

TEXAS TRANSPORTATION Researcher

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Increased tourism in Texas will make the continued growth and maintenance of the state's rural transportation system of vital importance.

The rural network in Texas

TTI assesses growth and needs for the future

It's been a long time since farmers and ranchers made weekly trips to town. In the early 1900s, getting folks out of the mud was the major focus of transportation in rural areas. The twentieth century saw enormous growth of the country's population and transportation system. Responding to the overwhelming transportation needs in major urban areas has been a priority in many states, including Texas.

However, rural roads in Texas will see much more trade and truck traffic, along with a growing commuter population that wants to live in the country and drive into the city for work. Tourism, recreation, retirement living and high technology industries are also contributing to the development of rural communities across Texas. In fact, many rural areas experienced population increases between 1990 and 2000.

Freeways, roadways, public transit services, intercity buses, airports, and railroads are all

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Fond farewells: McCasland, Greer, Schlieker retire

Three long-time employees, with a total of 119 years of service, said goodbye to the Texas Transportation Institute (TTI) in August. Retirement receptions for the three featured tributes from Dr. Richardson, administrators, division heads, colleagues and friends. William R. "Dick" McCasland, Traffic Operations Division Head, retired after 44 years of traffic and freeway research and implementation. After 40 and 35 years of service, respectively, Gene Schlieker and Sidney Greer, Electronics Technicians

from the Materials & Pavements Division, retired with decades of laboratory testing experience in aggregates, concrete and asphalt cement.

Dr. Richardson told Dick that his retirement was, "truly a bittersweet occasion; bitter for us and sweet for you. We will miss your expertise, calm approach to your work, and

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At his reception, Dick was presented with a "golf-cane" for retirement.



New project reviews rural rail districts

A Texas Transportation Institute (TTI) project that began in September 2000 focuses on rural rail transportation districts (RRTDs) and will produce a guidebook to help existing and future districts succeed in preserving rail service to rural areas. The Texas Department of Transportation (TxDOT) is sponsoring the project, which will survey RRTDs to discover success stories and best practices.

"Because many major rail companies abandoned or spun off low-profit rural rail operations in the 1960s and '70s, the Texas legislature passed laws that allowed counties to form governmental organizations dedicated to preserving rural rail service," says TTI researcher Curtis Morgan. These RRTDs continue to form as rural areas encounter new rail transportation needs and seek to maintain preservation of short-line service. The current project will review the history of these organizations to discover what caused successful ones to thrive and unsuccessful ones to fail.

"Some of these organizations have been very successful and others have not. This study will look back over the past 20 years since legislation has been in place," comments Morgan. "We'll produce a guidebook so that there's something written down about what works. It will help districts avoid some of the pitfalls detrimental to past organizations."

This best-practices guidebook will serve as a blueprint to help existing and future RRTDs achieve their goals to preserve rail service in rural areas. In addition to the guidebook, the project expects to produce a report documenting activities and GIS mapping of current districts.

For more information, contact **Curtis Morgan** at (979) 458-1683, or c-morgan@ttimail.tamu.edu.

Rural transportation in Texas

—continued from cover

critical to maintaining and enhancing this growth. A number of research projects are focusing on better defining the unique rural transportation needs in the state and identifying innovative approaches for addressing these critical issues. A recent study conducted by the Texas Transportation Institute (TTI) for the Texas Department of Transportation (TxDOT) examined the various components of the rural transportation network.

"Our research confirms the need for an effective multimodal and intermodal rural transportation system," says TTI Associate Director Katherine Turnbull. "While the individual modes are critical in rural areas, moving people and goods efficiently depends on multiple modes working together."

These conclusions are based on an assessment of national and state data on the socioeconomic characteristics of rural areas and

the transportation system serving these areas. Researchers also examined historical trends and conducted telephone surveys, interviews and case studies to identify the key attributes of the various modes.

"The reports help raise awareness about rural transportation needs," says Turnbull. "This information should be of use to TxDOT staff, transportation providers, policy makers, and other groups interested in enhancing the rural transportation system."

Researchers found that all the modes play an important role in the economic viability of rural areas, and they all have future needs. Continued growth will depend on an ongoing investment in rural roadways, transit services, railroads and airports. Included here is a brief summary highlighting some key points of each mode's assessment.

For more information, contact **Dr. Katherine F. Turnbull** at (979) 845-6005 or k-turnbull@tamu.edu
Related Publication: TTI Report 1437-S, *The Rural Transportation Network in Texas-Summary Report*.

