Message from the Director

As this report is being produced in late 2008, the world of public transportation is in the midst of what some people call “the perfect storm.” The costs of diesel fuel have risen dramatically and quickly over the past two years, causing major challenges for transit agencies that establish budgets on an annual basis and operate with minimal reserves and contingencies. Revenues from all sources—property taxes, general sales taxes, or gas taxes—all have declined. While costs have risen sharply and most revenues have declined, demand for public transportation services has increased. In many cases, transit agencies have not been able to provide the capacity that is suddenly needed more than ever as people are under financial strains of their own due to higher costs for fuel, food, and other necessities. More and more people are choosing public transit and other alternative means of travel to save money, but they also are learning that there are other personal and community benefits to using transit. Commuter assistance programs that facilitate ridesharing and encourage flex hours and telecommuting are also seeing major increases in interest and utilization.

It is impossible to predict what the cost of fuel will be in the near future, especially given the current economic slowdown that many fear could turn into a global recession. What is becoming clearer is that public transportation and alternative means of transportation are becoming more attractive to more and more people. Transit ridership is going up, while overall vehicle miles traveled is going down. The theme of the National Center for Transit Research is to make public transportation and alternative forms of transportation safe, effective, efficient, desirable, and secure. These goals are more significant than ever before; it is time for public transportation in its many forms to become far more prominent in the overall management of mobility in our country. NCTR is perfectly positioned to help the industry serve more people and more communities in ways that further the national goals of energy independence, global and community sustainability, improved mobility options, and congestion reduction. This is accomplished at NCTR 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.

In the course of the past year, NCTR has completed multiple research projects that are helping transit agencies and commuter assistance programs enhance their performance and increase their relevance in their communities. We have facilitated conferences and webinars attended by hundreds of professionals around the country. Our listservs connect almost 4,000 public transportation professionals and students around the globe who are able to share information and develop solutions to the many issues they face. Our Journal of Public Transportation has over 2,000 subscribers from almost 60 countries. Our students continue to contribute to meaningful research and, upon graduation, become leaders in public and private transportation-related agencies.

I would like to express my gratitude to the officials at U.S. DOT’s Research and Innovative Technology Administration and the Florida Department of Transportation for their continued support of the program at NCTR. We are honored to respond to our nation’s desire for transportation solutions that address what is most important to individuals, local communities, our nation, and the world.

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 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 (USF). Key personnel of NCTR include:

- Director: Joel Volinski
- Administrative Director: Dennis Hinebaugh
- Education Director: Steve Polzin
- TDM Program Director: Philip Winters
- Transit Training Program Director: Lisa Staes
- Transit Management and Innovation Director: Rob Gregg
- NCTR Program Assistant: 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, 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 18 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 9 Accomplishments

Research

The 9th year of the NCTR program has 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 FY08, 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 100 research ideas were received, and 10 were selected for funding.

- TBEST Model Enhancements—Parcel Level Demographic Data Capabilities and Concepts for Park-and-Ride Modeling (Steve Polzin, CUTR, 778-01)
- Guidebook on Using American Community Survey Data for Transit Planning (Xuehao Chu, CUTR, 778-02)
- Guidebook on Using Automatic Passenger Counters for NTD Reporting (Xuehao Chu, CUTR, 778-03)
- Dynamic Travel Information—Personalized and Delivered to Your Cell Phone (Sean Barbeau, CUTR, 778-04)
- Quantifying Net Social Benefits of Vehicle Trip Reduction Impacts (Sisinnio Concas, CUTR, 778-05)
- Synthesis of Research on Value of Time and Value of Reliability (Sisinnio Concas, CUTR, 778-06)
- Evaluation of Smart Video for Transit Event Detection (Deborah Sapper, CUTR, 778-07)
- Evaluation of Electronic Data Recorder (EDR) for Incident Investigation (Deborah Sapper, CUTR, 778-08)
- Development of Tool for Predicting TDM Impacts on Transportation System Performance (Phil Winters, CUTR, 778-09)
- Top 100 Unconventional Marketing Approaches for Public Transportation (Rob Gregg, CUTR, 778-10)

The following table shows the titles and project numbers for the nine NCTR research projects completed during FY08. A sample summary of three of these projects follows in the text below. These projects are available in HTML and PDF formats on the NCTR website at http://www.nctr.usf.edu.
### Summary of Year 8 Completed Research Projects

<table>
<thead>
<tr>
<th>Project Title</th>
<th>Project ID#</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creative Ways to Manage Paratransit Costs</td>
<td>776-06</td>
</tr>
<tr>
<td>Testing the Impact of Personalized Feedback on Household Travel Behavior</td>
<td>776-09</td>
</tr>
<tr>
<td>Moving the Bus Back Into Traffic Safely</td>
<td>776-10</td>
</tr>
<tr>
<td>Toolbox for Transit Event Investigation</td>
<td>777-06</td>
</tr>
<tr>
<td>Transit Extraboard Management-Optimum Sizing and Strategies</td>
<td>777-07</td>
</tr>
<tr>
<td>Smart Phone Application to Influence Travel Behavior (TRAC-IT Phase 3)</td>
<td>777-09</td>
</tr>
<tr>
<td>Developing a Printed Transit Information Material Design Manual</td>
<td>777-10</td>
</tr>
<tr>
<td>Development of a Large Bus / Small Bus Decision Support Tool</td>
<td>777-13</td>
</tr>
<tr>
<td>Exploration of a Shift in Household Transportation Spending from Vehicles to Public Transportation</td>
<td>777-22</td>
</tr>
</tbody>
</table>

