Overview

Established in 1988 by the Florida Legislature, the Center for Urban Transportation Research (CUTR) in the College of Engineering at the University of South Florida (USF) is recognized nationally and serves as an important resource for policy makers, transportation professionals, the education system, and the public. With emphasis on developing innovative and implementable solutions to transportation problems, CUTR provides high-quality, objective transportation expertise in the form of technical support, policy analysis, and research support that translates directly into benefits for project sponsors.

A significant factor in CUTR’s success and a unique aspect of the Center is the responsiveness resulting from its faculty of full-time employees dedicated to conducting research. The multidisciplinary research staff includes experts in engineering, economics, planning, public policy, and geography who develop comprehensive solutions for all modes of transportation while combining academic and real-world experience.

CUTR now conducts $15 million in research annually for a variety of public and private sector sponsors in Florida and the United States, including the Florida Legislature, the Florida Transportation Commission, and state and local governments, agencies, and organizations. Areas of research include public transportation, transportation planning, intelligent transportation systems (ITS), transportation demand management (TDM), transportation economics and finance, geographic information systems (GIS), access management, corridor planning, alternative fuels, and transportation safety.

CUTR houses the National Center for Transit Research (NCTR), designated by the U.S. Congress in 1991 and reaffirmed in 1998, 2002, 2006, 2011, and 2013. Through NCTR, CUTR conducts research projects in rapidly-growing urban areas to develop innovative, pragmatic approaches that enable public transportation to meet the evolving needs of citizens.

In 2014, the USF College of Engineering celebrated its 50th year of educating engineers. The overall research outlook reinforces its dedication to supporting USF’s research enterprise, and it will continue to seek collaborative and focused opportunities in various sectors to diversify the faculty research portfolio. CUTR is proud to be part of this vibrant and vital college at the University of South Florida.

The following pages highlight CUTR’s research, activities, and personnel.
CUTR Vision
“CUTR will be the preeminent and internationally-recognized catalyst for transportation innovation.”

CUTR Mission
“CUTR solves community challenges through transportation research, workforce development, and outreach.”

CUTR Values
- Integrity
- Dignity, Respect, Open and Honest Communication
- Creativity
- Work/Life Balance
- Community Service
- Objectivity
- Excellence
- Collaboration
- Diversity
- Entrepreneurship

CUTR Advisory Board
Kimberlee B. DeBosier, Chair, Johnson, Mirmiran & Thompson, Inc.
Thornton J. Williams, Vice Chair, Williams Law Group, P.A.
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Cissy Proctor, Executive Director, Florida Department of Economic Opportunity
James Sebesta, Florida Transportation Commission
Jonathan Steverson, Secretary, Florida Department of Environmental Protection
Joe Waggoner, Tampa Hillsborough Expressway Authority

USF College of Engineering Mission
“The mission of the College of Engineering at the University of South Florida is to improve the quality of life in our community by providing a high-quality education for our students and practicing professionals, creating new knowledge and solving real world problems via innovative research, and engaging in effective community service and outreach.”
A Message from our New Director

On behalf of all faculty, staff and students at the Center for Urban Transportation Research (CUTR) at the University of South Florida (USF) in Tampa, thank you for taking the time to review our 2016-2017 Annual Report. With nearly 120 full-time research faculty, staff, and student research assistants and an Advisory Board of national and local business and transportation leaders to guide the organization, CUTR has enjoyed more than 28 years of continued success in conducting relevant and timely research and analysis and delivering education, training and technology transfer for sponsors at the local, state, and federal levels.

CUTR’s vision is to be the preeminent and internationally-recognized catalyst for transportation innovation. We provide solutions through transportation research, workforce development and outreach. Our work is multimodal and multidisciplinary, and as you’ll see in this Annual Report, we focus on public transportation, intelligent transportation systems, traffic operations, safety, pedestrian, bicycle and motorcycle safety, connected and automated vehicles and more.

Having joined CUTR in August 2016, I am honored to be serving in this new role as CUTR director and professor of civil and environmental engineering here at USF. I am grateful for this opportunity to work with such a talented and entrepreneurial team. We are thankful for support from our many sponsors including the USF College of Engineering, our Advisory Board, the Florida Department of Transportation, the U.S. Department of Transportation and many others. During this academic year my initial goals for CUTR include:

- 100 in 100 – Meeting with 100 stakeholders during my first 100 days.
- Defining the future of public transportation: CUTR is the place where the region, state, nation and world turn to define the future of sustainable mobility and accessibility.
- Moving the needle: Identifying key measures, such as Vision Zero, where we can partner with others to make measurable advancements.

I hope the following pages will inspire you to learn more about CUTR, our high standards for research and innovation, and that you’ll join with us to continue improving our multimodal transportation system for our fellow citizens.

Robert L. Bertini, Ph.D., P.E.
Director
January 2017
CUTR conducts high-impact, innovative research to change lives, improve health, foster sustainable development, and affect positive social change.

National Center for Transit Research (NCTR)

As a Tier I University Transportation Center sponsored by the U.S. Department of Transportation, NCTR conducts applied and advanced research, energetically disseminates the results, and expands the workforce of transportation professionals through education and training to address the challenges and opportunities of the future. In addition, NCTR provides research opportunities for graduate students, manages professional conferences, produces the international peer-reviewed *Journal of Public Transportation*, and connects thousands of transportation professionals through the management of several listservs that have more than 5,000 members. More than 170 NCTR research projects have been completed since 1999. NCTR’s purpose is to make public transportation and alternative forms of transportation, including managed lanes, safe, effective, efficient, desirable, and secure. Recent projects include “Evaluation of HART MetroRapid BRT,” “USF Sustainable Cities Initiative Program Support,” “Impact of Transportation Demand Management (TDM) Elements on Managed Lanes Toll Prices,” 2015 GIS in Transit Conference, and “Evaluation of Automated Vehicle Technology for Transit.”
Connected Vehicle Pilot Program

USDOT awarded a $17 million contract to the Tampa-Hillsborough Expressway Authority to conduct, in partnership with other local agencies and private sector stakeholders, an innovative pilot program designed to make transportation safer, smarter, and greener. The program will outfit cars, buses, and roadside equipment with technology to communicate with each other about various traffic conditions. Goals are to improve safety for vehicles, pedestrians, and bicyclists; improve traffic flow and transit trip times; and reduce Tampa Bay’s carbon footprint. Partnering agencies include the City of Tampa, Hillsborough Area Regional Transit (HART), CUTR, and private sector stakeholders, including Siemens and HNTB. CUTR’s main role in the project will be to develop a Performance Measures Plan and monitor and report on the project’s impacts on changes in mobility, safety, environmental impacts, and agency efficiency.

