

TEXAS TRANSPORTATION

Researcher

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Transportation Workforce Development and Education

- Short Course: A history of cooperation
- TTI's successful summer programs
- Supporting research and implementation through training



Meeting the
Transportation
Workforce
Challenges

Working together for economic vitality in Texas

One of the key, positive economic development factors for the state of Texas as a whole is its burgeoning population. With a Census count of greater than 20.8 million residents in 2000, Texas became the second most populous state in the nation. That record is expected to rise by 68 percent—to reach 35 million people—by the year 2040.

In addition, over the past decade, Texas led *all* states in net job creation, with Texas jobs now accounting for 7.2 percent of total U.S. employment, up 6.4 percent since the beginning of the 1990s. And while much of the job growth was located in the major urban centers, over 143,000 new jobs were created in some of the state's smallest communities.

Throughout the 20th century, Texas built and maintained one of the best highway systems in the country. The surge in population, however, has placed increased demands on services and infrastructure. Combine this with the expansion in trade from NAFTA, and it becomes clear that we have outgrown the transportation system envisioned for Texas in the 1950s and 60s.

According to National Personal Transportation Survey results, drivers are spending an average of one hour and 13 minutes behind the wheel each day—up 7 minutes from the 1990 survey. These converging transportation, employment, and population growth issues point to the need for cooperative partnerships between state and local agencies, employers and educational institutions. Everyone can work together toward maximum development of the economy, the workforce, and the infrastructure.

The economic development engine is driven by a multi-level goal—to make sure that businesses who need employees can find them, that people who want a job get it, and that employees can then travel to and from their jobs on a safe and efficient transportation system.

Local workforce boards represent one of the keys to starting this economic development engine. Led by working professionals, the boards give the business perspective from the local level. The Texas Workforce Commission (TWC) has worked with the Texas Department of Transportation (TxDOT) and Texas A&M University on behalf of the boards to raise awareness about some of the special client populations that need employment.

For example, with support from TWC, ten workforce boards initiated projects to begin to assess individual county needs. The remaining boards will be seeking to develop new mechanisms to help those with time-limited benefits obtain transportation to and from child care and jobs or job training. By building coalitions within individual communities, better solutions can be achieved for everyone. TxDOT recently hosted a workshop at our State Workforce Conference in Dallas, sharing examples of collaboration between local workforce boards and transit agencies.

Both workforce and transportation professionals must strive to meet the needs of Texas employers if we are to sustain our state's competitive edge in the global market place. Employers now are more attracted to communities offering concentrations of well-educated and skilled workers. We have to find ways to make jobs, training and support services accessible to everyone who needs them.

In closing, I want to emphasize that when public agencies and educational institutions work with Texas employers, we are ensuring our state can compete in the global economy of the 21st Century. By working together to strengthen our economic infrastructure, we can regain the vigorous growth our state has experienced in recent years. Together we can forge a new economic era for Texas, ensuring a prosperous new century for generations to come. **R**

By Dennis Christiansen
Deputy Director, Texas Transportation Institute



University research educates and enhances the transportation workforce

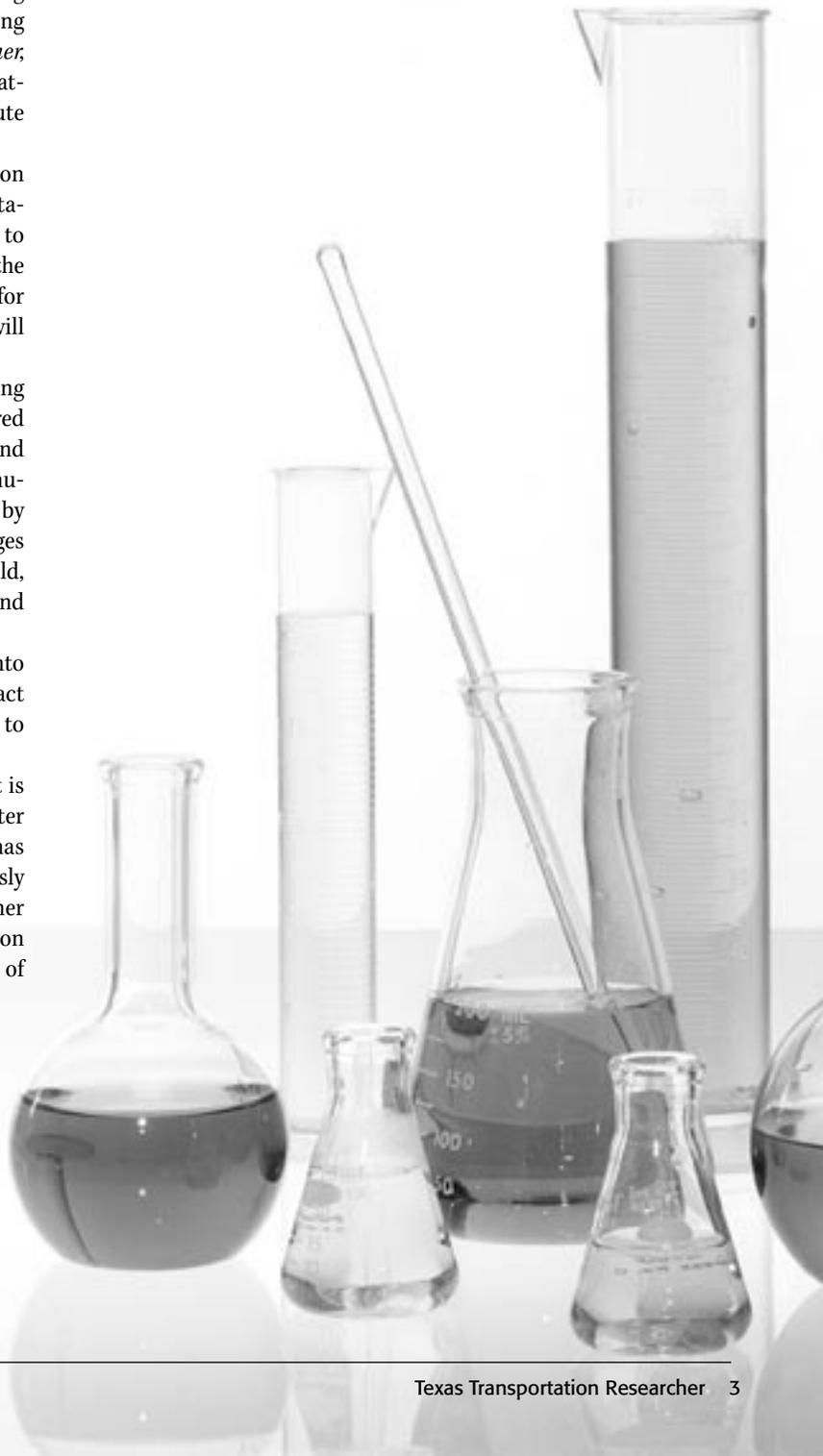
Workforce issues are becoming a much bigger concern in the transportation profession, and addressing this concern will require universities to play a growing leadership role. As indicated in this issue of *Researcher*, and in response to the needs of the profession, workforce-related matters have become a larger focus of the Texas Transportation Institute (TTI) program.

Since the enactment of TEA-21 in the late 1990s, transportation funding has increased. With this, so has the demand for transportation professionals. The universities have been challenged to try to keep up with the demand for trained professionals. As we look to the reauthorization of TEA-21, most leading organizations are calling for still greater funding for transportation. If this occurs, universities will be expected to turn out even more highly trained professionals.

