Table of Contents

Introduction ................................................................. 3
Theme of NCTR ............................................................ 3
Organizational Structure ............................................. 3
Program Overview ....................................................... 4
  Funding ........................................................................ 4
  Advisory Committee .................................................. 4
First-Year Accomplishments ....................................... 5
  Research ................................................................. 5
  Education .................................................................... 7
  Technology Transfer .................................................. 8
Financial Summary ......................................................14
Introduction

In September 1999, the National Center for Transit Research (NCTR) was approved for research funding by the U.S. Department of Transportation’s (USDOT) Research and Special Programs Administration (RSPA). The NCTR program builds on the goals and philosophies of the National Urban Transit Institute (NUTI), which was established at the Center for Urban Transportation Research (CUTR) 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 in Tampa. Following are key personnel of NCTR.

Chair
Director
Director of Administration
Communications Director
TDM Program Director
NUTI/STC Director
ETS Director
Transit Training Program Manager
NCTR Program Assistant

Gary L. Brosch
Joel Volinski
Dennis Hinebaugh
Patricia Ball
Philip Winters
Steven Polzin
Beverly Ward
Lisa Staes
Lois Dowridge

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 is in its first year of existence, having been approved for funding in September 1999. While the NCTR program is in its infancy, the federal funding for this program helps to significantly expand the area of public transportation research already conducted by CUTR staff over the last 11 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 the FDOT remaining committed to providing this match for the length of the program. FDOT has also 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 14 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  
Chairman  
CUTR/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. and 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

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  
American Public Transportation Assoc.

Eric Schreffler  
Director of Research  
TDM Inst., Assoc. for Commuter Trans.

Donna Vlasak  
TCRP Synthesis Program Director  
Transportation Research Board

Joel Volinski  
Director  
NCTR @ CUTR
First-Year Accomplishments

Research

The first year of the NCTR program has supported 23 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 and Telework Clearinghouse, provision of short-term technical assistance to transit systems, publication of the Journal of Public Transportation, and development of a national transit maintenance training program. 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 85 research ideas were received.

FY 2000 Projects

New research projects and principal investigators selected for FY 2000 are listed below. Because this is the first year of the program, no ongoing projects (from previous grant years) or completed projects (completed since the beginning of the grant) are included.

- Analysis of National Transit Database (Steve Polzin, CUTR)
- Analysis of the FDOT Transit Corridor Program (William Morris, CUTR)
- Analysis of Florida Transit Bus Accidents (Joel Rey, CUTR)
- Assessment of Operational Barriers and Impediments to Transit Use (Jennifer Hardin, CUTR)
- Bus Rapid Transit Technology – A Case Study of the Lynx Lymmo Project in Downtown Orlando, Florida (Joel Rey, CUTR)
- Cops, Cameras and Enclosures: A Synthesis of the Effectiveness of Methods to Provide Enhanced Security for Bus Operators and Passengers (Darin Allan, CUTR)
- Developing Interest in Public Transportation (Amber Reep, CUTR)
- Enhancement of the Public Transportation Promotional Materials Clearinghouse (William Mustard, FSU)
- Evaluation of the Economic Viability of Narrow-Gauge Local Rail Systems (Laurel Land, CUTR)
- FDOT Statewide On-Site Technical Assistance Program (Lisa Staes, CUTR)
- FDOT Statewide Transit Training Program (Lisa Staes, CUTR)
- FSUTMS Mode Choice Modeling – Factors Affecting Transit Use and Access (Fang Zhao, FIU)
- Graduate Research Program (Dennis Hinebaugh, CUTR)
- Inventory and Analysis of Advanced Public Transportation Systems in Florida (Shireen Chada, CUTR)
- Lessons Learned in Transit Efficiencies - Part 2 (Joel Volinski, CUTR)
- National Maintenance Training Program (Lisa Staes, CUTR)
Adopt-a-Project

Peer review and Advisory Board member participation are important aspects of the success of the NCTR program. As such, NCTR has created an “adopt-a-project” program in which board members “adopt” projects selected for research and follow that project from scope development through project completion. Board members will act as both peer reviewers and project mentors for the program.

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 addition, discussions are being held with FTA to establish a BRT Institute within NCTR with the charge of creating a national program for training, technical assistance, research, innovation and evaluation of existing and proposed BRT projects. All of these advancements in research in the BRT field are attributable to the funding provided by the USDOT in establishing the UTC-funded NCTR program.

FY 2001 Program

NCTR recently completed the process to solicit and select research ideas for the FY 2001 program year beginning July 1, 2000. 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 of the 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 24 core program and research projects for funding in FY 2001.
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 newly-funded NCTR program. For many years, CUTR has been an active member of the Southeastern Transportation Center (STC), a program dedicated to training professionals to address the transportation needs of the region and nation.

