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Livable Communities UTC - April 1, 2017–September 30, 2017

NCTR

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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

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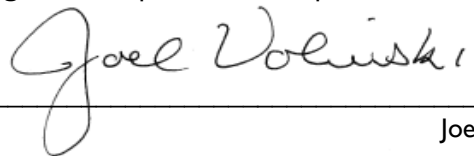
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Reporting Period: April 1, 2016 – September 30, 2017, Sixth 6-Month Progress Report

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 PPR for NCTR's Livability UTC grant, covering the period from April 1, 2017 to September 30, 2017, represents the eighth six-month report. Substantial work has been done 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 these transportation modes as prerequisites to communities being safe, livable, and more equitable. 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 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 almost 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 later is this PPPR. Another significant workforce development initiative funded through the grant is the NCTR Graduate Assistant Research Program (NCTR Scholars). NCTR has funded 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.

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 establishing 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 10,000 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 and private sector companies held in Washington, D.C.
- Dozens of 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 overlapped a very active transit-focused UTC grant that was awarded in 2012 and was closed in May of 2017, but activity associated with the Livability grant is in full swing. Projects on the federal side of the budget have been established for USF, Texas A&M, FIU, and UIC as listed below:

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 of Research Results

Journal of Public Transportation - Publishing of the Journal of Public Transportation is now in its 20th year, supported through the years by various UTC grants and during this reporting period by the UTC Livability Grant, as another successful knowledge sharing/technology transfer project. One edition of the Journal of Public Transportation was produced and released during this reporting period (20.2). Eight peer-reviewed and professionally edited papers were included in this edition. Due to fiscal constraints, the *Journal of Public Transportation* temporarily suspended the acceptance of submissions. A special issue on the future of public transportation is planned for release in November that will feature 12 papers from some of the best thought-leaders in the transit field. Another regular edition is ready to be published in December that will have eight papers that have been edited and peer reviewed. Since March 2015 the Journal has been produced only in digital form. ScholarCommons page (host of NCTR's Journal of Public Transportation) had nearly 27,000 downloads of the 476 papers that have been published. Since the Journal was moved to ScholarCommons in late 2015, over 130,000 papers have been downloaded. The papers published in the Journal of Public Transportation have now been cited 8,963 times according to Google Scholars. Regrettably, with USF not being selected to receive a UTC grant in the most recent competition, a new way will need to be found to publish the Journal in the future. Funding commitments have been received from two other UTCs, with two others considering also supporting the costs associated with the Journal in the future.

NCTR also started the process of publishing a new journal entitled the "Journal of Transportation Demand Management Research." NCTR is expecting to publish the initial volume of the "Journal of Transportation Demand Management Research" by early 2018. A member of the NCTR Advisory Board has volunteered to serve as the editor of this new journal. This will have a similar format to the JPT and the intent is to produce semi-annual issues with at least four papers each.

In addition to the ongoing projects funded through NCTR noted above, a number of research projects have been established or completed using federal funding. Research projects completed include:

Evaluation of HART MetroRapid BRT - completed in August 2015. It is a limited scope evaluation of the MetroRapid's first two years of operation in the Tampa, Florida area.

Evaluation of Automated Vehicle Technology for Transit – completed April 2016 as an update to a report completed in 2014. This project was supplemented with funds made available by FTA through the National Bus Rapid Transit Institute at USF. The purpose of this report was to provide an overview of the state of automated vehicle (AV) technology in transit.

Capturing the Benefits of Complete Streets – Completed December 2015. 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). Findings indicated that, despite the recent economic downturn, the Complete Streets projects

performed well, demonstrating enhanced economic activity, often outperforming other nearby areas and their cities as a whole.

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. The project was completed during the reporting period and published by the National Institute for Transportation and Communities which served as the lead UTC for this project, but was jointly funded with NCTR.

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. This project is being done as part of Dr. Victoria Perk's dissertation. The dissertation has been completed and accepted and the technical NCTR report will be completed in the next reporting period and posted to the NCTR website.