Plan now to attend:

Texas Rural Transportation Conference

Wednesday, February 21, 2001

**The Bush Presidential
Conference Center
College Station, Texas**

Check the TTI web site for more information:

<http://tti.tamu.edu/conferences>

Keynote Speaker:

**Dr. Melissa Tooley, Director,
Mack-Blackwell National
Rural Transportation Center,
University of Arkansas**

Tentative Topics include:

- **Tourism**
- **Goods Movement (Rail)**
- **Goods Movement (Highway)**

A “snapshot” of Texas’ rural transportation network:



ROADWAYS

The state maintained roadway system in Texas includes interstate highways, frontage roads, U.S. highways, state highways, and farm-to-market roads. These facilities, which comprise 77,145 centerline miles, facilitate the movement of people and goods throughout the state. Add in some 48,500 bridges, 110 rest areas, and 90 picnic spots, and the state system comprises approximately 1.3 million acres. Maintaining these facilities, while adding needed improvements, represents an ongoing challenge.



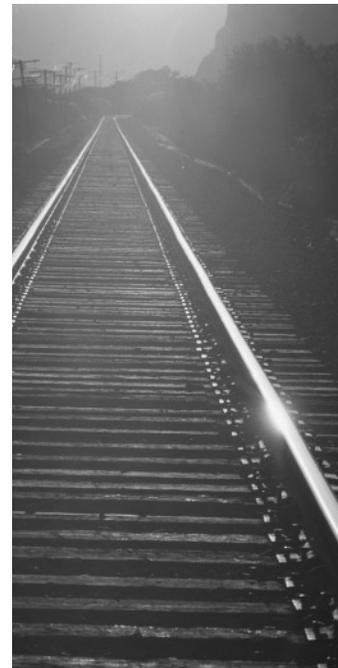
RURAL TRANSIT SYSTEMS

In providing people with access to jobs, education, medical needs, shopping and recreation, the 42 rural transit agencies in the state help maintain the economic health and vitality of small communities and rural areas. In addition, intercity buses link rural communities and connect rural areas with major cities. Private non-profit agencies and other organizations support the travel needs of the elderly and individuals with special needs in rural areas with vehicles purchased through federal and state funding. Although only four counties in Texas are completely without any type of transit service, there are scattered pockets throughout the state where service is lacking and other areas where the supply does not adequately meet the demand.



AVIATION

The 250 general aviation airports in the state play an important role in agricultural, mining and oil and gas industries in Texas. They also support recreation, tourism and industry-related travel. Key elements associated with vibrant general aviation airports include the availability of services such as jet fuel, the presence of on-site personnel, the number of registered aircraft in the county and the development of the facility to general utility or transport standards. Maintaining and improving runways, support facilities and on-site services is critical to the ongoing viability of general aviation airports and the economic vitality of many rural communities.



RAILROADS

Texas is the gateway for rail freight traffic into and out of Mexico, with five of the seven U.S./Mexico rail crossings located in the state. Approximately 70 percent of rail freight traffic into Mexico goes through Texas. In 1997, approximately 6 million carloads were transported by rail into and out of the state, accounting for 277 million tons. Texas is served by three Class I railroads — the Burlington Northern and Santa Fe, Union Pacific and Southern Pacific, and Kansas City Southern — as well as some 44 Class II and Class III railroads. Many of these smaller railroads provide critical links to rural communities. In addition, for lines that might otherwise have been abandoned, the state legislature allows for the creation of Rural Rail Transportation Districts (RRTDs) to purchase existing railroads, develop new rail systems and maintain and operate these services.

Accident Mitigation Guide to help improve safety and operations on rural roads

It's not very often that we encounter a traffic jam on a country road. Recurring rural congestion, however, is an increasing problem in the United States because of bedroom communities, heavy tourism, seasonal residences and special events. And increased traffic means more accidents.

The Texas Transportation Institute (TTI) recently completed a National Cooperative Highway Research Program (NCHRP) study (17-15) in partnership with Midwest Research Institute to provide strategies for accident prevention and reduction of rural congestion. The key product of the study is the *Accident Mitigation Guide for Congested Rural Two-Lane Highways*.

"With limited funding, you can't always construct a four-lane-divided highway to solve a problem," says Kay Fitz-

patrick, the TTI principal investigator of the study. "So in this project, we took a close look at a number of lower-cost measures for improving safety and operations."

Research and experience show that passing lanes, turning lanes, signs and

Approximately 58 percent of the fatal accidents in 1997 occurred on rural roads. Over 75 percent of the fatal accidents that occurred on roads with speed limits of 55 mph or greater were on rural highways.

pavement markings, median treatments, localized alignment improvements, public information and education, and increased enforcement are often cost-effective alternatives to highway widening projects. "Our goal was to provide transportation practitioners with a comprehensive document they can use to select effective countermeasures," says Fitzpatrick.