### Summaries of Selected Completed Projects in NCTR’s 9th Year

#### Moving the Bus Back into Traffic Safely: Signage and Lighting Configuration, Phase I (Zhou)

FDOT has been working on the issue of crash reduction in transit vehicles over the past four years. Much work has been accomplished in the analysis of bus crash data and in making recommendations for the potential reduction of crashes. Safety is one of the department’s most important issues. Although bus crashes do not usually result in harm to the transit bus drivers or passengers, the drivers of the vehicles that crash into the buses are usually harmed more severely. Bus crashes also are a cause of traffic congestion, resulting in time loss by those not involved in the crash and increased air pollution.

A recent study of bus crash data by FDOT found that the most common cause of bus crashes was inattentive or careless driving on the part of private automobile operators. The study recommended the installation of more bus pull-out bays on state roads, more effective lighting configurations on the rear of buses, and state-wide bus stop design standards. These results led to review of the engineering side of the Yield to Bus (YTB) program to develop recommendations to address the issue. This study provides hardcore engineering recommendations for both engineering and public information solutions.

The final report addresses four potential avenues of safety improvement:

- YTB LED lighting configuration on the back of the bus
- improved pavement markings and roadside signage
- YTB public information campaign to inform the public of the issues at hand
- potentially amending YTB statutes to accomplish these goals

The research indicates that a flashing YTB sign on the back of the bus like those allowed by State law in California and Oregon may be the most effective bus modification to improve operation and safety. A majority (73%) of bus drivers interviewed indicated they felt the flashing LED signs would be the most effective and safest technology in North America rather than a YTB decal on the back of the bus. YTB LED lights are activated by a control switch and activated when the left-turn signal is released, providing reduced distraction to the bus operator. The cost is between $250 and $600 per bus, a minimal cost in comparison to the money lost by
the transit agency having a bus out of commission and the fuel loss by traffic congestion created by bus accidents.

The second engineering solution would be to develop MUTCD-accepted roadside signage, including flashing lights and pavement markings in specific locations where the potential for rear-end collisions are greatest. This is especially true in areas with high traffic volumes and shorter headways where bus pull-out bays are present. This engineering solution may impact re-entry delay, relay propagation and schedule adherence depending on the number of lanes, location of the stop, and distance to the nearest intersection, hourly traffic volumes, speed limit and bus headway.

Use of YTB LED lighting should be supplemented with a standardized program of using the flashing warning lights so that motorists can understand what the sign means. Other states require a public awareness campaign to let motorists know about the YTB laws. A system should be set up to evaluate the necessity of the law based on the total number of traffic collisions, congestion and air quality savings, public opinion, and the efficiency of transit operations. To accomplish these goals could require changing the statutes to improve YTB safety, including allowing flashing directional signals on the left rear of the bus to indicate merging into traffic, using a merging signal when the bus enters a traffic lane after receiving or discharging passengers even if it is not exiting a bus bay, not requiring transit agencies to install illuminated flashing lights, and requiring each transit agency participating in the YTB program to undertake a public education program to inform motorists of the requirements of the program relating to the bus rights-of-way. The final report for this project is available at http://www.nctr.usf.edu/pdf/77610.pdf.

Developing a Printed Transit Information Material Design Manual (Cain)

Previous phases of NCTR research have shown that a significant proportion of the general public is unable to successfully plan a transit trip using printed transit information materials. There is evidence that such trip planning difficulties represent a major barrier to transit use among non-users, and may also contribute to the underutilization of transit services by existing users. A lack of recognized design standards has also contributed to inconsistencies in the material designs produced by different agencies, resulting in an unnecessary source of user confusion.

This project aimed to address these issues by developing a printed transit information material guidebook capable of assisting transit agencies in the production of effective and consistent printed transit information materials. The report documents the different project tasks that were conducted to provide input into the development of the printed information material guidebook. The document is intended to provide supplementary information for those interested in finding out how the guidebook’s recommendations have been derived and for those wishing to learn more about the subject area.

A literature review was conducted to obtain a broad knowledge of the challenges faced by customers in planning a transit trip and the importance of printed materials within the wider context of the variety of transit information aids that exist. Another important goal of the review was to obtain existing guidelines and research on the design of printed materials, both
from within the United States and abroad, and to synthesize these into a cohesive list of best practice recommendations. A survey of transit agencies across the United States was conducted to obtain an understanding of the issues facing each agency in designing their materials. Sample materials sent by each agency provided an understanding of the designs currently employed across the transit industry. The final report and supplementary documents for this project are available at http://www.nctr.usf.edu/publications.htm.