At the same time, the baby boomers are rapidly approaching retirement, and they will need to be replaced. The skill set required to become a transportation professional continues to evolve, and universities are modifying curricula and working to provide continuing education to those already in the profession. As was concluded by the National Workforce Summit, "One of the most critical challenges to the...nation's transportation industry is not the ability to build, maintain or manage systems...Rather, the challenge is to find and retain a workforce with the necessary skill sets..."

The universities are well qualified to attract students into transportation and provide them a quality education. We also attract and educate the future faculty, and continue to give more emphasis to continuing education.

Workforce development and research are closely interrelated. It is the research funding that allows universities to attract more and better students to transportation. Research done in a university setting has the unique advantage of producing useful results and simultaneously educating the transportation professionals of the future. No other institution or organization in the United States offers this combination of attributes. A strong research program is a critical component of meeting workforce needs. **R**





By Joseph S. Toole
Associate Administrator for Professional Development, Federal Highway
Administration



Developing a Strong national workforce

There is no doubt that an effective, efficient and safe transportation system is critical to economic growth and the quality of life for all Americans. Yet, as the nation enters the 21st century, transportation faces tremendous challenges—security, safety, financial needs, intermodal connectivity, environmental concerns, and institutional barriers, to name just a few. Yet all of these challenges have one thing in common: none of them will ever be addressed unless we have a strong transportation workforce.

The success of transportation depends on the ability, innovation, efficiency and productivity of the people who design, develop, manage, and operate the system. A skilled, technically competent workforce is critical to the transportation industry's ability to effectively provide for America's future. Yet, the transportation industry is facing new challenges in finding qualified workers. The problem is expected to increase dramatically over the next 5-15 years as 40-50 percent of the baby boom generation employees retire. They will take with them years of experience, institutional knowledge and competencies that will be difficult to replace. We are also asking our employees to do more and work more efficiently.

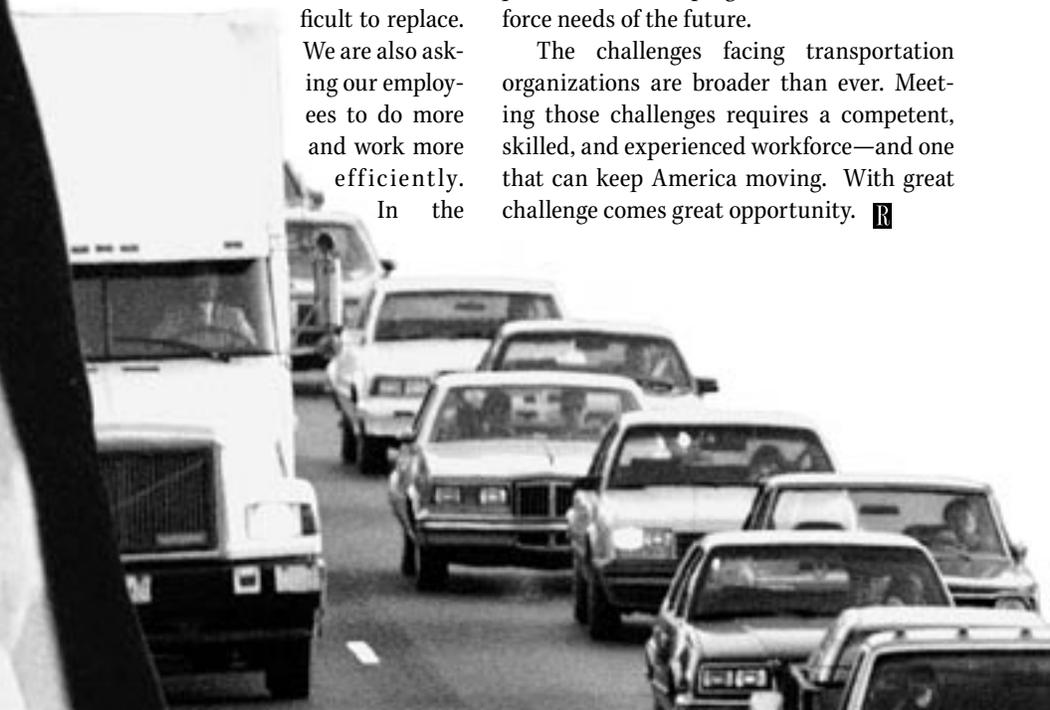
In the

past 10 years, fulltime employment in state DOTs has dropped by 5.3 percent at the same time budgets have increased by 56 percent.

Transportation organizations throughout the United States are grappling with these challenges: how to hire, retain, and retrain their technical and administrative staffs. These organizations realize that their workers—the human capital of the organizations—are their most valuable investment, and they are working to protect and nurture that investment.

There is a lot we can do together to address these needs. Working with organizations such as Texas Transportation Institute, there is a growing effort to reach back into elementary and high schools to attract young people into transportation. University courses and research are also providing a solid foundation for building our future professionals. Continuing education programs and technology sharing initiatives are helping assure that the workers of today can apply new technologies and innovations for tomorrow. Collectively, these efforts and the partnerships that are growing among transportation educators, researchers and practitioners are helping us address the workforce needs of the future.

The challenges facing transportation organizations are broader than ever. Meeting those challenges requires a competent, skilled, and experienced workforce—and one that can keep America moving. With great challenge comes great opportunity. **R**





State-of-the-art to State-of-the-practice

Research is innovation. At its heart is change—change for the better. Improved safety, environmental soundness, cost effectiveness and overall efficiency are a few of the benefits offered by innovation. Yet change can be intimidating because it requires learning new skills . . . doing things differently . . . taking a risk. Resistance to change is the single greatest impediment to innovation and adoption of new technology.

How is resistance to innovation overcome? By uncovering solutions to problems through research, and then supporting and guiding individuals through the process of learning new skills and technologies needed to apply that research to practical problems. This is what makes workforce development and education an integral part of transportation research and implementation.

To actively facilitate the flow of research from theory into practice, Texas Transportation Institute (TTI) researchers regularly participate in training and outreach for working professionals. Workshops, user guides, electronic training tools and other educational materials that facilitate implementation are often key products of TTI research. In addition, sponsorship of professional conferences and information sharing forums is an important part of the Institute's mission to develop diverse human resources to meet the transportation challenges of tomorrow.

Because of the undeniable role these activities play in the success of the research and implementation cycle, TTI is committed to continuing its contribution and support of strong programs in professional development, education and training of the transportation workforce. 



Short Course:

A history of collaboration and continuing education

1928 Short Course

Tyree L. Bell, McElwrath
Construction Company

"To reap the greatest benefit from the program ahead of us we should work together to our mutual advantage, maintaining sympathetic understanding and appreciation of the problems and interests of the other."

1941 Short Course

Gibb Gilchrist, Dean of the
School of Engineering at A&M
College

"Self-improvement in any engineer depends upon himself.... Suffice it to say that to be successful and promote his profession, any engineer must improve himself without stint, both professionally and as a citizen."

The 2002 Transportation Short Course, October 21-23 at Texas A&M University, centers around the theme "Creating Tomorrow's Transportation System." For over seven decades, Short Course has planned for the future, built on the past, and strengthened the state's transportation system. Sponsored cooperatively by the Texas Department of Transportation (TxDOT) and Texas Transportation Institute (TTI), the annual event offers opportunities for interaction and professional development concerning the latest in transportation tools, techniques and technology.

In 2001, the Texas legislature recognized the 75th anniversary of the Transportation Short Course, noting that it "provides a unique opportunity for TxDOT employees to learn about the latest technology and new research" and "strengthens the cooperative working relationship" of TxDOT and TTI.

