

# TEXAS TRANSPORTATION Researcher

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## The Future of Texas Transportation

TRANSPORTATION ADMINISTRATION MANAGEMENT DESIGN INFORMATION SYSTEMS MATERIALS  
MULTIMODAL INTEGRATION RESEARCH SAFETY RAILROADS ITS TOLL ROADS LEGISLATURE  
BRIDGE STRUCTURES AND HYDRAULICS RIGHT-OF-WAY PROJECT DEVELOPMENT PLANNING  
MOBILITY TRANSPORTATION ADMINISTRATION MANAGEMENT DESIGN INFORMATION  
SYSTEMS MATERIALS RESEARCH SAFETY RAILROADS ITS TOLL ROADS LEGISLATURE  
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PLANNING MOBILITY TRANSPORTATION ADMINISTRATION MANAGEMENT DESIGN  
INFORMATION SYSTEMS MATERIALS MULTIMODAL INTEGRATION RESEARCH  
SAFETY RAILROADS ITS LEGISLATURE RIGHT-OF-WAY PROJECT DEVELOPMENT  
PLANNING MOBILITY TRANSPORTATION ADMINISTRATION MANAGEMENT  
DESIGN INFORMATION SYSTEMS MATERIALS MULTIMODAL INTEGRATION  
RESEARCH SAFETY RAILROADS ITS TOLL ROADS LEGISLATURE BRIDGE  
STRUCTURES AND HYDRAULICS RIGHT-OF-WAY PROJECT DEVELOPMENT

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# Commissioner Williamson Addresses the Challenge



“ The Governor, the Legislature and the public can see that we are thinking big, planning large and executing huge. We are not just existing. We are making a difference in our world. ”

*Ric Williamson  
Transportation Commissioner*

## *The following is an excerpt from Transportation Commissioner Ric Williamson's remarks at the Short Course Opening Session*

Good Morning.

This is my fourth Short Course. And over the past 3 years, I have mentioned several things that are important to what I think are good management practices or good personal behavior, and I just want to step back and review those things as a lead-in for the short remarks that I will offer about the future.

A few years ago, I spoke about the importance of focusing on the solution and not on the problem itself. So many people spend too much time and energy focused on the problem and not enough time focused on the solution. I have spoken of failure and how important it is to not fear failure. So many of us go through life with a fear of the impact of failure, that we can not concentrate all of our energy and vitality on the solution that will work.

I have mentioned the two questions that we all consider, either consciously or subconsciously, when we pick a solution. And that's the negative question of "why?" Why am I doing this? As opposed to the positive question of "why not?" Why will this not work? Why can't I do this? I have spoken about the importance of focusing on results and not the process of getting to those results. It's very important to always keep your mind on the outcomes, the results of your actions.

I have spoken about the concept of time, and how important it is to not waste time, that precious resource. Time — once here, once gone — time. I've also spoken about the new ways that we will build or contract to build and pay for transportation assets. And I even at one time asked that we think big, plan large and execute huge.

I'm pleased to report that over the past 3 years, the Governor, the Legislature and the public have seen that you are focused on solutions and that you are interested in "why not." You now disdain failure, you're committed to results, you're aware of time and you're accepting the new ways to pay for these assets. You're also learning the new ways to build these assets. From the Katy Freeway in Houston, to the Austin toll plan; from the Cameron County Regional Mobility Authority to the Trans Texas Corridor between the Rio Grande and the Red River; from the comprehensive regional transportation plan in North Texas to the Bexar County Regional Mobility Authority; in Smith, Gregg, Montgomery, Grayson, Parker and El Paso counties, Texas Department of Transportation employees are focused on solutions—asking "why not" without fear, producing results in record breaking time and using new tools to pay for and build the transportation assets so desperately needed to support the future growth of this state.

The Governor, the Legislature and the public can see that we are thinking big, planning large and executing huge. We are not just existing. We are making a difference in our world.

Governor Perry, Lieutenant Governor Dewhurst, Speaker Cradick, the Legislature and the public have opened the door of opportunity by giving us the tools that we need. We should remember the door can be closed quickly if we do not produce the results expected of us. We have asked for and we have been given the tools to produce the results necessary for our children and grandchildren.

And we have also had a large part in starting an intense conversation across the state about the importance of transportation assets. The Governor, the Legislature and the public will be watching us. And that means that we must reduce traffic congestion in urban Texas, we must improve public transit service

across this great state, we must accelerate mobility in every Texas city, we must provide the best safety program in the country and we must lay the foundation for a commuter rail system the public will be attracted to use as an alternative to their vehicle.

And we can do these things if we focus the entirety of our attention and our energy on the matters at hand, and if we avoid the easy way out. You know about the easy way out. You see it everyday in your business, your school and your church, and yes, in politics — the easy way out. The urge to blame the other guy for your problems. The fear of sharp, personal criticism. The hollow promise of more money on the horizon. The easy way out. Do nothing: it might hurt too much. We have business, religious, educational and political leaders in our state who choose the easy way out. Some offer the hollow promise of more money if we will just beg a little longer. Some

take the easy way out. Because for them, for those men and women in leadership positions, doing nothing was not an option. And because they have not chosen the easy way out, we will not choose the easy way out. We will produce the results that I've outlined by always moving forward. We will not blame others or circumstance for our setbacks. We will regroup and move forward. We will suffer the sharp and personal criticism of those who are angry or motivated by personal political need. We will take their best shot and move forward. We will ignore the hollow promise of more money on the horizon. We will develop our own tools, and we will move forward.

