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Center for Urban
Transportation Research
University of South Florida

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TRIMMS© Aims to Quantify Net Social Benefits of Vehicle Trip Reductions

With funding from the Florida Department of Transportation and the U.S. Department of Transportation, NCTR recently developed TRIMMS© (Trip Reduction Impacts for Mobility Management Strategies), a practitioner-oriented sketch planning tool.

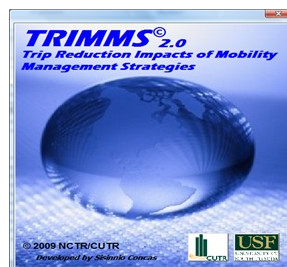
TRIMMS© is a spreadsheet application that estimates the impacts of a broad range of transportation demand management (TDM) initiatives and provides program cost-effectiveness measures, such as net program benefits and benefit-to-cost ratio indicators. It evaluates strategies directly affecting

the cost of travel, such as public transportation subsidies, parking pricing, pay-as-you-go pricing, and other financial incentives and also evaluates the impact of strategies affecting access and travel times and many other employer-based TDM program support strategies, such as flexible work hours and guaranteed ride home programs.

Starting from a baseline scenario describing a TDM program in terms of commuter travel behavior (mode shares, average trip lengths, peak and off-peak spreads), TRIMMS© evalu-

ates the impacts of TDM implementation by estimating changes in travel behavior (mode shares, vehicle miles of travel reductions). Changes in the baseline scenario are then used to estimate changes in the external costs associated with these travel behavior changes. TRIMMS© provides estimates of changes in external or social costs associated with:

- Air pollution
- Added congestion
- Excess fuel consumption
- Global climate change
- Health and safety
- Noise pollution



Changes with a negative value correspond to a reduction in social costs and, therefore, represent a benefit of TDM. These values are reported in terms of daily dollar amounts. When annualized, the sum of these benefits produces the program total annual benefits and a benefit-to-cost (B/C) ratio for program evaluation purposes:

$$\frac{B}{C} = \frac{\text{Total Annual Program Benefits}}{\text{Total Annualized Program Cost}}$$

This measure provides an economic assessment of how cost-efficient a

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is a spreadsheet application that estimates the impacts of a broad range of transportation demand management (TDM) initiatives and provides program cost-effectiveness measures.

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



National Center for Transit Research

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Director's Message

The public transportation community seems to be operating in parallel universes simultaneously. In the local and regional universe of operating transit agencies, severe reductions in sales tax and property tax revenues due to the Great Recession have hammered agency budgets, resulting in cuts in services, increases in fares, furloughs, and layoffs. At the same time, in the federal universe, there has never been as much investment being made into public transit as there is now through programs such as High Speed Rail grants, the American Recovery and Reinvestment Act, TIGER grants, and increased general fund appropriations for surface transportation.

In spite of the real pain most transit agencies are experiencing at the moment, there still must be optimism for the future. The actions that are being taken to integrate transportation with sound land use development to promote sustainability and livability, energy security, economic opportunity, and quality of life are taking on much greater importance in the development of federal policies and programs. The modification to criteria by which New Start projects will be judged is further evidence of the nation's desire for a new paradigm for mobility.

Suddenly, there is funding for High Speed Rail as part of a new National Rail Plan. Sophisticated Bus Rapid Transit projects are rapidly multiplying around the country. Managed Lanes projects are enjoying success, and the concept of public-

private partnerships to bring new resources to implement major transit projects, a concept common in the rest of the world, is finally being pursued in the United States. There are literally hundreds of plans being made for regional rail, commuter rail, light rail, and trolley systems.

What a time to be in the field of transportation, and particularly public transportation and alternative forms of transportation! Public transportation is in the middle of many of the efforts to create jobs, provide greener methods of mobility that rely on less oil and produce less greenhouse gases, and help provide a foundation for more sustainable transportation systems and forms of development going forward. The National Center for Transit Research is so fortunate to be able to contribute to these changes that are taking place at a pace few would have predicted.

