As you peruse this edition of our STC Focus, I am sure you will agree that the Fall of 2009 was a time of achievement and awards for our STC family, a time of building on well-laid foundations, as well as breaking new ground. I want to emphasize how proud and excited I am for our faculties, our research staff, and especially our students. As a testament to our students, our greatest resource, I call your attention to the articles herein submitted by our student reporters, and especially to the article that highlights the impressive—and long—list of research topics tackled by our graduate student researchers around the region.

The Fall 2009 academic semester was a typical one for our STC family. Our family members both traveled the world and hosted international colleagues here at home. We taught, learned, researched, produced, wrote, and published. We recognized our contributors, and in similar fashion, we were honored and recognized by our peers. Many of our graduate and undergrad students launched their careers, while we veterans reached out to high school students to recruit the next generation of transportation professionals. We did our STC best to advance transportation knowledge and innovation in our southeastern region, and in so doing, to promote safe and efficient transportation not only in our region, but nationally and internationally as well.

I especially want to take this opportunity to thank Dr. Xuedong Yan for his many contributions to the STC during his time in Knoxville. Dr. Yan has started the next phase of his career in China as the youngest ever full professor in the School of Traffic and Transportation at Beijing Jiaotong University. However, we do not say good-bye to Xuedong, but rather we look forward to a continuing relationship that will bind east and west toward a common purpose.

And finally, this Fall the STC and the University of Tennessee were honored to host a visit by RITA Administrator Peter Appel and Associate Administrator, Jan Brecht-Clark. RITA's UTC program has meant so much to our large STC family. I simply cannot offer enough praise and thanks to the RITA administrators and the RITA staff for their continuing support of our STC mission and diverse activities.
Research
11 Graduate Research Topics & Projects
13 Safety Research Helps Close the Mobility Gap

Education
7 NC A&T’s Brittany Hicks
8 2009 Summer Transportation Institute
15 Transportation Week 2009

Technology Transfer
6 Journal Named UTC Point of Pride
10 UTDSL Unveiled
16 Southeast Regional Workforce Development Conference

Et cetera
3 School Notes, Awards & Recognition
5 RITA Administrators Visit STC Lead Institution
6 Yan Appointed to Beijing Transportation University
12 Public Transportation for Rural Populations
18 On the Horizon
Dr. Amekudzi is involved in course development to address these areas in the curriculum and teaches courses that address the proper stewardship of infrastructure for sustainable development. A two-time invitee of the National Academy of Engineering’s Frontiers of Engineering Program, Amekudzi is also on the editorial boards of the *International Journal of Sustainable Transportation, and Sustainability - The Journal of Record*; and associate editor of the *ASCE Journal of Infrastructure Systems*. She serves as faculty advisor for Georgia Tech’s chapters of Engineers Without Borders and the Women’s Transportation Seminar. She earned her B.S. in Civil Engineering from Stanford University (1994), an M.S. in Civil Engineering (Transportation) from Florida International University (1996), an M.S. in Civil Infrastructure Systems (1997), and a Ph.D. in Civil and Environmental Engineering (1999) from Carnegie Mellon University. Dr. Amekudzi joined the School of Civil and Environmental Engineering at Georgia Tech in 1999.

The National Defense Transportation Association (NDTA) is a non-political organization dedicated to a strong and efficient national transportation system, linking the armed forces, government, and industry, and providing an open forum to discuss critical national transportation issues. This past September the NDTA held their annual Transportation and Logistics Forum and Expo in Nashville and on September 21 the Center for Transportation Research staff and University of Tennessee students Carrie Groseclose and Alan Grissom attended the forum at the request of Lieutenant General Kenneth R. Wykle, President of the NDTA and former Federal Highway Administrator. The CTR manned a booth at the forum while students participated in volunteer activities and took notes at the Professional Dialog sessions. The NDTA expressed “our sincere appreciation to students and Professors David Clarke, Director, and Larry Bray, Research Professor, the Center for Transportation Research, and the University of Tennessee for their support.”