During the first year of NCTR, many 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. The transportation industry work force is increasingly composed of a diverse group of individuals with backgrounds in a number of different disciplines. This initiative may culminate in a proposal to establish a master’s degree transportation program that would complement the Civil Engineering transportation-focused master's program and the Graduate Interdisciplinary Transportation Program coordinated by CUTR.

Activities in this degree exploration include identifying possible course offerings, undertaking the process for planning and implementing a new degree program and exploring financial support opportunities. However, the most important tasks relate to understanding the market for this degree from employer and student perspectives. First, it must be determined what skills, interests and workforce traits transportation professional employers are seeking in their work force. Second, it must be determined what program traits (length, topical focus, delivery formats, etc.) are best able to be utilized by existing professionals who might be seeking additional training. Third, it must be determined what traits would make the program attractive to potential students and the general interest in transportation careers.

Current activities focus on building curriculum options and exploring market needs and interests. A series of meetings and focus groups will be held to explore interest in transportation careers. The prospect of developing new courses for inclusion in the program is being examined, as are various aspects of how such a program could be delivered. Issues such as targeting undergraduates as well as mid-career professionals, the use of distance learning, integration of co-op type opportunities, the role of a seminar series, and other program traits are being reviewed.
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.

It is NCTR’s goal to create a public transportation educational program targeted to reach high school students. Based on many of the existing programs, several avenues are being investigated to accomplish this task. Both summer programs and regular course offerings are being identified as possible solutions.

Technology Transfer

Excellent research is of limited value if the results are not made available to as many parties as possible who 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 have, and continue to have, significant involvement with partners in the public transportation industry, including the Transportation Research Board (TRB), the American Public Transportation Association (APTA), ITS America, and the Association for Commuter Transportation (ACT). 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.

In NCTR Director Volinski’s capacity as a TRIP ambassador, he is 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.

Publications and Presentations
During FY 2000, NCTR researchers published a number of articles and made several presentations at state and national conferences and meetings, as follows:

Publications

Presentations
• Mike Baltes, “The Ins and Outs of Automated Passenger Counters,” 1999 APTA Intermodal Planning Workshop, Montreal.
• Christopher Hagelin, “Novelty Helmet Use by Motorcycle Riders in Florida,” 79th Annual TRB Meeting, Washington DC.
• Dennis Hinebaugh, “Public Transit Access to Private Property,” 25th Annual FTA Meeting, Pensacola.
• Steven E. Polzin, Xuehao Chu, and Joel Rey, “The Role of Density and Captivity in the Success of Public Transit: Observations from the 1995 NPTS,” 79th Annual Transportation Research Board (TRB) Meeting, Washington DC.
• Steven E. Polzin, Xuehao Chu, and Joel Rey, “Mobility and Mode Choice of People of Color for Non-Work Travel: Findings from the Nationwide Personal Transportation Survey,” 79th Annual TRB Meeting, Washington DC.
• Steve Polzin, Xuehao Chu, & Joel Rey, “Mode Choice by People of Color for Non-Work Travel,” TRB Specialty Conference on Personal Travel, Washington, DC.
• Joel Volinski, “The Future of Transit in Florida,” 83rd Annual Meeting of the Florida Engineering Society, Palm Beach.

• Joel Volinski, “How Transit Agencies are Attracting and Retaining Bus Operators,” Florida Transit Association Mid-Year Workshop, Daytona Beach.


• Phil Winters, “Beyond the Commuter: Applying TDM to Serve Niche Markets,” Association for Commuter Transportation (ACT) 2000 Western Regional Conference: Common Sense Solutions.

• Phil Winters, “Out of the Box, Out of the Car, Applying Creative Thinking Techniques,” Association for Commuter Transportation (ACT) 2000 Western Regional Conference: Common Sense Solutions.

• Phil Winters, “Rotating the Box: Applying Creative Thinking to TDM Problems,” Association for Commuter Transportation (ACT) 2000 Western Regional Conference: Common Sense Solutions.

• Phil Winters, “TDM in the Next Millennium,” Association for Commuter Transportation (ACT) 2000 Western Regional Conference: Common Sense Solutions.

**NCTR Website**

The NCTR website was developed with its own domain name (www.nctr.usf.edu) and has been registered with various search engines. The website was structured to point people to items of interest based on who they are—researchers, students, sponsors, conference attendees, transit staff, and media. Similar to a room with multiple doors, these user-based pages allow various groups to enter into the same informational area from various locations, while also simplifying the number of items each group would see. Among the features in the website are electronically-filed forms for submitting research ideas, getting added to NCTR’s mailing list, and providing feedback to NCTR. These forms are sent directly to the NCTR program administrator as an e-mail message.

The website contains both abstract-only versions and full descriptions of project scopes. All the project abstracts can be viewed on one page, but links are provided to the full descriptions. Similarly, researchers and others can view the titles and authors as well as find links to the abstracts of articles published in the *Journal of Public Transportation*.

