



**IN THIS ISSUE**

- 2 *Community Impact Assessment study*
- 5 *Transportation Management Association Handbook available*
- 6 *USF Fall transportation classes*
- NCTR ANNUAL REPORT**
- 7 *Global positioning systems pinpoint future transit technology*
- 9 *CUTR investigates potential for truck only facilities in Florida*
- 12 *2001 transportation scholarship awards*



## Mierzejewski named new CUTR Director

**F**ollowing a six-month national search, Dr. Edward A. Mierzejewski has been named Director of the Center for Urban Transportation Research (CUTR). Mierzejewski succeeds Gary L. Brosch, who announced in January that, after 13 years as founding Director, he would be assuming the role of USF's Congressional Transportation Liaison for the Tampa Bay Partnership. He will continue to work on spe-



cial assignments for CUTR.

Mierzejewski is a Licensed Professional Engineer in Florida, with over thirty years' professional experience. He has been with CUTR since its establishment in 1988, serving most recently as Deputy Director for Engineering. He holds a B.S. in Civil Engineering from Worcester Polytechnic Institute and an M.S. in Civil Engineering from

*Continued on p.11*

### "Off to a Great Start!"

CUTR Office Assistant Yolanda Moore and CUTR Graduate Research Assistant Jennifer Perone display some of the brand new shoes, bookbags, and supplies provided to 116 school children in Pasco County, Florida. Thanks to the generosity and hard work of many CUTR faculty, staff and students, our friends at Tindale-Oliver & Associates, and PayLess Shoes at University Square Mall in Tampa, children identified by Pasco County Child Protection Services and Healthy Families Pasco—primarily children of migrant workers—were able to start the new school year off with a smile!



# Community impact assessment case studies developed

Community impact assessment (CIA) is a process that alerts affected communities and residents, as well as transportation planners and decisionmakers, to the likely consequences of a transportation project and ensures that concerns about such issues as mobility, safety, employment effects, and relocation receive proper attention during project development. Of particular importance in this process are quality of life, responsive decision-making, coordination, and non-discrimination.

The Federal Highway Administration, in cooperation with representatives of several state departments of transportation and met-

ropolitan planning organizations (MPOs), began a series of initiatives in mid-1995 to promote greater use of community impact assessment

This included the development of a primer, *Community Impact Assessment: A Quick Reference for Transportation*, in 1996 and the publication of national *Community Impact Assessment Case Studies* in 1998. Many of these case studies, however, were based upon community impact mitigation activities completed after-the-fact due to intense public controversy and legal challenges. In addition, few of these projects represent the typical project development and environment (PD&E) projects in Florida.

The Florida Department of Transportation (FDOT), recognized as a national leader in

community impact assessment, realized that the state would benefit



Grand Opening at the Cross Florida Land Bridge

(CIA) techniques in transportation planning and project development.

## CUTRlines

Vol. 12, No. 2, 2001

CUTRlines is produced three times per year by the Center for Urban Transportation Research (CUTR) at the University of South Florida's College of Engineering to inform the public and private sectors of its research and professional activities.

Editor: Patricia Ball  
Design by Wendy Castleberry

©CUTR 2001

### CUTR'S MISSION:

*"To serve as a resource for policymakers, transportation professionals, the education system, and the public by providing high quality, objective transportation research."*



CUTR was created by the Florida Legislature, the Florida Board of Regents, and the University of South Florida to find cost-effective, state-of-the-art solutions to transportation problems. CUTR's expertise in policy analysis, planning, engineering, economics, geography, safety, and communications offers innovative solutions to public and private sector organizations nationwide.

For more information, contact:  
Dr. Edward A. Mierzejewski, Director, CUTR  
College of Engineering, University of South Florida  
4202 E. Fowler Ave., CUT 100, Tampa, FL 33620-5375  
(813) 974-3120, fax 974-5168  
E-mail: pball@cutr.eng.usf.edu  
<http://www.cutr.usf.edu>

greatly from the documentation and dissemination of Florida case studies on how the district offices and MPOs have applied community impact assessment in the planning and project development processes and from investigation of proactive efforts to incorporate CIA techniques in transportation actions to aid the Department in providing an open and “up front” public involvement process. Better public involvement may serve to streamline transportation planning and project development, providing additional benefits in cost and other resource savings.

FDOT asked CUTR to document current CIA practices using detailed case studies from throughout Florida, including a review of numerous plans and projects involving CIA techniques. FDOT and CUTR selected the final cases for detailed documentation from among several identified by means of a survey conducted early in the project. Information compiled from site visits and the literature was compiled into a complete case study booklet.

In the booklet, each FDOT District in Florida is represented by at least one case example, some of which are highlighted below. The investigation revealed a rich appreciation of the past and present, of the many people and their descendants who have lived and continue to live in Florida. This appreciation is balanced with consideration of the more than 50 million annual visitors.

### **U.S. Highway 41 Reconstruction**

In District 1, Southwest Florida, the case study was of reconstruction of

U.S. Highway 41, a major lifeline through a bustling business district. FDOT used several techniques to incorporate the views, concerns, and issues of the public. Before the project began, several public hearings were held, and regular coordination meetings take place, which gives citizens the chance to meet directly with FDOT representatives. An FDOT site office was opened in the Venice City Hall for a full-time public information officer who returns messages from a 24-hour construction hotline and provides updates through various media. In addition, a video was produced that explains the project in layman’s terms and addresses the community’s concerns.

Details of issues such as night vs. day construction and suspension of construction on holidays have been addressed.

Temporary lane closures are being kept to a minimum, and entrance signs are posted near driveways to maximize visibility of business sites. Special emphasis has been placed on design issues such as landscaping, noise mitigation, and maintaining historical themes. Through partnership with the community, FDOT has made the project more appealing to and safe for all involved.

### **Nassau Sound Bridge**

In Northeast Florida (District 2), one of the case studies was of the Nassau

Sound Bridge, where the District staff initially proposed a new bridge for State Road A1A next to the old bridge, which was to remain intact for fishermen. Because there were no agencies willing to maintain the old bridge, the only alternative was to tear it down. As planning continued and construction was about to begin, a community effort to retain the old bridge delayed the construction, and State legislators became involved. As a result of the



*Nassau Sound Bridge*

community’s efforts and with agreement by the County and the park service to maintain the old bridge, construction began on the new bridge, and the old bridge remained intact. By building partnerships with resource agencies, FDOT was able to satisfy the community, and, in fact, developed facilities that far exceeded what existed before.

### **Broward Boulevard Project**

In District 4, Southeast Florida, according to Secretary Rick Chesser,



*Broward Boulevard*

“One best practice is our ‘good neighbor’ policy. We all live in our communities, and our projects should reflect our ideals for liveable communities, not be scars through our neighborhoods.”

A good example of this policy is the Broward Boulevard project in Fort Lauderdale from U.S. Highway 441 to Northwest 7<sup>th</sup> Avenue, dubbed a “Work in Progress.” In this older part of the city, sparse landscaping, a blighted neighborhood, and safety problems due to illegal activities were replaced with pedestrian-friendly lighting, attractive landscaping, and brick pavers. The County partnered with the private sector by sponsoring grants and loans to upgrade store fronts, and law enforcement agencies worked to address safety concerns.

All of the examples in District 4 illustrate how FDOT has developed and fostered relationships with affected communities over several decades, and project managers

were creative in addressing the concerns raised. “[FDOT] strive[s] to solve problems in a collaborative manner with creative mitigation for community impacts—or as we say, the features required to sell a project,” said Chesser. “We look for shared costs for

upgrades with set parameters and give our project managers flexibility in recommending what is required.”