Commuting in America

Sponsored by the American Association of State Highway and Transportation Officials (AASHTO) and carried out in conjunction with a National Cooperative Highway Research Program (NCHRP) project that provided supporting data, *Commuting in America 2013* is a series of briefs that collectively describe travelers and their commute to work using Census data to describe the emerging patterns of commuting. Authored primarily by CUTR faculty, the reports serve as a common resource of factual information upon which policymakers can draw in shaping transportation development actions and policies over the coming years. The multi-year initiative, which began in 1984 with the first *Commuting in America* report provides data and analysis on commuting to support the informational needs of the state and metropolitan transportation planning and policy community. AASHTO makes these items available via its website (www.transportation.org). The 2013 report consists of a series of briefs, each of which addresses a critical aspect of commuting in America: the role of commuting in overall travel, population and worker trends, population and worker dynamics, the nature and pattern of jobs, job dynamics, vehicle and transit availability, consumer spending on transportation, how commuting influences travel, commuting mode choice, commuting departure time and trip time, auto commuting, transit commuting, bicycling and walk commuting, commuting flow patterns, and the evolving role of commuting.
Advanced Lighting Measurement System (ALMS)

An innovative lighting level measurement technology, the Advanced Lighting Measurement System (ALMS) automatically measures the illumination of street lights (the critical factor in night-time driving safety). Compared to all other methodologies, ALMS reduces measurement time by 2,000+ times (from 75 ft per hour to 30 miles per hour) and reduces operation cost by more than 90% (from $5,000 per mile to $400 per mile). The Florida Department of Transportation has used this system to measure lighting levels on its large-scale roadway network, usually an impossible task with traditional lighting measurement technology. The measured data have been used by government agencies and consulting companies to evaluate safety performance of roadway facilities.

TRB Access Management Manual

CUTR faculty authored the first and second editions of the TRB Access Management Manual, which includes issues, principles, techniques, programs, and other information related to access management—the systematic control of the location, spacing, design, and operation of driveways, median openings, interchanges, and street connections to a roadway. The publication presents comprehensive information in an effort to integrate planning and engineering practices with the transportation and land use decisions that contribute to access outcomes. Practical information on a range of issues and applications was incorporated, drawing upon the knowledge of the many experienced practitioners that participated in development of the manual. Topics include principles and effects of access management; steps in developing an access management program; access management techniques; the role of states, metropolitan planning organizations, and local governments; location and design procedures for access features; case examples of agency policies, plans, practices, and programs; state statute and regulatory prototypes; techniques for working with the public on access management issues; and legal considerations.
ITS, Traffic Operations & Safety

CUTR specialties include development and application of ITS technologies to transportation systems, comprehensive evaluation of ITS deployments, advanced traffic management systems, advanced traveler information systems, and development of mobile lighting level measurement devices. Traffic operations research focuses on advanced traffic signal technologies, traffic control and operations, freeway management and operations, traffic simulation, congestion management, traffic system modeling, and data collection techniques. Safety research areas include traffic safety, motorcycle safety, pedestrian and bicycle safety, transit safety, truck safety, incident management, interstate route diversion, crash avoidance systems, safety program evaluation, driving behavior study, pedestrian and bicycling behavior study, and safe routes to schools. Recent studies include “Understanding Interactions between Drivers and Pedestrian Features at Signalized Intersections,” “Evaluation on the Impact of Red RRFB Implementation at Freeway Off-Ramps on Driving Behaviors along Adjacent Arterials,” and “Pedestrian and Bicycle Safety Best Practices Guide.”

Transportation Policy Analysis

With an emphasis on institutional innovation, CUTR assists transit agencies, toll authorities, local regulators, and statewide boards with policy development, operational enhancements, and exploration of new technologies. CUTR’s analytical expertise helps organizations assess the economic impacts and effectiveness of policy, planning, and investment decision making. Research projects include examining transit operating contracts, determining the impact of urban circulator projects, ascertaining transit safety issue areas, analyzing fleet composition and service characteristics, estimating the economic impact of delaying investment in infrastructure, quantitative analysis of bus maintenance expenses, determining the fair market value of airport property, developing a life cycle cost analysis of alternative fuel options, creating a National Alternative Fuel Bus Clearinghouse to facilitate information exchange, and coordinating the Tampa Bay Clean Cities Coalition, established to promote alternative fuel sources and innovative propulsion technologies in the Tampa Bay region.

Analysis of Transit Contracting Models and Proper Incentives for Long-Term Success

As transit systems are being challenged to operate in the most cost-effective manner, budgets are being tightened, and demand for services increases, there is renewed interest contracting for fixed-route service in the U.S. Researchers inventoried and synthesized previous work of types of transit operating contracts in the U.S. and Europe, assessed the benefits and drawbacks of each general approach to contracting for transit service, and developed situational guidance for FDOT to help determine if a particular model could be appropriately considered. Focusing on areas that differentiate agency approaches to contracting in terms of assignment, responsibility, and oversight, three contractual arrangements that require the service provider to “manage, operate, and maintain” transit service, and two that represent a delegated management model were examined.

Integrating Transit with Road Pricing Projects

This study examined various levels of the treatment of public transportation in conjunction with the implementation of managed-lane highway projects. It details the ranges of transit investments identified in and associated with managed lanes that are in operation and those being planned, summarizes the range of those investments, and makes policy recommendations for the inclusion of public transportation elements into managed lane projects. The study includes a framework for deciding the appropriate extent to which transit should be incorporated into managed lane projects.
Economic Impact and Benefits of Central Florida Expressway Authority Five-Year Work Plan

The Expressway Authority commissioned this study to estimate the economic impacts and benefits of implementing the 2016–2020 Five-Year Work Plan strategic investments. This study reports the estimated economic impact of project expenditures and the monetary value of travel improvement benefits associated with the construction and operation of current system improvements, system expansion, investments in intelligent transportation systems, and other improvements. The economic impact of the Five-Year Work Plan is substantial in contributing to economic growth, as measured by $1.9 billion in gross business sales, $935 million in gross domestic product, and a combined 11,390 jobs (or 2,278 jobs per year) for the four-county Orlando-Kissimmee-Sanford metropolitan statistical area. In addition, the Work Plan stimulates economic activities in counties adjacent to the study area. When including the rest of the state, the Work Plan’s contributions result in a total impact of $2.1 billion in gross business sales, $1.0 billion in gross domestic product, and 12,328 jobs.