Dr. Adjo Amekudzi, associate professor in the School of Civil and Environmental Engineering and deputy director of the Georgia Transportation Institute and the Georgia Tech University Transportation Center, was recently named to the Board on Infrastructure and the Constructed Environment (BICE), an operating unit of the Division on Engineering and Physical Sciences of the National Research Council (NRC). BICE is the principal unit of the NRC concerned with the built environment and is governed by a group of recognized experts in the built environment disciplines, which include engineering, architecture, and planning. Dr. Amekudzi studies systems problems on the integrated built and natural environment to understand how we can make better decisions on built systems to promote sustainable development. Her current research focuses on the development and application of sustainability planning and evaluation methods to built systems. Dr. Amekudzi is involved in course development to address these areas in the curriculum and teaches courses that address the proper stewardship of infrastructure for sustainable development. A two-time invitee of the National Academy of Engineering’s Frontiers of Engineering Program, Amekudzi is also on the editorial boards of the *International Journal of Sustainable Transportation, and Sustainability - The Journal of Record*; and associate editor of the *ASCE Journal of Infrastructure Systems*. She serves as faculty advisor for Georgia Tech’s chapters of Engineers Without Borders and the Women’s Transportation Seminar. She earned her B.S. in Civil Engineering from Stanford University (1994), an M.S. in Civil Engineering (Transportation) from Florida International University (1996), an M.S. in Civil Infrastructure Systems (1997), and a Ph.D. in Civil and Environmental Engineering (1999) from Carnegie Mellon University. Dr. Amekudzi joined the School of Civil and Environmental Engineering at Georgia Tech in 1999.

Dr. Chris Cherry, assistant professor in the UT Department of Civil and Environmental Engineering, participated in the Asian Development Bank SUMA (Sustainable Urban Mobility in Asia) Summit in New Delhi, India from October 29-30. He presented the results of two studies, *Electric Bikes in the People’s Republic of China: Impact on the Environment and Prospects for Growth* and *Electric Two-Wheelers in India and Viet Nam: Market Analysis and Environmental Impacts*. While the use of electric two-wheelers has increased in the People’s Republic of China (PRC) in the past decade, such unparalleled growth has not extended beyond the PRC’s borders to countries such as India and Viet Nam, where
environmentally detrimental gasoline motorcycles dominate. The report documents market conditions in Ahmedabad, India, and Ha Noi, Viet Nam, to explain why this is so, and analyzes the potential environmental impact of electric two-wheelers to show how they could chart a path toward sustainable transport in these and other countries in the region. Dr. Cherry’s report is online at the Asian Development Bank’s website, www.adb.org/Documents/Books/electric-bikes-ind-vie/default.asp.

**Stammer recognized for ITE best project of 2008**

Robert E. Stammer Jr. received the Coordinating Council Best Project Award at the Institute of Transportation Engineers (ITE) 2009 Annual Meeting and Exhibit, held August 9–12, in San Antonio, Texas. Stammer, an associate professor at Vanderbilt University, received the award in recognition of the outstanding project, *The Expert Witness Council Notebook*, selected as the best project completed during 2008 by an ITE Council. The notebook will have a lasting value to the profession and provides a real value to members practicing forensic engineering and expert witness practice. The ITE Coordinating Council Award recognizes outstanding technical committee contributions to the ITE Coordinating Council Program. Selection is based on the significance of the committee’s contributions to the transportation engineering profession, the extent to which the project met its objective and the value and usefulness of the format of the work.

**STC Associate Publishes Book Chapter**

Melany Noltenius, an STC associate in the Center for Transportation Research at UT, has coauthored with Bruce Ralston a chapter, *Pre-evacuation Trip Behavior*, in *Geospatial Techniques in Urban Hazard and Disaster Analysis*. Abstract: Evacuation models, which seek to calculate evacuation time estimates (ETEs) and evaluate evacuation strategies, are based on assumptions concerning human behavior. One of the most consistent assumptions is that once an evacuation order is given, people will proceed to an evacuation point. ETEs are further assumed to be a function of network congestion along arcs. We test these assumptions through a survey of residents of Key West, Florida who experienced evacuation orders associated with Hurricane Wilma in 2005. Of particular interest are the trips residents made between the time the evacuation order was given and the deadline for evacuation, what we call pre-evacuation trips. Such trips were made by people who evacuated as well as by those who waited out the storm. That is, traffic on the transportation network is not solely limited to people seeking to evacuate. Survey data indicate three important aspects of pre-evacuation trip making behavior that run counter to common evacuation modeling assumptions. First, trip delays at stops are longer than delays on links. Second, trip delays are associated with trip purposes, which often are not to evacuate an area, and there is evidence of trip chaining. Finally, patterns of pre-evacuation trips show a dispersal of origins and destinations resulting in pre-evacuation trips that flow in many directions, not just toward evacuation points.

