



NCTR

NATIONAL CENTER for
TRANSIT RESEARCH

**Program Progress Performance Report
for University Transportation Centers
National Center for Transit Research (NCTR)
University of South Florida
a Tier I Livability University Transportation Center**

Grant Number DTRT13-G-UTC56

DUNS and EIN #: DUNS 06-968-7242, EIN 59-3102112 -F5 (Tampa Campus)

Submitted to: Amy Stearns, University Program Specialist
Office of Research, Development and Technology
Research and Innovative Technology Administration
U.S. Department of Transportation
Mail Code RDT-30

1200 New Jersey Ave, SE, Room E33, Washington, DC 20590-0001
(202) 366-4957, fax (202) 366-3671. amy.stearns@dot.gov

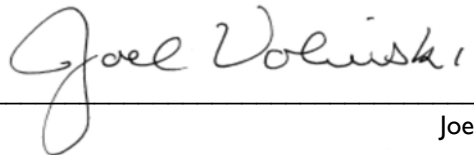
Submitted by: Joel Volinski, NCTR Program Director
National Center for Transit Research
Center for Urban Transportation Research, USF
4202 E. Fowler Avenue, CUT100, Tampa, FL 33620-5375
(813) 974-9847, fax (813) 974-5168, volinski@cutr.usf.edu

Submitted on: April 27, 2016

Grant Period: September 30, 2013–September 30, 2017

Reporting Period: October 1, 2015 – March 31, 2016, Fifth 6-Month Progress Report

Signature of Submitting Official: _____



Joel Volinski, NCTR Program Director

NCTR PROGRAM PROGRESS PERFORMANCE REPORT

REPORTING CATEGORIES

| |
|---|
| 1. ACCOMPLISHMENTS: What was done? What was learned? |
| The information provided in this section allows assessment as to whether satisfactory progress has been made during the reporting period. |

This PPPR for NCTR's Livability UTC grant, covering the period from October 1, 2015 to March 31, 2016, represents the fifth six-month report. Some projects are still in the phase of being placed under contract with the partners of the consortium, but substantial progress is being made with the resources the grant provides as reported below.

Accomplishments

1. What are the major goals and objectives of the program?
2. What was accomplished under these goals?
3. What opportunities for training and professional development has the program provided?
4. How have the results been disseminated? If so, in what way/s?
5. What do you plan to do during the next reporting period to accomplish the goals and objectives?

1. ***What are the major goals of the program?***

The goal of NCTR is to conduct research leveraging the strengths of its members in all forms of public transportation, transportation demand management (TDM), and active transportation. Public transportation and transportation demand management (TDM) make livable communities possible; indeed, we regard them as prerequisites to communities being safe and livable. The NCTR consortium has a large, stable, multidisciplinary team with extensive experience in transportation research and UTC participation, enabled by dedicated full-time research faculty. Our proposed research addresses USDOT's goal of supporting Livable Communities as well as environmental sustainability and safety. Our research addresses many of the objectives of the USDOT Strategic Plan section on Livable Communities:

- To help improve the performance of, and passenger experience with, public transportation to help increase ridership and mode share.
- To reduce motorized trips by developing tools and policies to improve facilities for pedestrians and other non-motorized modes of travel.
- To improve access to transportation for people with disabilities, older adults, and low-income populations.
- To improve the relationship between land use and transportation and develop multimodal networks to serve communities.
- To promote market-based strategies and information technologies to manage demand on congested roadways.

The research activities conducted by NCTR are undertaken through collaboration among the

four universities, with student research assistants involved in every project undertaken.

Table 1 – Performance Metrics for Research

| Measure | Methods/Sources for Tracking |
|--|--|
| NCTR papers and research reports published | All reports posted to NCTR website; papers monitored quarterly |
| Presentations of NCTR research results at professional academic and industry association conferences | Quarterly PI reports on presentations |
| NCTR reports downloaded from NCTR websites | Google analytics and Scholar Commons reports |
| Students participating in NCTR research projects | PIs required to maintain statistics |
| NCTR awards and distinctions received | Faculty reporting of awards/distinctions |
| NCTR citations in other professional papers/media | Google Scholar/Publish or Perish software |
| Number of patents issued based on NCTR research projects | U.S. Patent Office, USF Technology Transfer Office |
| Policies/practices changed as a result of NCTR research | Responses to inquiries from NCTR website |

NCTR measures its leadership through the number of national professional committees that our consortium members lead, the number of significant roles our research faculty play in forums designed to identify transit research needs, the number of professional development workshops and conferences for which we develop programs, the number of presentations and papers published, and the research agendas prepared in consultation with FTA and state DOTs. Faculty members maintain documentation of these activities.

NCTR faculty engage in providing multiple training opportunities for practicing professionals, as described in pages 14 – 22 in this PPPR. Another significant workforce development initiative funded through the grant is the NCTR Graduate Assistant Research Program (NCTR Scholars). NCTR funds a targeted recruitment campaign aimed at attracting domestic students who are interested in pursuing a master’s degree in Civil and Environmental Engineering with a focus on public transportation, with particular effort paid to attracting minority and female candidates.

The grant is attempting to create an interactive exhibit at Tampa’s Museum of Science and Industry (MOSI) near USF. This exhibit is intended to be of interest to primary and secondary school students in learning more about alternative forms of transportation and how they can make their communities more livable.

The goals for workforce development and education include:

| Measure | Methods/Sources for Tracking |
|---|---|
| Number of students who graduate from transportation-related programs or worked on NCTR projects and placement in industry | Reports from respective universities sent to NCTR Director at completion of each semester |
| Number of students to serve as interns or technical assistants to transit agencies within proximity of consortium members | Reports from respective universities sent to NCTR Director at completion of each semester |
| Number of students who participate in public transit courses | Reports from respective universities sent to NCTR Director at completion of each semester |
| Number of people participating in training programs offered by consortium, contact hours, and how they have responded to training program customer satisfaction surveys | Attendance to be recorded at all training sessions; evaluations of all training programs; information forwarded to NCTR for compilation |

| | |
|--|---|
| Number of transportation-related courses offered that were taught by faculty and/or teaching assistants associated with NCTR | Reports from respective universities sent to NCTR Director at completion of each semester |
| Number of students participating in transportation-related projects funded by grant | Reports from respective universities sent to NCTR Director at completion of each semester |
| Number of graduate students supported by grant | Reports from respective universities sent to NCTR Director at completion of each semester |
| Number of students supported by grant who received degrees | Reports from respective universities sent to NCTR Director at completion of each semester |
| Number of attendees at MOSI Exhibit | Visits recorded through interactive exhibit |

In regards to technology transfer, the goals include:

- Assertive management of a number of clearinghouse and information centers including the National TDM and Telework Clearinghouse, the National Transit Safety Research and Assistance Center, the GIS in Transit Clearinghouse, the Advanced Energy Transit Portal, and a new program named the Integrated Mobility Clearinghouse dedicated to collecting information on the experience public transit agencies are having in efforts to coordinate with transportation network companies and provide “mobility on demand”.
- The continued digital publishing of the Journal of Public Transportation and the establishment of a new Journal of Transportation Demand Management Research
- The development of patents and licenses for location aware software applications that help all users to better navigate their transportation system and services
- The management of numerous Listservs that allow for the easy and free exchange of information among over 6,500 professionals and students in the nation and the world
- The sponsoring of bi-weekly webinars featuring the results of research from not only NCTR members, but other UTCs as well
- The development and management of a bi-annual GIS in Transit Conference co-sponsored by TRB held in Washington, DC
- Presentations of completed research at various state and national professional forums

What was accomplished under these goals?

This Livability grant was received from OST-R on September 30, 2013. This grant overlaps a very active transit-focused UTC grant that was awarded in 2012 and is still being utilized, but activity associated with the Livability grant is increasing as the transit-focused grant is nearing completion. Projects on the federal side of the budget have been established for both USF and Texas A&M as listed below, while the federally funded and match projects to be done by FIU and UIC will be started in the next reporting period:

Federal Projects in the NCTR Livability UTC Grant

- Program Administration
- Center Director
- Teleconferences

- Website Services and Listservs administration
- Transit GIS Conference and Clearinghouse
- National Telework/TDM Clearinghouse
- Transit Safety Research and Technical Assistance Institute
- Advanced Transit Energy Portal
- Travel for Presentations

Journal of Public Transportation - Publishing of the Journal of Public Transportation is now in its 19th year, supported through the years by various UTC grants and now by the UTC Livability Grant, as another successful knowledge sharing/technology transfer project. Two editions of the Journal of Public Transportation were produced and released on a quarterly basis during this reporting period (18.4 and 19.1). Thirteen peer-reviewed and professionally edited papers were included in these two editions. Since March 2015 the Journal has been produced only in digital form. NCTR website and Scholar Commons page (host of NCTR's Journal of Public Transportation) has had an approximate 24% growth in pageviews and a 27% increase in users compared to the previous six-month reporting period.