### **Miami Gardens Drive**

In District 6, Miami-Dade County, the phrase “community acceptability” has become key to projects in the area. Community concerns are identified and addressed prior to the PD&E phase and passed on to the



*Miami Gardens Drive*

***“Top management has to be openly supportive of the [community impact assessment (CIA)] effort. It has to cascade down through middle management as well, or the direction can sputter. Resources have to be in place to perform CIA activities. Benefits include better buy-in from communities and local governments, and smoother project delivery.”***

Thomas F. Barry, Jr.  
FDOT Secretary

District Environmental Office staff. In a corridor study of Miami Gardens Drive, an analysis identified existing conditions of the 3.5-mile corridor and established early coordination with communities along the corridor and with key stakeholders. Also identified were support and lack of support for various options before detailed engineering concepts were developed.

A database of key civic and political leaders and other potentially interested parties was com-

*Continued on p.11*

# TMA Handbook now available

On behalf of the TMA Council of the Association for Commuter Transportation (ACT), CUTR has just completed the update of the *TMA Handbook: A Guide to Successful Transportation Management Associations*. The preparation of this 3<sup>rd</sup> edition of the handbook was a collaborative process, involving ACT, the National Center for Transit Research's (NCTR) National TDM and Telework Clearinghouse (a project of CUTR), the Florida Department of Transportation, and Metro Commuter Services of Minnesota.

The *TMA Handbook* was initially prepared in 1989 by Commuter Transportation Services, with a second edition in 1994. The past seven years have brought changes to the economic, political and regulatory environment in which TMAs operate. These changes, coupled with the intensification of mobility issues and the introduction of new technologies and methodologies for transportation management, necessitated the *TMA Handbook* update. Running a successful TMA requires a broad mix of technical, business, and organizational skills employed by the board of directors and their staff. Consequently, there is a sustained need for information, training and resources to assist TMAs.

While the earlier editions emphasized the information required for

exploring TMA feasibility, TMA formation, and ongoing TMA operations, this newest update of the *TMA Handbook* includes information on determining the definitional scope of a TMA.

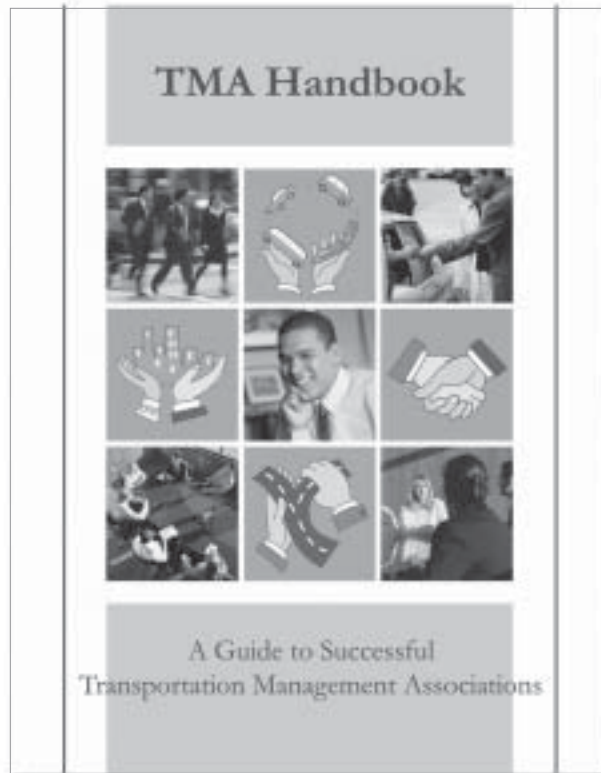
The *TMA Handbook* describes variations among TMAs relative to differences in institutional organization,

dress. For those who manage an existing TMA as a staff member or board member, understanding the differences may help improve the performance of the TMA by broadening or narrowing their perspective. It is argued that the value of TMAs partly stems from their organizational flexibility, through which they are empowered to meet their particular needs.

New information was added to the *TMA Handbook*, particularly regarding financial management issues of TMAs and monitoring and evaluation of TMA program performance. The issues involved in running a TMA are similar to, and as challenging as, running a small business. For example, the decisions that TMAs make regarding how they track and report their financial condition can have a direct bearing on the TMA's success. The results of monitoring and evaluation may make the difference for a TMA between winning a new operating grant and staying afloat, or losing grant funds and closing its doors. The nuts-and-bolts discussions on these and other topics will help TMA

staff and board members understand the complexity of the effort and the many decisions and trade-offs that must be made.

The *TMA Handbook* also provides a fresh perspective on TMA membership development through marketing activities. Strategically, a TMA's



purpose, funding, membership, and location, recognizing that all forms of TMAs have equal legitimacy. For individuals looking to form a TMA, recognizing and appreciating the differences among TMAs may help them select a type of TMA structure that deals with the problems that the proposed TMA is intended to ad-

actions can be classified as one of four types: the TMA can increase market penetration of existing services to current markets, expand the TMA's "product line" to satisfy additional needs of the members already served, seek to enter new markets with current services, or diversify by offering new services to new markets. The TMA may have activities in more than one area. The Strategic Direction Grid contained in the publication illustrates these options for market development.

The *TMA Handbook* incorporates the recognition that more updates will be required in the future due to the continually changing environment in which TMAs operate. For that reason, a three-ring binder format of the *TMA Handbook* enables readers to add updated notes and case studies. Specific data that describe current operational characteristics of TMAs, as gathered from the 1998 ACT TMA

***"The new edition of the TMA Handbook is a valuable resource for transportation professionals to guide them through the necessary tasks of operating a successful TMA."***

Elizabeth Stutts,  
FDOT  
Grants Program Administrator

Council Operational Survey, are located in the Appendix for easy referral and later updates. The Appendix also includes samples of a TMA feasibility study format, articles of incorporation and by-laws, staff job descriptions, dues structures, a bib-

liography of business management texts, and a list of helpful resources.

"The new edition of the *TMA Handbook* is a valuable resource for transportation professionals to guide them through the necessary tasks of operating a successful TMA," said Elizabeth Stutts, Grants Program Administrator for FDOT and President of the Association for Commuter Transportation.

CUTR is providing a limited number of copies of the *TMA Handbook* to Florida TMA professionals. Additional copies of the handbook also can be ordered through ACT by accessing their web site at [www.actweb.org](http://www.actweb.org).

For further information about the *TMA Handbook*, contact CUTR Research Associate Sara Hendricks, [hendrick@cutr.usf.edu](mailto:hendrick@cutr.usf.edu), (813) 974-9801.



## Fall transportation classes at USF

**U**SF is offering the following transportation-related classes in the Fall 2001 semester:

- TTEE 5501, Transportation Planning and Economics, Mondays 6:00-8:50pm, Dr. Francis Wambalaba
- TTE 6835, Pavement Design, Tuesdays, 6:00-8:50pm, Dr. Manjriker Gunaratne
- TTE 4004, Transportation Engineering I, Wednesdays, 6:00-8:50pm, Dr. Ram Pendyala

- TTE 5205, Traffic Systems Engineering, Wednesdays, 6:00-8:50pm, Dr. Sunanda Dissanayake
- TTE 6507, Travel Demand Modeling, Thursdays, 5:00-7:50pm, Dr. Ram Pendyala
- TTE 6930 Graduate Transportation Seminar, Fridays, 3:30-5:00pm, Dr. Ram Pendyala

*For information on the above classes, contact the USF Department of Civil & Environmental Engineering, 974-2275*



- EVR 6934, Public Transportation Policies and Poor Women's Travel Issues, Tuesdays, 6:00-8:50pm, Dr. Beverly Ward

*For information on this class, contact the instructor directly at 974-3120.*

# National Center for

National Center for Transit Research



# Transit Reso

Annual Report  
July 2001

National Center for  
Transit Research

National Center

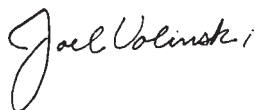
## Message from the Director

The National Center for Transit Research is fully engaged in its mission of enhancing the performance and relevance of public transportation and alternative forms of transportation in urban areas. Research faculty at NCTR already have completed eight research projects, ranging from identifying methods of improving security for transit bus operators to developing guidebooks for establishing and improving the performance of transportation management associations. Another 30 projects are in various stages of completion, and the majority of those will be completed by December 2001. Each of them will result in information that will be practical and of immediate use to transit agencies, MPOs, or other agencies charged with implementing improvements to transit and other alternative means of travel.