We are looking forward to working with the **Florida Department of Transportation**, which so generously provides the match to our UTC grant, on matters dealing with the new High Speed Rail and commuter rail services that will be established in Florida this decade.

As always, we invite you to visit our website at www.nctr.usf.edu to keep abreast of the many reports and view netconferences on demand, one of which deals with using social media to influence travel behavior. We also invite you to join the more than 4,500 professionals and students who participate in our various listservs.

Joel Volinski
Director, NCTR

The current version (TRIMMS© 2.0) allows improved customization and the ability to clearly differentiate between analysis at the regional and employer site levels.

TRIMMS©—from page 1

TDM program is while producing positive benefits. The benefit-to-cost (B/C) ratio can be used as a cost-effectiveness benchmark. A ratio equal to 1.0 indicates that for each dollar spent on the TDM program under evaluation there is a \$1 return in terms of social benefits.

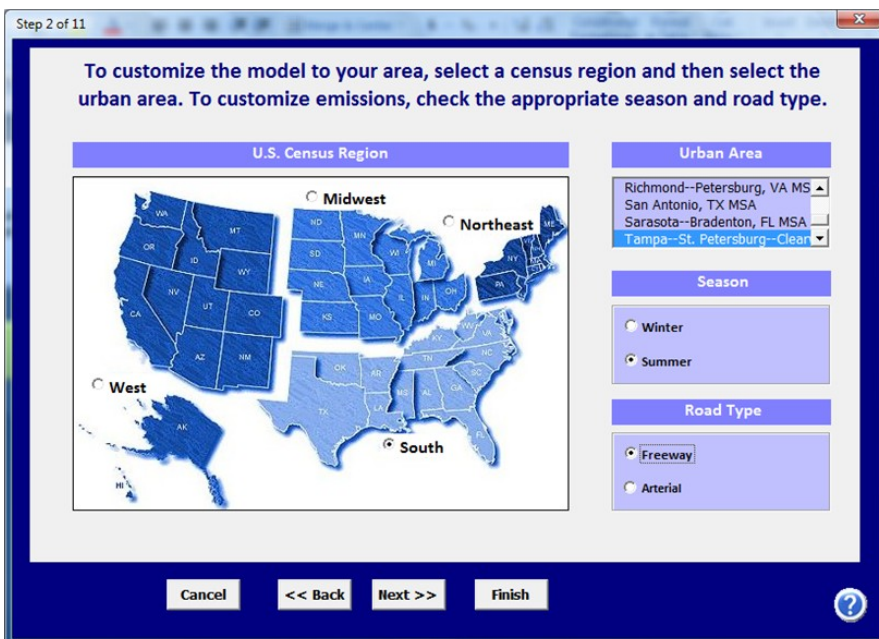
TRIMMS© is loaded with default parameters for 85 metropolitan statistical areas in the U.S., encompassing both large and small urban areas. The current version (TRIMMS© 2.0) allows improved customization and the ability to clearly differentiate between analysis at the regional and employer site levels. This approach allows a wider range of default values needed for the analysis, specifying under what conditions or ranges of conditions the values can be considered reliable or appropriate. Adding this flexibility to the earlier version of the model improves the ability of TDM practitioners to identify and put

