

Using RFID Readers
to Measure Wait Times at the
U.S.-Mexico Border

**Increasing Capacity,
Reducing Wait Times:**
TTI Helps Design Port of Entry

Computer Simulations
Explore "What If" Disaster
Scenarios

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Gateways, Not Barriers:

Seeing Old Borders in New Ways

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The world is changing.

Used to be, national borders had one purpose: to act as a line a nation didn't dare cross unless that nation wanted a war. Today — with the Internet cross-pollinating cultures between countries at the speed of light and a global economy dependent on streamlined international trade — national borders are more complex. Their demarcation of sovereign boundaries remains, of course, but their rigidity has softened.

Agencies that protect our national borders now have two seemingly conflicting tasks: facilitate international trade and the movement of people while ensuring national security. There's an old adage in industry that "you can have it accurate, cheap or fast — pick any two." Border protection agencies often face equal demands for all three, an especially difficult task in an era when government resources are becoming ever more scarce.

Gateways, Not Barriers:

Seeing Old Borders in New Ways



by Dennis Christiansen
Agency Director



Transportation cuts across both missions. Moving goods internationally requires connectivity. The longer a product waits to cross the border, the more it costs its manufacturer (and, ultimately, its consumer). But products also have to move safely, legally and without threatening a nation's security. Making sure the box contains what it says it does takes time. Trucks idle in long lines, waiting for assessment and polluting the air of border towns.

There's no single solution to such complex problems. The Texas A&M Transportation Institute (TTI) has undertaken a number of research projects to help agencies figure out how improving the transportation factor of the border equation can help them fulfill both missions.

How can technology help producers more efficiently schedule freight shipments to avoid those long lines of idling trucks? The converse question: how can we improve border security without adding to wait times? And, to encourage cross-border consumerism, can we combine discrete travel resources for citizens to access when planning their trips? You'll find answers to these questions in this issue.

In February, TTI published the *2012 Urban Mobility Report*, the national standard for assessing traffic congestion levels in the United States. Not surprisingly, we're sitting longer in traffic during rush hour, and the report offers some sugges-

National borders are more complex. Their demarcation of sovereign boundaries remains, of course, but their rigidity has softened.

tions for mitigating that. Another project looks at avoiding congestion during natural disasters, a lesson El Paso learned the hard way in 2006. Other stories look at different aspects of our transportation network, like safety and resource management, which in some way impact the bottom line.

Also in this issue, we begin profiling members of our TTI Advisory Council. Please take a moment to learn about these outstanding individuals. Every one of our council members is an expert on some aspect of transportation, and TTI is lucky to have them guiding our agency into the future.

In some ways that future will feel familiar, but in many it will be very different. How we view our borders is likely to be one of those differences. How we manage our borders will also need to change as our economic and cultural barriers become more permeable and interconnected.

History has shown us that a vital, viable transportation network is key to national — and now international — growth. I have no doubt the future will prove that lesson true. ■

Using RFID Readers

to Measure Wait Times

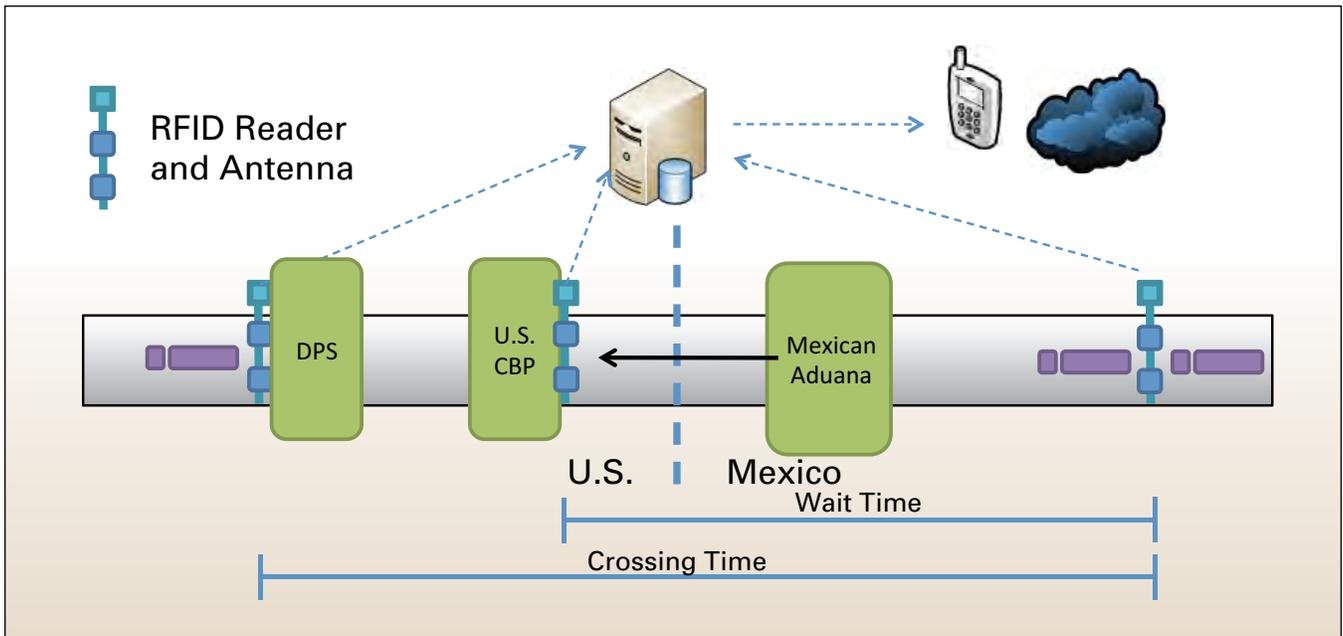
at the U.S.-Mexico Border

“To date, **border wait times have been a guessing game**, but now we have the technology that will provide us actual measured wait times. This **tool is a significant step forward** that will ultimately **help us explore ways in which to improve mobility through the border.**”

Esther Hitzfelder, TxDOT project program manager



For years, the movement of freight along the U.S.-Mexico border has been a long, slow process as truckers have sat idling, waiting for inspections on both sides. As a first step in making improvements, actual wait times are being measured thanks to a collaborative project including the Texas Department of Transportation (TxDOT), the Federal Highway Administration (FHWA) and the Texas A&M Transportation Institute (TTI). The project uses data gathered by radio-frequency identification (RFID) readers.



RFID readers will provide valuable data to help managing agencies and private stakeholders alike as they strive to make cross-border shipping more efficient. Systems have been installed at the locations shown on the map below.

