

**Old Modes, New Data**

TTI's Work in Bike and  
Pedestrian Research

**Voice-to-Text Apps**

No Safety Benefits

**Stretching Transit  
Dollars Farther**

TTI Develops Guide for Optimizing  
Transit Agency Costs

TEXAS TRANSPORTATION

VOL. 49 | NO. 2 | 2013

# Researcher

Multiple  
Modes,  
One Network



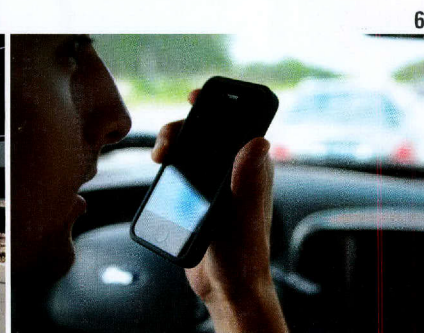
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# TEXAS TRANSPORTATION Researcher

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# Multiple Modes, One Network



**IF YOU'RE** a regular reader of this column, you might have noticed a couple of recurrent themes over the past few years.

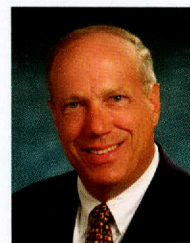
First, I think the Texas A&M Transportation Institute (TTI) is the best agency conducting transportation research in the world today. Admittedly, I'm a little biased in that opinion. But I can say, objectively, that the breadth and depth of the Institute's research portfolio give us both a big-picture perspective on the transportation system as a whole and detailed insight into the "little pictures" that make up that mosaic.

"Doing more with less" is a second theme that might sound familiar. You've heard me say it before: maintenance and construction costs are up, while public agency budgets are down. Doing more with less is not just a fiscal mantra anymore; it's a strategy for survival. It's simply become too expensive to build our way out of mobility problems, so we must squeeze more capacity out of the system we have. That's where multimodalism comes in.

Meeting today's transportation challenges is — like the big picture,

when you look a little closer — made up of multiple, smaller goals. In this issue, we look at the various little pictures of capacity building — bikes and pedestrians, transit, waterways, air traffic and intercity rail. TTI experts, grounded in their particular disciplines, provide answers to how these different modes can help optimize how we use our overall transportation network.

And since we're talking about diversity in research, I'd like to acknowledge two honors TTI recently received. I don't wish to crow about these achievements (well, maybe just a little), but given how important broad-based research expertise is today, they're worth noting here. The Heart of Texas Chapter of the Women's Transportation Seminar (WTS) recently named TTI its Employer of the Year. This honor follows a similar recognition back in September 2011, when the American Road and Transportation Builders Association (ARTBA) bestowed its Glass Hammer Award on the Institute.




*by Dennis Christiansen  
Agency Director*

Both awards recognize TTI for its leadership in promoting women leaders in transportation. We've made it a priority to inspire young women to pursue transportation engineering as early as the sixth grade, as well as to recruit women professionals to work for the Institute. We rely on their leadership at all levels in TTI as demonstrated by Executive Associate Director Katie Turnbull's recent participation in a White House special forum on women in transportation. Without the range of expertise inherent to initiatives like these, TTI research would not be nearly as effective in finding solutions to the variety of transportation problems we face today.

We're extremely grateful for and humbled by the recognition from WTS and ARTBA. I see it not only as an endorsement of our efforts to encourage women to pursue careers in transportation, but also as evidence that TTI's approach to expanding its research capacity and capability is on the right track (or roadway or path or canal). ■





# Old Modes, New Data

TTI's Work in Bike and  
Pedestrian Research

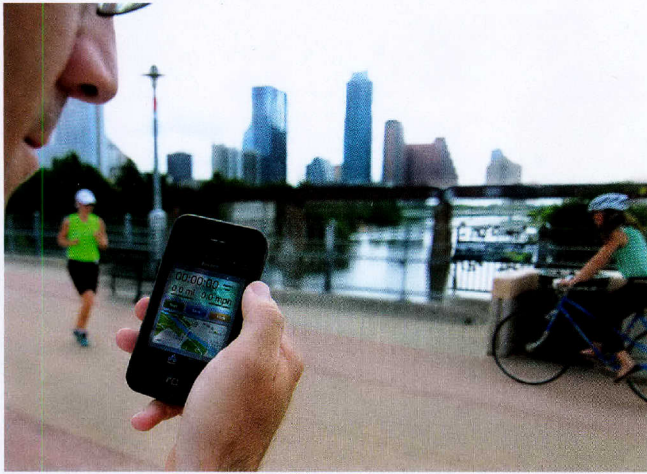
*By gathering more complete data about how travel modes are used, transportation planners can better coordinate individual travel modes to make the entire transportation system more efficient.*

**RESEARCHERS have been perfecting methods for counting cars and trucks for the last half century.** As a result of better data, highway transportation has improved, and road projects have been funded. Comparatively speaking, there are very little biking and walking data.