You see, the easy way out is the easy way to poverty and ignorance, to congestion and pollution and to driving out of your culture those who seek the environment in which they can be the most productive. And we will not take the easy way

**“...Texas Department of Transportation employees are focused on solutions — asking “why not” without fear, producing results in record breaking time and using new tools to pay for and build the transportation assets so desperately needed to support the future growth of this state.”**

*Ric Williamson  
Transportation Commissioner*

use our serious transportation crises to advance a personal or political agenda. Some enjoy dividing us: city against country, rich against poor, north against south. And many hide behind the false accusation of self-interest, double taxation and poor planning because they prefer the easy way out. Do nothing...it might hurt too much.

Our Governor, Lieutenant Governor and Speaker, and most of the leaders in the Legislature, did not

out. I'm proud to be a part of this organization. We have the tools, and we have the talent to generate the results that are required of us. This is our time. This is our opportunity. It is our responsibility to move forward and make a difference in this great state.

I thank you for your time and may God bless Texas. **R**



# TTI— Addressing the Challenge through research, service and results

There is no doubt that our state needs an effective and well-managed transportation system, well-educated transportation professionals and a steady stream of innovations. Clearly, research and education are key to meeting those needs and to assisting the public and private transportation sectors in their efforts to maintain Texas' leadership in transportation.

*Herbert H. Richardson  
Director, Texas Transportation Institute*

Every two years, Texas Transportation Institute (TTI) Director Herbert H. Richardson has an opportunity to describe the Institute's many contributions to transportation in Texas during the legislative appropriations process. All state agencies are required to prepare a budget request for review by the Texas Legislature. The review process begins with presentations to the staffs of the Legislative Budget Board (LBB) and the Governor's Budget, Planning and Policy Office. The LBB is a joint committee of the Texas Legislature charged with developing recommendations for legislative appropriations for all agencies of state government. The Budget, Planning and Policy Division advises the Governor regarding state fiscal matters in support of his statutory role as Texas' chief budget officer and develops the Governor's budget recommendations to the Legislature. TTI receives approximately 14 percent of its total budget from state funds, so it's important that the legislators understand the return the state gets on that investment.

## A driving force in our economy

Transportation is a driving economic force in Texas, comprising about 15 percent of our total gross state product and employing more than 11 percent of the Texas workforce. Safe and efficient transportation is essential for commerce and manufacturing, business travel

and tourism, and national and state security—all key components of economic prosperity. There are, however, a number of mega-issues that need to be addressed to ensure that our transportation system remains safe, secure and environmentally sound. TTI is addressing these challenges through an interdisciplinary, multimodal research program.



These issues include:

- **SAFETY**—the newest research center at TTI, the Texas Center for Transportation Safety (CTS), was established and funded by the 76th Legislature in 2001 to study ways to bring down the unacceptably high death toll on the state’s highways
- **MOBILITY**—TTI’s ongoing Urban Mobility study measures the congestion levels in selected cities in Texas and throughout the country. More recently, the study has included examining the contributions of public transportation service and techniques to improve roadway operating efficiency and to help contain the national trend of ever-worsening traffic problems
- **ENVIRONMENTAL QUALITY**—the Center for Air Quality Studies at TTI was created in 2000 to help Texas and national agencies find ways to improve air quality to meet federal standards. Additionally, TTI’s Environmental Management Program is nationally recognized for its state-of-the-art work in the application of visualization and simulation to transportation design
- **FUNDING**—House Bill 3588 (HB 3588), signed into law in June 2003, provides options that may unravel the transportation-funding shortfall. The bill allows for the creation of Regional Mobility Authorities (RMAs) across the state. These RMAs can collect tolls, issue bonds, enter into credit agreements and utilize other creative means to fully fund progress in transportation. This new bill allows TxDOT to issue bonds totaling \$3 billion, which means drivers will benefit from faster completion of construction/maintenance projects. TTI is researching ways HB 3588 can help cities to explore new construction and funding agreements in order to expedite state projects, strengthen economic development and capitalize on growth opportunities
- **SECURITY**—The Rail Research Center, Center for Ports and Waterways, Model Border Crossing Research Program and work underway at the Proving Grounds Research Facility are all contributing significantly to Homeland Security research
- **WORKFORCE DEVELOPMENT**—Encouraging and identifying the next generation of transportation professionals is critically important. TTI’s Summer Transportation Institute (STI) introduces high school students, primarily from minority schools, to career opportunities in transportation. During the program’s first three years, 171 students participated; more than 56 percent of those students graduated from high school, while the remaining 44 percent are still in school. All of the STI graduates have entered college, and most of the students selected mathematics, science, business, technology or transportation engineering as their career path

## Sharing the value of research

Historically, TTI’s greatest strengths have been its multi-disciplinary, multi-modal, research program, a network of unique research and implementation offices and regional divisions statewide, and the broad-based expertise of nearly 600 dedicated employees, all of which combine to enable the Institute to tackle the next generation of transportation challenges. Working cooperatively with sponsors such as the Texas Department of Transportation, the Federal Highway Administration, and others, TTI leverages state funds in order to effectively research all modes of transportation and relevant disciplines.