On October 19 UT’s Dave Clarke and Larry Bray hosted a Chinese delegation of 20 engineers and economists in Knoxville. The China Ministry of Transportation organized the group, which ranged in title from researcher to president. They represented departments of water, research institutions, and maritime safety and communications organizations. The delegates were interested in laws and regulations on U.S. waterways, the current status of the waterways, construction plans, water resource usage for navigation versus power production and flood control, and the technology of lock operations and size specifications. Drs. Clarke and Bray accompanied the delegation to Fort Loudoun Lock and Dam to talk about facilities on the inland river system and answered questions about barge size, horsepower, lock dimension among others.
US DOT Administrators visit the University of Tennessee’s College of Engineering and the Driving Simulator Lab

Administrator Peter Appel, appointed by President Obama to lead the US DOT’s Research and Innovative Technology Administration (RITA), and Associate Administrator Jan Brecht-Clark paid a visit to the UT College of Engineering on November 30. They came to meet the STC director and staff and the director of the Southeastern Sun Grant Center, located in the Institute of Agriculture. Both these centers hold substantial grants from the US Department of Transportation. STC director and co-director, Steve Richard and DeAnna Flinchum, as well as Sun Grant director Tim Rials met with these administrators and gave overviews of their centers’ histories, goals, and accomplishments to date.

The highlight of the afternoon was a visit to the Driving Simulator Lab where STC Director for Transportation Research Xuedong Yan demonstrated the driving simulator with the assistance of STC students Carrie Groseclose, Casey Langford, Alan Grissom, and Catherine Bryant. The RITA visitors were particularly interested in the research work these students have undertaken with UT’s transportation faculty in Civil and Environmental Engineering.

The Driving Simulator Lab was made possible through funds from the STC, the College of Engineering, and the Tennessee State Board of Architectural and Engineering Examiners.
Dr. Xuedong Yan, STC Director of Transportation Research, has been appointed as a professor in the School of Traffic and Transportation at Beijing Jiaotong University; he is the youngest professor ever appointed to the school. While the STC faculty, students, and staff will miss Xuedong's daily presence, his work with the center will continue and expand as we collaborate with faculty and researchers at Beijing Jiaotong.

Dr. Yan joined the STC in August 2007 and during this time he has made enormous contributions to the research and scholarly output of the center. Among his accomplishments are securing funds for and establishing the UT Driving Simulator Lab, authoring more than 30 research papers accepted to peer-reviewed journals, and helping create and launch the Journal of Transportation Safety & Security. In recognition of his importance to the journal, Xuedong has been named Coeditor-in-Chief.

The Yans are happy to be with their family and friends in China and we are pleased for them, even though we greatly miss day-to-day interaction with them here in Knoxville, Tennessee.

**TS&S Named UTC Point of Pride**

On April 1, 2009 the STC released the inaugural issue of the Journal of Transportation Safety & Security (TS&S)—the culmination of great vision, many dreams, and hard work by the journal staff, the international editorial board, and top-flight research authors. This peer-reviewed journal is a direct response to a widely perceived need for a scholarly forum dedicated to publishing transportation safety and security research. The near-immediate success of the journal confirms that interest in these topics is even greater than anticipated. Taylor & Francis Group, LLC was chosen to publish and distribute the journal and through them the STC has given online subscriptions to the libraries of sixty University Transportation Centers. The journal has been named a Point of Pride in the 2009 UTC Program accomplishments.

The complete first volume of TS&S has been posted. Authors represent an international slate of researchers from China, Nigeria, South Africa, the United Kingdom, and Canada. U.S. authors represent all regions of the nation and many of the most prestigious university transportation programs. TS&S currently has 68 subscribers and is already listed in the TRIS index and is under review for inclusion in Elsevier’s Engineering Index Monthly. A special issue is forthcoming in 2010 that will be dedicated to the transportation safety issues associated with wide-scale population evacuations. This special issue will be the proceedings of the National Evacuation Conference, which the STC is co-sponsoring with Louisiana State University in February 2010.
Brittany Hicks: Student Success
Carletta Dudley

Brittany Hicks is a senior majoring in transportation and supply chain management and general economics at North Carolina Agricultural and Technical State University. She is a native of Raleigh, North Carolina. During her academic tenure Brittany has been inducted into the Alpha Lambda Delta Freshman Honor Society, Phi Kappa Phi Honor Society, the Golden Key International Honor Society, the North Carolina A&T State University Honors Program and Alpha Kappa Alpha Sorority, Inc. She has received several scholarships such as the Phi Kappa Phi Emerging Scholar, Wal-Mart Scholar, North Carolina Scholar, and the Southeastern Transportation Center Education Award.

Brittany is currently participating in a cooperative education internship with Harley-Davidson in Milwaukee, Wisconsin. She began with Harley this past summer and will work throughout the fall semester. She is responsible for 1076 parts and works with 16 external suppliers. Some of her daily responsibilities include issuing purchase orders, order fulfillment, paying invoices, maintaining and nurturing supplier relationships, monitoring supplier performance and preventing stock outs and backorders. In addition, she monitors inventory turns, cost changes, modifications to the supply chain and works on projects with a supply chain analyst, developmental purchasing analyst and engineers. Brittany also was afforded the opportunity to shadow the Collaborative Inventory Management group who works directly with Harley dealers and visited 3 suppliers thus far. She has gained valuable experience using systems like Manugistics, AS400, SAP and PDG Viewer.