At that anniversary conference, Herb Richardson, TTI director, noted, "The annual Short Course has been one way to put technology and new concepts resulting from research into practice." In his address Mike Behrens, executive director of TxDOT, highlighted the cooperative nature of activities in transportation. "Our best work is achieved through the linked hands of our transportation community," he said.



Cooperating through the Decades

Through the variety of topics addressed over the years, Short Course has always provided its attendees with valuable information on all aspects of transportation.

- The 1928 Short Course Proceedings note that the annual event strives to “bring together engineers, contractors, and others interested in the road and street problems of Texas...[and] the field of highway engineering...” Presentations covered topics ranging from asphalt pavements to cooperation between engineers and contractors.
- Presentations at the 1949 meeting covered the parking problems in Dallas and the Interstate highway system.
- The 1951 event discussed moving military cargo as well as improving public relations through better signage.
- The 1958 bulletin expands the purpose of Short Course by adding, “...in order that they may not only hear various phases of these problems discussed by experts of state and national reputation, but also that they may have an opportunity to meet with each other and exchange ideas.”

Focus on the Future

As with this year's theme, a focus on the future of transportation weaves through the years of Short Course. From early days, forward-looking presentations featured topics designed to meet upcoming transportation challenges. Presentations during the 1940s and 50s focused on “Future Highway Policy in Texas” and “Recruiting and In-Service Training of Engineering Personnel.” In 1993, TxDOT Executive Director Bill Burnett reminded attendees, “We're here to create for the future.” At the 2000 Short Course, TxDOT Executive Director Wes Heald noted, “Tomorrow's transportation systems will look different than what we see today. How they look depends a lot on how we solve the transportation problems of today.”

Recognition of innovative work has become a regular part of Short Course. Recent meetings have identified TxDOT's top innovations and findings that show benefits for the future of transportation.



Legacy of the Past

Early Short Courses were sponsored jointly by the School of Engineering at A&M and the State Highway Department of Texas, along with the Texas Engineering Extension Service, State Highway Commission, Public Roads Administration and others contributing through presentations and in many other ways. In 1957, TTI began coordinating Short Course, working together with the Texas Highway Department.

From its earliest inception in 1924, however, Short Course has served to improve transportation in Texas and to strengthen relationships among transportation professionals through informative presentations dealing with ongoing transportation issues and contemporary research, specialized needs and comprehensive concerns, and topics from a wide span of disciplines. Short Course relies on the legacy and lessons of the past. Each year's program has linked current findings to past studies and experiences to create sound footing for the progress of transportation practices. Annual awards based on lifelong and notable career achievements of transportation professionals recognize past and present advances made by the recipients.

“Short Course has consistently presented high-quality programs for over 70 years. Although TxDOT is the greatest beneficiary of the meeting, each year it benefits all participants—including TTI and the A&M system in general,” notes former TxDOT Deputy Director Byron Blaschke.

1948 Short Course A.C. Leonard, Public Roads Administration

“Once a year or oftener it is necessary for groups such as this to engage in a common interchange and pooling of specialized engineering knowledge and experience in order that each might know what the other has been doing. It is continuing education of the highest order and it is only fitting that this great institution which has contributed so much in engineering talent to the State of Texas should be your host on such an occasion.”

1953 Short Course Thomas H. MacDonald, Distinguished Research Engineer, Texas A&M College, and former director of the Bureau of Public Roads

“This annual meeting is typical of continuing contacts of a helpful nature so the new research program is not a departure from, but an extension of, existing relations and the creation of opportunities for broad studies of mutual interest.”

1959 Short Course DeWitt C. Greer, State Highway Engineer of Texas

“We are moving into an era in the development of highways that will provide the greatest challenge to highway engineers in the history of our country.... We here in Texas are doing our best to meet this situation, and it is believed that these meetings are of great help to our personnel in keeping abreast of the latest developments being done in our colleges and universities.”

Mark Goode, former TxDOT Executive Director

“Short Course is one of the best ways we have to stay current with transportation technology and disperse that information efficiently.”

Arnold Oliver, former TxDOT Executive Director

“This event is the premier avenue for technology sharing. It gives transportation organizations the opportunity to recognize roles of the other organizations and see how they can help each other.”

Bill Burnett, former TxDOT Executive Director

“The benefits of Short Course are twofold. One is the technical exchange of information, and the other is the opportunity to interact with transportation and highway officials from across the state. The most touching moment of the event each year is recognition for the Extra Mile awards to those employees that have put their own lives at risk, or their safety at risk, to protect citizens of the state of Texas during emergencies.”

Wes Heald, former TxDOT Executive Director

“Short Course is one of the best professional development opportunities that exists for designers, engineers, the consulting engineering industry, and others involved in the planning and construction of our transportation system. It brings them all together where they can share on a statewide basis what’s taking place with transportation.”

Mike Behrens, current TxDOT Executive Director

“At Short Course, people from across the transportation industry—TxDOT, TTI, and other participants from city or county governments, engineering consultants, contactors, and others—get the opportunity to interact with each other. We talk a lot about partnerships in transportation. Short Course comes from a true partnership between TxDOT and A&M. It’s a partnership where we’ve been able to meld the two partners because both are working toward the same goal—to provide a transportation system for the state and nation that provides efficient movement of people and goods and do it safely.”

Strengthening Texas Transportation

For over 50 years, the Cooperative Research Program has been a key to the success of improving the Texas transportation system. The partnership between TxDOT and universities provides an avenue for research and implementation of improved processes and technologies. Since the Cooperative Research Program began in 1948, Short Course has exemplified that partnership through cooperative projects and valuable interaction.

“Without question, Short Course is of great benefit to TxDOT, TTI and other universities and public agencies. Short Course brings everyone up to date on the latest research developments and experiences throughout the state and country. It helps accelerate the use of research and gets it out into the field and implemented by TxDOT personnel,” notes Herb Richardson, TTI director. **R**



Luther DeBerry presents the DeWitt C. Greer Award to Dallas District Engineer Bob Yielding, 1974.



Highway Short Course 1963. (L–R): Herbert C. Petny Jr., Fred J. Benson, De Witt C. Greer, James Earl Rudder, J.H. Kultgen, Charles J. Keese



(above and left): Two highway department engineers, J.R. Stone (above) and Bill Ward (left), were the first winners of the Gibb Gilchrist and D.C. Greer Awards at the 41st Annual Short Course in 1968. Shown here accepting their awards from John S. Redditt, former chairman of the Texas Highway Commission.



Putting operations research into practice

Technology transfer between researchers at the Texas Transportation Institute (TTI) and Texas Department of Transportation (TxDOT) is in the process of taking a leap forward. Four training courses developed by the Transportation Research Implementation Consortium for Operations and Management (TRICOM) project at TTI are ready for delivery to TxDOT employees:

- Diamond Interchange Signal Timing
- Traffic Signal Operations near Highway-Rail Intersections
- Beginning CORSIM Training
- Advanced CORSIM Training

The objective of the courses, which are sponsored by TxDOT, is to take current traffic operations research and recently developed software and teach TxDOT district employees the best practices for implementation. Developing the courses is a way for TTI researchers to take their research results a step further.

“Among the courses under consideration for development is training for the new version of PASSER (Progression Analysis and Signal System Evaluation Routine), a series of software programs that optimize traffic signal timings on roadways,” says Gary Thomas, the director of the Center for Professional Development at TTI. “There are some exciting new improvements being made to this widely popular software. We want to be ready to provide training once it is complete.”

Researchers from TTI’s College Station and urban offices are prepared to deliver the courses to TxDOT districts. According to Thomas, there are several advantages to having instructors at locations throughout the state. “We are spread out in urban areas so that if a local TxDOT district needs a course, we can have an instructor teach the class who is familiar with the people and the area and can develop a local case study for a more personalized experience.”

