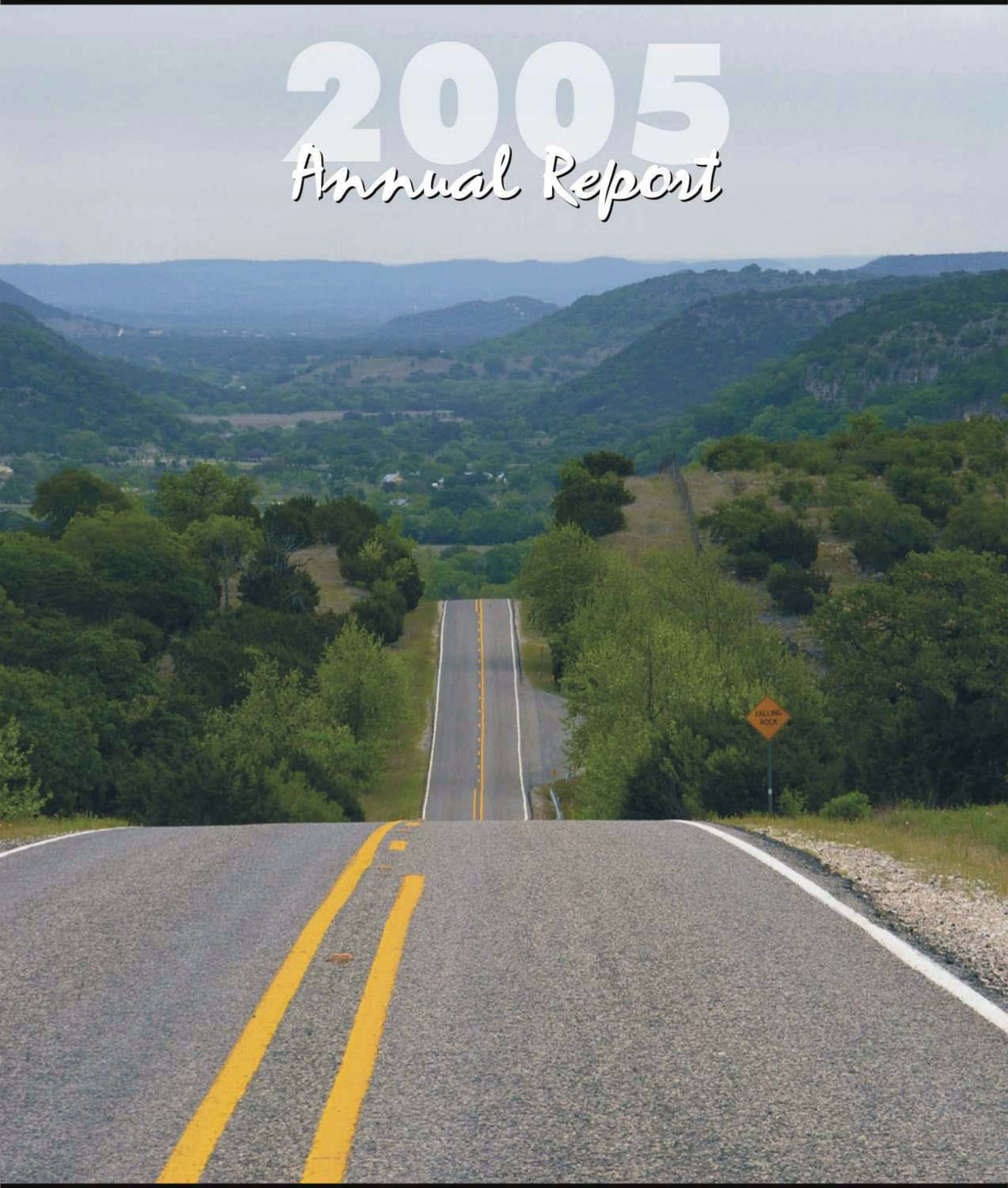
Southwest Region University Transportation Center

2005 Annual Report



Transportation Solutions to Enhance Prosperity and the Quality of Life

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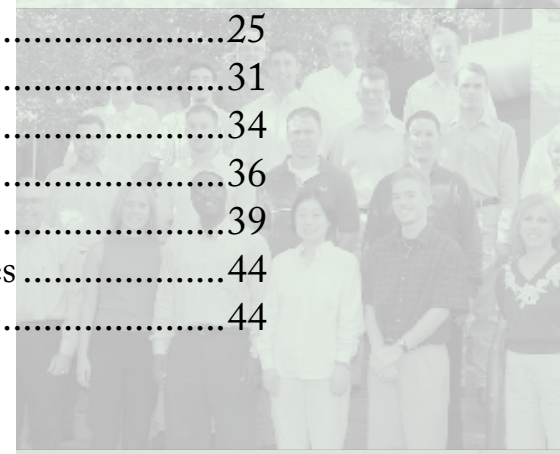
Southwest Region University Transportation Center
Annual Report 2005

Transportation Solutions to Enhance Prosperity and the Quality of Life

Region Six

TABLE OF CONTENTS



Message from the Director

As this report shows, we in the SWUTC have continued to keep focused upon the three goals of the UTC mission guidance: education, research, and technology transfer. In the 15+ years of history of the national UTC program, emphasis may have alternated among those three elements, but the annual "mix" has always included them all.

So, as you read this report, you will find sections describing successes of classroom-based programs in the Advanced Institutes at UT-Austin and Texas A&M along with the graduate program in transportation delivered at TSU. Our selection of Mr. Satish Ukkusuri as the winner of the *Dr. Robert Herman Award* highlights the culmination of academic successes in our student body.

Mr. Zachary Piepmeyer and Mr. Michael Shenoda received our other two principal student prizes, being named the recipients of the *Dr. Naomi Lede Award* and the *Dr. William J. Harris Award*, respectively.

The SWUTC research program attracted a number of new scholars as Principal Investigators this year. **New researchers** working with **new students** pursuing **new ideas** remains a principal aspect of our approach to activities within transportation science and engineering. As a precursor to these advanced pursuits, SWUTC also supports two robust summer programs that attract secondary school students and undergraduate students into transportation-oriented classes, projects, and seminars.

SWUTC participants have access to funding that supports technology transfer activities that help complete the research/education cycle. Technical reports and presentations, along with workshop participation, and one-on-one interactions with transportation professionals are designed to create new or improved results for the sector. Participation at national and international meetings and professional conferences is a critical part of our providing leadership within the transportation profession.

So, once again I welcome you to read about the programs and successes of our SWUTC colleagues at Texas Southern University, the University of Texas at Austin, and the Texas A&M University System. I am continually grateful to be a part of this dynamic enterprise.

Dock Burke
Director

Theme and Vision

The SWUTC theme

Transportation Solutions to Enhance Prosperity and the Quality of Life

clearly challenges SWUTC participants to expand their capacities to the fullest to produce education, research, and service solutions to transportation issues facing the people of the Southwest and the U.S. Our theme encompasses four strategic thrusts - support of economic growth and trade; enhancement of mobility, accessibility and efficiency; promotion of safety and safe environments; and development of the transportation workforce.

To achieve maximum value from the SWUTC in implementing our grant, the SWUTC pursues the following vision to become

an Internationally recognized center for excellence providing knowledge, diverse leaders, and innovative solutions for the transportation challenges of the 21st Century.

This ambitious vision calls upon us, over the expected lifetime of this UTC grant, to deliver premier research programs in transportation systems, transportation education and professional workforce development, and transportation technology transfer and service. We will pursue this vision by building on the significant resource base already in place within the transportation programs of the consortium universities, adding new partnerships and alliances with other universities and transportation entities in the region, and keeping the three program elements (research, education, and technology transfer) focused upon our theme.

The SWUTC Consortium

Since the establishment of the UTC program in 1988, the SWUTC consortium has included these members: Texas A&M University System, the University of Texas at Austin, and Texas Southern University. The transportation research and educational activities of the three consortium members in the SWUTC produce the largest combined program of its kind in the US. Further, the added strength from the synergy among the consortium's transportation faculty and research professionals has created a unique blend of efforts that has enhanced the education, research, and service leadership within Region 6.

Lead University - Texas A&M University

The Texas Transportation Institute is headquarters for the SWUTC and is one of the premier transportation research entities in the U.S. The research program at TTI is extensive, and includes transportation systems and operations, policy and planning, economics, materials, structures, safety, and human factors.

Texas A&M University's transportation-related faculty -- composed of experts in transportation engineering, materials, and planning – prescribes the curriculum and requirements for undergraduate and graduate degrees with specializations in numerous aspects of transportation. Completion of these degrees creates engineers and scientists for professional careers and leadership positions throughout the transportation industry.

Texas Southern University

The Texas Southern University and its Center for Transportation Training and Research present a premier transportation program in planning, research, and implementation that has focused upon some unique opportunities in providing transportation excellence to African-American populations of students and transportation users. A blend of TSU's airway science expertise and its strength in urban transportation planning creates new avenues for bringing multi-modal solutions into the classroom, laboratory, and implementation phases of existing and new transportation challenges for the 21st Century.

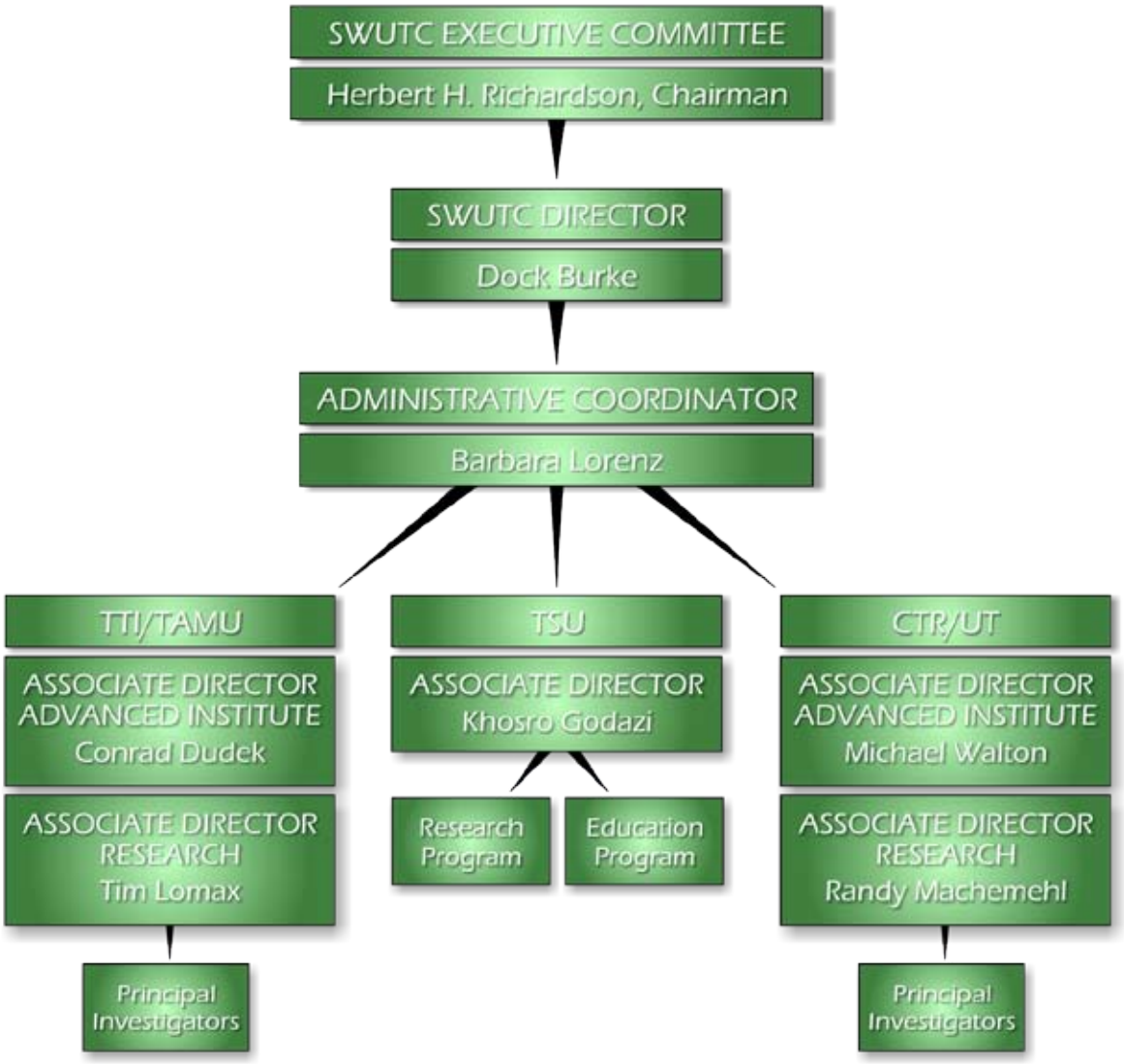
University of Texas at Austin

The transportation programs at the University of Texas at Austin and its Center for Transportation Research feature well-equipped facilities, top-notch research and teaching faculties, and high-quality students. A wide range of expertise in science, engineering, and policy gives the SWUTC a rich skill mix needed for developing viable solutions to complex issues involving transportation systems behavior, international goods movements, and harmonized modal transportation networks for improved performance, including a higher quality of life for the affected citizens.