Transit Extraboard Management—Optimum Sizing & Strategies (DeAnnuntis, Morris)

While transit agencies attempt to employ sufficient regular bus operators to provide scheduled service, they also employ extraboard operators (backup drivers) to cover work assignments that are temporarily unfilled because of vacations, illness, or absences, as well as insufficient manpower, attrition, or for work that is unassignable/open in the course of normal labor practices. Extraboard operations is the process of utilizing available manpower to perform work assignments in accordance with labor agreement provisions and work rules to ensure the provision of scheduled transit service. The challenge is to determine the optimum number of vehicle operators to hire to ensure that all service is delivered at the least possible cost. Significant cost savings can result from proper extraboard management.

Opportunities exist to improve the efficiency and effectiveness of extraboard management. The objective of this research was to summarize the process for and develop an application tool to aid small to mid-size transit agencies in managing their extraboard. The application tool was envisioned to work under an Excel environment to allow for easy data entry and model input. Additionally, the project explored practices at the State and agency levels for operator work period rules and experiences.

Following a literature review and survey of 35 small, medium, and large transit agencies in the United States, researchers found the following:

- There is not a significant body of research on this topic. Previous research focused on overtime pay reduction.
- Although models and methodologies had been developed in previous research, they were tested on a specific transit system and were not validated for universal use by all transit systems.
- Larger transit agencies have a much higher percentage (20%) of extraboard operators to total operators, while small transit agencies have a much lower percentage (7%).
- Labor contracts impact the size, functioning, and management of the extraboard.
- Although many systems responding to the survey use automated scheduling software, none has a module for extraboard management.
- Some systems indicated that they do not currently have an extraboard due to workforce availability shortages.
- Most systems use historical data and experience to determine the size of the extraboard.
- One transit system, the Dallas Area Rapid Transit, employs a tool to determine extraboard sizing as well as overall workforce needs.
The DART instrument is Excel-based and consists of data that are readily available in most transit agencies, meeting the requirements of this research. During the course of the research, the DART instrument was applied to a Florida transit agency; the result validates the instrument as being usable for most small and medium-sized transit agencies.

Consultations with operations managers in Florida revealed a number of complex circumstances regarding extraboard management and workforce recruitment and retention, including:

- Absenteeism is more complex than in the past, with FMLA resulting in unpredictable and longer leaves of absence.
- Operator salaries in many Florida markets are not keeping pace with rising cost of living.
- In a hot job market, transit employees can find higher paying jobs in the trucking industry or other sectors of the economy.
- Recruiting shortages in many areas are driving the cost of overtime to meet scheduled service. Operations managers are receiving complaints from upper management about the rising costs of overtime.
- When staffing levels reach significantly low levels, overtime is forced on operators, which can contribute to burnout, fatigue, and increased levels of unscheduled absenteeism.
- Using actual numbers of extraboard operators for any one system is not necessarily going to reflect the true need based on total staffing requirements. (This is where the DART instrument is especially helpful because it displays conclusively the levels of recruitment needed in order to maintain optimal staffing levels.)

Future research should include strategies for recruitment, salaries and incentives to achieve employee retention and absenteeism reduction. The final report for this project is available at http://www.nctr.usf.edu/pdf/77707.pdf.

Education

Professional development of the current and next generation of transportation professionals through education continues as a core focus of NCTR and its parent Center for Urban Transportation Research. The changes in university resources and costs, computing and communications, student interests and capabilities, visa availability and competitive opportunities for international students, and other factors are resulting in a dynamic environment for delivering education to meet the diverse needs of various students and professionals. Student involvement in project research continues as a priority of CUTR and the NCTR program. During the 2007-2008 program year, graduate and undergraduate students were involved in ongoing public transportation research projects and were supported by funding from NCTR as well as from numerous other clients. 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, many of whom have gone on to work on public transportation planning,
management, and analysis, while others will carry out their career activities with a far richer understanding and appreciation of public transportation.

The academic programs at USF continue to evolve. Enrollment in courses continues strong with a continuing shift to higher shares of part-time, certificate, and distance-learning students and fewer full-time graduate students. Job placement has remained strong in spite of a slowing economy. The program continues to be proud of its placement record, with numerous students finding increasingly prestigious employment opportunities. During FY08, several of our graduate students were recipients of various awards, including two recipients of APTA fellowships and a recipient of the Eno Foundation Award.

During the 2007-2008 academic year, the USF College of Engineering, with CUTR assistance, carried out a national search for additional transportation faculty. Two new faculty, Dr. Abdul Pinjari and Dr. Yu Zhang, accepted positions and have joined the faculty. Resources and market conditions permitting, continued growth of the transportation program is anticipated.

The following are summaries of specific core areas of the NCTR education program.

**Transportation Certificate Program**

CUTR's newest certificate, the Transportation Systems Analysis Certificate, is designed to provide an opportunity for a transportation credential for persons who have an engineering or similar technical undergraduate degree and want to enhance their skills and credentials through additional study. Individuals can complete the certificate via distance learning, making it particularly attractive for continuing education for working professionals. Over the past year, this certificate has experienced a steady stream of inquiries and is one of the factors contributing to growth in distance learning student numbers. It is not uncommon for half or more of enrollment in graduate transportation courses to be distance learning students. When class participants include an individual with two PhDs in Michigan, a student in Ecuador, an architecture student in Tallahassee, and a student on a remote Pacific island, it is clear the nature of education has changed, as have opportunities and challenges.

