

1-1-2012

# Newsletters 2007-2012 - Volume 1 Issue 1

NCTR

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## Scholar Commons Citation

NCTR, "Newsletters 2007-2012 - Volume 1 Issue 1" (2012). *U.S. DOT Reporting*. 12.  
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# FLOW

*Moving People and Ideas*



Center for Urban  
Transportation Research  
University of South Florida

## IN THIS ISSUE

NCTR Student of the Year 2006	3
Striving to be the Best: Employer TDM Programs that Deliver	5
NCTR Discussion Forums Help the Flow of Information	6
Transit Use Viability Among Older Drivers Losing Driving Privileges	6
Bicycle and Transit Integration Under Way in Florida	7
NCTR Education Update	8

*“Our mission is not only to help all traffic on our transportation system flow more smoothly, but also to allow information from our research to flow freely to all who can benefit from it.”*

## Welcome to *Flow*!

Welcome to the first edition of *Flow*, the newsletter of the National Center for Transit Research (NCTR). NCTR is a federally-designated University Transportation Center, receiving annual grant funding from the Research and Innovative Technology Administration of USDOT. This federal grant is matched by the Florida Department of Transportation, allowing NCTR to conduct more than \$1 million a year in research in the areas of public transportation and alternative means of transportation. We focus not only on public transit, but also include transportation demand management (such as vanpooling and carpooling, flexible work hours, telecommuting, walking, bicycling) and corridor management. NCTR operates as part of the Center for Urban Transportation Research, which has been a vital component of the University of South Florida since 1988. More than 90 research projects have been completed through NCTR since 1999.

In addition to the research conducted by our faculty researchers, NCTR produces the *Journal of Public Transportation* on a quarterly basis. This is the only academic journal

in the world dedicated to issues of public transportation and has more than 2,300 subscribers from 50 nations. The Journal and all of our research reports are available to

download free of charge from our website at [www.nctr.usf.edu](http://www.nctr.usf.edu).

Information sharing is a vital activity of NCTR, and it is part of why we call our newsletter *Flow*. Our mission is not only to help all traffic on our transportation system flow more smoothly, but also to allow information from our research to flow freely to all who can benefit from it. On average, NCTR faculty have presented the findings of their research more than 40 times per year at state and national transportation conferences over the past 15 years. We also manage and



## Guidebook for Start-Up Transit Agencies

As Florida communities transition from rural to urbanized areas, the creation of new public transportation systems occurs more frequently. The development of new transit services requires an understanding of myriad planning functions, rules, and regulations. The public transportation industry did not have a comprehensive and consolidated source of information available for local gov-

ernments or other organizations to use in starting new public transit services. Without access to a single source of information, start-up transit agencies ran the risk of not taking advantage of all available resources and not fully complying with federal or state regulations.

With this backdrop, CUTR's National Center for Transit Research developed the

## National Center for Transit Research

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NCTR is located at the University of South Florida's Center for Urban Transportation Research and is a federally-designated University Transportation Center, receiving annual grant funding from the Research and Innovative Technology Administration of USDOT, with matching funds from the Florida Department of Transportation.



*"[The guidebook is] a consolidated source to inform agency personnel of activities, procedures, and programs related to initiating and continuing to operate a public transit agency."*

## *Welcome to Flow! (cont.)*

administer a number of professional listservs with more than 2,000 subscribers. These listservs provide for the free flow of ideas and information among practicing professionals and developing students. *Flow* is yet another example of how we are trying to share the information we generate through our research.

The final component of our mission as a University Transportation Center is to provide educational opportunities to the next generation of transportation professionals who will be planning for and managing our transportation system. Graduates of the University of South Florida who have worked with CUTR

have gone on to work with state departments of transportation, public transit authorities, the Federal Transit Administration, and many consulting firms. We offer transportation courses on campus and through the internet that anyone can access, and we are working on establishing a national faculty to provide master's level courses focusing on public transportation.

We hope you enjoy this first edition of our newsletter, which will summarize recently completed projects, provide updates on student accomplishments, and direct you on how to access our wealth of information.

**Joel Volinski, NCTR Director**

### ***Transit Start-Up (from p. 1)***

"Guidebook for Start-up Transit Agencies" for use by agencies in the process of initiating first-time transit systems. It is a consolidated source to inform agency personnel of various activities, procedures, and programs related to initiating and continuing to operate a public transit agency. It is also useful as a reference and tutorial for training transit personnel and policy makers new to the public transit industry.