“The importance of productive dialogue between TTI employees and the legislative staff and committees of the Texas Legislature can not be over emphasized,” says State Representative Fred Brown. “The critical advancements in infrastructure, safety and highway planning produced by funded research demand the appropriate allocation of limited research dollars. To ensure that the citizens of Texas, as well as the rest of the nation, receive the most benefit from these limited resources, frequent frank discussions must occur where the legislative branch of Texas Government hears from the leading experts at the TTI.”

## Statewide Research Network

### ■ Regional Divisions

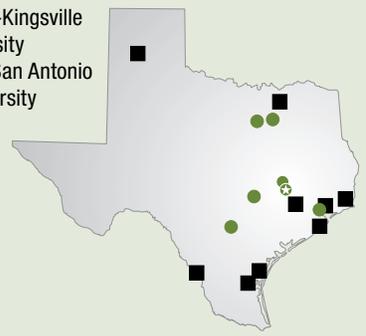
Lamar University  
Prairie View A&M University  
Texas A&M International University  
Texas A&M University—Commerce  
Texas A&M University—Corpus Christi  
Texas A&M University—Galveston  
Texas A&M University—Kingsville  
Texas Southern University  
University of Texas at San Antonio  
West Texas A&M University

### ● Statewide Offices

Arlington  
Austin  
Bryan  
Dallas  
Houston  
San Antonio

### ⊕ Headquarter Offices

College Station



## Research. Service. Results.

Along with the universities and other state agencies in The Texas A&M University System, TTI values the support provided by Texas taxpayers through state appropriations.

“We recognize our responsibility to be good stewards of scarce state resources, and appreciate the opportunity to let our elected leaders know about the research, service and results TTI provides to the transportation industry,” says Richardson. “We look forward to renewing relationships with legislators in the coming months, and providing whatever help we can as they work on behalf of the people of Texas.” **R**



# Short Course Celebrates 78th Year



**T**he 2004 Transportation Short Course was held on the Texas A&M University campus in October. For nearly eight decades, Short Course has focused on improving the future transportation system in the state. Sponsored cooperatively by the Texas Department of Transportation (TxDOT) and the Texas Transportation Institute (TTI), the annual event offers opportunities to learn about the latest developments in transportation tools, techniques, technologies, policies and programs.

A TxDOT slideshow presentation at the beginning of the opening session centered around the themes of population growth in Texas and the challenges of congestion relief, and the contributions of TxDOT employees in their community.

"All of us at TTI look forward to this meeting every year because it offers the opportunity to meet old and new TxDOT colleagues and to exchange innovative ideas and information on the latest engineering, technological and policy developments in transportation," says Herb Richardson, director of TTI. "Over the 78 years we have hosted the Short Course, it is one of TTI's most valued traditions, as is our partnership with TxDOT."

TxDOT Executive Director Mike Behrens spoke of several recent accomplishments of the department during his remarks, including the:

- implementation of funding tools provided by House Bill 3588,
- passage of a new strategic plan for the Texas Mobility Fund,
- approval of four new Regional Mobility Authorities, and
- review of proposals for the Trans-Texas Corridor.

The two-day conference also featured a general session focusing on mobility and tolling, and 20 breakout sessions. The major topics featured in the sessions are highlighted in the following pages. **R**

## TxDOT Award Winners

**Dewitt Greer Award:**  
Carol T. Rawson, Traffic Operations Division

**Gibb Gilchrist Award:**  
Clay R. Smith, San Antonio District

**Luther DeBerry Award:**  
Behrooz Badiozzamani, Pharr District

**Russell H. Perry Award:**  
Judge John P. Thompson, Polk County

**Raymond E. Stotzer, Jr. Award:** Carl Bertrand, Jr., Construction Division



# Session Highlights

TRANSPORTATION ADMINISTRATION MANAGEMENT DESIGN INFORMATION SYSTEMS MATERIALS MULTIMODAL INTEGRATION RAILROADS ITS TOLL ROADS BRIDGE STRUCTURES AND HYDRAULICS RIGHT-OF-WAY PROJECT DEVELOPMENT PLANNING ADMINISTRATION MANAGEMENT DESIGN INFORMATION SYSTEMS MATERIALS MULTIMODAL INTEGRATION RESEARCH SAFETY TOLL ROADS BRIDGE STRUCTURES AND HYDRAULICS RIGHT-OF-WAY PROJECT DEVELOPMENT PLANNING TRANSPORTATION ADMINISTRATION MANAGEMENT DESIGN INFORMATION SYSTEMS MATERIALS MULTIMODAL INTEGRATION RESEARCH SAFETY RAILROADS ITS TOLL ROADS BRIDGE STRUCTURES AND HYDRAULICS RIGHT-OF-WAY PROJECT DEVELOPMENT PLANNING TRANSPORTATION ADMINISTRATION MANAGEMENT DESIGN

## Multimodal—Integrating Rail and Road

**I**ncreasing freight transportation has placed additional demands on the transportation system. Many experts feel the current transportation infrastructure cannot support the increasing demand. Speakers in the Multimodal session described how the public sector is looking at the problems of growth, capacity, funding and partnerships. Techniques to better accommodate the projected need for transportation services in the freight sector and the transportation planning processes were also examined.