Regional Transit Service Integration – This project by the University of Illinois at Chicago 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. It will be completed in the next reporting period.

Exploring Transit's Contribution to Livability in Rural Communities: Guidebook and Exercises – The TTI-led study *Rural Transit's Contribution to Livability in Rural Communities* consists of three phases.

Phase 1 was completed on-time May 31, 2015 and consisted of literature review and a pilot community case study of West Columbia, Texas. Lessons learned in Phase 1 were employed to develop a refined method for additional outreach in Phase 2. Phase 2 is now complete and consists primarily of additional community case studies. TTI completed data collection for all three case studies (including stakeholder interview and household survey elements). TTI-led additional case studies included Woodburn, Oregon; Hannibal, Missouri; and Bath, Maine. City management in each community helped to arrange stakeholder interviews and provided a local "eye" on survey question wording. Between 10 and 12 stakeholder interviews were conducted in each community. Survey response rates were strong; statistically valid samples at 95% confidence interval and 5% margin-of-error were collected in each community. North Dakota

State University (NDSU) is informally partnered on the project and completed statistically valid surveys in Valley City and Dickinson, North Dakota. Phase 2 work in terms of data processing, documentation, and dissemination of findings and was completed during this reporting period, while Phase 3 starts in earnest and is scheduled for completion by December 2017.

Phase 3 is the capstone of the study. Researchers are in the process of conducting a national survey concerning livability and transit in both urban and rural contexts. The research team for the survey will continue to include TTI, TAMU, and NDSU (informally allied work). The national survey will generate statistically valid surveys for the four regions and nine Census-recognized divisions of the United States. Findings from all phases will be woven together in a final research report to be completed in the next reporting period, with accompanying outreach tools, webinar(s), and conference presentations.

Safe and Accessible Pedestrian Facilities Inventory Model (SAPFIM): Planning, Design, and Development – The main objective of this scope of work is to design a web-based software application that local agencies can use for the collection, storage, querying, analysis, and reporting of pedestrian facilities like sidewalks along public roads. It will include accessible and safety features associated with sidewalks, curb ramps, and roadway crossings. Data can be collected in the field using wireless devices which can be uploaded directly into the web server. To achieve this, the FIU research team proposes a series of work tasks that include developing a work plan, conducting a literature review, and planning and designing the software tool. The research team has completed most of the tasks outlined in the scope of work (Task 1: Project Work Plan; Task 2: Literature Review; Task 3: Pedestrian Facilities Data; Task 4: Design of SAPFIM). The project is expected to be finished 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. A final report was accepted by the sponsor (FDOT) in February 2016.

Improving Access to Transit Through Crowdsourced Information - The purpose of this research (previously titled “Improving Safe Access to Transit through Trip Planning”) was to facilitate the ongoing collection of information from the public about potential areas of multimodal service and infrastructure improvements and easily share these problems with transit agencies, departments of transportation, and city and county governments. The research team implemented open-source software that leveraged the Open311 issue-reporting standard to capture various types of data from actual users of public transportation via the OneBusAway mobile app, a real-time transit information system. The final report for this project was accepted by FDOT. Lessons learned from regional collaboration surrounding issue reporting and infrastructure improvements are documented in the final report, as are the technical design and challenges behind implementing such a system. The results of six months of system deployment in Hillsborough and Pinellas Counties are presented, including specific examples of

cross-jurisdictional and multimodal issues reported by the public. Using this crowd-sourced data and issue management tools, transit agencies, departments of transportation, and city and county governments will be able to better target improvements to bike, pedestrian, and transit infrastructure.

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. The project was expected to be completed by 2017, but the project team needs to adjust its approach as the technology has proven unreliable due to changes in flip phone hardware and software. The project team is also working on revisions to IRB protocol associated with the project. The project will now be completed in 2018.

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 develop transportation solutions in communities across the country and are often more valuable than research reports. They also help to organize information so that it is readily available to people who are seeking information on a variety of issues dealing with transit and alternative forms of transportation. The TDM and Telework Clearinghouse is highly active and extensively used in the transportation industry. 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.