**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 student in other programs to take the course and have it be easily accepted as credit toward their degree at their primary university. NCTR remains convinced that the most logical way to expand public-transportation-focused curriculum offerings is to expand the audience to the national level.

**Other Education Initiatives**

Several other initiatives continue to receive attention. The undergraduate course “Transportation and Society,” designed to introduce undergraduates from various disciplines to transportation, remains popular and is now being offered as a distance learning course. CUTR continues to collaborate in a USF initiative to introduce a master’s degree in Urban Planning, which has been delayed due to budget constraints. In addition to the extensive ongoing training activities carried out at NCTR/CUTR, a week-long management level training program for the public transportation industry was successfully held in Fall 2007 for a major private sector transit management company, which provided an opportunity to develop quality public transportation
management educational materials. NCTR will continue to monitor needs and explore possibilities for public transit education opportunities.

2007 NCTR Student of the Year: Monique Ellis

Monique served as an NCTR graduate research assistant and worked on a number of NCTR-funded projects, including “Incorporating Transit and Other Multimodal Strategies into the Florida Department of Transportation Development of Regional Impact Review Process.” Her responsibilities involved performing literature summaries, documenting relevant performance measures, and researching potential interview questions to aid senior researchers in improving FDOT’s abilities to encourage multimodal mitigation strategies for developments of regional impact. She has also assisted with other public transportation projects, including providing research support for assessing various financial or in-kind contributions from land developers and documenting improved mobility techniques for state roadway facilities. She received a master’s degree in civil engineering and a graduate certificate in interdisciplinary transportation studies in May 2008. Prior to attending USF, she received a bachelor’s degree in electrical engineering from the Rochester Institute of Technology. At USF, she served as secretary of the student chapter of the Institute of Transportation Engineers and was the recipient of APTA’s Louis T. Klauder Scholarship Award and a Southeastern Transportation Center Student Fellowship. Upon graduation, she began a career in public transportation planning.

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 16 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 Special Request 293
- Bond: Chair, Membership/Marketing Committee, ACT; Vice Chair, TMOCG; Member, Bicycle and Pedestrian Advisory Committee, Hillsborough County MPO; Sustainability Transportation Subcommittee, USF; Co-Chair, Conference Program Committee, ACT; Clean Air Partnership Award, Hillsborough County Environmental Protection Agency
- Brosch: Editorial Board, Journal of Safety and Security; Florida Public Transportation Association Hall of Fame
- Byrnes: Associate Staff Instructor, U.S. DOT Transportation Safety Institute; Certification, Substance Abuse Program Administrator, SAPA Commission

Monique Ellis
• Cain: Road Pricing Subcommittee, TRB; Managed Lanes Joint Subcommittee, TRB
• Chu: Editorial Board, Journal of Safety and Security
• Concasa: Reviewer, Travel Behavior and Values Committee, Transportation and Economic Development Committee, TRB; Member, TDM Committee, TRB
• Davis: Panel SA-16, Synthesis on Uses of Higher Capacity Buses in Transit Service, TCRP
• 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; Faculty Advisory Board, USF Patel Center for Global Solutions; Sustainability Transportation Subcommittee, USF
• Hinebaugh: Chair, BRT Subcommittee, TRB; BRT Task Force, APTA; Bus Transit Systems, TRB; Public Transportation Marketing and Fare Policy, TRB; Panel A-23: Cost Effectiveness of Selected BRT Components, TRB; Panel D-13, Guide for Implementing Bus on Shoulder Systems, TCRP
• Kramer: Metropolitan Policy, Planning and Processes, TRB; Technical Committee, AMPO; 2007 Conference Steering Committee, TRANSPLEX 2007; Expert Peer-Reviewer, Oregon Transportation Research and Education Consortium
• Mierzejewski: Board of Directors, District 10, ITE; Transportation Programming, Planning, System Evaluation, TRB; Constitutional Amendments Committee, ITE; National Board of Directors, ITE; Panel 8-59, Transportation Cost Implications of New Development, NCHRP; Project 8-44: Incorporating Safety into Long-Range Transportation Planning, NCHRP; Student Chapter Award Committee, ITE
• Mistretta: Sustainability Transportation Subcommittee, USF; Website Manager, Suncoast APA
• Perk: Social/Economics Factors, TRB; Intermodal Passenger Facilities, TRB; Transit Capacity/Quality of Service, TRB; Planning Committee, APTA; Instructor, National Transit Institute
• Polzin: Board of Directors, Hillsborough Area Regional Transit; Editorial Board, Journal of Public Transportation; Education Committee, SE Transportation Center; Policy and Planning, APTA; Public Transportation Planning and Development, TRB; Urban Transportation Data and Information Systems, TRB; Oversight Board for the Census Transportation Planning Products, AASHTO; Transit and Urban Form Working Committee, APTA
• Rai: ITS Operations Committee, ITE/ITS Council; Webmaster, Tampa ITE
• Reep: Associate Staff, Federal Transportation Safety Institute; Chair, Florida Operations Network
• Sapper: Committee on Public Transportation Safety and Security Task Force, AASHTO
• Seggerman: Transportation Planning Division, APA; 2007 and 2008 Conference Steering Committees, Florida Chapter APA; Co-Chair, Conference Mobile Workshops/Receptions Committee, Florida APA; Member, Congress for New Urbanism; Vice Chair, Planning Council, FSITE; Transportation Concurrency Guide - Best Program Award Winner, ITE
Publications and Presentations