The first major issue addressed the role railroads could play in absorbing a larger share of the future growth in freight transportation, thereby relieving demands on moving goods by highway. The second topic covered the relocation of urban freight rail networks from congested metropolitan transportation systems so that both roadways and railroads work more safely and efficiently.

“The fact that transportation agencies are recognizing freight railroads as an important part of the overall freight transportation system is a major development,”

explains Steve Roop, assistant director of TTI and session coordinator. “The concept of public funding dedicated to private freight rail systems is a major shift away from the historical separation of highway and rail transportation. The inclusion of railroads in planning and funding activities of state transportation agencies is recognition that highways alone will not be able to maintain the level of freight traffic that they have fostered.”

“The multimodal approach to freight transportation can help to overcome the many challenges related to safety, the environment, congestion, and capacity expansion,” says session chair Charles H. Berry, Jr., district engineer of TxDOT’s El Paso District and session chair. “Better coordinating all modes can maximize capacity and get the most for the taxpayers’ investment.” **R**



**MORE INFORMATION**  
For more information, contact Steve Roop at (979) 845-8536 or s-roop@tamu.edu.

## Toll Roads

**T**he Toll Roads sessions addressed Regional Mobility Authorities, comprehensive development agreements (CDAs), toll roads and other topics related to innovative financing techniques. Recent state legislation, especially House Bill 3588 approved in 2003, provides TxDOT and other agencies with more options and opportunities for financing development of the state’s transportation system.

“Given limited funding from more traditional sources, TxDOT, RMAs, toll authorities and other agencies will continue to work together on potential toll projects and innovative financing approaches,” says session chair Phillip Russell, director of TxDOT’s Texas Turnpike Authority Division. “These sessions helped share information on current toll activities and future opportunities.”

Toll feasibility screening tools, toll road bond programs, the toll road bond selection process, the Camino

Columbia Toll Road and the Westpark Tollway were highlighted in the first session. Speakers also described toll interoperability—or ability to use a common toll tag on toll facilities operated by different authorities—in Florida. Speakers in the second session addressed RMA activities, the use of CDAs and toll projects in other states and abroad.

“Speakers at the sessions provided a wealth of information on the experience with toll facilities in Texas, as well as in Florida, Colorado and the United Kingdom,” notes Katie Turnbull, associate director at TTI and session coordinator. **R**



**MORE INFORMATION**  
For more information, contact Katie Turnbull at (979) 845-6005 or k-turnbull@tamu.edu.



# Session Highlights

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## Materials

**A number of challenges face transportation professionals as they design, build and maintain safe and economical roadways. That was one of the key points emphasized during the Materials session.**

“Innovations in materials science and technology are critical,” says Joe Button a senior research engineer at TTI and session coordinator. “Engineers must work to stay informed, and sharing the most current information related to highway materials is key for the TxDOT in producing long-life highway facilities that exhibit good performance as well as maximize efficiency, economy and conservation of natural resources.”

One of the most relevant issues discussed was the use of “Intelligent Compaction” of hot mix asphalt layers during pavement construction. It is a new technology, and currently, TxDOT does not require contractors to use this type of equipment. The process allows the

roller or compactor operator to measure the amount of compaction with each pass of the roller, or more importantly, determine when compaction is adequate.

“Before this technology, degree of compaction had been a guess, and by the time pavement density had been determined, it was often too late to make the necessary adjustments in compactive effort,” says Button. “This new equipment allows the operator to address any problems with inadequate density immediately. This is not only good for the contractor by helping them avoid penalties, but also provides high-quality, economically efficient pavements for the driving taxpayer.” **R**



**MORE INFORMATION**

For more information, contact Joe Button at (979) 845-9965 or j-button@tamu.edu.

## Design

**Access management on state-maintained highways is an important issue facing transportation professionals and researchers. That topic dominated the discussion during the Design session.**

In the past, little emphasis was placed on managing where businesses could construct driveways along state roads. “The ideal for Texas is to be in front of the development for long-term preservation of businesses, the access, the roadway and the safety of the traveling public,” says Tom Beeman of TxDOT’s Design Division.

John Orb of TxDOT’s Waco District highlighted the newly formed Waco Access Management Team that currently reviews new driveway/roadway requests for access to state highways and provides recommendations to the Waco area engineers regarding permit requests.

Kay Fitzpatrick, TTI research engineer and session coordinator, notes that the development of the Access Management Manual developed by TxDOT’s Design Division will help balance safety and economic benefits as well as help preserve the transportation system.

The session also included a panel addressing utility issues and challenges relating to demands during roadway construction and repair. Those challenges include utility relocation and coordinating construction needs, especially with limited space. In addition to relocating water, natural gas and electrical lines, TxDOT must address an ever-increasing use of communication lines.

Speakers at the session also reviewed a new TxDOT publication providing guidance on urban intersection design. The publication will soon be available on TxDOT’s Internet site. **R**



**MORE INFORMATION**

For more information, contact Kay Fitzpatrick at (979) 845-7321 or k-fitzpatrick@tamu.edu.

## Information Systems

The Information Systems session examined new information technology initiatives and how TxDOT is applying them to improve information management, sharing and storage. Perhaps the most important topic discussed was “i Way,” TxDOT’s learning content management system (LCMS), which is being developed under a joint pilot program with TTI and the Center for Transportation Research to capture pavement-related corporate knowledge.