"It's sometimes difficult for city planners to fund a biking or walking trail project if they don't have the figures to back it up," says Shawn Turner, head of the Mobility Division at the Texas A&M Transportation Institute (TTI). "Fortunately, we are getting a lot better at counting pedestrians and bicyclists, and we are trying to help agencies get the data they need."

Case in point is the national award-winning study headed by TTI Associate Research Engineer Joan Hudson, Using Smartphones to Collect Bicycle Travel Data in Texas. The project, which ended last fall, tracked 300 bicyclists in the Austin, Texas, area as they traveled 3,600 individual routes over a six-month period.





*TTI researchers collected bike travel data using smartphones in an award-winning study in the Austin, Texas, area.*

“We were able to collect all kinds of data from this study including age and gender of the bicyclists; preferred travel routes; and frequency, purpose and time of day of the trips,” Hudson explains. “It’s vital information that agencies need in order to make informed decisions about future bicycle projects.”

The study won the 2011 Transportation Innovative Solutions award from Women’s Transportation Seminar International. Data from the GPS-aided study are already being used in other bike projects and have provided assistance to the Texas Department of Transportation (TxDOT) Austin District’s new Bicycle Master Plan.

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**“With transportation money being tight, we can’t do everything we want to do. We are in the beginning stages of the plan, and I’m not sure what will come from it, but I’m glad that we will soon have a good starting point for establishing a comprehensive network that’ll address the priority mobility needs of bicyclists.”**

*Ed Collins, TxDOT advanced transportation planning director*

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“Technology has been a major component in our data collection, and as it improves, the information is easier and less expensive to collect,” Turner says. “The bike- and people-counting products range from simple rubber tubes stretched across a roadway or bike path to infrared products and motion-sensing cameras. Some of the products have sensors that are built into a sidewalk or trail.”

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**“We were able to collect all kinds of data from this study including age and gender of the bicyclists; preferred travel routes; and frequency, purpose and time of day of the trips. It’s vital information that agencies need in order to make informed decisions about future bicycle projects.”**

*Joan Hudson, TTI associate research engineer*

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The number of bicycle and pedestrian research projects conducted by TTI over the last five years has grown significantly, with a wide variety of sponsors, including the Federal Highway Administration, the National Park Service, the Colorado Department of Transportation, the Austin and Houston metropolitan planning organizations, and the City of Austin.

“With transportation money being tight, we can’t do everything we want to do,” says TxDOT Advanced Transportation Planning Director Ed Collins, who also heads up the development of the Austin District’s Bicycle Master Plan. “We are in the beginning stages of the plan, and I’m not sure what will come from it, but I’m glad that we will soon have a good starting point for establishing a comprehensive network that’ll address the priority mobility needs of bicyclists.”


Turner describes bike and pedestrian research as “in its infancy but growing” and is pleased to see municipalities like Austin, Portland, Seattle, Boulder and numerous others emphasizing those transportation modes where they can provide significant benefits.

“Many cities are recognizing the transportation, public health and economic development benefits of having bikable and walkable cities, and they’re working to create complete streets that provide safe travel for everyone, not just motorists,” Turner says. “I think by 2025, you will see a more diverse landscape as city planners and engineers make room for bicyclists and pedestrians.” ■



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or [shawn-turner@tamu.edu](mailto:shawn-turner@tamu.edu).





# Voice-to-Text Apps: *No Safety Benefits*

## Major findings from the study include:

- *Driver response times were significantly delayed*, whichever texting method was used. Drivers took about twice as long to react to sudden roadway hazards, such as a pedestrian in the street, as when they weren't texting.
- *Drivers spent significantly less time looking ahead at the roadway when they were texting*, whichever texting method was used.
- For most tasks, *manual texting required slightly less time than the voice-to-text method*, but driver performance was roughly the same with both.
- *Drivers felt less safe when they were texting* but felt safer when using a voice-to-text application than when texting manually, even though driving performance suffered equally with both methods.