The repository now includes 369 articles and 52 full text issues of the Journal of Public Transportation in ScholarCommons <http://scholarcommons.usf.edu/jpt/>. From October 2015 through March 2016, nearly 23,000 articles or full text issues were downloaded. This is a 44% increase over the 16,000 articles or full texts that were downloaded in the previous reporting period.

The top 10 JPT articles for this period reflect the variety of subjects covered in the JPT:

1. Bike-sharing: History, Impacts, Models of Provision, and Future (Vol 12 Issue 4)
 2. What Do Passengers Do During Travel Time? Structured Observations on Buses and Trains (Vol 14 Issue 3)
 3. Using GIS to Identify Pedestrian-Vehicle Crash Hot Spots and Unsafe Bus Stops (Vol 14 Issue 1)
 4. Bus Passenger Origin-Destination Estimation and Related Analyses Using Automated Data Collection Systems (Vol 14 Issue 4)
 5. Use of Statistical Process Control in Bus Fleet Maintenance at SEPTA (Vol 8 Issue 2)
 6. Project NPV, Positive Externalities, Social Cost-Benefit Analysis-The Kansas City Light Rail Project (Vol 11 Issue 4)
 7. The Effect of Proximity to Urban Rail on Housing Prices in Ottawa (Vol 15 Issue 4)
 8. Urban Bus Services in Developing Countries and Countries in Transition: A Framework for Regulatory and Institutional Developments (Vol 14 Issue 4)
 9. A Worldwide State-of-the-Art Analysis for Bus Rapid Transit: Looking for the Success Formula (Vol 18 Issue 1)
 10. Effects of Light-Rail Transit on Traffic in a Travel Corridor (Vol 17 Issue 4)
-

NCTR also started the process of establishing a new journal to be entitled the “Journal of Transportation Demand Management Research.” This will have a similar format to the JPT and will be issued semi-annually.

In addition to these ongoing projects funded through NCTR, a number of research projects were established or completed during this reporting period using federal funding. A research project completed prior to this reporting period was:

Evaluation of HART MetroRapid BRT - This report was completed in August 2015. It is a limited scope evaluation of the MetroRapid’s first two years of operation in the Tampa, Florida area. The MetroRapid averaged 48,666 riders per month in its first two years. Total annual ridership grew 3 percent between the first and second year, which was the same growth rate as the rest of HART’s fixed route system. There has been a 10 percent net gain in transit riders on the Nebraska Avenue corridor since the MetroRapid began. Even with some Traffic Signal Priority, traffic signal delay accounts for 21 to 24 percent of its end-to-end travel time. Much of the signal delay is occurring at intersections where the TSP is not activated.

The following research projects are in process and funded with federal dollars:

Impacts of BRT Access on Residential Properties – This project was established as a joint project between the National Center for Transit Research and the National Institute for Transportation and Communities. The project will review whether having nearby access to Bus Rapid Transit Service has a positive, negative, or neutral effect on the value of residential properties in Eugene, Oregon in the EmX Bus Rapid Transit corridor as has often been shown to be the case with proximity to light rail and commuter rail stations.

Evaluation of Automated Vehicle Technology for Transit – Work on this project was completed and the final report will be given a final edit and posted to the NCTR website in the next reporting period. This project was supplemented with funds made available by FTA through the National Bus Rapid Transit Institute at USF. The purpose of this report is to provide an overview of the state of automated vehicle (AV) technology in transit. The report finds that the operational use of AV technology by transit in the U.S. has been limited to a few prototypes. With one exception, there are no immediate plans by bus manufacturers to add AV technology to their vehicles. The exception was Volvo/Nova Bus. They are considering adding a bicycle/pedestrian warning system to their buses. It appears that for the moment any new demonstrations of AV technology in transit would involve significant engineering work and retrofitting of buses. However, this situation is likely to change as the automotive industry makes great strides in connected vehicle research and automated features that should trickle down to the bus manufacturers.

Impact of BRT Access on Residential Properties: A Review and Summary of Recent Works - Various qualitative and quantitative research has been done on the benefits of investments such as light rail transit (LRT) and bus rapid transit (BRT), in both academic and non-academic publications. Still, very little research has been completed on the modern BRT experience in

the U.S. Currently, many communities still adhere to the belief that light rail will bring more development and economic benefit than BRT. In truth, the question is still largely unanswered, particularly regarding impacts on residential property values. The Cleveland Healthline BRT will be used as a case study for studying property values along the corridor. Advanced econometric techniques, possibly involving spatial regression analysis using geographic information systems (GIS), will be used. If the results of earlier studies in the U.S. can be replicated using different (and robust) techniques, then the conclusions of those studies will be further bolstered. The final report will include a review and summary of relevant literature to date, with the benefit being a summary of LRT and BRT impacts on property values presented comprehensively in one document, which can be shared online and at conferences.

USF Sustainable Cities Initiative – This project will build on the great success of similar programs established initially in Oregon where a wide range of faculty and student resources from USF will be brought to bear on a community that is willing to partner with the university to examine a multitude of municipal issues dealing with the environment, public services, complete street issues, municipal water services, and anything else of interest to the university representatives and the city partner. The availability of relatively low cost but highly energetic and innovative students will provide observations and recommendations not typically thought of by municipal staff. NCTR faculty have led the effort to establish the program at USF and have identified their first municipal partner to work with, the City of Palmetto, in nearby Manatee County.

Regional Transit Service Integration – This project has been identified by the University of Illinois at Chicago and will be put under contract in the next reporting period. The project will review the big picture of how greater coordination and integration among the various transit service providers in the Chicago area can result in greater efficiencies, improved service, and possibly expanded service.

Exploring Transit's Contribution to Livability in Rural Communities: Guidebook and Exercises - The first two phases of this project are now complete. Texas A&M researchers are assisting transit agencies to conduct rider surveys to create a baseline of information about the characteristics of riders and services, and factors related to livability and existing rural transit services (i.e., type, ridership characteristics, cost, funding resources) will be evaluated to determine how livability goals of each community relate to rural transit service. The PIs will assist local stakeholders to conduct public opinion surveys about livability, transit, and willingness to pay. TTI will develop a guidebook and exercise materials that will be of immediate benefit to transit agencies, rural communities, and policy makers in their efforts to engage in local dialogues. TTI researchers will document best practices via a recorded webinar question-and-answer session. TTI will present research findings at national professional meetings and through NCTR's webcast series. The literature review and case study selection has been completed in the project's first two phases and surveys will be conducted in Phase III.

Safe and Accessible Pedestrian Facilities Inventory Model (SAPFIM): Planning, Design, and Development – This project has been identified by Florida International University as one that is

of interest to the car-centered environment in the Miami, Florida area. It is being placed under contract and will start in the next reporting period.

Match projects funded by the Florida Department of Transportation

Linking Transit with Recreational Trails – This project examined the many ways, through pedestrian and bicycle facility improvements, signage, and transit modifications that those people in low and moderate income communities in particular can have better access to park facilities that are within reasonable distance. The report featured six case studies of communities in Florida, though the principles discovered will provide guidance to other communities as well. A final report was accepted by the sponsor (FDOT) in February 2016.

Capturing the Benefits of Complete Streets – This project was completed just prior to this reporting period, but had been counted as part of the Transit Focused UTC grant until recently, hence it is included in this report. This work contributes to a small but growing body of literature that associates the implementation of Complete Streets projects with increased economic activity such as increased property values, tax collections, and increased business activity (such as new businesses and an increase in jobs). This work began by reviewing background information related to Complete Streets and examining how such projects may be evaluated. A set of case studies was identified, which included locations where Complete Streets projects had been recently implemented, but that had been in place long enough to assess any changes in economic activity. The case studies are diverse, including a beach community, a smaller-area business district, and a larger city that included a major transit investment. Findings indicated that, despite the recent economic downturn, the Complete Streets performed well, demonstrating maintained and enhanced economic activity, often outperforming other nearby areas and their cities as a whole.

Improving Safe Access to Transit through Trip Planning - The purpose of this research is to facilitate the ongoing collection of information about potential areas of multimodal service and infrastructure improvements from the public that can be easily shared with transit agencies, departments of transportation, and city and county governments. This research will enable the capture of various types of data from actual users of public transportation via a real-time transit information system. Using this data, transit agencies, departments of transportation, and city and county government will be able to better target improvements to bike and pedestrian infrastructure for access to transit based on actual transit use and issues reported by the general public. This project will modify a real-time transit information tool, based on prior research conducted for FDOT and the recent deployment of OneBusAway by Hillsborough Area Regional Transit (HART) (<http://tampa.onebusaway.org/>), to collect information from the general public that can aid in the identification and prioritization of infrastructure and service improvements. This technique of collecting data from users of a system is typically referred to as “crowdsourcing” information. The first five tasks of this project are now complete including:

- Task 1. Review existing crowdsourced data collection systems
- Task 2. Prepare for expansion of OneBusAway to a new agency
- Task 3. Design and implement software to collect data from OneBusAway users

Task 4. Design and implement software to receive and visualize data from OneBusAway users

Task 5. Deploy and test OneBusAway with data collection software for the participating agencies. The project is expected to be completed during calendar year 2016.

