

# SWUTC News

Texas A&M University • University of Texas at Austin • Texas Southern University

## SWUTC Student Achievements

### SWUTC Student Researcher Honored by CUTC

**Bharath Rajagopalan**, former SWUTC graduate researcher at the University of Texas at Austin, was honored as the 2009 recipient of the *Charley V. Wootan Memorial Award* for the best MS thesis in North America in the field of Transportation Planning and Policy at the Council of University Transportation Centers (CUTC) annual meeting in Washington, D.C. in January 2010. Mr. Rajagopalan's thesis is titled "Comprehensive Analysis of Workers' Non-Work Activity Time-Use and Timing Behavior." While in graduate school, Mr. Rajagopalan conducted research in association with Dr. Chandra Bhat's SWUTC study "An Analysis of Children's After-School Activity and Travel Patterns." Mr. Rajagopalan received his Masters of Science in Civil Engineering in December 2008. Professor Bhat was also Rajagopalan's advisor as a graduate student.



This highly competitive recognition comes with a \$1,500 cash award.

### SWUTC Research Leads to Best Paper Award from JAPA

A paper penned by **Eric Dumbaugh**, Assistant Professor of Urban Planning at Texas A&M University, and his graduate student **Robert Rae** has shattered myths

about the safety of suburban roads and related community design, said associate editors at the Journal of American Planning Association (JAPA), who selected the paper for the prestigious journal's 2009 Best Paper Award. The paper, "Safe Urban Form: Revisiting the Relationship Between Community Design and Traffic Safety" is a product of SWUTC supported research



Robert Rae



Eric Dumbaugh

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project “Examining the Design and Developmental Factors that Influence the Incidence of Urban Traffic Crashes.”

Robert Rae graduated with a Master of Urban Planning degree from Texas A&M in 2008.

## TAMUite Places First at District Traffic Bowl, Advances to International Competition

A team of four SWUTC Transportation Scholar students representing the Texas A&M University Student Chapter of the *Institute of Transportation Engineers* (ITE) placed first in the district-level competition for the ITE Collegiate Traffic Bowl, held on Jan. 29 at the winter meeting of the Texas District Institute of Transportation Engineers in Frisco, Texas.



(L-R) Traffic Bowl Team members Phillip Dunham, Kristopher Ball, Ben Sperry and Andrew Persyn

The Traffic Bowl tested the students’ knowledge of traffic-related subjects such as traffic control devices, highway design, and other topics in a Jeopardy!-style format.

“This competition is an outstanding opportunity for our students to demonstrate their abilities and expertise gained through their transportation education,” said Dr. Gene Hawkins, the chapter’s advisor and associate professor of civil engineering. “I’m extremely proud of their performance and look forward to seeing them compete at the international level.”

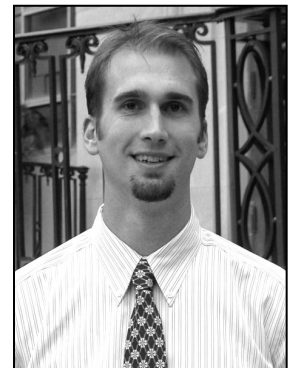
By winning the Texas District, the Texas A&M team will compete against up to nine other district champions at the international ITE Collegiate Traffic Bowl competition, which will be held in Vancouver, British Columbia in conjunction with the ITE Annual Meeting and Exhibit this August.

“I enjoyed the competition,” said team member Philip Dunham. “It gave us an insight into what professionals in the field feel is important for students to know.”

The Texas A&M ITE Student Chapter team included doctoral student **Ben Sperry** and master’s students **Kristopher Ball** (chapter president), **Philip Dunham** and **Andrew Persyn**.

## Former SWUTC Student Receives Appointment

**Nicholas Lownes**, former SWUTC researcher and Advanced Institute Fellow from the University of Texas at Austin was recently appointed as Director of the Center for Transportation and Urban Planning (CTUP) at the University of Connecticut. CTUP is a Tier II member of the national University Transportation Center program.



While at the University of Texas at Austin, Dr. Lownes studied under the guidance of Dr. Randy Machemehl. He conducted research for and was first author on the SWUTC research report “The Commuter Rail Circulator Network Design Problem: Formulation, Solution Methods, and Applications.” He is currently an Assistant Professor in the Department of Civil and Environmental Engineering at the University of Connecticut and has taught undergraduate and graduate transportation courses since he started his teaching career in August 2007.