The results of the research being conducted are being widely shared with the transportation industry. Completed reports are available on line through our website, which has been enhanced to include webcast digital videos that allow visitors to hear and see presentations of the research that has been completed. In addition, multiple listservs have been established in areas dealing with telecommuting, transportation demand management, bus rapid transit, and transit planning and management. Nearly 1,000 members participate in the listservs, sharing information freely and rapidly as these electronic networks become increasingly popular and effective.

NCTR continues to educate and help provide opportunities for research and professional development for many students interested in making transportation their career. Five recent graduates joined private and/or public transportation-related agencies this past year. NCTR faculty have completed an assessment of the feasibility of establishing a graduate transportation degree program, and we look forward to sharing its positive results with a new incoming Dean of the College of Engineering. Many other exciting developments are under way as well, including entering partnerships with major non-profit foundations, as described in the full report.

The research faculty and students of NCTR are committed to our mission and are happy to see that results of their efforts are being well received and utilized in the public transportation field.



Joel Volinski, NCTR Director



## Introduction

In September 1999, the National Center for Transit Research (NCTR) was approved for research 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 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 the 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 (CUTR) in the College of Engineering at the University of South Florida. 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.



## Program Overview

### Funding

NCTR just completed its second 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 12 years. Federal funds for the program are matched with a 100 percent cash match from the Florida Department of Transportation (FDOT).

The FDOT funding used to match the USDOT funds was acquired at a 5 percent indirect rate, as opposed to the federal indirect rate of 45 percent. This has created an actual doubling of the total program funding, and nearly a 250 percent increase in direct funds available for research, allowing for a much wider range of research in the field of public transportation. 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 length 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.

### Advisory Committee

The NCTR Advisory Committee was created during the first six months of the program. The committee consists of 15 members of 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

*President  
Florida Public Transportation Assoc.*

Bill McCloud

*Senior Vice President & C.O.O.  
Van Der Aa Mobility Group*

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*

Joel Volinski

*Director  
National Center for Transit Research*



## Second-Year Accomplishments

### Research

The second year of the NCTR program has supported 25 new research projects as approved by the NCTR Advisory Board. These research areas consist of "core programs" that will be conducted throughout the life of NCTR, as well as annual research projects that explore methods to accomplish the goals of the Center in enhancing the performance of public transportation.

Core research areas include development and maintenance of a National Transportation Demand Management (TDM) and Telework Clearinghouse, provision of short-term technical assistance to transit systems, and publication of the Journal of Public Transportation. In addition to projects that fall into core program areas, research topics were solicited from public transportation professionals throughout the United States and Canada. A total of 86 research ideas were received.

### Project Status

New, ongoing and completed research projects and their principal investigators for FY 2001 are listed below.

#### New Research Projects Initiated in FY 2001

- Bus Signal Priority (*Shireen Chada, CUTR, 416-04*)
- Customer Survey Manual (*Michael Baltes, CUTR, 416-08.3*)
- Developing Interest in Public Transportation Careers (*Amber Reep, CUTR, 415-12*)
- Environmental Justice and Community Impact Assessment for Transit Agencies (*Beverly Ward, CUTR, 416-05*)
- Florida Transit Technical Assistance Program (*Lisa Staes, CUTR, 416-09.2*)
- Florida Transit Training Program (*Lisa Staes, CUTR, 416-09.1*)
- FSUTMS Mode Choice Modeling (*Fang Zhao, Florida International University, 416-03*)
- GIS in Transit Conference (*Steve Polzin, CUTR, 415-07*)
- Land Developer Participation at Bus Facilities (*Sara Hendricks, CUTR, 416-06*)
- Maintenance Training National Outreach (*Lisa Staes, CUTR, 415-13*)
- National Transit Bus Accident Data (*Chris DeAnnuntis, CUTR, 416-13*)
- Paratransit Securement/Accident Tracking (*Jennifer Hardin, CUTR, 416-07*)
- Pedestrian Mid-Block Crossing Difficulty (*Xuehao Chu, CUTR, 416-02*)
- Per Capita Decisions, Trends and Impacts (*Rob Gregg, CUTR, 416-12*)
- Perceptions of Transit Safety (*Jennifer Hardin, CUTR, 416-08.2*)
- Promotional Materials Clearinghouse (*William Mustard, Florida State University, 416-10*)
- Qualitative Methods for Transit Research (*Francis Cleland, CUTR, 416-08.1*)
- Quantifying the Business Benefits of TDM (*Phil Winters, CUTR, 416-11*)
- Synthesis of Transit Non-User Surveys (*Brenda Thompson, CUTR, 416-08.4*)
- Telecommunication and its Future Role in the Public Transportation Arena (*Sara Hendricks, CUTR, 416-01*)
- Teleconferencing (*Phil Winters, CUTR, 415-06*)

#### Year 3 Research Program

- Transit Organizational Structure (*Keith Simmonds, Florida Agricultural and Mechanical University, 416-14*)
- Where are Tomorrow's Maintenance Technicians Coming From? (*Amber Reep, CUTR, 415-09*)



or

National  
Transit

al

ational  
Transit

er f  
ch

Center  
5—NCTR

Continuing Research Projects



- Analysis of National Transit Database (*Steve Polzin, CUTR, 350-11*)
- Assessment of Operational Barriers and Impediments to Transit Use (*Jennifer Hardin, CUTR, 392-11*)
- Bus Rapid Transit Technology – A Case Study of the Lynx Lymmo Project in Downtown Orlando, Florida (*Joel Rey, CUTR, 392-15*)
- Developing Interest in Public Transportation (*Amber Reep, CUTR, 350-12*)
- Evaluation of the Economic Viability of Narrow-Gauge Local Rail Systems (*Laurel Land, CUTR, 392-09*)
- FSUTMS Mode Choice Modeling – Factors Affecting Transit Use and Access (*Fang Zhao, Florida International University, 392-07*)
- Graduate Research Program (*Dennis Hinebaugh, CUTR, 350-04*)
- Inventory and Analysis of Advanced Public Transportation Systems in Florida (*Joel Rey, CUTR, 392-04*)
- Journal of Public Transportation (*Gary Brosch/Patricia Ball, CUTR, 415-05*)
- Lessons Learned in Transit Efficiencies - Part 2 (*Joel Volinski, CUTR, 350-07, 392-06*)
- National Maintenance Training Program (*Lisa Staes, CUTR, 350-09*)
- National TDM and Telework Clearinghouse (*Phil Winters, CUTR, 350-10*)
- Neighborhood Intermodal Transfer Facilities (*Laurel Land, CUTR, 392-16*)
- Pedestrian Mid-Block Crossing Difficulty (*Xuehao Chu, CUTR, 392-14*)
- Teleconferencing (*Phil Winters, CUTR, 350-06*)
- Transportation Degree Evaluation (*Steve Polzin, CUTR, 350-05*)

**Analysis of Florida Transit Bus Crashes**

In this project, transit bus occurrence data from selected Florida transit systems were collected and reviewed to analyze changes in crash occurrence over time in relation to the effectiveness of specific safety campaigns in reducing bus crashes. Two systems were selected to complete this investigation: Hillsborough Area Regional Transit Authority (HART) in Tampa and LYNX Transit in Orlando. HART was included to analyze the effectiveness of a safety campaign involving an operator refresher training course. LYNX was included to analyze the effectiveness of a safety campaign involving a vehicle-related capital improvement (i.e., rear-end high density lights). This report has documented the case study analyses of these safety campaigns and their effectiveness in positively impacting crash occurrence at the two systems.