The one- and two-day workshops are taught on-site and intersperse local case studies with classroom activities to help the students relate to an example, such as a railroad intersection in their hometown.

The first workshop, Traffic Signal Operations Near Highway-Rail Intersections, was taught in the TxDOT Abilene District late last year. Roy Wright, director of transportation operations for the district, noted the workshop taught personnel how to recognize potential safety issues in the field.

“The workshop will enhance safety in the region because we are now looking at all the components of an intersection and how they tie together,” says Wright. “For example, when assessing operations of an individual intersection, we consider if there are sufficient vehicle storage and clearance and if the pedestrians are safe.”

A case study using the railroad that runs through the middle of Abilene was included in the workshop. Because the city operates the signals, representatives from the City of Abilene sat in on the session.



Gary Thomas, Director of the Center for Professional Development at TTI

Wright felt the case study was very helpful as it pointed out how the agencies need to work together to address these types of situations.

Thomas feels the workshops have several benefits. “Obviously, the main benefit is that people receive training that can help them do a better job. Also, as a research organization we are getting out and talking to people in the field more and getting feedback directly from them. We try to incorporate this feedback into future course offerings. We hope it will make us even better researchers and teachers in the future.” **R**

For more information, contact **Gary Thomas** at (979) 458-3263 or g-thomas@tamu.edu

CD-ROM based training program receives positive response

How do you combine the gritty real world of pavement rehabilitation with the latest high-tech training methods?

A course, funded by the Texas Department of Transportation (TxDOT), on Selecting Rehabilitation Strategies for Flexible Pavements does just that by using lessons from problematic rehabilitation projects across the state together with interactive CD-ROM exercises. The CD-ROM, developed at the Texas Transportation Institute (TTI), is a new feature of an existing course. It was originally envisioned as a substitute for classroom training but has turned out to have multiple applications. TxDOT districts received the first release of the CD in May 2002.

“Rehabilitation of flexible pavement is really easy—if you know what’s causing the problem. Unfortunately, determining the cause of problems is often complex,” explains Andrew Wimsatt, TxDOT project director and district pavement engineer in the Fort Worth District.

Knowing which field tests to request and correctly analyzing collected data are keys to effective pavement management. The flexible pavement rehabilitation course focuses on tools and strategies that help engineers identify underlying causes of flexible pavement distress, and it looks at some of the equipment used for field tests. The course covers the use of dynamic cone penetrometers, falling weight deflectometers and ground-penetrating radar (GPR) techniques. Students get hands-on training in using software packages to process data from problem pavements. Programs included in the training are COLORMAP for processing radar data, MODULUS 5.1 for FWD data analysis, and FPS19 software for layer thickness design.

“We are finding that the CD serves as a content refresher for students after they take the course and as a general reference tool,” says Wimsatt, “In addition, district pavement engineers and others will be able to use it as a resource to teach the course when and where it’s needed.” The CD can be used in classroom settings and on an individual basis.

Wimsatt and Tom Scullion, research engineer at TTI, developed the CD in cooperation with TTI’s Information & Technology Exchange Center (ITEC). The course curriculum reflects TTI’s extensive research in the area of flexible pavement rehabilitation. Research at TTI has been instrumental in developing use of GPR in diagnosing pavement problems, and TTI is an internationally recognized leader in



Tom Scullion assists TxDOT employees attending the pavement rehabilitation training course.

pavement engineering. TTI also developed the COLORMAP, MODULUS and FPS19 software programs covered in the course through previous TxDOT-funded projects.

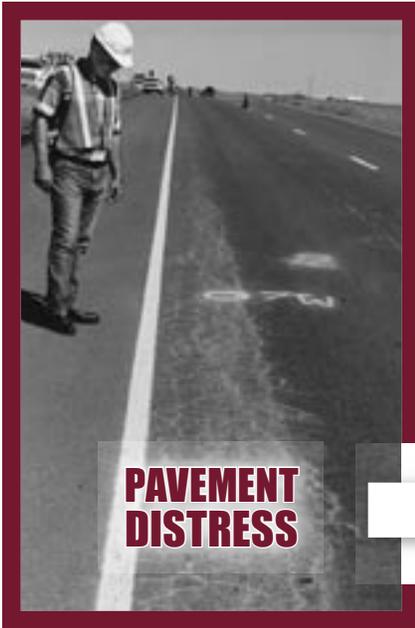
“The pavement rehabilitation class has been taught 6 times in Texas. The CD was based on the early classes taught in Austin, Fort Worth and Wichita Falls, and it has been used extensively in the latest classes held in Odessa, Lubbock and Houston,” says Scullion, who teaches the classroom course that uses the new CD in combination with field data from local pavement projects. “The CD helps demonstrate equipment and provides guidelines on how to process data with each of the software packages. Each student receives a copy for later use. The class and the CD have received very positive reactions.”

Each class includes discussion and analysis of real-world projects. In the Lubbock class, for example, the group looked at data from three troublesome pavement sections that were experiencing premature performance problems in terms of rutting and cracking. The work in the class gave students the chance to pull together information on their toughest rehabilitation problems, diagnose them and come up with solutions.

“Overall response has been excellent. Based on the feedback we’ve gotten, we’re considering producing a similar CD on concrete pavement rehabilitation. Although computerized instruction can’t replace one-on-one training, I think we’ll continue to find new ways to use an educational tool like this one,” says Wimsatt. **R**

For more information, contact Tom Scullion at (979) 845-9913 or t-scullion@tamu.edu

Diagnosing Pavement Problems



Resurface the pavement.

Is there a performance problem?

Field testing
(radar, FWD, DCP)

Newer pavement Older pavement



Rehabilitate the pavement.

Former TTI students set a standard of **EXCELLENCE**



Janice Daniel, Ph.D.
New Jersey Institute of Technology
Assistant Professor

I was a graduate research assistant working with Dr. Daniel Fambro. I worked on two projects—one looked at signal priority for light rail transit and the other dealt with modifications to the signalized intersection delay model in the *Highway Capacity Manual*.

Since leaving TTI, I have compared it to every place that I've worked. There was a sense of excellence at the Institute that few research organizations, I believe, can live up to. As a result, working at TTI was a great start for my career. I learned through my research projects how to do research. One of the most positive aspects about working for TTI was the people. It really is a small transportation community, and TTI is a big part of that small community. So I can't go to a conference or work on any national committees without meeting someone connected to TTI in some way.



Chuck Fuhs
Parsons Brinckerhoff
Assistant Vice President

I started in 1972 as research assistant working on a downtown goods distribution study for the City of Dallas. The most enjoyable research job I performed was helping the Texas Highway Department become the Texas Department of Highways and Public Transportation by offering public transportation training support to urban district engineers—a unique opportunity to learn, teach and get to personally know such visionary folks as Raymond Stotzer and William V. “Bill” Ward.

I gained a sense of career direction fostered by some of the best mentoring anywhere. The research opportunity that probably did more to change my career than anything was supporting the City of Houston in evaluating and planning the state's first HOV lane on IH 45 (North Freeway) in 1978. I subsequently left TTI to follow this project through implementation and ended up planning and building more nationwide HOV projects than I can count.



Debbie Burdette
City of Glendale, Arizona
Associate Traffic Engineer

As a Civil Engineering graduate student at Texas A&M, I worked at TTI as a research assistant in the TransLink Research Center investigating the information needs of departing air travelers for the development of an advanced traveler information system aimed at air passengers.

Working at TTI demonstrated to me the importance and value of sound engineering research and taught me how to effectively present the results. Gaining the support of peers, supervisors, residents and elected officials depends on my ability to show, through research and clear communication, the outcome or possible outcome of city policies, programs and projects.

