

# National Center for

National Center for Transit Research



# Transit Res

Annual Report  
September 2002

National Center for  
Transit Research

National Center

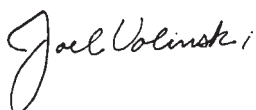
## *Message from the Director*

Most University Transportation Centers (UTCs) are proud of their research capabilities as well as their ability to help produce the next generation of transportation professionals through their classes and degree programs. However, university-based research programs can sometimes be chided for what might be regarded as an *overly* academic approach that sometimes leaves operating transportation agencies wondering about the value and practical application of what the universities have produced.

NCTR's faculty appreciates the value of basic research, where benefits are often not realized for years into the future. However, NCTR is focused on providing information and solutions that can be put to use immediately. The theme of the center is "to enhance the performance and relevance of public transportation and alternative forms of transportation in urban areas." We cannot possibly achieve this objective if our program is not relevant to operating transportation agencies' current needs. We at NCTR are dedicated to our theme, as this annual report will demonstrate. After three years of work as a University Transportation Center, NCTR has completed 24 research and technical assistance projects. That level of productivity is among the very best of the 33 designated UTCs in the country, but what is more satisfying is that the results of our work have reached so many transportation professionals who, in turn, have been able to use our information to help improve their services to the traveling public.

In just the past 12 months, NCTR faculty members have made 45 presentations on the results of their program-funded research at a variety of state and national conferences, providing direct information to more than 1,000 professionals in the process. NCTR faculty have arranged 40 training sessions and developed the programs for two statewide professional development conferences, attended by more than 1,100 public transportation officials. Our listservs have more than 1,000 members who enjoy the ability to share up-to-the-minute information on public transit, vanpooling, telecommuting, commuter benefits programs, and much more on an ongoing, convenient basis. Our *Journal of Public Transportation* reaches more than 1,700 subscribers from more than 47 nations. Of course, our website is frequently updated and offers full reports as well as streamed-video summaries of much of NCTR's research.

In the past year, NCTR has made special contributions in the areas of Bus Rapid Transit and Community Impact Assessment and in identifying barriers to the use of transit. We invite you to read more of the detail on these and many other programs in this annual report. NCTR was recently rewarded for its record of achievement by being selected in a highly competitive process to receive two more years of federal funding as a University Transportation Center. We look forward to continuing to provide research, technical assistance, education, and training assistance to the public transportation community.



Joel Volinski, NCTR Director



National  
Transit

Annual  
Report

National  
Transit

Center

*Table of Contents*

*Introduction ..... 5*

*Theme of NCTR ..... 5*

*Organizational Structure ..... 5*

*Program Overview ..... 6*

*Funding ..... 6*

*UTC Competition ..... 6*

*Advisory Committee ..... 6*

*Third-Year Accomplishments ..... 7*

*Research ..... 7*

*Education ..... 12*

*Technology Transfer ..... 14*

*Financial Summary ..... 24*

al  
t Re

ational  
Transit

er f  
ch  
Center



## ***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. 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 (ISTEA) 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 is focusing on these modes to help promote USDOT's strategic goals of safety, mobility, economic growth, and community 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, 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). Following are key personnel of NCTR.

Chair	Gary L. Brosch
Director	Joel Volinski
Administrative Director	Dennis Hinebaugh
Communications Director	Patricia Ball
TDM Program Director	Philip Winters
Education Director	Steven Polzin
ETS Director	Beverly Ward
Transit Training Program Manager	Lisa Staes
NCTR Program Assistant	Jennifer Perone



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

*National  
Transit*

*al  
t Re*

*er  
ch  
Center*

## *Program Overview*

### *Funding*

NCTR just completed its third 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 staff over the last 14 years. Federal funds for the program are matched with a **100 percent cash match** from the Florida Department of Transportation (FDOT), creating a doubling of total program funding.

The FDOT funding used to match the USDOT funds is made available at a 5 percent indirect rate, as compared to the federal indirect rate of 45 percent. This low indirect rate results in an almost 250 percent 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 this match for the duration of the program. FDOT also has designated three senior members of its management staff to serve on the NCTR Advisory Board to help select future projects and guide the program.

### *UTC Competition*

In a recent competition among 17 University Transportation Centers (UTCs) in the U.S., NCTR was awarded an additional two years of program funding at an increased level of \$2 million per year (\$1 million USDOT, \$1 million local match). This award was made to only 10 of the original 17 UTCs.

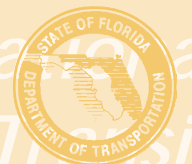
### *Advisory Committee*

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

Gary L. Brosch  
*Chair, NCTR*  
Dr. Lewis Clopton  
*Director of Research Management  
Federal Transit Administration*  
Ed Coven  
*State Transit Office Manager  
Florida Department of Transportation*  
Dr. Wendell Joice  
*Director  
International Telework Assoc. & Council*  
Dr. Minnie Fells-Johnson  
*General Manager  
Miami Valley Regional Transit Authority*  
Ysela Llort  
*State Transportation Planner  
Florida Department of Transportation*  
Richard Long  
*Director, Office of Research  
Florida Department of Transportation*

Cal Marsella  
*General Manager  
Denver Regional Transit District*  
Perry Maull  
*Past President  
Florida Public Transportation Assoc.*  
Bill McCloud  
*Senior Vice President & C.O.O.  
ATC*  
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  
*Transit Cooperative Research Program  
Synthesis Program Director  
Transportation Research Board*

National  
Transit



er f  
ch  
Center

## *Third-Year Accomplishments*

### *Research*

The third year of the NCTR program has supported 18 projects approved by the NCTR Advisory Committee. These projects consist of 6 core programs that will be conducted throughout the life of NCTR and 12 new annual research projects that explore methods to accomplish the goals of the Center in enhancing the performance of public transportation.