**NEW RESEARCH** findings suggest that **voice-to-text applications offer no real safety advantage** over manual texting.

Sponsored by the Southwest Region University Transportation Center and conducted by the Texas A&M Transportation Institute (TTI), the first-of-its-kind study is based on the performance of 43 research participants driving an actual vehicle on a closed course. The TTI analysis is the first to compare voice-to-text and manual texting on a handheld device in an actual driving environment.

Drivers first navigated the course without cell phones and then traveled the course three more times performing a series of texting exercises: once using each of two voice-to-text applications (Siri® for the iPhone and Vlingo® for Android) and once texting manually. Researchers then measured the time it took each driver to complete the tasks. They also noted how long it took for the driver to respond to a light that came on at random intervals during the exercises.



**“Understanding the distracted driving issue is an evolving process, and this study is but one step in that process.”**

*Christine Yager, TTI associate transportation researcher*

TTI Associate Transportation Researcher Christine Yager, who managed the study, says the findings offer new insight but only a part of the knowledge needed to improve roadway safety. “Understanding the distracted driving issue is an evolving process, and this study is but one step in that process,” she says. Another TTI study now under way examines the motivations and attitudes of distracted drivers. Results from the focus groups and a 3,000-driver survey are expected in late summer and will look at which demographic groups are most affected by distracted driving.

The study elicited widespread interest as evidenced by its media reach around the globe: approximately 8.5 million viewers via broadcast media, 400 million readers (print and online) and 12 million followers via Twitter. ■

### Study's media reach around the globe



**8.5 MILLION VIEWERS**



**400 MILLION READERS**



**12 MILLION FOLLOWERS**

## Texans behind the wheel: Driving distracted

**10%** of all drivers are **using their cell phone right now**



**90,378** crashes in 2012 involved **driver distraction** (including cell-phone use)

**NEARLY 1 in 4** crashes involves **driver distraction**

**Texting** takes a driver's eyes **4.6 seconds** off the road for **like driving a football field with eyes closed**



For more information, contact **Christine Yager** at (979) 845-6528 or [c-yager@ttimail.tamu.edu](mailto:c-yager@ttimail.tamu.edu).

For a video about the study, see <https://vimeo.com/64641918>.



# TTI Investigates Intercity Passenger Rail



“The development of intercity passenger rail is about true multimodal solutions to the problem of moving people. As cities grow, demand for travel between cities will also grow to the point where passenger rail investment should be considered. It’s not reasonable to expect everyone to use the train for every trip out of town, but there may be enough demand to make an intercity passenger rail system in Texas a viable mobility solution.”

*Ben Sperry, TTI assistant research scientist*





**It's a scene that plays out every day on America's highways: vehicles stuck in traffic due to overly congested roadways. Has the cost of congestion been accepted as a way of life, or are there other efficient means, such as passenger rail, of getting from Point A to B?**

"Certainly passenger rail is not the only solution to congestion, but it might be a part of the answer," says Texas A&M Transportation Institute (TTI) Assistant Research Scientist Curtis Morgan. Morgan manages TTI's Multimodal Freight Program, which has recently been involved in several cross-cutting rail research projects in Texas and around the nation. "Widening roadways or expanding existing airports is becoming extremely expensive, so investments in freight and passenger rail need to be looked at as another means of improving the transportation system."

One recent project involved studying the mobility implications and economic benefits of providing passenger rail service in a short- to medium-distance intercity travel corridor. To accomplish this, the researchers distributed travel surveys to passengers on board the Amtrak Heartland Flyer, a passenger rail service that runs a 206-mile route between Oklahoma City and Fort Worth. The results of the study showed an estimated economic benefit of over \$18 million per year in cities along the corridor, a positive cost-benefit ratio given that each state only provides Amtrak with \$2.5 million a year to operate the service.

Another project involved the study of a multimodal intercity corridor using Amtrak's Milwaukee-Chicago Hiawatha service passenger rail route.

"One of the unique features of this corridor is that it's one of only four

places in the United States that Amtrak has a stop at an airport," says Morgan. "We looked at the impact the service to the airport had and found that one-third of air-rail passengers would have used one of the Chicago airports if the rail service had not provided convenient access to the Milwaukee airport."

According to the researchers, the distance of the route studied nearly mirrors the distance between Austin and San Antonio, making it a useful case study for the potential of multimodal rail corridors in Texas.