Additionally, Miss Hicks has been selected to participate in the TRB Minority Student Fellows Program. She is among seven students from select historically black colleges and universities and Hispanic-serving institutions chosen to present a student-authored research paper at a poster session during TRB. Each student will be designated a faculty member to oversee their work and accompany them to the TRB Annual Meeting. Dr. Kofi Obeng will be Brittany’s research paper advisor. This pilot program is designed to increase minority student participation in research and paper presentations at TRB.

During the academic year, Brittany received the STC Education Award and the 2009 Conference of Minority Transportation Officials Scholarship. Miss Hicks was awarded this scholarship at the conference’s National Scholarship Luncheon in Dallas, Texas on July 13, 2009. In addition, she has been selected to receive the Dwight D. Eisenhower Transportation Fellowship.
Twenty excited high school students began a five and a half week adventure exploring the field of transportation. The 2009 Summer High School Transportation Institute (STI) exposed participants to careers, research, and training in the transportation arena.

The students attended the Garrett A. Morgan Youth Symposium sponsored by the Conference of Minority Transportation Officials (COMTO). The youth symposium, held on July 11 in Dallas, Texas showcased career opportunities in the transit industry in a forum where students could interact with transportation officials and learn about the history and contributions of Garrett A. Morgan. Among the COMTO officials attending were Shirley DeLiberto, National Chair, and Julia Cunningham, President & CEO, both of Washington, D.C. Our very own Deborah Underwood spoke about the academic opportunities at North Carolina A&T State University within our Marketing, Transportation and Supply Chain department as well as our Department of Civil Engineering. Students were eager to hear about COMTO scholarship opportunities for those seeking an education in a transportation career.

Exploration of the wonderful world of transportation continued at the Turner-Fairbank Highway Research Center and the Washington Metropolitan Area Transit Authority (WMATA) Emergency Training Facility. The Turner-Fairbank Highway Research Center is the research arm of Federal Highway Administration and houses more than 24 research laboratories, including the Arens Photometric and Visibility Laboratory, Asphalt Pavement Testing Facility, Bridge Management Information Systems Laboratory, Digital Highway Measurement System, Federal Outdoor Impact Laboratory, FHWA National Crash Analysis Center, and the Traffic Research Laboratory.

Here, students learned about research that provides solutions to transportation problems nationwide.

In 2002 WMATA unveiled its Emergency Response Training Facility in Landover, Maryland. The 260-foot tunnel features two old Metrorail cars positioned as a crash, and a simulated electrified third rail, cabling, and lighting identical to the interior of a real Metro tunnel and connected to a simulated Operations Control Center room. This allows fire, police, and rescue trainees to perform drills in a realistic environment. STI students moved through the rail cars as rescue workers would for a realistic training experience. They also toured the new multi-million dollar state-of-the-art WMATA Control Center.

Next the students visited the Port of Richmond. This is Central Virginia’s domestic and international multi-modal freight and distribution gateway on the James River, serving waterborne, rail, and truck shippers throughout the mid-Atlantic states. The City of Richmond owns the Port, which is managed by the Port of Richmond Commission and operated by Federal Marine Terminals, Inc. (FMT), a private company. FMT provides stevedore services and a full range of supply chain services including export packaging and transfer, and warehouse and inland distribution services.

Back in Greensboro, the students were challenged in the University Studies Critical Writing and Thinking course to improve their writing and thinking skills to earn three hours college credit. The summer program also had SAT preparation sessions and personal development sessions. The 2009 STI exposed students to the vast field of transportation with a unique blend of classroom instruction and travel.
Welcome to Engineers Day

Thought about Transportation Engineering?
Check it out!!

Try the Driving Simulator!!

See Real-Life Crash ‘em–Bash ‘em Videos!!

Come inside & downstairs to Room 72 Perkins

Sponsored by the Institute of Transportation Engineers Student Chapter
Dr. Stephen H. Richards recently announced a new research facility within the College of Engineering: the UT Driving Simulator Lab (UTDSL). The DSL, manufactured by Utah-based DriveSafety as the DS-600c Simulator, is a fully integrated, immersive, high fidelity system for ground vehicle research and training applications. Multi-channel audio/visual systems, an under-seat motion system, and 300-degree wraparound displays with lifelike traffic scenes projected on them create realistic driving situations. Researchers can customize the system’s scenarios to simulate different types of roads, intersections, traffic volume and patterns, landscapes, lighting, and weather conditions.

