Statement of Work
FTA Standards Development Research Program Project:
Procuring and Maintaining Battery Electric Buses and Charging Systems

Proposal submitted by:
Center for Urban Transportation Research at the University of South Florida
4202 East Fowler Avenue
Tampa, Florida 33620

January 5, 2021

FTA Standards Research Program Project: *Procuring and Maintaining Battery Electric Buses and Charging Systems*

Introduction

The Federal Transit Administration (FTA) entered into a Cooperative Agreement with the Center for Urban Transportation Research (CUTR) at the University of South Florida to research areas of transit mobility, infrastructure and safety, identify existing standards and recommended practices to address those areas, and perform gap analyses to establish the need for additional standards, guidance, or recommended practices to support and further the efficient and safe operation of the nation's public transportation industry. In addition, CUTR has been directed to work with standards development organizations (SDOs) and industry stakeholders to develop or modify existing standards to address these gaps.

This statement of work (SOW) for the FTA Standards Research Program project: *Procuring and Maintaining Battery Electric Buses and Charging Systems* has been developed in accordance with FTA's *Standards Development Program Framework*, which includes the activities indicated above and further described in this SOW.

FTA Standards Development Research Program

FTA's Standards Development Research Program (SDP) was established to:

- Address transit mobility, infrastructure and safety-related standards
- Conduct background research and analysis
    - Determine need for new transit standards in areas where standards are lacking or where there are gaps within existing standards
    - Identify existing standards deemed not adequate or not specific to transit that may be modified or enhanced for public transportation
- Work with industry stakeholders or working groups to inform the standard development process, including associated transit safety research reports
- Work with SDOs, such as the American Public Transportation Association (APTA), to develop guidance documents, standards or recommended practices for industry voluntary adoption

Standards Development Program Framework

FTA's SDP is performed in accordance with the structure presented in the *FTA Standards Development Program Framework*. In the development of transit safety standards, the focus is on those areas of greatest risk to the transit industry, as illustrated through the comprehensive collection and analysis of transit safety data, demonstrated through transit safety research,

identified through accident investigation reports and by industry stakeholders, and established focus areas identified in the Safety Standards Research Report. It also is driven by FTA strategic priorities that may include topics associated with leading safety-related indicators or legislative mandates.

This research project: "*Procuring and Maintaining Battery Electric Buses and Charging Systems"* is consistent with the safety research needs identified in the *Safety Standards Research Report*, supports FTA's research goals and initiatives, and will include the identification of safety standards, protocols, and recommended practices that may serve to further FTA's transit safety mission.

Project Objectives

The primary objective of this project is to perform research to identify the best practices for procuring and maintaining electric buses and charging systems to improve transit safety. The research outcomes include the identification of areas for standards development, and the development or modification of existing relevant standards, including procurement specifications, other procurement documents, and maintenance standards and guidelines for transit buses powered through electric propulsion and associated charging infrastructure. This project will be performed with significant industry stakeholder participation and SDOs, such as APTA. While this scope of work does not include an evaluation of processes and procedures associated with battery electric buses, the outcome of this examination may include findings that support the further review, demonstration, and/or testing of processes, procedures, or technologies that may be implemented to ensure electric buses are maintained in a safe and effective manner.

As discussed, this scope of work reflects a close association and interaction between FTA TRI, other FTA offices and other U.S. DOT modal administrations, such as the National Highway Traffic Safety Administration (NHTSA) or other Federal offices, such as the Occupational Safety and Health Administration (OSHA). The tasks included in this scope will provide the basis for initiating and completing this topic area research and the subsequent development and/or issuance of voluntary standards, recommended practices, guidance documents, processes or protocols to improve transit safety.

Project Description

This project will be conducted according to the tasks defined in this section and in accordance with and under the direction of FTA TRI. The FTA *Standards Development Program Framework* will be used to guide the research process and all associated activities. The work will be performed with a team comprised of researchers from the Center for Urban Transportation Research (CUTR). The project team will engage CUTR's Transit Standards Working Group, industry stakeholders, and APTA, including its Standards Program Battery Electric Bus Subcommittee, and other SDOs (as required), as further described in Subtask 1.4. The outcomes of this project will include three technical memoranda, the construct of which will be based on

extensive interaction with transit agencies that have recently procured battery electric buses and charging systems, APTA, and members of its Standards Program Battery Electric Bus Subcommittee.

1. Technical Memorandum #1: Procurement Guidance for Battery Electric Buses – this guidance will establish what should be included in the procurements associated with technical, evaluation, and after-the-sell elements. It will include information from APTA's Best Practices Procurement Manual and recently developed BEB sections (although content will not be confined to the approach or illustrated topics within this document). It will provide recommendations on what agencies should examine, considerations that must be made during the development, issuance, and award of battery electric bus procurement. Recommendations will include considerations of various operational profiles such as range degradation, power requirement, peak charging cost, charging speed, weather/terrain impact on estimated range, type of charging (opportunity charging and/or fast charging at end point/maintenance yard, etc.), power outage backup, and how those operational profiles change in relation to the BEB fleet size.

   In addition, we will learn from those who have gone through these processes and delineate elements that were missing in recent agency procurements (addressing "I wish we would have known…" or "we should have included…" and "if only we had known and understood the complexities of establishing agreements with local utility providers," as examples).

2. Technical Memorandum #2: Procurement Guidance for Charging Stations Associated with Battery Electric Buses – this guidance will establish what should be included in the procurements associated with technical, evaluation, and after-the-sell elements. It will include information from APTA's Best Practices Procurement Manual and recently developed BEB sections (although content will not be confined to the approach or illustrated topics within this document). It will provide recommendations on what agencies should examine, considerations that must be made during the development, issuance, and award of battery electric bus charging station system procurement. Recommendations will include considerations of operational profiles such as range degradation, power requirement, peak charging cost, charging speed, weather/terrain impact on estimated range, type of charging (opportunity charging and/or fast charging at end point/maintenance yard, etc.), power outage backup, and how those operational profiles change in relation to charging facilities.

3. Technical Memorandum #3: Maintenance Guidance – maintainer qualifications, minimum training needed, safety implications, accidents that have occurred and how agencies have mitigated those risks, as examples. This guidance will include specifically delineated recommended minimum training content, including on-the-job (OJT) training elements, for the maintenance of battery electric buses and associated charging systems.