## Key SWUTC Personnel Recognized with Honors

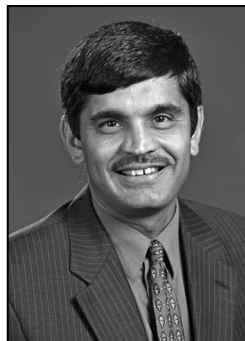
In its highest recognition of notable and outstanding professional achievement, the Institute of Transportation Engineers (ITE) awarded SWUTC Executive Committee member and Texas Transportation Institute Agency Director **Dr. Dennis Christiansen** with honorary membership. Christiansen becomes ITE's 77th *Honorary Member*.



"Dr. Christiansen has demonstrated his leadership and dedication to the transportation profession as a former Texas District director on ITE's Board of Directors and as a past international president," ITE International Vice President Robert C. Wunderlich said during the ceremony.

A member of the TTI staff for 36 years, Christiansen has extensive research experience in several areas, including traffic operations and transportation planning, and is an international expert in high-occupancy vehicle (HOV) lanes.

Key SWUTC Researcher **Dr. Chandra Bhat** of the University of Texas at Austin was selected to receive the *S.S. Steinberg Award* from the Research and Education Division of the American Road and Transportation Builders Association (ARTBA).



The award, named after the founding president of the ARTBA Research & Education Division (RED), recognizes an individual who has made remarkable contributions to transportation education. He is a nationally-recognized expert on travel demand modeling and travel behavior analysis. Bhat has conducted extensive research and written on land-use and travel demand modeling, evalua-

tion of transportation control policy and congestion pricing, the use of non-motorized travel modes and physical health and transportation.

This award was presented during the annual meeting of the *Transportation Research Board* in January 2010.

Dr. Bhat was also selected by the Student Engineering Council (SEC) to receive the *Most Outstanding Faculty Award for Civil Engineering*. The award was presented to Dr. Bhat at the annual Faculty Appreciation Event on March 2.

And in April, Dr. Bhat was elected to the *Academy of Distinguished Teachers* at the University of Texas at Austin.

The *Academy of Distinguished Teachers* was established in 1995 and demonstrates the university's commitment to excellence in teaching. Approximately 5% of the tenured faculty in the university are elected as members.

SWUTC Researcher and Assistant Professor of Transportation Engineering at Texas A&M University **Dr. Dominique Lord** was awarded the CUTC-ARTBA 2009 *New Faculty Member Award* at the CUTC Annual Awards Banquet in Washington D.C in January.



The award, co-sponsored by the Council of University Transportation Centers (CUTC) and the American Road & Transportation Builders Association (ARTBA), is given annually to a tenure-track faculty member in transportation engineering and recognizes outstanding teaching and research contributions to the transportation field. Lord received a plaque and cash stipend of \$2,000.

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**Dr. Kara Kockelman**, Professor and SWUTC researcher in the Civil, Architectural and Environmental Engineering Department at the University of Texas at Austin is the recipient (with co-author Dr. Cara Wang) of the *2009 Young Researcher Award* from the Transportation Research Board's Committee on Statistical Methods (ABJ80) for paper titled "Application of the Dynamic Spatial Ordered Probit Model: Patterns of Ozone Concentration in Austin, Texas," awarded in Washington, D.C. January 2010, at the 89th Annual Meeting of the Transportation Research Board.



In April, Dr. Kockelman was awarded the *2010 ASCE Walter L. Huber Civil Engineering Research Prize*.

The Huber Prize is awarded to members of the American Society of Civil Engineers (ASCE) for notable achievements in research related to civil engineering. The prize citation read: "For her contributions in the areas of data acquisition and analysis for highway safety, urban systems forecasting, vehicle design, road pricing, spatial statistics and energy savings, providing objective answers to multi-faceted questions that facilitate decisions in transport planning and policy-making."

Also in April, Dr. Kockelman was appointed to the USDOT Bureau of Transportation Statistics' Advisory Council. The Advisory Council for Transportation Statistics (ACTS) is composed of six members appointed by the Director. The members are chosen on the basis of their expertise in transportation statistics, economics, and analysis.