Management Structure

The SWUTC Executive Committee oversees the SWUTC activities by establishing budget priorities; determining program content by selecting research projects and choosing those educational programs to be undertaken; and by reviewing the administrative affairs of the Center.

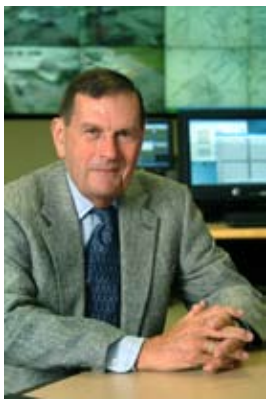
The SWUTC Director plans, executes, and reports the approved activities of the Center. The Director is assisted by an Administrative Coordinator and five Associate Directors - two at TAMU/TTI, two at UT-Austin/CTR, and one at TSU/CTTR. These Associate Directors are each responsible for administering that portion of SWUTC's activities in their charge.



Key Center Personnel

SWUTC Executive Committee

Dr. Herbert H. Richardson, chairman



Dr. Richardson is currently Director of the Texas Transportation Institute and Associate Vice Chancellor for Engineering in the Texas A&M University System, and also holds appointments as Regents Professor and Distinguished Professor of Engineering in Texas A&M University. He is a member of the National Academy of Engineering, Honorary Member of the American Society of Mechanical Engineers, and Fellow of the American Association for the Advancement of Science. He served as the first Chief Scientist of the U.S. Department of Transportation, as Chairman of the Transportation Research Board, and has led or participated in numerous TRB panels, study committees, and review boards. He served for 6 years on the Governing Board of the National Research Council and the Council of the National Academy of Engineering. He is a lifetime National Associate of the National Academies. He is the recipient of numerous professional honors, the most recent the *Lamme Medal of the American Association for Engineering Education* for leadership in engineering education.

Mr. G. Sadler Bridges, member

Mr. Bridges has more than forty years of experience in transportation research. His research has included urban transportation, bus operations, high occupancy vehicles, and fixed guide-way transportation. Mr. Bridges managed the 1970 and the 1972 *National Transportation Studies* for Texas, directing the efforts of several state agencies and twenty-three urbanized areas in Texas, and was its principal author. He was a member of the Mobility 2000 Group on the application of advanced technologies to vehicles and highways. The technologies include advanced traffic management techniques, onboard navigation systems, and advanced vehicle control systems. He co-edited the Mobility 2000 reports of the meetings in San Antonio in 1989 and Dallas in 1990. He was a founding member of ITS America, a designated advisory commission to the U.S. DOT on ITS issues. He has served on the Membership Committee, the Coordinating Council, the Planning Committee, and as chair of the Institutional Issues Committee. Coincident with Mr. Bridges' appointment to an administrative position his primary attention turned from technical research to concentrate on management. During his tenure as Interim Director, TTI was designated as one of three Research Centers of Excellence in ITS. One of his continuing interests is to expand TTI into new technologies and new disciplines of transportation. Mr. Bridges was the 2004 recipient of the *TTI/Trinity Career Achievement in Research* award presented for distinguished TTI performance. Presently, Mr. Bridges serves on TTI's Intellectual Properties Committee and is responsible for policy and oversight of the patents and licensing procedures for the Institute and its researchers.

Dr. Dennis Christiansen, member

Dr. Christiansen is presently Deputy Director of the Texas Transportation Institute. Dr. Christiansen has been a member of the staff of the Texas Transportation Institute for over 30 years. Projects directed by Dr. Christiansen have addressed areas such as: the role of rail transit in Texas cities; roadway operations and design; transportation and energy relationships; the design and operation of bus transfer centers and park-and-ride lots; the role of intercity rail passenger service in Texas; the potential role for a system of strategic arterial streets; and urban goods movement. In addition to this research, Dr. Christiansen has become recognized as an international expert in the planning, design, operation and evaluation of preferential facilities for high-occupancy vehicles.

In 1979 he received the Transportation Research Board's *Fred Burgraff Award*. The International Institute of Transportation Engineers awarded him their Technical Paper Award in 1984 and the Technical Council Award in 1988. The Texas Section of the Institute of Transportation Engineers named him its Transportation Engineer of the Year in 1989. He is a past president of the International Institute of Transportation Engineers and is currently one of the 15-member Board of Direction for IITE. Dr. Christiansen is immediate past president of the Research and Education Division of the American Road and Transportation Builders Association and currently serves on ARTBA's Board of Directors. He also served as President of the Council of University Transportation Centers (CUTC) in 2002.

Mr. Robert Harrison, member

Mr. Harrison is a Senior Research Scientist and Deputy Director of the Center for Transportation Research at the University of Texas at Austin. He has worked in the area of transportation economics and planning for over 30 years and has published extensively in the area of economic impact studies, trucking issues, cost benefit analysis and transport system planning. Recently, his work has focused on Texas-Mexico border trade issues and inland ports (which was started with seed money from the SWUTC), with both studies resulting in Texas Department of Transportation (TxDOT) Top Innovation Awards. In addition, he has studied NAFTA trade corridors and the major markets served by the Texas gulf ports. Most recently, Mike Schofield, a UT student working with Mr. Harrison on a truck safety SWUTC study was awarded the 2005 graduate paper competition in the Research and Education Division of ARBTA. Mr. Harrison has written over 40 research reports and published over 30 peer reviewed technical papers, made presentations to senior U.S. Department of Transportation (USDOT) staff, and has given testimony at a number of Texas Senate hearings. Prior to joining the Center for Transportation Research in 1987, Mr. Harrison worked first as an academic in the United Kingdom, then as an economist for the United Nations, and finally as a consultant to the World Bank.

Mr. Harrison is active within the Transportation Board (TRB). He is Chair of the Intermodal Freight Terminal Design and Operations committee, and a member of the committees on Motor Vehicle Size and Weight, International Trade and Transportation and Agricultural Transportation. He is a past president of the Transportation Research Forum (TRF) and currently serves as an associate editor of the *TRF Journal*.

Dr. Naomi Ledé, member

Dr. Ledé is a Senior Research Scientist at the Texas Transportation Institute. Upon her retirement from Texas Southern University during the 1996-97 academic year, the University bestowed upon her the title, Executive Director (Emeritus) of the Center for Transportation Training and Research at Texas Southern University. She retired from her tenured position as Chairperson of the Department of Transportation Studies and Distinguished Professor of Transportation after having served in several administrative positions, including Associate Dean, School of Public Affairs, Vice President for Institutional Advancement and Director of the Center for Transportation Training and Research.

Dr. Ledé is a national and international scholar in transportation planning and management. She is the author of 10 books and more than 300 research studies, articles and professional papers on urban planning, community development, education, and transportation issues and problems. Her achievements involve working with the Texas Transportation Institute in a series of urban initiatives, including the development of innovative programs for elementary, secondary, pre-college and college students. These initiatives are designed to increase the number and quality of individuals entering transportation careers.

In recognition of her outstanding contributions to the field of transportation science, Dr. Ledé has been the recipient of numerous awards including the Transit Research of the Century Award awarded in 1999 by the Greater Houston Chapter of the Conference of Minority Transportation Officials (COMTO); the Outstanding Leader of the Century, awarded in 2000 by the Metropolitan Transit Authority of Houston (METRO) and the *Sharon D. Banks Award* for Innovative Leadership in Transportation presented by the National Academy of Sciences, Transportation Research Board in 2002.

Dr. Ledé served on the Board of Directors of the Metropolitan Transit Authority of Harris County (Houston METRO) for six years, 1984-1990. She served as Vice Chair of the Governor's Public Transportation Advisory Committee; as a member of the Technical Task Force of the National Research Council, National Academy of Science, Transportation Research Board; and a member of the Urban Affairs Association. Her community service activities have been numerous. She served on the boards of the Houston Area Urban League, the Martin Luther King Jr. Community Center, the Urban Affairs Corporation, the Young Women's Christian Association (YWCA) and the Editorial Committee of the Houston Public Library, and as President of the Common Heritage Association - an organization that provides scholarships to worthy high school students. She was appointed to the Texas Board of Protective and Regulatory Services to serve a term that ends in 2003. She serves as President of the National Alumni Association of Mary Allen College, and is a past board member of the University of Texas at Arlington Alumni Association. In November 2003, she was appointed by Governor Rick Perry to serve as the representative of Regional Transportation to the Texas Emissions Reduction Plan Advisory Board.

Dr. Carol Lewis, member

Dr. Lewis is an Associate Professor in Transportation Studies and Director of the Center for Transportation Training and Research at Texas Southern University. Dr. Lewis received her Ph.D. in Political Science from the University Houston. Her responsibilities at TSU include educating students in fundamentals of transportation and urban transportation issues, as well as conducting operational and policy related transportation research. Since joining the Texas Southern University faculty in 1992, she has conducted research for the Texas Department of Transportation, the Southwest Region University Transportation Center, Federal Highway Administration and others. Examples of recent publications include *Best Practices in Public Involvement: 2004-2005*; *An Examination of Successful Mixed Use in Transit Oriented Development as Conceptually Applied to the Proposed Ambassador Way Transit Station in Houston*; *Smart Growth Texas Style, Impacts of Freeway Ramp Locations on Land Use and Development*; and *Socio-economic and Land Value Effects of Elevated and Depressed Freeways*. Dr. Lewis also assisted with the citizen involvement portions of major investment studies for the Metropolitan Transit Authority (Houston) and TxDOT.

Dr. Lewis was recently named one of 10 individuals to serve on the State of Texas' emergency evacuation Task Force. In January, 2004, she was appointed by Houston Mayor Bill White to serve as advisor to the Mayor's Office on Mobility and in December 2004, appointed to chair the City of Houston Planning Commission. She also serves on the Technical Advisory Committee for the Metropolitan Planning Organization and serves on the Technical Advisory Panel for TxDOT. She is a member of a number of professional organizations including the American Red Cross Transportation Advisory Committee. Since becoming CTTR's Director, Dr. Lewis has received two outstanding research awards. The first was from the Austin Metropolitan Business Council and the second from the Conference of Minority Transportation Officials.

Dr. C. Michael Walton, member

Dr. Walton is Professor of Civil Engineering and Ernest H. Cockrell Centennial Chair in Engineering, University of Texas at Austin. Dr. Walton is a member of the National Academy of Engineering. He is past chair and member of the Transportation Research Board (TRB) Executive Committee. Currently he serves as chair of the TRB Subcommittee for the National Research Council (NRC) Oversight and ex-officio member of the Governing Board of the NRC. In other professional society affairs he serves as the Senior Vice Chairman of the American Road and Transportation Builders Association and a member of the Board of Governors of the Transportation and Development Institute of American Society of Civil Engineers. Dr. Walton has received awards including the 2005 Outstanding Projects and Leaders (OPAL) award from the American Society of Civil Engineers to recognize and honor lifetime excellence in furthering civil engineering education. In addition, Dr. Walton was named to America's Top 100 Private Sector Transportation Design and Construction Professionals of the 20th Century by the American Road and Transportation Builders Association. This honor recognizes "outstanding individual achievement, innovation and leadership in transportation design and construction." Dr. Walton's other awards include the 2000 *George S. Bartlett Award* in recognition for outstanding contributions to highway progress. The *Bartlett Award* is considered to be among the highest honors in the highway transportation profession. The American Society of Civil Engineers presented him with several awards including the 1999 *Francis C. Turner Lecture* for contributions to transportation research, education and practice, the 1992 *James Laurie Prize* for contributions to the advancement of transportation engineering; the 1987 *Harland Bartholomew Award* for contributions to the enhancement of the civil engineer's role in urban planning and development; and the 1987 *Frank M. Masters Transportation Engineering Award*, for innovations in transport facility planning. The Transportation Research Board presented Dr. Walton with the 1998 *W.N. Carey, Jr. Distinguished Service Award* in recognition of outstanding leadership in support of transportation research. In 1995, he was named TRB's Distinguished Lecturer in recognition of the research contributions over his entire career. The American Road and Transportation Builders Association presented Dr. Walton with the 1994 *S.S. Steinberg Award* recognizing his outstanding contributions to transportation education. He received the 1995 Distinguished Engineering Alumnus Award from the College of Engineering at North Carolina State University. The College of Engineering at the University of Texas at Austin awarded Dr. Walton the 1996 *Joe J. King Award*, their highest professional award, in recognition of his outstanding leadership to the engineering profession. The Institute of Transportation Engineers has awarded him the 1996 *Wilbur S. Smith Distinguished Transportation Educator Award* in recognition of outstanding contributions to the transportation profession by relating academic studies to the actual practice of transportation.

Dr. Walton has contributed to more than 250 publications in the areas of ITS, freight transport, and transportation engineering, planning, policy and economics, and he has delivered several hundred technical presentations. He has served as senior editor or contributing author for a variety of technical reference books and manuals and as a member of the editorial board for several international journals.