Task 1: Perform Topic Area Research

Consistency in method and presentation is an important element in a formal research program structure. Research reports must effectively and consistently communicate research findings and associated recommendations. The research team will utilize the SDP background research report template included in the FTA Standards Development Program Framework that reflects the following minimum elements that focus on the topic of "Procuring and Maintaining Electric Buses and Charging Systems":

- Literature review summary
- Identification of existing standards, recommended practices, guidance documents associated with the procurement or maintenance of battery electric buses and charging systems
- Identification of needs and gaps for new voluntary standards, guidance documents, or other resources
- Identification of any existing standards, guidelines, or other industry technical assistance documents that would need to be modified or enhanced
- Identification and description of SDO coordination during research report development and in implementation options
- Research findings and corresponding recommendations
- "Implementation of Research Findings" addendum

Subtask 1.1: Literature Review and Background Research

An FTA-directed SDP project team will perform a literature review and conduct background research on procuring and maintaining battery electric buses and charging stations to inform and further subsequent tasks. These literature review sources may include, but not be limited to:

- Relevant FTA internal or external strategic research plan/direction documents
- Research reports issued by:
    - FTA TRI Zero Emission Bus Evaluation Results reports
    - FTA Bus Test Reports - Altoona Testing and Lo-No Emission Testing
    - Other FTA TRI research reports and program planning documents
    - TRB and its Cooperative Research Programs
    - TRB's Innovations Deserving Exploratory Analysis (IDEA) program
    - U.S. DOT University Transportation Centers (UTC)
    - Other research bodies (including state departments of transportation)
    - Reports released by USDOT's Intelligent Transportation Systems Joint Program Office (ITS JPO)
    - Relevant reports issued by Volpe
- Voluntary consensus standards or guidance documents or model practices used by or with relevance to the U.S. transit industry, including those developed by the American

Public Transportation Association (APTA), as an example. This will include relevant APTA standards and recommended practices in development, including the Battery Electric Bus elements to APTA's Best Practices Procurement Manual and BEB familiarization training.

At a minimum, the background research and examination will also include:

- Related Federal transportation laws or regulations (e.g., Title 49, Chapter V, Part 571, Subpart B - Federal Motor Vehicle Safety Standards, No. 101 – 500)
- Related state transportation laws or regulations
- Related U.S. and international consensus standards
- Other standards issued by SDOs, such as the Institute of Electrical and Electronics Engineers (IEEE), American Society of Mechanical Engineers (ASME), Society of Automotive Engineers (SAE), National Fire Protection Association (NFPA), American Society for Testing and Materials (ASTM), National Institute of Standards and Technology (NIST), Underwriters Laboratories (UL), and the International Organization for Standardization (ISO), as examples
- Federal guidance documents issued by the USDOT and its Modal Administrations, as examples
- Technical and academic papers submitted to various journals and academic sites, including Elsevier and its associated journals, World Transit Research (Monash University), and others
- Other industry best or model practices, guidance documents, and training manuals

Subtask 1.2: Compilation of standards and protocols

This subtask will focus specifically on the voluntary standards or guidance documents that exist for procuring and maintaining battery electric buses and charging systems. The objective of this subtask is to perform a more comprehensive review of transit safety standards, recommended practices, and protocols at a specific sub-system topic level. The review will include those standards or other guidance developed and issued by the public transportation industry, other standards organizations, and standards and regulations issued by other Federal agencies, including U.S. DOT Modal Administrations. Sources may include, but not be limited to:

- APTA's Best Practices Procurement Manual (2020 with BEB edits)
- Procurement packages used by public transit agencies that have recently procured BEBs, including those group or statewide procurements
- Standards that have been developed by SDOs, including but not limited to those listed in Subtask 1.1.
- Voluntary consensus standards and recommended practices used by the US transit industry
- Standards or guidance issued by USDOT or other Federal agencies

- Standards that may exist in other countries/regions

Subtask 1.3: Perform Data Collection and Analysis

During this step, the research team will perform data collection and analysis processes, upon data availability and relevance. The research team will utilize data collected directly from transit agencies through the use of surveys and case study examinations, National Transit Database (NTD), or other sources in support of conducted research. The research team will determine the data elements they will collect and examine based on the findings from the literature review and background research performed in subtask 1.1. Each research report prepared with supporting data will include a delineation of the collected data elements, source, and findings from the data analysis.

During this subtask, the research team will review the standards compiled in Subtask 1.2. The outcomes include:

- Identify gaps in existing standards or resources and the need for new voluntary standards or other resources for procuring and maintaining BEB and associated infrastructure, for example
    - Using BEB as an emergency generator
    - Standardized battery packs for quick swap versus fast charging
    - Fast charging versus wireless charging or opportunity charging via catenary
- Identify any existing standards that may need to be modified or enhanced to meet industry needs
- Identify minimum elements required for BEB and associated infrastructure procurements
- Identify minimum training guidelines for maintenance technicians and bus operators who are maintaining/operating BEB and associated infrastructure and facilities.

Subtask 1.4: Stakeholder Input in Research

The research team will engage stakeholders, APTA, industry groups, and advisory groups in consultation with and at the direction of FTA during the performance of focus area research. CUTR's independent Transit Standards Working Group, and subcommittees from agencies represented on the Working Group, will be used as a resource for the research team. In addition, the research team will gather input and support for these tasks from:

- Florida's Transit Maintenance Consortium and its members that represent all of Florida's fixed-route public transit providers
- The national transit maintenance listserv that includes 319 public transit agency and private industry maintenance professionals
- The Transportation Learning Center
- APTA Clean Propulsion Committee (CPC) and Battery Electric Bus (BEB) Subcommittee (CUTR is a member of both the CPC and BEB Subcommittee)

- Grantees of FTA's Low or No Emission Deployment Program

The roles and responsibilities of working groups or other stakeholders:

- Provide stakeholder input to assist the research team in developing SDP research reports and associated findings and recommendations
- Participate in moderated working group and advisory committee meetings
- Review and verify the outcome of transit data analyses
- Provide supplemental local transit data or data sources to support focus area research
- Provide recommendations to the research team on voluntary industry standards or guidance that may need to be developed or modified to support transit industry procurements and vehicle maintenance
- Assign Subject Matter Experts (SMEs) from their agencies or from the industry in general to provide feedback and inform the research teams in the development of focus area research project recommendations
- Provide suggestions to SDP research teams on potential research dissemination methods and venues

Subtask 1.5: Issue findings for FTA's consideration

Findings will be issued based on the research performed in subtasks 1.1 through 1.4 and will include those standards that currently exist and could be adopted to address areas of transit safety risk, those that have been identified, but may need to be modified, and those that should be developed to mitigate areas of transit safety risk to the industry. This could also include findings supporting the further review of standards that may exist within other industries or other transportation modes

Output/Deliverable (Task 1):

Task reports for each focus area topic that include:

1. Literature review findings
2. Existing standards
3. Gaps
4. Minimum elements for procurement technical specifications
5. Minimum elements for maintenance technician and bus operator training for those maintaining or operating BEB and associated charging systems
6. Three technical memoranda as described above
7. Research result briefs for FTA

Task 2: Research Report Review and Approval Process

The research team will support FTA's internal research report review, editing, and final approval process. This research activity will be performed in accordance with the work plan and schedule reflected in Table 2. The research team will modify the research report (comprised of three

technical memoranda) as directed by FTA TRI. Once the technical memoranda are ready to move through FTA's publication process, the research team will provide the documentation, forms, or research briefs required to finalize that process.