“While we have to deal with the challenges of today’s Information Age, we also have to push forward with initiatives like ‘i Way,’” explains session chair Judy B. Skeen, director of TxDOT’s Information Systems Division. “This technology gives us a wonderful opportunity to retain the lessons learned from our most valued employees before they leave us. That’s just one more way their work will benefit TxDOT, and Texans, for years to come.”

“A challenge that every organization faces is losing expertise when its senior members retire,” explains Cassandra Agee-Letton, chief information officer with TTI and session coordinator. “By pursuing this project,

TxDOT is acting proactively to capture that expertise for use by future employees.”

Through interviews, TxDOT is documenting its experts’ knowledge and securing that expertise in an information management system—or searchable database of materials that allows document retrieval by the end user—that is accessible via their network. TxDOT’s pavement community is serving as the beta test group for the pilot program. Ultimately, designers hope to expand the system’s usefulness to all of TxDOT, with domain-specific information accessible by whoever may need it.

Other session topics ranged from training on how to use email most effectively to including information technology security. As hackers become more sophisticated and inventive with their intrusions, network administrators and even everyday users have to educate themselves on preventative measures to avoid system crashes and data loss. **R**



### MORE INFORMATION

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## Intelligent Transportation Systems

As the state’s transportation system increases in size and complexity, safety becomes more important and more difficult to ensure. Managing demand on congested roadways and planning effectively for future transportation needs requires accurate and reliable data.

Working with IBM and the Texas Department of Public Safety, TxDOT is creating a new tool for recording data called CRIS—Crash Records Information System. IBM is providing the services and technology for the new system, which will better record crash data and, by doing so, help researchers design safer traffic systems.

“CRIS is going to prove absolutely essential to future research in this area,” explains TxDOT district engineer and session chair Lauren Garduño. “Put simply, better research means safer roadways for drivers.”

“We’ll be able to use CRIS as a resource for our research and base our analysis on more timely crash data,” explains Ed Seymour, associate director with TTI and session coordinator. “The more accurate and timely the data that the research is based on, the better the research results.”

Attendees also discussed safety-oriented technologies, such as centerline rumble strips. These rows of continuous raised bumps or depressions, either along the shoulder or centerlines of highways, have great promise for significantly reducing crashes.

Finding out what the public thinks about these technologies and traffic safety in general was also discussed by speakers at the session. An important part of the safety equation, public interest in programs like Click It or Ticket—TxDOT’s seatbelt safety program—is important to measuring the overall effectiveness of safety initiatives. **R**



### MORE INFORMATION

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# Session Highlights

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## Bridge Structures and Hydraulics

**A**ging infrastructure and increased traffic demands have necessitated bridge rehabilitation and replacement to improve both safety and capacity. New technologies and approaches are helping expedite the rehabilitation process.

“The use of prefabricated and precast structural elements enables TxDOT and its contractors to decrease bridge construction time, minimize interruption of traffic, lessen effects to environmentally sensitive areas and reduce cost,” explains Roger Bligh, associate research engineer with TTI and session coordinator.

More detailed assessment of risk associated with foundation scour or vessel impact enables designers to significantly reduce the likelihood of a catastrophic bridge collapse. When the supporting beams or columns of a bridge sustain vehicle impact damage, new repair practices and techniques enable engineers to quickly repair the structure, thus prolonging its life while greatly reducing disruption to traffic.

Speakers also addressed context-sensitive design, which has become an increasingly important priority in

Texas and other states across the nation. TxDOT is using state-of-the-art visualization software and design techniques to help design aesthetic, signature bridge structures that reflect the culture and identity of their local communities.

“A strong research program enables TxDOT to become a leader in bridge design, construction and repair,” states session chair Maribel P. Chavez district engineer of TxDOT’s Fort Worth District. “Faced with increasing traffic demands and over 48,000 aging bridges, new techniques for rapid bridge replacement, rehabilitation and repair like those discussed at the session will help TxDOT improve capacity with minimal disruption of traffic and significant savings in time and money.” **R**



**MORE INFORMATION**

For more information, contact Roger Bligh at (979) 845-4377 or rbligh@tamu.edu.

## Planning for the Future

**T**he planning session had a dual goal of dealing with current urban mobility challenges and beginning to define the scope of future planning efforts specific to three new TxDOT initiatives: toll roads, the Texas Metropolitan Mobility Program (TMMP) and the Trans Texas Corridor (TTC). Speakers highlighted ways to expedite toll road development to help expand the Texas highway system faster than using conventional funding. Speakers also described new planning approaches to help MPOs and TxDOT deal with current congestion challenges and to better plan and provide for future capacity needs.

“TxDOT planning staff described progress and experiences they have had in advancing both the TMMP in Texas’ largest eight metropolitan areas, as well as TTC Corridor 35 parallel to I-35,” explains Brian Bochner, senior research engineer with TTI and session coordina-

tor. “TMMP’s purpose is to help those areas overcome transportation system deficiencies to achieve target levels of service. TTI researchers described some of the new technical analyses that were used to develop the first phase of the TMMP.”

The participating TxDOT planning staff described the early stages of work and some of the issues, challenges and success of new toll road construction to date.