Core program areas include continued development and maintenance of:

- the National Transportation Demand Management (TDM) and Telework Clearinghouse;
- the National Bus Rapid Transit Institute (NBRTI);
- STEP (Student Transportation Education Program), an annual program for developing high school student interest in transportation careers;
- ongoing production of teleconferences and webcasting;
- graduate student professional development and the *Journal of Public Transportation*.

In FY 2002, 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; 85 research ideas were received and 12 were selected for funding.

### *Project Status*

New, ongoing, and completed research projects and their principal investigators for FY 2002 are listed below. One additional project (Safe Operation of Low Speed Vehicles and Golf Carts - 415-14) was also approved for funding in FY 2002 using redirected FY 2001 NCTR funding.

### *Summary of Year 3 (FY2002) Newly Designated NCTR Projects*

- Safe Operation of Low Speed Vehicles and Golf Carts (*Jennifer Hardin, CUTR, 415-14*) (added as a "new" project in FY 2002 using FY 2001 funds)
- 2001 Florida Transportation Almanac (*Michael Baltes, CUTR, 473-01*)
- Evaluation of First-Year Florida MPO Transit Capacity and Quality of Service Reports (*Victoria Perk, CUTR, 473-02*)
- Ridership Models at the Stop Level (*Xuehao Chu, CUTR, 473-04*)
- Repair Time Standards for Transit Vehicles (*Lisa Staes, CUTR, 473-05*)
- Why People Cross Where They Do (*Xuehao Chu, CUTR, 473-06*)
- Expanding Commuter Choice Tax Benefit Options (*Christopher Hagelin, CUTR, 473-08*)
- Best Practices in Voluntary Driving Cessation Programs for Seniors (*Jennifer Hardin, CUTR, 473-09*)
- FDOT Statewide GIS for Transit Technical Assistance Program (*Martin Catalá, CUTR, 473-10*)



National  
Transit

al  
Re

ch  
Center

- National Transit Database Automated Data Collection Procedures (*Nilgün Kamp, CUTR, 473-11*)
- Assessment of Transit Information Materials and Development of Selection Criteria for Prototype Design Elements (*Jennifer Hardin, CUTR, 473-12*)
- Public Transportation Syntheses Series (*Joel Volinski, CUTR, 473-13*)
- Worksite Trip Reduction Model and Manual (*Phil Winters, CUTR, 473-14*)

#### **Summary of Ongoing NCTR Projects**

- Lessons Learned in Transit Efficiency—Part II (*Joel Volinski, CUTR, 350-07, 392-06*)
- Analysis of National Transit Database (*Steven Polzin, CUTR, 350-11*)
- Bus Rapid Transit—Phase 1, Evaluation of the South Miami-Dade Busway (*Michael Baltes, CUTR, 350-13*)
- FSUTMS Mode Choice Modeling—Factors Affecting Transit Use and Access (*Fang Zhao, FIU, 392-07, 416-03*)
- Bus Rapid Transit Technology—A Case Study of the Lynx Lymmo Project in Downtown Orlando, Florida (*Michael Baltes, CUTR, 392-15*)
- Qualitative Methods for Transit Research (*Francis Cleland, CUTR, 416-08.1*)
- Perceptions of Transit Safety (*Jennifer Hardin, CUTR, 416-08.2*)
- Customer Surveying for Public Transit: A Design Manual (*Michael Baltes, CUTR, 416-08.3*)
- Synthesis of Transit Non-User Surveys (*Jennifer Perone, CUTR, 416-08.4*)
- Quantifying the Business Benefits of TDM (*Phil Winters, CUTR, 416-11*)
- An Investigation of the Structure/Performance Relationships of Public Transit Agencies (*Keith Simmonds, FAMU, 416-14*)

#### **Summary of Completed NCTR Projects**

- Analysis of the FDOT Transit Corridor Program (*Lisa Staes, CUTR, 392-01*)
- FDOT Statewide On-Site Technical Assistance Program (*Lisa Staes, CUTR, 392-02*)
- FDOT Statewide Transit Training Program (*Lisa Staes, CUTR, 392-03*)
- Inventory and Analysis of Advanced Public Transportation Systems in Florida (*Joel Rey, CUTR, 392-04*)
- Analysis of Florida Transit Bus Accidents (*Joel Rey, CUTR, 392-05*)
- Enhancement of the Public Transportation Promotional Materials Clearinghouse (*William Mustard, FSU, 392-08, 416-10*)
- Evaluation of the Economic Viability of Narrow-Gauge Local Rail Systems (*Laurel Land, CUTR, 392-09*)
- Transit Customer Satisfaction Index (*Francis Cleland, CUTR, 392-10*)
- Assessment of Operational Barriers and Impediments to Transit Use (*Jennifer Hardin, CUTR, 392-11*)