## New Research Highlights

*This year, the SWUTC selected 40 new research studies to fund.  
Four of these are highlighted here.*

### Transit Ridership

Ridership in the United States has been fluctuating over the last decade. With fuel prices increasing, urban and suburban settlements growing and global warming and environmental impact getting special attention, it is important to increase our knowledge of best marketing practices to attract riders to public transit as a better alternative to the use of their own car. Houston Metro is adding roughly 30 miles of light rail, offering new quick lines and routes and in general improving efficiency and reducing costs. But in order to move people out of their cars for all or some of their travels, a deeper analysis of the variables and a strategy to promote the public transit is required.

The goal of this research being conducted by **Dr. Carol Lewis** of Texas Southern University is to identify the variables that contribute to an individual's choice of the private auto for trip making and determine what information or marketing tools would motivate the person to utilize public transportation. Specifically this research will describe the variables that individuals indicate influence their mode choice toward the automobile. Explore the information that can be shared to modify that mode choice. And through experiential opportunities, identify the variables and marketing strategies most effective in influencing public transit as the mode choice.

For more information, visit <http://swutc.tamu.edu/projectdescriptions/161003.htm>





## Transit Oriented Development

transportation plans. An example from central Texas is CAMPO's "Activity Centers" concept. In North Central Texas, NCTCOG has been expanding its TOD program along the DART system that is planned to nearly double by 2030. In the Houston-Galveston area, H-GAC is planning and implementing a "Livable Centers" project that cluster jobs, shopping, entertainment, and/or housing. One major challenge to planning and implementing these TOD-type strategies is parking. While it is neither feasible nor reasonable to eliminate all parking in a TOD district, applying the conventional parking ratios to TOD projects would undermine the expected community benefits of TOD and can even cause the TOD initiative to fail. This is because the conventional parking standards have a serious suburban bias and are based largely on low-density single land uses. The standards likely generate excessive parking in the TOD area; these parking lots or garages take the limited prime locations and spaces near the station, increase project costs to the developer, and impede access to the transit by walking, biking, or feeder services. Experience from other states suggests that getting the parking right is essential to ensure the desirable form and functionality of TOD. There are few studies of the topic on Texas cities. This research being conducted by **Dr. Ming Zhang** at the University of Texas at Austin aims to fill the gap through a case study of Austin, TX.



For more information, visit <http://swuttc.tamu.edu/projectdescriptions/161027.htm>

## Roadside Conditions

In his new study, **Dr. Nasir Gharaibeh** of Texas A&M University plans to enhance the data collection methods for roadside condition and inventory through the use of micro unmanned aerial vehicles (MUAVs). MUAVs that are equipped with digital still and video cameras, and Global Positioning System (GPS) provide a potential opportunity for improving the effectiveness and safety of roadside condition and inventory surveys. The specific objectives of his research are to assess the quality of MUAV-based roadside condition and inventory surveys, and to evaluate the operational performance of MUAVs by monitoring flight performance (e.g., speed, altitude, quality of images) under various field conditions. A series of field experiments will be designed and conducted to evaluate the effectiveness of MUAVs. The results of this research can potentially be used by transportation agencies to make better informed decisions regarding the adoption of MUAVs for automated aerial roadside condition and inventory surveys.



For more information, visit <http://swuttc.tamu.edu/projectdescriptions/476660-00019.htm>

## Vehicle Ownership

Rising gasoline prices, emerging engine technologies, and changes in fuel-economy policy will result in a variety of behavioral changes, including household holdings (number of vehicles, make and model), vehicle purchase and retirement timing decisions, mode choice and travel distances, speeds, and emissions. This research being conducted by **Dr. Kara Kockelman** of the University of Texas at Austin provides new data on ownership decisions and owner preferences under various scenarios, coupled with calibrated models to microsimulate the nation's personal-fleet evolution. This research will evaluate near- and long-term vehicle ownership decisions and owner preferences under various scenarios, in order to anticipate the qualities of America's evolving passenger vehicle fleet and carbon emissions, and anticipate plug-in hybrid electric vehicle (PHEV) adoption and use policies.



For more information, visit <http://swuttc.tamu.edu/projectdescriptions/161023.htm>

### SWUTC Holds Consortium-Wide Student Conference

How do you get students from rival universities to interact and view each other in a different light? Bring them together for a day of socializing, networking and structured activities in a casual, relaxed setting. And this is exactly what the SWUTC did on March 5th of this year. Graduate transportation students and faculty members from Texas A&M University, Texas Southern University and the University of Texas at Austin were invited to attend a one day student conference held in scenic Winedale, Texas.