As in the case of the LYNX safety campaign, it is apparent from this case study that the system's motorbuses have been experiencing a particular problem with rear-end collision impacts and that the rear-end high density light campaign has had a beneficial impact on this issue. In the database provided by LYNX, rear-end collisions accounted for almost a third of all the crashes that occurred during the two-year period for which data were included. To help mitigate this type of involvement, LYNX chose to implement the rear-end high density lights on many of its vehicles. Analysis during pre- and post-implementation periods showed that vehicles outfitted with the high density lights experienced a 7.8 percent decline in per vehicle rear-end crash rates. Even more significant is the fact that vehicles without the upgraded lights experienced a 21.7 percent increase in per vehicle rear-end crash rates during the same time period. These comparative percentage changes suggest that, overall, there was a 29.5 percent decline from the level of rear-end crash occurrence that would have been expected had the high density lights not been implemented at all.

### Completed Research Projects

- Analysis of the FDOT Transit Corridor Program (*Lisa Staes, CUTR, 392-01*)
- Analysis of Florida Transit Bus Accidents (*Joel Rey, CUTR, 392-05*)
- Cops, Cameras and Enclosures: A Synthesis of the Effectiveness of Methods to Provide Enhanced Security for Bus Operators and Passengers (*Darin Allan, CUTR, 392-12*)
- Enhancement of the Public Transportation Promotional Materials Clearinghouse (*William Mustard, Florida State University, 392-08*)
- FDOT Statewide On-Site Technical Assistance Program (*Lisa Staes, CUTR, 392-02*)
- FDOT Statewide Transit Training Program (*Lisa Staes, CUTR, 392-03*)
- State Park-n-Ride Lot Program Manual (*Laurel Land, CUTR, 392-13*)
- Transit Customer Satisfaction Index for Florida Transit Properties (*Francis Cleland, CUTR, 392-10*)

### 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

#### ***Cops, Cameras, and Enclosures: A Synthesis of the Effectiveness of Methods to Provide Enhanced Security for Bus Operators***

The safety of operators and passengers is a primary concern of transit systems and has become an increasingly important issue to transit bus operators themselves. Many transit agencies have experienced incidents of assaults against their bus operators that have resulted in serious injuries or deaths. These incidents also can expose passengers to assault and injury. Even when there are less serious consequences, assaults on operators can lower morale, increase absenteeism, and strain labor-management relations. There is also substantial cost to transit agencies in terms of lost availability of injured operators.

A number of transit agencies use different techniques to minimize the possibilities of assaults against their bus operators and passengers. Many use either uniformed or plainclothes police officers or security guards on particularly troubling routes. Digital cameras strategically placed inside buses also are being used to help discourage criminal assaults as well as other unwanted behavior such as graffiti and unwarranted claims of injuries from passengers. Perhaps the most visible effort to discourage assaults on operators is the provision of bus operator enclosures that separate the operators from anyone else on the bus and protect them from attacks. However, while this method can provide enhanced protection to bus operators, it might negatively affect passenger relations and increase the image of a bus as a place where crime might be committed.

This project surveyed transit agencies that have employed these techniques to determine their level of success, cost effectiveness, and acceptance by both bus operators and passengers. The project also identifies other techniques transit systems are using to protect their bus operators, such as passenger relations training to avoid conflict. The effect that "full wrap advertising" has on onboard activity and passenger safety is also explored.



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 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. The Institute also served as a member of the Technical Advisory Committee for the FTA-sponsored "Vehicle Design and Planning Competition," aiding in the selection of advanced design BRT vehicles and systems. Finally, the BRT Institute was recently awarded a foundation grant from the W. Alton Jones Foundation to continue its efforts in the BRT arena. All of these accomplishments of the Institute's program are attributable to the system startup created by the UTC program funding for the NCTR.

### *Year 3 Research Program*

NCTR recently completed the process to solicit and select research ideas for the FY 2002 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 Public Transportation directors, MPO directors, APTA committee chairs, and DOT Public Transit Managers in Florida. Idea requests also were sent to all public transportation-related committees of TRB, as well as national listservs. From the submission of 85 different research ideas, the NCTR Advisory Committee provided assistance in selecting 19 core program and research projects for funding in FY 2002.

## **Education**

Education is a core program area of NCTR. Student involvement in project research has always 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 needs of the region and nation.

During the first two years of NCTR, more than 20 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 aids in developing well-informed, educated students to serve as future ambassadors in the public transportation industry. 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 to address the increasing diversity of the transportation industry workforce. 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.

To date, the work effort has included the identification of possible course offerings, the development of an implementation program, the estimation of a program budget, and the solicitation of industry interest and feedback on the draft proposal. An industry focus group was held to gauge

industry interest and ideas, which reaffirmed the interest in the degree program and provided valuable input on curriculum expectations. Remaining as a critical obstacle in successful implementation is determining the best strategies to attract students to the degree program/profession.

The degree proposal has been preliminarily reviewed by USF administrators but currently is on hold awaiting major institutional changes that will govern how the program is evaluated for approval. This past year, the Florida Legislature abolished the statewide Board of Regents, the group that historically authorized new programs. Subsequently established was the USF Board of Trustees, appointed in July 2001. Authority for approving a new Master's degree program rests with this new board. Working with USF administrators, the proposal will be presented to the Board at the first available opportunity, within the next 6-12 months. Simultaneously, the College of Engineering has appointed a new Dean to start in September 2001, who will be instrumental in reviewing the program and working with university administration to identify appropriate funding strategies for the program.

The program proposal continues to be modified to include the most current information. A key element in attracting students to the program is the development of an undergraduate "Transportation in Society" course to be offered to juniors and seniors. The curriculum for this course will be developed and submitted for consideration as a new course offering.

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

The purpose of this activity is to research and develop a public transportation education program that will attract young adults into the industry. There are many similar programs that exist; however, none of them are geared towards a public transportation discipline. If public transportation is to compete for a new generation of professional practitioners, it will be critical to recruit students. Involving them at a young age will help influence their choice of professional careers; in the new century, technology is influencing the public transportation planning process. Transportation education has moved from more formal, traditional means into new, innovative means. Many colleges and universities offer transportation disciplines as degree majors, and this advancement in technology can be used as a catalyst to draw young minds into the field of public transportation.

One of NCTR's goals is to create a public transportation education program targeted to reach high school students. Based on many of the existing programs, several avenues are being investigated to accomplish this task, including summer programs, regular course offerings, and instructional presentations at high schools.