National  
Transit

al

National  
Transit

er f  
ch  
Center

- Cops, Cameras, and Enclosures: A Synthesis of the Effectiveness of Methods to provide Enhanced Security for Bus Operators and Passengers (*Darin Allan and Joel Volinski, CUTR, 392-12*)
- State Park-n-Ride Lot Program Manual (*Laurel Land, CUTR, 392-13*)
- Pedestrian Mid-Block Crossing Difficulty (*Xuehao Chu, CUTR, 392-14, 416-02*)
- Neighborhood Intermodal Transfer Facilities (*Laurel Land, CUTR, 392-16*)
- Where Are Tomorrow's Maintenance Technicians Coming From? (*Amber Reep, CUTR, 415-09*)
- Telecommunication and Its Future Role in the Public Transportation Arena (*Sara Hendricks, CUTR, 416-01*)
- Effectiveness of Bus Signal Priority (*Shireen Chada, CUTR, 416-04*)
- Environmental Justice and Community Impact Assessment for Transit Agencies (*Beverly Ward, CUTR, 416-05*)
- Land Developer Participation in Providing for Bus Transit Facilities/Operations (*Sara Hendricks, CUTR, 416-06*)
- Synthesis of Securement Device Options and Strategies/Accident Tracking (*Jennifer Hardin, CUTR, 416-07*)
- Florida Transit Training Program (*Lisa Staes, CUTR, 416-09.1*)
- Florida Transit Technical Assistance Program (*Lisa Staes, CUTR, 416-09.2*)
- Public Transit Investment Decisions: Per Capita Decisions, Trends and Impacts (*Rob Gregg, CUTR, 416-12*)
- National Transit Bus Accident Data (*Chris DeAnnuntis, CUTR, 416-13*)
- Evaluation of First-Year Florida MPO Transit Capacity and Quality of Service Reports (*Victoria Perk, CUTR, 473-02*)



### ***Community Impact Assessment and Environmental Justice for Transit Agencies***

The objectives of this research included identifying information and materials on issues and resources related to environmental justice, Title VI of the Civil Rights Act of 1964, social equity, and the use of community impact assessment techniques (CIA) in the transit industry. As a result of the research and the primer, ***Community Impact Assessment: A Quick Reference Guide for Transportation*** was developed. The purpose of this guide is to provide tools, techniques, and references that may be used to assess transit actions. Although environmental justice and Title VI issues receive special attention, the emphasis is on the use of the impact assessment process for *all* communities. Many transportation professionals and analysts state that, if transportation actions are properly assessed, environmental justice, Title VI, and other social issues will be addressed and in a manner that allows the input of the public throughout the decision-making process. NCTR has received requests from governmental and operating agencies for more than 1,000 copies of the guide.



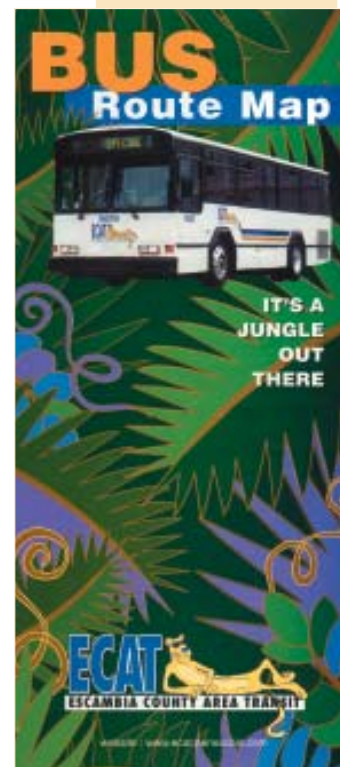
### ***Assessment of Operational Barriers and Impediments to Transit Use***

This project provided a preliminary assessment of the issues or problems encountered by existing and potential transit users in the overall transit experience that may become barriers to using transit. In addition, the project included detailed analyses of two identified barriers with the potential to be overcome with a feasible level of effort and investment of resources by transit agencies: the user-friendliness of printed transit information materials and the level of transit service provided to major activity centers. Following the analyses, summary recommendations were offered to facilitate the elimination of these two identified barriers to transit use throughout Florida, as well as suggestions for future research.

The decision to use public transit as a means of alternative transportation is a somewhat complex process. The potential rider must know that a public transportation system is available, how to contact the public transportation system for information on how to use the system for each desired trip, where to go to catch a bus, how to recognize bus stops, which side of the street to stand on to catch a bus going to his destination, how to make transfers, and the fare and fare media accepted for each trip, as well as how to read and understand bus system maps and schedules. If the individual must wait for a bus, the final decision to ride may also be impacted by the safety and comfort of the bus stop environment. The on-board experience, which includes passenger comfort and driver courtesy and assistance, also will be important to the rider's overall impression and opinion of public transit. Problems encountered in any of these transit experience elements can result in a decision to find alternative means of transport. Fortunately, many barriers encountered in the transit experience can be rectified by transit agencies with relatively little expense.

The level of transit literacy among participants in the transit information and marketing field test was quite low. Participants had difficulty completing both simple and complex trip planning tasks and exhibited visual signs of frustration, irritation, and nervousness while attempting the assigned trip planning tasks. The average scores received by participants for both simple and complex trip planning tasks were the equivalent of a grade of "F." The quantitative and qualitative analyses conducted in the transit information and marketing field test suggest that the use of certain design elements in printed transit information materials resulted in higher transit trip planning scores and reduced levels of frustration and anxiety among participants. These results include the following findings:

- Materials using horizontally-aligned timetables resulted in higher scores.
- Tasks involving a Ride Guide (a booklet containing all system schedules) took longer to complete.
- Males tended to receive higher scores than did females.
- Participants with zero personal vehicles available for use received the lowest scores and rated the tasks as "very difficult."
- The use of "points of interest" information was helpful to participants.
- The use of distinctive symbols denoting time points, transfer points, and other points of interest were helpful in completing transit trip plans.



Effective transit information materials help passengers by presenting clear, concise, and consistent information that leads users step-by-step through the transit process. To be effective, the design and construction of printed transit information materials must be attentive to detail. Missing or inconsistent information results in a great deal of confusion among users. The following recommendations were offered, based on comments received by field test participants and review of the printed materials by transit professionals, to help transit agencies improve the clarity and usability of printed transit information materials.

- Consistency is key.
- Explanations about the meaning and use of information should be provided.
- Materials should help spatially orient passengers.
- Contrasting colors should be used whenever possible.
- Map legends and points of interest information should be included.
- Small print should be avoided.