Mentors program completes 12th year

This summer, the 2002 Mentors Program, sponsored by the Texas Transportation Institute (TTI) and Texas A&M University's Civil Engineering Department, completed its 12th year of partnering graduate engineering students at Texas A&M University (TAMU) with top-level transportation professionals.

Also, it was the third year of participation by state department of transportation (DOT) employees.

The Mentors Program operates as part of the university's transportation engineering course entitled "Advanced Surface Transportation Systems." It is funded by the Advanced Institute in Transportation Systems Operations and Management through the Southwest Region University Transportation Center (SWUTC), at the Texas Transportation Institute.

The course and the Mentors Program are directed by Conrad Dudek, professor of civil engineering and associate director of the SWUTC. "Participating in the program really accelerates the student's and state employee's professional development," says Dudek. "Because early in a person's career they have the opportunity to interact with top-level professionals in transportation."

Serving as mentors to the students and state DOT employees each year are six recognized experts in the fields of traffic operations, traffic management and intelligent transportation systems (ITS).

"I feel very strongly that one of the things missing in many educational programs is the opportunity for students to hear how it is in the real world from the practitioners," says David Roper, who was among the first mentors in 1990. "The Mentors Program brings the students and practitioners together not only in a university setting, but also in a less formal setting, like having meals together and working on the student's project."

"I wouldn't hesitate to call one of them if I ran across a professional problem I thought they could help with," says Steven Schrock, a program participant in 2001. "With the mentors, the state employees, the grad students and Dr. Dudek, there was a full spectrum of experience that we could draw on."

Each year, the program begins with a three-day session on TAMU's main campus and continues through the summer as participants work on selected transportation top-



*first row, (L-R): Conrad Dudek, Eric Salazar, Carissa Mardiros, Anna Griffin
second row, (L-R): Jim Mahugh, Ding Xin Cheng, Zong Tian, Norman Hogue, Jennifer Livingston
third row, (L-R): Carlos Ibarra, Shiva Shrestha, Joel Meena, James Wright
fourth row, (L-R): Gary K. Trietsch, Wayne Shackelford, Walter Kraft, Jack Kay, Thomas Werner*

ics. The participants work with the mentors and class instructor to research and develop their ideas into papers and presentations.

Near the end of the summer academic session, mentors and DOT employees return to the campus for formal presentations of the papers by the participants. Final papers are compiled and published in a compendium. Many students have had papers accepted for presentations at professional national and international meetings.

The graduate students and state DOT employees participating in the program were:

- Anna Griffin
- Norman Hogue
- Ding Xin Cheng
- Carissa Mardiros
- Zong Tian
- Joel Meena
- Jim Mahugh
- Jennifer Livingston
- Carlos Ibarra
- Shiva Shrestha
- Eric Salazar

"The atmosphere of this program along with the outlined steps every day lends itself greatly to learning and sharing," says Teresa Krenning, Transportation Operation Center manager with the Missouri DOT and a former state DOT participant. "Each participant adds something valuable to the experience. With the assis-

tance of the mentors and all of the resources at Texas A&M and TTI, I was able to research and develop a paper that can be used and incorporated into Missouri DOT daily practices. The program is truly a wonderful contribution to the success of ITS across the country." **R**

Thanks to former mentors 1990-2001

Marsha Anderson Bomar
Donald G. Capelle
Walter M. Dunn, Jr.
Ginger Gherardi
Thomas Hicks
Patrick L. Irwin
Leslie N. Jacobson
Randall A. Keir
Wayne K. Kittleson
Joseph K. Lam
Joseph M. McDermott
Colin A. Rayman
H. Douglas Robertson
David H. Roper
Edwin Rowe
William M. Spreitzer
Carol A. Zimmerman

For more information, contact
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or c-dudek@tamu.edu

Mentor Perspectives



Jack L. Kay, former chief executive officer and chairman of JHK and Associates and executive transportation advisor to the transportation sector of Science Applications International Corporation.

"When I visit Texas A&M to serve as a mentor, I see participants with intellect and enthusiasm and a willingness to take on the demanding challenge that the Mentors Program presents. They also seem to enjoy themselves and are willing to spend even the little free time they have simply chatting about the work they are doing. I am happy to be with them because it validates my own love of the profession, but more importantly convinces me that some of the 'brightest and the best' are coming forward to tackle the challenges ahead."



Walter H. Kraft, employed by Parsons Brinckerhoff, where he is president of PB Farradyne Engineering, P.C.; senior vice president of PB Farradyne Inc.; director of PB Farradyne Inc.; and vice president of Parsons Brinckerhoff, Quayde and Douglas, Inc.

"I feel that the Mentors Program is the premier transportation course in the world. Our universities and colleges are excellent at teaching theory and partially preparing a student to enter the work force. After graduation, students still need to go through an informal apprentice course to learn how to apply theory to practice. The Mentors Programs allows the student to apply theory in a practical sense while still in the academic environment. It's an exceptional course; keep it going."



Wayne Shackelford, senior vice president of Gresham Smith and Partners. Former commissioner of the Georgia DOT, president of the American Association of State Highway and Transportation Officials, and chairman of the Executive Committee of Transportation Research Board.

"Being involved in the Mentors Program is paying my civic rent. When you've had the privilege of being in this business for many years, you come to appreciate this mentoring program and the man who guides it. To have the opportunity to sit with the other mentors and such upwardly mobile graduate students here at Texas A&M, and those sharp young men and women from the state departments of transportation...it's an invigorating experience and an opportunity to stay current on transportation issues."



Gary K. Trietsch, district engineer for the Houston District of the Texas Department of Transportation, and founding president of Intelligent Transportation Systems of Texas.

"I think this is probably the best transportation engineering course taught in the U.S.! It helps engineers to improve their communication skills, both verbal and written, which all engineers need. It brings the students in contact with some of the premier professionals in this field, both public and private sector. The students are also exposed to experiences and ideas from the real world that may even surprise some of them. And finally, it creates self discipline for these students."



Thomas C. Werner, regional director for the New York State Department of Transportation's eight-county Capital District region.

"The Texas A&M Mentors Program is a unique opportunity for students to learn from one of the leading university engineering programs in the country. The students have the opportunity to be mentored by accomplished transportation professionals/practitioners and forge a most rewarding one-on-one learning relationship. The relationship is two-way and a source of renewal for both student and mentor. Both are richer for the experience and opportunity to strike a professional relationship over a lifetime. I personally have been fortunate to be invited as a participating mentor for four sessions and have had the opportunity to engage in a new and rewarding experience with each successive session."



James Wright, division ITS engineer for the Minnesota Department of Transportation's Metropolitan Division.

"The students and state DOT employees are benefited because they get to interact with high level executives from the transportation industry. I think that's very important. You don't frequently get a chance to work with the top people in such an intimate environment when you're starting with an organization. I think it's very helpful for the students to get that comfort level with executives. It's very helpful to them to understand the kind of questions that the executives ask them about their presentations and about their papers."



(L-R): Jonathan Tydlacka, Jeff Miles, Justin Winn, Matthew Feil, Kit Black, Scott Abraham

TTI supports civil engineering undergraduate fellows

Six civil engineering students are participating in the Undergraduate Fellows Program this summer. The 10-week program is sponsored by the Texas Transportation Institute (TTI), the Advanced Institute Program, the Southwest Region University Transportation Center (SWUTC) and the Department of Civil Engineering.