NCTR provides technical assistance using a range of methods from fostering self-service to short-term on-site support. NCTR hosts 21 listservs supported by the Livability grant. These listservs had 10,076 subscribers through September 30, 2017.

Online TDM knowledge base. The Clearinghouse's online TDM knowledge base (KB) provides an intelligent self-service option for 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. The objective is to be more cost-effective by providing lower cost transactions with the KB's self-service feature. This reporting

period had 318 searches and 43,000 answers viewed. With the discontinuance of funding from the UTC program, this feature will no longer be supported in the future.

On-demand short-term technical support and limited on-site technical assistance. The National TDM and Telework Clearinghouse also engages in a multitude of technical support activities, including interactions with the Association for Commuter Transportation and participants in the Best Workplace for Commuter program, requests for assistance from commuter assistance programs, transit agencies, state departments of transportation, regional planning councils, the media, and others on a range of topics from bike programs, to effective TDM strategies, effective carpool programs, and transit marketing techniques. Best Workplaces for Commuters Best Workplace for Commuters™ (BWC) provides qualified employers with national recognition for offering outstanding commuter benefits, such as free or low cost bus passes. Employers that meet the national standard of excellence in commuter benefits are eligible to be designated a Best Workplace for Commuters. Best Workplace for Commuters is a program designed to encourage sustainable transportation innovation. During this reporting period, A full list of BWC's 231 members is shown on the BWC website at www.bestworkplaces.org

TDM Professional Development and Organizational Learning

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. Courses cover subjects such as bicycle and pedestrian issues, parking management, changing travel behavior by time and place, trends and conditions affecting transportation, TDM societal costs and benefits, commuter tax benefits, how to market TDM to employers, travel choices and public health, and creating vanpool and carpool programs. In the past six months the Commuter Choice Certificate and Social Marketing in Transportation Certificate attracted a total of 235 attendees. The courses were recorded and received an additional 613 views. Therefore, we estimate there have been approximately 1,312 contact hours of training. One contact-hour represents one person who attends a 1-hour session.

Netconferences

The following nine netconferences were conducted this reporting period, with over 700 people who either watched live or via a recording:

- The New Commute: Employers Leading the Way - September 20, 2017
- Importance of Efficient Ground Transportation Access to Airports - August 31, 2017

- 2017 Emergency Ride Home Survey Results and How to Get on the 2018 BWC List Release - August 24, 2017
- TCRP Synthesis 126: Successful Practices and Training Initiatives to Reduce Bus Accidents and Incidents at Transit Agencies - August 17, 2017
- Benefits of Open-source Software to Transit Agencies - May 25, 2017
- Gendered Intersections: Public Administrators' Views of Gender & Its Role in Transportation Decisionmaking - May 11, 2017
- Integrating Equity into Regional Transportation Planning - April 27, 2017
- Shared Employer Shuttles: Sharing the Road and the Savings - April 25, 2017
- Safety Effects of Street Illuminance on Urban Roadways - April 13, 2017

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 with over 3,000 visits made to the site. The most popular pages viewed were Federal transit safety laws and regulation, transit training, and research.

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. All listservs were "moved" to an on campus server in January which helped attract new users.

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. The contact hour/participant totals for our training programs for the reporting period are provided in the following paragraphs.

Florida Transit Safety Network

The Florida Transit Safety Network engages in dozens of activities managed by NCTR faculty such as conducting teleconferences with FTSN committees or chairs, incorporating Florida State Safety Oversight content to the FTSN website, maintaining the www.floridatsn.org website, maintaining and populating the FTSN Listserv, and coordinating travel, logistics, and content delivery for FTSN quarterly meetings.

The FTSN program also has a website that has attracted 2,500 users. The FTSN also has a very active listserv.

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. 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. Training courses offered during the six-month reporting period were attended by 47 transit maintenance personnel for a total of 1,504 contact hours.

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. Training courses offered during the reporting period were attended by 124 transit operations personnel for a total of 3,616 contact hours.