### ***Bus Rapid Transit***

One area of research selected as a core program very early in the development of NCTR was Bus Rapid Transit (BRT). BRT uses the advancements in vehicle technology, simulation systems, traffic engineering, and intelligent transportation systems to create an enhanced bus service with faster operating speeds and improvements to local mobility, economic growth, and environmental quality. Research being conducted by NCTR staff in the area of BRT has created a knowledge base such that they are serving as technical assistants to other BRT interests. These include making presentations at conferences and serving as members of BRT technical committees in cities advancing the service.

In January 2001, through the efforts of the work developed through NCTR, the National BRT Institute was created at CUTR with the charge of creating a national program for training, technical assistance, research, innovation, and evaluation of existing and proposed BRT projects.

Recent and continued efforts of the Institute include serving as a technical representative on the Detroit Speedlink BRT evaluation, recently adopted and credited with bringing the regional and City transit systems together for improved regional service. NBRTI recently was awarded a contract with Hennepin County, Minnesota, to aid in the support of BRT in the Minneapolis/ St. Paul urban area. With funding from the Federal Transit Administration, NBRTI has created an information "portal" website for BRT ([www.nbrti.org](http://www.nbrti.org)) and will develop and produce a quarterly BRT newsletter. NBRTI staff also are assisting agencies with peer-to-peer technical assistance, system evaluations, workshops, and topic research. All of these accomplishments are attributable to the system startup and continued support by UTC program funding for NCTR.



### ***Year 4 Research Program***

NCTR recently completed the process to solicit and select research ideas for the FY 2003 program year. The process necessary for submitting research ideas was made available on the NCTR website along with a user-friendly, web-based form. Letters requesting research ideas and proposals were sent to all of the 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 to national listservs. From the submission of 108 different research ideas, the NCTR Advisory Committee provided assistance in selecting 8 core program and 12 research projects for funding in FY 2003.

### ***Education***

Education is a core program area of NCTR and, in light of the growing appreciation of the importance of professional capacity building, the educational component of NCTR is and will be getting additional attention. Student involvement in project research always has been a high priority of CUTR and remains so in the NCTR program. For many years, CUTR has been an active member of the Southeastern Transportation Center (STC), a consortium dedicated to training professionals to address the transportation safety needs of the region and nation. During the first three years of NCTR, more than 30 graduate and undergraduate students participated in public transportation research projects and were supported by funding from NCTR. The major areas of study of these students are multidisciplinary in nature, including engineering, economics, anthropology, business, geography, and public administration. Through research and guidance, NCTR helps develop well-informed, educated individuals, some of whom will serve as future ambassadors in the public transportation industry while others will carry out their career activities with a far richer understanding and appreciation of public transportation. The following are summaries of specific core areas of the NCTR education program.

### ***Exploration of the Feasibility of a Transportation Degree***

The Transportation Degree Evaluation is an initiative designed to determine the feasibility of establishing a graduate degree program designed for persons with an interest in transportation careers, with a special emphasis on public transportation issues. A report outlining how such a program would be implemented at USF has been produced. The working proposal recommends a master's degree transportation program that would complement the USF Department of Civil Engineering's transportation master's program and the Graduate Interdisciplinary Transportation Program coordinated by CUTR.

The degree proposal has been preliminarily reviewed by USF administrators and the Dean of the USF College of Engineering. Current activities include modifying the program in response to comments received through focus group meetings and strategizing how to fund this initiative in light of extremely tight education budgets. This proposal will be taken to USF Board of Trustees (newly established in July 2001), who have authority for approving new master's degree programs. Working with USF administrators, the proposal will be presented to the Board within the next 6-12 months. Simultaneously, work will continue with university administrators to identify appropriate funding strategies for the program.



*FHWA Administrator Mary Peters, FTA Administrator Jenna Dorn, and RSPA Administrator Ellen Engleman present Lisa Tucker (second from left) with the Outstanding Student of the Year award for the National Center for Transit Research.*

### ***Graduate Interdisciplinary Transportation Program***

The Graduate Interdisciplinary Transportation Program is a certificate program offered and administered by CUTR/NCTR in cooperation with the USF departments of Economics, Public Administration, and Civil Engineering. Ten students currently are enrolled in the program. Eighteen semester hours of core courses are offered in this certificate program to provide a firm grounding in transportation and to meet degree requirements within the respective departments. Participants are exposed to a multidisciplinary perspective on transportation and develop a rich perspective and appreciation for the nature of transportation policy. The program is evaluated on an ongoing basis, with initiatives targeted toward modifying content, increasing marketing, and involving additional departments. Public transportation is an integral part of the course material and an appropriate area to which students should be exposed.

### ***Research Experience for Teachers Program (RET)***

This program was designed to solicit science and math teachers from the local high schools and middle schools and have them work for four weeks on the university campus with a faculty researcher. Developed and conducted by the USF College of Engineering, the program involved 13 teachers in its pilot year. Three of those were teamed with NCTR faculty and involved in transportation/transit projects. A requirement of the teachers in the program was development of teaching plans for use in their classrooms, with the plans placed on the internet for use by other teachers.

One NCTR-supported participant, who teaches ninth grade science, developed an instructional unit on maglev technology applications in transportation, including a literature search of international applications, a review of the technology and its functioning and science applications, and an assessment of the impacts of the technology on transportation. The effort included the construction of a model to test for classroom application, and participation on an industry listserv with input from industry experts. The RET program was well-received by the teachers, who gained a much richer understanding of both the science of transportation and the practical issues and career opportunities and who will significantly influence the career decisions of their students.