The group also examined longer intercity and interregional corridors within Texas to determine which are most likely to need additional intercity travel capacity in the coming decades.

The project looked at current and future population and demographic projections along 18 intercity corridors and projected future demand. A preliminary concept plan was developed during the first year of the project, and the second year focused on determination of potential costs and benefits of implementing the concept plan.

TTI's recent intercity rail projects have provided state decision makers with the data to make informed decisions about where a rail line might be most effective, the economic benefits of such a rail line, and how a true multimodal corridor could be implemented between two major urban areas.

"The development of intercity passenger rail is about true multimodal solutions to the problem of moving people," says TTI Assistant Research Scientist Ben Sperry. "As cities grow, demand for travel between cities will also grow to the point where passenger rail investment should be considered. It's not reasonable to expect everyone to use the train for every trip out of town, but there may be enough demand to make an intercity passenger rail system in Texas a viable mobility solution." ■

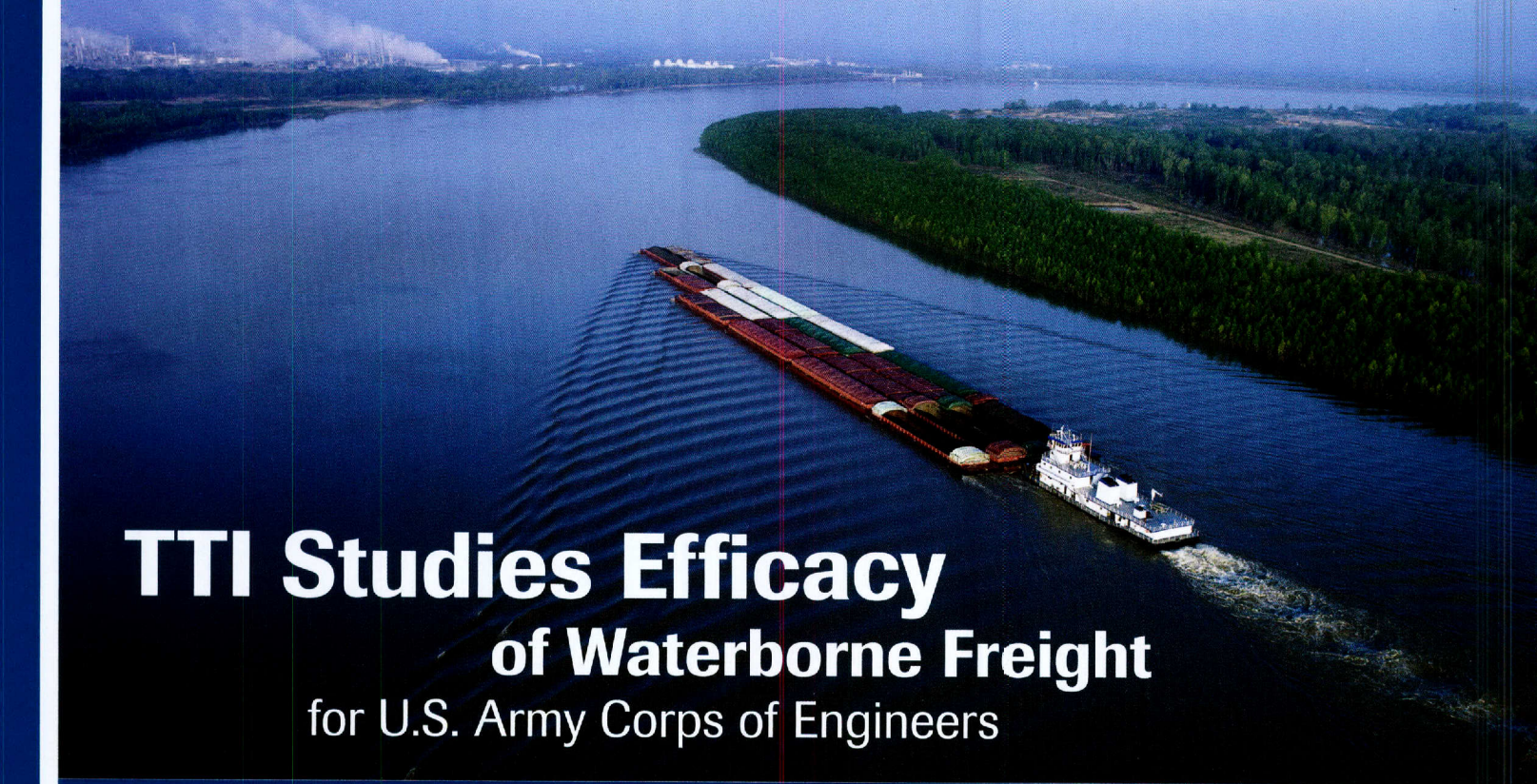


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*Moving commuters between large urban areas via intercity passenger rail is one way to alleviate congestion and maintenance costs on our nation's highways.*