Output/Deliverable (Task 2):

1. Draft final research deliverables as described above
2. Final 508-compliant reports for publication (alt text provided to FTA publication team)
3. Research Summary
4. Report Documentation Page

Task 3: Identify Need for Standards and/or Identify Subsequent Activities

During Task 3, the research team will work with FTA to identify the need for new standards or update of existing standards, additional subsequent research on the focus area topic or specific elements included in the findings from research reports that may indicate the need for demonstration of a technology, other deployment, and associated evaluation.

Subtask 3.1: Modify Existing Standards or Create New Guidance and Standards

The SDP research documents will identify relevant standards, recommended practices and other guidance that may come from within the public transit industry, other transportation modes, or outside the transportation industry that may need to be modified for transit applicability. If there are no relevant existing standards, recommended practices, or guidance documents available that would address the focus area, the research team will either develop relevant FTA voluntary standards or other guidance, or they may need to engage with an SDO or transit industry working groups to accomplish this effort. The research team will work closely with FTA to determine the best options available for the development and dissemination of any voluntary standards, recommended practices, or guidance documents developed.

Output/Deliverable (Task 3):

1. List of voluntary standards or guidance to be developed/modified
2. Summary of activities (scope of work) with SDOs in the development or modification of standards, recommended practices, or other forms of guidance, including knowledge transfer and evaluation of standards.
3. Final standard or guidance documents

Task 4: Knowledge Transfer

Knowledge transfer is seminal in a robust and actionable standards research and development program, which can lead to an increased likelihood of industry implementation and improved industry outputs. Implementation of practices and industry guidance developed and established through research and SRD-initiated demonstration findings and recommendations will be used to evaluate the effectiveness of the overall SDP in meeting its objectives.

This standards development research will result in final research deliverables and may also include guidance documents, voluntary standards, and other tools that support and promote

FTA's safety programs. The research team will support and assist FTA with its internal process to:

- Determine report or technical memoranda publication readiness
- Direct early release of technical memoranda or associated guidance
- Consider industry presentations or briefs on research results prior to document release and deliver these presentations as directed
- Establish a timeline for releasing research deliverables (or draft deliverables) release to SDOs, including APTA
- Provide a method to track industry participation in presentations, webinars, or briefs on products produced through the standards program

TRI SDP research deliverables will include an "Implementation of Research Findings" addendum. For this project and its associated technical memoranda, the research team will develop a single addendum. Consistent with other industry research programs, this addendum will include:

- Recommendations on how to best put the research findings/products into practice
- Possible public transit agencies that might take a leadership role in applying the research findings in a demonstration or pilot
- Issues that may affect the industry's ability to implement findings/products and possible actions to address those issues
- Methods for identifying and measuring impacts associated with implementation of the research findings/products based on established program performance measures
- Potential venues for project presentations

Task 5: Project Administration and Management

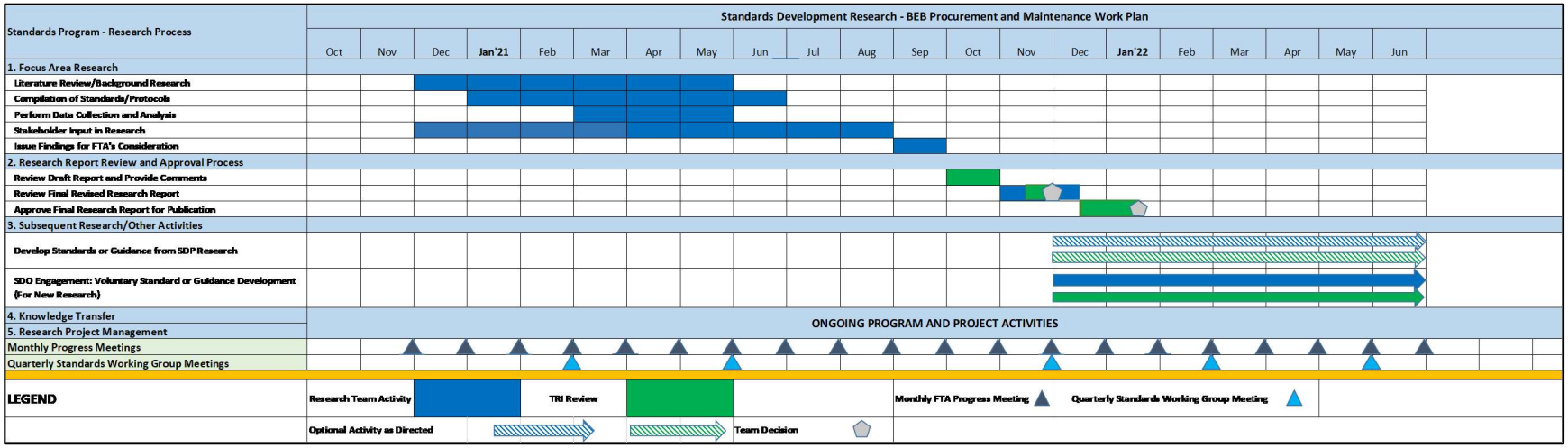
The research team will perform all activities described in this SOW and all administrative and management functions required to successfully perform these duties and responsibilities. At a minimum, this will include:

- Biweekly TRI updates
- Monthly program progress meetings
- Quarterly CUTR independent Transit Standards Working Group meetings
- Project presentations to industry groups, as directed and/or approved
- Implementation of Research Findings Addendum

Outputs/Deliverables (Task 5):

1. Progress meeting PowerPoint presentations
2. Content for Working Group meeting packets
3. Documentation of other industry collaboration, presentation, and discussion

Table 2. Standards Development Research: BEB Procurement and Maintenance Work Plan



Appendix A - Primary Assigned Personnel

CUTR will assign personnel to this project who have extensive relevant experience that corresponds with the tasks assigned. Those individuals who will lead CUTR's efforts are identified below. CUTR primary assigned personnel will be supported by individuals who have demonstrated expertise in task areas included within this statement of work. This may include other CUTR and College of Engineering faculty, as well as CUTR/USF Affiliated Faculty members.

