOT District 3, VOTRAN, FPTA


Chu and Polzin, “Impacts of Demographics on Future Travel Demand,” TRB Special Conference on Changing Demographics of the Transportation System


Flynn, “Quantifying the Importance of Image and Perception to Bus Rapid Transit,” FPTA/FDOT/CUTR Professional Development Workshop


Georggi, “Best Workplaces for Commuters,” Survive and Thrive in Today’s Economy


Goodwill and Bart, “Basics of Transit Procurement,” FPTA/FDOT/CUTR Professional Development Workshop


Goodwill and Staes, “Florida Heartland Mobility Planning Effort,” TRB Tools of the Trade 11th National Conference

Gregg and Brown, “Balance Between Providing Paratransit Service and Fixed Route,” FPTA/FDOT/CUTR Professional Development Workshop


Hillsman, “Carbon Footprints for Transportation,” Southeast Diesel Col-
laborative
Perk and Thole, “Land Use Impacts of Bus Rapid Transit,” FPTA/FDOT/CUTR Professional Development Workshop
Polzin and Chu, “Impacts of Demographics on Future Travel Demand,” TRB Special Conference on Changing Demographics of the Transportation System
Sapper et al., “Video Analytics for Transit Applications,” FPTA/FDOT/CUTR Professional Development Workshop
Seggerman, “Emerging Status of VMT-Based Transportation Impact Assessment Methods and Mobility Fees,” FSITE Summer Meeting
Seggerman, Joslin, and Hendricks, “Incorporating Transit and Other Multimodal Strategies into the FDOT DRI Review Process,” 34th Annual Conference Agenda
Training

During FY 2009, NCTR researchers were active in either providing or facilitating the following training sessions:

**CUTR**
- Trends Affecting Transportation Systems
- AICP Prep Course, Transportation Component
- MPOAC Institute for Elected Officials
- Urban Transportation Planning
- Access Management at Intersections, Parts I & II, ITE Webinar
- Stover, Access Management at Intersection Parts I & II

**Florida Operator Training Program**
- Conflict Avoidance: Art of Maintaining Control

**Florida RTAP**
- Instructor’s Course in Paratransit Operator Training
- Florida Paratransit Driver’s Qualification Train-the-Trainer

**FPTA/FDOT/CUTR Professional Development Workshop**
- 2010 EPA Transit Requirements
- Basics of Transit Grants & Funding Programs
- Basics of Transit Procurement
- Basics of Transit Service Planning
- Building Diversity Skills in the Transit Workplace
- Carbon Footprint: Commuting/Business Travel
- Crossroads: Drug & Alcohol Testing Decisions for Supervisors
- FTA Civil Rights Training & Program Requirements
- FTA Preparing for the Triennial Review
- FTA Transit Threat & Vulnerability Assessment
- Hiring, Firing, & Layoffs in Transit
- Improving Morale
- Increasing Productivity
- ITS Transit Technology
- Prescription for Transit Safety
- Stepping up to Supervision
- Transit Emergency Response Planning
- Video Analytics for Transit Applications

**TDM/Commuter Choice**
- Connecting TDM and Climate Change
- Employer Outreach Training
- Formulating Carpool Policies for Managed Lanes
- Public Presentations the Media Love
- Establishing Program Goals and Objectives
Bicycle and Pedestrian Programs
Commuter Choice Support Programs
Commuter Choice Tax Benefits: Session 1
Creative Thinking for Transportation Professionals
Establishing Program Goals and Objectives
Incorporating TDM in Land Development
Institutional Arrangements
Long Range TDM Planning
Marketing Campaigns and Strategy
Measuring Carbon Footprints
Measuring Results and Performance
Parking Management
Quantifying the Business Benefits of TDM
Rideshare Options
Telework and Compressed Workweek
Transit Service Options

Transit Training
Preparing for the Triennial Review
Strategies for Retraining Transit Operators
Fatigue Awareness for Transit Operations
Instructor’s Course in Bus Operator Training
Building and Retaining Ridership: A Self-Assessment Tool
Terrorist Activity Recognition & Response
Violence in the Transit Workplace
Transit Bus System Safety
Weapons of Mass Destruction
Distance Learning: SAM Regulatory Update
DOT Urine Specimen Collector Training & Regulatory Update
Drug & Alcohol Program Management & Regulatory Updates
Drug & Alcohol Program Management 101
Substance Abuse Management & Program Compliance
Substance Abuse Management & Reasonable Suspicion
Substance Abuse Management Compliance Program Update
Substance Abuse Management Regulatory Program Compliance Training
Preparing for FTA Triennial Review
Fatigue Awareness
Introduction to Transit Operations Planning
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**

In 2007, NCTR initiated a new e-newsletter, *FLOW: Moving People and Ideas*. *FLOW* 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**

In FY 2009, NCTR supplemented its technology transfer efforts by continuing to host and present netconferences. These netconferences provide a cost-effective method for reaching large groups of transportation professionals in real-time, using only a telephone, a computer, and an Internet connection. Tightening travel restrictions make netconference delivery of research results and subject area experts particularly timely and valuable to the industry. All NCTR netconferences are available for on-demand viewing after the live presentation from the NCTR website at www.nctr.usf.edu.