During FY08, NCTR researchers were active in publishing and presenting at state and national conferences and meetings, as follows:

Publications


• Cain, “Applicability of TransMilenio BRT System of Bogotá,” Transportation Research Record 2034; “Does Urban Road Pricing Cause Hardship to Low-Income Drivers?” TRB Compendium


• Chu/Lin/Kourtellis, “Safety Effects and Guideline Development for Uncontrolled Mid-block Crosswalks,” Tech Conference Compendium


• Deannuntis/Morris, “Transit Extraboard Management - Optimum Sizing/Strategies,” TRB Compendium


• Gregg/Goodwill, “FDOT Transit Facility Handbook (Districts 1 and 7),” APTA Bus and Paratransit Conference Proceedings

• Hendricks, “Four Challenges of Incorporating TDM into Land Development Process,” TRB Compendium

• Hendricks/Georggi, “Documented Impact of TDM Programs Through the Case Study Method,” Journal of Public Transportation

• Kramer, “Dealing with MPOs in Florida,” TRB Compendium

• Kramer/Hopes, “Models for Independence: Organizational Structures of Independent MPOs in Florida,” Transportation Research Record 1997

• Kramer/Williams/Seggerman, “Assessing the Public Involvement Practices of FDOT,” TRB Compendium

• Polzin, “Importance of Demand-Side Measures,” TRB Compendium; “Is Transit Part of the Equation?” TRB Compendium


• Zhou/Hsu, “Study on the Relationship between Night Time Crash and Street Lighting,” ITE 2007 Conference Compendium

National Presentations

• Bond, “University TDM,” 2007 ACT International Conference; “Moving Forward: One Voice, New Name” (facilitator), 2007 ACT International Conference

• Byrnes, “Building a Compliant Drug and Alcohol Education Program,” APTA Bus and Paratransit Conference

• Chu, “Procedures to Obtain Service-Consumed Data for the NTD,” Federal Transit Administration
• Chu/Perk, “NTD Work at CUTR,” FTA Briefing Session
• Concas, “Highway Optimal Capital Accumulation and Induced Travel,” “Estimating Societal Benefits/Costs of Transportation Demand Management,” 2008 TRB Annual Meeting
• Flynn/Perk, “Factors that Influence Frequency of Transit Use and Rider Retention,” APTA Marketing/Communications Conference, APTA Bus and Paratransit Conference
• Gregg/Goodwill, “FDOT Districts 1 and 7 Transit Facility Handbook (Transit Friendly Street Design),” APTA Bus and Paratransit Conference
• Kramer/Seggerman, “Getting Elected Officials Up to Speed,” AMPO Annual Conference
• Kramer/Williams/Seggerman, “Assessing the Public Involvement Practices of FDOT,” 2008 TRB Annual Meeting
• Rai, “Communicating the Impact of TDM Programs to Traffic Operations Community,” 2007 ITE Conference
• Sapper/Reep, “Model Incident Tracking/Investigation Program,” NTI Workshop
• Volinski, “Keeping Fixed-Route Buses Moving as Quickly as Possible,” APTA Bus and Paratransit Conference; “Lessons Learned in Transit Efficiencies,” FTA Regional Conference; “Success Factors of Local Transit Circulator Services,” ACT Netcast; “Transit Research Program at the NCTR,” FTA Regional Conference
• Winters, “Growing Your Vanpool Program,” “Tools for Every TDM Professional,” ACT Conference
• Zhou/Hsu, “Study on the Relationship between Night Time Crashes and Street Lighting,” 2007 ITE Conference

State Presentations

• Barbeau/Georggi, “Location Aware Technologies Applied to Transportation,” Hillsborough Seniors on the Move
• Barbeau/Winters, “USF Location Aware Technology,” Tampa Bay Technology Forum