The research team leads will include the following University of South Florida faculty and staff members (detailed resumes/CVs included):

Assigned researchers:

- Lisa Staes, Associate Director, CUTR
- Jodi Godfrey, Senior Research Associate, CUTR
- Austin Sipiora, Research Associate, CUTR

Assigned SMEs:

- Stephen Wachtler, Acting Program Director of Transit Safety and Workforce Development Programs and Manager, Florida Transit Maintenance Analysis and Resource Center (TMAARC), CUTR
- Todd Parsons, Transit Maintenance Learning and Development Facilitator
- Carlton Allen, Program Manager, Florida Transit Research Inspection Procurement Services Program (TRIPS), CUTR
- Julie Eck, Program Analyst

Project Manager: Lisa Staes, Associate Director
Center for Urban Transportation Research
University of South Florida

4202 East Fowler Avenue, CUT100
Tampa, FL 33620-5375
Phone: (813) 426-6982
Email: staes@cutr.usf.edu

PROJECT EXPERIENCE

- US Department of Transportation (USDOT), Federal Transit Administration (FTA), Standards Development Research Program – Project Manager
- FTA Safety Research Demonstration Program – 2018 Projects and Program Evaluations – Co-Project Manager
- FTA Standards Development Framework and Implementation Plan, Technical Support: Operational and Mobility Standards – Project Manager
- US DOT, Pipeline and Hazardous Materials Safety Administration (PHMSA) – Public Safety Awareness Technology Evaluation Project, Literature Review – Subcontractor Lead
- Southeastern Pennsylvania Transportation Authority (SEPTA), Cyber Defense Architecture – Co-Project Manager
- TCRP Project F-27 - *Characteristics and Elements of Non-Punitive Employee Safety Reporting for Public Transportation* – Lead Consultant
- TCRP Project J-7, Synthesis Topic SA-45 – *Onboard Technologies to Prevent Transit Bus* Incidents – Lead Consultant
- TCRP Project J-7, Synthesis Topic SA-38 – *Successful Practices and Training Initiatives to Reduce Bus Accidents and Incidents at Transit Agencies* – Lead Consultant
- FTA Transit Safety Standards and Other Standard Initiatives – Project Manager

- FTA *Light Rail Technology Scan and Case Studies* – Project Manager
- FDOT – Florida Rural Transit Assistance Program (RTAP) – Project Manager
- FDOT – Florida Preventative Maintenance Planning and Technical Assistance Program – Co-Project Manager
- New Mexico Transit Association – Rural Bus Operator Train-the-Trainer Program – Project Manager
- Memphis Area Transit Authority – Operator Training Program – Project Manager
- FDOT – Emergency Management Planning Support and Technical Assistance Program – Program Director
- FDOT – Florida Rural Transit Assistance Program (RTAP) – Project Manager
- FDOT – Florida Preventative Maintenance Planning and Technical Assistance Program – Co-Project Manager
- Hillsborough Regional Transit Authority – Bus Operator Training Program Evaluation and Gap Analysis – Program Director
- FTA Safety Research Demonstration Program – 2016 Projects and Program Evaluations – Co-Project Manager
- FTA Standards Development Program – Project Manager
- FTA Standards Development and Assistance Program – Project Manager
- FTA Safety Standards Strategic Plan and Safety Data Collection Program - Project Manager
- FTA *Transit Safety Research Roadmap* – Project Manager
- FTA *Bus Safety Study: A Report to Congress* – Project Manager
- FTA *State of Bus Safety in the U.S.* – Project Manager
- FTA *State of Bus Safety in the U.S. – Summary of Federal and State Regulations* – Project Manager
- FTA Transit Safety Data and Analysis, 2008 – 2011 – Project Manager
- National Center for Transit Research (NCTR) *Bus Operator Safety: Critical Issues Examination and Model Practices* – Project Manager
- NCTR *Strategies to Prevent, Reduce, and Mitigate Bus Collision* – Project Manager
- FDOT *Examination of Passenger Assaults on Bus Transit Systems* – Project Manager
- FDOT Florida Transit Safety Network – Project Manager
- National Transit Safety Research and Assistance Center at NCTR – Project Manager
- FDOT Florida Transit Maintenance Analysis and Resource Center (and the Center's Certified Transit Technician Education Program) – Co-Project Manager
- FDOT Florida Transit, Research, Inspection, Procurement Services Program (Project Manager)
- FDOT Transit Managers' Certificate Program – Co-Project Manager
- Florida Airport Leadership Program – Program Oversight

PUBLICATIONS

- Staes, L., and J. Godfrey. 2020. Characteristics and Elements of Non-Punitive Employee Safety Reporting Systems for Public Transportation. Pre-publication draft of TCRP Research Report 218. Transportation Research Board, Washington, D.C. The National Academies Press. https://doi.org/10.17226/25852.
- Staes, L., Godfrey, J., Flynn, J., Spicer, M., Saliceto, G., and Yegidis, R. Current Practices in the Use of Onboard Technologies to Avoid Transit Bus Incidents and Accidents. TCRP Synthesis 145. Published February 2020. DOI: 10.17226/25716
- Staes, L., S. Concas, and J. Godfrey, 2016 Safety Research Demonstration (SRD) Independent Evaluation, Interim Report, R. University of South Florida. Center for Urban Transportation, Editor. 2020.
- Staes, L., Godfrey, J., Flynn, J., and Yegidis, R. Successful Practices and Training Initiatives to Reduce Accidents and Incidents at Transit Agencies – an abridged version of TCRP Synthesis 126. Accepted for Publication in Transportation Research Record (TRR), Journal of the Transportation Research Board; 2018. http://www.trb.org/Publications/PubsTRRJournal.aspx
- Staes, L., Godfrey, J., Flynn, J., and Yegidis, R. Successful Practices and Training Initiatives to Reduce Accidents and Incidents at Transit Agencies. Submitted for Publication as Transit Cooperative Research Program (TCRP) Synthesis 126; February 2017. http://apps.trb.org/cmsfeed/TRBNetProjectDisplay.asp?ProjectID=3979

- Staes, L., Davis, J., and Godfrey, J. December 2015. Examination of Passenger Assaults on Bus Transit Systems. National Center for Transit Research. http://www.floridatsn.org/wp-content/uploads/2016/02/Passenger-Assaults-FINAL.pdf
- "Event Data Recorders for Transit Bus," TRB Paper 19-02324, January 2019
- "Transit Bus Crashworthiness," TRB Paper 19-01278, January 2019
- "Managing Onboard Safety," *Traffic & Transit,* October 16, 2018 - https://www.trafficandtransit.com/managing-onboard-safety
- FTA Report to Congress on 2015 Section 5314 Projects: *Review and Evaluation of Public Transportation Safety Standards,* FTA Report No. 0103, January 2017.
- *"Bus Operator Assaults – State of the Industry and Agency Model Practices*," APTA Bus and Paratransit Conference, May 2013 (paper and presentation).
- *Evaluation of Event Data Recorders," Accident Reconstruction Journal*, Volume 20, No. 5, September/October 2010, Sapper, Deborah; Cusack, Hank; Staes, Lisa
- *Identification of Cost-Effective Methods to Improve Security at Transit Operating/Maintenance Facilities and Passenger Stations,* ITE 2007 Annual Meeting, Publication ID: AB07H522, Chaudhary, Raj; Reep, Amber; Sapper, Deborah; Staes, Lisa.
- *Innovative Approaches for Increasing Transportation Options for People with Disabilities in Florida,* Florida Developmental Disabilities Council, Inc. and the Able Trust, April 2010.
- "On the Forefront – An Innovative Approach to Operator Training for State and Federal Certifications," Proceedings APTA, May 15 – 18, 2006.