Five of the most heavily traveled border crossings (accounting for 90 percent of all truck traffic from Mexico into Texas) have been equipped with the technology. The readers gather information from RFID tags already placed on trucks crossing the border. The data reveal the time it takes a commercial vehicle to travel from Point A on the Mexican side — through Mexican, U.S. and state customs inspections — to Point B on the Texas side. U.S. Customs

and Border Protection and the Texas Department of Public Safety, as well as private-sector stakeholders (e.g., shippers, carriers and international bridge operators) now have access to the data.

“To date, border wait times have been a guessing game, but now we have the technology that will provide us actual measured wait times,” says Esther Hitzfelder, TxDOT



Source: Google Maps



Gathering information to help reduce wait times at border crossings is one way TTI research is facilitating international trade.

project program manager. “This tool is a significant step forward that will ultimately help us explore ways in which to improve mobility through the border.”

The hope is the data will provide a tool to help ease the congestion.

“Knowing when congestion is at its worst, shippers will be able to schedule their drivers during times when the border-crossing wait times are lower,” says TTI Associate Research Engineer Rajat Rajbhandari. Rajbhandari and TTI

Mexico City Office Manager Juan Villa, TTI’s project leaders, began studying how to apply RFID technology along the border in 2007.

“We now have that data and have included them on a website, which TTI developed and maintains,” Villa says. “We are conducting meetings with the stakeholders on both sides of the border, and we’re getting feedback on the website. Once the site is finalized, we will meet with Mexican shippers and carriers and show them how to best use the data.”

Meanwhile, as part of the expanded FHWA project, RFID readers have also been installed at the Mariposa border crossing at Nogales, Arizona. Wait time data are expected to be online this year.

“The Mariposa crossing is vital for the shipment of produce from Mexico to the United States,” says Marisa Walker of the Arizona Commerce Authority. “I think this project will help all of the stakeholders realize that we are not able to build ourselves out of the border congestion issue. Instead, we are using technology to help us maximize our efforts.” ■



For more information, contact **Juan Villa** at (979) 862-3382 or j-villa@tamu.edu.

Border Crossing Information System

REAL-TIME INFORMATION

En Español

- View Project Reports
- About Team and Sponsors
- Help and Glossary
- Contact Us

■ Bridge of the Americas, El Paso, TX

Wait time for Bridge of the Americas, El Paso, TX is estimated based on the travel time between the RFID station at Intersection of MX45 and Cuatro Siglos and the RFID station at U.S. CBP Primary.

Crossing time for Bridge of the Americas, El Paso, TX is estimated based on the travel time between the RFID station at Intersection of MX45 and Cuatro Siglos and the RFID station at Exit of DPS.

WAIT TIME	CROSSING TIME	LAST UPDATE
■ Bridge of the Americas, El Paso, TX		
44 Minutes	81 Minutes	Apr 10 2013 12:30PM MDT
■ Pharr-Reynosa International Bridge, Pharr, TX		
Unavailable	14 Minutes	Apr 10 2013 1:30PM CDT
■ World Trade Bridge, Laredo, TX		
94 Minutes	118 Minutes	Apr 10 2013 1:30PM CDT
■ Colombia Bridge, Laredo, TX		
26 Minutes	49 Minutes	Apr 10 2013 1:30PM CDT
■ Veteran's Memorial Bridge, Brownsville, TX		
Unavailable	16 Minutes	Apr 10 2013 1:30PM CDT

The TTI-developed Border Crossing Information System website will provide timely information regarding border-crossing wait times.

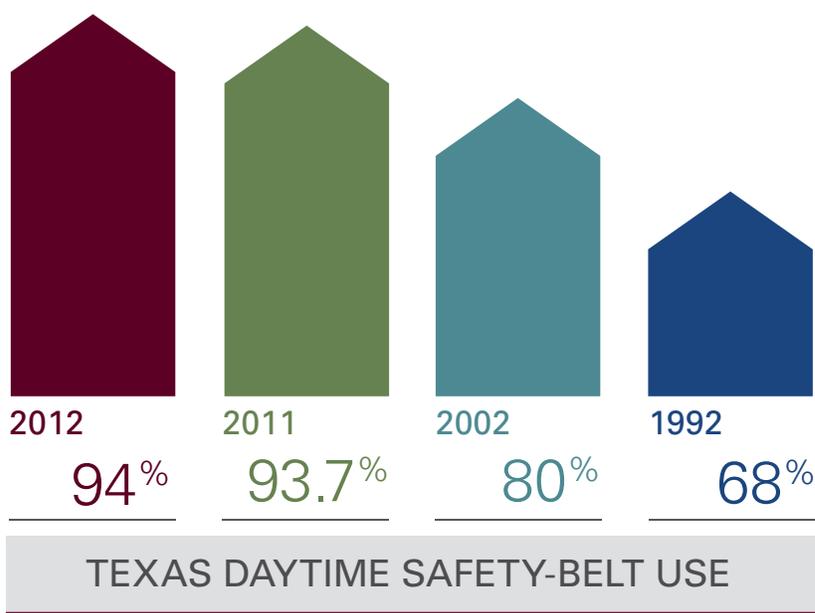


Safety-Belt Use at All-Time High in Texas

Ninety-four percent of Texas drivers and their front-seat passengers are buckled up. It's the largest compliance percentage since researchers with the Texas A&M Transportation Institute (TTI) began tracking compliance in 1992. By comparison, the 2011 use rate was 93.7 percent, up from 80 percent 10 years ago and 68 percent in 1992.

"Recently, the number of **fatalities** in **Texas** has been on a **downward** trend," says *TxDOT Traffic Safety Director Terry Pence*.

"I think it's very clear that if every driver and passenger wore a **safety belt** day and night, the numbers of **deaths** and **serious injuries** would go **down**."



**Child-
Restraint
Use**
by city

97%
Austin

77%
Corpus
Christi

Researchers observed school children aged 5 through 16 in 18 Texas cities to determine if they were restrained by a safety seat or safety belt.

CHILD-RESTRAINT USE



89%

riding in a car



85%

riding in a pickup truck

“It’s a fact that safety-belt use saves lives,” says TTI Senior Research Scientist Katie Womack, who manages TTI’s Behavioral Research Group. “For every increment of improvement in belt use, the rate of fatalities goes down. That’s why it’s very useful to know what the level of use is in Texas.”

Womack conducted numerous other surveys in 2012, the results of which show that improvement is still needed. In an 18-city study of nighttime safety-belt use, only 81 percent of drivers and their front-seat occupants were wearing a safety belt. That figure compares to an 89 percent use rate in the same cities during daylight hours. (The survey marks the first time TTI monitored safety-belt use for all hours of the night, not just the early hours of the evening.)

“For every increment of improvement in belt use, the rate of fatalities goes down.”