• Bond, “Effective Bicycle Advocacy: Creating Public/Private Partnerships,” ProBike/ProWalk Florida; “Best Workplaces for Commuters,” FSU Sustainability Conference
• Deannutis, “Service Planning - TDP Training Session,” FDOT/FPTA/CUTR Professional Development Workshop
• Goodwill, “Base Data and Analysis during the Transit Development Plan Training,” “FDOT Districts 1 and 7 Transit Facility Handbook (Transit Friendly Street Design); “Impacts of Rising Fuel Costs on Transit,” FDOT/FPTA/CUTR Professional Development Workshop
• Gregg, “TDP Training Session,” “Transit Friendly Design,” FDOT/FPTA/CUTR Professional Development Workshop
• Joslin, “Attracting Elderly Drivers to Public Transportation,” FDOT/FPTA/CUTR Professional Development Workshop
• Mierzejewski, “BOD Leadership Retreat,” Greater Tampa Chamber of Commerce; Moderator, Tampa Transportation Supersession; “Transportation and Concurrency in Florida,” “Use of Cell Phones While Driving,” Florida Legislature Infrastructure Committee
• Mistretta, “TDP Training Session,” FDOT/FPTA/CUTR Professional Development Workshop
• Morris, “Public Involvement,” “NCTR Innovation Marketing Approaches,” “Comparison of a Web-Based Household Telephone Survey,” “Service Planning - TDP Training,” FDOT/FPTA/CUTR Professional Development Workshop
• Polzin, “Understanding Future Travel Demand,” ASHE Tampa Bay
• Sapper, “Bus Incident Investigation Toolbox,” Florida Public Transportation Association Conference
• Seggerman, “SB 360 and Beyond,” Tampa Bay Chapter ITE
Training

During FY08, NCTR researchers were active in either providing or facilitating the following training sessions:

**Commuter Choice**
- Establishing Program Goals and Objectives
- Measuring Results and Performance
- Introduction to Advanced Traveler Info Systems and 511
- ITS and Traffic Management
- Telework and Compressed Work Week
- Introduction to Bus Rapid Transit
- Managed Lanes Strategies
- Primer on Value Pricing
- Commuter Choice Support Programs
- Rideshare Options
- Parking Management
- Commuter Choice Tax Benefits
- Creative Thinking for Transportation Professionals

**CUTR**
- 2007 NTD Data Collection and Reporting Training Seminar (FDOT)
- CAMPO Weekend Institute
- FHWA, Managing Travel Demand to Mitigate Congestion (FHWA)
- Transit Service Options
- Telework and Compressed Workweek
- MPOAC Institute Workshop, FAC County Commissioners Certificate Program
- MPOAC Institute Workshop for Elected Officials
- MPOAC Institute Workshop for Elected Officials, AMPO
- MPOAC Weekend Institute for Elected Officials
- MPOAC Institute for the Central Florida MPO Alliance

**Florida Operator Training**
- Instructor’s Course in Bus Operator Training
- Stress Management, Conflict Avoidance, and Driver Wellness
- One-Day Instructor’s Course in Bus Operator Training
- Florida Operator Training, Reducing Absenteeism in Transit

**FPTA/FDOT/CUTR Professional Development Workshop**
- Instructor’s Course in Paratransit Training
- Alternative Fueled Buses: What Are The Real Costs?
- Update on Alternative Fuel Bus Cost Comparison
- Running a Successful Meeting
- Safety Evaluations of Alternative Fuels for Facilities and Equipment
- Successful Business Writing
- E-Mail 101: Best Practice
- Transportation Disadvantaged Service Plan
- Best Workplaces for Commuters and Transit Agencies
- TDP Training
- Drug and Alcohol Testing Decisions Road Supervisors Must Make
- Get Ready, Get Set, GOAL!
- Attracting Elderly Drivers to Public Transportation
- Federal and State Transit Funding Programs and Issues
  - New Developments in Transit’s Role in Evacuations
  - FDOT 1 and 7 Transit Facilities Design Handbook
  - Dialogue at Work
  - Public Involvement Techniques for Transit
  - EDR/Black Box Uses and Tacholink Training
  - Using Information Technology in Public Transportation
  - Workforce and Succession Planning in Public and Non-Profit Sectors
  - Transit Websites
  - Google Transit Phenomena
  - Upcoming Environmental Regulations for Transit
  - Commuter Choice Tax Benefits
  - Quantifying the Business Benefits of TDM

**RTAP**
- Instructor’s Course in Paratransit Operator Training
- NTD Paratransit Scheduling/Dispatching
- Non-Emergency Stretcher Transfer Training
- Effectively Managing Transit Emergencies

**Transit Training**
- TSI Transit Bus System Security
- Transit Training, Transit Industrial Safety Management
- NTD Safety and Security
- Substance Abuse Management/Program Compliance
- Reasonable Suspicion Determination for Supervisors
- Fundamentals of Bus Collision Investigation
- Transit Supervisor’s Certification Course
- TSI Supervisor’s Certification Course
- Transit Terrorist Tools and Tactics
- Veolia General Managers Training in Excellence

**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**

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.

**NetCasts: Learn More—Travel Less**

In FY08, NCTR supplemented its technology transfer efforts by providing more netconferences as more public transportation professionals faced travel restrictions. These netconferences provide more opportunities to collaborate online and to cost-effectively reach large groups of transportation professionals in real-time, using only a telephone, computer, and an Internet connection. This approach provides a cost-effective means of bringing together public transportation professionals with peers and other experts from around the country to disseminate research results and share experiences. All NCTR netconferences are available for on-demand viewing after the live presentation.

To expand its reach, NCTR has partnered with Association for Commuter Transportation (ACT) chapters to host netconference-hosting events in their cities for ACT members and non-members alike. These events were held at 15 to 30 locations and attracted up to 200+ “conference attendees.” NCTR sponsored the following four netconferences in partnership with ACT and four “Lunch and Learn” netconferences in partnership with FDOT.