PRESENTATIONS

- Current Practices in the Use of Onboard Technologies to Avoid Transit Bus Incidents and Accidents. FPTA/FDOT/CUTR Safety and Operations Summit. July 2020.
- Characteristics and Elements of Non-Punitive Employee Safety Reporting Systems for Public Transportation – Final Report. FPTA/FDOT/CUTR Safety and Operations Summit. June 2020.
- *CUTR's COVID-19 Resources to Support to Transit Agencies*, Coalition of University Transportation Centers (RETRC) "Hill" Spotlight Webinar, May 14, 2020
- *Employee Safety Reporting in Public Transportation*, CUTR/FTA Transit Standards National Working Group, November 2019
- *Trends in Transit Assaults w/ Risk Management and Risk Abatement Strategies*, FTA 2019 Joint State Safety Oversight and Rail Transit Agency Workshop, September 2019
- *Transit Cooperative Research Program and Illustrative Projects,* Washington State Insurance Pool Conference, May 2019
- *Update – Trends in Transit Assaults,* APTA Risk Management Seminar, February 2019
- *Update on Transit Assaults – Data Presentation and Discussion*, APTA Mid-Year Safety and Security Seminar, November 2018.
- *Part 673 – Public Transportation Agency Safety Plan and Florida's Chapter 14-90, FAC: A Discussion*, Florida Public Transportation Association/Commission for Transportation Disadvantaged Annual Conference, October 2018.
- *SMS for Accountable Executives,* APTA Emerging Leaders Capstone Seminar, May 2018
- *FTA Safety Standards Strategic Plan and Standards Development Program,* APTA Safety Coordinating Committee meeting, October 2017.
- *Successful Practices and Training Initiatives to Reduce Bus Accidents and Incidents at Transit Agencies,* TCRP Synthesis 126, Transportation Research Board, APTA Annual Meeting, October 2017.
- *Successful Practices and Training Initiatives to Reduce Bus Accidents and Incidents at Transit Agencies,* TCRP Synthesis 126, Transportation Research Board, NTI Webinar, July 2017.
- *Successful Practices and Training Initiatives to Reduce Bus Accidents and Incidents at Transit Agencies,* TCRP Synthesis 126, Florida Transit Professional Development Workshop, Tampa, Florida, June 2017.
- *Safety Management System Implementation in Florida,* APTA Bus and Paratransit Conference, May 2017.
- *Successful Practices and Training Initiatives to Reduce Bus Accidents and Incidents at Transit Agencies,* TCRP Synthesis 126, Transportation Research Board, APTA Bus Safety Committee, June 2017.

- *SMS Approach in FTA Standards Initiatives,* TRB Annual Meeting, January 2017.
- *A Strategic Approach – Workforce Development, Training, Engagement, and Research* – Florida Public Transportation Association Annual Conference, October 2015.
- *Reducing Transit Assaults – A Modified Philosophy,* 2015 APTA Bus and Paratransit Conference, Ft. Worth, Texas, May 2015.
- *A Strategic Statewide Approach to Safety Management – Florida,* 2015 National Bus Safety Seminar, Orlando, Florida, April 2015.
- *The Setting: Bus Transit Safety in the US and Florida,* 2015 National Bus Safety Seminar, Orlando, Florida, April 2015.
- *Safety Management Systems,* 2014 FPTA Annual Conference, Naples, Florida, October 2014.
- *Safety Management Systems,* 2014 FPTA/FDOT/CUTR Professional Development Workshop, Tampa, Florida, June 2014.
- *Bus Operator Assaults – Revised State of the Industry and Florida's Model Practice,* 2014 APTA Bus and Paratransit Conference, Kansas City, Missouri, May 2014.
- *Transit Safety Research Roadmap,* Transportation Research Board (TRB) Annual Conference, January 2014.
- *Bus Safety Data and Trends,* TRB Bus Transit Systems Committee (AP050), January 2014.
- *Bus Operator Safety Issues Examination and Model Practices – Bus Operator Assaults,* FPTA/FDOT/CUTR Professional Development Workshop, June 2013.
- *A Qualitative Analysis of Bus Simulator Training and Impacts on Transit Incidents,* FPTA/FDOT/CUTR Professional Development Workshop, June 2013.
- *Florida's Transit Operator Trainer Certification Training Program – an Example of Public Transportation Workforce Development and Success,* Council of University Transportation Centers, National Transportation Workforce Summit, April 2012

SELECTED APPOINTMENTS/POSITIONS

- Chair, TRB Standing Committee on Transit Safety and Security (AP080, National Academies of Sciences, Engineering, Medicine, Washington, DC
- Editorial Board Member – Elsevier Transportation Research Interdisciplinary Perspectives (TRIPS) Journal
- Event Chair for TRB's National Transit Safety and Security Conference and APTA Mid-Year Workshop 2020
- Theme Lead, *TR News* Theme Issue: "Methods to Mitigate Trespassers in Passenger and Freight Rail" (June/July 2019)
- Former chair and member, American Public Transportation Association (APTA) Bus Safety Committee
- Member, APTA Safety Coordinating Council
- Member, APTA Rail Safety Committee
- Member, APTA Research and Technology Committee
- Member, APTA Bus Safety Awards Selection Committee
- Ex-Officio Board Member, Florida Public Transportation Association

Jodi Godfrey, Senior Research Associate
Center for Urban Transportation Research

Jodi has performed research on both transit and general transportation safety-related topics.

EDUCATION

- B.S. 2013, Civil Engineering, University of South Florida
- M.S. 2015, Civil Engineering (focus in Transportation Engineering), University of South Florida

PROJECT EXPERIENCE

- FTA Transit Safety Standards Strategic Plan – Co-Project Investigator
- FTA Transit Standards Development Program – Co-Project Investigator
- FTA Transit Standards Development and Technical Assistance Program – Co-Project Investigator
- FDOT Construction Cost Trends – Project Investigator