UTDSL is a multi-use facility for research, instruction, and training that will bring together faculty, students, and industrial partners throughout the region who have interests in different aspects of the driving task. Civil engineering, computer science and computer engineering, simulation and modeling, human factors, statistics, and psychology are among the disciplines represented by researchers who will use the lab.

UT transportation professor Dr. Lee Han will use the simulator for a project titled Design of Driving Simulation Scenarios Preparatory to Testing Alzheimer’s Patients. Dr. Han’s co-PI is Dr. John Dougherty of the UT Graduate School of Medicine and Medical Director of the Cole Neuroscience Center. They propose to comprehensively assess how mild cognitive impairment (MCI) affects older drivers’ performances, as compared to those without a measurable cognitive impairment. The DS-600c will provide comprehensive assessments and analysis of complex abilities such as a subject’s continuous monitoring of fluid situations, reflective of anticipation and decision-making as well as situational awareness.

The UT Driving Simulator Lab has made the news: A recent story published in the Knoxville News Sentinel, UT driving simulator lab tests drivers in real-world scenarios, describes forthcoming research that will utilize the driving simulator. The story features STC doctoral student Ryan Overton who will work with Dr. Han on the project (see http://www.knoxnews.com/news/2010/jan/07/ut-driving-simulator-lab-tests-drivers-real-world/). Knoxville-area TV station WVLT interviewed Dr. Xuedong Yan in a piece illustrating how the DSL can simulate bad weather driving conditions (see http://www.volunteertv.com/news/headlines/80955387.html).

UT ITE Chapter Takes Prize for Engineers Day Exhibit
UT Engineers Day was held on October 12, 2009. This year, nearly 600 students from 30 different Knox County, Tennessee high schools, as well as some home-schooled students, traveled to the Knoxville campus to explore and learn about the various aspects of engineering through discussions, project demonstrations and exhibits prepared by UT engineering student clubs and societies. The UT student chapter of ITE put on a real world demonstration of “What is Transportation Engineering?” using the new Driving Simulator Lab. The students lined up outside the door and down the hall to have a test drive through the virtual neighborhoods, interstates, and different driving conditions and scenarios. One teacher noted, “Thank goodness this is all simulated!” as several students tried a bit of off-road driving. The lab demonstration took second place for Class II Exhibits.
The STC always has placed great emphasis on education and one of the surest means to achieve a high level of learning is through student research. Our current students have compiled an impressive research résumé with investigations into these areas:

- transportation and health
- long-range transportation plans and climate change
- local option transportation taxes
- connections between transportation and land use
- self-selection in neighborhoods and school transportation
- Safe Routes to School
- VMTs and emissions of affordable housing residents
- non-motorized transport
- freight trucking
- transportation and air quality
- the birth of firms in Minnesota and implications for walking behaviors
- safety and non-motorized transport
- vehicle ownership patterns of neighborhood residents
- provision of transit information and residential location choice
- urban form, travel, and air quality
- GPS units for travel recording
- use of impact resonance tests to determine dynamic modulus of asphalt concrete
- operational effects of superstreets
- passenger rail design and operations
- transportation security and how to incorporate security concerns into transportation planning and decision-making
- the relationship between congestion and crashes, including understanding the relative magnitude of each

A number of these have become fully-fledged research projects; a selection of titles includes:

- Mean Profile Depth Analysis of Field and Laboratory Traffic Loaded Chip Sealed Surface Treatments
- Estimation of Air Carrier Emissions at Raleigh-Durham International Airport
- Measurement and Comparison of Locomotive Engine Emissions
- A Microscale Measurement and Evaluation Method for a Plug-In Hybrid Electric Vehicle
- Development of a Field Testing System for Asphalt Surface Treatments
- Design Guidelines for Geosynthetic Moisture Barriers in Pavement Applications
- Quality Control Methods for NCDOT Weigh in Motion Data
- Development of Artificial Neural Network Models for Populating the Dynamic Moduli of LTPP Sections
- Tail pipe emissions from NCDOT trucks on baseline B-20 fuel against B-20 with fuel additive
- Baseline Emission Rates for F59 and GP40 Locomotives Operated on Ultra Low Sulfur Diesel
- n-Dimensional Cluster Analysis for Weigh in Motion Data
- Effects of Using Higher Percentages of Recycled Asphalt Pavement in NCDOT Hot Mix Asphalt
- In-situ Scour Evaluation Probe
- Predicting Preliminary Engineering Costs for Highway Projects
- Guidelines on the Use of Auxiliary Through Lanes at Signalized Intersections
- Wireless Roadside Inspection Pilot Test Evaluation
- Infrastructure Requirements for a Hydrogen Powered Bus System: A Case Study for the Knoxville Area Transit (KAT)
- Prediction of Instantaneous Fuel Use and Emissions for a Plug-In Hybrid Electric Vehicle, Based on Real World Driving Data
Prior to enrolling in the UNC-Chapel Hill Department of City and Regional Planning, I worked for two years at the Z. Smith Reynolds Foundation (Winston-Salem, N.C.). Apart from my primary responsibilities related to semi-annual grantmaking, I also had the opportunity to assist with the Women’s Economic Equity Project (WEE Project), an initiative to increase economic self-sufficiency for rural women. In my role as site liaison for the Foundation’s nonprofit partner in Vance County, I witnessed the struggles of rural women trying to access education and jobs via an inadequate transportation network. I also observed community partners’ creative solutions for providing services in a time of rapidly-increasing fuel prices. More than any other experience at the Foundation, the WEE Project highlighted the importance of regional transportation networks in facilitating economic opportunity not just for urban residents, but for rural populations as well.