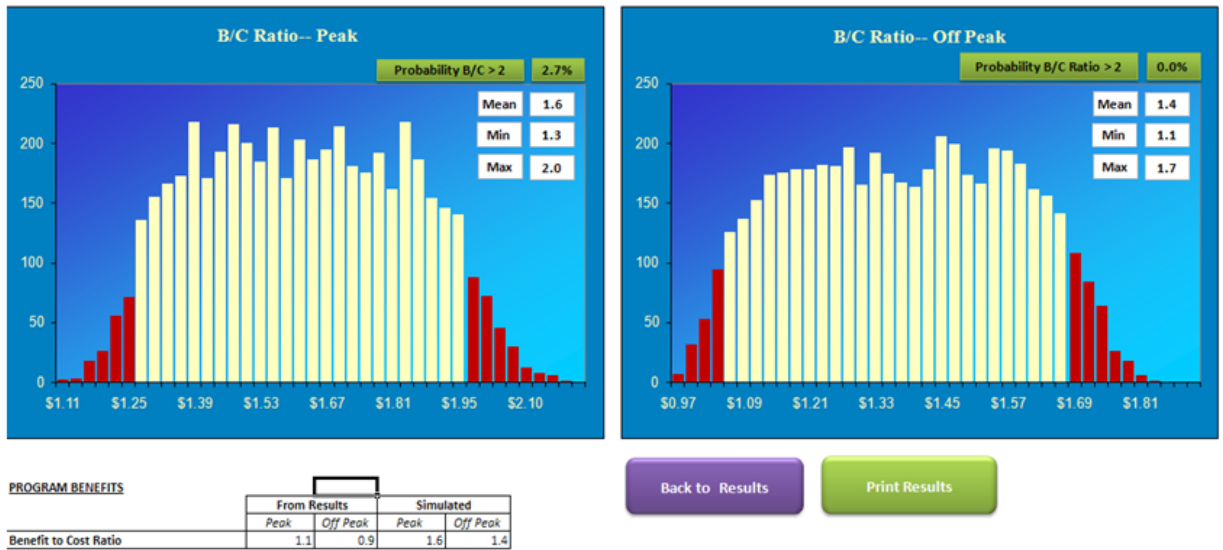
in place TDM programs that can produce the highest estimated social benefits. For agencies that want to tailor default values to their areas, the research also provides sample data collection and measurement methods.

Recognizing that there is uncertainty in the value of inputs such as the cost of accidents and emissions costs, the research team added an extended capability to allow sensitivity analysis of the impact estimates using Monte Carlo analysis. The simulation can help practitioners estimate the probability that program benefit-to-cost ratios will be at least greater than some predetermined benchmarking value. This feature allows users conducting TDM evaluations to meet the Federal Highway Administration’s Congestion and Air Quality (CMAQ) Improvement Program requirements for program effectiveness assessment and benchmarking.

While TRIMMS© 2.0 provides significant improvements over the earlier version, there are areas where the tool could be expanded. For example, one future enhancement to TRIMMS© 2.0 could provide guidance on estimating the costs for the various TDM programs rather than treating total program costs as a single input. Integrating TRIMMS© 2.0 as an off-model to be used with the four-step regional transportation planning models could assist transportation planners in estimating the impacts on traffic flows and traffic congestion in particular corridors due to TDM. TRIMMS© 2.0 could

TRIMMS© Geographic Area Selection





TRIMMS[®]
Sensitivity
Analysis
Module

modify the mode choice and trip generation inputs to the regional models for that purpose. The final report discusses additional future research ideas.

The final report and spreadsheet model are available for download at

www.nctr.usf.edu/abstracts/abs77805.htm

For more information on TRIMMS[®], contact Sisinnio Concas, NCTR Senior Research Associate, concas@cutr.usf.edu.



S. Concas



NCTR and HART Release “Careers in Transit” DVD

Looking for a job with great pay, great benefits, and job security? Interested in helping others and the community? Ever wonder how to get involved with a job in transit, or what types of jobs are available at a transit agency?

These are the questions posed to viewers of the recently-released “Careers in Transit” DVD. Produced by NCTR and co-funded by NCTR and the Hillsborough Area Regional

Transit authority (HART), the video was developed to help high school and college students learn about career opportunities in public transportation and understand that the public transportation industry offers great places to work.

“Getting young people interested in public transportation careers is important because the industry will be experiencing the retirement of a disproportionate number of their existing employees within the next 5 to 10 years,” said Amber Reep, Senior



Research Associate at CUTR and the video’s producer. “The public transportation industry will have a lot of job opportunities for qualified people entering the workforce, and it wants to be an

employer of choice.”

The fast-paced 10-minute video is divided into several sections. It begins with the basics of public transportation and how many people rely on it to get to work, complete errands, attend recreational activities, or go to medical appointments or wherever life takes them. Next, it highlights the many different careers that an individual can pursue in public transportation in the areas of information technology, dispatch, marketing and public relations, planning, and human resources. Many students are not aware of the variety of jobs available and think only of bus operator and mechanic positions

when they think of transit agencies.