PUBLICATIONS

- Staes, L., and J. Godfrey. Characteristics and Elements of Non-Punitive Employee Safety Reporting Systems for Public Transportation. Pre-publication draft of TCRP Research Report 218. Transportation Research Board, Washington, D.C. June 2020. https://www.nap.edu/download/25852
- Staes, L., Godfrey, J., Flynn, J., Spicer, M., Saliceto, G. Yegidis, R. Transit Cooperative Research Program Synthesis 145: Current Practices in the Use of Onboard Technologies to Avoid Transit Bus Incidents and Accidents. Published February 7, 2020 DOI: 10.17226/25716
- Godfrey, J., Polzin, S., Roessler, T. Public Transit in America: Observations from the 2017 National Household Travel Survey. August 2019. https://doi.org/10.5038/CUTR-NCTR-RR-2018-08
- Godfrey, J., Saliceto, G., Yegidis, R. Role of Public Transportation in a Natural Disaster State of Emergency Declaration. Transportation Research Record: Journal of the Transportation Research Board. Published March 21, 2019 https://doi.org/10.1177/0361198119835814
- Godfrey, J., Bertini, R. Attracting and Retaining Women in the Transportation Industry. San Jose State University. Mineta Transportation Institute. February 2019. http://transweb.sjsu.edu/sites/default/files/1893-Godfrey-Attract-Retain-Women-Transportation.pdf
- Staes, L., Godfrey, J., Flynn, J., and Yegidis, R. Successful Practices and Training Initiatives to Reduce Accidents and Incidents at Transit Agencies – an abridged version of TCRP Synthesis 126. Accepted for Publication in Transportation Research Record (TRR), Journal of the Transportation Research Board; 2018. http://www.trb.org/Publications/PubsTRRJournal.aspx
- Driscoll, R., Lehmann, K., Polzin, S., Godfrey, J. The Effect of Demographic Changes on Transit Ridership Trends. Accepted for Publication in Transportation Research Record (TRR), Journal of the Transportation Research Board; 2018. http://www.trb.org/Publications/PubsTRRJournal.aspx
- Staes, L., Godfrey, J., Flynn, J., and Yegidis, R. Successful Practices and Training Initiatives to Reduce Accidents and Incidents at Transit Agencies. Submitted for Publication as Transit Cooperative Research Program (TCRP) Synthesis 126; February 2017. http://apps.trb.org/cmsfeed/TRBNetProjectDisplay.asp?ProjectID=3979
- Staes, L., Davis, J., and Godfrey, J. December 2015. *Examination of Passenger Assaults On Bus Transit Systems*. National Center for Transit Research. http://www.floridatsn.org/wp-content/uploads/2016/02/Passenger-Assaults-FINAL.pdf
- Godfrey, J. September 2015. *Risk Taking Characteristics as Explanatory Variables in Variations of Fatality Rates in the Southeastern United States*. Journal of the Institute of Transportation Engineers Volume 85 No. 9, pp. 42-47.

- Polzin, S., Chu, X., and Godfrey, J. December 2014. *The Impact of Millennials Travel Behavior on Future Personal Vehicle Travel*. Elsevier Energy Strategy Review Journal, Volume 5, pp.59-65. http://www.sciencedirect.com/science/article/pii/S2211467X14000431

PRESENTATIONS

- Current Practices in the Use of Onboard Technologies to Avoid Transit Bus Incidents and Accidents. FPTA/FDOT/CUTR Safety and Operations Summit. July 2020.
- Characteristics and Elements of Non-Punitive Employee Safety Reporting Systems for Public Transportation – Final Report. FPTA/FDOT/CUTR Safety and Operations Summit. June 2020.
- Characteristics and Elements of A Successful Employee Safety Reporting Program for Public Transportation Agencies. FPTA/FDOT/CUTR Safety and Operations Summit, Tampa, Florida, June 2019.
- Attracting and Retaining Women in the Transportation Industry. FPTA/FDOT/CUTR Professional Development Workshop, Tampa, Florida, June 2019.
- Event Data Recorders for Transit Bus Application. Transportation Research Board Annual Meeting, Washington D.C., January 2019.
- Public Transit Bus Crashworthiness. Transportation Research Board Annual Meeting, Washington D.C., January 2019.
- Role of Public Transportation in a Natural Disaster State of Emergency Declaration. Transportation Research Board Annual Meeting. Washington D.C., January 2019.
- Successful Practices and Training Initiatives to Reduce Bus Accidents and Incidents at Transit Agencies – an abridged version of TCRP Synthesis 126. Transportation Research Board Annual Meeting, Washington D.C., January 2018
- FTA Safety Standards Strategic Plan: Comprehensive NTD Data Analysis and Exposure Risks Across Person Types. Transportation Research Board Annual Meeting, Task Force on Transit Safety & Security Meeting, Washington D.C., January 2018
- TCRP Synthesis 126: Successful Practices and Training Initiatives to Reduce Accidents and Incidents at Transit Agencies. Center for Urban Transportation Research Webcast, August 2017
- Strategies for Kindergarten through Grade 12 Engagement in Transportation Engineering. International Institute of Transportation Engineers Annual Meeting, Toronto, Canada, July 2017
- TCRP Synthesis 126: Successful Practices and Training Initiatives to Reduce Accidents and Incidents at Transit Agencies. National Transit Institute Webinar, July 2017
- Reducing Accidents and Incidents at Transit Agencies. Florida Section Institute of Transportation Engineers Summer Meeting, Naples Beach, Florida, June 2017
- The Art of Defusing Conflict: De-Escalation Techniques for Transit Operators, 2017 FPTA/FDOT/CUTR Professional Development Workshop, Tampa, Florida, June 2017
- TCRP Synthesis 126: Successful Practices and Training Initiatives to Reduce Bus Accidents and Incidents at Transit Agencies, 2017 FPTA/FDOT/CUTR Professional Development Workshop, Tampa, Florida, June 2017
- TCRP Synthesis 126: Successful Practices and Training Initiatives to Reduce Accidents and Incidents at Transit Agencies. APTA Bus Safety Committee Meeting, 2017 APTA Bus and Paratransit Conference, Reno, Nevada, May 2017

SELECTED APPOINTMENTS/POSITIONS

- Appointed Communication Officer Tampa Bay Women Transportation Seminar (WTS), August 2020
- Elected Tampa Bay Institute of Transportation Engineers Vice President, November 2019
- Appointed as member of International ITE's STEM Subcommittee, 2018
- Appointed as member of International ITE's Women in ITE Task Force, 2018
- Elected Tampa Bay Institute of Transportation Engineers Treasurer, November 2017
- Appointed as Young Member of TRB's Task Force on Transit Safety & Security, 2017
- Appointed as Secretary for TRB's Task Force on Transit Safety & Security, 2017

Stephen Wachtler, Program Director
Transit Safety and Workforce Development Programs
Center for Urban Transportation Research

SUMMARY

Experienced professional leader and manager with 30+ years' experience in maintenance, as well as 10 years' experience in a Union environment. Extremely adept at project management in a fast paced and dynamic work setting. Proficient with MS office products and automated management systems. Excellent team builder with strong leadership and communication skills.

CORE QUALIFICATIONS:

Logistical/Maintenance Management
Leadership / Team Building
Quality Management / Lean Six Sigma / ISO 9001 Safety /OSHA
Interpersonal / Communications
Union, Labor / Management

PROJECT EXPERIENCE

- FDOT Florida Transit Safety and Operations Network (FTSON)
- FDOT Compliance Oversight and Technical Assistance (COTA)
- FDOT State Transit Technical Assistance and Training (STTAT)
- FDOT Transit Maintenance Analysis and Resource Center (TMAARC)
- FDOT Transit Research Inspection Procurement Services Program (TRIPS)
- Florida Transit Maintenance Consortium (FTMC)
- Certified Transit Technician Education Program (CTTEP)