Students and faculty participating in opening icebreaker

of Congestion Management, Infrastructure Preservation, Safety Management/Improvement, Sustainability, and Transportation Financing/Funding. Great effort was made to ensure that each group had equal representation from each university. Faculty members were free to roam and interact with the various groups to mentor and help facilitate their discussions.

Student evaluations of the conference were very positive with pleas to make it an annual event. "I must say that (the conference) was



End of the day student presentations

Attendance was strong for the event with 52 graduate students participating and 15 faculty and staff members. The day began with welcoming comments from key SWUTC personnel and an icebreaker activity designed to get the students interacting with each other. Next, the students were divided into work teams based on their previously identified area of interest. Each team spent the remainder of the day defining the issues and the actions that would be needed to meet the transportation challenges for their area in the year 2030. Each team prepared a 10 minute presentation at the end of the day summarizing their findings and plans of action. The student groups for this conference consisted



Conference teams at work

a good way of sharing ideas and socializing with our colleague students from the other universities," said TSU participant Grace Arthur. "Today's student-focused SWUTC event in Winedale was terrific," writes University of Texas faculty member Kara Kockelman. "The students participated enthusiastically, and it was exciting to see all those fresh faces across our partner institutions."

The coordinators for this event were led by **Dr. Gene Hawkins** from Texas A&M University and included **Dr. Zhanmin Zhang** from the University of Texas at Austin and **Mr. Khosro Godazi** from Texas Southern University.

## Where Are They Now?

### Education Program Student Kudos

Congratulations to **Katherine Kortum**, Advanced Institute student from the University of Texas at Austin and **James Robertson**, Transportation Scholars student from Texas A&M University for being selected as 2010 Eno Fellows.

Each year, the Eno Leadership Development Conference gives 20 of the nation's top graduate students in transportation a first-hand look at how national transportation policies are developed. Students apply to the program early in the year, and those selected as "Eno Fellows" go to Washington, DC, for a week of meetings with federal officials and leaders of business and non-profit organizations in the spring. This year's conference will be held during the week of May 17-20, 2010.

Congratulations to the recent graduates of the SWUTC Education Program who have joined the transportation workforce.

#### Texas Southern Graduates

**Hassan Abbasi** – Program Analyst for Prairie View A&M University

#### Texas A&M Graduates

**Susan Paulus** – LEED Green Associate for Bloom Companies

**Stephen Sprague** – Engineer in Training for Halff & Associates

**Eric Talbot** – Research Associate for Texas Transportation Institute

**Ryan Eurek** – Engineer in Training for Kimley-Horn

#### University of Texas at Austin Graduates

**Jason Lemp** – Senior Professional for Cambridge Systematics

**Kristen Svcarovich** – Designer for DKS Associates

## Technology Transfer Highlights

### SWUTC Researchers Hit the Road

The following is a listing of SWUTC staff who presented study findings based on their SWUTC research.

**Dr. Fengxiang Qiao, Mr. Qing Zhu, Mr. Ying Li, Mr. Po-Hsien Kuo** and **Dr. Lei Yu** from Texas Southern University presented *Innovative Sensors and Devices Applied in Bicycle and Pedestrian Crossings at Freeway Interchanges* to the ASCE Conference on Earth & Space 2010, Honolulu, HI, March 14-17, 2010.

**Mr. Curtis Morgan** and **Mr. Ben Sperry** from Texas A&M University presented *Evaluating the Impacts of Passenger Rail Service: Case Study and Lessons Learned* to the 2010 Joint Rail Conference on High-Speed and Intercity Passenger Rail, Urbana, IL, April 27-29, 2010.

**Dr. David Ellis** from Texas A&M University presented *The Effect of Gasoline Price on Gasoline Consumption in Texas* to the 51st Transportation Research Forum, Arlington, VA, March 12, 2010.

**Mr. Rob Harrison** from the University of Texas at Austin presented *Measuring the Impact of Intermodal Rail Movements in State Transportation Planning* to the 51st Transportation Research Forum, Arlington, VA, March 12, 2010.

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**Dr. Talia McCray** and **Ms. Sabina Mora** of the University of Texas at Austin presented *Linking Perceptions of Safety to the Activity Patterns of Low-Income Youth* to the Urban Affairs Association, Honolulu, Hawaii, March 10-13, 2010.