Technology Application among Florida Community Transportation Coordinators

As demand for paratransit services continues to increase in many communities, transit agencies must find innovative, creative, and cost-efficient ways to meet increasing demand, even when resources are not increasing at the same pace. This report will help agencies apply effective practices that have been successful in solving challenges with the application of new innovative technologies that are available to the industry. An online survey of paratransit providers in Florida and visits to seven sites were conducted to gather case examples and lessons learned from the deployment of reservation, scheduling, and dispatching software; mobile data computers or terminals; global positioning systems; automatic vehicle location; advanced telephone systems; and vehicle security cameras. Practical lessons learned can inform agencies seeking to deploy similar technologies in the areas of vendor selection, system selection, and transitioning.

Measuring the Use of Motorcycle Helmets

According to the National Highway Traffic Safety Administration (NHTSA), a universal motorcycle helmet law is the most efficient way of preventing serious injuries to motorcyclists in traffic crashes. However, more than half of all U.S. states do not have a universal helmet law or a law that covers any specific segment of the population; as a result, the average rate of helmet use in the U.S. is 42–59%. Given these circumstances, investigating and promoting voluntary helmet use has become a primary interest for many states, motorcycle safety advocates, and NHTSA. To measure the use of helmets effectively and efficiently, CUTR researchers conducted a study to understand how information on helmet use is collected and to identify preferred collection methods. This study discusses the advantages and disadvantages of three common data collection methods for motorcycle helmet use in the U.S.—stated preference survey, crash data, and observational survey—including recent technical advances, and presented results from a Florida observational survey conducted in 2014.
Workforce
DEVELOPMENT

CUTR/FDOT/FPTA Professional Development Workshop and Statewide Transit Safety Summit

More than 200 Florida public transportation professionals attend CUTR’s annual Professional Development Workshop sponsored with the Florida Department of Transportation (FDOT) and the Florida Public Transportation Association (FPTA). The two-day workshop features sessions that give public transportation professionals an opportunity to learn from industry experts, attend professional development training, learn about research updates, and network with their peers to stimulate new ideas and identify creative solutions to problem-solving and strategic planning. Unique professional development and educational enrichment opportunities are offered to public transportation professionals. Presentations at recent workshops have included the following:

• A Supervisor’s Role in FTA Drug & Alcohol Program Management
• Best Practices in Transit Performance Measures
• Complete Streets: Are Streets Really “Complete” without Transit?
• Critical Topics in FDOT and FTA Program Compliance
• Data and Technologies that Enhance Customer Service
• Transit Marketing Across a Multi-Generational Customer Base
• Handling Transit Customer Complaints
• Implementation Aids for Drug & Alcohol Program Management
• Maintenance Spotlight on Facilities and Vehicle Tracking

CUTR creates a well-educated and highly-skilled workforce through our continuing commitment to student success and workforce training.

• New Tools for Measuring Accessibility to Transit
• Organizational Dynamics and Career Development within Transit Agencies
• Public Transportation Business Development Increasing Ridership & Revenue
• Regional Transit Governance
• Safety Management Systems
• Scheduling and Operations Planning

In coordination with the workshop, the Statewide Transit Safety Summit gathers transit professionals to focus on transit safety-related research, information sharing, and engagement on issues such as bus operator and passenger safety, efficacy of and leading practices in transit safety training, driver fatigue, distracted driving, and collisions.

Transit Certificate Courses

CUTR works extensively with the Federal Transit Administration and the Florida Department of Transportation to conduct transit safety research and develop transit safety training tools and other resources through curricula, videos, and computer-based training. Certificates and programs offered include the following:

• Certified Transit Technician Program – provides post-secondary adult vocational training and State certification for maintenance technicians
• Transit Operator Trainer Training Program – works in partnership with the U.S. Transportation Safety Institute (TSI) to train and certify Florida’s bus operator trainers
• Transit Manager Certificate Program – works with USF’s Continuing Education Department to provide transit managers with advancement skills
• Airport Leadership Development Program – under direction from the Florida Airports Council and FDOT
• Drug and Alcohol Testing Program Management Certificate Program
• Florida Public Transportation Association (FPTA) Leadership Program
Also housed at CUTR are the Substance Abuse Management Program, the Florida Rural Transit Assistance Program, and the Transit Research Inspection Procurement Services program, Florida’s statewide paratransit vehicle procurement program.

Commuter Choice/Social Marketing in Transportation Certificates

The Commuter Choice Certificate program provides the most comprehensive training program for transportation professionals involved in managing demand for transportation systems. The Social Marketing in Transportation Certificate blends theories of change, research, and case studies to help transportation professionals develop social marketing programs to address some of society’s most challenging transportation behavior-related problems. Examples of courses offered include:

• Estimating TDM Societal Costs and Benefits Using TRIMMS
• Trends and Conditions Affecting Transportation

• Commuter Choice Support Strategies
• Introduction to Social Marketing and Transportation
• Access Management
• Bicycle and Pedestrian Issues
• Carpool and Vanpool Options
• Introduction to Parking Management
• Strategy: Changing Travel Behavior by Time and Place
• TDM in Land Development and Design
• Transit Service Options
• Measuring Performance and Sharing Results
• Situational Analysis for Establishing Goals and Objectives

Graduate Certificate in Transportation Systems Analysis

This curriculum provides an opportunity to advance credentials and knowledge in the field of transportation engineering. It includes extended knowledge in such areas as planning, analysis and design, all vital to transportation planners. Course offerings from Civil and Industrial Engineering provide a range of contemporary materials. Four courses (12 credits) are required to complete the certificate. The courses are offered on campus or fully online.
OUTREACH

CUTR facilitates the exchange of knowledge and serves as a depository for the most current information pertaining to urban transportation and related issues through a variety of sources.