“In our previous nighttime surveys, which occurred during the early hours of darkness, there was not much of a difference compared to daytime safety-belt use,” Womack points out. “There’s a steady decrease in the rate of use after midnight. I think we now have a clearer picture of what’s taking place. In some cities, seat-belt use drops into the 60 percent range during some hours.”

Womack’s surveys help the Texas Department of Transportation (TxDOT) determine where safety campaigns need to be targeted in an effort to reduce the state’s fatality and injury rate. “Recently, the number of fatalities in Texas has been on a downward trend,” says TxDOT Traffic Safety Director Terry Pence. “Unfortunately, it appears that the number will be higher in 2012, based on our preliminary figures. I think it’s very clear that if every driver and passenger wore a safety belt day and night, the numbers of deaths and serious injuries would go down.”

In a survey of child-restraint use, Womack’s team found that 89 percent of the children riding in passenger cars were restrained (either by a seat belt or a child safety seat). However,

the number dropped to 85 percent when the children were riding in a pickup truck. Comparing individual cities, child-restraint use varied from 97 percent in Austin to 77 percent in Corpus Christi. Regarding motorcycles, only 61 percent of 910 observed riders were wearing a helmet. A series of final reports on numerous unique surveys relating to occupant safety restraints has been submitted to TxDOT. ■

18-CITY STUDY

89%
DAYTIME

SAFETY-BELT USE

NIGHTTIME
81%

Cities with Highest Nighttime Seat-Belt Use

- 86.9% | Austin
- 86.3% | Bryan/College Station
- 86.2% | Tyler

Cities with Lowest Nighttime Seat-Belt Use

- 66.3% | Midland
- 72.7% | Abilene
- 75.3% | Beaumont



For more information, contact **Katie Womack** at (979) 845-5153 or kwomack@tamu.edu.

Increasing Capacity, Reducing Wait Times:

TTI Helps Design ITS-Based California Port of Entry

Trucks crossing between Mexico and the United States at Otay Mesa, near San Diego, Calif., sometimes wait six hours during peak travel periods. Among the busiest ports of entry in the nation, Otay Mesa's wait times are expected to increase substantially over the next decade. Longer wait times can often mean increased shipping costs for producers, and idling trucks contribute to air pollution around border towns. So it came as little surprise that a feasibility study conducted in 2008 indicated "a new border crossing must be part of a 21st century approach."



Scheduled for completion this decade, the proposed new port of entry, Otay Mesa East, will be a state-of-the-art tolled crossing facility designed to accommodate future growth. The new port is a collaborative project among the California Department of Transportation, the Federal Highway Administration, the U.S. General Services Administration, U.S. Customs and Border Protection (CBP) and the San Diego Association of Governments.

Currently, the projected \$650 million project is in the planning stages, which include an intelligent transportation systems (ITS) pre-deployment study, led by the IBI Group. The Texas A&M Transportation Institute (TTI) is a member of the IBI team.

“This project gives us a perfect opportunity to work with a clean slate to deploy and assess the numerous operating concepts and technologies that will make up this facility,” says Project Manager Don Murphy of IBI. “As part of our team we’ve turned to TTI and its expertise with border-crossing wait-time technologies and operational systems.”

Over the last decade, TTI has worked with various border-crossing technologies for existing ports of entry. This is the first project for TTI researchers on a planned border crossing.

“The congestion around this busy region is costing everyone time and money and is deteriorating air-quality conditions. Otay Mesa East provides us with a great opportunity to help build an ITS system from the ground up, and in doing so, make a real difference in the quality of life for the millions of people who live, work and travel here.”

Rajat Rajbhandari, TTI associate research engineer

“TTI’s main role is in developing a concept of operations,” says Juan Villa, manager of TTI’s Mexico City Office and part of the group working with IBI. “The team will help determine which technologies would be best suited for this project, how the information will flow between stakeholders, and how best to link the border information system to the local traffic management systems.”

The ITS technologies for Otay Mesa East include the collection of real-time border-crossing wait times on both sides of the border as part of an advanced traveler-information system for the region. The information will include toll rates that fluctuate depending on congestion conditions.

Among the ITS systems planned for the new border crossing are:

- data collection/analysis,
- toll-revenue collection,

- traveler-information display,
- traffic management/monitoring,
- vehicle management/monitoring,
- vehicle safety-inspection support and
- CBP operational assistance.

“The congestion around this busy region is costing everyone time and money and is deteriorating air-quality conditions,” says TTI Associate Research Engineer Rajat Rajbhandari. “Otay Mesa East provides us with a great opportunity to help build an ITS system from the ground up and, in doing so, make a real difference in the quality of life for the millions of people who live, work and travel here.” ■



*For more information, contact **Juan Villa** at (979) 862-3382 or j-villa@tamu.edu.*



Photo courtesy Otay Mesa Chamber of Commerce.





TTI *on the* Border

As economies become more global, international urban centers like El Paso, Texas, face increasing pressure on their local transportation networks. These challenges drive the transportation research conducted by the Texas A&M Transportation Institute's (TTI's) Center for International Intelligent Transportation Research (CIITR). Research findings from CIITR staff often provide the foundation upon which public- and private-sector stakeholders build new opportunities for improving and expanding international trade and tourism. Overarching goals of CIITR research projects include:

- Maintaining and improving mobility in the face of growing congestion and shrinking resources.
- Increasing border-crossing efficiency while maintaining security.
- Improving air quality to advance personal health.

In each of these missions, example projects for which are provided here, CIITR is committed to enhancing the quality of life for the Paso Del Norte Region and helping to develop solutions at the U.S.-Mexico border that help ensure the safe, secure and efficient movement of people and goods.

Understanding Traffic Trends to Facilitate Commerce

Recent negative changes in the global economy have resulted in a significant decline in trade and freight movement worldwide. Stakeholders in the United States want to know how these changes will affect foreign trade and freight movement across our borders.

Since 2009, CIITR personnel have studied freight activities across ports of entry at the border and constructed an annual research brief. Using monthly data from the Trans-Border Surface Freight Database of the U.S. Bureau of Transportation, they have identified trends and quantified variations in freight movement across the U.S.-Mexico border. The study classifies freight by mode of transport (trucks and rail cars, empty and loaded), commodities (six commodity groups) and freight destinations. The research results from this project help public- and private-sector stakeholders from El Paso and other border regions by providing them with more accurate information regarding freight movements, which helps decision makers in allocating resources to support border-crossing operations and activities.