Rural women face unique challenges compared to their urban counterparts. The exodus of manufacturing jobs has led to a shortage of well-paid, centralized employment in rural communities. As high-tech industries relocate to the urban fringe, rural residents regain access to employment but now struggle to obtain the higher education necessary to be trained for such jobs. This regionalization of employment and education is particularly challenging for low-income women. Faced with fewer safe, low-cost child care options, rural women often must choose between taking low-wage jobs closer to home and investing in costly private transportation for greater flexibility.

Franklin-Vance-Warren (FVW) Opportunity, Inc. is one organization working to address these imbalances between rural employment, education, and existing transportation systems. FVW Opportunity, Inc. became the Foundation’s WEE Project partner in 2004 and continues to identify creative solutions to address the impasse between the high cost of private transportation and the minimal availability of regional public transportation. When fuel prices rose substantially in summer 2007, FVW Opportunity, Inc. called upon its partner, Vance-Granville Community College, to offer classes in the nonprofit’s building so that participants would not have to withdraw because of unaffordable commuting costs. FVW Opportunity, Inc. also provides transportation/gas vouchers and may expand the program through a partnership with the N.C. Rural Economic Development Center. While the monetary value of the assistance may be small, FVW Opportunity, Inc. insists that dedicated transportation funds are critical to keeping rural women in school, employed, and away from the difficult decision faced by many low-income families to choose between gas and food, medication, or other essentials.

One take-away of the WEE Project in Vance County is the resolve of nonprofits and community organizations to find creative solutions to persistent problems. Nonetheless, these women face systemic barriers that cannot be sustainably overcome with classroom relocation or gas vouchers. The planning community must continue to encourage local and state governments to provide regional public transportation services in rural communities. In an era of shrinking state revenue, immediate changes are unlikely; however, the economic vitality of rural areas in North Carolina will continue to rest on residents’ ability to access employment and education through means other than high-cost private transportation.

Brika Eklund is a Master’s Candidate at the University of North Carolina-Chapel Hill; she expects to complete her degree in 2011.

“I want to thank Jennifer Gregory (FVW Opportunity, Inc.) and Mary Fant Donnan (Z. Smith Reynolds Foundation) for their support during my time at the Foundation and in preparing this document.”
Tennessee Vans is a statewide van transportation service operated by the University of Tennessee Center for Transportation Research. Tennessee Vans strives to expand the mobility of people throughout Tennessee, thereby increasing employment opportunities, facilitating job training and placement possibilities, and assisting public agencies and non-profit organizations to provide needed services.

For many decades, substantial resources have been devoted to transportation infrastructure that supports the movement of people. However, a phenomenon termed “mobility gaps” still exists. Mobility gaps occur when the needs of individuals or groups are unmet by current transportation options. The occurrence of mobility gaps is especially apparent among transportation disadvantaged groups: persons with disabilities, the youth, the elderly, and low income workers. The Tennessee Vans program works to fill these mobility gaps.

The characteristics that distinguish Tennessee Vans from other community mobility services are its flexibility to meet diverse mobility needs and fill mobility gaps, its primary emphasis on user-based service design, serving the basic role as a mobility resource provider, and its central focus on financial self-sufficiency and program sustainability. Since its inception in 1990 up through the 2009 vehicle model year, the Tennessee Vans fleet has grown to 845 vehicles assigned to over 300 groups and organizations as part of its vehicle lease and purchase programs. The Tennessee Vans program provides user-based mobility services to a diversity of participant groups, including community and economic development agencies, faith based organizations, commuter vanpools, youth based organizations, workforce development groups, and public/private transit providers.

Tennessee Vans is first and foremost a mobility resource provider that assists program participants to implement their service designs by providing vehicles and supporting services. Program participants design their own travel routes, operating schedules, and financial options for those they serve. Program participants must meet specific requirements for vehicle repayment and travel safety. Tennessee Vans uses government grant funds and program revenue to procure vehicles. Vehicle costs and associated operational expenses are recovered from participants through fees charged for the lease or purchase of vehicles. These generated funds are in turn used to purchase vehicles to replace older vans and to add more vehicles to the fleet.