Journal of Public Transportation

The *Journal of Public Transportation* is an international journal produced by the National Center for Transit Research (NCTR) at USF. The journal contains original research and case studies associated with various forms of public transportation and related transportation and policy issues. Topics are approached from a variety of academic disciplines, including economics, engineering, planning, and others, and include policy, methodological, technological, and financial aspects. Emphasis is placed on the identification of innovative solutions to transportation problems. Now in its 19th year, the journal is sponsored by the U.S. Department of Transportation’s Office of the Assistant Secretary for Transportation Research and Technology, formerly the Research and Innovative Technology Administration (RITA). The journal is available online at no cost through the University of South Florida’s Scholar Commons at http://scholarcommons.usf.edu/jpt/.

Webinars, Netconferences

CUTR presents webcasts biweekly to increase the knowledge of transportation professionals and policymakers in Florida and the rest of the country by sharing the latest findings of transportation research, increase the reach of technology transfer, especially to those transportation professionals who are unable to travel to state and national conferences due to time and cost constraints, and to encourage discussion among participants and receive input on subjects requiring future research. Selected webcasts (available at www.nctr.usf.edu) include the following:

- “A New Set of Equations to Address Urban Transportation: $ In = $ Out = Tolling for Transit”
- “Attracting and Securing Airline Service”
- “Citizens or Customers? Transit Agency Approaches to Community Engagement”
- “Collaboration between Universities and Cities to Create Sustainable Communities”
- “Cost-Benefit Analysis of Rural and Small Urban Transit”
- “Evaluation of Rear-end Collisions and Identification of Possible Solutions”
- “Five Ways to Mitigate Substance Abuse in the Transportation Workplace”
- “Impacts of Transportation Network Company (TNC) and Autonomous Vehicles”
- “Incentivizing Off-Peak Delivery of Freight”
- “Innovating the Paratransit System: Lessons Learned from Florida Case Examples”
- “Internal Trip Capture for Mixed-use Developments”
- “Introduction to Airport Economics”
- “Introduction to Commuter Tax Benefits”
- “Long Range Transportation Plan Review”
- “Motorcycle Crash Trends in Florida”
- “Observed Compliance vs. Stated Understanding of Pedestrian Crossing Laws In Florida”
• “OneBusAway Multi-Region: Rapidly Expanding Mobile Transit Apps to New Cities”
• “Pedestrian/Bicyclist Warning Devices and Signs at Highway-Rail and Pathway-Rail Grade Crossings”
• “Public Transportation Public and Private Partnerships – Universal Access Increasing Ridership and Revenue in Central Florida”
• “University Campuses as Leaders in the Shift Away from Driving”
• “Using Audience Response to Measure Pedestrian Education Efforts”
• “Value Capture Coordination Best Practices and Case Studies for Transit Capital Projects”
• “Veteran Mobility in Small Urban and Rural Areas”
• “Visionary Student Concepts for Florida’s Future Corridors”

Clearinghouses

• National TDM and Telework Clearinghouse and Best Workplaces for Commuters℠ – provides the most comprehensive and up-to-date information on alternatives to driving alone and telework programs to meet the congestion, air quality, and mobility challenges facing our communities. Also houses Best Workplaces for Commuters, which recognizes more than 400 employers that provide comprehensive commuter benefits to employees. Visit www.bestworkplaces.org for more information.

• Florida Statewide TDM Clearinghouse – provides technical assistance in support of Florida’s commuter assistance program to achieve Florida’s 2060 vision and goals as identified in the Florida Department of Transportation’s 2060 Florida Transportation Plan. Visit www.commuterservices.com for more information.

• Transit GIS Clearinghouse – highlights the growing needs and opportunities available to transit GIS professionals and provides resources to assist transit agencies to become more efficient and responsive in areas including resources and training, data, techniques and models, and analysis. Visit www.transitgis.org for more information.

• National Transit Safety Research and Assistance Center – provides resources to public transportation providers, local and state governments, the private sector, and other transit stakeholders to improve public transportation safety in the United States. Visit www.transitsafetycenter.org for more information.

Listsers

CUTR hosts nearly 8,600 subscribers on discussion listservs to foster peer-to-peer exchange or announcements (including e-newsletters).

- Access Management
- Best Workplaces for Commuters℠
- Bus Fleet Maintenance
- Bus Rapid Transit
- Florida Operations Network
- Florida Transit Safety Network
- Journal of Public Transportation
- Location Aware Information Systems
- Parking
- RTAP
- TDM Training
- Telework
- Transit GIS
- Transit Safety
- Transportation/TDM

Other listservs include those on sustainability, rail maintenance, fixed guideway, bike/walk, and numerous others. More information can be obtained at www.cutr.usf.edu/outreach/listservs/. 
CUTR promotes intercampus transportation and related research activities among universities to enhance the ability to attract funding for transportation and related research.

National Center for Transit Research

NCTR is a Tier I University Transportation Center (UTC) in the categories of Transit-Focused and Livable Communities and collaborates closely and regularly with the following partners:

- Texas A&M University in College Station, featuring the Texas A&M Transportation Institute (TTI)
- University of Illinois at Chicago, featuring the Urban Transportation Center (UTC) in the College of Urban Planning and Public Affairs
- Florida International University in Miami, featuring the Lehman Center for Transportation Research (LCTR) (recognized as a Minority-Serving Institution)
- North Dakota State University (NDSU), featuring the Small and Urban Transit Center of the Upper Great Plains Transportation Institute

Patents Awarded to CUTR Researchers

CUTR works closely with the USF College of Engineering faculty on a number of research projects. Of particular interest are the following U.S. patents issued to CUTR researchers and students in partnership with faculty from the USF Department of Computer Science and Engineering:

- #9,130,995, System and Method for Rendering a Distributed Location-Aware System — distributed location-aware system that can efficiently exchange location data over large geographic areas without requiring a centralized server.
- #9,047,384, System and Method for Automatically Determining Purpose Information for Travel Behavior — method to derive trip purpose information from GPS data from mobile device using GIS data for land use categories and user-provided information for home and work locations.
- #8,924,536, Distributed and Decentralized Location Aware Architecture — distributed and decentralized location-aware system that includes peers in communication with other peers and adapted to communicate PING, PONG, and ALERT messages.
• #8,843,315, System and Method for Spatial Point-of-Interest Generation and Automated Trip Segmentation Using Location Data – algorithm that creates points-of-interests from raw tracking data.