Dr. Lei Yu, member

Dr. Yu is Professor and Chairman of the Transportation Studies Department at Texas Southern University. As a professor at Texas Southern University, he has been teaching the courses in Highway Traffic Operations and Travel Demand Forecasting & Analysis. He obtained his Ph.D. degree in Civil/Transportation Engineering from Queen's University (Canada) in 1994. His research interests and expertise involve transportation modeling, ITS related technologies and applications, vehicle exhaust emission testing and modeling, and traffic controls. In the past 10 years, Yu has been the Principal Investigator

of 33 research projects with a total budget close to 3 million dollars. Dr. Yu is the author of over 100 research papers in scientific journals and conference proceedings, and 29 project reports. He is currently a Cheung Kong Scholar of Beijing Jiaotong University awarded by the Ministry of Education in China and Li Ka Shine Foundation in Hong Kong. Professionally, Dr. Yu is an active member of the Institute of Transportation Engineers (ITE), the American Society of Civil Engineers (ASCE) and the Transportation Research Board (TRB). He also holds membership on numerous committees, councils, and task forces in the regional, state, national and international organizations.

Dr. Zhanmin Zhang, member

Dr. Zhang is an Assistant Professor in Transportation Engineering at the University of Texas at Austin. He obtained his Ph.D. at the University of Texas at Austin and has significant teaching and research experience elsewhere. Dr. Zhang has been actively conducting research in the engineering and management of transportation infrastructure and the applications of advanced database and information systems to pavement management for more than 16 years here in the United States and abroad.

Dr. Zhang's research experience is characterized by a unique combination of his theoretical knowledge in pavement engineering and hands-on computer skills. He has conducted extensive research in the analysis, modeling, operation, and management of pavement and infrastructure systems, using advanced computer technologies such as Geographic Information Systems (GIS), knowledge-based systems (KBS), and relational database management systems (RDBMS).

Dr. Zhang is actively involved with several professional committees under the Transportation Research Board (TRB) and American Concrete Institute (ACI). He also serves as a member of the Technical Advisory Panel (TAP) for the Research Management Committee (RMC) 1 of the Texas Department of Transportation (TxDOT).

FY05 New SWUTC Executive Committee Member

Dr. H. Gene Hawkins, member

Dr. Hawkins is an Associate Professor in the Department of Civil Engineering at Texas A&M University, where he also serves as Division Head of the Transportation and Materials Division. He also holds a joint appointment as a Research Engineer with the Texas Transportation Institute (TTI). He joined the faculty at A&M in September 2004. Prior to that, he spent 18 years at TTI, where he supervised and conducted transportation engineering research. He received his Ph.D. in Civil Engineering from Texas A&M University in May 1993. He also holds Master of Engineering and Bachelor of Science (Cum Laude) degrees in Civil Engineering from Texas A&M University. Dr. Hawkins is a Registered Professional Engineer in Texas. Before joining A&M and TTI, Dr. Hawkins worked in the private sector for consulting firms in Bryan and Houston, providing services in the areas of general civil and transportation engineering.

Dr. Hawkins' primary fields of interest are transportation infrastructure, with a special emphasis on traffic control devices, retroreflectivity, and visibility. He has been the PI or Co-PI on over 20 projects

with a total budget of $6 million. He has authored over 20 refereed journal papers on his research and has authored or co-authored over 70 research reports. Dr. Hawkins is a member of numerous professional and technical organizations. He is heavily involved in the efforts of the National Committee on Uniform Traffic Control Devices which provides recommendations on changes to the MUTCD. He is a member of the full National Committee, chair of the Markings Technical Committee, and a member of the Research Committee. In addition to his NCUTCD activities, he is involved in the Transportation Research Board (TRB), the Institute of Transportation Engineers (ITE), and American Traffic Safety Services Association (ATSSA). Within TRB, he is the chair of the Traffic Control Devices Committee and a member of the Signing and Marking Materials Committee and the Tort Liability and Risk Management Committee. He has served on several industry panels associated with infrastructure and traffic control devices.

Key SWUTC Departures

Dr. Larry Rilett

After serving on the SWUTC Executive Committee since 1991, Dr. Rilett left the faculty position he held for 14 years at Texas A&M University and joined the faculty of the University of Nebraska-Lincoln. At the University of Nebraska-Lincoln, he is the holder or the *Keith W. Klaasmeyer Chair in Engineering and Technology* and also Director of the Mid-America Transportation Center. At the University of Nebraska-Lincoln, Dr. Rilett will continue to specialize in multimodal transportation systems analysis, transportation planning and operations, dynamic network modeling and optimization, and Intelligent Transportation Systems applications.

Office of the Director

Dock Burke, Director

Dock Burke is the Director of the Southwest University Region Transportation Center at the Texas Transportation Institute. A Senior Research Economist, he also coordinates the activities of TTI's regional divisions. In his 36-year career at the Institute, he has served as the Principal Investigator or Co-P.I. of 55 research projects, authored or co-authored 96 research reports and papers, and has made over 70 presentations on a wide variety of transportation related issues since joining TTI in 1969. He is the 1998 recipient of the *TTI Career Achievement in Research* award and the 2003 recipient of the *Regents Fellow Service Award* presented by the Board of Regents of the Texas A&M University System. This prestigious award honors research professionals within the Texas A&M system who have provided exemplary professional service to society that has created large and lasting benefits to Texas and beyond.

SWUTC Administrative Staff: Dock Burke and Barb Lorenz

Barbara Lorenz, Senior Administrative Coordinator

Barbara Lorenz serves as Administrative Coordinator in the SWUTC, a position she has held since 1992. Ms. Lorenz oversees the daily operational activities of the Center. Ms. Lorenz, a graduate of Texas A&M University, has been employed with TTI for 27 years. She is the 2003 recipient of the *C.J. Keese Career Achievement in Administrative/Technical Support* award, which is TTI's highest award for excellence in administration.

SWUTC Associate Directors

Dr. Conrad Dudek, Associate Director - Advanced Institute, Texas A&M University

Dr. Dudek is a Professor of Civil Engineering and has taught transportation engineering courses in Civil Engineering for over 38 years. He has over 45 years experience in transportation research. He has administered civil engineering undergraduate and graduate programs in transportation engineering. He has served as Program Manager, Project Director, Principal Investigator, Principal Researcher, or Study Supervisor on over 50 research projects sponsored by state and federal agencies.

Dr. Tim Lomax, Associate Director for Transportation Research at Texas A&M University

Dr. Lomax is a Research Engineer at the Texas Transportation Institute and Manager of the Mobility Analysis Program. He is internationally known for his research to quantify urban mobility problems and communicate his results to many different audiences. He has been active in devising practical mobility solutions employing both changes to practices and improvements in design and operations. He is a professional engineer and is a member of the Transportation Research Board, Institute of Transportation Engineers and American Society of Civil Engineers.

Mr. Khosro Godazi, Associate Director for Transportation Research and Education Texas Southern University

Mr. Godazi, Associate Director for the SWUTC, has 16 years of teaching and administrative experience at Texas Southern University. He holds a B.S. in Civil Engineering Technology and a M.S. in City Planning. He is Director of 4-week Texas Summer Transportation Institute that has been held in Houston, at Texas Southern University. In addition he spearheads the Transportation Studies Mentorship Program and Directs the Transportation Club at the Middle College for Technology Careers which is a high school located in Houston. Mr. Godazi has coordinated numerous conferences for the Center for Transportation Training and Research. Mr. Godazi has extensive experience in transportation research and has served as Principal Investigator on numerous SWUTC projects and has completed the Dwight David Eisenhower database software for FHWA and at present time working on National Summer Transportation Database for FHWA. Mr. Godazi teaches transportation students in various Transportation Software and Quantitative Statistics.

Dr. Randy Machemehl, Associate Director for Transportation Research at UT-Austin

Dr. Machemehl is the Director of the Center for Transportation Research and is the Nasser I. Al-Rashid Centennial Professor in Transportation Engineering at the University of Texas. In addition to these duties, Dr. Machemehl has distinguished himself as a researcher focusing particularly on transportation system operations and he has published over 150 papers and reports. Recently the Associate Chairman of UT's Civil Engineering department, he is also a registered professional engineer, a registered professional land surveyor and has memberships in the Institute of Transportation Engineers, the American Society of Civil Engineers, the Canadian Society for Civil Engineering, National Society of Professional Engineers and the Transportation Research Forum. He is a retired U.S. Army Reserve Corps of Engineers officer.

Dr. C. Michael Walton, Associate Director - Advanced Institute, UT-Austin

(See bio on page 11)

Education Program

The SWUTC Transportation Education Pipeline

Transportation education is an essential element in the overall process of developing a workforce with the skills and leadership qualities to guide the transportation industry of the future. The SWUTC has invested heavily in the development of human capital creating a "pipeline" process which takes in students at secondary school levels, adds high school and baccalaureate programs and culminates in graduate specialities in transportation science and engineering.

The SWUTC supports Advanced Institutes that are integrated into established degree-granting university departments at Texas A&M University and the University of Texas at Austin. Additionally, SWUTC supports the academic enrichment of a well-developed graduate transportation studies program at Texas Southern University. SWUTC seeks to enhance these programs by strengthening the multidisciplinary qualities of a body of transportation science that will prepare today's students for leadership in the emerging information-rich economy.

SWUTC Pre-College Initiative Highlights

During the first 6 years of the current UTC grant, several self-sustaining programs have been developed that take transportation concepts to public schools to attract future transportation professionals. One early example was the development of educational modules that introduce careers in transportation for students in grades K-12. These modules developed for use in the classroom are still being downloaded by educators U.S. wide via the internet at http://tti.tamu.edu/cpd/education/. Another initiative was the development of road-show promotional materials for use at career fairs to encourage students to pursue careers in transportation. The success of this program is reflected in the fact that these materials are currently being requested by educators nationwide for use at various career fairs. In August 2004, these road-show promotional materials were made available for free download on the website mentioned above. Now available on this same website is the *Transportation Career Guide* developed in 2003 by SWUTC researchers. The *Transportation Career Guide* is a tool to help increase awareness of transportation as a profession to high school students and to help students set their career goals and objectives within the area of transportation. Another important success was the promotion of transportation science at science fairs. By the establishment of transportation specific categories, transportation science is now being promoted on a continuing basis at Texas science fairs along with meteorology, physics and other sciences. Through these efforts, SWUTC researchers were able to directly contact over 2,000 Texas students at career fairs, science fairs and engineering recruiting events during the 2005 fiscal year.

The SWUTC continues to support the two week Texas Summer Transportation Institutes held annually at Paul Quinn College in Dallas, and Prairie View A&M University in Prairie View. The Rural STI program at Texas A&M University Kingsville added dur-

Rural Summer Transportation Institute Participants Visit TxDOT Offices in Corpus Christi, Texas - July 2005

ing the summer of 2004 continues to be a success providing engineering career opportunities to mainly Hispanic students in rural Texas. This year 17 students participated in the two-week long program. In addition, the well established four week Houston National Summer Transportation Institute conducted at Texas Southern University remains an award-winning program in the national STI initiative.

Each of these STI programs has the goal of creating an education and training delivery system that will: attract secondary students to and enhance their interest in careers in transportation; improve mathematics, science, communication and technology skills; and through creative partnerships, strengthen the links between the transportation sector and public/private institutions. Through the course of the program, all modes of transportation are addressed and augmented with hands-on technical activities, lectures by transportation professionals and field trips to such places as TranStar, TransGuide, Houston METRO, DART, VIA, HEB Regional Distribution Center in San Antonio, Port of Houston, Port of Corpus Christi, airport operation and maintenance facilities, and the Texas Transportation Institute research facilities.

The STI program continues to be a huge success and this year the SWUTC program sponsored 84, primarily minority, 9th -12th grade students. Historically, near 90% of these participating students go on to college with a majority indicating that they are currently pursuing careers in mathematics, science, business, technology and transportation engineering.

SWUTC's Post-Houston National Summer Transportation Institute Has Second Successful Year

P.I. Khosro Godazi

Established during the summer of 2004, the Post-Houston National Summer Transportation Institute has become an proven success. The focus of the program is to recruit previous HNSTI students and place them in internship positions in the transportation industry. During the three month long program students are provided the opportunity to gain hands-on experience, tackle an important issue, make valuable connections within the industry, and contribute to a project or program that can make a difference. During the summer of 2005, five students participated in the program. The positive impact this program has on these aspiring young professionals is illustrated in the letter below.

> *"Good evening Mr. Godazi,*
> *This is my last week at the Texas Department of Transportation. It has been very challenging as well as fun. I have really learned so much, I can't believe it is come to the end already. It seems like its just June and I first started with the new hire training. I have met tons of new people, learned tons of new experiences. I can remember at last years graduation we all thought transportation was just buses, trains, and etc. But working here transportation is Highways, intestates, bridges, sewer lines, landscape, and more, theses different aspects all come together in some way to make up the transportation process. Thank you again Mr. Godazi for this experience and*

thank you for trusting me to carry out a job like this one. I wanted to make you proud. I will be at Prairie View in the fall, so if you need me to come with you when you are recruiting students for the program I would be honored to speak on behalf of the program. I thank you again from the bottom of my heart. Take care and have an excellent year.

Andreya Henson
PV Freshman"

New Pre-College Initiatives for 2005

Houston High School Transportation Club Established

P.I./Khosro Godazi

In an effort to create a diverse workforce in transportation and to establish a pool of candidates to recruit from for future SWUTC educational activities, The Center for Transportation Training & Research at Texas Southern University established, during the 2005 academic year, a Transportation Club at the Middle College for Technology Careers (MCTC) one of the High Schools in Houston, Texas. The activities for this transportation club consist of inviting speakers to the classroom to talk about their experiences in the transportation industry, student field trips to Houston METRO's light rail facilities or Houston Transtar and attending the Houston Transportation Club meeting and luncheon which takes place every Wednesday of each month and the beginning of each academic year.