In the Guide, researchers discussed a detailed six-step accident

mitigation process to help transportation professionals identify and select appropriate countermeasure(s) for a site. The bulk of the guide focuses, however, on description, analysis, and effectiveness of countermeasures that could be used on the roadway, within the roadside, at an intersection, or that would be appropriate for implementation at other-than-a-specific-road locations (for example, public information and education campaigns).

As part of the research project, the team conducted a national survey to identify safety improvements that have been implemented and to identify sites for the evaluation of the effects of congestion on accidents. The Guide includes thirteen examples that present a description of the treatment and details on the installation, along with the effectiveness of the countermeasure.

"During the evaluation of the effects of congestion on accidents, we found that the proportion of fatal and injury accidents increased and the proportion of multiple-vehicle accidents increased as congestion increased," says Fitzpatrick. "The implication from these findings is that at congested two-lane sites, priority should be given to countermeasures with the potential to reduce rear-end and sideswipe collisions—such as intersection turn lanes, two-way left turn lanes, and passing lanes."

Approximately 58 percent of the fatal accidents in 1997 occurred on rural roads. Over 75 percent of the fatal accidents that occurred on roads with speed limits of 55 mph or greater were on rural highways.

The *Accident Mitigation Guide* is a big step toward reducing those numbers. "We conducted the research on a national scale," says Fitzpatrick. "So the guide should be helpful to all state DOTs as they deal with rural accidents and congestion."

For more information, contact **Kay Fitzpatrick** at (979) 845-7321 or k-fitzpatrick@tamu.edu. The *Accident Mitigation Guide for Congested Rural Two-Lane Highways* (NCHRP Report 440) is available from TRB Publication Sales by phone at (202) 334-3213 or via the Internet at <http://www4.nationalacademies.org/trb/homepage.nsf>



The Accident Mitigation Guide contains countermeasures for handling special event congestion in rural areas.

SOFTWARE WILL HELP PRESERVE OUR COUNTRY DRIVES

Too many trucks carrying heavy loads can easily ruin anybody's Sunday drive in the country. The pavement on much of Texas' rural, low-volume, farm-to-market road simply can't hold up to the documented increases in today's truck traffic and load weights. Many were constructed in the 1950s when legal load limits were set based on a gross vehicle weight (GVW) restriction of 58,420 lbs. The Texas Department of Transportation (TxDOT) is aware of the need to adjust the posted load weight restrictions on certain roadways. However, the state has approximately 17,500 miles of load-zoned pavements that need to be monitored, evaluated, and possibly adjusted.

In addition, TxDOT now recognizes (and research has proven) that axle loads are actually more important in setting load limits than gross vehicle weight. The gross load from a vehicle is transmitted through the axle tires to the pavement, so a vehicle that is legally within the GVW may in fact still be damaging the roads due to high axle weight.

Since mass resurfacing of all the low-volume FM roadways to allow for higher load zoning is cost prohibitive, TxDOT is looking for different solutions. Texas Transportation Institute (TTI) Associate Research Engineer Emmanuel Fernando has developed a new software tool to help determine whether roadways need new load restrictions based on axle weight. The program will also determine single and tandem axle load limits as needed.

This new software program is currently being used by the Pavements Section of TxDOT--primarily to determine whether load limits can be removed from an existing route that has undergone recent rehabilitation. According to TxDOT, the districts typically request an evaluation of a given roadway and then assist the pavement section by collecting the necessary data to input into PLZA. Using information about the materials that make up the road, the anticipated traffic, and the desired design period, PLZA implements a methodology

that evaluates the axle weight restrictions in view of GVW restrictions.

According to Fernando, another primary reason to use this design procedure is to help meet the desired design period. "That is, how long do you want this pavement to last once you do rehabilitation on it?" says Fernando. "The pavement may be able to withstand a single load application, but really we are