“Realistic planning is the key to successful implementation,” states session chair David B. Casteel, district engineer of TxDOT’s San Antonio District. “We have a long way to go and a lot of work to do to reach our mobility goals. But Texans love a challenge.” **R**



**MORE INFORMATION**

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## Administration/Management

**Financing needed improvements and ongoing maintenance is critical for TxDOT, counties and other agencies.**

“Obviously, funding is always an issue and implementing the tools in House Bill 3588 will be a priority in the years ahead,” says Gary Triestch, TxDOT’s district engineer in Houston. “We’re in the process of implementing elements of the bill, which include the Trans-Texas Corridor, toll roads, pass-through tolls, regional mobility authorities and highway funding options.”

“Toll roads, bond funding and comprehensive development agreements are all very new to Texas,” says Bill Stockton, associate director of TTI. “State Senator Todd Staples effectively presented many of the choices and

necessary actions that will influence how successful we are in meeting the state’s transportation needs.”

Adding a national perspective to Staples’ insights, Tina Shaw, the federal legislative liaison for TxDOT in Washington, D.C., outlined for Short Course participants the various funding level options currently being considered by Congress and the Administration. **R**



### MORE INFORMATION

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## Right-of-Way

**Speakers in the Right-of-Way session emphasized ways to make the right-of-way (ROW) acquisition process more efficient and effective. From discussions of better integrating ROW with relevant activities like project development to advice on how to best prepare condemnation cases to expedite them, speakers helped identify “a better way.”**

“Through better utility coordination, construction planning and the use of available tools, the ROW acquisition process is improving,” says John Overman, associate research scientist with TTI and session coordinator.

Construction projects sometimes include utility relocation and installation, which can cause difficulties if not properly planned. One way of saving time and money in highway construction is by better coordinating construction efforts with utilities.

Another way of enhancing coordination and minimizing inefficiency is through use of the Utility Accommodation Rules (UAR), which prescribe minimum specifications for accommodation, location, installation, adjustment and maintenance of utility facilities within the TxDOT right-of-way.

“The more we integrate different parts of the process, the better the overall outcome will be,” explains session chair Dennis R. Cooley district engineer of TxDOT’s Lufkin District and session coordinator. “Besides being economical, it’s just a smart way to do business.” **R**



### MORE INFORMATION

For more information, contact John Overman at (817) 277-5503 or joverman@tamu.edu.

## Project Development 101

**The Project Development 101 session provided attendees with an introduction to elements of the transportation project development process. Many individuals are new to the process, while others may not know all the elements.**

“Knowing all the pieces of the project development and how they fit together is important,” explains Montie Wade, program manager with TTI and session coordinator. “Transportation professionals can understand what the whole puzzle looks like and how their part fits in. Simply put, better understanding of how the development process works leads to a more effective and efficient project.”

Speakers at the session identified and discussed various elements of the process including environmen-

tal, planning, programming, design and right-of-way. Speakers also highlighted essential steps in the process and presented sample projects in both rural and urban areas.

“This kind of cross-training will ultimately benefit the entire state of Texas,” says session chair John A. Barton district engineer of TxDOT’s Beaumont District and session coordinator. “When the left hand knows what the right hand is doing, both can work together to make the state’s transportation system better and safer for all Texans.” **R**



### MORE INFORMATION

For more information, contact Montie Wade at (817) 462-0531 or montie-wade@tamu.edu.

# Center for Transportation Safety responds quickly to pressing transportation problems

Occasionally there is a transportation problem that arises on Texas roadways that requires immediate attention. Thanks to an appropriation from the Texas Legislature, the Center for Transportation Safety (CTS) at the Texas Transportation Institute (TTI) has the capability to quickly respond to such problems before they become major issues.



**MORE INFORMATION**

For more information, contact Dave Willis at (979) 862-6707 or [d-willis@tamu.edu](mailto:d-willis@tamu.edu).



For additional information on CTS, please visit their website at <http://tti.tamu.edu/cts/>.

Typical research projects take time, especially in the initial stages because of the contracts involved. “Due to the state funding, the Center is able to respond quickly to assist the Texas Department of Transportation (TxDOT),” says Dave Willis, senior research scientist with CTS.

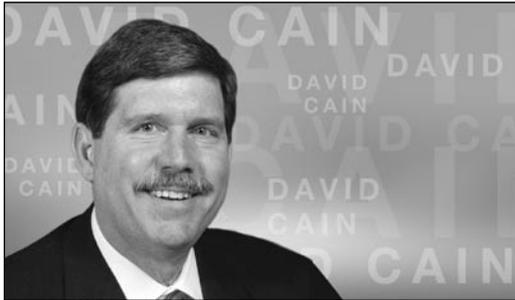
Here are some recent examples of quick response research performed by CTS:

- **Evaluation of Houston environmental speed limit** – The speed limit on Houston freeways was reduced to 55 miles per hour (mph) in 2002 in an effort to reduce emissions. There was strong public backlash, putting pressure on TxDOT to reinstate the original speed limits. CTS responded quickly and determined that the vast majority of drivers were not observing the new speed limit, thus TxDOT was not getting the environmental benefits that they had envisioned for the lower speed limit. Speed limits were subsequently returned to their original levels.
- **Motorcycle safety on shoulder edge drop-offs** – A motorcycle group approached TxDOT and expressed concern over the potential dangers of roadway edge drop-offs that occur when a roadway is repaved. CTS responded quickly to examine potential safety concerns. The research revealed there are not many safety problems with shoulder edge drop-offs, and TxDOT was able to respond to the group’s concerns with research data.
- **Two-lane rural roads** – TxDOT asked CTS to develop a list of potential safety improvements that would be cost effective for implementation under the safety bonds approved in 2003 by House Bill 3588. This research provided the basis for the Texas Register notice announcing the types of improvements that would be eligible for these safety bonds.