Understanding How Border Delays Impact Consumer Travel

Destination studies can help businesses on both sides of the border anticipate customer volume and thereby impact the volume of goods they keep on their shelves, the prices of those goods and ultimately economic growth in a region. Supporting the economic development of both Ciudad Juárez and El Paso, the Paso del Norte Bridge is one of the busiest border pedestrian crossings between Texas and Mexico. Over the last several years, pedestrian traffic has fallen significantly, partially due to long wait times at border crossings. Although the effects of border delays on commercial and passenger vehicle cross-border traffic have been extensively studied, little is known about their effect on pedestrian cross-border travel. This problem has become so severe in the Paso del Norte region, in fact, that economic growth is suffering. Understanding changes in pedestrian traffic trends is critical for retail business owners to efficiently conduct business and for local economic development officials to proactively address border-crossing operations.



To assist entrepreneurs and local government officials in developing strategies to improve the flow of pedestrians and customers across the border, CIITR researchers studied the implications of border delays on the choices of individual cross-border travelers, their choice of transportation mode to cross the border, and ultimately their decisions to cross the border for work, shopping or leisure, if at all. Knowing these motives can provide policy makers with data for proposing strategies to improve pedestrian traffic flow, and can aid businesses in better understanding and predicting the future



travel behavior of their customers. The study's findings will also offer insights into how to alleviate border-crossing wait times for pedestrians and provide local communities with valuable data regarding these delays to use in planning their region's economic sustainability.

Developing More Precise Emissions Estimates for Clean Air Act Compliance

The El Paso area is currently in nonattainment of the Environmental Protection Agency's (EPA's) Clean Air Act standards and deadlines for particle pollution and is on the verge of being in nonattainment for carbon monoxide emissions. El Paso's continued noncompliance risks losing federal highway funds. To demonstrate compliance, nonattainment areas must develop accurate emissions estimates that can be used to prove compliance with EPA standards.

Border-crossing cities have unique air-quality characteristics not well accounted for in current emissions estimation models. Center researchers are developing a robust methodology to estimate emissions that accounts for the overall impact of cross-border vehicle activity and how control strategies would impact emissions. To develop this unique estimation tool, researchers reconciled gaps in emissions estimation methodologies for border-crossing activities and developed a way to extract second-by-second emissions rates from the Motor Vehicle Emission Simulator model and real-world emissions measurements.

This new methodology will help the El Paso area and other border communities accurately assess the impact of control strategies and future port-of-entry improvements, and provide guidance for their decision-making processes. Specifically, communities can use CIITR's research product to quantify the pollution impact of cross-border vehicle traffic, ultimately helping them demonstrate compliance with EPA standards and retain federal funding as a result. ■



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The *2012 Urban Mobility Report* measures travel reliability, providing a detailed illustration of traffic problems in 498 U.S. urban areas.

Seattle
48 hours/\$1,050

San Francisco
61 hours/\$1,266

Los Angeles
61 hours/\$1,300

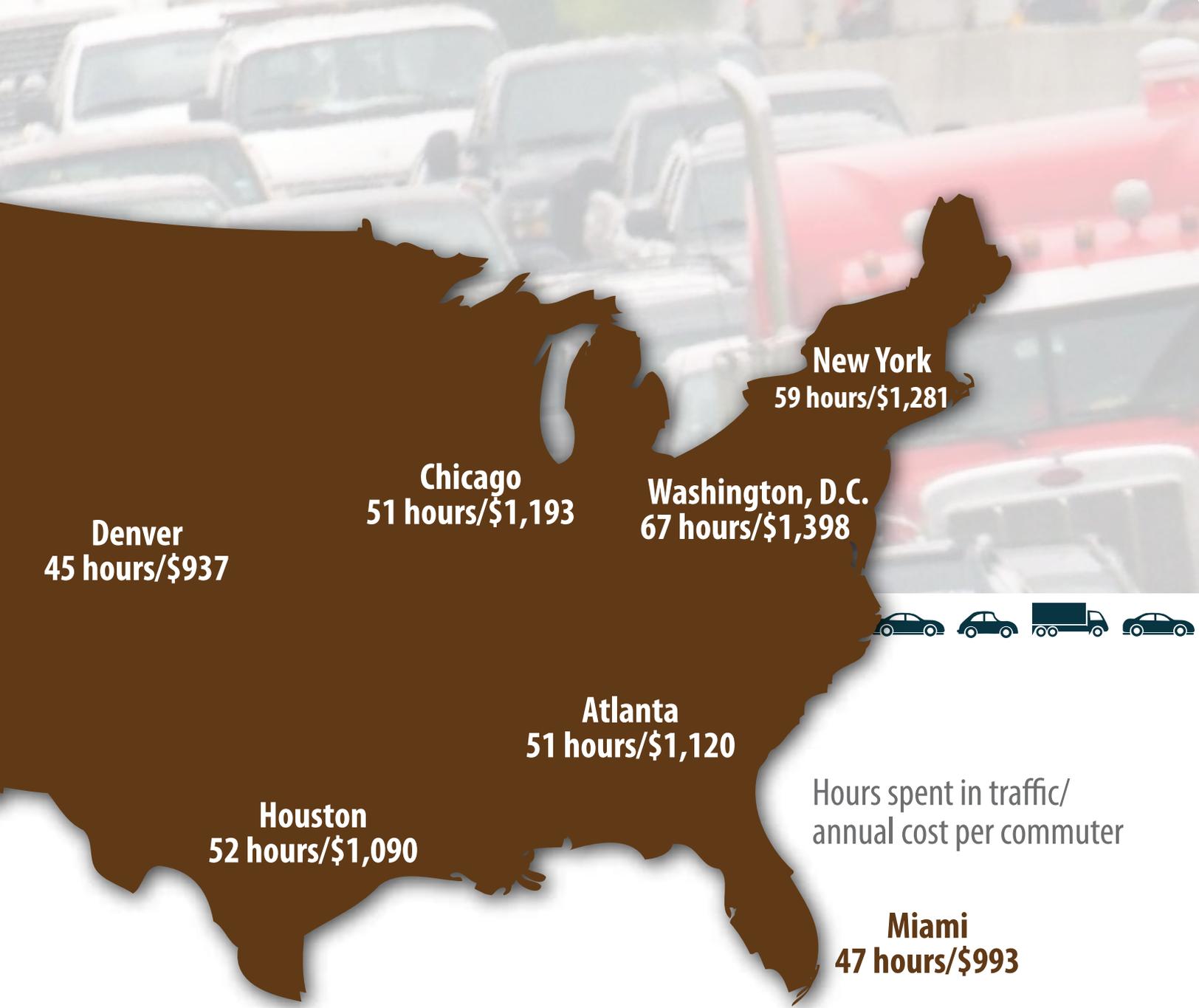


As Traffic Jams Worsen,

Commuters Allow Extra Time for Urgent Trips

The Planning Time Index illustrates the amount of extra time needed to arrive on time for higher priority events.