The Florida Statewide Transit Technical Assistance and Training Program, a matching project funded by FDOT,

was also active as part of the Livability grant that generates and provides assistance in the areas of producing training materials, coordinating the logistics for training programs, creating full record course file folders for each training which includes a copy of the registration flier, arranging yet additional training, conducting course evaluations, and other actions as requested by either transit agencies in Florida or the Florida DOT. Training courses offered during the six-month reporting period were attended by 140 transit agency personnel for a total of 1,180 contact hours.

GIS in Transit Clearinghouse

The biannual Transit GIS conference planning conference was held in Washington, D.C. from September 6th through September 8th, 2017. Over 60 presentations and three pre-conference workshops were offered. There were 158 attendees at the conference from a number of continents to share their questions and information, making the conference that much more valuable to attendees. In addition, the Clearinghouse continues to post information on new GIS applications in transit and offers a forum for information exchange among GIS professionals. It is likely that with the loss of the UTC grant, this was the last conference of its kind.

The Advanced Transit Energy Portal (ATEP):

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 a data collection page, allowing participating agencies to securely submit their fleet operations and cost data to CUTR for analysis of the field performance of alternative fuel vehicles.

2. How have the results been disseminated?

The TDM Knowledge Base provided 43,000 answers to questions asked by members of the TDM Listserv. One edition of the Journal of Public Transportation was published containing 8 papers. Notification of the availability of the new edition was sent via the appropriate Listservs maintained by NCTR/CUTR, reaching over 2,600 transportation professionals. Articles from the Journal were downloaded 27,000 times. Three research reports were completed during this reporting period and posted to the NCTR website. NCTR maintains an alerting service to almost 2,000 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?

A new Journal for Transportation Demand Management is nearing its first published edition which is expected to be available in the next reporting period. 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 (two per month) 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 FIU and UIC will be nearing completion. TTI will finish Phase III of the project entitled "Exploring Transit's Contribution to Livability in Rural Communities: Guidebook and Exercises."

USF will complete its peer review process of scopes for potential funding with third year grant funds. Twenty-five research professionals and operational professionals will complete their review of 16 proposals, rate the scopes, and offer comments on how the project might be

improved. The selection process for up to seven new projects will be complete by November 2017.

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.

An NCTR Student of the Year for 2017 will be selected in October and the selected student will be assisted with making plans to attend the TRB Annual Meeting and the CUTC Annual Awards Banquet in January 2018.

A special edition of the Journal of Public Transportation on the Future of Public Transit will be produced in November, coincident with a Valedictory presentation by NCTR Director Joel Volinski who will be retiring from USF. Another regular edition of the Journal of Public Transportation will be published in December featuring 8 peer reviewed papers.

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 one edition of the Journal featuring 8 papers submitted from public transit researchers all over the world. Two research reports were completed during the reporting period through the Livability grant.

The amount of research done by the faculty at NCTR is significant with 40 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. Faculty members of NCTR made 7 presentations at professional conferences across the country, including the American Public Transportation Association Bus and Paratransit Conference in Reno, Nevada and the Florida Public Transportation Association Annual Professional Development Workshop in Tampa, Florida.

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

NCTR's website is highly visited by people seeking information on public transit and other modes of non-Single Occupant Vehicle transportation. During this six month period there were about 32,000 sessions (down 16% from previous six months), 25,000 users (-14%), and 53,000 page views (-19%). When people query "transit research", NCTR's website is the top listing on Google, Yahoo!, and #3 on Bing (behind TRB and World Transit Research).

The National Transit Safety Research and Technical Assistance Center website reports having 941 visitors during this reporting period. The site serves as both a resource for the industry, as well as for CUTR's FTA Transit Standards Working Group, an independent stakeholder body that provides input and support to CUTR's project team for FTA's Safety Standards Strategic Plan and standards development activities. 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 and is maintaining a website for the Task Force (www.trbtss.org.)

The Florida Transit Safety Network program also has a website that attracted 2,500 users. The Advanced Transit Energy Portal website was visited over 320 times during this reporting period.

To summarize, during the six month reporting period, the websites maintained by NCTR researchers had a total of 28,761 users.