The Undergraduate Fellows Program began in 1990 and was originally coordinated by Dan Fambro. Dr. Fambro was research engineer at TTI as well as professor and associate department head in TAMU's Department of Civil Engineering before his death in 1999. This program was one of many legacies that he left to the profession.

The purpose of the Fellows Program is to introduce transportation to upper-level engineering students and provide them with a research/work experience. Students have the opportunity to work with TTI researchers and gain exposure to many different areas of transportation research.

Jeff Miles, a senior civil engineering student at Texas A&M and Undergraduate Fellow participant, worked with TTI researcher Bill Eisele on a project that involved a crash analysis on the Texas corridor for installation of raised medians.

"The actual practical experience you get out of looking at a problem from a research perspective is one of the best features of the program," said Miles. "We research a real life problem in great detail, as opposed to a classroom where we might just touch on a subject."

Shawn Turner, assistant research engineer with TTI, is coordinating the program with Dr. Conrad Dudek, professor of Civil Engineering and associate director of SWUTC. Turner, who came to College Station as an Undergraduate Fellow while attending Pennsylvania

State University, is an example of how the program can provide a head start on the future.

"The Undergraduate Fellows Program helped me to develop an interest in a specific area of transportation," says Turner. "Because of the size of TTI, the number of students participating, and the kinds of projects they were doing, I was exposed to a variety of different projects I could get involved in. The project I worked on that summer was something that really interested me, and I'm still focusing on the same area of research 11 years later."

Although the students concentrate on one area of research based on their interests, they have the opportunity to interact with other students. "One of the things I'm trying to do as a coordinator is get the students to interact more and talk to each other about their projects and what they're doing," says Turner.

Since the program's beginning in 1990, students from over 26 universities have participated. "We would like to continue getting some of the best students from around the country involved in the program and interested in attending graduate school at Texas A&M." 

For more information, contact
Shawn Turner at (979) 845-8829 or
shawn-turner@tamu.edu, or
Conrad Dudek at (979) 845-1727 or
c-dudek@tamu.edu

Undergraduate student wins award for transportation research

Jonathan Tydlacka, a senior civil engineering student and Texas Transportation Institute (TTI) employee, recently finished in first place during the Texas A&M University Undergraduate Research Fellows Program Research Week that was held last March. Tydlacka's project, "Analysis of Improvements in System Efficiency and Safety at Highway-Pedestrian-Railroad Grade Crossings," was sponsored by TransLink.

Laurence R. Rilett, an associate research engineer with TTI and the E.B. Snead II Associate Professor of Civil Engineering, advised Tydlacka throughout his project. This was Rilett's first time to participate in the program, and he says it was a rewarding experience.

"I always enjoy working with undergraduates," says Rilett. "We met and discussed different research opportunities at TTI that would fit the goals of the University Undergraduate Research Fellows Program. Then we came up with a research plan and Jonathan wrote the proposal and successfully completed the work."

The objective of the project was to address the safety concerns that exist at highway-railroad intersections where pedestrians, motor vehicles and trains all interact. For his test bed, Tydlacka chose the "Wellborn Corridor," a section of Wellborn Road in College Station from Old Main Drive to Holleman Drive.

To gather data for his project, such as vehicle volume, turning movements and intersection distance measuring, Tydlacka used several different resources such as existing TTI data and manual traffic counts. Tydlacka then constructed the test section using VISSIM, a simulation tool that could effectively simulate each part of the system.

"Before I began the project, I had to learn the simulation program VISSIM," says Tydlacka. "And that took a while to get used to creating the different parts of the model in the program. My goal was to model the Wellborn Corridor and illustrate the train operations for the purpose of trying to improve safety and efficiency."

Tydlacka is currently finishing up his project and will receive three credit hours and invaluable research experience for his ef-



Jonathan Tydlacka, senior civil engineering student, and Larry Rilett, associate professor of civil engineering at Texas A&M University

orts. Having the opportunity to work with an experienced transportation professional not only reinforced Tydlacka's interest in a career in transportation, but also helped him to solve typical problems that researchers encounter.

"I encountered several obstacles during the project, such as using the TTI distance measuring instrument car for measuring exact distances and securing permission to observe the intersections," says Tydlacka. "And then learning to work with the program, especially the traffic signal logic, was a challenge."

Tydlacka will graduate from Texas A&M in December. He then plans on attending graduate school and pursuing a career in the field of transportation.

"Jonathan was very much a self starter," says Rilett. "He would often identify problems and solve them before we had a chance to meet. He really did an outstanding job on his research." 

For more information, contact **Larry Rilett** at (979) 845-9880 or rilett@tamu.edu

Texas Summer Transportation Institute

Shaping Today's Students, Building Tomorrow's Promise

Who will help us build and operate the transportation system of the future?

This is the question many transportation professionals are asking today. A disturbing trend has surfaced in the transportation industry—fewer young people are going into the field.

“By addressing this projected shortfall in transportation professionals, we’ll help ensure that the talent base we need to build and operate tomorrow’s transportation system is in place and well trained,” says Herb Richardson, director of the Texas Transportation Institute (TTI).

Since 1999, the Texas Summer Transportation Institute (TSTI) program has recruited primarily minority high school students to help them find a career direction. The program’s secondary goal addresses the need for transportation professionals in the future.

“By reaching out to students at the high school level, we take advantage of a natural interest in transportation,” explains Naomi Lede, director of the TSTI program. “At that age students are fascinated with their new driving privileges, and that helps generate interest in what we have to teach them.”

With a grant from the Federal Highway Administration (FHWA) and matching funds from the public/private sectors, TTI sponsors two-week institutes in Houston, San Antonio and Dallas. Students receive training in math, science and technology in all modes of transportation. By showing students what transportation means to the country, TSTI instills in them a sense of mission and responsibility toward their own career choices.

“We know this is new information for students,” says Debbie Jasek, TSTI’s program coordinator with TTI. “And we do our best to reach them on their own terms. We want to make this experience both memorable and fun for them.”

Activities include:

- tours of transportation facilities, including airports and transit agencies such as Dallas Area Rapid Transit (DART);
- presentations on various aspects of the transportation industry and its initiatives, such as Operation Lifesaver; and
 - interactive exercises, such as visits to the U.S. Air Force and Coast Guard.



Students tour TTI's proving grounds to view crash tests and see how safety features are built into the roadside.



The Honorable Michael Williams, chairman of the Texas Railroad Commission, spoke at this year's commencement about the importance of education and how energy impacts the future of transportation.

Through tours of transportation facilities and industries, students are taught about the private/public partnerships that make transportation work. They learn how vital the transportation system is to the economic well-being of the country and how significant transportation is during national emergencies.

"I never knew there were so many different jobs in transportation," says Shawntica Taylor, class of 2003.

Led by TTI, Palo Alto College (San Antonio), Prairie View A&M University, Texas Southern University (Houston), and Paul Quinn College (Dallas) have provided strategic direction and operational support for TSTI.

In addition, a number of private- and public-sector sponsors help make TSTI possible. Some, like Southwest Airlines, take a personal role by offering tours of facilities and bringing students face-to-face with transportation technology. For example, students tour TTI's proving grounds to view crash tests and see how safety features are built into the roadside. They learn things they've taken for granted as



TSTI students visited the TransLink laboratory at TTI.



Students visit the U.S. Coast Guard and participate in interactive exercises.

"passing scenery," like guardrails, are actually working to keep them alive.

"I've learned what it takes to create convenient, safe roadways," observes Daniel Oakes, Class of 2004.

Corporate sponsors, like DeShazo, Tang & Associates, Inc., provide in-kind support. Others, like the Southwest Region University Transportation Center (SWUTC), provide direct financial support for marketing products, like the web site at <http://tsti.tamu.edu>. These products promote TSTI to students, parents and high school counselors.