FORMER POSITIONS

Manager of Maintenance LYNX, Orlando, FL **April 2013- October 2017**

- Responsible for planning, directing and coordinating the workload of the vehicle maintenance division consisting of 10 supervisors and over 120 union employees
- Supervised work performed at three LYNX maintenance
- Developed and reviewed reports to conduct statistical performance evaluations and work processes to identify areas requiring improvement
- Established and trained workforce in new processes to improve division's efficiency and overall effectiveness resulting in a 6% improvement in PM compliance, a 32% improvement in Mean Distance Between Failure (MDBF), and a 16% decrease in the number of buses on hold
- Reviewed computer software operations (Trapeze, FA Suite) and established new processes to improve effectiveness of the system and the overall operation
- Conducted system training and provided constant feedback to staff
- Assisted in establishment and management of capital and operational budgets
- Worked closely with the union to resolve numerous employee issues and establish strong Labor/ Management relationships
- Worked closely with Grants and Procurement resulting in awards of numerous grants and contracts.
- Project coordinator for LYNX CNG project

Petro/Travel Centers of America, Bordentown, NJ – General Manager **Aug 2012-Jul 2013**

Directorate of Logistics, Department of the Army, Ft Dix, NJ – Maintenance Operations Manager June 2005-May 2012

- Quality Assurance Evaluator
- Logistical Management Specialist
- Maintenance Operations Manager
- Provided technical and supervisory control over 95 union and/or 140 contract personnel
- Controlled work operations at four separate work facilities
- Developed and revised numerous maintenance and administrative policies and procedures to ensure quality and efficiency of work
- Managed a 45-million-dollar budget, reducing costs by over 3 million dollars in a 2-year period
- Met or exceeded all performance measures and metrics
- Exceeded operational readiness goals while managing a fleet of over 500 vehicles and associated equipment
- Ensured equipment availability through evaluation of utilization requirements, maintenance planning, and inventory control
- Enforced contractor performance through rigorous surveillance and prepared reports and presented findings to management and key stakeholders

US Army, Active duty- Chief Warrant Officer **July 1985-August 2005**

Todd R. Parsons, Learning & Development Facilitator
Center for Urban Transportation Research

SUMMARY

- Experienced Learning & Development Facilitator, Master Training Specialist with 30+ years' experience in preparation and review of curriculum development, training methodologies, editing, and classroom presentations.
- Provides quality laboratory and hands on training. Designed, developed and implemented the Certified Transit Technician Education Program receiving accreditation from the American Council on Education.
- 35+ years' experience in maintenance and vehicle maintenance.
- Proficient with MS office products.
- Excellent motivator and team builder with strong leadership and communication skills.

CORE QUALIFICATIONS:

Master Training Specialist	Maintenance Management
Interpersonal / Communications	Leadership/Team Building
OSHA 29 CFR 1910 Outreach Instructor	CPR/First Aid & AED Training Instructor

SELECTED APPOINTMENTS/POSITIONS

- FDOT Transit Maintenance Analysis and Resource Center (TMAARC)
- Florida Transit Maintenance Consortium (FTMC)
- Certified Transit Technician Education Program (CTTEP)
- Florida Public Transportation Association Technician of the Year Committee
- Member, APTA Bus Technical Maintenance Committee
- Member, APTA International Bus Roadeo Committee
- Member, APTA Battery Electric Bus Subcommittee
- Member, APTA Clean Propulsion Committee

FORMER POSITIONS

Vehicle Maintenance Manager HART Tampa, FL **February 2007 – September 2009**

Coordinates workload; sets priorities and schedules 24-hour operation of the vehicle maintenance department. Manage eight maintenance supervisors and 65 maintenance employees. Responsible for scheduling all maintenance on 199 Gillig transit buses, 36 Demand Response Vehicles, 48 Non-Revenue Vehicles and 10 Gomaco vintage street cars.

Senior Maintenance Training Instructor HART Tampa, FL October 2003 – February 2007

- Responsible for the training of 36 Maintenance Technicians.
- Design, develop and provide classroom, laboratory and hands on training.
- Instrumental in the development of three FMTP Florida Maintenance Training
- Program classes - FMTP Coach Air Systems, Coach Air Conditioning Systems, and Practical Hydraulics.
- Was the first maintenance trainer to instruct all three classes with outstanding results.
- Provided Coach Air and Air Board training to the top maintenance technicians in the state at the Florida Mega Roadeo in 2007.
- One hundred percent positive end of course critiques in ALL training classes taught for HART and CUTR in a 4 year period
- Training topics include:
    - Hardware and Fasteners
    - Maintenance Equipment and Safety
    - Coach Air Systems and Coach Air Conditioning (including EPA 608 training)
    - Steering and Suspension
    - Transmission and Drive Train
    - Introduction to Diesel Engine Service and Repair
    - Alternative Fuels
    - Allison and Voith Transmissions
    - Practical Hydraulics
    - Wheelchair systems Basic Electrical
    - Intermediate Electrical, Advanced Electrical
    - Cummins Quick Serve On-Line and Cummins INSITE
    - CPR/First Aid & AED Training Instructor
    - Hazmat Waste Management Training
    - Forklift Operator Training Instructor
    - OSHA 29CFR1910 Instructor
- APTA International Bus Rodeo Committee Member and Maintenance Judge

Course Manager/Lead Instructor, US Navy Master Training Specialist
Training Group Atlantic, Norfolk, Virginia May 2000 – September 2003

- Provided intensive course of instruction on Cummins 5.9 BTM, Detroit Diesel 6-71, and outboard engines (Johnson/Evinrude) including repair, overhaul, and preventative maintenance. Instruction included hands-on trouble shooting, teardowns, and testing in addition to formal classroom training.
- Supervised the work of 8 instructors, including preparation and review of curriculum development, training methodologies, editing, classroom presentation, and overall effectiveness.
- Maintained and updated all course material which enhanced the quality of the training program and resulted in accreditation from the American Council on Education.

- Designed, developed, and implemented a specialized training course on the OMC 55 HP outboard motor for deploying SEAL teams. Traveled to Germany to conduct a similar training seminar for US Army Green Berets.
- Produced substantial cost savings through superior instructional efforts.
- As the Department Physical Fitness Coordinator, motivated 23 sailors to pass the commands rigorous physical fitness test.

US Navy, Active Duty- Chief Petty Officer **March 1982 – September 2003**

Austin Marie Sipiora, Research Associate
Center for Urban Transportation Research

Austin has performed research on alternative fuels and energy efficient mobility, alternative fuel transit technologies, and general transportation planning topics.