Community2Go! Pilot of a Community-Based Voluntary Travel Behavior Change Effort - The CUTR TDM Team is conducting a pilot project funded by the Florida Department of Transportation's Central Research Office to reduce household vehicle miles of travel in the Tampa Bay area. A community-based social marketing (CBSM) approach is being used to encourage residents to make behavior changes, such as reducing single occupancy vehicle travel, increasing the frequency and distance of walking and bicycling trips, and increasing use of transit. A community-based social marketing (CBSM) approach is being used to encourage Temple Terrace residents to increase walking and biking, increase use of transit, reduce traffic congestion, and create a more healthy and livable community. The seventy-two households that will be included in this pilot project are currently being recruited, and are expected to begin the program on June 1, 2016. Half of these households will receive standard information which is commonly distributed to individuals to encourage them to reduce their vehicle miles of travel. The other households will receive personalized travel assistance from community-based transportation coordinators (CBTC), whose role will be to speak with households about their current vehicle usage and guide households to make behavior changes. Five CBTCs have been trained by the CUTR TDM Team to offer personalized assistance to each household to encourage behavior changes that best fit their lifestyle; these individuals live in Temple Terrace and were selected because they already use transit, bicycle, etc., which helps establish their credibility with the household members they are communicating with. Additionally, a program website has been developed that offers personalized information to each household member based on their stage of change and mode preference; a gamification component has also been included to help encourage behavior change. To measure behavior change and evaluate the success of the pilot project, all members of the seventy-two participating households will carry a cell-phone enabled with TRAC-IT, a GPS cell phone application developed by NCTR researchers to record travel behavior, for two months to gauge the effect of receiving the standard information versus the personalized CBTC travel assistance on reducing vehicle miles of travel.

The first five tasks of this project are now complete:

Task 1. Conduct a literature review on community-based social marketing applications in transportation

Task 2. Development of IRB-approved data collection instruments

Task 3. Select pilot community, conduct market research, and establish goals

Task 4. Recruit and train the community-based transportation coordinators

Task 5. Prepare resources/tools

Clearinghouses and technical assistance centers

NCTR strongly believes in the value of establishing clearinghouses and technical assistance centers as part of its mission. These clearinghouses are typically funded through both federal

and state matching funds through related projects. These centers allow practicing professionals to exchange information to help solve transportation issues in communities across the country. They also help to organize information so that it is readily available to people who are looking for information on a variety of issues dealing with transit and alternative forms of transportation. While the following description of activities for the TDM and Telework Clearinghouse is quite lengthy, it will provide a clear picture of just how active it is and how well used it is in the transportation industry throughout the United States. It is acknowledged as “the place to go” for all professionals dealing with methods to help reduce traffic congestion, vehicles miles traveled, and air pollution from vehicle traffic. The information gathered and shared by TDM program managers make them highly sought after speakers at transportation conferences. Research projects are certainly important, but the following description of the activities of this clearinghouse will demonstrate that far more people can benefit from clearinghouse than from the typical research project:

Under the National TDM and Telework Clearinghouse and the Florida TDM Clearinghouse (matching project funded by FDOT), NCTR provides technical assistance using a range of methods from fostering self-service to short-term on-site support as described below.

Listservs. NCTR manages the TRANSP-TDM listserv to allow commuter assistance programs, state departments of transportation, transportation management associations (TMAs), and the Clearinghouse to email their peers across the world to help answer questions and solve problems. The listserv membership stands at 2,583 active members (an increase of 112 members since the last PPPR report). The number of messages successfully delivered over the past six months is approximately 465,000 (an increase of 30,500 since the last PPPR report).

NCTR hosts a number of other listservs supported by the Livability grant:

| Listserv | Total Active Subscribers | Net Change in Subscribers | Established in |
|--|--------------------------------|---------------------------------|-------------------|
| Telework | 433 | 9 | Dec-99 |
| Bus Fleet Maintenance | 417 | 0 | Feb-08 |
| Bus Rapid Transit | 634 | -2 | May-01 |
| Florida Operations Network | 95 | 5 | Feb-13 |
| Florida Rural Transit Assistance Program | 142 | 35 | Mar-07 |
| Journal of Public Transportation | 938 | 1 | Dec-13 |
| Large Employers Council | 32 | 4 | Aug-15 |
| Parking management research | 453 | 12 | Feb-07 |
| Substance Abuse Management | 58 | 5 | Jun-15 |
| Sustainable Transport Indicators | 486 | 1 | May-07 |
| Transit Safety | 143 | 8 | Jun-15 |
| Best Workplaces for Commuters | 208 | 9 | Jul-07 |

| | | | |
|--|------|---|---------|
| Best Workplaces for Commuter Champions | 144 | 6 | July-09 |
| TOTAL | 6765 | | 213 |

Online TDM knowledge base. The Clearinghouse's online TDM knowledge base (KB) provides an intelligent self-service option by providing information on hundreds of frequently asked questions as well as case studies and examples. This approach provides a means to reduce the total number of basic inquiries or repeat requests that require personal attention. It also allows staff to quickly respond to inquiries drawing on the information in the KB. The objective is to be more cost-effective as the Clearinghouse seeks to handle more interactions by providing lower cost transactions with the KB's self-service feature. This reporting period had 938 searches and 44,721 answers viewed. The online TDM knowledge base (KB) provides an intelligent self-service option by providing information on hundreds of frequently asked questions as well as case studies and examples. It also allows staff to quickly respond to inquiries drawing on the information in the KB. The objective is to be more cost-effective as NCTR seeks to handle more interactions by providing lower cost transactions with the KB's self-service feature.

Here are the 7 questions/answers that received the most hits over the past 6 months:

1. Is there a rough dollar figure for parking space costs?
2. Job description: Outreach Coordinator and Marketing Manager?
3. How do typical carpoolers pay for a ride?
4. Do you allow overnight parking at park and ride lots?
5. Define a commuter highway vehicle?
6. Job Description: Employee Transportation Coordinator
7. How to Set up a pre-tax commute benefits program?

On-demand short-term technical support and limited on-site technical assistance.

Activities this reporting period include, but are not limited to:

- Coordinate ACT/BWC webinar on USDOT Smart Cities
- Provide data on commuting patterns for Key West
- Discuss TMA funding with FDOT D7
- Participate in ACT Employer Council, Telework, and TMA Council conference call
- Planned the development of an initial set of BWC-related case studies in Florida
- Discussed speaking opportunity at 2016 Commuter Transportation Summit with Lyft
- Presented findings of Carshare focus groups
- Located Careers in Public Transportation material for Collier County

- Information on how to integrate transportation network companies in transit services for FDOT D1
- Commuter benefits guidance for West Florida Regional Planning Council

62 Questions/topics were received on listserv (plus 8 RFPs, 15 event announcements and 26 job openings). Some examples of the questions and topics are provided below:

- 2016 Employer Commute Program Benchmarking Survey
- Auto repair service as option to subsidize sustainable transport measures
- Bike lockers
- Examples of "trip caps?"
- Examples of bulk discounts for transit fares?
- Examples of Integrated Mobility Mapping
- Examples of quick commuting interest surveys?
- Four requests for assistance from the TRANSP-TDM community
- Insight on Effective TDM Carpool Programs
- Insurance companies and sustainable transportation discounts
- Integrating cycling tracking apps with TDM initiatives
- License Plate Recognition (LPR) for car parking payment at universities
- Parking spaces for LEED credits
- RE: Seasonal reduction in bike commutes?
- Examples of TDM policy and program revisions for employers relocating into city
- Residential Bus Pass Programs
- Results-Based Accountability and TDM
- Samples of Transit Marketing Pieces
- School Employee TDM Examples?
- Seeking Target/Vision Zero pedestrian contacts
- TDM case studies for large shopping centers, hotels/resorts?
- TDM Marketing Plan & RFP Examples
- TDM policy and program revisions for employers relocating into city - examples sought
- TDM programs based on a points system?
- TDM Programs for State Government Employees
- Telework Toolkit or other supporting materials?
- Transit brochures with a youth focus
- Transportation Incentive Program (TIP) and Vanpooling
- Uber and Lyft: relationships with large institutions
- Vanpool Exit Survey and Tolling

Best Workplaces for Commuters

Best Workplace for Commuters is a program designed to encourage sustainable transportation innovation. During this reporting period it began the process of identifying employer worksites for a “Race to Excellence” Virtual Awards Ceremony. The awards recognize organizations who have taken exemplary steps to offer transportation options such as vanpool and transit benefits or telework and compressed workweek for their employees. The awards were presented in December 2015. Best Workplace for Commuters provides qualified employers with programs and services along with national recognition and an elite designation for offering outstanding commuter benefits, such as free or low cost bus passes. Employers that meet the national standard of Excellence in commuter benefits, a standard established by the U.S. Environmental Protection Agency (EPA) and maintained by NCTR, can become a member of Best Workplaces for Commuters. A full list of award recipients is shown on the BWC website. Best Workplaces for Commuters singled out 29 employers nationwide during the annual “Race to Excellence” Virtual Awards Ceremony. Winning organizations include universities, hospitals, governments, and a variety of employers of all sizes. See more at: <http://www.bestworkplaces.org/race-to-excellence-2/>

TDM Professional Development and Organizational Learning

The following report highlights the significant activities of the Florida Commuter Choice Training program and related activities.