### ***Developing Interest in the Field of Public Transportation***

The purpose of this activity is to develop a public transportation education program that will attract young adults into the transportation industry. While there are many programs that exist to encourage transportation careers, few of them are geared towards a public transportation discipline. If public transportation is to compete for a new generation of professional practitioners, it is critical to introduce students to career opportunities and influence their decisions as they begin to consider educational and career alternatives. This summer,



al  
Re

er  
ch  
Center

NCTR conducted the Summer Transportation Education Program (STEP), a three-day program geared towards high school students to provide them with the opportunity to learn more about careers in the field of public transportation through discussions with practicing professionals, hands-on activities, and field trips. The 14 participants, who represented high schools throughout the Tampa Bay area, were introduced to public transportation career opportunities related to engineering, safety, operations, and planning, as well as many others. They participated in discussions with planners and engineers from two planning/engineering firms, learned about Bus Rapid Transit, and visited Tampa International Airport (TIA), the Tampa Port, and Hillsborough Area Regional Transit (HART).

At TIA, the students toured the flight line and the terminal and learned about the various jobs needed to effectively run an airport. Similarly, at the Port they participated in a boat tour and learned about the responsibilities of Tampa's Port Authority and the knowledge and skills necessary to meet those responsibilities. Finally, they students visited the HARTline facilities to learning about career opportunities in public transit and HART's Ybor City facility to learn about how it is preparing for a new electric streetcar system that will be introduced later this year.

Another initiative that NCTR has begun is the development of a multi-media educational toolkit that can be used by students of all ages to encourage interest in public transportation. The information included in the toolkit will be organized such that public transportation professionals and teachers will be able to generate lesson plans or activities geared toward specific ages. At the high school level, in particular, the toolkit will include activities that advocate public transportation careers. While the distribution process has yet to be determined, the goal is to ensure that multi-media toolkits are available to transportation professionals participating in "career day" activities and to teachers for their normal yearly curriculum.

### ***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 by NCTR staff over the last year.

### ***Professional Activities***

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



NCTR Director Volinski continues to serve as a TRIP ambassador, responsible for helping disseminate information on the results TCRP-funded research by making presentations at a variety of venues such as conferences, site visits, and expositions. He also informs transit professionals on how they can become more involved in the TCRP program through submission of research proposals and serving on research project committees. This close contact with transit professionals also allows him to keep abreast of issues of their greatest interest to the benefit of the NCTR program.

***Professional Involvement of Key NCTR Personnel:***

***Joel Volinski***

TRB Bus Transit Systems Committee  
TRB Committee on Transit Management and Performance  
TCRP Transportation Research Innovation Program  
(TRIP) Ambassador  
Leadership APTA Alumni Board of Directors, Chair  
APTA Human Resources Committee  
APTA Research and Technology Committee  
Florida Public Transportation Association Annual Conference Program, Chair  
Florida Public Transportation Association Board of Directors, Member

***Gary Brosch***

International Road Federation, Board of Directors  
IRF Education Foundation, Executive Committee  
ARTBA, Education Committee  
Institute of Transportation Engineers  
American Public Works Association

***Dennis Hinebaugh***

TRB Fare Policy and Marketing Committee  
TRB Bus Transit Systems Committee  
***TRB Bus Transit Systems Newsletter***, Editor  
APTA Bus Rapid Transit Task Force  
TCRP Panel Member, SB-10 ***Transit Advertising Franchise Agreements***

***Phil Winters***

TRB TDM Committee, Chair  
Association for Commuter Transportation (ACT):  
TDM Institute Board of Directors, Board Member  
***TDM Review***, Editor  
Technology Committee  
T3 Reauthorization Legislative Subcommittee, Chair  
ITE Transportation Planning Council, Executive Committee  
ITE Transportation Planning Council, Web Liaison  
American Lung Association of Gulf Coast Florida, Air Quality Task Force Member  
American Lung Association of Gulf Coast Florida, Youth Environmental Associates  
Club Advisor



Re  
ational  
Transit  
er f  
ch  
Center

**Xuehao Chu**

*Transportation Research—Part A*, Editorial Board  
*Journal of Urban Economics*, Referee  
*Journal of Political Economy*, Referee  
*Journal of Public Transportation*, Referee  
*Transportation*, Referee  
*Transportation Science*, Referee  
Infrastructure Modeling & Computation, Referee  
NHTSA Research Project Panel Member

**Margaret Giery**

Association for Commuter Transportation

**Jennifer Hardin**

TRB Committee on Paratransit

**Sarah Hendricks, AICP**

American Institute of Certified Planners  
American Planning Association  
Institute of Transportation Engineers  
Association for Commuter Transportation

**Laurel A. Land, AICP**

American Institute of Certified Planners  
American Planning Association

**Victoria Perk**

TRB Intermodal Passenger Facilities Committee  
TRB Social and Economic Factors in Transportation  
APTA Intermodal Operations Technical Forum, Vice Chair

**Steve Polzin**

Hillsborough Area Regional Transit Authority, Board Member  
TRB Light Rail Transit Committee  
American Planning Association  
Institute of Transportation Engineers  
TRB Public Transportation Planning & Development  
NCHRP Panel D2053  
Southeast Transportation Center, Education Committee

**Amber Reep**

Federal Transportation Safety Institute (TSI)  
Leadership Hillsborough

**Joel Rey**

TRB Urban Transportation Data and Information Systems Committee

**Francis Wambalaba**

Association of Commuter Transportation  
ACT Professional Development Committee Member  
American Institute of Certified Planners  
American Planning Association  
TRB Committee on TDM, Friend  
Southeast Association for Commuter Transportation

## **Beverly Ward**

American Anthropological Association  
American Planning Association  
APTA Minority and Female Speakers and Presenters Bureau  
Hillsborough County Social Information Network  
International Association for Impact Assessment  
National Forum for Black Public Administrators  
Society for Applied Anthropology  
TRB Committee on Women's Issues in Transportation  
TRB Joint Subcommittee on Community Impact Assessment  
TRB Task Force on Environmental Justice