NCTR sponsors two listservs through one of its projects: a telework listserv, which has 75 members, and a TDM listserv, which has more than 300 members. The website is identified on all NCTR materials and continually seeks reciprocal links with other websites.
Future enhancements to the website include creating a “Find an Expert” resource, developing a list of and information about NCTR students, and providing access to the CUTR resource and information database. The list of current and former students will provide employers with potential candidates and seek to continue the former student’s relationship with NCTR or CUTR. “Find an Expert” will provide brief bios on NCTR researchers on a variety of transit-related topics. Access to CUTR’s resource and information will enable others to locate potential articles or papers from the 25,000-item database.

**Web-Based Training and Conferencing**

Web-based training and conferencing is an innovative approach to distance learning in which computer-based training/conferencing is delivered via the World Wide Web, the Internet, and intranets. Web-based conferencing is an ideal, cost-effective vehicle for delivering and sharing information to geographically-distributed audiences, such as those in the public transportation community. Technological improvements in networks, hardware, software and bandwidth technologies have lent themselves to the design and delivery of web-conferencing. Through NCTR, CUTR is researching and investigating potential solutions for a distance learning virtual conferencing tool.

It is CUTR’s belief that a browser-based, virtual reality, interactive, chat, conferencing, and real-time audio and video system will offer communication advancements in speed of information sharing and the technological advancement that would not normally be feasible within the public transportation industry. Since this is fairly new technology, CUTR will have various phases of researching, testing, studying, and implementation. These phases will help CUTR to become product experts and aid in the decision-making process.

In Phase 1 of the project, CUTR is developing and implementing a pre-recorded video/audio web-based conferencing solution posted to the internet for delivery to interested public transportation-related audiences. Early stages of this project have been a tremendous success, with several types of conferencing files available for viewing. Additional research and testing will be performed to continuously improve the efficiency of the project.

In Phase 2, CUTR will investigate more sophisticated web-based conferencing products. The goal is to provide a highly interactive, web-based, live audio and video conferencing system. This phase will include the discovery and identification of distance learning industry leaders.

Phase 3 calls for the implementation of the interactive, web-based audio and video conferencing system. However, implementation in itself will require a good deal of research and testing to ensure usability for the transit industry. It is our goal to identify and troubleshoot these usability issues in Phase 2. However, changing technologies will continue to be a challenge for this on-going task. In July 2000, NCTR held a panel discussion on the future of alternative fuels in the transit industry. This discussion will be edited for later broadcast on the internet. Future panel discussions may be shown live.
Journal of Public Transportation

The Journal of Public Transportation is a highly-respected, quarterly, 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 has more than 1,500 subscribers representing the U.S. and 30 countries and boasts a distinguished editorial board:

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

Chester E. Colby  
MK Centennial

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

David J. Forkenbrock, Ph.D.  
University of Iowa

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

William W. Millar  
American Public Transportation Association

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

Sandra Rosenbloom, Ph.D.  
University of Arizona

Lawrence Schulman  
Orbital Sciences Corp.

George Smerk, D.B.A.  
Indiana University

Naomi W. Ledé, Ph.D.  
Texas Southern University

Conclusion

In its first year, the National Center for Transit Research has laid a solid foundation in terms of establishing process, engaging people, and starting programs. An excellent and prestigious Advisory Board has been formed. Core areas of research and technical assistance that will last throughout all the years of the program have been identified. More than 20 research projects have been started, with peer evaluation to help ensure high quality results. Efforts to attract a new generation of young professionals to the field are under way. NCTR is taking advantage of advances in electronic communication technology to better disseminate results of research and to provide inexpensive distance learning opportunities.

The matching financial commitment from the Florida Department of Transportation for the life of the program provides the stability that will allow NCTR’s researchers to focus on achieving the goals of the program. Few other institutions, public or private, have the concentrated resources to dedicate to the mission of research, teaching, and information dissemination in the field of public transportation. NCTR recognizes this unique opportunity and looks forward to enhancing the performance and relevance of public transportation agencies.
Financial Summary

The following table and figures summarize the funding sources and expenditures for the NCTR program during the Fiscal Year 2000 (July 1, 1999 – June 30, 2000).

As shown in the table, approximately 32 percent of the first-year funding was expended at the end of the fiscal year. Matching funds from FDOT were not available for draw-down until late in the year. This created a lag in the matching funds expenditure, which quickly reverse as more FDOT funds will be expended in comparison to USDOT funds over the next six months of the program.

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*Original budget contained in the approved NCTR Strategic Plan (09/21/99)
Figure 1 presents the funding sources for the first year of the NCTR program. Figure 2 shows the split of expenditures for the fiscal year based on the key program areas of the NCTR Program. 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. As shown in the figure, 9 percent of the non-administrative expenditures for FY 2000 are education-related, 48 percent are research, and 43 percent are technology transfer. It is expected that the research percentage would increase throughout the life of the program, with technology transfer decreasing and education slightly increasing.