Training

NCTR’s TDM program contributes significantly to professional development for practitioners in the field of commuter assistance programs. The courses taught provide highly useful information that can be applied by program managers in their attempts to help reduce congestion and pollution, and in the process, improve livability of communities. Certification maintenance credits (CM) are awarded to members of the American Planning Association (APA) with the American Institute of Certified Planners (AICP) professional credential. Offering CM credits has proven to increase participation by providing the added incentive for planners to attend the training. AICP planners must obtain 32 hours of CM credits every two years.

This period saw the update of the following modules under the Commuter Choice Certificate:

- Introduction to Social Marketing
- Transit Service Options
- TDM in Land Development and Design
- Commuter Choice Support Strategies
- Carpool and Vanpool Options
- Bicycle and Pedestrian Issues

The 11 Social Marketing in Transportation certificate sessions attracted 14 attendees (see Table below) though more were accepted into the program and dropped out for various reasons (workload, changes in responsibilities, etc.) The four online courses were recorded and

received an additional 273 views. Therefore, we estimate there have been about 392 contact hours.

Social Marketing in Transportation Certificate Courses Taught This Period

| Date | Module | Credits | Participants (Live) | Recording Views | Total Contact Hours |
|--------------|--|-----------|---------------------|-----------------|---------------------|
| 10/30/2015 | Session 1 - Social Marketing in Transportation – Overview and Orientation | 2 | 17 | 90 | 214 |
| 11/6/2015 | Session 2 - Conducting a Situational Analysis | 2 | 16 | 34 | 100 |
| 11/13/2015 | Session 3 - Defining the Problem, Identifying the Behaviors and Segmentation | 2 | 13 | 76 | 178 |
| 11/20/2015 | Session 4 – Understanding Your Market via Formative Research | 2 | 11 | 73 | 168 |
| 12/14/2015 | Session 5 – Creating Your Social Marketing Program Strategy | 5 | 14 | NA | 70 |
| 12/14/2015 | Session 6 - Introducing the Social Marketing Plan | 1 | 14 | NA | 14 |
| 12/14/2015 | Session 7 - Creative solutions for addressing priority group needs and behaviors | 2 | 14 | NA | 28 |
| 12/15/2015 | Session 8 - Developing the Marketing Plan | 2 | 14 | NA | 28 |
| 12/15/2015 | Session 9 - Testing the Concepts | 2 | 14 | NA | 28 |
| 12/15/2015 | Session 10 - Preparing the Plan | 2 | 14 | NA | 28 |
| 12/15/2015 | Session 11 - Team Presentations | 2 | 14 | NA | 28 |
| TOTAL | | 24 | 155 | 278 | 392 |

Netconferences

Impacts of Transportation Network Company (TNC) and Autonomous Vehicles

This October 1, 2015 transit-related webinar was conducted as part of the CUTR biweekly webcast series (www.cutr.usf.edu/webcasts). This webinar presented perspectives on the impacts that emerging technologies will have on travel behavior and the transportation system going forward. Specifically, the impacts of technology enabled improvements in mobility such as those utilized by transportation network companies (Uber, Lyft, Splits, Bridj, etc) and those being integrated into connected and autonomous vehicle systems are envisioned as transforming travel and transportation services as we know them today.

FAST Act Recap. On January 28, 2016, Best Workplaces for Commuters (BWC) and the Association for Commuter Transportation (ACT) co-sponsored FAST Act Recap to summarize the provisions of the law of most interest to transportation demand management professionals and employers. Jason Pavluchuk, ACT's government relations representative, discussed changes that create opportunities for the potential expanded role for employers to have a stronger voice in the transportation planning process. Mr. Pavluchuk summarized Congestion Mitigation Air Quality (CMAQ) Program as a Federal Highway formula program that a wide variety of TDM and employer based commuter activities are eligible for funding. Finally, he noted that a new program, Advanced Transportation & Congestion Management Technologies Deployment, may have the largest, long-term effect on TDM. Under this innovation program, USDOT will annually make grants to model deployment sites for large scale installation & operation of advanced technologies to address transportation problems. Future webinars will discuss these policies and programs in more detail. - See more at: <http://www.bestworkplaces.org/events/fast-act-recap-webinar-recording/>

Learn About USDOT's Smart Cities Challenge. On January 19, 2016, Best Workplaces for Commuters (BWC) and the Association for Commuter Transportation (ACT) co-sponsored "Learn about US DOT's \$40 million Smart Cities Challenge" netconference. The US Department of Transportation announced a \$40 million 'Smart Cities' competition. This competition presents a tremendous opportunity for ACT members, public and private, to get engaged. During the presentation, ACT Government Affairs Director Jason Pavluchuk provided valuable information on the program including background on the program, who is eligible to participate, timing of the program, and how ACT Members can get involved. See more at: <http://www.bestworkplaces.org/web-conferences/webinar-learn-about-us-dots-40-million-smart-cities-challenge>

Methodology for Linking Greenways and Trails with Public Transportation in Florida

This March 3, 2016 transit-related webinar was conducted as part of the CUTR biweekly webcast series (www.cutr.usf.edu/webcasts). This webinar summarized the findings of the report completed by NCTR as described earlier in this report.

Testing Equivalence of Measurements and Application to Certifying APC Data for NTD Reporting

This March 17, 2016 transit-related webinar was conducted as part of the CUTR biweekly webcast series (www.cutr.usf.edu/webcasts). For reporting passenger usage data to the National Transit Database (NTD), the established method is the use of manual ride checks and the emerging method is the use of automatic passenger counters (APC). This webinar introduces a well-established statistical test of equivalence and contrasts it both with simple numerical comparisons and the standard statistical test of differences both conceptually and in a graphical form. It also applies all three tests to APC data from several transit agencies.

Over 100 netconference recordings are now on NCTR's YouTube channel:
<https://www.youtube.com/user/NCTRUCUTR>

Commuter Choice Courses Conducted This Period

| Date | Module | Credits | Participants (Live) | Recording Views | Total Contact Hours |
|--------------|--|-------------|------------------------|--------------------|---------------------------|
| 10/7/2015 | Design Product Strategy: Bicycle and Pedestrian Issues – Part 2 of 3 | 1.0 | 13 | 17 | 30 |
| 10/14/2015 | Design Product Strategy: Bicycle and Pedestrian Issues – Part 3 of 3 | 1.0 | 13 | 13 | 26 |
| 10/21/2015 | Design Product Strategy: Introduction to Parking Management, Part 1 of 2 | 1.0 | 7 | 19 | 26 |
| 10/28/2015 | Design Product Strategy: Introduction to Parking Management, Part 2 of 2 | 1.0 | 8 | 18 | 26 |
| 11/4/2015 | Design Product Strategy: Access Management, Part 1 of 2 | 1.0 | 10 | 15 | 25 |
| 11/12/2015 | Design Product Strategy: Access Management, Part 2 of 2 | 1.0 | 5 | 14 | 19 |
| 11/18/2015 | Design Product Strategy: Strategy: Changing Travel Behavior by Time and Place, Part 1 of 3 | 1.0 | 7 | 18 | 25 |
| 12/2/2015 | Design Product Strategy: Strategy: Changing Travel Behavior by Time and Place, Part 2 of 3 | 1.0 | 7 | 21 | 28 |
| 12/9/2015 | Design Product Strategy: Strategy: Changing Travel Behavior by Time and Place, Part 3 of 3 | 1.0 | 11 | 17 | 28 |
| 2/10/2016 | Determining Program Strategy: Situational Analysis for Establishing Goals and Objectives – Part 1 of 3 | 1.0 | 11 | 111 | 122 |
| 2/17/2016 | Determining Program Strategy: Situational Analysis for Establishing Goals and Objectives – Part 2 of 3 | 1.0 | 13 | 89 | 102 |
| 2/24/2016 | Determining Program Strategy: Situational Analysis for Establishing Goals and Objectives – Part 3 of 3 | 1.0 | 10 | 40 | 50 |
| 3/2/2016 | Assessing Market Situation: Trends and Conditions Affecting Transportation, Part 1 of 3 | 1.0 | 11 | 35 | 46 |
| 3/9/2016 | Assessing Market Situation: Trends and Conditions Affecting Transportation, Part 2 of 3 | 1.0 | 0 Pre-recorded | 71 | 71 |
| 3/16/2016 | Assessing Market Situation: Trends and Conditions Affecting Transportation, Part 3 of 3 | 1.0 | 6 | 19 | 25 |
| 3/23/2016 | Assessing Market Situation: Estimating TDM Societal Costs and Benefits Using TRIMMS, Part 1 of 2 | 1.0 | 8 | 14 | 22 |
| 3/30/2016 | Assessing Market Situation: Estimating TDM Societal Costs and Benefits Using TRIMMS, Part 2 of 2 | 1.0 | 8 | 5 | 13 |
| TOTAL | | 17.0 | 148 | 536 | 684 |

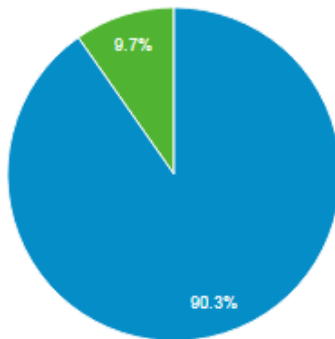
The seventeen commuter choice courses sessions attracted a total of 148 attendees. The courses were recorded and received an additional 536 views. Therefore, we estimate there have been about 684 contact hours. One contact-hour represents one person who attends a 1-hour session.