### **CUTR Training, Seminars, and Conferences**

CUTR offered several training courses and seminars during the past year, aimed at providing state-of-the-art information to transportation professionals. The following were offered at CUTR:

- Demand Responsive Operational Efficiencies and the Impact of ADA on Fixed-Route Service
- Florida Maintenance Training Program, A/C
- Florida Maintenance Training Program, Advanced Electric - Coach
- Florida Maintenance Training Program, Air Systems/Brakes/Pneumatic-Gillig L/F Specific
- Florida Maintenance Training Program, ATEC/DDEC
- Florida Maintenance Training Program: Fleet Maintenance QMG



*Brenda Joyce Thompson was awarded the Outstanding Student of the Year for the National Center for Transportation Research (NCTR).*

- Florida Maintenance Training Program, Intermediate Electric - Coach
- Florida Maintenance Training Program, Preventive Maintenance - Coach
- FTA Regulations Training
- Instructor's Course in Bus Operator Training (Vehicle Operations, Emergency Management and Customer Relations)
- Management and Productivity Skills (MAPS)
- Negotiation Strategies in Public Transportation: Understanding the Present & Developing Break through Strategies and Tactics
- New Paradigms for Transportation & Environmental Management (teleconference)
- Productivity and Supervisor Skills (PASS)
- TDM Summit

## **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  
 APTA Human Resources Committee  
 APTA Bus Operations Committee  
 APTA Research and Technology Committee

### **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  
Technical Advisor for the BRT Vehicle Design and Planning Competition  
APTA Bus Rapid Transit Committee

**Phil Winters**

TRBTDM Committee, Chair  
Association for Commuter Transportation (ACT):  
TDM Institute Board of Directors, Board Member  
*TDM Review*, Editor  
Technology Committee  
ITE Transportation Planning Council, Executive Committee  
Alliance for Clean Air and Transportation  
International Telework Association  
Recipient, Program Partnership Award, American Lung Association of Gulf Coast Florida

**Shireen Chada**

ITS America Advanced Public Transportation Systems Committee

**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

**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  
*SefTalk* Newsletter, Editor

**Michael Pietrzyk**

ITS America Benefits, Costs and Evaluation Committee  
ITS America Public/Private Partnership Committee  
ITS America Weather Information Applications Task Force

**Steve Polzin**

Hillsborough Area Regional Transit Authority, Board  
TRB Light Rail Transit Committee  
American Planning Association  
Institute of Transportation Engineers

**Amber Reep**

Federal Transportation Safety Institute (TSI)

or  
National  
Transit  
Center  
er f  
ch  
II—NCTR



### **Joel Rey**

TRB Urban Transportation Data and Information Systems Committee

### **Francis Wambalaba**

Association of Commuter Transportation  
American Institute of Certified Planners  
American Planning Association  
Council of Minority Transportation Officials

### **Beverly Ward**

APTA Minority and Female Speakers and Presenters Bureau  
TRB Committee on Women's Issues in Transportation  
Community Impact Assessment Joint Subcommittee

## ***Publications and Presentations***

During FY 2001, NCTR researchers published a number of articles and made several presentations at state and national conferences and meetings, as follows:

### *Publications*

- Gary L. Brosch and Beverly G. Ward, "Transportation in Megacities: The Tampa Bay Area Case," On the Verge: Florida's Megacities in the New Millennium, November 2000.
- Xuehao Chu and Steven E. Polzin, "Timing Rules for Major Transportation Investments," Transportation 27 (2000).
- Francis Cleland, "Interpreting Multiple Agency Gauges into Normed Evaluations," Proceedings, Association for Commuter Transportation (ACT) International Conference, September 2000.
- Margaret Giery, "Increasing Private Sector Involvement in Alternative Transportation: Lessons Learned, Proceedings, ACT International Conference, September 2000.
- Margaret Giery, "Private Sector Involvement in Raising Employer Awareness: Lessons Learned," Common Sense Solutions, Proceedings of the Western Regional Association of Commuter Transportation, June 2000.
- Christopher Hagelin, "Florida Motorcycle Helmet Use and the Impact of the Helmet Law Repeal," Proceedings of the International Motorcycle Safety Conference.
- Christopher Hagelin, "TDM and Bicycle Crash Data Analysis," Proceedings, ACT International Conference.
- Sarah Hendricks, "Transportation Management Associations as Advocates of Smart Growth," Proceedings, ACT International Conference, September 2000.
- Laurel Land, "Land Development and Access Management Strategies for Interchange Areas," FLITE (Florida Institute of Transportation Engineers), September 2000.
- Laurel A. Land, AICP, "Land Development and Access Management Strategies for Interchange Areas," Transportation Planning, Vol. XXV, No. 4, Winter 2000/01.
- Laurel A. Land, AICP, "Land Development and Access Management Strategies for Interchange Areas," Proceedings of the 4<sup>th</sup> National Access Management Conference.
- Laurel A. Land, AICP, "Land Development and Access Management Strategies for Interchange Areas," Proceedings of the 8<sup>th</sup> TRB Transportation Planning Application Conference.
- Laurel A. Land, AICP, "Land Development and Access Management Strategies for Interchange Areas," Florida Planning, Vol. XII, No. 5, August 2000.

- Laurel A. Land, AICP (with Kristine Williams), "NCHRP Synthesis 289, Corridor Management," Transportation Research Board.
- Laurel A. Land, AICP, and Lisa Staes, "Public Transit Access to Private Property," Transportation Research Record, forthcoming.
- Michael C. Pietrzyk, P.E., "ETC Reduces Traffic Congestion in Florida," ITS Solutions, March 2001.
- Steve Polzin, "Point/Counterpoint: Questions about the Future of Light Rail in American," Planning Forum, September 2000.
- Steven E. Polzin, Xuehao Chu, and Joel R. Rey, Chapters 2 and 6, Travel Patterns of People of Color, Battelle, October 2000.
- Steven E. Polzin, Xuehao Chu, and Joel R. Rey, "Mobility and Mode Choice of People of Color for Non Work Travel," Transportation Research Circular E-C026, 2001.
- Steven E. Polzin, Xuehao Chu & Joel R. Rey, "Density and Captivity in Public Transit Success: Observations from the 1995 Nationwide Personal Transportation Study," Transportation Research Record 1735, January 2001.
- Phil Winters, "TDM In the Next Millennium," Proceedings, ACT International Conference, September 2000.
- Phil Winters, "Applying Creative Thinking Tools to Improving TDM Performance," Proceedings, ACT International Conference, September 2000.
- Phil Winters, "What is the Latest Research into TDM Telling Us?," Proceedings, ITE Annual Meeting, 2000.

### *Presentations*

- Francis Cleland, "Interpreting Multiple Agency Gauges into Normed Evaluations," 2000 International Conference of the Association for Commuter Transportation (ACT).
- Francis Cleland, "An Overview of CUTR's Telecommuting Program," 2000 Western Regional ACT Conference.
- Francis Cleland, "A Market-Based Approach to Customized Trip-Reduction Program Design," 2000 Western Regional ACT Conference.
- Margaret Giery, "Private Sector Involvement in Raising Employer Awareness: Lessons Learned," 2000 Western Regional ACT Conference.
- Margaret Giery, "Increasing Private Sector Involvement in Raising Employee Awareness," 2000 International ACT Conference.
- Margaret Giery, "Non-Traditional Markets" Transportation Services in University North" Association for Commuter Transportation's TMA Summit, Atlanta.
- Margaret Giery, "Background Planning for the Pilot Circulator Study," Transportation and University Communities Conference, APTA, Gainesville.
- Christopher A. Hagelin, "Florida Motorcycle Helmet Use and the Impact of the Helmet Law Repeal," International Motorcycle Safety Conference, Orlando.
- Christopher Hagelin, "2000 Evaluation: TDM Efforts of South Florida Commuter Services," 2000 Florida TDM Summit.
- Christopher Hagelin, "Analyzing Bicycle Crash Data," ITE Conference, Clearwater.
- Christopher Hagelin, "TDM and Bicycle Crash Data Analysis," ACT International Conference, Orlando.
- Christopher Hagelin, "Motorcycle Helmet Use in Florida," State Motorcycle Safety Administrator's 2000 Conference, Indianapolis.