• #8,751,162, System for Pattern Recognition in Real-time Location-based Services Applications – prediction method that estimates real-time position of mobile device based on previously-observed data.

• #8,725,831, Architecture and Two-Layered Protocol for Real-Time Location-Aware Applications – defines architecture and two-layer communication protocol that provides timely location updates via unreliable protocol and provides subscription mechanism that allows a location-aware application on mobile device to act on its own real-time location and on real-time location of other mobile devices in system.

• #8,718,671, Adaptive Location Data Buffering for Location-Aware Applications – supports the use of unreliable protocol to transmit location data from mobile device to server in real-time.

• #8,600,674, Using Pattern Recognition in Real-time LBS Applications – estimates the position of a mobile device based on previously-observed data when real-time positioning data are unavailable.

• #8,548,724, System and Method for Real-time Travel Path Prediction and Automated Incident Alerts – predicts an individual’s travel path based on real-time location and personal travel history and delivers highly-targeted incident alerts based on this information.

• #8,249,807, Method for Determining Critical Points in Location Data Generated by Location-Based Applications – reduces the amount of location data sent over a wireless network by pre-filtering data on-board a mobile device and eliminating “non-critical” points not needed to recreate device’s path.

• #8,169,342, Method of Providing a Destination Alert to a Transit System Rider – algorithm used in the Travel Assistance Device system to alert transit riders when to exit the bus based on real-time location and nearby bus stops.

• #8,145,183, On-Demand Emergency Notification System using GPS-equipped Devices – mobile app to automatically determine cell phone user current evacuation zone and real-time evacuation information for that zone.

• #8,138,907, Travel Assistant Device – system to assist transit riders with intellectual disabilities.

• #8,140,256, Dynamic Ridematching Algorithm – GIS-based algorithm to match riders for carpools that are traveling on similar routes.
Student INVOLVEMENT

CUTR actively supports initiatives to enhance the professional development of the current and next generation of transportation professionals.

Student involvement in CUTR and NCTR project research is a priority, with graduate and undergraduate students involved in ongoing research projects. The major areas of study of these students are multidisciplinary in nature, including engineering, economics, anthropology, urban planning, business, geography, and public administration. Through research and professional experiences gained at CUTR, well-informed and well-educated students go on to work in transportation engineering, public transportation, and multimodal planning environments and carry out their career activities with a far richer understanding and appreciation of the transportation profession.

CUTR faculty supplement USF’s academic teaching faculty, offering a breadth and depth of teaching and research opportunities well beyond that which could be supported by tenure-track faculty alone, including serving on thesis and dissertation committees. CUTR and NCTR researchers participate in a graduate transportation seminar series, and students are active in student professional organizations, paper and presentation participation, and pursuit of a variety of awards and scholarships. CUTR faculty serve as sponsors of the USF Student Chapter of the Institute of Transportation Engineers.

2015 NCTR Student of the Year Katrina Corcoran (from left): Hinebaugh, Corcoran, Perk, Volinski

2015 Georgia Brosch Memorial Transportation Scholarship winner Nikhil Menon (from left): Hinebaugh, Menon, Brosch, Brosch
CUTR Transportation Achievement Award

The CUTR Transportation Achievement Award is presented annually to an individual who has made significant contributions to transportation. Since 2003, the following have been honored:

BILL JOHNSON, Secretary, Florida Department of Commerce, President & CEO, Enterprise Florida, Inc. (2015)

JIM SEBESTA, Florida Transportation Commissioner and former State Senator (2014)

WAYNE RICH, former Chair, Orlando-Orange County Expressway Authority (2013)

JOSE ABREU, former Secretary, Florida Department of Transportation, and Director, Miami International Airport Director (2012)

MALCOLM BEARD, former State Senator (2011)

BEN WATTS, former Secretary, Florida Department of Transportation (2010)

JAMES T. HARGRETT, JR., former Florida Senator (2009)

BOB BURLESON, President, Florida Transportation Builders’ Association (2008)

JAMES ELY, former Executive Director, Florida’s Turnpike Enterprise (2007)

EARL DURDEN, Chairman/CEO/Director, Rail Management Corporation (2006)

JOHN MICA, U.S. Representative (2005)

DAVID BROWN, former chair, Florida Transportation Commission (2004)

DON CRANE, former President, Floridians for Better Transportation (2003)
Research Programs

National Center for Transit Research (NCTR)

NCTR was created at CUTR as a result of Congressional designations of University Transportation Centers (UTCs) in 1991, 2002, 2006, 2011, and 2013 to conduct applied and advanced research, disseminate the results, and expand the workforce of transportation professionals through education and training to address the challenges and opportunities of the future. In addition, NCTR manages professional conferences, produces the international peer-reviewed Journal of Public Transportation, and connects thousands of transportation professionals through the management of several listservs that have more than 5,800 members. More than 170 NCTR research projects have been completed since 1999. NCTR’s 2013 consortium partners are North Dakota State University’s Small Urban and Rural Transit Center, the University of Illinois at Chicago’s Urban Transportation Center, Florida International University’s Lehman Center for Transportation Research, and Texas A&M University.

Joel Volinski, Director
Dennis Hinebaugh, Administrative Director
Dr. Steven Polzin, PE, Director, Mobility Policy Research Program
Lisa Staes, Director, Transit Safety and Workforce Development Program
Philip L. Winters, Director, TDM Program
Patricia Ball, Publications Manager/Editor
David Fink, Graphic Designer
Reena Raturi, CPA, CRA, Finance Manager
Lisa Ravenscroft, Program Specialist
Wendy Teague, Graphic Designer

Advanced Geo-Spatial Informatics Lab (AGIL)

AGIL conducts research activities that facilitate the use and analysis of transportation-related geo-spatial data. Specialties include public transit performance measures, transit accessibility, and livability. The AGIL group uses state-of-the-art technologies to ensure that the most timely data are used to improve decisionmaking processes. Research efforts include the development of Internet-based data applications, GIS analyses, geo-spatial analysis for CUTR research projects, and research for a variety of agencies throughout Florida and the United States.