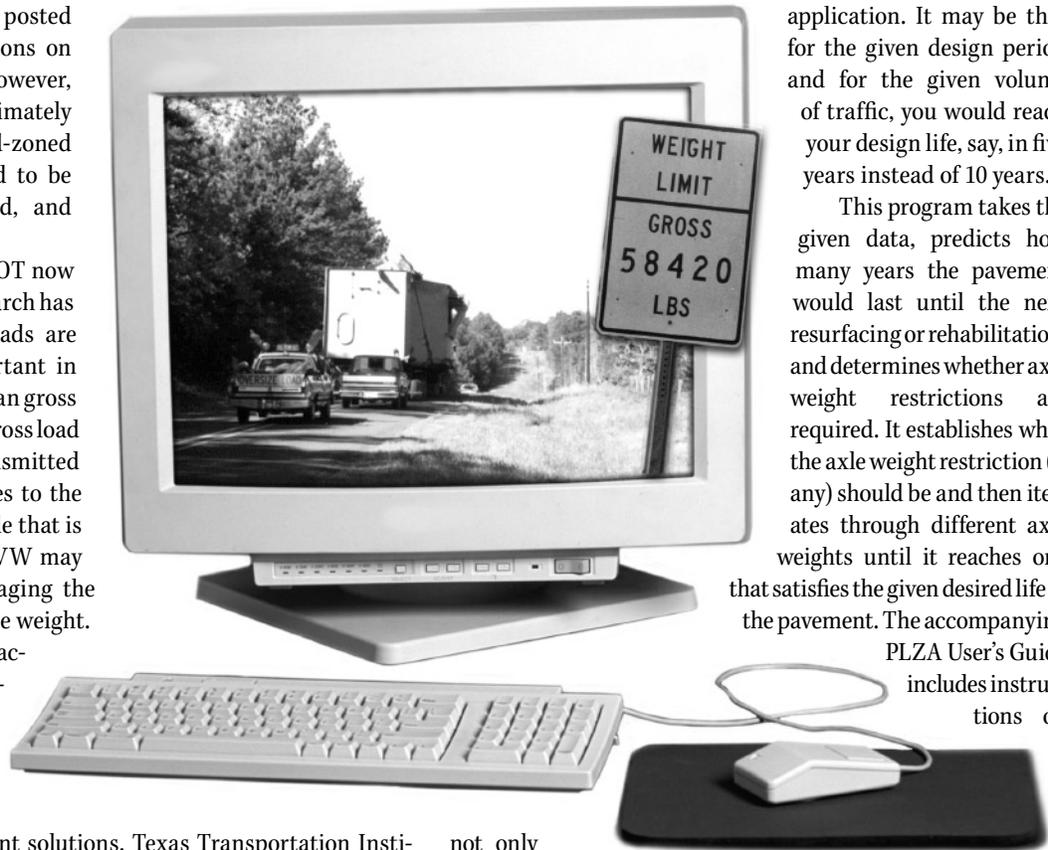
talking about repetitive load application. It may be that for the given design period and for the given volume of traffic, you would reach your design life, say, in five years instead of 10 years."

This program takes the given data, predicts how many years the pavement would last until the next resurfacing or rehabilitation, and determines whether axle weight restrictions are required. It establishes what the axle weight restriction (if any) should be and then iterates through different axle weights until it reaches one that satisfies the given desired life of the pavement. The accompanying

PLZA User's Guide includes instructions on

not only running the program, but also on collecting the input data prior to evaluation.

According to Fernando, the issue of load weights and pavement life affects everybody. "There has to be a way to satisfy both sides--the need to move freight versus the need to preserve the highway infrastructure." With new tools such as PLZA becoming available, the process of improving our roads at lower costs will continue to move forward.



For more information, contact **Emmanuel Fernando** at (979) 845-3641, or e-fernando@tamu.edu.

Related Publication: *Program for Load-Zoning Analysis (PLZA): User's Guide*. TTI Report 2123-1.

Mentors Program extended to include DOT employees

The 2000 Mentors Program, sponsored by the Texas Transportation Institute (TTI) and Texas A&M University's Civil Engineering Department, brought department of transportation (DOT) employees into the program for the first time. State DOT employees from Louisiana, Maryland, Missouri, North Carolina and Virginia joined A&M graduate students in working with mentors to learn more about advanced transportation systems.

"I anticipate interest from state transportation professionals will continue to grow," says Dr. Conrad Dudek, administrator of the program. "The employees received continuing education credits, took on all the same work as our graduate students and put together reports useful to their respective agencies. I'm looking forward to increased state agency involvement in next year's Mentors Program."

The Mentors Program has operated as a part of the university's transportation engineering course entitled "Advanced Surface Transportation Systems" for ten years. It is funded by the Advanced Institute in Transportation Systems Operations and Management through the Southwest Region University Transportation Center (SWUTC), TTI. In this year's program, six top-level transportation professionals from private enterprise and departments of transportation served as mentors to participants from departments of transportation and A&M graduate students. Mentors shared experiences and offered inspiration and guidance.

"Not only did I gain from researching topics of my choice, but I also learned a tremendous amount about ITS [intelligent transportation systems] and traffic operations and management through other presentations and discussions with the mentors," says program participant Christopher McDonald, assistant district traffic engineer for the Virginia Department of Trans-

portation. "My agency gained by me bringing back additional knowledge, contacts and a report I authored on a topic that applies specifically to our state and that can be implemented."