2005 Transportation Club Members

SWUTC Establishes Texas Summer Aviation Institute

SWUTC Project #167456/P.I. Debbie Jasek/Jeff Borowiec

Attracting students to the transportation profession can be a difficult task. Attracting them to aviation careers is that much more daunting. Students across the state progress through the public education system with little or no exposure to aviation. Students enter high school and college with little understanding of and appreciation for aviation and the opportunities and challenges that may await them in the future. The major objective of this effort was to create a two-week Summer Aviation Institute (SAI) modeled after the Texas Summer Transportation Institute (TSTI) with a core curriculum that can be easily and economically implemented in any region of the State. This core curriculum included speakers, field trips, videos, and hands on activities highlighting the importance of aviation and exposure to aviation career opportunities. The SAI allowed 10th and 11th graders to experience the effects of science, math, and engineering as they participate in aviation–related activities. Students also participated in hands-on activities and problem solving initiatives that incorporated team building and cooperative learning to teach principles of flight, aerodynamics, aerial navigation, Newton's Laws, aircraft instrumentation, Bernoulli's Principle, materials science, general math, and the history of flight.

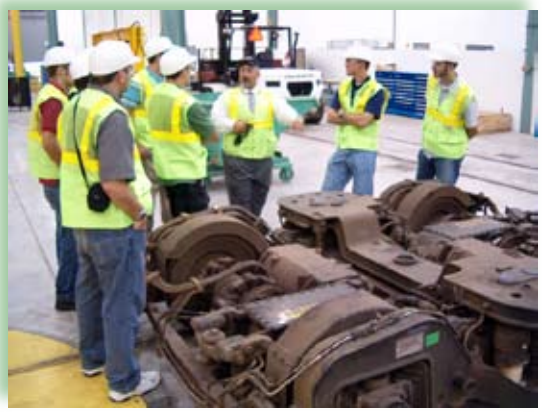
Ten students participated in the SAI which was held June 13 through June 24 at the Lone Star Executive Airport in Conroe, Texas. Field trips during the 2-week institute included trips to Texas Southern University Airway Sciences facilities, the George Bush Intercontinental Airport, the Federal Aviation Administration (FAA) Terminal Radar Approach Control (TRACON) Facility and Air Traffic Control Tower, Universal Weather Service at Hobby Airport, Wing Aviation Aircraft Services, Continental Airlines, Air National Guard Facility and Apache Operations, Tour of Drug Enforcement Agency (aviation services) facilities, and NASA's Johnson Space Center. Students also listened to various speakers in the aviation industry, participated in activities such as rocket building, and aerial navigation exercises. The highlight of the course was a Discovery Flight for each student with MVP Aero Academy.

Aviation Institute Participants Receive Lesson in Controlling Air Traffic from Houston Intercontinental Tower

The 2-week institute was rated an unmitigated success by students and supporting agencies alike. Many partnerships, contacts, and outreach activities have been a direct result of this institute including, a partnership for educational outreach between the Texas Transportation Institute and the FAA, a invitation to be an advisory committee member for the Academy for Science & Health Professions of Conroe Independent School District, discussions on possible funding sources for future SAIs, the invitation to make a presentation about the program at the 2006 Aviation Conference, and students requesting information on attending future TSTI programs.

SWUTC Summer Undergraduate Fellows Program

The SWUTC Summer Undergraduate Fellows Program at the University of Texas at Austin and Texas A&M University continues to be extremely successful in attracting a diverse group of students into the graduate programs in transportation. Each year, the Summer Undergraduate Fellows Program recruits undergraduate juniors and seniors from other universities and from diverse academic backgrounds into a summer-long program in transportation research and education as a first step towards graduate study in transportation. The students at both universities have the opportunity to work with researchers and gain exposure to many different areas of transportation research. To make field trips to various transportation agencies and attend professional meetings such as the summer meeting of TexITE. At the end of the summer term, the students make oral presentations on their research and produce a paper for publication. During the summer 2005 session, 8 undergraduate fellows participated in the program at TAMU, 9 participated in the UT-Austin program.



Summer 2005 TAMU Undergraduate Fellows on Field Trip to Houston METRO Light Rail Transit Facility

The Summer Fellows Program has historically achieved a near 100% retention of undergraduate students into the graduate programs of transportation engineering.

SWUTC Advanced Institute Programs

The SWUTC continues to support graduate programs at each of the three consortium member universities. The ultimate goal of the SWUTC graduate programs is to attract a highly qualified cadre of new professionals into transportation science. The Advanced Institutes at Texas A&M University and the University of Texas at Austin and the graduate program at Texas Southern University provide stipends to students to participate in classroom and sponsored research activities. In addition, the program provides increased communications skills as students make presentations, participate in debates, write proposals and reports. Students also participate in technical tours and professional meetings throughout the year. This year, Advanced Institute graduate students from Texas A&M University and the University of Texas at Austin attended and participated in the Transportation research Board's 84th Annual Conference in Washington, D.C., in January. While attending the meeting, many of these student gained valuable experience while presenting papers based on their SWUTC research work.

UT-Austin A.I. Students at TRB January 2005.

Since the beginning of this current grant in the fall of 1999, 130 students have been supported thorough the SWUTC education programs. Of those students, 102 have since graduated with 97% entering into the field of transportation either with the government or private industry sectors, or into an academic/teaching environment.

STUDENT AWARDS

SWUTC's Student Award Winners

Each year, in addition to selecting the overall SWUTC Outstanding Student to represent the SWUTC at TRB, the SWUTC honors two more students for their academic, professionalism and leadership achievements. Each of the three major awards presented yearly at the SWUTC; the *Naomi Ledé Outstanding Masters Student Award*, the *William J. Harris Outstanding Ph.D. Student Award* and the *Robert Herman Outstanding Student Award* comes with a $1,000 cash award.

Robert Herman Outstanding Student Award

For 2005, the *Robert Herman Outstanding Student Award* was presented to Mr. Satish Ukkusuri from the University of Texas at Austin. Satish joined the doctoral program in the fall 2003 semester, after receiving his M.S. from the University of Illinois at Urbana-Champaign (UIUC). Satish has demonstrated himself to be a tremendous asset to the UT transportation graduate program and a true leader on a technical, professional, and personal level. His research is making substantial contributions to complex transportation network models that account for uncertainty and user information. Through his research efforts, he has authored multiple publications and given several conference presentations.

Satish's leadership and professionalism is unsurpassed. Over the past year, he mentored undergraduate students and played a critical role in encouraging those undergraduates to pursue graduate studies in transportation engineering at the University of Texas at Austin. Through is involvement in multiple transportation research projects, Satish routinely leads groups of other student researchers. He has participated in multiple professional development opportunities and become involved with TRB committees and subcommittees. He is clearly on the path to becoming a future leader in our profession and his great enthusiasm, intense curiosity, keen intellect, and leadership make him an excellent model for other students.. He is a glowing example of the top quality students supported through the UTC research program.

Since receiving this award, Satish successfully defended his dissertation *Accounting for Uncertainty, Robustness and Online Information in Transportation Networks* in August 2005. He has since accepted a position as Assistant Professor at Rensselaer Polytechnic Institute in Troy, New York. Satish's major professor was Dr. Travis Waller.

Naomi Ledé Outstanding Master Student Award

For 2005, the *Naomi Ledé Outstanding Master Student Award* was presented to Zachary T. Piepmeyer who is enrolled in the Master of Science program at the University of Texas at Austin under the supervision of Assistant Professor, Dr. Zhanmin Zhang, and a Graduate Research Assistant for the Center for Transportation Research. During this one-year experience at the University of Texas at Austin in the Transportation Engineering program, Zach has maintained a 4.0 GPA, conducted research in diverse fields, demonstrated strong leadership as the president of the Intelligent Transportation Society of America (ITS-A), UT-Austin Chapter, and provided various services to the communities in Austin.

The focus of Zach's research efforts is infrastructure management with an emphasis on pavement preservation. He has been involved with multiple research projects dealing with local and regional transportation issues, such as pedestrian mobility, pavement maintenance, pavement management, and right-of-way appraisal. His efforts have been recognized by the acceptance of a technical paper he co-authored with his advisor on optimal maintenance scheduling for presentation at the Transportation Research Board's 84th Annual Conference in Washington, D.C., January 2005.

Zach's responsibilities with ITS-A include organizing guest lecturers from both academic and engineering backgrounds to speak to both undergraduate and graduate students interested in transportation, arranging tours of local transportation facilities, hosting social events to provide new and returning students an opportunity to interact outside of the classroom setting, and helping the transportation faculty and staff with new graduate student recruiting and orientation activities.

Zach represented all of the SWUTC students at the CUTC/USDOT special awards ceremony in Washington, DC in January 2004.

William J. Harris Outstanding Doctoral Student Award

Mr. Michael Shenoda, doctoral student from the University of Texas at Austin was selected as the 2005 recipient of the *William J. Harris Outstanding Doctoral Student Award*. Michael has been an outstanding leader, who exemplifies excellence in academic performance, scholarly research and professionalism.

Michael's research effort has been devoted to the analysis of traffic signal systems. He has identified problematic elements and has systematically developed a means of using each characteristic to support the analysis process. In his dissertation work, he has developed significant innovations in describing traffic signal system problems as well as solution algorithms.

Due to his exceptional academic ability, he has been asked to serve as a Grader for both Public Transportation Engineering and Advanced Traffic Engineering courses and as Teaching Assistant for a Highway Design Course.

Michael has grown as a leader among his peers and is sought by less experienced students for his advise regarding courses, instructors, research topics, and certainly, regarding his knowledge in signal systems. He is a leader and an active participant in the Transportation Graduate Student Community and serves in the student chapters of the Institute of Transportation Engineers and ITS America. He was responsible for organizing an alumni dinner during the January 2004 TRB meeting in Washington, DC, where approximately forty University of Texas Transportation Engineering alumni attended. Mike's major professor is Dr. Randy Machemehl.

Advanced Institute Graduate Students at UT-Austin Receive Prestigious Fellowship

This year, four Advanced Institute graduate students at the University of Texas at Austin received *Dwight David Eisenhower Transportation Fellowships*. Ahsley Chang a recent doctoral student addition to the Advanced Institute program earned her B.S. and M.S., degrees in Civil Engineering from the University of Arizona, Tucson, AZ. After completion of her Bachelor's degree, she practiced engineering for two years, gaining valuable experience before focusing on her graduate program objective. Ashley's major professor is Dr. Randy Machemehl.

Isabel Victoria received her B.S. in Civil Engineering from the University of Cauca, Columbia and her M.S. in Civil Engineering from the University of Puerto Rico. Her major professor is Dr. Michael Walton.

Rachel Copperman received her B.S. in Systems Engineering in May 2004 from the University of Virginia. She is now pursuing her Ph.D. at the University of Texas under the supervision of Dr. Chandra Bhat.

Nick Lownes received his B.S. from Iowa State University in May 2001. He was a contractor for the joint Readiness Training Center and Fort Polk in Fort Polk, Louisiana from 2001 to 2003. He received his M.S. from The University of Texas at Austin, May 2005 and has been accepted into the Ph.D. program in the Department of Civil, Architectural, and Environmental Engineering at UT-Austin. His supervisor is Dr. Randy Machemehl.

TAMU Advanced Institute Graduate Student Makes Presentation on Paper Developed Through Mentor's Proram

Jeffrey Whitacre, current Advanced Institute graduate student at Texas A&M University, was invited to make a presentation at the National Conference on Managing Travel for Planned Special Events that took place December, 2004 in New Orleans, Louisiana. This presentation was based on his paper prepared during the Advanced Institute Mentor Program titled *Applications of ITS for Planned Special Events in Texas*. This conference co-sponsored by AASHTO, ITS America and TRB was held to raise awareness by public agencies of the importance and need to continuously improve how they manage travel for planned special events, which can significantly impact travel, mobility, and travel reliability across all surface transportation modes and roadway facilities. Jeff's major professor is Dr. Conrad Dudek.

SWUTC Associate Director Recognized for Innovation in Education

Dr. Conrad L. Dudek received the first ever *Innovation in Education Award* from the International Institute of Transportation Education Council. Dr. Dudek is Professor of Civil Engineering at Texas A&M University, Associate Director of SWUTC, and Director of the Advanced Institute for Transportation Systems Operations and Management. The award was presented in recognition of his conception, development, and implementation of an innovative and unique education program referred to as the Mentors Program. A program of mentoring of graduate students by top-level transportation professionals was integrated into a civil engineering graduate course on Advanced Surface Transportation Systems. The Mentors Program provides graduate students with the opportunity to meet, work closely with, and obtain technical and professional advice from top-level transportation professionals from private enterprise and government. The mentors are leaders in their fields, have extensive experience, hold high positions within their respective company or agency, are recipients of awards, and have held prominent positions in professional organizations (e.g., ITE, AASHTO, TRB, etc.). The Mentors Program is funded through the educational component of the SWUTC at Texas A&M University.