2. Technologies or techniques

The @NCTRUSF Twitter account that had 909 followers was changed to shift all communications to @CUTRUSF. Although the change was posted for 10 days advising @NCTRUSF followers of the move and encouraging them to follow @CUTRUSF, the change apparently has resulted in fewer followers (494). It is hoped that traffic will pick up as more projects are completed and more messages are sent out informing followers of valuable information.

3. Inventions, patent applications, and/or licenses

No patents were issued based on NCTR research. However, USF remains in the top 15 universities worldwide for receiving patents with 16 granted for work funded through NCTR. NCTR continues to work with NSF I-Corps 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.

4. *Other products*

OneBusAway is an open source platform for real time transit information. NCTR did not create the software but continues to contribute to its improvements and to helping 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 10 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?*

Texas A&M is about to start the final phase of their three phase research project on rural livability. USF's other two consortium partners (Florida International University and the University of Illinois at Chicago) have begun their research projects.

The Museum of Science and Industry in Tampa 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 and it is likely the project will not go forward since USF was not awarded a UTC in the last competition.

As noted earlier, the NCTR Transit Safety Center program manager, as a member of TRB's Task Force for Transit Safety and Security, developed a website (www.trbtss.org) for the Task Force.

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 and to plan their conference programs.

The Florida Public Transportation Association works closely with NCTR faculty in the development and production of the Annual Professional Development Workforce conference that was held on the campus of USF in June 2017.

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.

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 bus technology, but can also earn an AA degree from Hillsborough County Community College in the process of earning program credits.

NCTR and the Hillsborough Area Regional Transit Authority (HART) work cooperatively to institute and improve the OneBusAway software to provide transit users with real time information on the arrival time of the next bus at any bus stop. Other transit agencies in Florida have expressed interest in using this software after seeing the success in Tampa.

NCTR and the National Center for Transportation and Communities jointly funded the project entitled "Impact of BRT on Residential Properties." In addition, NCTR Director Joel Volinski served 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 selected the City of Palmetto in Manatee County near USF which served as the first case study for the initiative. This project involves many dozens of students and faculty members who are working 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.

Two hundred and thirty one (231) employers, including private and public entities from all over the country, 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 by NCTR. Offering CM credits increases participation by providing the incentive for planners to attend the training. AICP planners must obtain 32 hours of CM credits every two years.

A number of agencies are working with FIU for its project on pedestrian facility inventory including FDOT District #6, the FHWA Florida Division, and the Broward County MPO.

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 (over 25 years) of transit research and education, which, in addition to their 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 remain an important resource to the public transit industry and the public.

What is the impact on other disciplines?

NCTR, with its 40-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 member universities 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.

2. *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 impact of training to improve the skills of the current workforce is provided below:

Program	Participants	Contact Hours
Commuter Choice Training	235	1,312
Technical Assistance and Training Program	160	1,108
Transit Maintenance AARC	47	1,504
Transit Operator Trainer Program	124	3,616
TOTAL Training	566	7,540

In addition to the direct training received at the venues noted above, NCTR faculty made seven other presentations at state, regional, and national professional conferences. Estimating an average of 40 attendees in each session where presentations were made, another 280 transportation professionals benefitted from research findings presented by NCTR faculty. Finally, NCTR and CUTR produce webinars on a bi-weekly basis that feature 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 700 transportation professionals were able to increase their knowledge of various transportation issues through the webinars offered by CUTR/NCTR.

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

Nothing to report

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

The publishing of one edition of the Journal of Public Transportation was supported with funds from this Livability grant. Individual articles and full text issues were downloaded over 27,000

times. The grant also supports the administration and maintenance of the various Listservs that allow the exchange of information among over 10,000 transportation professionals in the areas of transportation demand management, safety, etc., resulting in an incredible amount of transfer of knowledge among practicing professionals, university researchers, and students.

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

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

Changes/Problems

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*

Nothing to report

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*

Nothing to report.

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.

While only two research projects were completed during this reporting period, we anticipate over a half-dozen will be started in the next reporting period. 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

Nothing to report