The National Transit Safety Research and Technical Assistance Center has gained popularity quickly among those looking for the latest in improved transit safety techniques. Project managers continue to actively search for and post transit safety-related notices and informational pieces from FTA, NTSB, TRB, and other organizations. Website Activity for the National Transit Safety Research and Technical Assistance Center remains strong:

Total visits to website during the reporting period: 3,420

New users: 1,483

■ New Visitor ■ Returning Visitor



Most popular pages:

1. Federal Transit Safety Laws and Regulations (220 views)
2. Transit Training (104 views)
3. State Safety Laws and Regulations (260 views)

And a summary of sessions based on the country of origin (“not set” generally means that it was impossible to reliably determine based on IP address/browser settings):

Country of origin and sessions per country:

| Country ? | Acquisition | | |
|---|---|---|---|
| | Sessions ? ↓ | % New Sessions ? | New Users ? |
| | 1,643 % of Total: 100.00% (1,643) | 90.26% Avg for View: 89.23% (1.16%) | 1,483 % of Total: 101.16% (1,466) |
| 1.  United States | 731 (44.49%) | 92.20% | 674 (45.45%) |
| 2. (not set) | 279 (16.98%) | 100.00% | 279 (18.81%) |
| 3.  Russia | 76 (4.63%) | 7.89% | 6 (0.40%) |
| 4.  China | 63 (3.83%) | 95.24% | 60 (4.05%) |
| 5.  Brazil | 60 (3.65%) | 100.00% | 60 (4.05%) |
| 6.  Japan | 39 (2.37%) | 97.44% | 38 (2.56%) |
| 7.  Germany | 36 (2.19%) | 94.44% | 34 (2.29%) |
| 8.  Canada | 25 (1.52%) | 96.00% | 24 (1.62%) |
| 9.  United Kingdom | 25 (1.52%) | 92.00% | 23 (1.55%) |
| 10.  France | 23 (1.40%) | 95.65% | 22 (1.48%) |

Other Accomplishments

- Weekly update to website with industry news, research, and other transit industry and research postings.
- Provided updates on FTA MAP-21 and FAST Act related regulatory progress and activities, including issues related to WMATA, safety standards, and performance measures.
- Continued postings, update, and maintenance of TRB's Task Force on Transit Safety and Security website: www.trbtss.org.
- Developed a brochure for the TRB Task Force on Transit Safety and Security.

The NCTR Transit Safety Research and Technical Assistance Center also contributes significantly to workforce development through the training of practitioners from local transit agencies throughout the state of Florida.

Florida Transit Safety Network

The Florida Transit Safety Network was engaged in dozens of activities managed by NCTR faculty, as listed below.

- Provided general program administration.
- Conducted annual FTSN survey of program performance and training needs.
- Contracted with K & J Consulting for the development of two courses: *How to Conduct an Internal Safety Audit* and *Bus Collision Investigation Short Course*.
- Conducted FTSN New Project Year kick off conference call on November 5, 2015.
- FTSN quarterly meeting held on December 9, 2015 in Jacksonville, Florida.

- Conducted teleconference with FTSN committees and/or chairs including:
 - October 1, 2015, conference call with Colin Mulloy to discuss role as chair of Collisions Committee and assignments for committee
 - October 1, 2015, conference call with FTSN Training Committee
 - October 15, 2015, conference call with Joint FTSN/FON/FTMC 14-90 Committee
 - January 22, 2016, conference call with FTSN Annual Transit Safety Summit Planning Committee
- Communicated with FTSN chairs/co-chairs to offer assistance in scheduling, organizing, and supporting committee meetings.
- Continued the incorporation of State Safety Oversight content to FTSN website.
- Continued maintenance and update of the FTSN website: www.floridatsn.org. This included the addition of a State Safety Oversight tab.
- Maintained new list serve for Florida's fixed guideway transit systems/rail transit agencies.
- Maintained and populated FTSN listserv with upcoming events, reports/research document availability, and other important items of interest.
- Updated FTSN committee list and member and listserv contact information as needed.
- Continued to keep an open line of communication with both the FDOT Program Manager, transit agency personnel, and chairs/co-chairs of FTSN committees.
- Completed the update of the distracted driving computer based training module.
- Developed and submitted FTSN Annual Program Report and submitted to FDOT
- Coordinated travel, logistics, and content delivery for FTSN quarterly meeting.

A listing of the courses taught during this reporting period through the Florida Transit Safety Network, established in partnership with NCTR, FDOT, and the Florida Public Transportation Association is provided below:

| NAME of COURSE | DATE | PARTICIPANTS | HOURS |
|--|----------------------|--------------|--------------|
| Cyber Security in Transit - at FPTA Annual Conference | October 26, 2015 | 34 | 51 |
| Policies, Procedures and Work Rules Best Practices for Transit | November 3-5, 2015 | 12 | 240 |
| Fundamentals of Bus Collision Investigation (FT00435) | November 16-20, 2015 | 25 | 1,000 |
| Effectively Managing Transit Emergencies (FT00456) | December 14-18, 2015 | 24 | 768 |
| Land Transportation Terrorism and Emergency Event Planning | February 9-10, 2016 | 13 | 208 |
| Total | | 74 | 2,267 |

Florida Transit Safety Network – Other Accomplishments

The FTSN program also has a website that attracted 3,365 new users. The most active day on the **FTSN website** drew 124 views. The most active page views are listed below. Visitors to the website represent virtually every state in the United States except Wyoming and Alaska:

- Homepage – 810 views
- Training – 304 views
- Regulations and Standards – 173 views
- FGTS – 115 views
- Links – 51 Views
- Research – 45 views

The most Active Website Posting Views (posts made to the website) were:

- Pre-trip inspections – 323 view
- Posts in the Category: Journal for Public Transportation – 106 views
- 14-90 Training – 89 views
- Request for Proposal: Florida State Safety Oversight (SSO) Program Consultant Support Services – 69 views
- APTA's Webinar with Congressional Staff on the FAST Act (Transit Provisions) – 61 views
- Registration Open: 2016 Triple Crown Roadeo – 60 views

The FTSN also has a very active listserv. During the progress period, there were 165 members of the **FTSN listserv** with 22 members added during the period. There were 296 postings to the listserv during the reporting period.

Transit Maintenance Analysis and Resource Center (TMAARC)

Another program developed jointly by the FDOT, CUTR, and the FPTA is the Transit Maintenance Analysis and Resource Center (TMAARC) which serves as a matching project to the Livability Grant. TMAARC provides transit technicians with quality training and information to facilitate their advancement in the public transit arena. TMAARC has developed into a nationally recognized bus fleet maintenance support resource for public transit agency bus technicians and maintenance managers throughout the state of Florida. Participants not only learn skills to keep up with the rapidly changing technology associated with transit buses, but are also able to earn an AA degree from the Hillsborough County Community College in the process of earning credits through the program. Of course, better maintained buses means more reliable service, improving livability and mobility in the communities served.