## **Publications**

- Phil Winters, "The Value of Retaining Riders for Public Agency Programs," *Compendium*, 2001 ACT International Conference, August 2001
- Margaret Giery, "Market Realities: Selling TDM to the Travel Wary," *TDM Review*, Winter 2001
- Steve Polzin, "Transportation Planning after September 11," *Urban Transportation Monitor*, December 7, 2001
- Steve Polzin & Mike Baltes, "Defining BRT and the BRT Concept", *Urban Transportation Monitor*, May 2002
- Sara Hendricks, "Parking Management: Access, Access, Access," *Quality Cities Magazine*, May/June 2002
- Steve Polzin, "Security Considerations in Transportation Planning", STC web site, Spring 2002
- Francis Wambalaba, Commuter Choice Certificate Program, *TDM Review*, Spring 2002



## **Presentations**

- Margaret Giery, "Public Speaking: Clearing Your Hurdles," 2001 ACT International Conference
- Laurel A. Land, AICP, "Public Transit Access to Private Property," APTA Intermodal Operations Planning Workshop
- Victoria Perk, "Electric Transit Circulator Feasibility," APTA Intermodal Operations Planning Workshop
- Joel Rey, "The Status of APTS in Florida," FDOT ITS Working Group Meeting
- Phil Winters & Sara J. Hendricks, AICP, "Transportation Management Associations as Advocates for Smart Growth," 2001 ACT International Conference
- Phil Winters, "The Value of Retaining Riders for Public Agency Programs," 2001 ACT International Conference
- Laurel A. Land, AICP, "Public Transit Access to Private Property," *Proceedings*, APTA Intermodal Operations Planning Workshop

- Mike Baltés & Joel Rey, "Bus Rapid Transit: An Overview," Central Jersey Transportation Forum
- Amber Reep, "Where are the Future Maintenance Technicians Coming From?" 2001 Florida Public Transportation Association (FPTA) Annual Conference
- Margaret Giery, "Core Truths and Modern Realities: Selling TDM in Today's Marketplace," Southeastern Chapter of the Association for Commuter Transportation (SEACT) Conference
- Phil Winters, "Thinking Out of the Box—Creative Thinking Tools for Solving Your Transportation Problems," SEACT Conference
- Phil Winters, "Commuter Choice 101—Tax Benefits for Employers and Commuters," SEACT Conference
- Gary Brosch, "The Future of High Speed Rail in Florida," Third Annual Regional Leadership Conference, Tampa Bay Partnership
- Brenda Thompson, "Marketing: Using Customer Satisfaction Surveys to Improve Service," 2001 FPTA Annual Conference
- Joel Volinski, "Options for Establishing Regional Transit Authorities," Florida Metropolitan Planning Organization Advisory Council and SE Florida Transportation Summit
- Steve Polzin & Beverly Ward, "Reflections on Designing an Interdisciplinary Educational Program for the Future Transportation Workforce," *Proceedings*, TRB 81st Annual Meeting
- Steve Polzin & Ram Pendyala, "Development of a Time-of-Day-Based Transit Accessibility Analysis Tool," *Proceedings*, TRB 81st Annual Meeting
- Joel Rey, Dennis Hinebaugh & Jose Fernandez, "Analysis of Florida Transit Bus Crashes," *Proceedings*, TRB 81st Annual Meeting
- Brenda Thompson, "Measuring the Performance of Florida's Transit," poster presentation, TRB 81st Annual Meeting
- Brenda Thompson, "Results of Statewide Application of Quality of Service Measures from Transit Capacity and Quality-of-Service Manual," poster presentation, TRB 81st Annual Meeting
- Joel Rey & Jose Fernandez, "Analysis of Florida Transit Bus Crashes," TRB 81st Annual Meeting
- Amber Reep, "Where Are the Future Transit Technicians Coming From?", TRB 81st Annual Meeting
- Steve Polzin & Ram Pendyala, "Development of a Time-of-Day-Based Transit Accessibility Analysis Tool," TRB 81st Annual Meeting
- Steve Polzin & Xuehao Chu, "Transit Economic Impact Studies: The One-Step Approach," poster presentation, TRB 81st Annual Meeting



National  
Transit

Re

National  
Transit

er f  
ch

Center

- Steve Polzin & Beverly Ward, "Reflections on Designing an Interdisciplinary Educational Program for the Future Transportation Workforce," TRB 81st Annual Meeting
- Francis Wambalaba, "Private & Public Shuttle Service Opportunities: A Systems Approach," TRB 81st Annual Meeting
- Francis Wambalaba, "Public Involvement: Tri-Met Transit Choices for Livability Case Study," ITE Annual Meeting
- Victoria Perk, Joel Rey & Brenda Thompson, "Performance Evaluation of Florida's Transit Agencies," poster presentation, TRB 81st Annual Meeting
- Victoria Perk, Chandra Foreman, Brenda Thompson & Tara Bartee, "Transit Quality of Service," poster presentation, TRB 81st Annual Meeting
- Michael Baltes & Xuehao Chu, "Pedestrian Level of Service for Mid-Block Street Crossing: Methodological Issues," poster presentation, TRB 81st Annual Meeting
- Michael Baltes & Xuehao Chu, "Measuring Pedestrian Quality of Service for Mid-Block Street Crossing: Selection of Potential Determinants," poster presentation, TRB 81st Annual Meeting
- Michael Baltes & Xuehao Chu, "Pedestrian Level of Service for Mid-Block Street Crossing: Final Results," poster presentation, TRB 81st Annual Meeting
- Sara Hendricks, "Land Developer Participation in Providing for Bus Transit Facilities and Operations," FDOT Site Impact Workshop
- Xuehao Chu, "Pedestrian Mid-Block Crossing Difficulty," Mid-Continent Regional Science Association
- Francis Cleland, "Statewide Florida Commuter Assistance Evaluation Results," Southeast Chapter ACT
- Laurel Land, "Managing Interchange Areas," Transportation/Economic Development Conference
- Joel Rey, "National Transit Bus Accident Data Collection & Analysis," AASHTO/MTAP Conference
- Heather Sobush & Phil Winters, "Universities & TDM: Carpool Programs," Southeast Chapter ACT
- Francis Wambalaba, "Least Cost Planning," TRB Economic Development and Transportation, May
- Francis Wambalaba, "Transportation Planning: Including TDM in the Planning Process," Southeast Chapter ACT
- Phil Winters, "The Evolving Roles of TMAs," Congestion Solutions Summit
- Phil Winters, "Congestion Issues in Minnesota" (panelist), Congestion Solutions Summit
- Phil Winters, "Creative Thinking Techniques for the TDM Professional," Minnesota Chapter ACT
- Phil Winters, "B-BOPP and Other Special Events," Minnesota Rideshare ETC event
- Phil Winters, "Creative Thinking Techniques for the TDM Professionals," Southern California Chapter ACT