Research Program

SWUTC pursues a balanced program of transportation research (transit, highway, and multimodal) by selecting those projects that reflect our vision, theme and strategic thrusts. Some of the specific research program sub-themes are: improved linkages between the U.S. and Mexican transportation systems, developing transportation solutions to improve the livability of our neighborhoods and communities and the quality-of-life for their inhabitants, development of transportation-based solutions to various environmental and safety problems, and development of a superior transportation workforce for the 21st Century.

Selected 2005 Research Highlights

SWUTC Study Results Show Increased Land Value Around Transit Sites

SWUTC Project #473700-00051/P.I.: Gwen Goodwin

Through her SWUTC project "A Longitudinal Assessment of the Relationship Between Land Use, Land Values, and Bus Facilities", Gwen Goodwin examined the influence of bus transit facilities on property values and land use to delineate characteristics of success in integrating transit and neighborhoods. An assessment of bus-oriented transit neighborhoods in Houston, Texas and Columbus, Ohio have been utilized as case studies. Property values and land use information were collected for all locations. The researchers focused on longitudinal data to show "before and after" conditions, focusing on changes over time.

In both Houston and Columbus, land values continued to increase. Over the years, development continues to occur near and around Houston's four transit centers: Bellaire, Kashmere, Magnolia, and Southeast. The Bellaire facility continues to show the highest land values, highest income (high-moderate income), and largest Anglo-American population among the four studied transit centers. Commercial land uses surround this transit center. Historically, development near this center occurs routinely from private ventures. The Kashmere and Southeast transit centers are located in historically African American low-moderate income neighborhoods. Land uses and property data for both facilities show commercial and residential uses that increased in value. The Magnolia facility is located in a predominantly Hispanic low-moderate income neighborhood. Land use and property value data adjacent to and on the periphery of the Magnolia transit center were commercial uses that also increased in value. Typically, development near the Kashmere, Southeast, and Magnolia facilities involves public and private ventures. Redevelop and revitalization efforts are essential to the success of these communities.

In Columbus, development is occurring around the three transit sites. Two transit centers are located in low-income areas and serve as a catalyst to development for

the community. While designing the Linden and Near East facilities, the goal was to ensure that the facilities maintained the communities' charm and character. Both transit centers currently have or plan to have the following tenants: daycare center, doctor's offices, bank, etc. The Linden Center is located in a predominantly African-American, low-moderate income neighborhood. Over the past few years, community efforts spurred redevelopment and renewed interest in businesses in the neighborhood. Adjacent to the Linden Center is a relatively new restaurant, insurance company, and governmental offices. Transit officials are expecting similar development success with the Fall 2006 opening of the Near East transit center. This area is predominantly African-American with low-moderate income residents. The Near East center is adjacent to governmental offices and residential properties. The third site, Easton Center, is more "suburban" and is located on a remote tract. Space is provided for one tenant; however, it is currently vacant. Development adjacent to the Easton Center is mainly large commercial retail outlets, gas stations, restaurants, and an apartment complex.

This study, which is near completion, will show the viability and desirability of bus oriented development. The potential to capture many of the land value successes typically associated with rail for bus has tremendous possibilities. Not only can additional communities in urban areas foster more organized growth and development around bus service and facilities, but smaller urban areas not candidates for rail may also structure transit-oriented development, leading to reduced reliance on the automobile for all trips.

SWUTC Project Enhances Air Brake Experimental Facility

SWUTC Project #167141/P.I.: Darbha Swaroop

Dr. Swaroop's current SWUTC project "Modeling and Control of Air Brakes in Commercial Vehicles" is utilizing the SWUTC developed Experimental Air Brake Test Bench to corroborate mathematical models to enhance safety of commercial air brake systems. Used on the majority of tractor-trailer vehicles, school buses and in trains, air brake control systems are crucial for the safety of passengers on the road. Air brakes on trucks are more sensitive to maintenance than hydraulic brakes found on passenger cars as it simply meters the compressed air from a storage tank into the brake chambers, leaving the driver without any tactile feedback about possible performance degradation. According to a recent report prepared by the National Transportation Safety Board, 56% of commercial vehicles are put out of service due to brakes being out-of-adjustment or due to their poor performance. Malfunctioning brakes are the leading mechanical cause of accidents, especially in commercial vehicles (trucks) and they also constitute the most common safety violation detected at inspection stations. The mathematical model of the brake system being developed by this study will enable the deployment of automated maintenance and enforcement inspection systems for trucks, and of advanced safety technologies such as the forward collision avoidance system, advanced Anti-lock Brake Systems and Differential Braking Systems for enhanced lateral stability.

Air Brake Experimental Facility at TAMU

The TAMU Experimental Air Brake Test Bench was built with a seed grant from the SWUTC in 1999 which, in turn, leveraged TAMU to obtain a grant under the NSF/USDOT Initiative on Surface Transportation Systems and support from Bendix Commercial Vehicle Systems for further development. This year through his SWUTC project, Dr. Swaroop enhanced the test bed facility to test models of quick release valves and service relay valves and their ability to control a desired brake pressure in the brake chamber. In collaboration with private industry, Bendix Commercial Vehicle Systems provided Dr. Swaroop with the quick release and service relay valves utilized in the testing his models. Results from this study have already been submitted for publication in *Control Engineering Practice*, *Proceedings of the American Control Conference* and *IEEE Transactions on Intelligent Transportation Systems.*

SWUTC Project Develops New Data Set to Aid Transportation Planners

SWUTC Project #167552/P.I.: Kara Kockelman

Dr. Kara Kockelman's SWUTC project "The Basis for Location Choice, Vis-à-Vis Transportation Demand" generated wholly new data sets on a key subject for transportation planning: residential location choice. In order to examine relationships between household location choice and transportation tradeoffs, two key groups of persons were surveyed: apartment dwellers and recent homeowners, both in the Austin area.

Apartment dwellers are a majority of recent movers but to date have not been analyzed as a separate class. Moreover, while most location choice research emphasizes existing/static households, this work examined recent movers, who can more accurately recall their motivations for moving and their characteristics at the time of the move.

Surveying households requires a great deal of effort, and cost. To economize, the survey of apartment dwellers was developed and conducted as part of a joint research effort with a graduate studies course in data acquisition and analysis during the spring semester of 2005, resulting in 232 completed surveys. A self-completion survey of recent home buyers was mailed soon after, to 4,451 Austin households in April 2005. This yielded 965 complete surveys, or a 21.7% response rate, which is quite high for a mail-out survey.

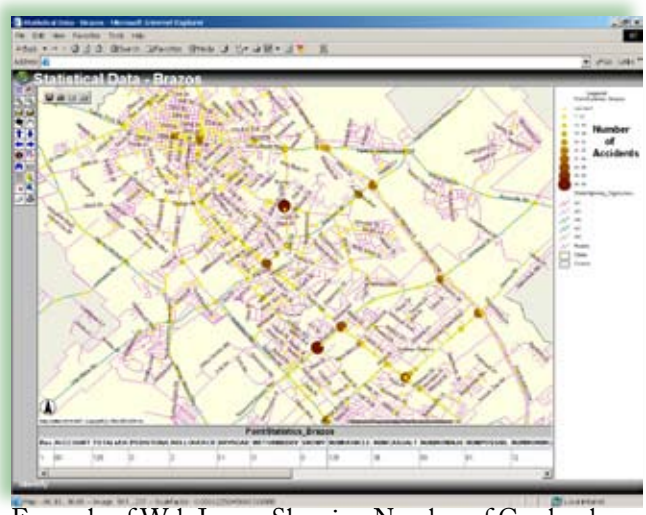
When asked about their priorities during the housing search process, apartment dwellers valued price, commute time, and crime rate the most; and recent homeowners valued price, attractive neighborhood appearance, and investment potential. Linear regressions and discrete choice models were used to analyze the multivariate data sets. Binary logit models of stated preferences suggest that multi-person households, married couples, and those with children tend to prefer larger and newer apartments as well as better recreation facilities and suburban locations, while single-person households are more likely to choose a shorter commute and more central locations. These results and many more in this research effort provide valuable insight into the preference of movers and location choice which can be used to inform integrated models of land use and transportation to better predict future travel patterns.

SWUTC Project Demonstrates Feasibility of Providing Web-Based Personalized Traffic Safety Information to the Public

SWUTC Project #167424/P.I.: Shaw-Pin Miaou

Highway engineers and planners find crash histories and statistics produced from traffic crash records and related databases to be indispensable in making their operational, planning, and programming decisions to reduce the frequency and severity of crashes. For individual drivers, however, one could contend that it would be more relevant, and thus more effective, to learn the traffic safety conditions of their neighborhoods and communities, and of the routes they take to work, schools, soccer games, and favorite parks, than to learn the population- and area-wide crash statistics. Under this contention, one could suggest that providing Personalized Traffic Safety Information (PTSI) to drivers and would-be drivers would be a more effective way of sensitizing them on traffic safety issues and, thus, have more impact on their driving behaviors than the traditional population- and area-wide statistics do.

However, due to their size and complexity, traffic crash records and related databases have not been particularly accessible to the general public. As more households, schools, and libraries are being equipped with high-speed desktop computers and as more subscribe to broadband communication services, providing Personalized Traffic Safety Information (PTSI) to individuals through the Internet will soon be a cost effective. This study explored and tested the capability of existing web-based geographical information system (Web-GIS) technologies to personalize and disseminate traffic safety information to the public in a cost-effective manner. The Web-GIS technologies explored were those that could provide users with online access to safety databases and allowed users to visualize the distribution and statistics of traffic crashes geographically and learn about the nature of these crashes over the Internet. In particular, this study looked into the Internet Mapping (IM) technology that has been significantly advanced in recent years.



Example of Web Image Showing Number of Crashes by Sites

Under a joint effort between this SWUTC study and another BTS funded research project, a prototype web-based traffic safety information system for Texas was developed by this research team. The system was named Web-Based Traffic Safety Information and Analysis System (W-TSIAS). It consists of a set of semi-automated GIS-based procedures for geocoding and is coupled with a suite of Internet mapping capabilities, which allow locations and attributes of geocoded crashes, road inventory, and related data to be securely accessed, viewed, and queried remotely through a typical web browser.

This study demonstrated that it is currently cost-effective to provide PTSI information to the public. In addition, at the time of this study, more advanced spatial statistical modeling techniques and associated tools were being introduced to the market place. Along with significant recent advances in Internet Mapping (IM) technology. This study illustrated that the future holds great promise for providing PTSI to the public and, in turn, improving highway safety.

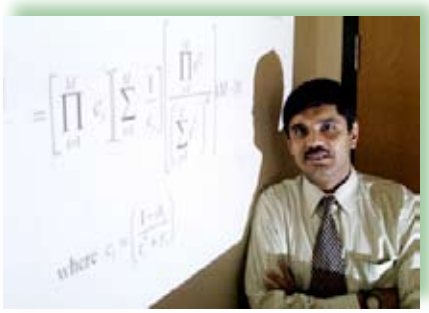
SWUTC Key Personnel Recognized for Research Contributions

Carol Lewis - Texas Southern University

Dr. Carol Lewis, an Associate Professor in Transportation Studies, Director of the Center for Transportation Training and Research at Texas Southern University, and SWUTC Executive Committee member received the "*Heart Award*" from the Houston Intown Chamber of Commerce at its 2005 annual award luncheon on Wednesday February 9th, 2005. This honor was bestowed upon Dr. Lewis in recognition of her 15 years as manager and director of planning at Houston METRO, her two years on the METRO board and most recently her mayoral appointment to the Office of Mobility and Planning Commission. Additionally, as a key member of the SWUTC, Dr. Lewis has been the Principal Investigator of over eighteen transit-oriented research projects. Her most recent work involving the integration of light rail into a traditional bus city and transit-oriented development. Many of her research findings are directly applied by Houston's transit services.

Chandra Bhat - University of Texas at Austin

Dr. Chandra R. Bhat, Associate Professor of Civil Engineering at the University of Texas at Austin, and key SWUTC researcher was recently awarded the *2005 James Laurie Prize* by the American Society of Civil Engineering (ASCE) for "innovative contributions to the analysis and design of transportation systems'. The prestigious and highly coveted Laurie Prize is awarded to a member of the society "who has made definite contributions to the advancement of transportation engineering in research, planning, design, or construction". Not more than one award of the prize is made each year.



C. Michael Walton - University of Texas at Austin

Dr. Michael Walton, Ernest H. Cockrell Centennial Chair in Engineering at the University of Texas at Austin and SWUTC Executive Committee member and key SWUTC researcher was awarded the *2005 Outstanding Projects and Leaders (OPAL) Award* by the American Society of Civil Engineers. This award recognizes and honors outstanding civil engineering leaders whose lifetime accomplishments and achievements have made significant differences in one of five categories: design, construction public works, education and management.

Robin Rabinowitz - Texas A&M University

Because of her work on the recently funded SWUTC research project 167455 "Evaluating the Use of Pavement Markings in Making Streets Safer for Pedestrians and Bicyclists", the principal investigator, Ms. Robin Rabinowitz, was invited to serve on the Texas A&M University Bicycle Task Force. As a member of this task force, which meets every two to four weeks for one year, Ms. Rabinowitz will be

sharing information developed through her SWUTC project with the Task Force members. One of the data sets to be generated by her study is the identification of obstacles and perceived hazards encountered in-route for commuter bicyclists. The task force will utilize this data to prepare an implementable bicycle plan for the University.