- Sara Hendricks, "Telecommunications in the Transportation Planning Arena," 2000 ACT International Conference, Orlando.
- Laurel A. Land, AICP, "Land Development and Access Management Strategies for Interchange Areas," 4th National Conference on Access Management, Portland, Oregon.
- Laurel A. Land, AICP, "Land Development and Access Management Strategies for Interchange Areas," 8th TRB Transportation Planning Application Conference, Corpus Christi, Texas.
- Laurel A. Land, AICP, "Public Transit Access to Private Property," 80th Annual Meeting of the Transportation Research Board.
- Laurel A. Land, AICP, "Managing Interchange Areas," Transportation Research Board Application of Transportation Planning Methods Conference in Corpus Christi, Texas
- Laurel A. Land, AICP, "Transportation Disadvantages Population and Demand Estimates," 9th Annual Training and Technology Conference, Orlando.
- Michael Pietrzyk, "Evaluation of a Simplistic Motorist Warning System for Wet Pavement Surface Conditions," ITE Annual Meeting, Nashville.
- Michael Pietrzyk, "Defining Rural ITS Needs for Florida," ITS America Annual Meeting, Miami Beach.
- Steve Polzin, "Strategies for the Functional Classification of Bus Service," Institute of Transportation Engineers Annual Meeting, Nashville.
- Amber Reep, "Information Transfer and Distance Learning Technologies," FTA Annual Conference, November 2000; "The Importance of Introducing Students to Careers at an Early Age," Hillsborough County Teachers Professional Planning Day.
- Amber Reep, "NCTR's Applied Distance Learning Technologies," 2001 Symposium of Teaching Technologies.
- Joel Volinski, "Transit Cooperative Research Program," Fall Conference of the New York Public Transportation Association," November; Program Chair, Florida Transit Association Annual Conference.
- Joel Volinski, "An Introduction to the Transit Cooperative Research Program" and "How to Attract and Retain Employees: Findings from TCRP Synthesis Report #33, Practices in Assuring Employee Availability," Southwest Transit Association Annual Meeting, Oklahoma City.



- Beverly G. Ward, "Environmental Justice Action Agenda Setting," 2nd Annual Conference of Toward Environmental Justice in Florida.
- Beverly G. Ward, "Community Impact Assessment Case Studies," FDOT Environmental Management Office Conference.
- Beverly G. Ward, "Developing a Community Profile for Transportation Planning," 2nd National Community Impact Assessment Workshop.
- Beverly G. Ward, "Welfare Reform: Today & Tomorrow," National Forum for Black Public Administrators (NFBPA) Florida Conference.
- Beverly Ward, "Getting Involved: Importance of Public Involvement to Environmental Justice," 80th Annual Meeting of the Transportation Research Board.
- Phil Winters, "Letting Kids Lead—Involving Youth in Mitigating Air Pollution from Mobile Sources," Air Pollution, Public Health and Automobiles Conference of the West Florida Air Quality Coordinating Committee in Tampa.

**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 transportation problems. The Journal's circulation expanded to more than 1,700 subscribers in the past year, representing the U.S. and 30 countries and boasts a distinguished editorial board:

Robert B. Cervero, Ph.D.  
*University of California,  
Berkeley*

Naomi W. Ledé, Ph.D.  
*Texas Transportation Institute*

Chester E. Colby  
*MK Centennial*

William W. Millar  
*American Public Transportation Assoc.*

Gordon Fielding, Ph.D.  
*University of California,  
Irvine*

Steven E. Polzin, Ph.D.  
*University of South Florida*

David J. Forckenbrock, Ph.D.  
*University of Iowa*

Sandra Rosenbloom, Ph.D.  
*University of Arizona*

José A. Gómez-Ibáñez, Ph.D.  
*Harvard University*

Lawrence Schulman  
*Orbital Sciences Corp.*

George Smerk, D.B.A.  
*Indiana University*

## NCTR Website

Effective use of the NCTR website ([www.nctr.usf.edu](http://www.nctr.usf.edu)) plays a major role in the effort to accomplish NCTR's goals. In support of NCTR's Education and Diversity goals, a diverse group of graduate students have had leading roles in the enhancement of the NCTR website's functionality and the dissemination of research results. One NCTR student designed a web-based database application to allow visitors to the NCTR website to quickly locate NCTR research projects using a wide variety of criteria, including TRB keywords. In addition, a group of graduate students developed a Trip Reduction Ordinance database for NCTR's National TDM and Telework Clearinghouse, and another student took the lead in the development and enhancement of NCTR's streaming media capabilities and presentations.

The website also is a significant contributor to NCTR's goal to "advance the body of knowledge in transportation." NCTR has enhanced its web presence by adding listservs, which are proving to be extremely well-received by the industry, as indicated by the growth in subscribers. In the past fiscal year, two new listservs were created under NCTR, in addition to those already established, that can be reached through the NCTR websites. These include the Bus Rapid Transit listserv, created May 2001 (69 subscribers); the Leadership APTA listserv, created April 2001 (99 subscribers); the Transportation Demand Management listserv, created October 1998 (455 members with 210 new subscribers since July 1, 2000); and the Telework listserv, created December 1999 (134 members with 63 new subscribers since July 1, 2000). Streaming media presentations have been added to the site. Completed projects are displayed prominently on the main page. Abstracts of all articles in NCTR's Journal for Public Transportation are contained on the website. Individuals also can request subscriptions via the web. The Research Projects online database provides an easy method for visitors to find what they want.

## Detailed Web Statistics for June 2001

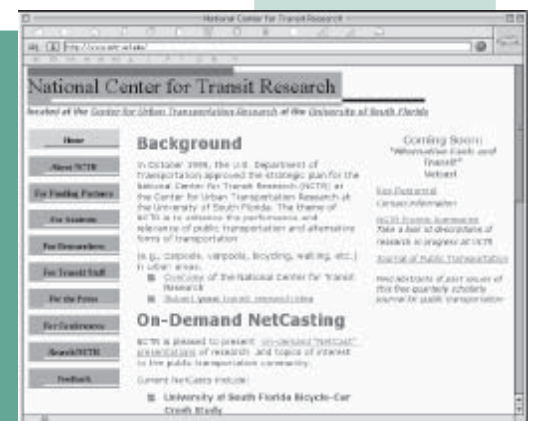
**Successful requests:** 53,926  
Successful requests are those files which have been requested, including pages, graphics, etc. where the document was returned or was not needed because it had not been recently modified and the user could use a cached copy.

**Average successful requests per day:** 1,798

**Average successful requests for pages per day:** 489

**Distinct files requested:** 1,049  
Distinct files requested counts the various pages on the site

**Distinct hosts served:** 1,776  
Distinct hosts are the number of different computers requests have come from.



Re  
ational  
Transit

tior  
nsi

The website also serves as a means of collecting and disseminating information. In the past year, several NCTR research projects augmented mail survey questionnaires with web-based forms to collect data from transit industry professionals. Research ideas were solicited from the industry using the listservs (and other outlets) and individuals could submit ideas online. Visitors can provide feedback and request information or technical assistance via the website.

### **Virtual Conferences and Meetings**

In response to the need of many transportation organizations to work smarter and faster as well as hold down costs, NCTR began using methods for web-based communication tools to reach the public transportation industry and project team or advisory panel members who are located throughout the country. NCTR faculty have used web meetings to view draft survey questionnaires on screen, make changes in real-time that all can see, and finalize the draft with project managers and the advisory panel. This service also has been made available to other transportation organizations associated with NCTR, such as the Association for Commuter Transportation and Florida localities, to aid in developing strategies and accelerate the approval process for a model ordinance. In the future, NCTR will use these services to sponsor web events such as special topical workshops or training sessions on-line.