TMAARC – Training Courses Offered during this reporting period:

| NAME of COURSE | DATE | PARTICIPANTS | HOURS |
|----------------|------|--------------|-------|
|----------------|------|--------------|-------|

| | | | |
|---|---------------------|-----------|--------------|
| OSHA 501 | October 1, 2015 | 10 | 80 |
| DIM0812 Transit Wheelchair/Lift Technician | October 19-22, 2015 | 15 | 480 |
| DIM0814 Steering & Suspension Technician | January 11-14, 2016 | 15 | 448 |
| DIM0832 Transit Heating & Air Conditioning Technician | February 8-12, 2016 | 11 | 440 |
| DIM0833 Transmission Diagnosis, Rebuild and Repair Technician | March 14-18, 2016 | 11 | 440 |
| Total | | 62 | 1,888 |

Florida Transit Operator Trainer Training Program

The Florida Transit Operator Trainer Training Program is also used as match to the federal UTC grant. The program provides standardized state and federal curriculum training to Florida's transit operator trainers. The program has grown to include a statewide transit operator trainer certificate program as well as an effective and proactive Florida Operations network. It works closely with the USDOT's Transportation Safety Institute to develop and offer transit training. During this reporting period, the following training was provided through this program:

Transit Operator Training Program – Training Courses Offered during this reporting period:

| NAME of COURSE | DATE | PARTICIPANTS | HOURS |
|------------------------------------|------------------------|---------------------|--------------|
| Supervisor Certification (FT00545) | January 11-15, 2016 | 26 | 1,040 |
| Instructors Course (FT00562) | March 28-April 1, 2016 | 18 | 720 |
| Total | | 44 | 1,760 |

The Florida Statewide Transit Technical Assistance and Training Program, a matching project funded by FDOT, was also active as part of the Livability grant with the following activities accomplished:

Task- Administration

- General program administration

Task- Program Marketing

- Monitored and maintained e-mail requests for training and technical assistance
- Coordinated, developed and distribution the monthly "Florida Transit Training" eblast

- Update (delete and add) Florida's public transportation professional's contact information
- Monitored and updated training offerings to CUTR, RTAP, Operator Training, FTSN, and other relevant website

Task- Monitor Training Audience

- Received, processed and filed participant registration forms
- Mailed registration confirmations including training logistics information (start time, end time, directions/maps, parking passes, parking instructions, hotel recommendations, etc)

Task- Development/Implementation

- Continued to keep an open line of communication with both the FDOT Program Manager and the transit agency personnel
- Continued to keep an open line of communication with USDOT Transportation Safety Institute and the National Transit Institute (email/telephone)
- Identified training location, negotiated costs with independent trainers for training courses issuing purchase orders, and approving final invoices

Created full record course file folders for each training which includes a copy of the registration flier, registration forms, attendee list, purchase order, invoice, general correspondence, course evaluations and additional correspondence

Task- Produce Training Materials

- Provided copies of training materials and handouts to participants.

Task- Training Delivery

- Processed and pay training related invoices
- Coordinated and provided training facilities
 - Set up training facilities
 - Hosted the training courses
 - Processed registrations
 - Marketed the courses
 - Provided training technical support to trainers and participants
 - Produced training materials
 - Distributed and reviewed course evaluations
- Courses offered and provided included:
 - Transit Dispatch and Supervisor Training – April 28-29, 2015
 - Transit Dispatch and Supervisor Training – May 19-20, 2015
 - Organizational Dynamics and Career Development within Transit Agencies – June 1, 2015
 - Strategies for Successful Communication Outreach – June 1, 2015
 - State Management Plan – June 2, 2015

Task- Target Results

- Disseminated electronic evaluations to both participants and the instructors
- These evaluations were reviewed by the project managers and kept on file. Evaluation feedback forms were provided to instructors on an as needed basis.

Task- Onsite Technical Support

- Provided audio visual equipment for training courses
- Provided technical support and set up for onsite instructor(s)

Task- Learning Management System

- Manage LMS
- Coordinated with other FDOT training program managers to coordinate the selection of a LMS solution

Task-Technical Assistance Request

- In cooperation with FDOT's Central Office, performed technical assistance by developing a template of a Title VI Plan for FDOT sub-recipients to use in developing their own Title VI Plans
- Performed other technical assistance activities as directed by the FDOT project manager. Activities included support for FDOT District 3 regarding the Franklin County CTC and the development of support activities for Okaloosa County Transit.

GIS in Transit Clearinghouse

As reported in the last six-month PPPR, the GIS in Transit Clearinghouse hosted the 9th National Transit GIS Conference held in Washington, DC on September 1-3, 2015. Over 165 professionals from all over the country and the world registered and attended. All presentations made at the conference are now available on the website.

The Advanced Transit Energy Portal (ATEP):

The Advanced Transit Energy Portal is an online information exchange and clearinghouse resource covering all aspects of adoption and operation of alternative fuel buses. Alternative fuels contribute to improved livability by reducing the amount of carbon released to the atmosphere and often reducing the cost of providing transit, allowing more service to be provided. ATEP was envisioned as a single-point source of theoretical and practical knowledge about transit vehicles with advanced propulsion systems. The website

(www.AdvancedTransitEnergy.org) features articles in the following categories:

- agency news
- industry news
- events
- laws and incentives
- publications

- research results

In addition to article posts, the website also features data collection pages, allowing participating agencies to securely submit their fleet operations and cost data to CUTR for analysis of the field performance of alternative fuel vehicles. A number of Florida transit agencies are submitting their data through the website.

Progress in the past 6 months (Oct 1, 2015 through March 31, 2016) includes:

- Modified upload plug-in allowing for cross-platform use of the upload feature of the website. Previous problem with Internet Explorer compatibility has been solved.
- 47 new posts on the website
- Made a presentation about ATEP and its data collection tool, demonstrating capabilities and encouraging participation, to 22 transit agencies in Florida.
- Continue tracking website hits through Google analytics. Based on the statistics report, over the past 6 months:
 - o the website was viewed 1,690 times by 1,456 users
 - o a total of 2028 page views
 - o 87% of the users were new users while 13% - were returning users
 - o Website visits by country:
 - United States – 31.48%
 - Russia – 20.06%
 - Unknown – 19.23%
 - China – 3.79%
 - United Kingdom – 2.01%

2. How have the results been disseminated?

As noted earlier, the TDM Knowledge Base provided 44,721 answers to questions asked by members of the TDM Listserv, while over 465,000 messages were shared among members. Two editions of the Journal of Public Transportation were published containing 13 papers. Notification of the availability of the two new editions was sent via the Listservs maintained by NCTR/CUTR, reaching over 2,500 transportation professionals. Articles from the Journal were downloaded 23,000 times. Two research reports were completed during this reporting period and posted to the NCTR website. NCTR maintains an alerting service to almost 900 subscribers who ask to be advised when a new report is available.

3. What do you plan to do during the next reporting period to accomplish the goals?

The Editor of the Journal of Public Transportation has provided guidance to prospective authors that the Journal is intending to have more of the papers be understandable to those

practitioners who work in operating transit agencies, commuter assistance programs, and planning agencies. The greater accessibility of the articles may help explain the substantial increases in downloaded papers. A new Journal for Transportation Demand Management will publish its first edition in the next reporting period that should be of particular interest to commuter assistance program managers, transportation planners, and public officials.

We plan to continue implementing the activities that are funded through the federal side of the grant, most particularly the clearinghouses and the research projects, including students on every project. Additional webinars will be conducted featuring the results of NCTR research, as well as other research presentations that can be made by other UTCs. Projects associated with the technical assistance and training programs as described earlier will continue. The federally funded projects to be undertaken by Florida International University and the University of Illinois at Chicago will be officially started. TTI will begin Phase III of the project entitled “Exploring Transit’s Contribution to Livability in Rural Communities: Guidebook and Exercises.”

Work on creating the transit exhibit at the Museum of Science and Industry is on a hiatus as the museum is experiencing severe financial strains and is now anticipating moving from its current location near USF to a location in downtown Tampa. Invitations to compete for NCTR’s Student of the Year will be extended. Efforts to attract new NCTR Scholars for the FY 2016 - 17 academic year will be made for at least two more such students who will work extensively on transit related research efforts in addition to completing their degree requirements. Direct postcards will be sent to Engineering students throughout the country.

2. PRODUCTS: What has the program produced?

Publications are the characteristic product of research projects funded by the UTC Program. OST-R may evaluate what the publications demonstrate about the excellence and significance of the research and the efficacy with which the results are being communicated to colleagues, potential users, and the public, not the number of publications. Many research projects (though not all) develop significant products other than publications. OST-R may assess and report both publications and other products to Congress, communities of interest, and the public.

Instruction - Products

Publications, conference papers, and presentations

As noted above, funds from the Journal of Public Transportation account were utilized to help pay for two editions of the Journal featuring 13 papers submitted from researchers all over the world. Two research reports were advanced during the reporting period: (1) “Linking Transit with Recreational Trails” and (2) the literature search and data gathering were completed for “Exploring Transit’s Contribution to Livability in Rural Communities: Guidebook and Exercises.”