- **Tips for Planning and Operating Successful Shuttles and Circulators (May 28, 2008)** Community and corporate interest in deploying shuttles and circulators to meet the mobility needs of employees and residents continues to grow. ACT and NCTR brought together two speakers who offered tips for planning and operating successful shuttles and circulators. NCTR Director Joel Volinski spoke about downtown shuttles and shuttles that have been in place in more suburban settings run by local cities versus the regional transit agency. Wendy Silvani, Director, Emeryville (California) TMA, discussed the operational, marketing, service planning, and financial considerations for Emery Go Round, a private transportation service funded solely by commercial property owners in the citywide transportation business improvement district.

- **Results from 2007 Employer TDM Program Benchmarking Survey (May 21, 2008)** Tom Davis of DuPont and Jennifer Paedon of Lockheed Martin Space Systems Company, co-chairs of the ACT Employer Council, provided a brief overview of the Council and the motivations for the survey. The survey was developed in partnership with the Association for Commuter Transportation’s Employer Council and NCTR. Phil Winters of NCTR highlighted the results of the 2007 Employer TDM Program Benchmarking Survey.
• **Florida Lunch and Learn: Innovative Tools for Encouraging Bicycling: Online Bicycle Route Mapping (May 20, 2008)** This one-hour net conference examined the use of online mapping tools for driving directions which have become ubiquitous in our society but until recently have been of little use to bicyclists. In response, the city of Boulder, Colorado, launched www.GoBikeBoulder.net, an innovative online bicycle route mapping tool designed and implemented through a CMAQ grant in 2007. Go Bike Boulder provides residents, university students, employees, and visitors with turn-by-turn directions to help navigate Boulder’s 360-mile on- and off-road bicycle network. During the first six months of operation, 10,000+ routes totaling 38,000+ miles were queried by more than 1,800 registered users and thousands of guest users. The evaluation of Go Bike Boulder showed that approximately 67 percent of routes queried were bicycled and, on average, users biked more and drove less after registering on the site resulting in an average annual Vehicle Miles Traveled (VMT) reduction of 226 miles per registered user. This presentation summarizes the design, use, evaluation of, and next steps for this unique online bicycle mapping tool. Speakers were Chris Hagelin, Senior Transportation Planner, Go Boulder/City of Boulder, and Marni Ratzel, Bicycle and Pedestrian Planner, Go Boulder/City of Boulder.

• **Florida Lunch and Learn: Challenges and Recommendations for Integrating Transportation Demand Management (TDM) into the Land Development (February 20, 2008)** This one-hour netconference presentation summarized an NCTR project, “Integrating TDM into the Land Development Process.” Sara J. Hendricks of NCTR described the land development review process, discussed the many difficulties of engaging the process to include TDM, and offered recommendations on how to address these issues.

• **“Climate Change: Tipping Point for TDM or Tipping at Windmills” Netconference (December 13, 2007)** Climate change and terms such as “carbon footprints,” “LEED buildings,” and “carbon trading” have entered the lexicon of TDM professionals. What does it all mean? Is climate change the tipping point opportunity to institutionalize TDM in both private business plans and public transportation planning? Or is this windmill tipping for TDM, a distraction or just the flavor of the month? The panel discussed these thoughts and interpreted what it may all mean for the TDM community. The 89-minute netconference attracted an estimated 200 people in 30 locations around the country who heard the presentation live. Speakers include Kevin Luten, UrbanTrans ANZ, Melbourne, Australia, and Jennifer Henry, Director, LEED for Neighborhood Development for the U.S. Green Building Council.

• **Florida Lunch and Learn: Emergency Ride Home in Practice (November 8, 2007)** Two panelists discussed how their Emergency Ride Home (ERH) programs have evolved and the invaluable lessons they have learned. This 55-minute netconference features Jim Udvardy, Director, South Florida Commuter Services (SFCS) (serving the Miami-Dade/Ft. Lauderdale/West Palm Beach area), and Sandi Moody, Executive Director, Bay Area Commuter Services (BACS) (serving the Tampa Bay area).

• **Florida Lunch and Learn: Carsharing in Practice (August 2, 2007)** This 51-minute netconference focused on carsharing—the provision of short term vehicle rentals to provide travel options to people without the need to own a vehicle. The panelists
discussed the carsharing programs on their campuses. Both discussed the evolution of their programs and lessons they have learned. Featured speakers include Claire Kane of the University of North Carolina and Allan Preston of the University of Florida.