Each year, the program begins with a 1 1/2-day session on Texas A&M University's main campus and continues through the summer as participants work on selected transportation topics. The participants work with the mentors and class instructors to research and develop their ideas into papers and presentations as they learn more about advanced transportation systems.

Near the end of the summer academic session, mentors and DOT employees return to the campus for formal presentations of the papers by participants. Final papers are compiled and published in a compendium and some of the participants present their resulting presentations at professional national and international meetings.

This year's program brought together six mentors with five state DOT employees and six graduate students. State transportation employees participating in the program were:

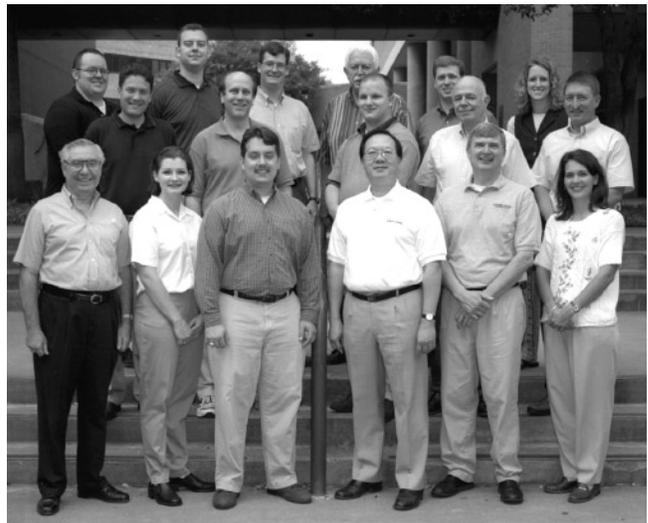
Stephen W. Glascock, *ITS Engineer-Manager, Louisiana Department of Transportation and Development*

Kelly E. Hutchinson, *State ITS Operations Engineer, North Carolina DOT*

Teresa A. Krenning, *Manager of Gateway Guide, Missouri DOT*

Christopher D. McDonald, *Assistant Traffic Engineer, Virginia DOT*

Mark Suennen, *Transportation Engineer, Maryland DOT*



(l-r, front row) Conrad Dudek, Michelle Jozwiak, Andrew Holick, Joseph Lam, Wayne Kittelson, Teresa Krenning.

(l-r, center row) Stephen Glascock, Les Jacobson, John Denholm III, Thomas Hicks, Christopher McDonald.

(l-r, back row) Daniel Helms, Steven Schrock, Karl Zimmerman, William Spreitzer, Mark Suennen, Kelly Hutchinson. Not shown: Patrick Irwin.

TTI students participating in the program were:

John P. Denholm III, *Traffic Operations Program*

Daniel B. Helms, *TransLink® Research Center*

Andrew James Holick, *Traffic Operations Program*

Michelle D. Jozwiak, *Traffic Analysis and Design Program*

Steven D. Schrock, *Traffic Operations Program*

Karl. H. Zimmerman, *Traffic Analysis and Design Program*

"The Mentors Program has integrated leaders, practitioners and students of advanced transportation systems and opened the state participants to a well-rounded, valuable educational opportunity," comments Glascock, ITS engineer-manager for the Louisiana Department of Transportation and Development. "It has greatly helped me with my task of establishing an intelligent transportation systems initiative within the Louisiana Department of Transportation and Development."

This Year's Mentors



Thomas Hicks, Director of the Office of Traffic & Safety for the Maryland State Highway Administration. Hicks coordinates the work of six transportation divisions and serves on the board that guides and directs Maryland's ITS program. He is the recipient of the 1999 Theodore M. Matson

Award and has served in leadership capacities for many professional organizations.



Patrick L. Irwin, Director of Transportation Operations, Texas Department of Transportation, San Antonio District. Irwin is responsible for the development of TransGuide, which received the 1995 ITS America Board Chair Award and was selected as a United States DOT Model Deployment Initiative Site. Irwin appears as a frequent guest lecturer at universities and has served as transportation management consultant to sixteen countries.



Les Jacobson, Senior Intelligent Transportation System Specialist with PB Farradyne, Inc. Prior to joining Farradyne, Jacobson was assistant regional administrator for traffic systems with the Washington State Department of Transportation. He received the Alfred E. Johnson Achievement Award

in 1996 from the American Association of State Highway Transportation Officials and the Institute of Transportation Engineers ITS Council's Individual Achievement Award in 1999.



Wayne K. Kittelson, Principal, Kittelson & Associates, Inc. For over 25 years, Kittelson has been directly involved in a wide variety of applied research activities. He works closely with the Transportation Research Board and participated in development of the *Highway Capacity Manual*.