Hours spent in traffic/
annual cost per commuter

“As bad as traffic jams are, it’s even more frustrating that you can’t depend on traffic jams being consistent from day to day. This unreliable travel is costly for commuters and truck drivers moving goods,” says TTI Senior Research Engineer Bill Eisele.

As traffic congestion continues to worsen, trip times become more unpredictable. Researchers now have a way to measure that degree of unreliability.

The Planning Time Index (PTI), introduced in the Texas A&M Transportation Institute’s (TTI’s) *2012 Urban Mobility Report (UMR)*, measures travel reliability, providing a detailed illustration of traffic problems in 498 U.S. urban areas. The PTI illustrates the amount of extra time needed to arrive on time for higher priority events, such as an airline departure, just-in-time shipments, medical appointments or especially important social commitments.

For example, if the PTI for a particular trip is 3.00, a traveler would allow 60 minutes for a trip that typically takes 20 minutes when few cars are on the road. In this case, allowing for a PTI of 3.00 ensures on-time arrival 19 out of 20 times.

PTIs on freeways vary widely across the nation, from 1.31 (about nine extra minutes for a trip that takes 30 minutes in light traffic) in Pensacola, Fla., to 5.72 (almost three hours for that same half-hour trip) in Washington, D.C.

“As bad as traffic jams are, it’s even more frustrating that you can’t depend on traffic jams being consistent from day to day. This unreliable travel is costly for commuters and truck drivers moving goods,” says TTI Senior Research Engineer Bill Eisele, report co-author and manager of TTI’s Mobility Analysis Program.

In addition to the PTI, the 2012 UMR also debuts an estimate of the additional carbon dioxide (CO₂) emissions attributed to traffic congestion: 56 billion pounds — about 380 pounds per auto commuter.

“Including CO₂ emissions in the UMR provides another dimension to the urban congestion problem,” explains co-author and TTI Associate Research Scientist David Schrank. “It points to the importance of implementing transportation improvements to reduce congestion.”

Researchers say that the most effective way to address traffic congestion varies from one urban area to another. In all cases, improving mobility requires a multifaceted approach that includes more efficient traffic management

and public transportation combined with new construction. Travel options such as flexible work hours and telecommuting should also be part of the solution.

The current study includes 30 years of trend data TTI has used to measure and analyze traffic congestion and its impact on life in urban America. The report is the third prepared in partnership with INRIX, a leading private-sector provider of travel-time information for both commuters and shippers. ■



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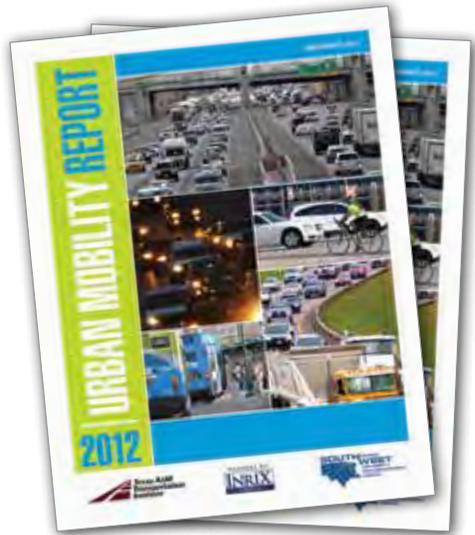
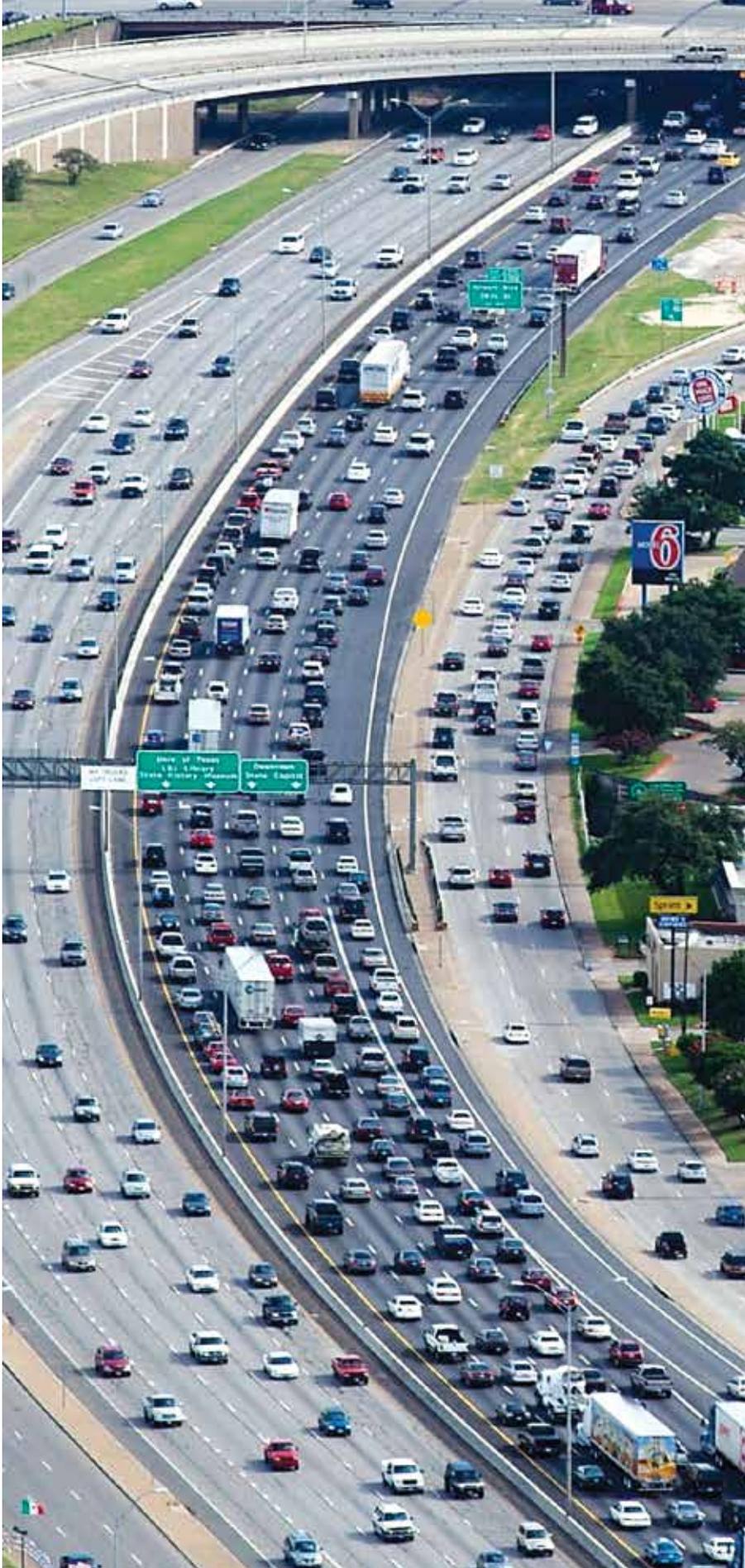
Congestion is costly as well as annoying