# TTI Studies Efficacy of Waterborne Freight for U.S. Army Corps of Engineers

Coal, petroleum products, aggregate, grain, iron ore and steel products float economically over rivers in the United States and along the Gulf Intracoastal Waterway. **It's estimated that over 600 million tons of material are transported over the country's waterways every year.**

The Texas A&M Transportation Institute's (TTI's) Center for Ports and Waterways has conducted three studies for the U.S. Army Corps of Engineers (USACE), the most recent of which concluded in January 2013. The purpose of all the studies was to determine the viability of maintaining the country's inland waterways.

Are they still a cost-effective method for moving vast tons of freight? The answer is a resounding yes. TTI estimates that an annual savings of \$2.85 billion (almost 100 percent) was realized in 2010 by using the water mode over the lowest-cost land option. The cheapest land alternative cost twice as much as shipping by water.

"We found there are substantial savings for almost every type of commodity we looked at," says Jim Kruse, director of TTI's Center for Ports and Waterways. "While there are one or two exceptions, it's a definite savings to go by water."

The water advantage dries up rapidly if other types of transportation are required to transport the load to or from the water-based origin point. "The facility where one is loading

or off-loading needs to be close to the water," Kruse notes. "By the time you add a truck or rail haul to and from an off-water site — plus the expense of moving the load from one conveyance to another — the handling destroys the cost benefit. Water transport is so cost effective because facilities have located near or on the water."

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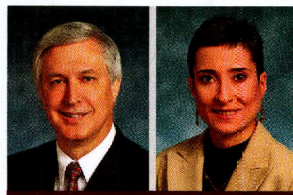
**"Water transport is so cost effective because facilities have located near or on the water."**

*Jim Kruse, director of TTI's Center for Ports and Waterways*

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USACE uses TTI's research findings to demonstrate the importance of America's inland waterways to the U.S. Congress. "TTI's transportation rate analyses have provided the Corps with valuable modal cost data used to justify navigation lock and dam recapitalization investment decisions," notes Lin R. Prescott, regional economist with USACE.

"Barge transportation is what enables this country to feed the world," says TTI Associate Research Engineer Annie Protopapas. "A large portion of the grain comes down the Mississippi from the Midwest to the Ports of South Louisiana and New Orleans to be exported." ■



For more information, contact **Jim Kruse** at (713) 686-2971 or [j-kruse@ttimail.tamu.edu](mailto:j-kruse@ttimail.tamu.edu), or **Annie Protopapas** at (979) 862-2709 or [a-protopapas@ttimail.tamu.edu](mailto:a-protopapas@ttimail.tamu.edu).



Many folks throughout Texas may see a plane buzzing overhead and never give it a second thought. Or they may be aware that an airport exists on the outskirts of their town, but don't realize its importance. **Yet the number of arriving planes and the capabilities of airports are crucial economic drivers to many Texas communities.**

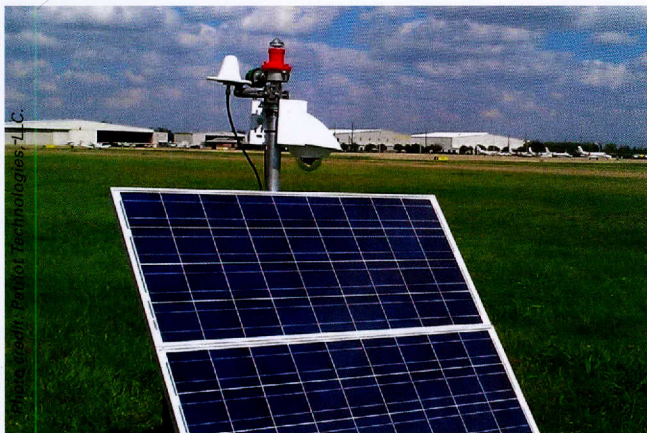
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# Plane Spotting: Sensors Assist General Aviation Airports with Plane Traffic Counts

General aviation (GA) in Texas provided more than 56,000 jobs and \$14.6 billion in total economic output in 2011. Many GA airports in Texas seek grant assistance from the Texas Department of Transportation's (TxDOT's) Aviation Division to update their facilities and attract business. With a limited amount of funds, though, TxDOT must prioritize airports based on their needs.