### **Streaming Media**

NCTR has developed the skills necessary to quickly disseminate information about research projects and supplement final reports and to allow researchers to obtain video clips from a wide variety of sources and efficiently integrate them into the presentations with a minimal expenditure of time using streaming media. Currently, the program permits rapid conversion from standard PowerPoint presentations (optional), several customizable features designed to facilitate creation of a polished streaming presentation, and inclusion of hyperlinks that permit the viewer to access each element of the sequential presentation independently.

Overall, NCTR is moving quickly with applying technology to reach its goals and achieve its mission. Recognizing that the world of technology is dynamic, NCTR's commitment and resolve to apply these tools to "enhance the performance and relevance of public transportation and alternative forms of transportation in urban areas" is steadfast.

### **Conclusion**

In its second 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. The 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 has already started to leverage the 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.

# Global positioning systems pinpoint the future of LeeTran and transit technology

A number of technology tools exist on the market place for public transit agencies to utilize to gather data for improving transportation services. One of them, global positioning, was first developed for the military and then converted by the private sector to apply for general uses. In its initial phases, global positioning systems (GPS) in transit were expensive and difficult to implement and maintain. However, GPS have not only become accessible and affordable but also invaluable for transit studies.

A look at a recent bus stop inventory conducted by CUTR illustrates the advantages of using a GPS in a transit study. In the past, conducting bus stop inventories for transit agencies was a grueling process that entailed two people driving each bus route and marking the street and intersecting street on a sheet of paper. Geographic Information Systems (GIS) technicians would then have to manually find the locations on a street map and “geocode” the location of the bus stop. Every bus stop had to be manually geocoded so as to develop an inventory of stops for an entire system. Complications arose because street names such as “Maple Street” and “Maple St.” were not recognized as the same in a GIS street grid, causing further time and effort.

By using GPS, geocoding techniques are no longer necessary. Instead, handheld GPS units can be used, which were developed for maritime use so that boaters could identify their location at sea and are commercially available for less than \$150. While it is still necessary to drive the bus routes, it is now possible to conduct an entire system’s bus stop inventory with handheld units and then download the data into GIS. With some calibration, GIS automatically pinpoints the location of the bus stop through its longitude and latitude coordinates without

the arduous work of manual geocoding, thus ultimately improving accuracy and saving time and money.

This process was used by CUTR in a recent Comprehensive Operations Analysis conducted for LeeTran, the public transit provider in the Ft. Myers/Cape Coral area. LeeTran’s system has seven transit transfer centers scattered throughout the urban area that are served by a total of 20 routes. Many of those routes had not been examined for more than 20 years, and the network as a whole had evolved over time, with many new routes recently added to the system. The handheld GPS units were used in the initial stages of the analysis and played a significant role throughout, proving to be a powerful communications tool for the Board of County Commissioners in its goal to define both strategically and geographically the needs of its mobile community.



## The Starting Point

In 1997, LeeTran began increasing service levels on its fixed-route system.

New routes were added, later evening service was added on many routes, and weekend services were also improved. When this project began in Spring 2000, CUTR conducted an on-board survey of LeeTran customers and found that, between 1997 and 2000, customer satisfaction had increased in all 22 service characteristics surveyed. These service characteristics include overall satisfaction with LeeTran, frequency of buses, trip lengths, trip time, span of service, and comfort/convenience. These increases indicated that LeeTran had been responsive to customer demands in the service improvements that had been implemented since 1997. However, an immediate challenge was on the horizon.

LeeTran was in the process of developing its fiscal year 2001 annual budget and had notified the Board of County Commissioners that an appropriation of an additional \$1 million would be necessary to maintain service levels.

## The Comprehensive Operations Analysis

Once the bus stop inventory was completed, CUTR then conducted a ridecheck, which entails placing a person on board the bus to count passenger boardings and alightings by stop for each bus trip of a route throughout the day. Once all trips were sampled, the ridecheck for each trip was compiled to create daily boardings by stop for the entire system. This information is useful because a tally of boardings and alightings for individual stops identifies areas of high usage wherein shelters and other passenger amenities are necessary.

However, the real story is told by examining segment data to determine the more productive and less productive segments of a route. This is how network-level analysis is conducted. Every route is a series of street segments, some of which generate ridership and some of which do not. Also,

all of those segments relate to each other in terms of customer travel patterns and connectivity at the seven transfer centers.

The data for the bus stop inventory and ridecheck were used to create a database in GIS that was then converted to a graphic layout of each bus route and its boardings by stop for each day. CUTR used symbols to indicate daily boardings with smaller symbols indicating low boardings and larger symbols indicating high numbers of boardings. A plot was made for each inbound and outbound route in the system. These tools formed the foundation for the route changes.

For example, LeeTran Route 130 was one of the less well-designed routes in the system because it consisted of a long western deviation along McGregor Boulevard and Winkler Road and a long eastern deviation on S.R. 869. Data from the ridecheck indicated that there were very few boardings along the western deviation but much more activity along the eastern deviation. As a result, this route was re-oriented to provide a direct connection between Edison Mall and Summerlin Square with direct service to the Edison Community College. This type of analysis

*GPS technology was used to conduct a bus stop inventory for Lee Tran in Ft. Myers, Florida.*

At the time, County Commissioners indicated that they did not want to cut services and wanted the role of transit to be expanded in the community. In addition, Lee County was in the process of recruiting a new director and the selected candidate would not begin until after the October 1 budget year began. When the 2001 fiscal budget was adopted in September, the Lee County Commission appropriated \$880,000 to maintain existing service, pending the results of CUTR's analysis of the system.

CUTR was charged with redesigning the LeeTran network to achieve the following:

- re-align routes while maintaining service levels at the baseline 191,000 annual revenue hours provided in 2001;
- increase frequencies in those sectors of the communities where there is the greatest demand for transit services;
- maximize utilization of the seven transit centers; and
- reduce and/or eliminate out-of-direction travel for LeeTran customers.

was used systemwide to develop a re-designed route network for LeeTran.

The graphic depictions proved to be a powerful communications tool. Graphic depictions of passenger boardings by stop were also used in the final presentation to the Board of County Commissioners as a way of explaining the rationale behind the proposed changes to the system. The City of Ft. Myers Beach requested data from LeeTran on boardings by stop for the trolley routes that serve on the beaches, to be used to target transit amenity improvements for those stops on the beaches with the most ridership activity. LeeTran also will be using the

data provided by CUTR in its public involvement process when addressing the community to propose service changes to its customers.

“The data that CUTR provided on daily boardings by stop not only helped us in re-aligning and creating new routes,” said Steve Myers, LeeTran Director, “it also helped us work with our local communities in targeting infrastructure improvements on transit-intensive corridors.”



For further information on this project, contact CUTR Research Associate Bill Morris, [morris@cutr.usf.edu](mailto:morris@cutr.usf.edu), (813) 974-6804.

## CUTR investigates possibilities of “truck only” facilities

CUTR recently was engaged by the Florida Department of Transportation’s Office of System Planning to investigate the feasibility of exclusive facilities for commercial vehicles in the state. The study, a result of FDOT’s annual solicitation for research ideas, is evaluating the potential for reserved truck lanes and truckways in Florida in addition to determining how commercial vehicles have been managed within other areas of the state to improve their movement.

The project will examine the current and future potential for reserved truck lanes and truckways on the State Highway System (SHS) and will present a methodology to allow metropolitan planning organizations (MPOs) and local governments to evaluate this potential solution on non-SHS facilities.

The effort consists of several major tasks, including researching what has been employed globally, finding “truck only” facilities in North America, conducting site visits, developing criteria to test the Florida Intrastate Highway System for potential application, and developing an approach for MPOs to use in determining if exclusive facilities may be applicable in their region.