In addition to the task force, Ms. Rabinowitz and the Co-Principal Investigator, Debbie Spillane have been asked to present their study findings to the Bryan/College Station Metropolitan Planning Organization's Policy Committee in December 2005.

SWUTC Student Researcher Achievements

Jessica Guo - University of Texas at Austin

Dr. Jessia Guo, a recent graduate of the University of Texas at Austin, received the *2004 Charley V. Wootan Award* presented by the Council of University Transportation Centers for best transportation Ph.D. dissertation in North America in Transportation Planning and Policy. This award also carries a cash award of $2,000.

Dr. Herb Richardson Presents Dr. Guo with Wootan Award at Annual CUTC Meeting

Dr. Guo's dissertation *Addressing Spatial Complexities in Residential Location Choice Models*, focuses on the factors that influence household residential location choice. Her research, overseen by Dr. Chandra Bhat, an associate professor in the Department of Civil, Architectural, and Environmental Engineering, included many different variables that influence a person's home location choice, ranging from commute, neighborhood design, socioeconomics and demographics.

Dr. Guo graduated in December 2004 and accepted an academic position with the University of Wisconsin-Madison.

Mike Schofield - University of Texas at Austin

Mike Schofield, Advanced Institute graduate student and SWUTC researcher won the *ARTBA 2005 Student Paper Competition, Graduate Division* for his entry *NAFTA-Related Mexican Truck Traffic at Texas Ports of Entry: Is There a Safety Problem?*. This paper is based on his SWUTC research work on Rob Harrison's study "Evaluating Mexican Truck Safety at the Texas Mexico Border".

By winning this competition, Mike was awarded a trip to the 2005 ARTBA Annual Meeting in Palm Beach, Florida in September, 2005. At the meeting he is to present a summary of his paper during the Research and Education Division's annual meeting held at that time. The prize also includes a $500 honorarium.

Technology Transfer Activities

Current information, timely delivered to the right people is the desired outcome for the SWUTC's technology transfer program. Both educational and research program activities pursue vital aspects of technology transfer. Educationally, the student/professor relationships are the principal loci of technology transfer activities -- knowledge exchanged between professor and students in classroom and research endeavors. In the research program, technology transfer outcomes are typically associated with the delivery of research products (papers, lectures, presentations, reports, video/media) -- for individual research projects --- to potential and interested users and colleagues. Since the fall of 1999, SWUTC research has generated 115 final technical reports. SWUTC researchers and students have presented 260 technical papers at national/international forums, and published 110 technical papers in professional journals. The SWUTC maintains a website at http://swutc.tamu.edu that presents overviews all SWUTC research and educational activities. Technical reports generated by SWUTC research projects may be downloaded at http://swutc.tamu.edu/reports.html.

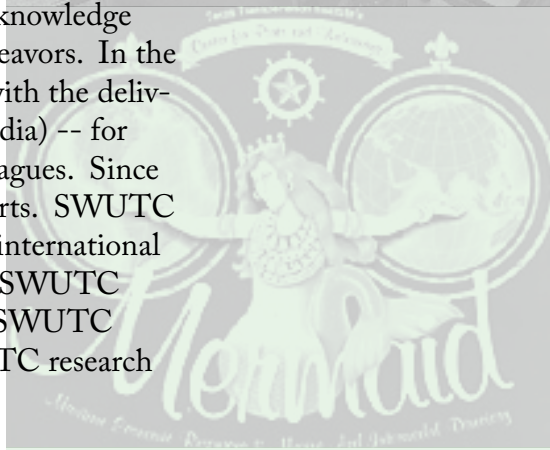
Selected Technology Transfer Highlights

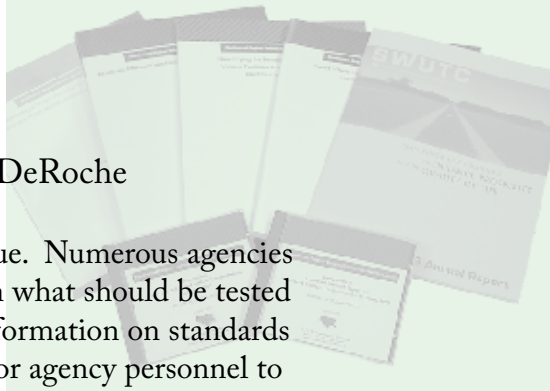
ITS Standards Testing Clearinghouse Website Operational

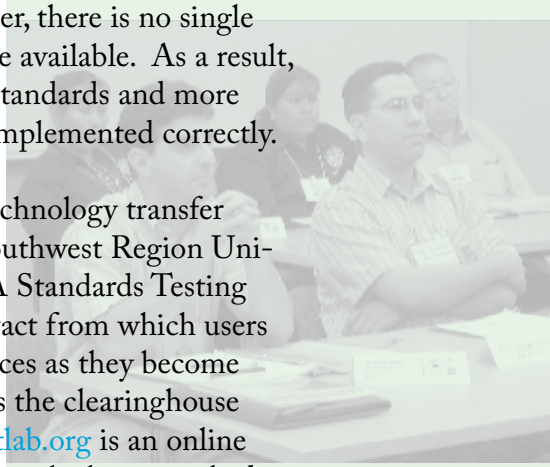
SWUTC Project #167146/P.I.: G. Curtis Herrick & Robert DeRoche

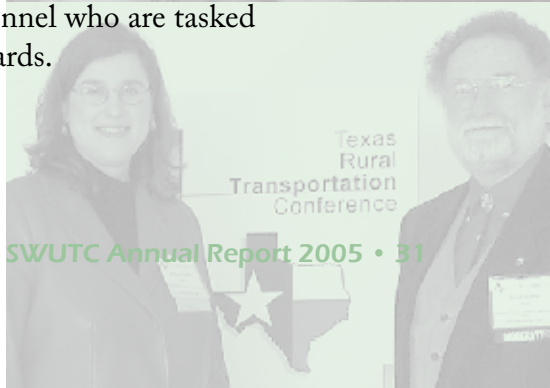
The ITS standards development arena considers testing a major issue. Numerous agencies deploying ITS standards have cited a need for more information on what should be tested and how to test for standards conformance. The problem is that information on standards related testing is fragmented. There is no single source or contact for agency personnel to turn for assistance with their standards related testing needs. Further, there is no single source from which standards related testing procedures can be made available. As a result, agencies find it difficult to find information on how to implement standards and more importantly, how to test to ensure that any specified standards are implemented correctly.

In response to the problem, this SWUTC project focused on the technology transfer aspect of providing information to agencies within the Region 6 Southwest Region University Transportation Center (SWUTC) and across the country. A Standards Testing Clearinghouse website was created to provide a single point of contact from which users can locate information on standards, testing, implementation practices as they become available, and training on all aspects of standards implementation as the clearinghouse evolves. The Standards Testing Clearinghouse at http://www.itstestlab.org is an online vehicle for the educational development of the transportation personnel who are tasked with the responsibility of systems implementation using ITS standards.









SWUTC's 3D Traffic Simulation Demonstration Lab Hosts Training Workshop

SWUTC Project #167652/P.I. Sharon Adams-Boxill

The 3D Traffic Simulation Demonstration Lab at Texas Southern University, hosted a VISSIM Introduction Training Workshop on May 23-24, 2005. The event was held in the Robert J. Terry Library computer training laboratory at Texas Southern University and was attended by 10 consulting engineer professionals from a wide variety of agencies including Parsons Brinckerhoff, Wilbur Smith Associates, METRO, Turner Collier & Braden, the University of Houston and Texas Southern University. The objective of this seminar was to provide participants with the knowledge to build, calibrate, and analyze transportation systems using the VISSIM simulation software and to provide the practicing transportation professional with skills that can enhance their productivity.

Attendees were instructed in topics ranging from basic VISSIM features such as links and connectors, vehicle routing decisions, priority rules, stop signs and RTOR, virtual NEMA controller, and advanced topics such as 3D animation and AVI files and 3D modeler. The Workshop also offered attendees PDH credits. In conjunction with the VISSIM Introduction Training Workshop the 3D Traffic Simulation Demonstration Lab hosted a VISSIM/VISUM demonstration for the Metropolitan Transit Authority of Houston. Requested by METRO the demonstration covered an overview of PTV America's PTV Vision Software Suite, PTV's partnerships with ESRI and NAVTEQ, and VISSIM/VISUM standard applications. The workshop instructors were PTV America Project Manager Kiel Ova and PTV America Vice President Robert M. Shull.

Small City Analytical Tool Available to Planners on Web

SWUTC Project #167421/P.I.: David Ellis

Small Texas cities and counties often lack the expertise to conduct fundamental analysis in projecting population, households, employment, transportation, economic, fiscal, and other critical variables essential to sound municipal planning. Further, they most often lack even the most basic knowledge about where to secure the data necessary to perform the analysis. As a result, in most instances, the only option for these entities is to hire outside consultants to perform the needed analyses or rely upon another public agency to do the analysis for them. While those alternatives may be attractive and necessary options, because of the lack of knowledge concerning analytical techniques and data resources, small cities and counties often do not have the capacity to assess the validity of projections provided by others, or to conduct interim analyses when needed.

Developed through this SWUTC project, an on-line website contains a **Small-City Analytical Tool (S-CAT)** that is designed to assist smaller cities without professional planning staff to have the ability to do fundamental analysis regarding variables that influence strategic municipal decisions. Topics covered in this model include: population, property tax revenues, employment, housing, number of registered vehicles, lane-miles of local roads and streets, new roadway costs, sales tax revenues and housing to name a few. This Small-City Analytical Tool is available free of charge at http://cityplan.tamu.edu. This website provides a means to offer significant planning assistance to small cities and counties over the long-term.

SWUTC Sponsors Presentation by University of California Director

Elizabeth Deakin, director of the University of California Transportation Center and Professor at the University of California, Berkeley, was invited to visit the Texas Transportation Institute on April 7, 2005 to deliver a presentation on *A Regional Express Bus Plan for the San Francisco Bay Area*. Professor Deakin's presentation illustrated the importance of the express bus and rail system in the San Francisco Bay Area. In addition, the various planning difficulties associated with operating such a system were discussed. She also provided an update on other University of California research activities. Dock Burke concluded the session by leading a discussion of UTC topics.

The presentation was sponsored by the SWUTC, the Bush School and its Institute for Science, Technology and Public Policy, TTI, and the Texas A&M Department of Landscape Architecture and Urban Planning. Approximately 40 faculty, staff and students from Texas A&M University attended.

SWUTC Project Contributes Expertise to the Department of Homeland Security

SWUTC Project #473700-00071/P.I.: Robert Harrison

As a direct result of his research accomplishments on his SWUTC project "Evaluating Mexican Truck Safety at the Texas Mexico Border", principal investigator Robert Harrison was selected by the Department of Homeland Security to help evaluate the introduction of US-VISIT along the Texas-Mexico border. US-VISIT is a technology rich system for clearing non-U.S. citizens into the U.S. at various port of entry. His involvement with the DHS included briefing the staff and discussing his previously published SWUTC technical report titled *Truck Trade Corridors Between the U.S. and Mexico* and his current SWUTC research which collects and analyzes Mexican truck safety inspection data obtained at border inspection facilities.

New SWUTC Projects

Number	P.I.	University	Project Title
473700-00027	Jeff Warner	TAMU	Importance of Short Line Railroads to Texas
473700-00029	David Willis	TAMU	Remedial Driver Education: Does it Do Any Good?
473700-00031	Byoung-Suk Kweon	TAMU	Children and Transportation: Identifying Safe and Unsafe Environments for Walking and Biking to School
473700-00033	Joe Zietsman	TAMU	Mexican Truck Idling Emissions at Major Texas Border Locations
473700-00050	Carol Lewis	TSU	Moving Toward Implementation: An Examination of the Organizational and Political Structures of Transit-Oriented Development (Continuation of 167341 funded FY04)
473700-00051	Gwen Goodwin	TSU	Update: A Longitudinal Assessment of the Relationship Between Land Use, Land Values, and Bus Facilities
473700-00072	C. Michael Walton	UT-Austin	An Investigation on the Environmental Benefits of Variable Speed Control Strategy
473700-00073	C. Michael Walton	UT-Austin	Developing Highway Freight Corridor Performance
167451	Laura Higgins	TAMU	Disregard for Traffic Controls - Driver Perceptions of Risk
167452	Paul Nelson	TAMU	Mining Microscopic Traffic-Flow Data
167453	Joe Button	TAMU	Fibers from Recycled Tires as Reinforcement in Hot Mix Asphalt
167454	Jim Kruse	TAMU	Effect of Security Requirements on Port Infrastructure Development and Funding
167455	Robin Rabinowitz/ Debbie Spillane	TAMU	Evaluating the Use of Pavement Markings in Making Streets Safer for Pedestrians and Bicyclists
167456	Debbie Jasek/ Jeff Borowiec	TAMU	Develop and Establish a Texas Summer Aviation Institute
167458	Penny Beaumont	TAMU	A History of the Interstate System in Texas
167459	Debbie Jasek	TAMU	Go Girl! Exploring Transportation Career Horizons
167550	Chandra Bhat	UT-Austin	On Examining Household Vehicle Holdings and Usage Decisions
167551	Leigh Boske	UT-Austin	The Impact of Trans-Pacific Trade on the Southwest's Transportation Corridors and Economy
167552	Kara Kockelman	UT-Austin	The Basis for Location Choice, Vis a Vis Transportation Demand
167553	Randy Machemehl	UT-Austin	Adaptive Traffic Signal Control: Advancing the Concept (Continuation of 167243 funded in FY04)
167554	Randy Machemehl	UT-Austin	Predicting Truck Tire Pressure Effects Upon Pavement Performance
167555	Jorge Prozzi	UT-Austin	Characterizing Highway Traffic in the U.S.-Mexico Corridor Based on the Damaging Effects on Surface Transportation Infrastructure