Martin Catalá, Manager

Automated Vehicle Institute (AVI)

AVI provides transit agencies and transportation stakeholders with policy, planning, and research solutions and, in cooperation with the Florida Department of Transportation, promotes public awareness through public outreach services for new businesses wishing to enter the automated and connected vehicle arena. It also acts as an information repository, catalyst, and connector for those interested in automated and connected vehicle technology. In cooperation with NCTR, AVI is committed to helping the nation’s public transportation systems improve transit safety and operational efficiencies by promoting the application of connected and automated vehicle technologies, evaluating the implementation and maintenance of those technologies, and providing the tools and resources that may be used to guide local decisionmaking, including deployment. The AV Institute’s website, www.automatedvehicleinstitute.org, offers a wealth of information regarding automated and connected vehicles, ranging from current news to AV events and published research.

Stephen L. Reich, Coordinator
ITS, Traffic Operations & Safety

This program actively pursues innovative projects and collaborations to develop and apply new concepts and technologies to solve real-world transportation problems. Researchers specialize in Intelligent Transportation Systems (ITS), automated vehicles, traffic engineering and operations, vulnerable road user safety, naturalistic behavior studies, congestion mitigation strategies, incident management, commercial vehicle operations, freight management, traffic simulation, street lighting level measurement, traffic impact studies, trip internalization in multi-use developments, public opinion surveys and analysis, educational outreach, and implementation of effective paid media campaigns.

- Dr. Pei-Sung Lin, PE, PTOE, FITE, Director
- Richard Hartman, AICP, CNU-A, JD, Research Associate
- Jason Jackman, MPA, Research Associate
- Dr. Achilleas Kourtellis, Research Associate
- Dr. Seckin Ozkul, PE, Research Associate
- Dr. Zhenyu Wang, Research Associate
- Dr. Rui Guo, E.I., Postdoctoral Scholar
- Qiong Shan Chen, Educational Outreach Coordinator
- Navid Farahbakhsh, E.I., Public Information Coordinator
- Jeanne Kean, Graphic Artist
- Kristin Larsson, Grant Coordinator
- Kelly Leto, TCRA, Research Support Specialist
- Erica Nelson, Program Assistant
- Deborah Schultz, Program Planner

Mobility Policy Research

CUTR’s Mobility Policy Research Program conducts a variety of policy-focused research initiatives targeted at blending knowledge of the technical, economic, political, and social aspects of transportation with appropriate theory, data sources, and research methods to gain a richer understanding of transportation and provide policy guidance for addressing transportation problems. Specific areas of expertise include travel behavior theory, public transportation, transportation and land use, impacts of emerging technology on transportation, performance measurement, evaluation, and data analysis.

- Dr. Steven Polzin, Director
- Dr. Xuehao Chu, Senior Research Associate
- Jodi Godfrey, E.I., Research Associate
Motorcycle Injury Prevention Institute (MIPI)

MIPI conducts research and educational outreach to prevent vehicle injuries and deaths focused on motorcycles. The institute’s engineers and public health professionals have significant experience with motorcycle safety promotion techniques including theory-based motorcyclist behavior change; areas of expertise include data collection, analysis and visualization, epidemiology of motor vehicle collisions and injuries, crash modeling, behavior safety program development and evaluation, traffic safety policy including TZD (Toward Zero Death), and regulation development and evaluation.

Dr. Chanyoung Lee, Director  
Dr. Siwon Jang, Research Associate  
Dr. Behzad Karimi, Postdoctoral Scholar  
Dr. James Takacs, Traffic Outreach Specialist  
David Hills, Motorcycle Safety Specialist  
Oana McKinney, GIS Specialist  
Megan Cott, Program Assistant

National Bus Rapid Transit Institute (NBRTI)

NBRTI is a renowned international program of training, technical assistance, research, and innovation. Sponsored by the Federal Transit Administration (FTA), it was created at CUTR in 2001 to serve as a resource to transit agencies, consultants, and government agencies that are planning, designing, engineering, building, or operating BRT systems. NBRTI’s mission is “to facilitate the sharing of knowledge and innovation for increasing the speed, efficiency, and reliability of high capacity bus service through the implementation of bus rapid transit systems.”

Dennis Hinebaugh, Director

Planning & Corridor Management

For more than 20 years, this program has delivered high-quality applied research, policy development, and technology transfer services for public, nonprofit, and private sector clients on a range of contemporary transportation planning topics. Knowledgeable program faculty bring together public and private sector experience to address client needs. Program focus areas include metropolitan transportation planning, multimodal planning, access management, and public involvement.

Kristine Williams, AICP, Director  
Jeff Kramer, AICP, Senior Research Associate  
Dr. Vergil Stover, PE, Affiliated Faculty  
Alexandria Carroll, Research Associate  
Christen Miller, Program Assistant
Transit Research

This program addresses technical and policy issues in transit management and planning, transit operations, and transit data and modeling, among others. Researchers provide technical support and planning research for transit systems, state DOTs, local governments, and MPOs in program monitoring and evaluation, BRT, performance and peer analyses, transit development and operations planning, customer satisfaction, long-range transportation plans, and advanced public transportation systems. Policy-focused research initiatives blend knowledge and research methods to gain a richer understanding of transportation and to provide policy guidance for addressing transportation problems. CUTR also provides assistance to the Federal Transit Administration on strategic visioning and metrics, report publication, and evaluations.

Dennis Hinebaugh, Director
Jennifer Flynn, Senior Research Associate
Dr. Victoria Perk, Senior Research Associate
Cheryl Thole, Senior Research Associate
Patricia Ball, Publications Manager/Editor
David Fink, Graphic Designer
Lisa Ravenscroft, Program Specialist
Wendy Teague, Graphic Designer

Transit Management & Innovation

This program blends research activities with practical industry applications by providing technical support, system operational analysis, and transit management services to transportation agencies, local governments, and private sector interests. TMI coordinates the Florida Transit Planning Network and the Florida Transit Marketing Network in partnership with the Florida Department of Transportation.

Rob Gregg, Director
Ann Joslin, Senior Research Associate
Brian Pessaro, AICP, Senior Research Associate
Mark Mistretta, Research Associate
Kevin Salzer, Senior Research Associate
Andrew Spicer, Research Associate
Melissa DeLeon, Research Support Specialist

Transit Safety & Workforce Development

This program provides technical assistance and professional development opportunities to Florida’s public transportation professionals and includes State-sponsored certificate programs designed for transit managers, maintenance technicians, transit operator trainers, and substance abuse management professionals. In addition, extensive transit safety-related research initiatives are conducted for the Federal Transit Administration, FDOT, and the Transportation Research Board. Through its workforce development function, the program develops transit safety training curricula, associated tools, and other resources. Also housed at CUTR are the Substance Abuse Management Program, the Florida Rural Transit Assistance Program, and the Transit Research Inspection Procurement Services program.