Part of the filming process included interviewing public transportation employees at work and then in the field performing their everyday duties and responsi-

bilities. Specific information is provided for several of the professional careers available in public transportation.

The video then emphasizes how public transportation plays an important role in environmental sustainability and points out how transit agencies are using green technologies in sustainable fuel sources such as hybrid, compressed natural gas, electric, fuel cell, and bio diesel. The focus of transit’s sustainability ties directly to APTA’s TransitVision 2050, which envisions that “in 2050, America’s energy efficient, multi-modal, environmentally-sustainable transportation system powers the greatest nation on earth.”

“It’s important to highlight the positive environmental impacts that public transit plays in our society, because the next generation of employees view their contribution to the green movement as critically important,” said Stephanie Zavacki, developer of the video. “They want to take responsibility for their carbon footprint and contribute to decreasing it.”



S. Zavacki

The video producers filmed at or collected film from both rural and urban transportation systems across the U.S. Filming locations included the Metropolitan Transit System and APTA Expo in San Diego; Washington Metropolitan Area Transit Authority in Washington, D.C.; Lane Transit District in Eugene, Oregon; Kansas City Area Transit Authority in Kansas City, Missouri; Hillsborough Area Regional Transit Authority in

“The public transportation industry will have a lot of job opportunities for qualified people entering the workforce, and it wants to be an employer of choice.”



“We want to help students become aware of the many good opportunities in the field of public transit so transit does not remain the field that people find out about accidentally, or worse, not at all.”

Tampa; the USF BullRunner in Tampa; LYNX in Orlando; Lakeland Area Mass Transit District in Lakeland, Florida; Miami-Dade Transit in Miami; and Pinellas Suncoast Transit Authority in St. Petersburg, Florida.

NCTR has dedicated a section of its website (www.nctr.usf.edu) to the subject of career opportunities in transit. The video can be viewed there, and other information on job opportunities around the country is provided, as is additional information on the benefits of public transportation to society. It also is posted on YouTube at www.youtube.com/watch?v=txg9PDWTW78, where it has been viewed more than 3,600 times.

NCTR Director and the video’s project advisor Joel Volinski hopes that transit systems throughout the coun-

try will use the video to promote employment opportunities at their agencies on high school career days and at other workforce development opportunities. It has been shown at conferences sponsored by APTA, the Florida Public Transportation Association, and the American Association of Community Colleges. Many transit agencies now provide a link to the video on their websites, while others have arranged for it to be shown on public access television stations and as video loops at transit centers that serve thousands of passengers a day.

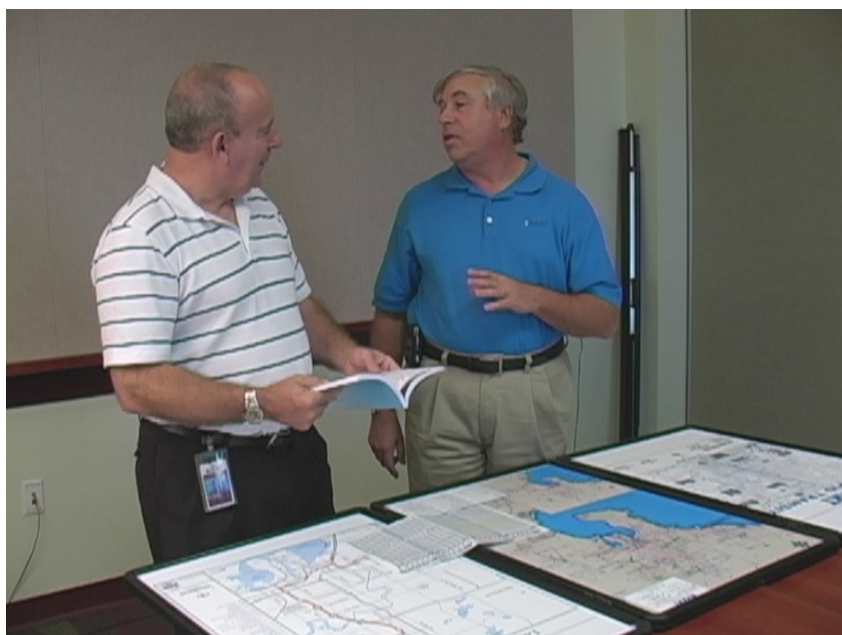
A special Blue Ribbon Task Force on workforce development has been established by APTA in recognition of the high priority this issue holds in the transit industry.