National  
Transit

al  
Re  
ational

er  
ch  
Center

## Training

- Florida Bus Operator Trainer Training Program: Instructor's Excellence
- Florida Bus Operator Trainer Training Program: Driver Wellness and Conflict Avoidance
- Florida Statewide Transit Training Program: It's a Matter of ... Quality Customer Service
- Florida Statewide Transit Training Program: Using Your Emotional Intelligence in Conflict Management
- Florida Statewide Transit Training Program: Technology in Transit
- Florida Statewide Transit Training Program: Managing Transit Emergencies
- Florida Maintenance Training Program: Foundation Brakes
- Florida Maintenance Training Program: Wheelchair Systems
- Florida Maintenance Training Program: Preventive Maintenance
- Florida Maintenance Training Program: Intermediate Electric
- Florida Maintenance Training Program: Alternative Fuels
- Florida Maintenance Training Program: 608 Training & Testing
- Florida Maintenance Training Program: Engine & Transmission Electric Controls
- Florida Maintenance Training Program: Air Systems/Brakes/Pneumatic
- Commuter Choice Training Workshop: Establishing Program Goals & Objectives
- Commuter Choice Training Workshop: Measuring Results
- Commuter Choice Training Workshop: Social Marketing
- Commuter Choice Training Workshop: Institutional Arrangements
- TDM Training Workshop & Summit
- FPTA/CUTR Professional Development Workshop: Planning Market Segmentation
- FPTA/CUTR Professional Development Workshop: GIS for Transit Properties
- FPTA/CUTR Professional Development Workshop: Transit Service Options/Shuttle Service
- FPTA/CUTR Professional Development Workshop: The Marriage of Transit & Paratransit
- FPTA/CUTR Professional Development Workshop: Managing Today's Employees
- FPTA/CUTR Professional Development Workshop: What's All the Fuss about BRT?
- FPTA/CUTR Professional Development Workshop: Alternative Fuels in Transit
- FPTA/CUTR Professional Development Workshop: Transit Safety & Security Using APTS
- FPTA/CUTR Professional Development Workshop: Marketing Roundtable
- FPTA/CUTR Professional Development Workshop: Advertising on Buses
- FPTA/CUTR Professional Development Workshop: Bus Collision Prevention Investigation
- FPTA/CUTR Professional Development Workshop: Supervisory Skills for Maintenance Managers



ational  
Transit

er f  
ch  
Center

- FPTA/CUTR Professional Development Workshop: MultiMedia Imaging Technologies in Public Transportation
- FPTA/CUTR Professional Development Workshop: Transit Bus Accident Data
- FPTA/CUTR Professional Development Workshop: Integrating Bicycling and Public Transportation
- FPTA/CUTR Professional Development Workshop: The Whole Brain Theory
- FPTA/CUTR Professional Development Workshop: Technology in Transit
- FPTA/CUTR Professional Development Workshop: Managing Transit Emergencies
- FPTA/CUTR Professional Development Workshop: The Art of Delegation
- FPTA/CUTR Professional Development Workshop: Commuter Benefit Program
- FPTA/CUTR Professional Development Workshop: Commuter Benefit Program

National  
Transit

### ***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, 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's circulation exceeded 1,700 subscribers in the past year, representing the U.S. and 47 countries and boasts a distinguished editorial board.

### ***NCTR Website***

NCTR continues to improve the website ([www.nctr.usf.edu](http://www.nctr.usf.edu)) to push research results into the field and pull transit professionals, students, and others to help set the research agenda. The redesigned website makes it easier to find reports and journal articles, obtain assistance via listservs, submit research ideas, and view streaming media presentations. For example, the website contains more than 20 final reports, numerous streaming media presentations, and abstracts of articles published in NCTR's popular *Journal of Public Transportation*.

NCTR also hosts two types of listservs—discussion (many to many) and eNewsletters (one to many)—to complement and supplement NCTR's research and technical assistance efforts. Discussion listservs allowing subscribers to read, search, and contribute messages by web or email, providing researchers and others quick access to the field to help locate unpublished information or fulfill a request for short-term technical assistance. NCTR sponsors listservs on Bus Rapid Transit, Leadership APTA, Telework, and Transportation Demand Management, the largest NCTR listserv with over 550 subscribers. The new eNewsletter allows NCTR to send news and announcements of additions to the website, upcoming training sessions, etc.