Joseph K. Lam, Division Vice President and Director of Delcan Corporation. As vice president responsible for the Transportation Systems Division of Delcan, Lam directs a group of consultants who contribute to the export of Canadian technology to manage traffic congestion problems around the world. He is currently directing ITS planning for a tollway in northern Greece and is responsible for Delcan's operations in the Far East.



William M. Spreitzer, past Technical Director of General Motors ITS Program. Spreitzer is a recognized world leader in ITS transportation research. His experience in advanced automotive gas turbine engine development, concept vehicle development and vehicle control and research development spans more than 40 years.

For more information, contact the web site at: <http://ceprofs.tamu.edu/cdudek>, or **Dr. Conrad L. Dudek**, Professor of Civil Engineering, Texas A&M University, and Associate Director, SWUTC, TTI at c-dudek@tamu.edu or (979) 845-1727.



Steven Schrock
and Conrad Dudek.

One Student's Experience

The uniqueness of the Mentors Program brought graduate student Steven Schrock to the Civil Engineering Ph.D. program at Texas A&M University. His research into potential schools made him aware of the mentoring program and its advantages.

"The Mentors Program was one of the things that stood out to me as really unique about the Ph.D. program and it swung the balance in favor of A&M. It's a draw you don't hear about at other schools," notes Schrock.

Schrock was matched with mentor Wayne Kittelson. He believes his experience in the Mentors

Program gave him opportunities to develop relationships with top-level members of the transportation industry that would normally take years to develop.

"I wouldn't hesitate to call one of them if I ran across a professional problem I thought they could help with," Schrock says of the mentors and DOT employees in the program. "With the mentors, the state employees, the grad students and Dr. Dudek, there was a full spectrum of experience that we could draw on. In addition to our research, we learned a lot as students through the lively exchange of information and interactions with the mentors and state employees in formal and informal settings."

AM I GOING THAT FAST?

Imagine yourself on a highway cleanup crew, standing atop 120-degree pavement, cooled only by the buffeting wind of 80-mph traffic. Feel safe? You shouldn't. Texas alone had over 12,000 work zone crashes in 1996, the highest figure in the country. And even with the recent dou-

ble-fine law and other safety measures, transportation researchers, departments of public safety and departments of transportation are still working hard to slow traffic through work zones.

Paul Carlson, an assistant research engineer at the Texas Transportation Institute (TTI), has focused his attention on temporary work zones, the type that show up for one to twelve hours for minor maintenance or cleanup, because of the special challenges they present. "Temporary work zones are at a disadvantage in terms of high-speed traffic," says Carlson. "The regulatory speed limit cannot be lowered, and additional law enforcement is not always available." Carlson and his colleagues realized that without clear consequences, it is sometimes difficult to compel motorists to slow down. However, a device called a

speed trailer turned out to have a significant effect on speed in temporary work zones.

ers to be relatively ineffective in long-term work zones. In a two-year study, however, TTI researchers found them to be particularly suited to temporary work zones and more effective than radar drones. They actually helped reduce speeds in both large trucks and passenger vehicles. Although the research team is still studying the best placement of the trailers, the study showed that vehicles slowed when passing the speed trailer and maintained the lower speed throughout the work zone.

"The problem in long-term work zones is what we call the learning effect. Motorists who pass through the same work zone every day may slow down when they first see the speed trailer, but once they learn the new traffic pattern and that there are no enforcement consequences associated with the speed trailer, speeds return to normal," says Carlson.

Temporary work zones provide the perfect countermeasure to this learning effect. "Because the speed trailers are up for only a few hours," Carlson says, "drivers don't have time to get used to the work zone." The result is that speeds decrease. In fact, the study Carlson and his colleagues conducted in Childress, Texas, showed an overall decrease of about five miles per hour.

Carlson notes, "The combination of the speed trailer and the short length of temporary work zones has a positive effect on speed. Once drivers slow down, they usually maintain a lower speed through the course of the work zone."

For more information, contact **Paul Carlson** at (979) 845-6004 or paul-carlson@tamu.edu.

Related publication: *Evaluation of Speed Trailers at High-Speed Temporary Work Zones*, TRB Paper No. 00-1475.



Research shows speed trailers improve safety in temporary work zones

speed trailer turned out to have a significant effect on speed in temporary work zones.

Speed trailers are simple, portable traffic control devices that are easy to set up, operate, and dismantle. With a large LED speed display run by radar sitting atop a trailer, they are commonly used in residential neighborhoods and urban settings to slow people down. As drivers approach, their speeds are displayed in 24-inch numbers. Other studies have shown speed trail-

Fond Farewells

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unfailing cheerful demeanor. Dick, thanks from all of us at TTI.” Richardson said to Gene and Sidney, “I want to thank both of you for your loyalty and hard work over your many years of service. We at TTI applaud your dedication to the Institute, and we will miss both of you very much. Hopefully, we’ll see you back in the lab part-time very soon.”