#### **Eight Steps— Concept to Implementation**

The research examined the steps that a community must go through to take the concept of public transit services from initial consideration to implementation and reality. Based upon interviews with a variety of transit planners, FDOT transit staff, public transit agencies, and transit management firms who have experience initiating new public transit services, this research identified eight distinct steps—or stages—that a community needs to take from the initial identification of a need for public transportation to making that concept a reality.

#### ***Step #1: Vision Development and Identification of a Local Champion***

The creation of new public transit systems requires the vision and dedication of a group

of individuals willing to commit their time and energy to promote the need for the public transportation services and create the synergy to carry the concept through to implementation. These individuals or organizations must develop the vision for public transportation services and act as the "local champion" to sell the concept within the community and to gather the necessary local consensus.

#### ***Step #2: Feasibility Analysis***

The feasibility analysis is the preliminary examination of the community's demographic and socio-economic conditions to determine what type of public transportation services would be feasible. This analysis determines and assesses local need and support for public transportation services. It involves a planning effort that examines what areas of the community are best candidates for service, general service options, potential funding sources, and estimated associated expenses.

#### ***Step #3: Transit Conceptual Plan***

The transit conceptual plan builds upon the feasibility analysis and provides system-level transit service planning and forecasts. A Transit Development Plan (TDP) is one example of transit conceptual planning. Conceptual plans are used to justify transit funding and grant requests. Transit planning is

## ***NCTR Student of the Year 2006 Oliver Page***

Oliver Page entered the University of South Florida's Civil and Environmental Engineering program after earning an M.S. in Transportation Planning and Engineering from the University of Southampton, UK. During his tenure at USF, he was a teaching assistant for a course entitled "Transportation and Society" and served as President of the Student Chapter of the Institute of Transportation Engineers (ITE) at USF.

Mr. Page made substantial contributions to a number of projects funded through NCTR, including "Developing Bus Transfer Centers for Maximum Transit Agency and Community Benefit" and "Transit Use Viability Among Older Drivers Losing Driving Privileges," the latter being the topic of his doctoral dissertation. He also provided substantive assistance in a recently completed TCRP report entitled "Guidebook for Evaluating,

Selecting, and Implementing Suburban Transit Services." In addition, he co-authored a white paper on "Rapid Transit Options for Miami Beach" and critically analyzed ridership trends of New Start rail projects for the USDOT. His paper entitled "Equity Impacts and Challenges of Highway Access Management in an Emerging Economy - South Africa at the Crossroads" was published in *Transportation Research Record #1939*, and he has presented findings of his NCTR research at state and national professional transportation conferences.



Oliver earned a Ph.D. in Civil Engineering in December 2006 and will continue to conduct research and teach.

done at a system planning level and does not address specific operational planning issues. Conceptual plans provide local policy makers with enough detail and financial forecasts that allow them to make decisions as to whether or not service implementation should proceed.

### ***Step #4: Operations Plan***

The transit operations plan takes the system level conceptual plan to a higher level by providing specific details for the operation and implementation of transit service. An operations plan should include a detailed service plan, specific financial details and requirements, required data collection processes, and details related to vehicle requirements.

At the completion of the operations plan, the community should have a blueprint of what the proposed public transit service will look like, who it will serve, routing plans, hours and days of service, the type, size, and number of transit vehicles required, operating and capital expense requirements, and identified funding sources.

### ***Step #5: Organization and Management Structure***

This step, which could be done concurrently with the operations plan, requires a decision on how the transit service should be administered and managed (General Manager or transit management firm) following an inventory of available local resources. The organizational and management structure definition process should address:

- management firm versus in-house decision process
- required and available resources
- local roles and responsibilities

### ***Step #6A: Selection Process for General Manager***

If the decision in Step 5 is to use agency staff, the first and most critical step is the hiring and selection process for the transit system's General Manager. The hiring process for the General Manager starts with the development of a job description that details the minimum job requirements, preferred knowledge and abilities, desired attributes and experience, and the salary and benefits offered.

***"At the completion of the operations plan, the community should have a blueprint of what the proposed public transit service will look like."***

*“An overview of both the Florida Department of Transportation and the U.S. Department of Transportation’s Federal Transit Administration is included.”*

### **Step #6B: Request for Proposal Process**

If the decision in Step 5 is to take advantage of the expertise of a transit management firm, a Request for Proposals (RFP) for the acquisition of management services must be developed and processed. The RFP must be as detailed as possible, incorporate the decisions made in Steps 4 and 5, and include effective evaluation criteria. This step also involves contract negotiations. The RFP should contain an example of the contract document that the successful proposer will be expected to enter into with the agency, as well as the proposed contract length and renewal options.