No matter where you live, traffic is expensive



Source: 2012 Urban Mobility Report, Texas A&M Transportation Institute





The 2012 Urban Mobility Report

continues to spark broad-based interest among newspaper, radio and television reporters. After the report was released on Feb. 4, nearly 1,700 newspapers, radio stations and television stations wrote or aired stories about the study, reaching an estimated 30 million people. Among the major newspapers covering the report were *USA Today*, *The Washington Post* and the *Los Angeles Times*, with front-page coverage by the *Chicago Tribune*, the *Houston Chronicle* and the *Atlanta Journal Constitution*. NBC Nightly News, ABC Nightly News, National Public Radio, and various CBS radio and television spots provided prominent broadcast outlets.

The 2012 Urban
Mobility Report



800,000
FOLLOWERS

The report also achieved a significant presence on social media via Facebook and Twitter with 800,000 estimated followers. ■



A devastating flood in 2006 tested the El Paso region's ability to deal with a natural disaster. Six years later, a relatively minor (2.5 magnitude) earthquake rattled the area, fortunately causing no injuries or damage, but still raising questions about what might have been. The events had two things in common: both were highly unusual occurrences, and both underscored the need for an effective plan to keep traffic moving in the aftermath of a catastrophic event.

Computer Simulations Explore

“What If”

Disaster Scenarios



Until now, the best any city or agency could do would be to assess the results of such an event and then act, using a responsive approach. Advances in computer modeling, however, now make a proactive plan more possible, potentially giving planners the head start they need to minimize the public-safety and economic consequences of a disaster.

Researchers from the Texas A&M Transportation Institute (TTI) are developing such a plan, using computer simulation and modeling to develop appropriate responses to a disaster scenario involving the collapse of the I-10/US 54 interchange combined with a closure of the Bridge of the Americas port of entry into Mexico. In this example of a worst-case scenario, researchers are determining both the short- and long-term impacts on the transportation system and how the disruptions would affect the regional economy.

Extensive traffic delays and lost productivity can cripple the supply chains that feed products to a vast network of manufacturers on both sides of the border, and the associated expenses add up quickly.

“An extreme event will have an immediate impact on both commuter traffic and commercial traffic, and it will also have impacts months after the event happens,” says TTI Associate Research Scientist Jeff Shelton, who manages TTI’s El Paso Program. “We now have the ability to anticipate the impact of both the immediate and longer-term effects on both sides of the border, and that’s something we could not do before now.”

The research findings should make local agencies better able to:

- identify those areas that would be most adversely affected by traffic pattern changes,
- predict traffic pattern changes,
- pinpoint where corrections to existing traffic control, and demand management might be needed, and
- identify and recommend alternate routes to divert traffic from affected areas.

Apart from the mobility-related impacts, the researchers say, extreme events carry significant public-safety consequences, sometimes severely limiting how emergency vehicles can make their way to, from or through affected areas.

The research team is also doing an economic impact analysis to determine the financial costs associated

with extreme events. Extensive traffic delays and lost productivity can cripple the supply chains that feed products to a vast network of manufacturers on both sides of the border, and the associated expenses add up quickly. In addition, several state and federal policy questions arise from such an event:

- Would toll rates at other ports of entry be relaxed during reconstruction?
- Would Customs and Border Protection increase agents at other bridges to alleviate the additional strain of vehicles shifting to other bridges?
- All construction projects must go through the environmental process — the Federal Highway Administration requires documentation for reconstruction under the National Environmental Policy Act. Due to the huge economic burden this event places on the economy, can the documentation process be expedited?

“The total amount of U.S.-Mexico trade is about \$300 billion a year. Over \$30 billion of that passes through El Paso,” says TTI Senior Research Scientist Rafael Aldrete, regional manager for TTI’s offices in San Antonio and El Paso. “So any disruption to that commercial activity would be massive. With a proactive plan, we are better able to minimize that disruption.”

The study is being funded by the Center for International Intelligent Transportation Research, with additional support from the El Paso Metropolitan Planning Organization (MPO). MPO officials expect the research to provide insight and possible improvements to existing emergency response plans. In addition, they expect the results to improve the overall MPO planning process and the Horizon 2040 Metropolitan Plan now in development.

“The total amount of U.S.-Mexico trade is about \$300 billion a year. Over \$30 billion of that passes through El Paso.”

“Disasters typically happen with little or no warning, and the consequences can be catastrophic,” Shelton says. “The best that we can do is to be ready for anything. That’s a very lofty goal, but we’re a big step closer now.” ■



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(Left to right) Chairman of The Texas A&M University System Board of Regents Richard A. Box, Gerald Ullman, Brooke Ullman, and Board of Regents Vice Chairman Phil Adams.

Ullman Receives Regents Fellow Designation

The Texas A&M University System Board of Regents bestowed its prestigious Regents Fellow Service Award on Gerald Ullman, TTI senior research engineer and manager of the Work Zone and Dynamic Message Sign Program. Presented Jan. 30, 2013, the award recognizes employees who have made exemplary contributions to their university or agency and the people of Texas.

"I've been fortunate to be able to work with many outstanding colleagues over my career, and feel this award is a reflection and recognition of all their efforts and support as much as anything I have done," said Ullman. "I am very grateful to TTI and to the A&M System for the many opportunities I have been afforded."

Ullman, a nationally recognized expert in work zone mobility and safety research, is the ninth TTI employee to receive the Regents Fellow Service Award. ■

Ross Perot, Jr., Inducted into Texas Transportation Hall of Honor

Ross Perot, Jr. — chairman of both Hillwood, one of the nation's top real estate developers, and the Perot Group, an investment management firm — has been inducted into the Texas Transportation Hall of Honor. The induction took place Dec. 20, 2012.

Among his many accomplishments, Perot has led the creation of the 17,000-acre, master-planned AllianceTexas development, which includes Fort Worth Alliance Airport, the world's first industrial airport, and the Alliance Global Logistics Hub, known as the "grandfather of inland ports."

"Through the innovative transportation infrastructure developed at AllianceTexas and other high-profile developments, Mr. Perot is significantly increasing economic development in our state," said TTI Agency Director Dennis Christiansen at the ceremony.