New SWUTC Projects Continued

Number	P.I.	University	Project Title
167556	Travis Waller	UT-Austin	Robust Design and Evaluation of Transportation Networks with Equilibrium Under Demand Uncertainty: Developing Dynamic Traffic Assignment Methods (Continuation of 167246 funded FY04)
167557	C. Michael Walton	UT-Austin	Privacy vs ITS: Institutional and Societal Barriers to Implementation of On-Board Technologies in Commercial Vehicles in the United States
167558	Zhamin Zhang	UT-Austin	Develop a System to Support Preparation of Life-Cycle Budget Needs for Highways (Continuation of 167249 funded in FY04)
167650	Lei Yu	TSU	Analyzing Truck Idling Emission Characteristics Under Altered Testing Conditions
167651	Fengziang Qiao	TSU	ITS Data Compression Using Advanced Signal Processing Techniques
167652	Sharon Boxill	TSU	3-D Traffic Simulation Professional Development Seminars
167653	Carol Lewis	TSU	TEA 21 and ISTEA: Examination of CMAQ & STP Spending

Ongoing SWUTC Projects

Number	P.I.	University	Project Title
473700-00015	Larry Rilett	TAMU	Modeling Passenger Car and Truck Interaction (2nd year continuation of 167427 funded in FY02)
473700-00017	Larry Rilett	TAMU	Strategic Planning for the Transportation Systems Group
473700-00023	Steve Schrock	TAMU	Development of Secondary Task Tools for Laptop-Based Driver Surveys to Correlate Results with the Driving Simulator
473700-00048	Carol Lewis	TSU	After the Opening: Integrating Light Rail into a Traditional Bus City - A Case Study
473700-00049	Lei Yu	TSU	Measurement and Evaluation of On-Road Vehicle Emissions at Signalized Intersections
473700-00068	Rob Harrison	UT-Austin	Strategic Transportation Challenges and Issues Facing US Agriculture and Rural Industry: A Methodology to Prioritize Rural Transportation Needs
473700-00071	Rob Harrison	UT-Austin	Evaluating Mexican Truck Safety at the Texas Mexico Border
167127	James Ochoa	TAMU	Commercial Transportation Safety and Operations Workshop
167141	Darbha Swaroop	TAMU	Modeling and Control of Air Brakes in Commercial Vehicles
167142	Susan Chrysler	TAMU	Traffic Engineering Applications of Driving Simulation
167143	Debbie Jasek	TAMU	Establish a Texas Rural Summer Transportation Institute
167144	Beverly Kuhn	TAMU	Innovative Solutions to Transportation Needs in the Colonias
167146	G. Curtis Herrick	TAMU	Standards Testing Clearinghouse
167147	Robert Brydia	TAMU	Real-Time Performance Measures Workshop
167225	Randy Machemehl	UT-Austin	Characterizing Transit Passenger Access Decisions (Continuation of 167806 funded in FY00)
167228	Hani Mahmassani	UT-Austin	Integrating Real-Time Information with Dynamic Fleet Decision Systems for Intermodal Freight Mobility (Continuation of 167807 funded in FY00)
167232	Zhanmin Zhang	UT-Austin	Develop a Dynamic System to Simulate the Life-Cycle Performance of Pavements (Continuation of 167803 Funded FY00)
167240	Chandra Bhat	UT-Austin	Time of Day Modeling of Person Trips Using Revealed Preference and Stated Preference Surveys
167243	Randy Machemehl	UT-Austin	Adaptive Traffic Signal Control: Advancing the Concept (Continuation of 167823 funded in FY03, 167524 funded in FY02, 167224 funded in FY 01 & 167805 funded in FY00)
167246	Travis Waller	UT-Austin	Robust Design and Evaluation of Transportation Networks with Equilibrium Under Demand Uncertainty

Ongoing SWUTC Projects Continued

Number	P.I.	University	Project Title
167249	Zhanmin Zhang	UT-Austin	Develop a Dynamic System to Simulate the Life-Cycle Performance of Pavements (Continuation of 167832 funded in FY03, 167533 funded in FY02, 167232 funded in FY01, 167803 funded in FY00)
167321	Ron Goodwin	TSU	An Evaluation of Alternative Fuels Usage by Public Transit Agencies
167322	Carol Lewis	TSU	An Assessment of Examination Criteria Used for Transit Friendly Decision-Making
167340	Sharon Boxill	TSU	3-D Traffic Simulation Demonstration Lab: A Technology Transfer Initiative
167341	Carol Lewis	TSU	Moving Toward Implementation: An Examination of the Organizational and Political Structures of Transit-Oriented Development
167342	Khosro Godazi	TSU	Procedures for the Implementation of a Transportation Scholars Program (Continuation of 167922 funded in FY03)
167427	Larry Rilett	TAMU	Simulation Modeling of Passenger Car and Truck Interaction
157533	Zhanmin Zhang	UT-Austin	Develop a Dynamic System to Simulate the Life-Cycle Performance of Pavements (Continuation of 167232 funded in FY01 & 167803 funded in FY00)
167620	Carol Lewis	TSU	A Longitudinal Assessment of the Relationship Between Land Use, Land Values, and Bus Facilities
167621	Sharon Boxill	TSU	An Evaluation of 3-D Traffic Simulation Modeling Capabilities
167622	Ron Goodwin	TSU	Analysis of Federal and State Discretionary Funding of Highway and Transit Projects
167705	Felipe Zambrano	TAMU	An Assessment of U.S.-Mexico Trade Corridors and Border Infrastructure Development
167726	Shaw-Pin Miaou	TAMU	A Guide to Intelligent Strategies for Transportation Infrastructure Protection and Transportation Security-Related Research
167803	Zhanmin Zhang	UT-Austin	Develop a Dynamic System to Simulate the Life-Cycle Performance of Pavements
167806	Randy Machemehl	UT-Austin	Characterizing Bus Transit Passenger Boarding and Deboarding Processes
167807	Hani Mahmassani	UT-Austin	Integrating Real-Time Information with Dynamic Fleet Decision Systems for Intermodal Freight Mobility
167824	Randy Machemehl	UT-Austin	Using Simulated Annealing Algorithms for Optimizing Transit Network Patterns with Variable Demand
167826	Hani Mahmassani	UT-Austin	Modeling Environmental Impacts of Intelligent Transportation System Approaches

Ongoing SWUTC Projects Continued

Number	P.I.	University	Project Title
167832	Zhanmin Zhang	UT-Austin	Develop a Dynamic System to Simulate the Life-Cycle Performance of Pavements (Continuation of 167533 funded in FY02, 167232 funded in FY01 & 167803 funded in FY00)
167900	Khosro Godazi	TSU	A Comparative Assessment of Emerging Transportation Techniques: A Seminar for Professional and Student Exchange
167903	Ron Goodwin	TSU	Evaluation of the Potential to Link Rural Communities with their Urban Neighbors
167921	Edward Owens	TSU	An Evaluation of Environmental Justice Programs: Laws and Issues that Affect Minority and Low-Income Populations
167922	Ron Goodwin/ Sharon Boxill	TSU	Procedures for the Implementation of a Transportation Scholars Program
167923	Sharon Boxill	TSU	An Evaluation of 3-D Traffic Simulation Capabilities

Completed SWUTC Projects

Number	P.I.	University	Project Title
473700-00005	Bill Eisele/Larry Rilett	TAMU	Examining Information Needs for Efficient Motor Carrier Transportation Logistics
473700-00007	Russell Henk	TAMU	Evaluate Strategies for Using the Transportation Management Infrastructure in the Role of National Defense Preparedness
473700-00009	Russell Henk	TAMU	Assess the Potential of Transportation Management Centers in Improving Hurricane Evacuation Operations
473700-00011	David Bierling	TAMU	Current and Future Rail Access Corridor Needs of Southern Texas Ports
473700-00013	Steve Roop	TAMU	Port of Houston Maritime Security Study
473700-00019	Steve Roop	TAMU	Establishing "Best Practices" in a University Setting for Testing, Evaluation, and Management of Standards-Setting for Products and Processes Related to Homeland Security
473700-00021	Jim Kruse	TAMU	Analysis of Start-up Cross Gulf Shipping Activities with Mexico Since 1990: Problems and Opportunities
473700-00025	Zong Tian	TAMU	Development and Evaluation of a Framework for Selecting Operational Strategies for an Integrated Ramp Metering-Diamond Interchange Control System
473700-00042	Carol Lewis	TSU	An Examination of the Smart Growth Initiative and Its Application to Region VI Communities
473700-00043	Sharon Adams	TSU	The Integration of GIS and Transportation Modeling: A State-of-the-Practice Review
473700-00044	Carol Lewis/ Khosro Godazi	TSU	State of the Industry Overview - A Transit-Oriented Development Conference
473700-00045	Lei Yu	TSU	Evaluation and Combined Use of TRANSYT-7F and CORIM in Traffic Signal Optimization and Simulation
473700-00046	Carol Lewis	TSU	An Examination of Successful Mixed Used in Transit Oriented Development
473700-00047	Khosro Godazi	TSU	Conference on Regionalism
473700-00062	Rob Harrison	UT-Austin	Inland Ports and their Contribution to Transportation Efficiencies
473700-00063	Michael Walton	UT-Austin	Evaluating Operating Strategies and Transportation Control Measures which Reduce Air Pollution at Airports
473700-00064	Hani Mahmassani	UT-Austin	Real-Time Traveler Information Systems for Non-Commuting Trips
473700-00065	Hani Mahmassani	UT-Austin	Emerging Models for Provision of Real-Time Traveler Information Services: Transportation System Management Implications
473700-00066	Rob Harrison	UT-Austin	Using the Gulf Intracoastal Waterway (GIWW) to Move Containers to Gulf Ports
473700-00067	Rob Harrison	UT-Austin	Monitoring U.S. Safety Rules for Mexican Trucks

Completed SWUTC Projects Continued

Number	P.I.	University	Project Title
473700-00069	Michael Walton	UT-Austin	Virtual Truck Weigh Station Concepts
167121	Jeff Borowiec	TAMU	Evaluation of the Economic Growth, Air Quality and Noise Impacts of Regional Jet Service at Commercial Airports Serving Small Cities
167122	Laura Higgins	TAMU	Vanpools as Alternative to Fixed-Route Service
167123	Debbie Jasek/ Beverly Kuhn	TAMU	Develop a Transportation Science Competition and Career Fair for Junior High and High School Students
167124	Rodger Koppa	TAMU	Adaptive Equipment to Enhance Older Driver Performance
167125	Reza Langari/ James Ochoa	TAMU	Development of Integrated Rollover Warning and Active Control Systems (RWCS) for Tractor-Semitrailers
167126	Michael Manser	TAMU	Identification and Evaluation of In-Vehicle Distractors on Driving Performance
167128	Josias Zietsman	TAMU	Sustainable Transportation Performance Measures for Developing Communities
167130	Naomi Lede	TAMU	A Proposal to Conduct an Institute to Prepare High School Students for Transportation Careers in Texas
167145	Shaw-Pin Miaou	TAMU	Applications of Geocoded Traffic Crash Records and Crash-Risk Mapping Technology in Roadway Safety Improvements Projects
167148	Laura Higgins	TAMU	Alternative to Fixed Routes-Feeder and Flex-Route Transit Service in Texas
167149	Debbie Jasek	TAMU	Integrating the Transportation Road Show and Library and Transportation Career Guide into Center for Professional Development Web Site
167150	Curtis Morgan	TAMU	Development and Implementation of High-Speed Rail (HSR) Systems in Texas
167151	Beverly Kuhn	TAMU	Workshop to Assess Innovative Solutions to Transportation Needs in the Colonias
167220	Chandra Bhat	UT-Austin	A Methodology to Analyze the Effectiveness of Roadway Pricing Control Strategies Using Travel Survey Data
167222	Susan Handy	UT-Austin	The Education of Transportation Professionals
167223	Kara Kockelman	UT-Austin	Uncertainty in Integrated Land Use-Transport Models
167224	Randy Machemehl	UT-Austin	Adaptive Traffic Signal Control Development and Evaluation (Continuation of 167805 funded in FY00)
167229	Michael Walton	UT-Austin	Design and Implementation of an Intelligent Parking System for a Major Activity Center (Continuation of 167811 funded FY00)
167230	Michael Walton	UT-Austin	Impact of New Large Aircraft on Arrival Passenger Flows at Airport Terminals
167231	Michael Walton	UT-Austin	Restricting the Use of Reverse Thrust as an Emissions Reduction Strategy for Airports