- **Safe Routes to School: Why They Matter to Kids, to Communities, and to TDM Professionals (July 27, 2007)** Safe Routes to School (SRTS) programs educate students, parents, and community members on the value of walking and bicycling for school travel. Successful SRTS programs use the five Es (education, encouragement, enforcement, engineering, and evaluation) to increase the number of students walking and bicycling to school creating healthy lifelong habits. Students and communities benefit from reduced congestion and air pollution, increased physical activity, and a safer environment for students. Today, only 16 percent of children walk or bicycle to school compared to 42 percent in the late 1960s. Unintended consequences of this change in school trip-making include the facts that 20-25 percent of morning traffic attributable to school travel in many communities and a significant increase in childhood obesity (from 4% in 1963-1970 to 16% in 1999-2002). Speakers discussed how communities nationwide are getting kids on their feet or bicycles for their trips to school. Attendees heard how TDM professionals are applying their behavior change skills to start mini-commuters off on the right foot. Donna Smallwood, MassRIDES Operations Manager/URS Corporation and chair National Safe Routes to School Task Force, shared MassRIDES’ experience directing Massachusetts Safe Routes initiatives where 60+ schools are already implementing programs. Mike Eberlein, Michigan’s Safe Routes Coordinator, presented examples of school programs and explore the factors that make them successful.

**Links to Public Transportation Research**

In addition to the netconferences and on-demand streaming presentations, NCTR provides links to nearly 120 completed research reports. As the following table shows, most NCTR websites are found at or near the top of major search engines when using key search terms reflecting NCTR priorities.

<table>
<thead>
<tr>
<th>Search Term</th>
<th>Search Engine</th>
<th>Ranking</th>
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<tbody>
<tr>
<td>&quot;Transit Research&quot;</td>
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<tr>
<td></td>
<td>Yahoo</td>
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<tr>
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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. In FY08, NCTR had 30,495 visits made by 21,465 absolute unique visitors. The individual pages receiving the most
pageviews were the NCTR’s *Journal of Public Transportation* and the NCTR National TDM and Telework Clearinghouse.

In the last five months of the fiscal year, NCTR embedded Google Analytics code to improve the tracking of reports. The following were the top five most requested reports, guides and spreadsheet tools during that time period, covering all aspects of public transportation and indicate a diverse audience for NCTR products:

- “Designing Printed Transit Information Materials: A Guidebook for Transit Service Providers” (and final report)
- “Exploration of a Shift in Household Transportation Spending from Vehicles to Public Transportation”
- “Development of a Large Bus/Small Bus Decision Support Tool” (and spreadsheet tool)
- “Economics of Travel Demand Management: Comparative Cost Effectiveness and Public Investment” (and spreadsheet tool)
- “Smart Phone Application to Influence Travel Behavior”

In addition, the NCTR listserv, which announces reports and other NCTR products, increased to nearly 900 subscribers.

**Peer-to-Peer Exchanges**

NCTR continues to see increases in the number of subscribers across the board from its public transportation-related discussion forums and listservs. These discussion forums and e-newsletters have attracted more than 4,500 active subscribers. In the past year, two new listservs were hosted by NCTR in support of Transportation Research Board committees: Bus Fleet Maintenance and Sustainable Transport Indicators. All of the listservs provide quick access to information and facilitate peer-to-peer communications across the world. The e-newsletters provide information on reports and tools released by NCTR and promote the availability of the *Journal of Public Transportation* and on-demand streaming recordings of NCTR-sponsored netconferences.

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<th>Name</th>
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<td>Bus Fleet Maintenance (TRB)*</td>
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</table>

*new in 2007/08

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.

Also, in the past year, NCTR has assisted the Institute of Transportation Engineers and the Transportation Research Board Committee on TDM with the creation of a wiki to enable
anyone who accesses it to contribute or modify content, such as the development of research problem statements.

**Customer Support via Help Desk**

Since 2004, NCTR has deployed a customer relationship management software solution to provide the enhanced communications and continual feedback loops that are central to understanding and addressing the needs of the transportation community. The Help Desk’s role is to provide intelligent self-service options. With 523 questions and answers, including nearly 120 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. The Help Desk also tracks and reports to the staff the topics that are receiving the most questions and responses. Such monitoring can help NCTR staff identify research needs, possible subjects or topics for netconferences, or training workshops based on the level of interest or need.

In late 2007, NCTR expanded its assistance to include the private sector when NCTR stepped forward to assume program management responsibilities for Best Workplaces for Commuters (SM) [www.bestworkplaces.org](http://www.bestworkplaces.org) from the Environmental Protection Agency. The program currently recognizes about 2,000 employers that provide a range of commuter benefits to their employees. These employer programs reduce emissions and decrease traffic congestion while promoting energy conservation and improving mobility. BWC creates an opportunity for NCTR to reach nearly 2,000 worksites directly to improve understanding what strategies are effective in increasing use of public transportation.

**Year 10 Research Program**

NCTR recently completed the process to solicit and select research ideas for the FY09 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 100 different research ideas, the NCTR Advisory Committee provided assistance in selecting 5 core program and 10 research projects for funding in FY09.

**Conclusion**

At the completion of its 9th year, CUTC’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 continues to be excited about the possibilities of establishing an interdisciplinary transportation degree program that will attract even more students to the profession.
NCTR continues to enjoy 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**

Figure 1 presents the funding sources for the 9th year of the NCTR program. Figure 2 shows the split of expenditures for the fiscal year based on the key program areas of the NCTR Program.

![Figure 1: NCTR Funding Sources](chart1.png)

![Figure 2: NCTR Expenditures](chart2.png)