### **Step #7: Service Implementation Preparation**

After hiring the General Manager or issuing a Notice to Proceed to the management firm, a variety of actions must be carried out in a relatively short time period. These include:

- examination of the routes and schedules proposed in the operational planning stage to determine feasibility
- development of run cuts and driver assignments for the new service
- establishment of fare policies
- design of communication systems (bus radios, portable, etc.)
- determination of information system requirements (computers, telephones, faxes, etc.)
- adoption of proposed organizational structure
- recruitment and training of employees
- Development of promotional and marketing programs
- development of Standard Operating Procedures (SOP’s) for all areas of operation
- development of safety programs and accident reporting system
- design of maintenance plans and record-keeping systems
- conduct of Human Resource activities
- procurement of properly equipped transit vehicles

### **Step #8: Start of Service**

Following years of planning and myriad last-minute activities, the long-awaited new transit service is launched with a clear eye toward success. It remains critical to continue to plan, evaluate, and adjust transit services and procedures, as well as to comply with local, state, and federal grant requirements and regulations

### **Institutional Framework and Funding Program Overviews**

In addition to detailing the eight stages of transit system development, the research presents an overview of the institutional framework that public transportation professionals must understand and interact with at the local, state and federal level. At the local level, the various organizational structures that public transportation agencies take in terms of authority, accountability, and their relationship to the external environment are detailed.

In addition to the transit agencies themselves, the other local and regional agencies and organizations that will impact public transit agencies are summarized. Finally, an overview of both the Florida Department of Transportation and the U.S. Department of Transportation’s Federal Transit Administration is included.

The federal funding sources and regulations that support public transportation programs are detailed, including three sections: Federal Transit Administration (FTA) grant programs; the FTA Master Agreement and associated rules and regulations that come with the acceptance of FTA grants; and the reporting and administrative requirements with which grantees must comply. Similarly, the research provides a summary of the Florida Department of Transportation and the financial assistance programs provided through legislative formula or discretionary authority.

For a copy of the study, visit the NCTR web site at <http://www.nctr.usf.edu/html/576-04.htm> or contact CUTR Senior Research Associates Ann Joslin, (813) 974-9183, [joslin@cutr.usf.edu](mailto:joslin@cutr.usf.edu), or Jay Goodwill, (813) 974-8755, [jaygoodwill@cutr.usf.edu](mailto:jaygoodwill@cutr.usf.edu).

**Transit Service Planning/Startup:  
Eight Steps from Concept to Implementation\***

Step	Description	Time	Cumulative Time
1	Development of Vision and Identification of a Local Champion	12 months	12 months
2	Feasibility Analysis	12 months	24 months
3	Transit Conceptual Planning	12 months	36 months
4	Operations Plan	6 months	42 months
5	Organization and Management Structure	6 months	48 months
6A	Selection Process for General Manager	6 months	54 months
6B	Request for Proposal (RFP) Process	6 months	54 months
7	Service Implementation Preparation	6 months	60 months
8	Start of Service	--	--

\*Some of the steps may not take the full time shown, and some may overlap, allowing a jurisdiction to start its service in less than 60 months.

***Striving to Be the Best:  
Employer TDM Programs that Deliver  
Results to Employees and Stockholders***

On October 18, 2006, the National Center for Transit Research’s National TDM and Telework Clearinghouse and the [Association for Commuter Transportation](#) held a netconference entitled "Striving to be the Best: Employer TDM Programs That Deliver Results to Employees and Stockholders." The session focused on why some employers go beyond what is expected of them when carrying out transportation demand management (TDM) programs for their employees.

Representatives from three companies that differ in their core businesses but value being the best described their approaches to providing TDM programs for their employees. The panel included Jessica Barron, VPSI Project Manager with Wyeth Pharmaceuticals in Collegeville, Pennsylvania; Matt Nichols, Principal Transportation Planner for the City of Berkeley, California; and Danielle Bricker, TDM Coordinator at Yahoo! in Sunnyvale, California.

Each discussed why their employers undertake these programs and how management views these programs. The presentation shows how they made TDM succeed in their companies and were recognized for their efforts as Best Workplaces for Commuters. This 77-minute session, moderated by Donna Smallwood of [MassRIDES](#)/URS Corporation, attracted more than 150 attendees.

A recording of the presentations and question-and-answer period can be viewed as a streaming presentation at <http://www.nctr.usf.edu/clearinghouse/netconference/netemployers.htm>.

For more information, contact CUTR/NCTR TDM Program Director Phil Winters, [winters@cutr.usf.edu](mailto:winters@cutr.usf.edu), (813) 974-9811.