To help with this need, the Texas A&M Transportation Institute (TTI) is working with Patriot Technologies, LLC, and TxDOT to install automated runway sensors that count the number of aircraft arriving at a particular airport. Many GA airports do not have an air traffic control tower or dedicated staff to keep track of the number of planes arriving or departing.



A solar-powered aircraft counting sensor installed at Sugarland Regional Airport outside of Houston, Texas.

"The sensor is placed in an optimal location to capture data based on an airport's runway configuration," says TTI Research Scientist Jeff Borowiec. "Some of the information collected includes photos of the aircraft, the type and size of the aircraft, and the time of takeoff or landing. The airports can then download these data."

Currently, sensors are installed at airports in Sugarland and Denton, Texas, with plans to move the equipment to Arlington for additional testing.

The air traffic control towers at these two airports allow researchers to correlate the data from the sensors to ensure researchers are getting accurate information before installing the sensors in smaller GA airports that lack personnel to track planes.

"Knowing the type and frequency of aircraft arriving assists us in identifying an airport's current and future needs, such as pavement strengths, runway lengths, widths and other important design elements," says TxDOT Aviation Division Director of Planning and Programming Greg Miller. "It provides us with very good reference data that will allow us to make more informed decisions at the general aviation airports throughout Texas." ■

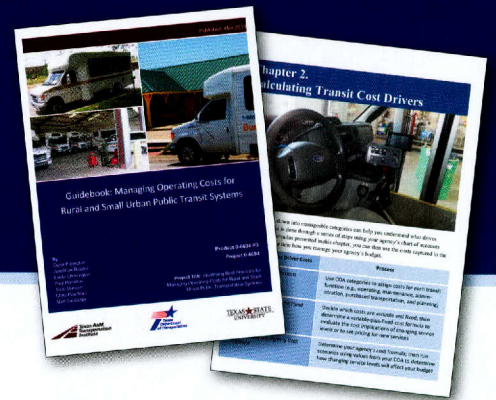
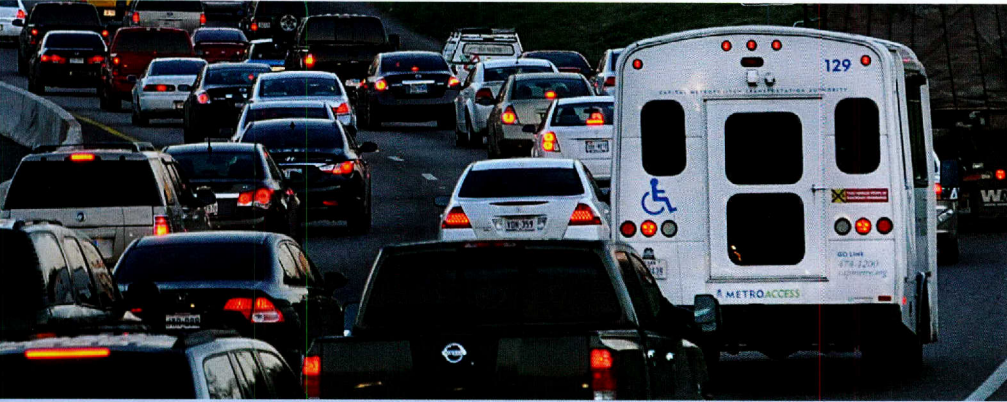


For more information, contact **Jeff Borowiec** at (979) 845-5200 or [jborowiec@tamu.edu](mailto:jborowiec@tamu.edu).



# Stretching Transit Dollars Farther:

## TTI Develops Guide for Optimizing Transit Agency Costs



**THE ECONOMY** has recently shown signs of recovery, with some state budgets even boasting a surplus. Despite this good news, every sector of transportation must still do more with less. This is especially true of rural and small-urban transit agencies, which are seeing increased demand for their services even as their budgets are facing new restrictions.