Since 1990, AllianceTexas, a public-private partnership, has had an economic impact of \$43.74 billion, attracted more than 300 companies, and created more than 31,000 jobs. The development, which was recently recognized as one of the country's fastest growing communities, is less than 50 percent complete.



(Left to right) TTI Program Manager Jason Crawford; TTI Advisory Council member David Laney; TTI Agency Director Dennis Christiansen; Hall of Honor inductee Ross Perot Jr.; TTI Division Head Terri Parker; TTI Associate Research Engineer Rajat Rajbhandari; and TTI Advisory Council member David Cain.

"For thousands of years, transportation has been making and breaking communities, states and nations, even civilizations," Perot said in accepting the honor. "Only by working together with our many partners, both in government and the private sector, have we been able to create and implement this vision."

Perot becomes the 38th member of the Hall of Honor, which was established in 2000 by TTI to recognize select individuals who have played pivotal roles in the advancement of transportation in Texas and the nation. ■

Texas A&M, Blinn Students Key in Planning Future B-CS Travel

Students from Texas A&M University and Blinn College are helping planners decide future mobility needs in Bryan-College Station by taking part in a voluntary, anonymous travel survey conducted by the Texas Department of Transportation with help from TTI.

“Obviously students account for a considerable amount of traffic in the Bryan-College Station community,” says Ed Hard, manager of TTI’s Transportation Planning Program. “Knowing how much they travel, which routes they take and where they go will help planners as they develop a travel-demand model that forecasts future mobility needs.”



This project solicits information from students via a website to determine their travel habits, a new approach to surveying this population. The student survey is part of a larger household travel survey, which has not been conducted in the Bryan-College Station area since 1970. TTI researchers will analyze the survey data, which will then become part of a travel-demand model used by the local metropolitan planning organization to forecast future traffic levels and transportation improvement needs.

“Because our area has grown so much over the last few decades, it’s become even more important that we have reliable information about travel patterns as decision makers plan for the future,” Hard says. ■



USAA, TTI Begin Extensive Distracted Driving Study

The United Services Automobile Association (USAA) has contracted with TTI to conduct an extensive study on the use of cell phones by Texas drivers and distracted driving in general. The effort is the first involving TTI and USAA.

The study will include a survey of roughly 3,000 people around the state. The sample size will allow researchers to examine which demographic groups are most affected by the distracted-driving issue and what their attitudes and self-reported behaviors are.

“Focus groups will also be conducted to explain in greater detail the thought processes and behavior motivations underlying texting, cell-phone use and other distractions while driving,” TTI Senior Research Scientist Katie Womack, manager of TTI’s Behavioral Research Group, says. “The two approaches combined will lead to recommendations for consideration of the most appropriate intervention and/or education strategies.”

USAA visited TTI in 2012 for a discussion that focused on USAA’s interests in current and emerging roadway safety issues, along with a review of TTI’s capabilities and current research activities.

“We are committed to promoting vehicle and driver safety for the protection of our military members and their families,” says USAA Executive Director Joel Camarano. “USAA is excited to form this relationship with TTI, a leader in roadway safety research for over 60 years.” ■

TTI Wins Multiple Outstanding Paper Awards at TRB

Several employees received Outstanding Paper Awards at this year's Transportation Research Board (TRB) Annual Meeting, held in Washington, D.C., Jan. 13–17.



Charley V. Wootan Award winners Erik Sabina and Stacey Bricka pose with TTI's Katie Turnbull, chair of the TRB Technical Activities Council. (Photo courtesy TRB.)

Stacey Bricka, who co-wrote "Evaluation of Key Design Elements of Long-Distance Survey of Front Range Travel Counts" with Erik Sabina of the Denver Regional Council of Governments, received the Charley V. Wootan Award, named for the man who served as TTI's director from 1976 to 1993.



K. B. Woods Award winners John Holt, Nauman Sheikh and Roger Bligh pose with TTI's Katie Turnbull, chair of the TRB Technical Activities Council. (Photo courtesy TRB.)

The K. B. Woods Award, which this year was given to TTI Associate Research Engineer Nauman Sheikh and co-author and TTI Program Manager Roger Bligh — both of TTI's Roadside Safety Program — was presented for their paper, "Minimum Rail Height and

Design Impact Load for Longitudinal Barriers That Meet Test Level 4 of Manual for Assessing Safety Hardware." The paper was co-authored by John Holt of Texas Department of Transportation's Bridge Division.

Adam Pike, assistant research engineer in TTI's Signs and Markings Program, received a 2012 Young Professional Best Paper Award for a paper he co-authored entitled "Evaluation of ASTM Standard Test Method E2177: Retroreflectivity of Pavement Markings in a Condition of Wetness" from TRB's Maintenance and Preservation Section.

TRB's Annual Meeting attracted 11,700 transportation professionals from around the world and covered all transportation modes. TRB officials say 4,800 papers were submitted, from which the seven awards named for pioneers in transportation research are selected. ■

For more information, please contact Rick Davenport at (979) 862-3763 or r-davenport@tamu.edu.

TTI Student Competes in Energy Innovation Challenge

TTI Graduate Student James Robertson and his two teammates will split a \$5,000 educational scholarship for their participation in the second biennial Texas Energy Innovation Challenge hosted by Power Across Texas.

Robertson's team, which included Rachael Dahl and Lauren Pfeifer of the Bush School of Government and Public Service, suggested a "three-pronged policy strategy that involved loosening regulations, passing legislation and expanding existing initiatives." The team recommended a photovoltaic battery system that includes a series of solar panels and an optimization technique to meet the subsistence-level needs of colonias residents.

"Texas has a large population of people living in these low-income areas, and they live a far distance from electric grids," Robertson explains. "The challenge was to find feasible ways to provide them with power." An estimated 500,000 people in California, Arizona, New Mexico and Texas live in colonias. Texas has the largest number of these unincorporated settlements. ■

TTI Welcomes Three New Advisory Council Members

TTI recently welcomed three new members to the TTI Advisory Council, a 40-member group of high-level transportation professionals from across Texas and every sector of the transportation world. The council provides a tremendous service by advising TTI on transportation issues and trends and supporting the Institute's research programs and initiatives.