“The current economic conditions in the country might mean more people will stay at their jobs for a few more years than originally expected, but there always will be competition for talent in any workforce,” said Volinski. “We want to help students become aware of the many good opportunities in the field of public transit so transit does not remain the field that people find out about accidentally. or worse, not at all.”

For more information on the video, contact NCTR Senior Research Associate Amber Reep, reep@cutr.usf.edu.



A. Reep



NCTR’s Strategic Theme

“To make public transportation and alternative forms of transportation, including managed lanes, safe, effective, efficient, desirable, and secure.”



NCTR Student of the Year 2010

Martin Akerman

Martin Akerman has been named 2010 NCTR Student of the Year. He is a Graduate Research Assistant at CUTR and a master's student in Management Information Systems and Decision Sciences in the College of Business at the University of South Florida. He served as lead application developer for several NCTR and CUTR projects during 2009 that focused on innovative uses of the internet and information technologies to increase efficiency, maximize mobility options, and promote safety and security in transit.

Martin's responsibilities have included the development of the work breakdown structure and task management for each of the projects as well as application development and quality assurance for deliverables. In 2009, he also developed many transportation-related websites and web applications, including the assessment tool used in the "Better Driver Campaign," a web effort to help both truck drivers and passenger car drivers understand and deal with the hazards of aggressive driving. He was involved in the "Research Road Map Tool" used by the Transportation Research Board Committee ABJ60 on Geographic Information Science and Applications.

As an undergraduate student at USF, Martin was awarded the Latino Scholarship for outstanding academic

achievement and was on the National Dean's List from 2004-2006. He was recognized by the College of Business Administration with a Faculty Scholarship and is a member of the honor society Phi Kappa Phi. He joined CUTR as an undergraduate in 2006 and has been with the center ever since.

As a graduate student, Martin's entrepreneurship brought university faculty together to help shape and define the field of Transit Informatics. He also joined the Project Management Institute and is on his way to becoming a Certified Project Management Professional. He recently was nominated by USF for the Presidential Management Fellowship.

Martin's future goals include the continuation of development in the field of Transit Informatics and assisting NCTR and CUTR in their efforts to remain in the forefront of transit research in the new age of technology.

"My plan in the transportation industry is to use my business training and computer knowledge to make the transit industry more effective," noted Akerman. "Most important, I'd like to help demystify and adapt technology for the smaller agency that struggles to implement these information systems due to personnel or budget constraints."

NCTR Web Conferences, Listservs

Traffic always has been a social subject—today, instead of griping about it over the water cooler, many commuters take their travails online.

NCTR has been a national leader in the provision of netconferences or webinars and management of a number of listservs. Since August 2002, NCTR has conducted 30 web conferences on topics designed and panelists selected to attract a wide range of transportation professionals from across the country. With more travel restrictions and prohibitions, these netconferences fill a vital role for continuing education for more transportation professionals.

NCTR also experimented with remote and low-cost delivery of live presentations at a conference via the web and will continue to take the technology into the field in 2010.