The most commonly used vehicles are the fifteen passenger van and the minivan. Three basic service programs are available to participants: the Employee Vanpool Lease Program, the Agency Vehicle Lease Program, and the Agency Vehicle Purchase Program.

The Employee Vanpool Lease Program provides vehicles, insurance, maintenance, and fleet management assistance to commuter groups. Vans are leased to groups of commuters who wish to ride together and share the monthly costs of operating the vanpool. The monthly fee covers the vehicle costs, maintenance, gasoline, insurance, and fleet management expenses. A member of the commuter group volunteers to drive the van, collect monthly rider fares, and keep the vehicle properly serviced.

The Agency Vehicle Lease Program provides an opportunity for public and private organizations to furnish transportation services through an affordable vehicle lease plan. These services include transporting people to and from work, job training sites, work-trip related events, and other travel needs of persons served by the organization. Qualified agencies pay monthly vehicle lease fees on a fixed cost plus mileage basis. The agencies also provide their own insurance at program specific coverage levels.

The Agency Vehicle Purchase Program allows participants to purchase vehicles for transportation purposes through an affordable financing plan. Participants include public and private non-profit organizations that currently provide or would...
like to provide transportation services. Vans are assigned to participating organizations through simple purchase contracts. The participating organization agrees to pay monthly fees until the vehicle contract is paid in full. Upon final payment, the vehicle title is fully transferred to the participating organization. Under the vehicle purchase program, the program participant provides the vehicle insurance, maintenance services, and qualified drivers.

Research and development is also an important part of the Tennessee Vans program. Vehicle safety issues, appropriate vehicle technology, and mobility needs of program participants have been studied by Tennessee Vans staff and associates. Recent reports include: *An Assessment of Vehicle Preferences and Safety Issues*, *An Assessment of Tennessee Vans Driver Education Needs*, and *Selection and Demonstration of Alternative Vehicles*. A recent research report funded by the STC, *Fifteen Passenger Van Safety-Recommendations on Best Practices for Community Transportation* by Drs. Frederick Wegmann and Melany Noltenius, examines overall fifteen passenger van safety concerns.

Tennessee Vans provides an affordable option for program participants as they strive to overcome transportation problems that are barriers to achieving their organizational goals (e.g., employment, training, community service, etc.). Tennessee Vans is a user based and financially sustainable program that helps overcome mobility gaps and meet growing mobility demands in communities.

For more information please visit the CTR website http://ctr.utk.edu/programs/tnvans.html or call 1-800-444-VANS.
Monday – Trains, Lights, and Giant TVs
Monday was our first day at TransWeek, and it started way too early for the typical teenager's sleep habits. However with some coffee and free breakfast the tiredness was soon forgotten. To start off the day we began with team building exercises, which included a contest of engineering a weight-bearing structure out of paper and popping balloons with interesting facts about our fellow classmates. After this we were greeted by a man who explained to us the importance of trains and how they affect transportation in the world. Then we paid a visit to the traffic control center and learned how all the stoplights in the city are managed, as well as an idea of what it takes to design and put together these lights. Finally, we traveled to the TDOT center and were shown their massive TV system that helps to manage all the interstates and highways.

Tuesday – Ropes Course
Tuesday came, and we found ourselves traveling to the Life Development Center in Anderson County. This was an interesting experience because it taught me a little about myself such as what my goals are, how my fear of heights has gone away, my ability to mesh with other people, and just how uncomfortable harnesses are. To start off with we were encouraged to list our goals for both ourselves and the group. Then we played more icebreaker/teambuilding activities. But the real fun came when we got on the rope swings and then went on to the swing shot. All in all it was a much more challenging day than we first thought because we didn't know we would have to rely as much on so many skills like communication and intelligence.
**Wednesday – Fort Loudoun Locks**
On Wednesday we took a trip to the Fort Loudoun dam and took a tour of the locks. The locks allow both personal and commercial watercraft to go from one side of the dam to the other. They are an amazing feat of engineering because they allow a massive amount of water to be moved with no pumps. After watching a few boats successfully go through we listened to a speaker explain about the importance and history of the dam and locks. Once we returned to the NTRC building we listened to Dr. Jack Humphreys go over his job of accident reconstruction. This man loves his job, and went into extreme detail of every aspect of his job. He could tell us exactly what happened in a crash, even down to whether the lights were on or not.