NCTR recognizes the importance of partnering with other groups to expand our reach. For example, NCTR has partnered with chapters of the Association for Commuter Transportation (ACT) to host netconference events in their cities for ACT members and non-members. These events are held at 15 to 30 locations and attract up to 200+ attendees without the cost and significant time out of the office due to travel. In FY 2009, NCTR sponsored the following netconferences in partnership with ACT and one “Lunch and Learn” netconference in partnership with Florida Department of Transportation.

**Strategic Marketing: The Truth About Gender and Generational Commuting Trends—and Its Consequences** (May 27, 2009)

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 in 10 members agreed that it is important to customize TDM marketing messages for each generation but very few do. This session provides information to improve understanding of these gender and generational trends as TDM and transit agencies develop strategic marketing plans. 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 the Southeastern Institute of Research and The Boomer Project presented “Using A Generational Lens to Advance Non-Drive Alone Alternatives in America.” He presented an overview of the four generations of commuters: Silent, Boomers, Gen Xers, and Millennials (Gen Ys) and shared an easy way to understand their differences and what motivates them to rideshare. His presentation concluded with recent findings of a survey that examined the willingness and propensity of the various generations for using alternatives to driving alone.

Connecting TDM and Climate Change (February 12, 2009)

Employers adopted TDM to address the needs of employees facing the high cost of gasoline, parking problems, and environmental concerns. 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 greenhouse 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 promotes and fosters non-single-occupant vehicle commuting – in other words, TDM.

The 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 greenhouse gas emissions creating improved access, reducing energy consumption, and achieving cost savings. Speakers included Dr. Daniel Rodriguez of the University of North Carolina, who provided the overview and context; Paulo Nunes-Ueno of the Seattle Children’s Hospital, who provided details about its Corporate TDM Program and associated carbon benefit; and Erika Vandenbrande of the City of Redmond, Washington Planning Department, who presented information on an excellent municipal TDM program that promotes TDM and collects CO2 reductions.

Are Three Heads Better than Two? Formulating Carpool Policies for Managed Lanes (November 19, 2008)

Policymakers and transportation professionals throughout the country are proposing managed lane projects, also known as High Occupancy/Toll (HOT) lanes and Express Toll lanes on existing and new High Occupancy Vehicle (HOV) facilities. In many cases, policies have been advocated or carried out to increase the carpool occupancy requirement from 2-persons to 3-persons for free use of these facilities. What are the reasons for and implications of these new HOV policies? Although policy proponents have stated existing 2-person carpools will increase the number of people in their carpool to meet the incentive, policy opponents indicate the presence of alternatives that might make a carpool 3+ policy contribute to more (+) vehicle trips. Understanding how carpoolers may change their behavior is fundamental to understanding how successful the managed lane will be in addressing regional congestion, air quality, and mobility objectives. The panel addressed these issues. Eric Schreffler of ESTC provided a general overview on managed lanes and national TDM/Telework subject area expert for the Urban Partnership Agreement projects. David Ungemah of Texas Transpor-
tation Institute discussed the considerations needed inform the development of a comprehensive regional policy for managed lanes and value pricing. Mike Burbank of the North Central Texas Council of Governments discussed the development of the managed lanes policy study for the Dallas-Fort Worth area.

**Florida Lunch and Learn:** The Future is Now: TDM Marketing in Today’s “Environment” (August 20, 2008)

Rising gas prices and growing concern related to the environment are creating opportunities for transit agencies and commuter services programs. Jeff Horton of The Marketing Institute at Florida State University identified the challenges and opportunities this presents in marketing transit, carpooling, vanpooling, biking to work, walking to work, working from home, and working a compressed work week schedule. During the course of his presentation, he identified conditions affecting today’s marketplace and consumer behavior and summarized how to apply the “4 Ps” of basic marketing in that context. He noted that marketing is not just advertising and transit/commuter services programs need to move their thinking process beyond traditional, social service delivery to compete in the marketplace.