Lisa Staes, Director
Michael Audino, Senior Research Associate
Edward Bart, Senior Research Associate
Jodi Godfrey, E.I., Research Associate
Carlton Allen, Senior Vehicle Field Inspector
Molly Buffington, Training Support Specialist
Diana Byrnes, Substance Abuse Management Specialist
Kevin Daniels, Vehicle Field Inspector
James Dougherty, WSO-CSSD, TSSP
Michael Flanigon, WSO-CSSD, TSSP
John Fletcher, Vehicle Field Inspector
Stephanie Lewis, Instructional Designer
Kevin Lyons, WSO-CSSD, TSSP
Todd Parsons, Learning & Development Facilitator
Lazara Stinnette, Administrative Specialist
James Tucci, PE, WSO-CSSD, TSSP
Roberta Yegidis, CCTM, CSSO, Transit Safety & Security Specialist
Transportation Demand Management

Through the nation’s largest and most comprehensive TDM research program, CUTR’s diverse research portfolio ranges from guidance for integrating TDM into the transportation planning process to developing the TRIMMS™ tool for estimating the impact of TDM to developing patented technologies for GPS-enabled mobile phones to track travel behavior. Technical assistance efforts include managing Best Workplaces for Commuters®, which recognizes and supports employer-provided transportation services; operating the Florida TDM Clearinghouse and the National TDM and Telework Clearinghouse; producing net conferences; administering a listserv to foster peer-to-peer exchanges; and advancing safety by conducting targeted bicycle and pedestrian safety educational outreach programs to community groups and schools.

Philip L. Winters, Director
Dr. Sean Barbeau, Principal Mobile Software Architect for R&D
Julie Bond, Senior Research Associate
Nevine Labib Georggi, Senior Research Associate
Sara Hendricks, AICP, Senior Research Associate
Dr. Amy Lester, Postdoctoral Scholar
Christine Epps, Training Support Specialist
Lucy Gonzalez, Safe Routes to School Coordinator
Brentin Mosher, Program Support Specialist

Transportation Program Evaluation & Economic Analysis

CUTR’s TPEEA research team blends decades of executive transportation management experience with state-of-the-art economic and quantitative analysis capabilities. Researchers provide data analysis and synthesis, assess capital needs and develop situational guidance, conduct policy analysis and develop prioritization methodologies, and determine investment impacts. Areas of expertise include aviation infrastructure financing, evaluation of alternative fuel technologies, and examining the linkages between transportation infrastructure investment, economic development, and residential location patterns.

Stephen L. Reich, Director
Janet Davis, Deputy Director
Dr. Siimnio Concas, Senior Research Associate
Alex Kolpakov, Research Associate
Jana Huss, Program Specialist

CUTR Administrative Team

Kenneth Short, Director, Business & Finance
Arunima Bagui, Fiscal & Business Analyst
Lizette Charriez, Research Specialist–Purchasing
Donna Everhart-Reno, Fiscal & Business Specialist
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Donald Hayward, Network Administrator
Grace Hunt, Executive Assistant
Pam Lapaugh, Senior Administrative Clerk
Reena Ratnuri, Fiscal & Business Analyst
Ryan Wakefield, Graphic Designer
DENNIS HINEBAUGH, Interim Director, CUTR; Director, Transit Research Program; Administrative Director, NCTR; Chair, TRB Public Transportation Group – BS, Social Sciences, Michigan State University, 1978. Specialties: Transit system planning, bus rapid transit, rail transit planning, transitways, short and long range capital and operating planning, transit fare policy.

ROB GREGG, Director, Transit Management & Innovation Program – BA, History, Univ. of Florida. Specialties: Public transportation management, market research, community involvement, mobility management planning, employee motivation, intergovernmental partnership coordination.

CHANYOUNG LEE, PhD, Director, Motorcycle Injury Prevention Institute – PhD, Transportation Engineering, Univ. of Wisconsin, Madison; MS, Transportation Planning, BS, Urban Planning, Hongik University. Specialties: Motorcycle safety, traffic analysis support, winter weather mobility impacts, microsimulation calibration and validation, ramp metering retiming.

PEI-SUNG LIN, PhD, PE, PTOE, FITE, Director, ITS, Traffic Operations & Safety Program – PhD, Civil Engineering (Transportation), Univ. of Florida, 1995; MS, Civil Engineering, Univ. of Texas at Austin, 1991; BS, Civil Engineering, National Chung-Hsing Univ., Taiwan, 1986. Specialties: Traffic signal control and operations, traffic engineering and studies; ITS; traffic, motorcycle, pedestrian and bicycle, transit, and commercial vehicle safety; naturalistic driving and bicycling behavior study, freeway management, congestion mitigation, transportation planning, internal trip capture, traffic impact study, concurrency analysis.

STEVEN POLZIN, PhD, Director, Mobility Policy Research Program – PhD, Civil Engineering, Transportation, Northwestern, 1986; MSCE, Urban Systems Engineering, Northwestern, 1976; BSCE, Civil and Environmental Engineering, Univ. of Wisconsin, Madison, 1974. Specialties: Public transportation, public policy analysis, transportation planning, systems evaluation, planning process design, mobility analysis.

STEPHEN L. REICH, Director, Transportation Program Evaluation & Economic Analysis Program; Coordinator, Automated Vehicle Institute – BA, Geography & Environmental Planning, Towson State Univ., 1979. Specialties: Transportation agency management, innovative financing, capital programming, federal aid, toll facility management and operations.

LISA STAES, Director, Transit Safety & Workforce Development Program – BS, Geography, Florida State Univ., 1987; FDOT/AASHTO Leadership Academy, 1997. Specialties: Public transit safety, long/short range transit planning, transit workforce development and technical assistance, coordinated mobility planning for transportation disadvantaged populations, FTA public transit grant programs and initiatives.