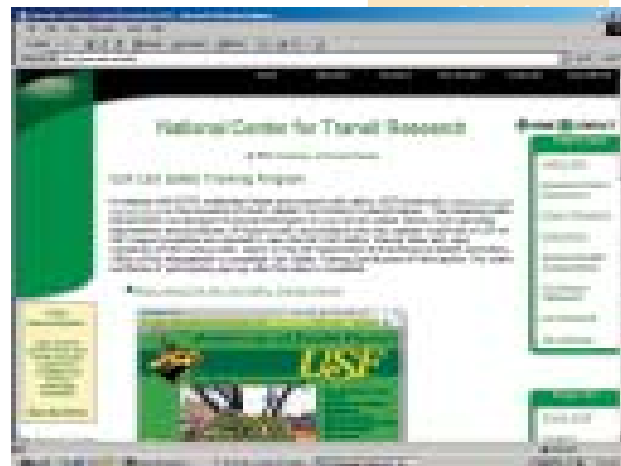
Even with substantial enhancements to the website, the goal of any web administrator to improve the speed and reliability of obtaining documents from the site overrides the need to track usage. The best way to improve speed is to have browsers retrieve documents from



National  
Transit

er f  
ch  
Center

places closer to where they will be used (and even from memory) than to access those documents from the server. However, the server has the ability to track access to the website only when the file is retrieved directly from the server. Efforts to improve the speed and reliability, therefore, make it difficult to track accurately the number of unique visitors or number of pages requested. For instance, there is no way to track how many unique visitors the website has received. Though NCTR averaged nearly 89,000 requests per month, this figure doesn't mean that that same number of people have accessed the site. The number of requests counts all the files that have been requested, including pages, graphics, etc. Another statistic, the number of pages requested (nearly 15,000 pages per month for NCTR), also misses the mark. One person can generate many requests by accessing many different files, or the same file many times. Therefore, care should be exercised in interpreting web statistics. Web statistics are most useful for server administrators to get a sense of the actual load on the server for diagnostics and planning.



### ***Web-Based Training, Meetings and Conferencing***

In its continual quest to working harder and smarter, NCTR continues to expand the use of eLearning, netmeetings, and netconferences. These innovative approaches help NCTR transfer research results and engage students and transit professionals in fully-functional virtual classrooms. NCTR's approach to eLearning allows instructors and learners to view, access and interact with a variety of content forms in numerous ways. NCTR's virtual classroom solution requires absolutely no learner software installations or "plug-ins" to enable the learner to participate quickly and conveniently in the learning event. Using PlaceWare®, researchers incorporate multiple content types including PowerPoint slides, real-time polling, and collaborative web tours into the NCTR presentations.

In a netmeeting context, NCTR researchers can share any document or application with remote project team members and members of advisory panels. Remote participants do not need to download software or waste time and money traveling to meetings. Meeting notes are easily captured during the learning event for all participants to view. Copies of active slides are available during training, offering learners the presentation and supporting resources. The live text chat feature allows learners to participate in an interactive one-on-one during a live training delivery. They can privately post questions to instructors or content experts who may then choose to respond privately (to the learner), publicly (to the entire audience), or in a one-on-one chat session.

In a netconference application, entire events can be recorded for on-demand playback. The slide and audio content is indexed, enabling just-in-time learning by allowing the learner to move within the recording simply by clicking on the title of the slide. These recorded sessions are streamed directly to a learner's media player or can be captured on a CD-ROM.

Re  
ational  
Transit  
er f  
ch  
Center

Given the events of 9/11 and the financial and time restrictions preventing more people from attending conferences where research results are often presented, NCTR's netconferencing approach is an ideal, cost-effective vehicle for delivering and sharing information to geographically dispersed audiences. For example, NCTR and the Association for Commuter Transportation (ACT) held a netconference in August 2002 on research results for increasing the adoption of transit commuter benefits by employers. One presenter was in Washington DC and the other in Boston. ACT chapters hosted the netconference in more than a dozen locations and are attracted over 100 attendees.

NCTR will continue to pursue new and creative ways of bringing research results to the attention of the industry and to engage the transportation professionals of today and tomorrow.

### **Conclusion**

In its third year, the National Center for Transit Research is producing a high 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 dozens of students who assist in the research being conducted. Many of them are joining public and private sector transportation agencies upon graduation. NCTR is 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 non-profit foundations 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.



Research  
National  
Transit  
er f  
ch  
Center

## Financial Summary

Figure 1 presents the funding sources for the second year (FY 2002) 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. These expenditures are for the “core program” and research projects only and do not include administrative expenses of the NCTR Program. Expenditures are shown in three areas—education, research and technology transfer.

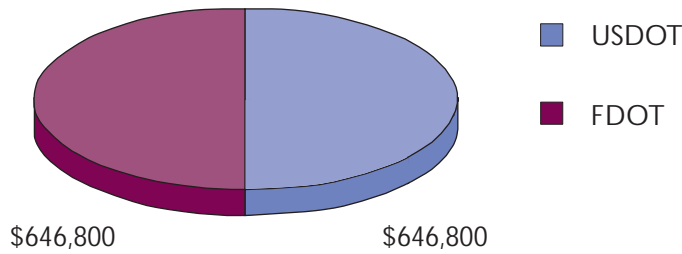


FIGURE 1

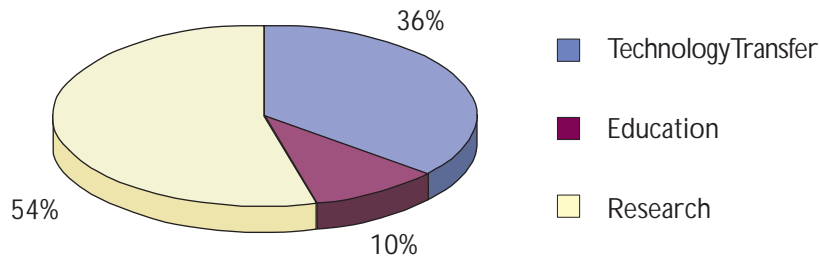


FIGURE 2