In October 2009, the **Association for Commuter Transportation** (ACT) and

NCTR held a netconference titled “Tweeting Demand Management – Doing an About Face(book) on Marketing Travel Choices.” Traffic always has been a social subject—today, instead of griping about it over the water cooler, many commuters take their travails online. The one-way streets of transportation demand management (TDM) marketing and communications are being paved over. Replacing print, radio, traditional outreach, and other standard techniques is a new two-way road of conversation—social media. Participants learned from the real-world success stories of TDM organizations in Birmingham, Las Vegas, Atlanta, and Ontario as they harness the power of social networks and social media to join the digital conversa-

tion, engage in dialogue with commuters in their areas, and realize a return on engagement that motivates change. The panelists got the audience to start thinking more like social marketers by learning how to use social media to change travel behavior, leaving with the knowledge of what their TDM program needs before getting started. Speakers included Aaron Gaul, Manager of Urban-Trans Consultants in Toronto, and Candace Kemp McCaffery, Senior Vice President and Director of

NCTR Listservs	Type	Subscribers (as of 12/31/09)	Percent Change since 07/09
BFM-General (transit maintenance)	Discussion Forum	258	+2%
Bus Rapid Transit (BRT)	Discussion Forum	369	+4%
Journal of Public Transportation (JPT)	Announcement	420	+3%
National Center for Transit Research (NCTR)	Announcement	987	+6%
Parking Management (Parking)	Discussion Forum	228	+15%
Rural Transit Assistance Program (RTAP)	Discussion Forum	94	+4%
Sustainable Transport Indicators	Discussion Forum	155	+7%
Telework	Discussion Forum	336	+4%
Transportation Demand Management (Transp-tdm)	Discussion Forum	1645	+13%

To subscribe to any of the above listservs, go to http://lists.cutr.usf.edu/read/all_forums

Interactive Services & Social Media for Cookerly Public Relations in Atlanta. Donna Smallwood of MassRIDES/URS served as moderator. The 74-minute streaming media recording [mms://live.cutr.usf.edu/socialmedia](https://live.cutr.usf.edu/socialmedia) also includes about 30 minutes of questions and answers. Questions were fielded from an estimated 200 people around the U.S. and Canada who heard the presentation live.

A complete list of the 30 on-demand streaming recordings on a range of TDM and transit issues can be found at www.nctr.usf.edu/clearinghouse/netconferencing.htm.

For more information, contact CUTR TDM Program Director Phil Winters, winters@cutr.usf.edu.



P. Winters

Ongoing NCTR Projects

- A Qualitative Analysis of Bus Simulator Training on Transit Incidents – A Case Study in Florida (*Reep, CUTR, 777-01*)
- Regional Fare Policy and Fare Allocation, Innovations in Fare Equipment, and Data Collection (*Goodwill, CUTR, 777-05*)
- TBEST Model Enhancements – Parcel-Level Demographic Data Capabilities and Concepts for Park-and-Ride Modeling (*Polzin, CUTR, 778-01*)
- Guidebook on Using American Community Survey Data for Transit Planning (*Chu, CUTR, 778-02*)
- Guidebook on Using Automatic Passenger Counters for NTD Reporting (*Chu, CUTR, 778-03*)
- Dynamic Travel Information – Personalized and Delivered to Your Cell Phone (*Barbeau, CUTR, 778-04*)
- Development of Tool for Predicting TDM Impacts on Transportation System Performance (*Winters, CUTR, 778-09*)
- Top 100 Unconventional Marketing Approaches for Public Transportation (*Gregg, CUTR, 778-10*)
- Expanding the Google Transit Data Feed Specification to Support Operations and Planning (*Catalá, CUTR, 779-02*)
- Feasibility of Toll and Transit Data Feed Specification to Support Operations and Planning (*Reich, CUTR, 779-03*)
- Travel Assistant Device – Deployment to Transit Agencies (*Barbeau, CUTR, 779-04*)
- Evaluation of Camera-Based Systems to Reduce Transit Bus Side Collisions (*Lin, CUTR, 779-05*)
- Assessing Air Quality Impacts of Managed Lanes (*Stuart, USF Environmental Engineering, 6402-1041-00*)
- Developing a Framework for a Toolkit for Carbon Footprint that Integrates Transit (C-FIT) (*Hendricks, CUTR, 779-09*)
- Moving the Bus Back into Traffic, Phase 2 (*Lin, CUTR, 779-10*)
- An Assessment of Public Transportation Markets Using NHTS Data (*Chu, CUTR, 792-0*)
- Florida Bus Maintenance Staffing Practices (*Goodwill, CUTR, 792-4*)
- Exploration of Transit's Sustainability Competitiveness (*Polzin, CUTR, 792-5*)
- Tracking Costs of Alternatively-Fueled Buses in Florida (*Reich, CUTR, 792-7*)
- An Analysis of the Impacts of Urban Fixed-Route Transit in Florida (*Chu, CUTR, 1327*)

Information on NCTR research projects and contact information for principal investigators can be accessed at www.nctr.usf.edu/list_of_projects.html.