PHILIP L. WINTERS, Director, Transportation Demand Management Program – BS, Civil Engineering, Virginia Polytechnic Institute and State Univ., 1978. Specialties: Transportation demand management, program evaluation, workforce development, technology transfer, location aware services.


MICHAEL AUDINO, Senior Research Associate – MA, Business Leadership, Upper Iowa Univ., 1999; BS, Community and Regional Planning, Iowa State Univ., 1977. Specialties: Strategic and operational plans development and evaluation, communication and outreach activities, education and training seminar design and implementation, rural transit leadership and coordination, volunteer transportation program planning and design, air service development and airport marketing.


EDWARD BART, Senior Research Associate – MPA, USF, 2007; BBA, McKendree Business College, 1989. Specialties: Maintenance management and analysis, maintenance training and curriculum development, fleet performance measurement and reporting, trend analysis, preventive maintenance planning and development.


ALEXANDRIA CARROLL, Research Associate – MURP, Urban and Regional Planning, USF, 2015; BA, History, USF, 2012. Specialties: Multimodal transportation planning, land use and transportation policy, freight planning, livability, sustainable development.

XUEHAO CHU, PhD, Senior Research Associate – PhD, Economics, Univ. of California at Irvine, 1993; MA, Economics, Univ. of California at Irvine, 1991; BS, Mathematics, Hangzhou Univ., China, 1982. Specialties: Transportation economics, urban and regional economics, discrete choice analysis, quantitative methods.

SISINNIO CONCAS, PhD, Research Associate Professor – PhD, Economics, USF, 2010; MA, Economics, USF, 2000; Doctor, Political Science, Università degli Studi di Sassari, Italy, 1997. Specialties: Urban and regional economics, economic impact analysis, travel demand modeling, econometric modeling.

JANET DAVIS, Deputy Director, Transportation Program Evaluation & Economic Analysis Program – BA, Psychology, Southern Illinois Univ. Specialties: Transportation planning, transportation program development and evaluation, toll agency management and operations, financial analysis.


NEVINE LABIB GEORGGI, Senior Research Associate – MSCE, USF, 2000; BS, Civil Engineering, Cairo Univ., 1984. Specialties: TDM, ITS planning, trip generation models, travel behavior research, travel-related statistical analysis, transportation survey design and analysis, project development and environmental studies.


SARA HENDRICKS, AICP, Senior Research Associate – MRP, Land Use Planning, Univ. of North Carolina, Chapel Hill, 1991; BA, Film, Pennsylvania State Univ., 1983. Specialties: Land use planning and growth management, bicycle/pedestrian facilities planning, transportation demand management.


ANN JOSLIN, Senior Research Associate – BS, Business Administration, Univ. of Central Florida, 1981. Specialties: Transit planning, marketing, transportation demand management and university transportation.


SARA HENDRICKS, AICP, Senior Research Associate – MRP, Land Use Planning, Univ. of North Carolina, Chapel Hill, 1991; BA, Film, Pennsylvania State Univ., 1983. Specialties: Land use planning and growth management, bicycle/pedestrian facilities planning, transportation demand management.


ANN JOSLIN, Senior Research Associate – BS, Business Administration, Univ. of Central Florida, 1981. Specialties: Transit planning, marketing, transportation demand management and university transportation.

ACHILLEAS KOURTELLIS, PhD, Research Associate – PhD, USF, 2009; MS, Civil Engineering (Transportation), USF, 2006; BS Civil Engineering, USF, 2004. Specialties: Statistical analysis, ITS implementations, in-vehicle safety devices, driver-controlled experiments for technology testing, pedestrian and motorcycle safety studies.


SECKIN OZKUL, PhD, PE, Research Associate – PhD, Civil Engineering (Transportation), Univ. of Florida, 2014; Master of Civil Engineering, USF, 2009; BS, Civil Engineering, Auburn Univ, 2006. Specialties: Commercial vehicle operations, freight management and logistics, economic impacts of freight transportation, traffic engineering and operations, vehicle emissions and fuel consumption rate estimation, roadway level-of-service studies, statistical analyses.

VICTORIA PERK, PhD, Senior Research Associate – PhD, Economics, USF, 2015; MA, Economics, 1993; BA, Economics, Eckerd College, 1992. Specialties: Transportation economics, transit system performance analysis, transit development plans, transit service planning, survey design and analysis, statistical analysis.


KEVIN SALZER, Senior Research Associate – MS, Urban and Regional Planning, Florida State Univ., 2008; Specialties: Transit operations, service planning, geographic information systems.


ZHENYU WANG, PhD, Research Associate – PhD, Civil Engineering (Transportation), USF, 2008; MS, Transportation Engineering, Chang’An Univ., China; BS, Electrical Engineering, Taiyuan Univ. of Technology, China. Specialties: Crash analysis, traffic safety, vulnerable road user safety, traffic signal systems, traffic simulation, roadway information system, ITS application, street lighting level measurement.

AFFILIATED FACULTY

DIANA BYRNES, C-SAPA, Substance Abuse Specialist

DONNA DAVIS, PhD, Associate Professor, USF Muma College of Business

MIGUEL LABRADOR, PhD, Professor, USF Dept. of Computer Science & Engineering

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FRED MANNERING, PhD, Professor, USF Dept. of Civil & Environmental Engineering

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JAMES STOCK, PhD, Professor, USF Muma College of Business

VERGIL STOVER, PhD, PE, Access Management Specialist

YU ZHANG, PhD, Assistant Professor, USF Dept. of Civil & Environmental Engineering
Selected Publications/Presentations

Publications


Concas, Sisinnio, Sean Barbeau, Phil Winters, and Julie Bond, “Measuring Travel Behavior Changes to Variably Priced Carsharing Using Mobile Applications,” in S. Rasouli and H. Timmermans, eds., Mobile Technologies for Activity-Travel Data Collection & Analysis, Hershey PA.

Kolpakov, Alex, “Tracking Airport Rates is Important for Healthy Aviation System,” Airport Magazine (2014).


Presentations


Ozkul, Seckin, “Economic and Operational Impacts of Commercial Trucks on Florida Freeways and Multilane Highways,” 8th UTC Spotlight Conference on the Role of Freight Transportation in Economic Competitiveness; (with Washburn) “Implementation of On-Board Diagnostics Data into a Custom Traffic Microsimulation Tool,” UTC Conference for Southeast Region.