In addition to private- and public-sector sponsors, individuals take a personal interest in TSTI. For example, the Honorable Michael Williams, chairman of the Texas Railroad Commission, spoke at this year's commencement about the importance of education and how energy impacts the future of transportation.

During the program's first three years, 124 students participated. A little over 56 percent have graduated from high school, with the remaining still in school. All the graduates entered college, with a majority aiming to pursue careers in mathematics, science, business, technology and transportation engineering. Some of these students have entered the Texas A&M University engineering program, several are pursuing careers in aviation, and about 10 percent have passed exams to become licensed pilots and air traffic controllers.

Jonathan Garza, a student in Houston, credits the support of his parents and the TSTI program with helping him to realize the importance of education to his future. He now holds a private pilot's license and is a Presidential Scholar. Garza has returned to mentor students currently participating in the TSTI program.

"The TSTI program is truly a great opportunity for any student, especially one who is looking for a career in transportation," says Garza. "I have decided because of TSTI that I will attend the Airway Science Program at Texas Southern University."

TSTI has won several prestigious awards from the FHWA and has twice received the "Partnering Award" for "building concrete bridges with high schools and other institutions that lead to future challenging transportation careers." TSTI received additional awards for "ex-

cellence in Marketing and Recruitment of diverse and high-achieving students" and for "outstanding support for building linkages to the public/private sector."

Transportation officials from both the private and public sectors have taken notice of TSTI's success and applaud it.

"What TSTI does is to help encourage kids to appreciate the importance of the transportation system to the country," explains Marvin Poole, manager of the Dallas Executive Airport. "That encouragement leads to interest, and that interest leads to careers. The economic security of the United States depends on forward-thinking programs like this one." R

To find out more about TSTI, please visit the web site at <http://tsti.tamu.edu> or contact **Debbie Jasek** at 979-845-5239 or d-jasek@tamu.edu.

Transportation science fair produces unexpected collaboration

On April 11, 2002, the Texas Transportation Institute (TTI) Center for Professional Development, in cooperation with the Southwest Region University Transportation Center (SWUTC), hosted a transportation science fair on the Texas A&M University campus. “The idea behind the science fair was to provide outstanding junior high and high school students an opportunity to present transportation-related research findings and ideas in a professional arena,” says assistant research specialist and lead researcher on the project Debbie Jasek.

Winning entries were from Conroe Academy of Science (senior division) and Jane Long Middle School (junior division). The Conroe Academy of Science team designed an airport at sea. The airport included a transit tunnel to the shoreline and an artificial reef to reduce wave action. Terry Anderson had the winning entry from Jane Long Middle School. His project focused on bicycle safety.

As a result of the success of and interest created by the Transportation Fair, the Texas A&M University College of Science, which has sponsored the Regional Brazos Valley Science and Engineering Fair (BVSEF) for the past 27 years, agreed to collaborate with SWUTC and TTI to encourage transportation-related science fair entries. BVSEF promotes original research and experimentation in the sciences, engineering and mathematics at the secondary school level (grades 7-12) and publicly recognizes students for outstanding achievement.

This year, the first collaborative efforts have resulted in the establishment of a special TTI-sponsored, BVSEF transportation-related project award—given at both the high school and junior high levels. The high school award went to Colby Samford and Eric Clapp of North Zulch High School. Colby and Eric, both 9th graders, built a boat that can pull up to 200 pounds of dead weight for 300 feet. The junior high school award went to Kenny Bendickson of College Station Middle School for a project on the “Effects of Lane Configuration on Traffic Flow.”

“These awards are very important,” explains Debbie Jasek. “The effort can be carried on for years to come at minimal cost. Additionally, it promotes transportation science right up there with meteorology, physics and all the other sciences.” Each year 30-40 schools are involved in this regional fair. Winners go on to state and national events.

The College of Science has also agreed that SWUTC can participate in all of their other sponsored events. BVSEF literature in the future will also encourage students to create transportation-oriented projects. This newly established collaborative relationship will enable TTI and SWUTC to promote transportation science by providing speakers, information, judges and tours of its transportation research facilities. **R**



The Conroe Team (Megan Schultz, Justin Kooker, and Brian Sims)



Terry Anderson had the winning entry from Jane Long Middle School. His project focused on bicycle safety.

For more information, contact **Debbie Jasek** at (979) 845-5239 or d-jasek@tamu.edu.

TTI takes transportation to the schools

An educational program aimed at showing high school students career options in the field of transportation is hitting the road. The transportation road show library, housed in the Center for Professional Development at the Texas Transportation Institute (TTI), provides teaching materials about various forms of transportation to high school teachers.

“A lot of students are not aware of all the different job opportunities available in the field of transportation,” says Susan Larson, math specialist with the Texas Rural Systemic Initiative. “By introducing students to these opportunities, TTI gives them better insight into what they can pursue for future careers.”

Larson visits rural school districts and has introduced the transportation library to many schools in the area. “A lot of the teachers tell me that when they teach the topics, the students are just amazed at how often transportation affects our lives.”

The Southwest Region University Transportation Center (SWUTC) provides the funding to develop the presentations and purchase items. Other sponsors such as the Texas Department of Transportation donate many of the other items in the library.

The library is currently working toward constructing self-contained teaching modules. The modules cover transportation-related topics such as trucks, bridges and space exploration. Included as components of the modules are PowerPoint presentations, videotapes, activities, brochures and a listing of interactive web sites.

“If a teacher calls us and wants to do a presentation on trucks, then our goal is to provide them a list of resources that we have available for them,” says Debbie Jasek, coordinator of the library. “Then they can use a combination of components depending on their needs.”

The modules are patterned after the “modeling” approach of educating. Modeling is a method of teaching that uses visual and interactive techniques. For example, modeling can be used to illustrate the many uses of algebra in everyday life. Modeling is an effective means of communicating to students the numerous practical applications of math and science in the different forms of transportation careers.

Another function of the library is to provide transportation professionals quality materials when they talk to students in classes or career fairs. By having the materials organized in a one-stop clearinghouse, researchers can easily identify the resources they need for their presentations.



Debbie Jasek (R) and Susan Larson (L), Regional Math Specialist for TRSI who has acted as a mentor in a number of SWUTC projects including the Transportation Science Fair, the Transportation Road Show and Library, and the Career Guide for Nontraditional Students.

Jasek believes that the TTI road show library is a great resource for transportation professionals and especially for students. “We want to answer the questions, ‘what do engineers do...what do transportation professionals do?’ And hopefully some of them will decide that this would be a neat thing to do as a career!” **R**

Partnership with the Texas Rural Systemic Initiative

The Center for Professional Development at TTI formed an informal working partnership with the Texas Rural Systemic Initiative (TRSI) in early 2000.

TRSI is a systemic reform project that works with participating school districts in eligible Texas counties to improve the mathematics and science performance of all students. TRSI is an effort developed by the Texas Engineering Experiment Station, built on the infrastructure of The Texas A&M University System and led by West Texas A&M University. Partners include K-12 school districts, universities, education service centers, the Texas Education Agency, Texas Statewide Systemic Initiative, and other stakeholders in mathematics and science education.

The partnership between Center for Professional Development and TRSI has led to a number of collaborative efforts that have allowed Center efforts to reach teachers in economically disadvantaged, rural Texas counties and provide assistance and outreach. TTI has participated in workshops at the TRSI annual conference, assisted in math modeling activities, and hosted tours of TRSI students. Through partnering with TRSI, the Center now has contacts with math and science teachers who can provide feedback on the effectiveness of outreach efforts. **R**

For more information, contact Debbie Jasek at (979) 845-5239 or djasek@tamu.edu

CHRISTIANSSEN ELECTED PRESIDENT OF CUTC



The Council of University Transportation Centers (CUTC) elected Dr. Dennis Christiansen, deputy director of the Texas Transportation Institute (TTI), president at its June meeting. He succeeds Dr. Paul Toussaint, director of the Kentucky Transportation Center. Christiansen previously served as treasurer, secretary and vice-president of CUTC.