A vast amount of information and data were assembled during the two-week tour of the various facilities that

were identified in the early stages of the research team’s research. While many corridors have been examined in the United States for exclusive truck lanes or other facilities, very few have in fact been implemented. Members of the study team visited New Orleans, Laredo, Newark, and Boston. Each facility was designed and implemented for very specific and very different reasons. The lessons learned and the information gathered on the rationale for constructing these facilities are helping the study team greatly in the development of the selection criteria for Florida.

Some examples of the kinds of facilities that are now in place or being constructed follow. In addition to those highlighted here, visits were made to the Camino/Columbia Toll Road in Texas; the only long-haul-purpose -



*New Orleans Roadway*

built truck facility in the United States on the New Jersey Turnpike; and the Portway project in Newark.

### Tchoupitoulas Roadway, Port of New Orleans

The primary factors for constructing this 3.5-mile exclusive truck facility were to remove trucks from neighborhoods surrounding the Port of New Orleans, allow for the reconstruction of city streets harshly deteriorated from heavy truck traffic, and improve access to and from the port. The facility has been in service for three years and is accessible only to truck and port traffic.

With 80 percent of the cargo moving to and from the Port of New Orleans by motor carrier, the Tchoupitoulas truckway carries more than 2,000 multi-unit trucks per day. Although the facility is short in length, it provides a more appropriate route for the commercial traffic, enhances the port's accessibility, and has removed truck traffic from neighborhood streets in the historic city of New Orleans.

### World Trade Bridge, Laredo, Texas

Laredo is the second fastest growing city in the United States. Nearly 60 percent of the entire trade with Mexico moves through Laredo, and estimates place the amount of new warehousing being constructed at one million square feet per month. The solution to routine truck queues of many miles on Interstate 35 was to construct a truck-only border crossing a few miles up the Rio Grande. This is helping to move the traffic out of town and incorporates the new border/river toll crossing with Customs and Immigration services in one modern facility.

The result is that commercial vehicle operators that previously could make only one or two round trips per day back and forth across the border



World Trade Bridge

are now able to increase productivity to four or five trips. The Interstate highway is now clear of trucks stopped in the slow lane, returning the facility to its designed function and improving safety. The bridge is one of four toll bridge border crossings operated by the City of Laredo and includes weigh in motion capability and electronic-only toll collection.



South Boston Haul Road

### South Boston Haul Road

The shortest, yet a very innovative, facility that the study team is examining was constructed in conjunction with Boston's Central Artery. The scale of the "Big Dig" is well known, and the ability to deliver construction material to the congested areas of the massive project provided a formidable challenge. One solution to creating a more expeditious route was to convert an underutilized freight railroad into a commercial vehicle only roadway.

This 1.5-mile, 2-lane truckway required the removal of three tracks but is able to accommodate one remaining rail line. The facility is monitored via video cameras and is also available to other commercial traffic.

These examples show that opportunities beyond a long-haul-exclusive roadway for trucks do exist. The study will help to identify those areas and highway segments in Florida that may lend themselves to similar treatments.



For more information on this project, contact project manager Stephen L. Reich, [reich@cutr.usf.edu](mailto:reich@cutr.usf.edu), (813) 974-6435.

Massachusetts Institute of Technology. He earned a Ph.D. in Civil Engineering from the University of South Florida, producing a dissertation titled “An Assessment of Uncertainty and Bias: Recommended Modifications to the Urban Transportation Planning Process.”

Prior to joining CUTR, Mierzejewski held program management responsibilities with major private and public sector transportation engineering and planning organizations, including Post Buckley Schuh & Jernigan, Inc., and HDR Engineering. A member of the Institute of Transportation Engineers since 1971, Mierzejewski is a Fellow of the Institute and currently serves as President of the 1000-member Florida Section ITE.

He received FSITE’s Engineer of the Year award in 1995 and for many years served as faculty advisor for the USF student chapter of ITE. He also has been actively involved in the American Society of Civil Engineers and the Transportation Research Board.

In his role as Deputy Director at CUTR, Mierzejewski had major administrative and program management responsibilities and played a major role in leading CUTR to its current position of national prominence. He is the author of many publications and has made numerous presentations throughout the U.S. and Canada.

“I am excited and energized at the opportunity to serve as the Director of CUTR,” said Mierzejewski, “and

look forward to leading the organization to the next level of achievement, as well as to working with incoming Engineering Dean Dr. Louis Martin-Vega to create a new excitement in the College. With an outstanding and dedicated staff and excellent public and private sector support, CUTR will continue its mission of serving as a resource for policymakers, transportation professionals, the education system, and the public.

Transportation is critical to the economy of Florida and the nation, to the quality of life of our communities, and to full participation in the opportunities of our society. CUTR has an important role to play in addressing these issues. I welcome the opportunity to lead CUTR forward in its vision of excellence through interdisciplinary research, education, and service.”

Said USF College of Engineering Interim Dean Mel Anderson, “We are delighted that Dr. Mierzejewski has accepted the challenge of the directorship of CUTR. His integrity, dedication, and insights will serve CUTR, the College, and the University extremely well. We look forward to a long collaboration.”



For further information, contact CUTR Director of Administrative Services Patricia Ball, [pball@cutr.usf.edu](mailto:pball@cutr.usf.edu), (813) 974-3120.

piled and continuously updated. A series of meetings and other presentations was held at schools, restaurants, and other locations to present the Department’s goals, objectives, and preliminary design concepts. Because of this involvement process, community acceptability of the project was maximized.

In addition to the case study booklet, a video script outline on the importance of an effective CIA process, using the case studies as illustrations, has been developed. This outline draws on available CIA information such as the primer, the publication from this project, and the Federal Highway Administration’s case studies.

The case studies illustrate how community impact assessment can have a long-lasting positive effect on transportation projects. As stated by FDOT Secretary Thomas F. Barry, Jr., “Top management has to be openly supportive of the community impact assessment effort. It has to cascade down through middle management as well, or the direction can sputter. Resources have to be in place to perform CIA activities. Benefits include better buy-in from communities and local governments, and smoother project delivery.”



For further information, contact CUTR Program Director Dr. Beverly Ward, [ward@cutr.usf.edu](mailto:ward@cutr.usf.edu), (813) 974-9773.

# 2001 transportation scholarship awarded

The 2001 Georgia Brosch Memorial Transportation Scholarships were recently awarded to USF Engineering students M. Kumara and Huaguo Zhou. The \$500 award is based on academic achievement, professional activities, and career goals.

Mr. Zhou received his Ph.D. in Civil Engineering in Summer 2001. He holds a Ph.D. in Railway and Highway Engineering and a B.S.C.E. from Northern Jiao-Ton University in Beijing, China. He worked as a Graduate Research Assistant at CUTR on a project related to the operational and safety effects of an access management technique, u-turns as alternatives to direct left turns from driveways.

Mr. Kumara received his Master's degree in Civil Engineering in Summer 2001. He holds a Bachelor's degree in Civil Engineering from the University of

Moratuwa in Sri Lanka and was a Graduate Research Assistant in the College of Engineering currently involved in the investigation of pavement material crack depths on Florida roadways. Mr. Kumara was named Student of the Year by the American Society of Highway Engineers in 2001 and is a member of several engineering professional organizations.



*M. Kumara, H. Zhou*



Center for Urban Transportation Research  
College of Engineering, University of South Florida  
4202 E. Fowler Avenue, CUT 100  
Tampa, FL 33620-5375

Non-Profit  
Organization  
U.S. Postage  
PAID  
TAMPA, FL  
Permit No. 257