In addition to these important projects, CTS is able to leverage the \$500,000 state appropriation into some \$3.5 million of contract research, most of it with organizations outside of Texas, such as the National Highway Traffic Safety Administration, the Federal Highway Administration and the National Cooperative Highway Research Program. **R**

# TEXAS TRANSPORTATION INSTITUTE ADVISORY COUNCIL

The Texas Transportation Institute (TTI) wishes to recognize members of the TTI Advisory Council by featuring profiles in each issue of the *Texas Transportation Researcher*. The TTI Advisory Council meets once a year to hear updates on research projects and program initiatives, discuss critical transportation issues facing Texas and provide guidance on potential future research efforts.



**DAVID CAIN** currently serves North Central Texas as the Chairman of the Legislative Committee of the Regional Transit Initiative. Prior to his retirement from the Texas Legislature in 2003, he served in the Texas House for nine terms and the Texas Senate for eight years.

During his 26-year tenure, Cain held many important positions affecting transportation, including chairing the House Committee on Transportation from 1981 to 1993, the Sunset Commission authoring the Sunset legislation, which created TxDOT and the Texas Senate Sub-Committee on Infrastructure created by then Lt. Governor Rick Perry. Cain was twice elected Chairman of the Southern Legislative Conference Transportation Committee and received the Russell Perry award for his efforts in mobility.

In addition, Cain chaired the Senate Committee on Administration, which included responsibility for Senate budget and personnel, as well as the Local and Uncontested Calendar, membership on the Capitol Preservation Board and the Texas Legislation Council. For many years he served on the Executive Committee of the Southern Legislative Conference and the Governing Board of the Council of Governments.

David practices law with the Dallas firm of Bureson, Pate & Gibson, and runs a governmental affairs firm, David Cain Consulting. He lives in Dallas with his wife, Sally, the former Regional Representative of the United States Department of Education. He has three children: David, Jennifer and Michael. He is an active member of First Methodist Church in downtown Dallas. ■



**KATHARINE "KATIE" NEES, P.E.**, is Vice-President and Transportation Programs Manager at Carter & Burgess, Inc. Nees has over 22 years of transportation experience with an emphasis in the management, planning, design, operation, construction and maintenance of toll roads.

Nees' experience includes a wide breadth of practical working knowledge and expertise in financing, engineering, toll operations, programs and services. Before joining Carter & Burgess, she served as deputy executive director for the North Texas Tollway Authority (NTTA) for more than 5 years and in various management positions with the Texas Department of Transportation for 17 years. She was instrumental in initiating, managing and directing many key agency initiatives in the transformation of NTTA to a recognized leader in the toll industry.

Nees has managed numerous complex, multi-agency toll projects including the President George Bush Turnpike, Southwest Parkway and the Dallas North Tollway Extension. She is currently working with a number of clients on implementing new toll road and public-private partnership programs across the country. ■

## TTI Negotiating to Acquire Testing Facility

The Texas Transportation Institute (TTI) and Applied Research Associates (ARA), Inc., in cooperation with the Pecos Economic Development Corporation, are seriously pursuing an innovative academic-industry partnership to acquire a 5,800-acre research and testing facility in Pecos, Texas. Pecos is located about 90 miles west of Midland-Odessa and is accessible from the Midland International Airport. Named The Southwest Center for Transportation Research and Testing, the facility will be developed in a major transportation research and testing complex.

Built in 1961 by B.F. Goodrich as a tire testing facility, the Pecos facility includes many types of test tracks and road courses. Over the years it has been used by numerous companies, including Jaguar. For a number of years in the 1990s and early 2000, Smithers operated it as a private transportation test center. At that time it was the world's largest independently owned and operated test track.

The facility has been used in the past for various types of testing, ranging from all terrain vehicles, motorcycles and passenger cars to trucks of all kinds, including dirt haulers, earth movers and military vehicles. The TTI/ARA



The Southwest Center for Transportation Research and Testing in Pecos, Texas.

team intends to develop research at this site related to many areas of transportation, such as:

- vehicle and component testing,
- safety and environment,
- pavements,
- retroreflectivity,
- intelligent transportation systems, and
- vegetation management.