## NCTR Discussion Forums Help the Flow of Information

NCTR hosts 20 free listservs or discussion forums to support live, real-time communications via email for all types of public transportation professionals. Discussion forum members can view archived messages and manage their memberships. Members can get postings as they are made or grouped into a single daily email.

These topic-oriented discussion forums range from broad, international topics such as bus rapid transit to statewide transit maintenance managers to citizens and employers along a congested corridor.

For example, with 1,033 subscribers worldwide, the TRANSP-TDM listserv offers participants in the United States and other countries an opportunity to post requests for transportation demand management information and to reply to information requests from other TDM professionals. It is used to announce new research and professional initiatives, disseminate project and research

**NCTR:** [www.nctr.usf.edu](http://www.nctr.usf.edu)

**NCTR e-alert to notify of release of new reports:**  
[http://lists.cutr.usf.edu/read/all\\_forums/subscribe?name=nctr](http://lists.cutr.usf.edu/read/all_forums/subscribe?name=nctr)

**RSS Feed:**  
<http://www.nctr.usf.edu/rss.xml>

**Listservs/Discussion Forums:**  
[http://lists.cutr.usf.edu/read/all\\_forums/](http://lists.cutr.usf.edu/read/all_forums/)

results, seek and offer advice to peers, and post job vacancies. It brings together people who would not otherwise reach one another.

For more information, contact CUTR/NCTR TDM Program Director Phil Winters, [winters@cutr.usf.edu](mailto:winters@cutr.usf.edu), (813) 974-9811.

*“[The listservs] bring together people who would not otherwise reach one another.”*

## Transit Use Viability Among Older Drivers Losing Driving Privileges

Effective January 1, 2004, Florida Statute 322.18 requires drivers 79 years or older to pass vision tests when renewing their six-year licenses. Such a mandate is part of an “age-based” testing regime that several U.S. states have implemented in recent years with respect to enhancing the safety environment afforded to road users. Implementation of “age-based testing” produces a group of travelers who could provide a resource in understanding travel behavior changes and mode choice after driving cessation.

The objective of this study was to provide additional insight into travel behavior changes for persons who lose their driving privileges, particularly their interest in and ability to use public transit.

Recommendations include increasing the provision of information to seniors regarding their mobility options, continuing the adaptation of vehicles to accommodate older travelers, exploring additional roles for local transit providers, and monitoring trends in driving cessation and senior mobility as part of local public transportation planning. Knowledge gaps in our understanding of senior travel needs before and after driving cessation are also presented. There is a strong consensus to find more efficient and cost effective ways to serve the travel needs of older persons, but far less consensus on the extent of public resources that should be spent to attract more trips into the realm of public responsibility. The full report is available at <http://www.nctr.usf.edu/html/77601color.htm>.

*“There is a strong consensus to find more efficient and cost effective ways to serve the travel needs of older persons.”*

## ***Bicycle and Transit Integration Under Way in Florida***

Since the publication of the NCTR report “A Return on Investment Analysis of Bikes-on-Bus Programs” (2005), new efforts are under way to further integrate bicycling and transit. The City of St. Petersburg and Pinellas Sun-coast Transit Authority (PSTA) have entered into a partnership to add bicycle parking at bus stops throughout the city. Miami-Dade Transit (MDT) and the Miami-Dade Metropolitan Planning Organization (MPO) are also looking at placing additional bicycle racks and lockers to improve bicycle access to their Metrorail and Metrobus systems. The efforts in both of these regions is due, in part, to the NCTR report, which recommended improved bicycle parking facilities and investment in a “bike-to-bus” strategy as a means to mitigate the inherent rack capacity limitations of successful bikes-on-bus (BOB) programs.

The NCTR study included a review of the literature and previous research to identify the wide range of costs and benefits of BOB programs, highlight the key BOB issues for transit agencies and BOB users, and aid in the development of the transit agency and BOB user survey. A total of 14 transit agencies and 4 outside agencies participated in the transit agency survey that was designed to collect data on the history and characteristics of each BOB program, BOB program costs, BOB policies and key issues, and BOB program benefits. There were also 220 completed surveys/interviews of BOB users in Hillsborough, Pinellas, and Miami-Dade counties that provided data on transit use, travel behavior, and demographics.

Since their development in the mid-1980s, bikes-on-bus programs have become a valuable service of transit agencies. By integrating transit with bicycles, transit agencies can expand their service area, attract new patrons, and stimulate more frequent use of transit services with relatively small investment and minimal administration. The central feature of BOB programs is a rack to carry bicycles mounted to the front of buses.

Over 40,000 buses at more than 300 transit agencies in the U.S. are equipped with bike racks, and an estimated 670,000 bikes-on-transit trips are provided each month.