The amount of research done by the faculty at NCTR is significant with 35 full time research faculty members. The engagement they have through their Listservs, clearinghouses, and committee assignments keeps them well informed on a variety of issues in public

transportation and transportation demand management that provides them the opportunity to put together presentations at a variety of state, regional, national, and international meetings where they are well known. The following 22 presentations were made during the reporting period based on research and communications funded through NCTR:

“Regional Models of Cooperation - MPOs Working Together to Achieve a Variety of Planning Objectives,” Association of Metropolitan Planning Organizations, October 2015

“How New Technologies and Autonomous Vehicles May Change Public Transportation,” Florida Public Transportation/Commission for the Transportation Disadvantaged Annual Meeting, October 2015

“Automated and Connected Vehicles: Changing Cities and Travel Behavior,” UCLA 2015 Lake Arrowhead Symposium - Planning for Change from Fragile to Agile, October 2015

“Maintaining Transit Effectiveness under Major Fiscal Constraints,” FPTA/CTD Annual Meeting, October 2015

“Sharing the Ride - Expanding Transit Options in your Community,” FPTA/CTD Annual Meeting, October 2015

“Perceptions of University students to participating in a Car-share Program,” American Public Health Association (APHA), November 2015

“Pedestrian Crossing: Factors Influencing Pedestrian Behavior along a High Crash Corridor,” American Health Association (APHA), November 2015

“Driving the Transportation Planning Process: Essential Information for County Commissioners -- County Commissioners Certification Program, Florida Association of Counties, November 2015

“Transportation Network Companies, the Beginning of Transportation's Transformation,” AUVSI - The Future of Shared Mobility Workshop, December 2015

“The Transportation Problem: Demand Outpaces Supply,” TBARTA Transit Advisory Committee, December 2015

“Technologies are Changing Transportation: The Impacts of Transportation Network Companies,” Tampa's Mayor's Alliance for Persons with Disabilities, December 2015

“Transportation Planning for Electric Vehicles,” Electric Vehicle and Technology Transportation Summit, December 2015

“Multimodal Transportation Best Practices; TRB webinar: Future Directions for Multimodal Research and Practice,” December 2015

“Shifting Travel Demands: From Millennials to Baby Boomers,” TRB Annual Meeting, January 2016

“Long-Distance Trips and Mode Choice in Illinois,” TRB Annual Meeting, January 2016

“Long-Distance Travel for Visiting Friends and Relatives (VFR) and Leisure Purposes: Empirical Analysis and Modeling Framework,” TRB Annual Meeting, January 2016

“Improving Performance and Productivity: Technology Impacts on Paratransit Services in Florida,” TRB Annual Meeting, January 2016

“Safety Effects of Street Illuminance at Urban Signalized Intersections in Florida,” TRB Annual Meeting, January 2016

“Understanding Interactions between Drivers and Pedestrian Features at Signalized Intersections,” TRB Annual Meeting, January 2016

“Extent of Changes in Pedestrian and Bicyclist Attitudes and Behaviors Directly After a Complete Streets Project in Florida,” TRB Annual Meeting 2016

“Automated Transit in Florida,” TRB Annual Meeting, January 2016

“Methodology for Linking Transit with Greenways/Trails,” CUTR webcast, March 2016

1. *Website(s) or other Internet site(s)*

NCTR’s website is now supported by funds from the Livability Grant (rather than the Transit Focused Grant). The website is highly visited by people seeking information on public transit and alternative modes of non-Single Occupant Vehicle transportation. NCTR’s website is now supported by funds from the Livability Grant (rather than the Transit Focused Grant). The website is highly visited by people seeking information on public transit and alternative modes of non-Single Occupant Vehicle transportation. During this six month period there were about 40,400 sessions, 32,400 users, and 71,000 page views. These figures represent increases of between 15 to 22% over the last six month reporting period. The NCTR website is #1 when people query “transit research” while on Google, #2 on Bing and #2 on Yahoo!. TCRP, a program with five times the resources of NCTR, is #1 on Bing and Yahoo!

Transit Automated Vehicle Institute Website – This website will continue to be a resource for research and information related to automated and connected vehicle technology pertaining to

transit to improve safety and performance. It provides published and in-progress research about transit automated vehicles that are relevant to the industry.

The National Transit Safety Research and Technical Assistance Center has grown quickly since the previous reporting period. During this reporting period there were 4,361 visitors.

In addition to managing the NCTR Transit Safety Center website, the program manager, as a member of TRB's Task Force for Transit Safety and Security, developed a website for the Task Force. Labor and expenses associated with this activity are attributed to the Transit Safety Center program. The TRBTSS is active and is being maintained and updated by project staff. The link for the website is: www.trbtss.org.

The Florida Transit Safety Network program also has a website that attracted 3,420 users.

The Advanced Transit Energy Portal website was visited 1,690 times.

To summarize, during the six month reporting period, the websites maintained by NCTR researchers had a total of over 43,000 users.

2. *Technologies or techniques*

The @NCTRUSF Twitter account has 809 followers, an increase of 4% over the last reporting period.

3. *Inventions, patent applications, and/or licenses*

NCTR researchers were awarded [U.S. Patent # 9,130,995 – System and Method for Rendering a Distributed Location-Aware System](#) – A distributed location-aware system that is able to efficiently exchange location data over large geographic areas without requiring a centralized server. This patent was issued September 8, 2015, U.S. Patent and Trademark Office, but not reported in the last six month reporting period, so it is being reported now.

NCTR is proactively seeking new ways to help stakeholders and users further develop patented discoveries for public or private needs. From October to December 2015, a NCTR research team was selected for the NSF I-Corps program to help assess the potential for commercialization of NCTR patent "Travel Assistance Device". The primary goal of the NSF I-Corps is to foster entrepreneurship leading to commercialization of technology that has been supported previously by federally-funded research by combining experience and guidance from established entrepreneurs with a targeted curriculum. The lessons learned are transferable to other patents or products. USF also is an I-Corps Site that provides infrastructure, advice, resources, networking opportunities, training, and modest funding to enable groups to transition their work into the marketplace or into becoming I-Corps Team applicants. NCTR will continue to pursue I-Corps support to foster technology transfer.

4. *Other products*

OneBusAway is an open source platform for real time transit information. NCTR did not create the software but has contributed to its improvements and to helping to disseminate its availability. This software enables a low cost provision of real time information. It is growing in popularity and used by over 400,000 transit passengers in 9 different cities including New York.

| |
|--|
| 3. PARTICIPANTS & COLLABORATING ORGANIZATIONS: Who has been involved? |
| RITA needs to know who has worked on the project to gauge and report performance in promoting partnerships and collaborations. |

Instructions-Participants & Collaborating Organizations

1. *What organizations have been involved as partners?*

As noted earlier, the Texas Transportation Institute finalized phase II of a three phase project during this six month reporting period. USF's other two partners (Florida International University and the University of Illinois at Chicago) have identified the projects they intend to undertake and prepared scopes for those projects which will start in the next reporting period.

The Museum of Science and Industry in Tampa has expressed interest in hosting an educational exhibit to introduce children to public transit but is undergoing a review of its finances and ability to continue in its current capacity and might be a reason the project does not go forward until they move or resolve their budget concerns.

In addition to managing the NCTR Transit Safety Center website, the program manager, as a member of TRB's Task Force for Transit Safety and Security, developed a website for the Task Force. Labor and expenses associated with this activity are attributed to the Transit Safety Center program. The TRBTSS is active and is being maintained and updated by project staff. The link for the website is: www.trbtss.org.

2. *Have other collaborators or contacts been involved?*

NCTR has worked closely with the Association for Commuter Transportation to plan and produce webinars that are hosted by NCTR faculty.

The Florida Public Transportation Association works closely with NCTR faculty in the development and production of the Annual Professional Development Workforce conference that is going to be held on the campus of USF in June 2016.

NCTR works in close cooperation with the Florida Department of Transportation and the Florida Public Transportation Association to administer the many training programs for bus operators,

maintenance technicians, planners, and trainers. All three also work together in providing administrative assistance to the Florida Transit Safety Network, the Florida Transit Planners Network, the Florida Transit Maintenance Network, and the Florida Transit Marketing Network. FDOT provides the funding and oversees the programs that are administered by NCTR faculty at USF.

The Hillsborough County Community College coordinates with the Transit Maintenance Analysis and Resource Center (TMAARC) program that provides transit technicians with quality training and information to facilitate their advancement in the public transit arena. Participants not only learn skills to keep up with the rapidly changing technology associated with transit buses, but are also able to earn an AA degree from the Hillsborough County Community College in the process of earning credits through the program.

NCTR and the Hillsborough Area Regional Transit Authority (HART) worked cooperatively to institute the OneBusAway software to provide transit users with real time information on the arrival time of the next bus at any bus stop.

NCTR and the National Center for Transportation and Communities are jointly funding the project entitled “Impact of BRT on Residential Properties.” In addition, NCTR Director Joel Volinski serves on the Executive Committee of NITC to help identify and select projects for funding, and helps to disseminate information to USF faculty and staff regarding opportunities for funding for curriculum development, a speakers series, and student support.

The USF Sustainable Cities Initiative has selected the City of Palmetto in nearby Manatee County near the USF campus in expectation of that city serving as the first case study for the initiative. This project will involve many dozens of students and faculty members who will work cooperatively with the city to identify issues and develop creative solutions to a variety of public infrastructure issues.

The Community2Go! Pilot of a Community-Based Voluntary Travel Behavior Change Effort project is a pilot project to reduce household vehicle miles of travel in the Tampa Bay area. A community-based social marketing (CBSM) approach is being used to encourage residents to make behavior changes, such as reducing single occupancy vehicle travel, increasing the frequency and distance of walking and bicycling trips, and increasing use of transit. Seventy-two households have been recruited for this project. Members of the participating households will carry a cell-phone enabled with TRAC-IT, a GPS cell phone application developed to record travel behavior, for eight weeks to gauge the effect of receiving the standard information versus the personalized CBTC travel assistance on reducing vehicle miles of travel. Currently, the community-based transportation coordinators (CBTCs) are being trained to work with the households that will be recruited for this project.