Established in 1979, CUTC is a not-for-profit corporation that strives to promote a continued dialogue among its member institutions, which consist of over 60 of the nation's leading university-based transportation research and education programs.

TTI was one of the original six founding organizations, and TTI's long-time director Dr. Charley Wootan played a primary role in the creation of CUTC, serving as both its initial president and again as president in 1991. Over the last 23 years, CUTC members have advanced the state-of-the-art in all modes and disciplines of transportation, making significant and lasting contributions to the nation's mobility, economy and defense.

TTI RESEARCHERS RECEIVE TexITE HONORS

Jim Carvell, program manager in the Dallas Office, was elected by the Texas District of the Institute of Transportation Engineers (TexITE) to serve as an international director on the board of the institute. Jim will serve a 3-year term on the board, which consists of the officers and district directors from eight geographic districts around the world. Jim's many years of service to TexITE and the profession will be of great benefit to the district and international ITE during his service on the board.

Marc Jacobson, assistant research engineer in the San Antonio office, was recognized by TexITE with the distinguished service award. This award recognized Marc's outstanding contribution to the TexITE website, found at www.texite.org. TexITE's website, developed almost single-handedly by Marc, is an excellent example of how a professional organization can serve its membership. Marc has worked with many people in TexITE to provide a well-integrated and useful website.

Jason Crawford was named TexITE Younger Member of the Year at its recent meeting in Houston. Jason was cited for his leadership of the TexITE Younger Members Committee and for his efforts in starting a Fort Worth section of TexITE, of which he currently serves as president.

Grant Schultz received two awards at TexITE—Outstanding Student from the TAMU Student Chapter of ITE and Outstanding Student Paper Award for the summer meeting.

TTI WELCOMES NEW DIRECTOR FOR THE CENTER FOR PORTS AND WATERWAYS



Jim Kruse became the newly appointed director of the Center for Ports and Waterways (CPW) for the Texas Transportation Institute (TTI) on September 1. His role will also engage him as a national sea grant ports and harbor specialist for the Texas Sea Grant College program at Texas A&M University.

"Jim's mixture of personal and professional skills will help move the research program of the Center for Ports and Waterways forward," said Steve Roop, head of Multi-modal Freight Transportation Research at TTI.

"My goal is to develop a reputation as a 'go to' organization for individuals in port administration and maritime activities that are facing difficult and complex issues affecting their ability to compete and survive," Kruse said.

Kruse has numerous career accomplishments in the area of maritime transportation. Most recently, as the regional program manager at Foster Wheeler Environmental Corporation, he was responsible for acquiring nearly \$2.5 million of project work covering port-related activities in the areas of design, permitting, construction oversight and research.

Previous to his leadership role at Foster Wheeler, Kruse served as the port director and general manager at the Port of Brownsville, Texas. He has also served on numerous national, state and local boards and task forces.

TTI hosts summer visitors



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1. Candidate for the 31st Congressional District, John Carter, visited TTI. Seated across from Carter is Howard Graves, chancellor of The Texas A&M University System.

2. John Carter (C) with Chancellor Howard Graves (R) and TTI Deputy Director Dennis Christiansen.

3. State Representative Bill Callegari spent a day with TTI staff discussing transportation issues. Shown here visiting the TransLink laboratory seated next to TTI Director Herb Richardson (R).

4. Texas Governor Rick Perry visited TTI to discuss his TransTexas Corridor proposal.

5. Governor Rick Perry in the TransLink laboratory with Kevin Balke, TransLink director.

6. Congressman Kevin Brady (second from right) met with (L-R) Dennis Christiansen, Herb Richardson and Kevin Balke.

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C. Glover, 24 pp., \$ 5.00.

4015-1, "Environmental Streamlining Processes,"

J. Overman, K. Phillips, 124 pp., \$ 20.00.

1858-2, "The Value of Pipelines to the Transportation System of Texas: Year Two Report,"

S. Roop, L. Olson, D. Bierling, J. Warner, 180 pp., \$ 28.00.

4162-1, "Evaluation of Texas Grid-Slot Portable Concrete Barrier System,"

R. Bligh, D. Bullard, W. Menges, B. Butler, 110 pp., \$ 20.00.

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W. Eisele, W. Frawley, G. Schultz, 156 pp., \$ 28.00.

1742-4, "Development of Stirred Air-Flow Test (SAFT) for Improved HMAC Plant Binder Aging Simulation and Studies of Asphalt Air Blowing,"

C. Glover, R. Davison, N. Vassiliev, K. Hausman, S. Williamson, 80 pp., \$ 12.00.

1752-5, "ITS Data Quality Control and the Calculation of Mobility Performance Measures,"

S. Turner, L. Albert, 32 pp., \$ 5.00.

Newly released project summary reports (check them out at <http://tti.tamu.edu/product/index.asp?search=advanced>):

1702-S, "Development of a Prototype High-Frequency Ground-Penetrating Radar System"

1858-S, "The Value of Pipelines to the Transportation System of Texas: Summary Report"

4064-S, "Super 2 Highways: Two-Lane Rural Highways with Passing Lanes"

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THE BACK ROAD



We recognize that a vital part of any research effort is transferring the results and knowledge gained to those who can use it. As transportation technologies have become more complex, the need to maintain the link between research and education—at all levels—has become even more important. One of TTI's great strengths over the years has been the Institute's commitment to helping educate future transportation professionals. Over

TTI's 52 years of existence, more than 4,000 transportation professionals have either earned a degree in transportation and/or worked at TTI during their college years.

In this issue of the *Researcher*, Diane Rath, chair of the Texas Workforce Commission and Joe O'Toole, associate administrator for professional development at Federal Highway Administration, articulate the growing need for a well-educated transportation workforce and how crucial transportation is to our future as a state and nation. Two TTI administrators, Dennis Christiansen and Susan Lancaster, provide perspectives on the linkage between research and education and the importance of education and professional development in achieving the innovations that keep our transportation system the envy of the world.

TTI's commitment to education is more than just providing financial assistance and jobs for undergraduate and graduate students at Texas A&M University. The Institute has a long and proud history of supporting professional development for transportation engineers by co-hosting the Texas Department of Transportation (TxDOT) annual Short Course. This year will mark the 76th such meeting on the campus. TTI also has led the Southwest Region University Transportation Center (SWUTC) for 14 years, in partnership with The University of Texas (UT) - Austin and Texas Southern University (TSU). In addition to a broad-based research program, the Center also emphasizes workforce development through its Advanced Institutes, which are integrated into academic departments at Texas A&M and UT-Austin.

The Institute's longstanding commitment to diversity has been strengthened by our Center for Professional Development and our Texas Summer Transportation Institute (TSTI), which introduces junior high and high school students to the many career opportunities in transportation. Led by Naomi Lede and Debbie Jasek of TTI, TSTI programs are directed primarily at students in minority schools. We have several partners in this important workforce/education effort including colleagues at TSU and Paul Quinn College in Dallas.

I hope that this issue will help you appreciate, as we do, the importance of educating the next generation of transportation professionals and ensuring that they have both the technological knowledge and the broader education so crucial to their success.

We appreciate your interest in TTI and hope you'll call on us if we can be of service.

Researcher

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