The NCTR study demonstrated that transit agencies have received good returns on their investments in integrating bicycling and transit. The survey results indicated that BOB programs provide a long-term and sustainable form of transportation for patrons, particularly patrons with low-incomes and limited access to automobiles. BOB users are regular users of transit, with 65 percent using it four days or more and over 40 percent making more than 10 trips per week on average. Almost three quarters of survey respondents use BOB to commute to work, and over 60 percent of these commuters bicycle more than a mile to access transit, providing a clear validation of how BOB programs can expand the transit service area.

The success of these programs, however, is limited by the two-bicycle capacities of most rack systems. As the number of BOB users increases, so does the problem of bicyclists not being able to use a system they have come to depend on because the racks are full when the bus arrives at their stop. Approximately 26 percent of BOB users indicated that their bus arriving at their stops with the rack full was a problem.

Transit agencies are responding to this issue using two successful strategies: installing three-bike capacity racks on buses along the most popular routes, or allowing patrons to bring their bicycles on board when the racks are full and the wheelchair area is vacant.

However, NCTR recommended that transit agencies invest in another way to mitigate rack capacity limitations which is to promote the bike-to-bus (BTB) strategy common in European nations that encourages patrons to bicycle to their bus stop but leave their bicycle parked at the stop or transfer center.



***“By integrating transit with bicycles, transit agencies can expand their service area, attract new patrons, and stimulate more frequent use of transit services with relatively small investment and minimal administration.”***



The user survey also indicated that approximately 61 percent of BOB work commuters bicycle more than one mile to access transit, but 80 percent travel less than one mile and almost half travel a quarter mile or less after getting off the bus and bicycling to their place of work. This means that many BOB users could easily switch from BOB to bikes-to-bus if necessary. The BOB users' survey revealed that 22 percent of users would park their bicycles at bus stops any time the racks were full, and an additional 43 percent stated that they would lock up their bike if they could not afford to miss the bus. Transfer centers, major bus stations, and park-and-ride lots also should be equipped with bike racks and lockers to encourage bikes-to-transit trips. Transit agencies that invest in bicycle parking and provide a large supply of quality racks and lockers that are placed in the right locations will, it is predicted, see bike-to-transit trips eclipse bikes-on-bus boardings.

As a result of the NCTR study, both PSTA and MDT have begun efforts to implement the bike-to-bus strategy through investments in bicycle parking. Following a presentation on the NCTR study at a PSTA board meeting, PSTA and the City of St. Petersburg entered a partnership to match bike rack for bike rack

and have them placed at bus stops on their most popular BOB routes within the city. As their BOB program has grown and the front-mounted bus racks fill up, they recognize the need to provide secure bicycle parking for patrons that cannot afford to wait for the next bus and need their bicycle to access transit. MDT and the Miami-Dade MPO are in the process of implementing the bicycle parking plan that was developed by CUTR in 2002, which includes the provision of both lockers and parking racks at all of their Metrorail stations. With the Metrorail component under way, MDT and the Miami-Dade MPO are now looking to develop a methodology to prioritize the placement of bicycle parking racks at their Metrobus stops throughout the county. With over 4000 bus stops, they will need to prioritize which stops are most in need of receiving bicycle racks based on BOB usage and other data.

For more information, please contact Christopher Hagelin, Senior Research Associate, (813) 974-2977, [hagelin@cutr.usf.edu](mailto:hagelin@cutr.usf.edu). For information on either the PSTA or MDT initiatives, please contact either Michael Siebel of PSTA at [msiebel@PSTA.net](mailto:msiebel@PSTA.net) or David Henderson of the Miami-Dade MPO at [davidh@miamidade.gov](mailto:davidh@miamidade.gov)



## ***NCTR Education Update***

Numerous initiatives are under way to provide educational programs and activities to support workforce development in the transportation area:

Recruiting is under way for the **Flom Distinguished Chair in Transportation** to attract an established outstanding transportation faculty member to supplement the current teaching faculty at USF.

Progress continues on implementing a fully accredited **urban and regional planning master's program at USF**, to start in the fall of 2008. This program will complement NCTR's mission in public transportation.

The growing interest in transportation is demonstrated by **record enrollments in**

**transportation courses** for the Spring 2007 semester at USF. Refinements in online teaching technology enable higher quality presentation for distance learning students.

Discussions are being held with individuals from around the U.S. who have expressed an interest in **developing curriculum for additional graduate-level, web-based public transportation courses**. During 2007, a work plan and schedule for incremental expansion of public transportation coursework will be implemented. An early step will be increasing the frequency of offerings for the basic public transportation course followed by broader dissemination of its online availability.