Over 240 employers, including private and public entities, participate in the Best Workplace for Commuters program and share their best practices with all members.

Certification maintenance credits (CM) are awarded to members of the American Planning Association (APA) with the American Institute of Certified Planners (AICP) professional credential for those who complete Transportation Demand Management courses offered through NCTR. Offering CM credits has proven to increase participation by providing the added incentive for planners to attend the training. AICP planners must obtain 32 hours of CM credits every two years.

The National Transit Safety Research and Technical Assistance Center works closely with USDOT's Transportation Safety Institute when putting curriculum together for safety training courses, and also work together to certify transit personnel to become safety instructors.

The NCTR Advisory Board is comprised of professionals from TRB, APTA, FPTA, FTA, FDOT, private transit management companies, and private consultants.

4. **IMPACT:** What is the impact of the program? How has it contributed to transportation education, research and technology transfer?

Over the years, this base of knowledge, techniques, people, and infrastructure is drawn upon again and again for application to commercial technology and the economy, to health and safety, to cost-efficient environmental protection, to the solution of social problems, to numerous other aspects of the public welfare, and to other fields of endeavor.

DOT uses this information to assess how the research and education programs:

- increase the body of knowledge and techniques;
- enlarge the pool of people trained to develop that knowledge and techniques or put it to use; and,
- improve the physical, institutional, and information resources that enable those people to get their training and perform their functions.

Impact

This component should describe ways in which the work, findings, and specific products of the program have had an impact during this reporting period. Describe distinctive contributions, major accomplishments, innovations, successes, or any change in practice or behavior that has come about as a result of the program relative to:

1. The development of the principal discipline(s) of the project;
2. Other disciplines;
3. The development of human resources;
4. Physical, institutional, and information resources at the university and/or other partner institution;
5. Technology transfer (include transfer of results to entities in government or industry, adoption of new practices, or instances where research has led to the initiation of a start-up company); or
6. Society beyond science and technology.

1. *What is the impact on the development of the principal discipline(s) of the program?*

NCTR partners have had a long history of transit research and education, which, in addition to its successful track record of producing first rate research, providing leadership in the industry, and graduating students who contribute to the transportation field, was no doubt part of the reason it was selected for the UTC grant. Consequently, the grant does not necessarily

contribute to the *development* of the disciplines of the program, but the resources of the grant allow NCTR to retain its place as an important resource to the public transportation industry and to the communities it serves. Without the UTC grant, many of the programs would need to shut down.

2. *What is the impact on other disciplines?*

NCTR, with its 35-member full time research faculty, has long been populated with a variety of disciplines including but not limited to civil engineering, urban planning, computer science, geography, public administration, economics, mathematics, and anthropology. In addition, NCTR faculty have worked with other disciplines at the university when their talents can add to the value of a research project. As noted in the previous question, the UTC grant does not necessarily impact other disciplines, but it does allow the faculty with such multiple disciplines to be able to apply their skills to a variety of transportation challenges.

3. *What is the impact on the development of transportation workforce development?*

NCTR, in partnership with the Florida Department of Transportation, the Florida Public Transportation Association, the Association for Commuter Transportation, and TRB excel in providing training to practicing professionals at a variety of levels, and very possibly at levels higher than any other UTC in the country. A summary of the information provided from pages 14 to 21 demonstrates the long reach of NCTR's training efforts to improve the capabilities of the current workforce:

| Program | Participants | Contact Hours |
|------------------------------------|--------------|---------------|
| Commuter Choice Training | 148 | 684 |
| Social Marketing in Transportation | 155 | 392 |
| Florida Transit Safety Network | 72 | 2,667 |
| Transit Maintenance AARC | 74 | 1,888 |
| Transit Operator Trainer Program | 44 | 1,760 |
| TOTAL Training | 493 | 7,391 |

In addition to the direct training received at the venues noted above, NCTR faculty made 22 other presentations at state, regional, national, and international professional conferences. Estimating an average of 40 attendees in each session where presentations were made, another 880 transportation professionals benefitted from research findings presented by NCTR faculty. Finally, NCTR and CUTR produce webinars on a bi-weekly basis (less frequently during major holidays) that features the results of transit research and program technical assistance. An average of 40 people attend the webinars on a live basis, and a bit more view the webinar on a recorded basis. Hence, an additional 800 transportation professionals were able to increase their knowledge of various transportation issues through the webinars offered by CUTR/NCTR.

4. *What is the impact on physical, institutional, and information resources at the university or other partner institutions?*

The University of South Florida is now helping to publish the Journal of Public Transportation through its Scholar Commons program. This will help NCTR staff keep better track of usage and downloads. Other than that, the UTC grant is used for policy research and software application development, none of which have required testing of materials, laboratory work, or new physical, institutional, or information resources.

5. *What is the impact on technology transfer?*

The publishing of two editions of the Journal of Public Transportation was supported with funds from this Livability grant. Individual articles and full text issues were downloaded over 23,400 times. The grant also supports the administration and maintenance of the various Listservs listed on pages 10 and 11 that allow the exchange of information among over 6,500 transportation professionals in the areas of transportation demand management, safety, etc. With over 465,000 messages being exchanged via the Listservs, it is clear the grant supports an incredible amount of transfer of knowledge among practicing professionals, university researchers, and students.

6. *What is the impact on society beyond science and technology?*

The Hillsborough County, Florida MPO submitted a proposal to hire a consultant for the NW Hillsborough Transit Study that will be looking at fixed guideway opportunities and transit oriented development. NCTR's recently completed study is cited in the proposal: "The consultant will also perform an evaluation of the '*Methodology for Linking Greenways and Trails with Public Transportation in Florida*,' (National Center for Transit Research, February 2016) for recommendations of better interconnectivity between transit and greenways/trails." In March, Greg Waidley of CTC & Associates had contacted NCTR on behalf of Caltrans regarding determining the expected impact of access investments other than vehicle parking. He mentioned this report as well.

Clearly it is hoped that efforts to encourage the use of transit and alternative and active modes of transportation results in the reduction of congestion and air pollution. The information collected and shared helps transit agencies to be more efficient and safe in their provision of service, while information on alternative fuels helps reduce the costs of transit as well as its carbon footprint, resulting in cleaner air to breathe and a small step toward slowing global warming. The training that is offered through direct courses taught through NCTR enables practitioners in the field to perform their functions more efficiently and effectively, resulting in better quality of service to the public. The research report on linking transit to recreational areas helps the health and welfare, particularly of lower income communities with fewer mobility options to reach these public recreation areas.

5. CHANGES/PROBLEMS

The grantee is required to obtain prior written approval from the OST-R grants official whenever there are significant changes in the project or its direction. See agency specific instructions for submission of these requests. If not previously reported in writing, provide the following additional information, if applicable:

- Changes in approach and reasons for change
- Actual or anticipated problems or delays and actions or plans to resolve them.
- Changes that have a significant impact on expenditures.
- Significant changes in use or care of animals, human subjects, and/or biohazards

Changes/Problems

If not previously reported in writing to OST-R through other mechanisms, provide the following additional information or state, "Nothing to Report, if applicable:

1. *Changes in approach and reasons for change*

Nothing to report, no changes to this point

2. *Actual or anticipated problems or delays and actions or plans to resolve them*

There was a delay in beginning certain projects, but only because the transit-focused grant, which was approved two years earlier, is still very much open and is funding the activities being undertaken at USF and its partners. However, no problems are anticipated in completing the work of the grant by the end date.

3. *Changes that have a significant impact on expenditures*

Nothing to report

4. *Significant changes in use or care of human subjects, vertebrate animals, and/or biohazards*

Nothing to report, and no anticipation of the need to report in the future since no projects will be dealing with these subjects.

5. *Change of primary performance site location from that originally proposed*

There is nothing to report, and no anticipation of the need for any change to the primary performance site(s) identified in the proposal.

Additional information regarding Products and Impacts

UTCs are encouraged to consider identifying program results by outputs, outcomes or impacts as suggested by the

examples below. Impacts should be linked to National goals expressed in the Secretary's Strategic Goals.

Only a few research projects have been completed. We believe the report dealing with Linking Transit to Recreational will help communities find ways to make lower income communities more livable by providing greater access to public recreation areas. The Evaluation of the HART MetroRapid BRT has identified its performance characteristics and opportunities for improvement which HART can now take into consideration for implementation, providing a more attractive service for people to consider using. The GIS in Transit Conference provided 160 attendees to learn new ways to utilize GIS capabilities to improve the planning of transit service and better ways to track agency inventory, among many other things. All of the presentations from the conference are now available on the website. The impacts of the training offered through the TDM program and other transit safety programs will result in less congestion, reduced pollution, fewer accidents, and equipment that can be kept in service for the maximum amount of years, thereby reducing capital costs for transit systems.

6. SPECIAL REPORTING REQUIREMENTS

Respond to any special reporting requirements specified in the award terms and conditions, as well as any award specific reporting requirements.

Nothing to report