**Thursday – Driving Simulators and Football**
On Thursday we went to the UT campus and were shown the driving simulator. The man in charge made it clear that it was actually a traffic simulator, not a video game. But that didn’t stop me from running from the cops anyway. This was actually an incredible piece of technology, and it showed just how much potential for how we can integrate the technological world into our real world situations. We then were given a tour of Neyland Stadium and that really put into perspective just how much time and effort is put into a place like that. It’s a lot. The parking for events alone required more work than most of us do in a week.

**Friday – Airport and End of the Week Festivities**
The all-too-short week came to a close on Friday with a tour of McGhee Tyson Airport. This was an incredible tour because we were able to go out on the runway in a giant blue bus and drive around, something most people will never have a chance to do. We were able to see many different planes take off and land; even help the bus get washed by driving under the spray of a fire truck. During the tour our knowledge of the airport was tested by the guides, with prizes as incentives to answer correctly. After the tour, we went to Peerless Steakhouse to celebrate the week with our new friends and families.

**Workforce Development Conference—Save the Date!**

The STC and UT’s Center for Transportation Research are planning a [regional workforce development conference](#) that will focus on the high school, community college, and technical school sectors in the southeast. The conference is set for May 11, 2010 in Nashville and will be held in conjunction with the LTAP Region 4 meeting. Please save that date for what promises to be an important outreach to the transportation workforce development stakeholders of the southeast. Officials from both the public and private sectors will participate and help make this a successful conference. Attendees will represent transportation agencies at the federal, state, and local level; educational institutions and related government agencies; transportation carriers, contractors, and suppliers; and elected decision makers.

Watch for program details and registration information in the upcoming weeks.
In the 1950s, my Dad rescued a regulator clock from the Frisco Railroad depot in Muskogee, Oklahoma. I grew up with the invariant sound of its ticking. It is one of the most constant parts of my life. The same clock hangs in my living room today and I am listening to it as I write.

Over the years, that clock has meant many things. As a young boy, it measured the minutes until Santa came. As a teen it gauged how badly I’d violated my curfew. As a young adult and struggling young academic, it provided the sound that told me I was once again secure in my parents’ home, with plenty to eat in the morning.

These days, when I listen to the clock and consider my roles as a middle-aged adult and a transportation professional, I have a different set of thoughts. First, the constant ticking reminds me that each day is new and, while we are inexorably tied to the past, we work in an industry where having a fresh clock to work with is sometimes very important. Second, as I look around me, I realize that, right now, the clock may be ticking a little more slowly. Current economic events have bought us extra time to overcome some of the transportation challenges that seemed insurmountable 18 months ago. Finally, the incessant tick-tock reminds me that I won’t be doing this work forever. Hence, the time I have left to affect the next generation of transportation professionals is finite.

Symbolically setting the clock to 12:01 now and then is important to what we do. Teaching transportation is different than many other disciplines. I can teach the same micro-economics course that was taught in 1963 and rob my students of little. This isn’t true in transportation. The physics and basic business concepts are the same, but the parameters that we apply to the transportation equations change rapidly and in ways that are often hard to foresee.

In some industries (telecommunications, for example), foretelling change is less consequential because technological components have relatively short lives, but in transportation, we’re building infrastructures that can last for 50 years or more. Seeing as well as we can into the future is important. Just within my career, I’ve had to learn about GIS, GPS, broad-band technologies, fuel markets, and global commerce. In each case, it meant setting the clock back to zero and starting with a fresh day.

Next, the pendulum on my regulator clock can be adjusted downward to slow its movement and, in our world of transportation policy and practice, the current economic downturn has accomplished something similar. Across modes and services, the current global recession erased between five and 10 years of transportation demand growth within a two-year period. While nobody would invite such calamity, the silver lining is that we now have time to plan effectively for renewed growth and implement the resulting strategies in a setting that does not require the breakneck pace of the attempted capacity development we observed through much of 2008. At the same time, the lean economic conditions have helped to quickly cull less viable private sector providers from their respective markets. I only hope we don’t squander the extra time we’ve gained by the slowing of the clock. Markets will adjust the swing of the pendulum before you know it.

Finally, as my old clock continues to usher in new challenges and opportunities with its unceasing regularity, I’ve come to realize that my personal role in the process of transportation research and practice will ultimately have a finite temporal boundary (to normal people, this means “end”). I suppose that might, at first, sound melancholy, but that’s not how it feels. Like many of you, I struggled long hours to carve out a niche within the world of transportation. While our roles in transportation will end, the clock will continue to tick and a new generation of transportation professionals who bear our stamp will replace us. I don’t know about you, but I’m starting to look forward to the rest.

With my evening’s work now finished, all files saved, and my family asleep, I plan to retire to a leather sofa in a dimly lit room where I’ll listen to the sound of that ticking clock until I fall asleep.