URISA Teams with NCTR for 2009 GIS in Transit Conference

NCTR and the Urban and Regional Information System Association (URISA) established a new partnership to jointly host the Fifth National GIS in Transit Conference. “The Route to Success in Transit GIS” was held in St. Petersburg, Florida, from November 16-18, 2009, and focused on the growing role of GIS in supporting planning, service delivery, and decision-making in public transit. Recognizing the importance of the conference, both the Transportation Research Board and the American Public Transportation Association endorsed the event.

management and policy. Within these tracks, over 40 presentations were selected.

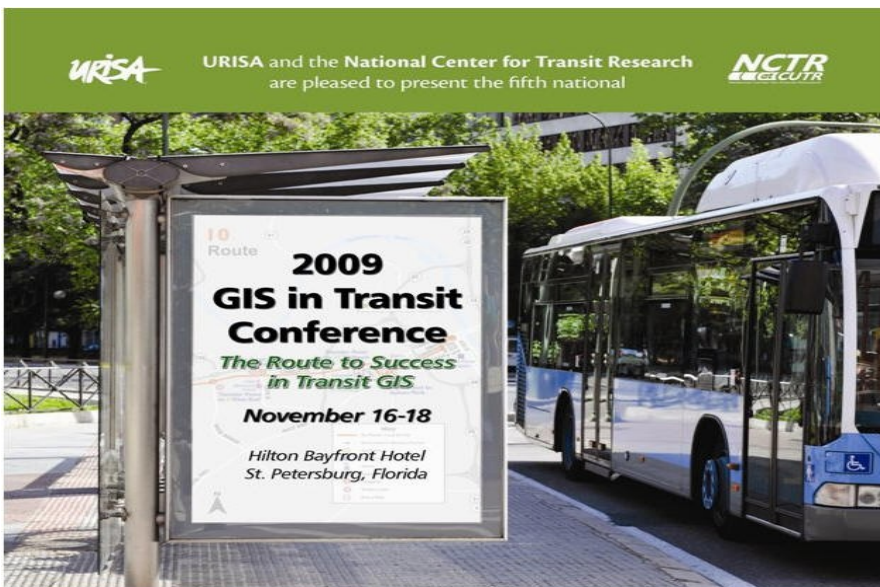
The keynote address, “Unlocking the Benefits of GIS in Tough Times—Moving GIS From the Sideline to the Heart of the Enterprise,” was delivered by Paula (Polly) Okunieff, Senior Technical Staff with Consensus Systems Technology Corporation. Her presentation emphasized just how powerful GIS can be as the foundation for analysis and decisions for almost every function within a transit agency and served as a perfect “kickoff” for the conference.

A variety of industry vendors participated as sponsors of the conference, including:

- ESRI
- Data Transfer Solutions
- Trapeze Group
- OpenGeo
- Route Match Software
- Caliper Corporation
- Photoscience
- Angel Trax Bus Video

Conference participants had opportunities to learn about new and innovative industry products, ask questions, and network with fellow professionals.

“We would like to sincerely thank and recognize the vendors who participated in the 2009 GIS in Transit Conference,” said Amber



The Conference Program Committee, made up of leaders in the transit GIS industry, developed the educational program agenda and issued a call for presentations centered around four educational tracks that included GIS applications, tools, data, and

“These [Google] software programs were developed at no charge to transit systems by true advocates and users of public transportation who also are gifted at developing applications that have tremendous value to transit passengers.”

Reep, who co-chaired the conference with Martin Catalá. “Their participation and contribution to the conference and the industry are keys to successfully integrating GIS into the transit industry.”