William R. “Dick” McCasland

McCasland established himself as one of the most highly respected and knowledgeable professionals in traffic engineering. Dick served for many years on the Transportation Research Board (TRB) and received TTI’s first TRB award.

McCasland opened TTI’s first satellite office, developed the TxDOT interagency research program and pioneered many of the traffic management concepts now called “Intelligent Transportation Systems.” He was also directly involved in many innovations in the Houston area, including ramp metering, freeway lane restriping for increased capacity, HOV lanes, accident investigation sites and motorist assistance patrols.

Dr. Dennis Christiansen cited Dick’s generosity of spirit and his willingness to share his expertise with colleagues and students. TTI’s Director Emeritus Dr. Charley Wootan called him “a true gentleman and a shining example of what we all should strive to attain, both personally and professionally.”

Dick plans to play tennis, travel, do volunteer work and “maybe work a little bit.” However, he said, “I will definitely be available for golf.” Dick explained that, “I consider TTI part of my family; when you leave family, you never really leave. You’re still part of it.”

Sidney Greer and Gene Schlieker

Sidney Greer performed laboratory testing on all materials used in pavements, including asphalt cement, aggregates, paving mixtures, concrete and soils (with and without stabilizers) as well as pavement materials containing many specialty products such as fibers, fabrics and polymers. He was known as the master at installing multi-depth deflectometers, a device for measuring pavement movement under an applied load.

Gene Schlieker worked on evaluating Texas pavements and had significant input in the lab

working with synthetic aggregate. He assisted in the development of tests for evaluating lightweight aggregate durability and for evaluating asphalt and concrete with servo-controlled systems. Gene was one of the key technicians instrumental in obtaining and maintaining “AASHTO Certification” for the McNew Laboratory.

Both Gene and Sid said their most rewarding experiences at TTI involved working with graduate students in the lab under the direction of Joe Button, head of TTI’s Materials Division. “It will be difficult to replace the years of experience and expertise that both Gene and Sid have brought to the lab,” said Button. “Students and TTI staff will miss them greatly.”

Dr. Bill Crockford, a former A&M student and researcher at TTI, sent remarks about Gene and Sid saying, “I have never seen nor heard anything but professionalism from either of you. This is a standard that has provided both simple exposure and meaningful guidance to those of us who have had the opportunity to work with you.”

While they both plan to spend more time on hobbies and fun during their retirements, Sid and Gene will also continue to work part-time for TTI in the Materials & Pavements McNew Laboratory.



Sidney Greer was joined by his family at the retirement party.

We at TTI applaud your dedication to the Institute, and will miss you very much.

—Dr. Herber Richardson, TTI



McCasland conducted TTI’s earliest research on freeway operations, providing a practical and innovative approach to day-to-day freeway traffic problems.



Gene Schlieker and wife Patsy at the retirement party.

PORTS AND WATERWAYS CONFERENCE STRESSES INTERMODAL CONNECTEDNESS

The 2000 Texas Ports and Waterways Conference, held in Beaumont in August, focused on the increasing connectedness among all transportation modes. The conference featured specialists from the Texas Department of Transportation (TxDOT), the Texas Transportation Institute (TTI) Center for Ports & Waterways (CPW), Texas Waterway Operators Association, Texas Ports Association, University of Texas Center for Transportation and Research and the Port Authority Advisory Committee.

TxDOT's Paul Douglas, CPW Director John Basilotto and TTI Conference Services organized the fifth annual event that included discussions on intermodalism and both coastal and inland waterway initiatives.

According to Basilotto, "Texas' ports are ideally located to accommodate growing demand; however, keen competition from other Gulf coast states warrants continuous improvements in port infrastructure." He added that environmental concerns will continually challenge port and waterway professionals as they seek solutions pertaining to land access and waterside issues.

Texas ports impact nearly all transportation corridors — highways, rail and deep and shallow draft waterways. As an economic generator, Texas is unique in that most cargo originates or reaches its final destination within the state. Presentations at the conference stressed the importance of "seamless" inter-modal connections, new facilities and deeper channels to facilitate business development in Texas.