EDUCATION

- B.A., 2012, English, University of South Florida
- M.A., 2015, Global Sustainability, University of South Florida
- M.U.R.P., Urban and Regional Planning, in progress, University of South Florida

PROJECT EXPERIENCE

- FCACS OOE Florida Alternative Fuel Resiliency Plan – Co-Project Investigator
- DOE Clean Cities Outreach, Education, & Performance Tracking – Co-Project Investigator
- NREL Stakeholder Engagement & Data Support for Fuel Resilience – Co-Project Investigator
- FTA HSCR Research Evaluation Implementation Plan – Researcher
- FDOT Toward a Florida Automated, Connected, Electric, and Shared (ACES) Transportation Systems Roadmap – Researcher, Electric Domain Lead
- FDOT Assessment of 5310 Program to Optimize Mobility Services – Researcher
- FDOT Automated Vehicle & Alternative Fuel Vehicle Florida Market Penetration Rate – Researcher

PUBLICATIONS & PRESENTATIONS

- Sipiora, A., Jackman, J., Menon, N., Huang, Y. & Bertini, R. A Roadmap Towards a Florida Automated, Connected, Electric, and Shared (ACES) Transportation Ecosystem. Accepted for Presentation at the TRB 2021 Annual Meeting.
- Kolpakov, A., Sipiora, A., Johnson, C. & Nobler, E. Transportation Fuel Resiliency: Case Study of Tampa Bay. Submitted for Publication in Transportation Research Record (TRR), Journal of the Transportation Research Board.
- Flynn, J., Perk, V. & Sipiora, A. Evaluation of the Federal Transit Administration's Transit and Health Access Initiative: Case Highlights, Findings, and Recommendations. Submitted for Publication in Transportation Research Record (TRR), Journal of the Transportation Research Board.
- Strategies for Improving Hurricane Resiliency in the Tampa Bay Area, Abstract #3888, TRB Transit Safety and Security Conference and APTA Mid-year Safety and Security Seminar, Virtual, November 2020.
- Implication of Market Penetration of Electric and Autonomous Vehicles for Florida State Transportation Revenue. ATINER 7th Annual International Conference on Transportation, Athens, Greece, June 2020.
- Transitioning to an Electric School Bus. Tampa Bay Clean Cities Webinar Series, Tampa, Florida, August 2020.
- Benefits of Workplace Electric Vehicle Charging. Tampa Bay Clean Cities Webinar Series, Tampa, Florida, May 2020.
- Johnson, C., Nobler, E., Kolpakov, A. & Sipiora, A. Poster, Transportation Fuel Resilience through
- Diversification in Tampa Bay, Florida. Transportation Research Board, 2nd International Conference on Transportation System Resilience to Natural Hazards and Extreme Weather Events. November 2019, Washington, D.C.
- Kolpakov, A., Sipiora, A. & Huss, J. ACRP Synthesis 89: Clean Vehicles, Fuels, and Practices for Airport Private Ground Transportation Providers. Washington, D.C.: The National Academies Press. Published 2018, https://doi.org/10.17226/25193.
- Airport Clean Vehicle Policies and Practices. CUTR Transportation Webcast Series. Tampa, Florida, May 2018.

Carlton C. Allen, TRIPS Program Manager
Center for Urban Transportation Research
University of South Florida

4202 East Fowler Avenue, CUT100
Tampa, FL 33620-5375
Phone: (850) 528-3653
Email: callen@cutr.usf.edu

PROJECT EXPERIENCE

Florida Department of Transportation (FDOT), Transit Research Inspection Procurement Services Program, Program Manager – duties ensure program goals are met:

- Provide safe, clean, reliable, quality, transit vehicles
- Ensure compliance with Federal and State purchasing requirements
- Promote customer satisfaction
- Provide safe equipment for the transportation of Florida's citizens
- Maximize the use of State and Federal funds
- Conduct research that enhances product performance

Perform technical duties and responsibilities:

- Write technical specifications for FDOT (Florida department of Transportation) contract buses
- Perform bus manufacturer plant audits to ensure contract compliance
- Testing and evaluation of new transit bus products
- Conduct crash investigations
- Conduct thermal event investigations
- Conduct performance test on cutaway buses to ensure they meet contract specification
- Assist FSU College of engineering with crash worthiness program testing
- Assist the FSU PRMPT program in developing manufacturer and sub-component training for transit agencies
- Audit bus manufacturers for Buy America compliance

Perform daily program management and execution:

- Manage daily operations at the Springhill inspection facility
- Pre-delivery inspections on transit buses
- Provide warranty and technical assistance to Transit properties
- Maintain TRIPS vehicle database

Austin Marie Sipiora, Research Associate

Austin has performed research on alternative fuels and energy efficient mobility, alternative fuel transit technologies, and general transportation planning topics.

EDUCATION

- B.A., 2012, English, University of South Florida
- M.A., 2015, Global Sustainability, University of South Florida
- M.U.R.P., Urban and Regional Planning, in progress, University of South Florida

PROJECT EXPERIENCE

- FCACS OOE Florida Alternative Fuel Resiliency Plan – Co-Project Investigator
- DOE Clean Cities Outreach, Education, & Performance Tracking – Co-Project Investigator
- NREL Stakeholder Engagement & Data Support for Fuel Resilience – Co-Project Investigator
- FTA HSCR Research Evaluation Implementation Plan – Researcher
- FDOT Toward a Florida Automated, Connected, Electric, and Shared (ACES) Transportation Systems Roadmap – Researcher, Electric Domain Lead
- FDOT Assessment of 5310 Program to Optimize Mobility Services – Researcher
- FDOT Automated Vehicle & Alternative Fuel Vehicle Florida Market Penetration Rate – Researcher

PUBLICATIONS & PRESENTATIONS

- Sipiora, A., Jackman, J., Menon, N., Huang, Y. & Bertini, R. A Roadmap Towards a Florida Automated, Connected, Electric, and Shared (ACES) Transportation Ecosystem. Accepted for Presentation at the TRB 2021 Annual Meeting.
- Kolpakov, A., Sipiora, A., Johnson, C. & Nobler, E. Transportation Fuel Resiliency: Case Study of Tampa Bay. Submitted for Publication in Transportation Research Record (TRR), Journal of the Transportation Research Board.
- Flynn, J., Perk, V. & Sipiora, A. Evaluation of the Federal Transit Administration's Transit and Health Access Initiative: Case Highlights, Findings, and Recommendations. Submitted for Publication in Transportation Research Record (TRR), Journal of the Transportation Research Board.
- Strategies for Improving Hurricane Resiliency in the Tampa Bay Area, Abstract #3888, TRB Transit Safety and Security Conference and APTA Mid-year Safety and Security Seminar, Virtual, November 2020.
- Implication of Market Penetration of Electric and Autonomous Vehicles for Florida State Transportation Revenue. ATINER 7th Annual International Conference on Transportation, Athens, Greece, June 2020.
- Transitioning to an Electric School Bus. Tampa Bay Clean Cities Webinar Series, Tampa, Florida, August 2020.
- Benefits of Workplace Electric Vehicle Charging. Tampa Bay Clean Cities Webinar Series, Tampa, Florida, May 2020.
- Johnson, C., Nobler, E., Kolpakov, A. & Sipiora, A. Poster, Transportation Fuel Resilience through
- Diversification in Tampa Bay, Florida. Transportation Research Board, 2nd International Conference on Transportation System Resilience to Natural Hazards and Extreme Weather Events. November 2019, Washington, D.C.
- Kolpakov, A., Sipiora, A. & Huss, J. ACRP Synthesis 89: Clean Vehicles, Fuels, and Practices for Airport Private Ground Transportation Providers. Washington, D.C.: The National Academies Press. Published 2018, https://doi.org/10.17226/25193.
- Airport Clean Vehicle Policies and Practices. CUTR Transportation Webcast Series. Tampa, Florida, May 2018.