**Dr. Eric Lindquist** from Texas A&M University presented the seminar *The Role of Metropolitan Planning Organizations and Regional Councils for Climate Change Adaptation Policy in the United States* to the Transport Studies Unit, University of Oxford, Oxford, England, February 23, 2010 and for the Department of City and Regional Planning, Cardiff University, Cardiff, Wales, February 26, 2010.

**Mr. Curtis Morgan** from Texas A&M University presented *Measuring the Benefits of Intercity Passenger Rail: A Study of the Heartland Flyer Corridor*, to the Northern Flyer Teleconference/Webinar, February 18, 2010.

**Dr. Carol Lewis** from Texas Southern University presented *An Inventory and Assessment of Models Used to Predict Emergency Evacuation and Consideration of Increasing Policy Maker Involvement* at the National Evacuation Conference, New Orleans, LA, February 3-5, 2010.

### 89th Annual TRB Meeting Presentations

**Mr. Stephen Boyles**, **Ms. Lauren Gardner** and **Dr. Travis Waller** from the University of Texas at Austin presented *Congestion Pricing for Transportation Networks Under Supply and Demand Uncertainty*.

**Dr. Lei Yu**, **Mr. Xio Zhang**, **Dr. Fengxiang Qiao** and **Dr. Yi Qi** from Texas Southern University presented *GA-based Approach for the Development of Driving Schedules for Evaluating Greenhouse Gas Emissions from Light-Duty Vehicles*.

**Dr. Yi Qi** and **Ms. Yubian Wang** from Texas Southern University presented *Review of Available Non-Intrusive Inspection (NII) Technologies for Port Cargo Inspection*.

**Dr. Fengxiang Qiao** from Texas Southern University presented *ITS Data Compression Using Advanced Signal Processing Techniques* to the Sunday Workshop of Artificial Intelligence Committee.

**Dr. Charles Glass** and **Ms. Kadijah Hall** from Texas Southern University presented *Increasing Awareness Among Students about Careers in Transportation*.

**Mr. Myunghoon Ko**, **Ms. Laura Higgins**, **Dr. Sue Chrysler** and **Dr. Dominique Lord** from Texas A&M University presented *Effect of Driving Environment on Driver's Eye Movements: Re-Analyzing Previously Collected Eye-Tracker Data*.

**Dr. Rachel Copperman** and **Dr. Chandra Bhat** from the University of Texas at Austin presented *Children's Activity-Travel Patterns and Implications for Activity-Based Travel Demand Modeling*.

**Mr. Ipek Sener**, **Mr. Naveen Eluru** and **Dr. Chandra Bhat** from the University of Texas at Austin presented *On Jointly Analyzing the Physical Activity Participation Levels of Individuals in a Family Unit*.

**Dr. Rajat Rajbhandari** from Texas A&M University presented *Prototype Information System to Monitor HAZMAT Movement and Respond to Incidents in the U.S.-Mexico Border Region*.

**Mr. Sashank Musti**, **Ms. Katherine Kortum** and **Dr. Kara Kockelman** from the University of Texas at Austin presented *Household Energy Use and Travel: Opportunities for Behavioral Change*.



**Mr. Rahul Purtha, Dr. Luca Quadrifoglio and Dr. Emily Zechman** from Texas A&M University presented *Using Ant Colony Optimization for Solving Traffic Signal Coordination in Oversaturated Networks*.

**Mr. Sashank Musti** from the University of Texas at Austin presented study findings from SWUTC research effort *Evolution of Vehicle Fleet: Anticipating Fleet Composition, Use and PHEV Adoption* to the Alternative Fuels Committee.

**Dr. Alison Conway and Dr. C. Michael Walton** from the University of Texas at Austin presented *A Road Pricing Methodology for Infrastructure Cost Recovery*.

**Dr. Jorge Prozzi** from the University of Texas at Austin presented *Comparing Rutting Performance between MEPDG and Hamburg Wheel*.

**Dr. Talia McCray and Ms. Sabina Mora** from the University of Texas at Austin presented *Low Income Teen Activities and Perceived Safety in Providence, RI*.

**Mr. Sashank Musti and Dr. Kara Kockelman** from the University of Texas at Austin presented *Evolution of Household Vehicle Fleet: Anticipating Fleet Composition and PHEV Adoption in Austin, TX*.