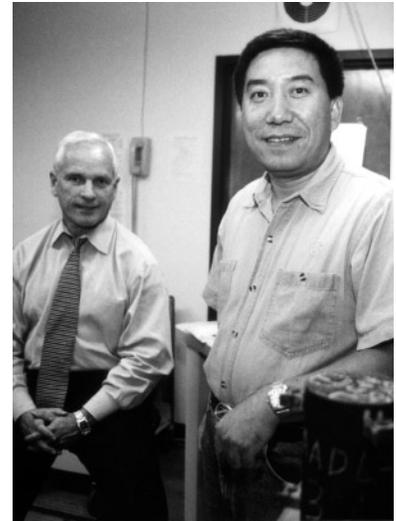
For more information about this year's proceeding and next year's conference, contact **John Basilotto** at (409) 740-4883 or j-basilotto@tamu.edu



(l-r) Raul Cantu and Paul Douglas of TxDOT and John Basilotto, Center for Ports & Waterways.

ZHIMING WINS AAPT HONORS

The Association of Asphalt Paving Technologists (AAPT) recently awarded its annual competitive scholarship to Zhiming Si, employed by Texas Transportation Institute (TTI) as a graduate assistant researcher and working on his Ph.D. in civil engineering. AAPT awards AAPT/Ward K. Parr Scholarships with the purpose of increasing the number of scientists and engineers in the fields of chemistry, chemical engineering and civil engineering who are available for careers in the general area of asphalt paving technology. Zhiming is the first Texas A&M student awarded this scholarship and is only the second student in the state of Texas to receive the honor.



Dallas Little (left) and Zhiming Si.

For the past two years, under the guidance of Dr. Dallas N. Little, the Herbert D. Kelleher Professor in Civil Engineering and Senior Research Fellow for TTI, Zhiming conducted extensive research in micro-damage and microdamage healing of asphalt mixtures. The Federal Highway Administration (FHWA) sponsors his research, with Western Research Institute serving as contractor and TTI as sub-contractor. Zhiming's contributions to the project entitled "Development of Specification Testing to Promote Fracture Fatigue Resistance and to Optimize Microdamage Healing" are the basis for his Ph.D. and for winning the AAPT scholarship.

"I am very proud of Zhiming and the recognition he brings to TTI and CVEN [Texas A&M University Civil Engineering Department]," says Little. "Zhiming has developed a methodology of quantifying the damage that occurs in asphalt concrete mixtures under repeated compressive and tensile loading. This may sound simple, but when dealing with a time- and temperature-dependent (viscoelastic) material, this is actually quite complex. His approach will make a big impact on the way we select the components of asphalt concrete (aggregate and bitumen) and will make it easier for us to predict performance."

Zhiming worked for Dr. Don Saylak on his research for a Master of Science. His project involved the use of coal combustion by-products in road construction. After graduation from Texas A&M University in May 2001, Zhiming hopes to teach in the United States, as he did in China before coming to the U.S. to work on his Ph.D.

PUBLICATIONS ORDER FORM

_____ 2910-1, *Evaluation of Changeable Lane Assignment System for Daily Operations*, A. Voigt, M. Goolsby, 86 pp., \$12.00.

_____ 1914-8, *The 1995 Performance Results for Slope Protection Products, Hydraulic Mulches, and Flexible Channel Liners*, H. Landphair, J. McFalls, 38 pp., \$5.00.

_____ 3942-S, *Project Monitors Hov Lane Operations*, D. Skowronek, S. Ranft, J. Slack, 4 pp., \$4.00.

_____ 2927-2, *Development of Improved Guidelines for Frontage Road Driveway Access at Entrance Ramp Locations*, M. Jacobson, R. Arredondo, R. Henk, 38 pp., \$5.00.

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THE BACK ROAD



We often hear that Texas has become an "urban" state, with a dramatic shift in population from the countryside to our major metropolitan/suburban centers. There's no doubt that urban transportation problems such as congestion and air quality do dominate much of

the discussion about Texas transportation. However, Texas is a very big place, with many, many miles of rural highways, and rural transportation remains a key concern for many in our state, particularly when it comes to economic development. For example, the quality of a region's transportation system is often a key to location decisions made by business or industry. This issue of the *Researcher* reports on several aspects of rural transportation, including a project that examined the state's rural transportation network, looking at how each transportation mode contributes to the development of rural communities. The report provides information vital to planners, legislators and transportation agencies as they plan for funding and development in rural areas of the state. A related story discusses options for preventing and accidents on congested rural two-lane highways — especially where tourism or special events occur. There is also information on how TTI is helping rural rail transportation districts preserve rail service, and on some work being done on revising weight load restrictions on certain low-volume rural roads. In February 2001, TTI will host a rural transportation conference at which these and other issues will be discussed. Initial registration information about the conference is included in this issue.

I hope you'll find these stories of interest, and that you'll plan to attend the February conference.

Researcher

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