**Website**

Basic web statistics were designed so systems administrators could determine how efficient the system was in processing requests. The statistics were not intended to count every user. However, such web statistical reports enable NCTR to track basic trends. Unique page views increased nine percent for FY 2009 vs. FY 2008. The Top 10 downloads from the NCTR website in FY 2009 reflect the diversity of topics and audiences that benefit from NCTR research, education and technical assistance efforts:

3. Best Practices In Transit Service Planning
4. Programs That Match Seniors With Volunteer Drivers
5. Integrating Transit and Urban Form
7. Development of a NTD Tool for Vanpool Services
8. Synthesis of Research on Value of Time and Value of Reliability
10. Exploration of a Shift in Household Transportation Spending from Vehicles to Public Transportation

**Peer-to-Peer Exchanges**

NCTR has nearly 4,100 active subscriptions to its public transportation-related listservs. This is an overall net increase of 550 subscriptions or 16% in FY09.
<table>
<thead>
<tr>
<th>Listserv</th>
<th>Type</th>
<th>Subscribers (as of 6/30/09)</th>
<th>FY09 Net Change in Subscribers</th>
</tr>
</thead>
<tbody>
<tr>
<td>BFM-General (transit maintenance)</td>
<td>Discussion Forum</td>
<td>252</td>
<td>+22%</td>
</tr>
<tr>
<td>Bus Rapid Transit (BRT)</td>
<td>Discussion Forum</td>
<td>356</td>
<td>+6%</td>
</tr>
<tr>
<td>Journal of Public Transportation (JPT)</td>
<td>Announcement</td>
<td>408</td>
<td>+5%</td>
</tr>
<tr>
<td>National Center for Transit Research (NCTR)</td>
<td>Announcement</td>
<td>933</td>
<td>+6%</td>
</tr>
<tr>
<td>Parking Management (Parking)</td>
<td>Discussion Forum</td>
<td>198</td>
<td>+36%</td>
</tr>
<tr>
<td>Rural Transit Assistance Program (RTAP)</td>
<td>Discussion Forum</td>
<td>91</td>
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</tr>
<tr>
<td>Sustainable Transport Indicators</td>
<td>Discussion Forum</td>
<td>145</td>
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</tr>
<tr>
<td>Telework</td>
<td>Discussion Forum</td>
<td>261</td>
<td>+15%</td>
</tr>
<tr>
<td>Transportation Demand Management (Transp-tdm)</td>
<td>Discussion Forum</td>
<td>1453</td>
<td>+25%</td>
</tr>
</tbody>
</table>

To subscribe to any of the above listservs, go to 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 (e.g., customized Google or Yahoo home page) without cluttering email inboxes.

**Customer Support via Help Desk**

Using a leading a customer relationship management software solution, NCTR provides enhanced and personalized communications with public transportation professionals. The system provides continual feedback to help NCTR understand and address the wide range of immediate technical assistance needs of the public transportation community. The Help Desk provides intelligent self-service options to respond to customer needs while keeping NCTR costs low. With 625+ questions and answers, including case studies, this approach provides a means to reduce the total number of basic inquiries or repeat requests that require personal attention by the NCTR staff. Questions to the Help Desk provide guidance to NCTR on research needs, possible subjects or topics for netconferences, or training workshops based on the level of interest or need.

Finally, Best Workplaces for Commuters (www.bestworkplaces.org) continues to be an initiative to reach out to private and public employers to enhance the understanding and productivity of programs aimed at increasing transit ridership, decreasing traffic congestion, reducing emissions and energy use, and providing more mobility. This program has evolved from primarily a recognition program to the development of a community with netconferences, listservs for BWC employers and champions, social media means for communicating with workplaces, Help Desk, and more. In FY 2010, NCTR is introducing a membership fee for workplaces that meet the National Standard of Excellence as established by the Environmental Protection Agency and enhanced by NCTR to help to continue to expand the program.
FY 2010 Research Program

In July 2009, NCTR completed the process to solicit and select research ideas for the FY 2010 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, and national listservs. From the submission of more than 75 different research ideas, the NCTR Advisory Committee provided assistance in selecting 5 core program and 10 research projects for funding in FY 2010.

Conclusion

At the completion of its 10th 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 always has enjoyed a strong relationship with the Florida Department of Transportation and is leveraging program funds through partnerships and contracts with transportation authorities and FTA. 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 2010, the 11th year of the NCTR program, and FY 2010 expenditures based on the key areas of the NCTR Program.

$816,600 (50%)