Dennis Christiansen, TTI deputy director, notes that "TTI is extremely

excited about the possibility of taking possession of this extensive research and testing facility. It is a facility unlike what is available at any other university, and it will provide us with opportunities to perform additional work for current research sponsors as well as to develop research with new sponsors. The innovative public-private partnership offers many advantages in both operating the facility and developing work to be undertaken at the facility." ■

## New Number for Publication Sales

Effective immediately, the new phone number for publication sales is (979) 458-0481. Research reports, guidebooks, project summary reports and other printed publications can be purchased by calling this number, or online at <http://tti.tamu.edu/product>. For more information, contact Nancy Pippin at the number above or e-mail at [n-pippin@ttimail.tamu.edu](mailto:n-pippin@ttimail.tamu.edu). ■

## David V. Rosowsky chosen to head Civil Engineering

David Rosowsky was recently named head of the Department of Civil Engineering at Texas A&M University. Rosowsky holds the A.P. & Florence Wiley Chair in Civil Engineering. Additionally, he is a member of the Structural Engineering division. Rosowsky came to A&M from Oregon State University, where he held the Richardson Chair in Wood Engineering. His research interests include structural reliability,

performance of wood structural systems subject to natural hazards loading, stochastic modeling of structural and environmental loads and probability-based codified design. Rosowsky received his Ph.D. from Johns Hopkins University in 1990. ■



Rosowsky

## Rollin Bredenberg Selected as 2004 Friend of TTI

Rollin Bredenberg, vice president for service design and performance of the Burlington Northern Santa Fe Railway Company and Texas Transportation Institute (TTI) Advisory Council member, received the 2004 Friend of TTI Award. The award was presented to Rollin at the President's Buffet preceding the Texas A&M/Oklahoma football game.

Bredenberg began his career in the railroad industry with Southern Pacific, spending 29 years in various management positions in San Antonio. He is



Bredenberg

a member of the board of directors of the Fort Worth Hispanic Chamber of Commerce, the board of trustees of the Barriger National Transportation Library and the board of operations of the Port Terminal Railroad Association of Houston.

Over the years, a large number of people have provided significant support to TTI. In 1999, the Institute began giving formal recognition to one individual annually who has provided an exceptional level of support to TTI for many years.

Bredenberg joins five other Friend of TTI Award winners: Chairman of the Amtrak Board of Directors David Laney

(2003), Former Executive Director of TxDOT Arnold Oliver (2002), Chancellor Emeritus of The Texas A&M University System Barry Thompson (2001), Former Mayor of Houston Bob Lanier (2000) and Former General Manager of the Metropolitan Transit Authority of Harris County Bob MacLennan (1999). ■

## IN MEMORIAM

Roelof Engelbrecht, associate transportation researcher with the Texas Transportation Institute (TTI), passed away on November 16 after a lengthy battle with abdominal cancer. Engelbrecht was 38 years old.

Engelbrecht was born and raised in Johannesburg, South Africa. He graduated with a bachelor's degree in Civil Engineering from the Rand Afrikaans University in Johannesburg in 1990. In January 1996 he enrolled at Texas A&M University for a M.S. degree in Transportation Engineering. After graduating in December 1997, Engelbrecht joined TTI on a full-time basis, where he worked in the TransLink® Research Center. Engelbrecht was responsible for the design and development of TTI's hardware-in-the-loop traffic simulation system and was considered an authority on hardware-in-the-loop traffic simulation. He performed hardware-in-the-loop traffic simulation of rail preemption, diamond interchange operation, traffic signal coordination and freeway ramp metering using various traffic simulation models. In 2000, Engelbrecht won the TTI/Trinity New Researcher Award and the Institute of Transportation Engineer's Traffic Engineering Council Committee Outstanding Paper Award.

Right, Engelbrecht with members of the Brazos Cycling Club.



Left, Engelbrecht takes a break from a ride during bluebonnet season.

In September of 2002, Engelbrecht was diagnosed with a rare liver disease called primary sclerosing cholangitis, or PSC, in which the bile ducts inside and outside the liver become inflamed and scarred. There is no treatment for PSC, so Engelbrecht was put on a liver

transplant waiting list at his hospital in Houston. Roughly a year after Roelof showed the first symptoms of his illness, doctors removed his liver and replaced it with a donated one.

Roelof is survived by his wife, Loela Barry. ■

## THE BACK ROAD



Getting research results to those who can use them has always been an important element of Texas Transportation Institute (TTI) research. One of the ways we transfer the new knowledge developed in our research program is through technical presentations at conferences and seminars, and one of the best and most effective of those meetings is held annually in College Station. Every fall since 1926, TTI has co-hosted the annual Short

Course with their colleagues from the Texas Department of Transportation (TxDOT). The Short Course is just what its name implies—a two-day meeting where researchers from TTI, other universities and transportation organizations from around the country can present and discuss the very latest in transportation advances. The program is designed cooperatively by TxDOT senior managers and TTI coordinators to ensure that the session topics are timely and of maximum value to transportation professionals. This year, nearly 2,000 transportation professionals—primarily from TxDOT, but also from other transportation agencies around the state and nation and the private sector—met on the Texas A&M campus. In addition to learning the very latest in technical information, attendees always look forward to hearing from the Transportation Commissioners as they lay out their vision for transportation in Texas. In this issue you'll find the remarks made in October by Commissioner of Transportation Ric Williamson who, along with his four colleagues on the Commission, is providing dynamic leadership to the Department. Revolutionary changes are underway in how TxDOT pursues its mission as a result of landmark legislation passed by the 78th Texas Legislature. Many new tools and methods of financing are now available to greatly expand the size and scope of transportation projects across the state.

This issue also includes some background information on subjects which may be under discussion in the next legislative session which begins in January. Topics such as improving urban mobility and environmental quality, funding, border and other security, infrastructure and maintenance, cell phone usage in cars and workforce development are just a few of the transportation-related matters the Legislature will be considering. You'll also read about the recent accomplishments of TTI's Center for Transportation Safety.

Thanks for your continued interest in TTI research, and best wishes for a safe and happy new year.

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