**Dr. Ivan Damnjanovic** from Texas A&M University presented *Valuing Real Estate Externality-based Option in Development of Transit System Projects*.

**Ms. Gwen Goodwin** from Texas Southern University presented *Is it the Transit Center? Assessing the Impact of Bus Transit Centers on Single Family Residential Land Values in Houston, Texas*.

### Poster Presentations

**Mr. Seok Kim and Dr. Ivan Damnjanovic** from Texas A&M University: *Smart Garage Projects: Optimizing for Vehicle-to-Grid Operations*.

**Mr. Chung-Wei Shen and Dr. Luca Quadrifoglio** from Texas A&M University: *Centralize vs. Decentralize Zoning Strategies for Metropolitan Paratransit Systems*.

### Eisenhower Showcase Presentations

**Ms. Beatriz Rutzen** from the University of Texas at Austin presented *High Speed Rail: A Study of International Best Practices and Identification of Opportunities in the U.S.*

**Ms. Krystal Lastrape** from Texas Southern University presented *Evaluating the Effect of Transit Oriented Development in a Suburban Environment Compared to an Urban Environment*.

## Recently Published Reports

Each of the following publications are available in PDF format at  
<http://swuttc.tamu.edu/publications.htm>

Increasing Awareness among Students about Careers in Transportation, Kadijah Ha., Charles Glass, and Emmer-son Edwards, Texas Southern University, April 2010, 20 pp. (476660-00045-1)

Climate Change/Variability Science and Adaptive Strategies for State and Regional Transportation Decision Making, Eric Lindquist, Texas A&M University, April 2010, 68 pp. (167165-1)

Measuring the Benefits of Intercity Passenger Rail: A Study of the Heartland Flyer Corridor, Benjamin R. Sperry and Curtis Morgan, Texas A&M University, April 2010, 174 pp. (169116-1)

Quantifying Travel Time Variability in Transportation Networks, Stephen D. Boyles, Avinash Voruganti and S. Travis Waller, University of Texas at Austin, March 2010, 39 pp. (167275-1)

Valuing Real Estate Externality-Based Option in Development of Transit System Projects, Xue Zhou and Ivan D. Damnjanovic, Texas A&M University, March 2010, 37 pp. (169112-1)

Assessment of Programs that Encourage Students from Diverse Populations to Consider Transportation Careers, Debbie Jasek, Texas A&M University, March 2010, 46 pp. (167175-1)

A Statistical Analysis of the Relationship Between Land Values and Freestanding Bus Facilities, Carol Lewis, and Gwen Goodwin, Texas Southern University, February 2010, 26 pp. (167372-1)

Addressing Safety Through Evaluation and Optimization of Permeable Friction Course Mixtures, Alex E. Alvarez, Amy Epps Martin and Cindy K. Estakhri, Texas A&M University, January 2010, 91 pp. (476660-00013-1)

Evolution of the Household Vehicle Fleet: Anticipating Fleet Composition, Plug-In Hybrid Electric Vehicle (PHEV) Adoption and Greenhouse Gas (GHG) Emissions in Austin, Texas, Sashank Musti and Kara M. Kockelman, University of Texas at Austin, December 2009, 165 pp. (169202-1)

Developing and Applying Mobility Performance Measures for Freight Transportation in Urban Areas, David Winterich, William L. Eisele, Juan Villa, and David L. Schrank, Texas A&M University, December 2009, 58 pp. (476660-00014-1)

Trip Internalization and Mixed-Use Development: A Case Study of Austin Texas, Ming Zhang, Alexander Kone, Shaun Tooley, and Ryan Ramphul, University of Texas at Austin, December 2009, 123 pp. (169207-1)

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Reporter | Editor  
Barbara Lorenz

Photography | Graphic Design  
Ivan Lorenz, John Hobbs

### For More Information

We can be reached at:

Southwest Region University  
Transportation Center  
Texas Transportation Institute  
Texas A&M University System  
3135 TAMU  
College Station, Texas 77843-3135

Phone: (979) 845-5815  
Fax: (979) 845-9761  
e-mail: [b-lorenz@tamu.edu](mailto:b-lorenz@tamu.edu)

Or visit our home page at:  
<http://swuttc.tamu.edu/index.htm>