"TTI is extremely fortunate to have these distinguished individuals join the Institute's advisory board," says TTI Agency Director Dennis Christiansen. "They each have valuable expertise and insight to assist the Institute in solving critical transportation problems to help promote continued economic development and quality of life." ■



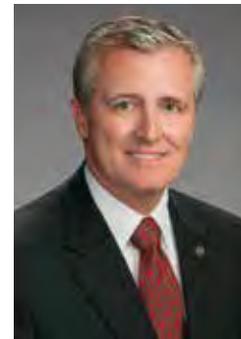
Russell Laughlin
Senior Vice President
Hillwood Properties
Fort Worth, Texas

Russell Laughlin oversees the management, operation, land and infrastructure planning, and entitlements of AllianceTexas, a 17,000-acre mixed-use, master-planned community. The community encompasses an international trade and logistics complex, 265 corporate residents, 30,000 employees and 7,600 single-family homes. He has been instrumental in the development of AllianceTexas and in leading long-term regional planning initiatives for north Fort Worth and Tarrant County during his 25 years with the company.



Robert Tally
Division Administrator
Federal Highway Administration
(FHWA), Texas Division
Austin, Texas

Robert Tally directs a multi-disciplinary staff that administers the Federal-Aid Highway Program throughout Texas to help improve its transportation system. He previously served as division administrator in FHWA's Indiana Division for eight years, advancing the \$2.6 billion Louisville/Southern Indiana Ohio River Bridges project and the \$1.75 billion I-69 New Terrain project. He has also served as assistant division administrator in the FHWA Texas Division and held FHWA leadership positions in Arizona, California, Michigan, Nevada and South Carolina.



Col. Leonard Waterworth
Executive Director
Port of Houston Authority
Houston, Texas

Col. Leonard Waterworth manages the Port of Houston's 25-mile-long complex of diversified public and private facilities made up of the public terminals owned, managed and leased by the Port of Houston Authority, and the 150-plus private industrial companies along the 52-mile-long Houston Ship Channel. He previously served as president/chief executive officer of Dannenbaum Engineering Corporation and as district engineer/commander of the U.S. Army Corps of Engineers District in Galveston, Texas.

For more information, contact Terri Parker at (979) 862-8348 or t-parker@tamu.edu.

TEXAS A&M TRANSPORTATION INSTITUTE
PUBLICATIONS

A full catalog of TTI publications and other products is online at <http://tti.tamu.edu/> publications. You can find the publications by searching for either the title or publication number listed here. Most of these publications are available as free downloads in portable document format (PDF).

Printed, bound versions of these reports are also available through the URL above.

VIDEO SUMMARY REPORTS

Video summary reports are available on the Texas Department of Transportation's Research and Technology Implementation Office's YouTube channel at [YouTube /user/bestpracticevrs/](https://www.youtube.com/user/bestpracticevrs/).

Develop Practical Field Guidelines for the Compaction of HMA or WMA, **0-6992**.

Developing a Testing Device for Total Pavements Acceptance, **0-6005**.

Development of Very Thin Overlay Systems, **0-5598**.

Evaluation of Modern Traffic Control Devices to Improve Safety at Rural Intersections, **0-6462**.

FDR (Full-Depth-Reclamation) Performance Based Design, Construction, and Quality Control, **0-6271**.

Performance Evaluation and Mix Design for High RAP Mixtures, **0-6092**.

TECHNICAL REPORTS

Alternative Methods of Flexible Base Compaction Acceptance, by Stephen Sebesta, **0-6587-2**, December 14, 2012.

Implementation of New Pavement Performance Prediction Models in PMIS: Report, by Nasir Gharaibeh, **5-6386-01-1**, December 13, 2012.

MASH Test 3-11 on the T131RC Bridge Rail, by William Williams, **9-1002-12-1**, November 1, 2012.

MASH TL-3 Testing and Evaluation of a Steel Bridge Rail with Pickets, by William Williams, **9-1002-12-2**, November 7, 2012.

Performance and Cost Effectiveness of Permeable Friction Course (PFC) Pavements, by Edith Arambula, **0-5836-2**, February 14, 2013.

Structural Assessment of "D" Regions Affected by Premature Concrete Deterioration: Technical Report, by John Mander, **0-5997-1**, December 21, 2012.

Synthesis of Port Related Freight Improvement Studies: Technical Report, by Katie Turnbull, **0-6808-1**, November 30, 2012.

PROJECT SUMMARY REPORTS AND PRODUCTS

Best Practices for Utility Investigations in the TxDOT Project Development Process, by Edgar Kraus, **0-6631-S**, February 4, 2013.

Bioretention for Highway Stormwater Quality Improvement in Texas, by Ming-Han Li, **0-5949-S**, December 10, 2012.

Compare Trailer-Mounted Attenuators vs. Truck-Mounted Attenuators Protection for Workers, by LuAnn Theiss, **0-6707-S**, December 13, 2012.

Development and Field Evaluation of the Next Generation of HMA Mix Design Procedures, by Tom Scullion, **0-6132-S**, December 19, 2012.

Guidelines for Continuous and Safety Roadway Lighting, by Gene Hawkins, **0-6645-S**, December 18, 2012.

Guidelines for Determining the Capacity of D-Regions with Premature Concrete Deterioration of ASR/DEF, by John Mander, **0-5997-P1**, December 14, 2012.

Guidelines for the Effective Use of Flexible Pylons for Congestion Mitigation, Access Management, and Safety Improvement, by Robert Benz, **0-6643-S**, December 18, 2012.

Impacts on Texas Ports from the Panama Canal Expansion, by Katie Turnbull, **0-6800-S**, January 22, 2013.

Improving the Response and Participation by Utility Owners in the Project Development Process, by Cesar Quiroga, **0-6624-S**, December 19, 2012.

Next Generation Mix Design Procedures and Recommendations for Texas (Study 0-6132), by Tom Scullion, **0-6132-P1**, December 18, 2012.

The OT Tex-248-F Updates and Some Video Demos, by Lubinda Walubita, **0-6607-P2**, January 17, 2013.

Performance Evaluation and Mix Design for High RAP Mixture, by Fujie Zhou, **0-6092-S**, December 17, 2012.

Performance of Permeable Friction Course (PFC) Pavements over Time, by Amy Epps Martin, **0-5836-S**, December 19, 2012.

Quantifying the Effects in Order to Optimize the Use of Grade 3 and Grade 4 Seal Coats, by Paul Krugler, **0-6496-S**, December 7, 2012.

Safety and Integrity of Median Barrier-Mounted Hardware, by Akram Abu-Odeh, **0-6646-S**, February 8, 2013.

Search for a Test for Fracture Potential of Asphalt Mixes, by Lubinda Walubita, **0-6607-S**, December 14, 2012.

Treatments for Clays in Aggregates Used to Produce Cement Concrete, Bituminous Materials and Chip Seals, by Anol Mukhopadhyay, **0-6444-S**, December 19, 2012.

Use of Fine Graded Mixes for Pavement Preservation: Workshop Materials, by Tom Scullion, **0-6615-P2**, January 8, 2013.