Another conference highlight was a general session coordinated by Google Transit titled “GTFS Data Standards with Open Innovation.” Coordinated by Joe Hughes of Google Transit, it offered presentations from three individuals who developed creative, open source, GIS-in-transit software programs with existing technologies.

“This particular session was amazing,” noted Joel Volinski, NCTR Director. “These software programs were developed at no charge to transit systems by true advocates and users of public transportation who also are gifted at developing

applications that have tremendous value to transit passengers. Applications like these are part of what’s making public transit more appealing to young people. All of this is possible due to the generous *pro bono* work Google has done to provide the basic database that they work with.”

URISA and NCTR extend their thanks to the Conference Program Committee, the presenters, the participants, and especially the vendors for supporting and participating in the Fifth GIS in Transit Conference. Based on the success of the 2009 conference, URISA and NCTR have agreed to partner in 2011 to hold the Sixth National GIS in Transit Conference.

“URISA is very pleased to partner with NCTR for the GIS in Transit conference,” said URISA’s Executive Director, Wendy Nelson. “The exchange of knowledge and ideas among those in attendance in St. Petersburg in November was second-to-none. We certainly look forward to future collaborations and a growing conference.”

For information on the 2011 GIS in Transit Conference, visit www2.transitgis.org.

For more information about participating in or supporting the 2011 conference, please contact Martin Catalá at

catala@cutr.usf.edu or Amber Reep at reep@cutr.usf.edu or call (813) 974-3120.



M. Catalá



A. Reep



USF Launches New Transportation-Related Master's Programs



At USF, several new programs and methods of education delivery are increasing the opportunities for students to learn more about transportation and integrate their interest in transportation within contemporary academic programs.

Master of Arts in Urban & Regional Planning

The Master of Arts degree in Urban & Regional Planning was launched in Fall 2009 and includes a rigorous curriculum that combines theoretical and applied approaches. The program is 48 credit hours and has full-time and part-time options available, including evening and weekend courses. The goal of the program is to train students to become planning practitioners who are able to work in a variety of public and private sector environments in a number of different fields. Effective planners must possess a wide range of cross-cutting skills. Emphasis on environmental planning, which builds on faculty expertise in Geography, Geology, and Environmental Sciences & Policy, gives the program a unique edge. Courses in applied quantitative and geospatial analysis draw on the technological skills and high-quality facilities of the Geography Department. A strong program in Growth Management and Transportation Planning is based on links to CUTR and the Florida Center for Community Design and Research. To learn more about this program, visit www.grad.usf.edu/programs/programinfo.asp?pcode=URPAS-M.U.R.P/.

Master of Arts in Global Sustainability

The Master of Arts in Global Sustainability will allow for the integration of various disciplines such as basic, natural, and social sciences, engineering, health, economics, governance and policy, and is-

issues of diversity. The target student population for this program includes professionals working in profit and nonprofit agencies and other settings who are focusing on sustainability and green issues; those who wish to learn problem-solving skills and use critical thinking to advance sustainability in developed and developing nations; and those who wish to pursue policy change and perform advocacy functions to advance sustainability. This multidisciplinary degree will prepare students to be leaders and team members with sustainability scientists to enhance global sustainability. Employment data clearly show that there will be ever-increasing job opportunities in industry and other sectors for those with advanced degrees in sustainability. The program consists of 33 semester hours, the majority of which are offered online. Classes begin in the Fall 2010 semester and can be completed within one year. To learn more, visit www.grad.usf.edu/global.asp/.

Distance Learning ECampus

USF is transitioning to Eluminate software for delivery of distance learning courses over the web. One of the first engineering courses delivered through this forum was the graduate course "Transportation and Land Use" in Fall 2009. This shift improves the distance learning experience for students, allowing two-way voice and video participation and real-time or delayed course offerings. By bringing courses to any location with high speed internet access, it is increasingly convenient for busy professionals to pursue additional credentials or update their knowledge in an emerging area. Visit ecampus.usf.edu/dlcourses/index.asp/ for more information.

For more information, contact CUTR Mobility Program Director Steve Polzin, polzin@cutr.usf.edu.



S. Polzin