Completed SWUTC Projects Continued

Number	P.I.	University	Project Title
167241	Leigh Boske	UT-Austin	Gauging the Impacts of Maritime-Related Foreign Trade on the Southwest Region's Economic Growth Prospects and Transportation System: A Methodology for Linking Trade, Transportation, and Logistics Data
167242	Kara Kockelman	UT-Austin	Credit-Based Congestion Pricing: Implementation and Welfare Calculations
167244	Randy Machemehl	UT-Austin	Using Random Search, Local Search and Exhaustive Search Methods to Optimize Transit Network Patterns (Continuation of 167824 funded in FY03)
167245	Jorge Prozzi	UT-Austin	Evaluation of the Joint Effect of Wheel Load and Tire Pressure on Pavement Response
167247	Michael Walton	UT-Austin	How to Use ITS Data to Support the Transportation Planning Process
167248	Michael Walton	UT-Austin	A Framework for Developing Integrated ITS Solutions to Improve Traffic Operations
167320	Ron Goodwin/ Sharon Boxill	TSU	Analysis of Texas' Speed Limit Laws and Fatality Accident Rates
167421	David Ellis	TAMU	Dissemination of Data and Training in the Analysis of Critical Transportation Planning Information for Small Texas Cities and Counties
167422	Laura Higgins	TAMU	Public Transit and Livable Communities: Corpus Christi After Evaluation
167423	Debbie Jasek	TAMU	Develop a Transportation Road Show and Library of Promotional and Marketing Materials to Encourage Development of a Transportation Workforce
167424	Shaw-Pin Miaou	TAMU	Providing Personalized Traffic Safety Information to the Public Using Web-Based Geographical Information System (Web-GIS) Technologies
167425	Jody Naderi	TAMU	Pedestrian Health and Safety: Case Studies and Simulation
167426	Cesar Quiroga	TAMU	Development of an Integrated Assessment of Transportation Data for the Texas-Mexico Border Region
167520	Chandra Bhat	UT-Austin	Air Travel: A Systematic Analysis of Traveler Choices
167521	Leigh Boske	UT-Austin	Making Transportation Corridors Work: The Potential for Integration Roundtables at Southwest Seaports
167522	Susan Handy	UT-Austin	The Case of the Soccer Mom and Other Stories: Travel by Choice or Necessity?
167523	Kara Kockelman	UT-Austin	Uncertainty in Integrated Land-Use Transport Models: Simulation and Propagation (Continuation of 167223 funded in FY01)
167524	Randy Machemehl	UT-Austin	Adaptive Traffic Signal Control Development and Evaluation (Continuation of 167224 funded in FY01 & 167805 funded in FY00)
167525	Randy Machemehl	UT-Austin	Optimizing Transit Network Patterns

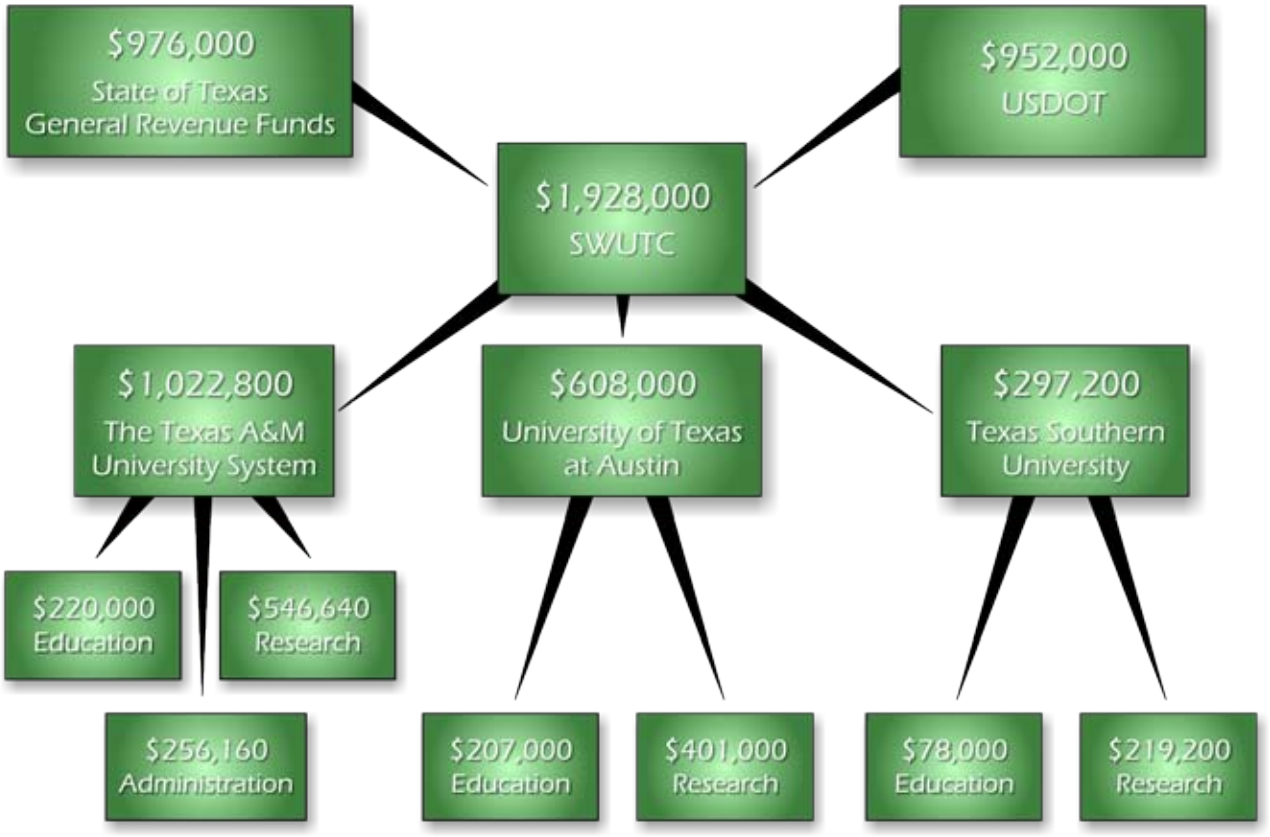
Completed SWUTC Projects Continued

Number	P.I.	University	Project Title
167526	Hani Mahmassani	UT-Austin	Real-Time Integrated Management of Intermodal Fleet Operations (Continuation of 167228 funded in FY01 & 167807 funded in FY00)
167527	Hani Mahmassani	UT-Austin	Shipper and Carrier Participation in Electronic Marketplaces and Implications for Freight Logistics
167528	Hani Mahmassani	UT-Austin	Disaster and Major Emergency Management Using Dynamic Modeling Approaches and ITS Technologies
167529	Michael Walton	UT-Austin	Regional Impacts on Congestion Pricing
167530	Michael Walton	UT-Austin	Evaluating the Performance of Arrival Passenger Processing Facilities for Increasing Aircraft Size (Continuation of 167230 funded in FY01)
167531	Michael Walton	UT-Austin	The Use of ITS Technologies to Improve Transport Efficiency for an Aging Population
167701	John Basilotto	TAMU	An Internet Clearinghouse of Marine and Intermodal Information for Sustainable Transportation and Economic Development
167702	Beverly Kuhn	TAMU	An Analysis of the Market Potential for Distance Learning Opportunities in Transportation Professional Development
167703	David Schrank	TAMU	Developing a Sketch-Planning Technique Relating Economic Activity and Urban Mobility in Small and Medium-Sized Urban Areas
167704	Katie Turnbull	TAMU	Transportation and Tourism Workshop
167706	Jason Crawford	TAMU	The Contribution of Hand-Held Cellular Phones to Vehicular Accidents
167707	James Bonneson	TAMU	Comprehensive Engineering Approach to Achieving Safe Neighborhoods
167708	Paul Nelson	TAMU	Automated Identification of Flow Patterns in Congested Traffic
167709	Cindy Estakhri/ John Overman	TAMU	Carbon Dioxide Emission Reductions Through the Use of Fly Ash in Concrete Production
167711	Eric Lindquist	TAMU	Agenda Setting in the Transportation Policy Domain
167721	Sue Chrysler	TAMU	3D Visualization as a Tool to Evaluate Sign Comprehension
167722	Harlow Landphair Shawn Turner	TAMU	Correlates of Environmental Constructs and Perceived Safety Enhancements in Pedestrian Corridors Adjacent to Urban Streets
167723	Debbie Jasek	TAMU	Develop a Transportation Career Guide for the Non-Traditional Student
167724	Juan Carlos Villa	TAMU	Methodology for the Development of Binational Driver and Vehicle Databases
167725	Bill Eisele/Bill Frawley	TAMU	Quantifying Access Management Performance Measures and Incorporating Them into the Transportation Planning Process
167800	Chandra Bhat	TAMU	A Joint Model System of Mode Choice, Destination Choice, and Departure Time Choice for Nonwork Trips

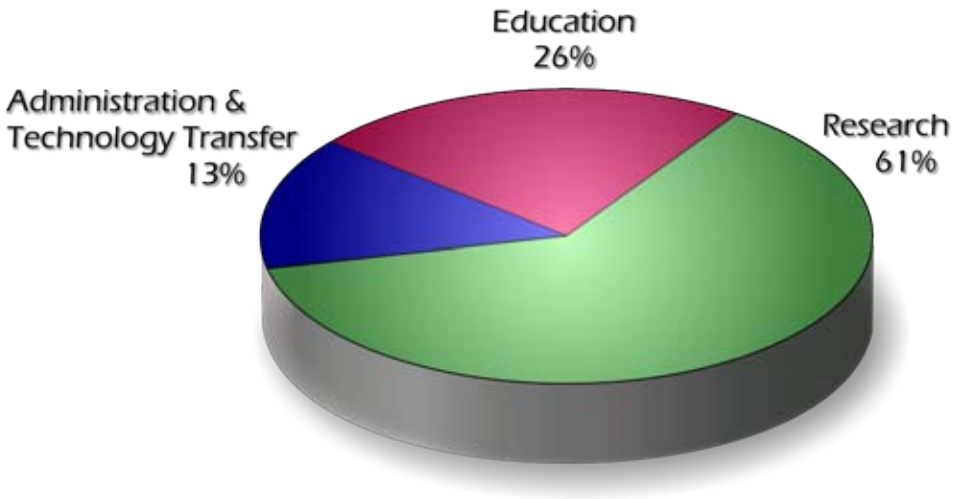
Completed SWUTC Projects Continued

Number	P.I.	University	Project Title
167801 & 167221	Leigh Boske	UT-Austin	Impact of Latin American Trade on the Southwest Region's Economic Growth Prospects and Transportation System
167802	Susan Handy	UT-Austin	Understanding the Growth in Nonwork VMT
167804	Kara Kockelman	UT-Austin	The Propagation of Uncertainty in Multi-Stage Transport Demand Models
167805	Randy Machemehl	UT-Austin	Adaptive Traffic Signal Control Development and Evaluation
167808 & 167227	Hani Mahmassani	UT-Austin	Freight Transportation and Logistics Implications of Electronic Commerce and Virtual Supply Chains
167809	Hani Mahmassani	UT-Austin	From Information to Knowledge: Strategies and Techniques for Mining Real-Time Traffic Data Bases
167810	Michael Walton	UT-Austin	The Implications of Data Usage and Privacy on ITS Organizations
167811	Michael Walton	UT-Austin	Intelligent Parking Systems
167820	Chandra Bhat	UT-Austin	Analysis and Modeling of Individual Activity-Travel Patterns During Weekends
167821	Leigh Boske	UT-Austin	Evolving Maritime Corridors and their Port Networks: Enhancing and Securing Hemispheric Trade with the Southwest Region
167822	Kara Kockelman	UT-Austin	Investigation of Credit-Based Value Pricing of Congested Roadways
167823	Randy Machemehl	UT-Austin	Adaptive Traffic Signal Control Development and Evaluation (Continuation of 167524 funded in FY02, 167224 funded in FY01 & 167805 funded in FY00)
167825	Hani Mahmassani	UT-Austin	Disaster and Major Emergency Management Using Dynamic Modeling Approaches and ITS Technologies (Continuation of 167528 funded in FY02)
167827	Jorge Prozzi	UT-Austin	Methodology for Quantifying Pavement Damage Caused by Different Axle and Load Configurations
167828	Michael Walton	UT-Austin	Framework for ITS Deployments to Enhance Safety of Our Highway System
167829	Michael Walton	UT-Austin	Analyzing the Impact of Traffic on Air Quality with GIS
167830	Michael Walton	UT-Austin	An Identification of Equipment Needs at Marine Terminals for Efficient Handling of Cargo
167901	Lei Yu	TSU	Travel Demand Forecasting Models: A Comparison of EMME2/QRS
167902	Ron Goodwin/ Carol Lewis	TSU	An Assessment of the Procedures for Integrating Taxicabs into an Urban Environment
167920	Lei Yu	TSU	Evaluation and Combined Use of TRANSYT-7F and CORIM in Traffic Signal Optimization and Simulation (Continuation of 473700-00045 funded in FY02)
466610	Dock Burke	TAMU	Public Transportation for the Colonias

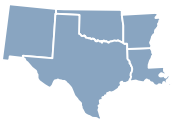
Funding Sources & Expenditures



Distribution of Funds



Transportation Solutions to Enhance Prosperity and the Quality of Life



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