To stretch their own budgets, individual drivers are relying more on transit to gain access to jobs, education, services, health care and recreation. Others rely on transit because they have to. For example, individuals aged 65 and older are increasingly living in rural areas. They need access to basic services, like medical care, which are often available only in more urban settings.

Texas A&M Transportation Institute (TTI) researchers recently completed Texas Department of Transportation (TxDOT) Project 0-6694 to help rural and small-urban public transit agencies better manage agency funds. By following recommendations presented in *Guidebook: Managing Operating Costs for Rural and Small Urban Public Transit Systems*, transit agencies can optimize their budgets, outsource where feasible, and provide their consumers the best transit services limited funding can buy.

“Our guide covers all aspects of operational management,” explains TTI Associate Research Scientist Suzie Edrington, principal author of the guidebook. “From explaining fundamental cost-control principles to managing personnel to handling fuel purchases and choosing external contractors, we present best practices that agencies can use to better manage their resources.”

The guide is divided into three parts:

- fundamental concepts, definitions and formulas necessary for understanding and capturing agency costs;
- strategies for optimizing transit costs across all agency operational areas; and
- tools and resources to support agencies as they perform cost analyses.

Throughout the guide, authors use the fictional Anytown Transit Agency to demonstrate core concepts from budgeting and cost analysis to options for handling fuel storage and maintenance. Anecdotes from actual agencies flesh out the fictional examples depicted in Anytown.

The guide also addresses non-traditional but important topics, such as making maintenance procedures more efficient or working with drivers to help the agency reduce fuel consumption. Edrington explains: “Transit agencies can cut fuel costs as much as 10 percent if drivers monitor their behaviors, and that can be a significant cost factor, especially over time.”

Call-outs emphasizing important concepts, “lessons learned” boxes detailing actual agency experiences, and chapter summaries are some of the design elements specifically aimed at reinforcing retention of the information presented.

“TTI did a thorough job researching lessons learned from transit agencies around Texas,” says Kelly Kirkland with TxDOT’s Public Transportation Division. “In fact, transit agency personnel of varying experience levels recently attended a pilot workshop, and all were able to better evaluate various operating cost management practices by implementing its recommendations.” ■



For more information, contact **Suzie Edrington** at (713) 686-2971, ext. 15107, or [s-edrington@tamu.edu](mailto:s-edrington@tamu.edu).



# TTI ADVISORY COUNCIL

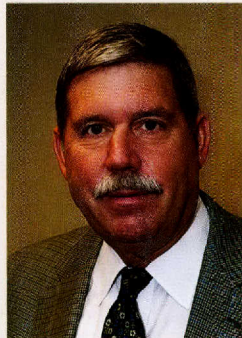
The Texas A&M Transportation Institute (TTI) Advisory Council is comprised of a small group of high-level transportation professionals from across Texas and every sector of the transportation world. The council, which meets annually, offers a tremendous service to the Institute by advising on transportation issues and trends and supporting TTI's research programs and initiatives. TTI profiles several council members in each issue of *Researcher*. ■



**Joel Camarano**  
*Executive Director for  
Auto Underwriting Solutions  
USAA*  
San Antonio, Texas

Joel Camarano joined the TTI Advisory Council as its newest member in March 2013. He is executive director for auto underwriting innovation and development for the United Services Automobile Association (USAA) located in San Antonio. Camarano leads research and development of innovative auto-insurance products and solutions, emphasizing safer driving and safer vehicles for USAA's auto-insured members. He has almost 24 years of property and casualty insurance experience, primarily focused on auto-insurance underwriting, servicing, product management, portfolio management, and loss prevention and mitigation.

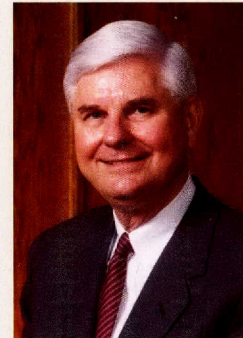
Previously, Camarano worked at State Farm Mutual Automobile Insurance Company in Austin, Texas, and Bloomington, Ill., before joining USAA in 1998. He holds the Chartered Property Casualty Underwriter professional designation.



**David Cain**  
*President*  
David Cain Consulting  
Dallas, Texas

David Cain chairs the TTI Advisory Council and is a long-time member. A former member of the Texas Senate and House of Representatives, Cain is president of David Cain Consulting in Dallas. He conducts governmental and relations consulting for numerous clients. During his time in the Texas Senate from 1995 through 2003, he chaired the Senate's Subcommittee on Infrastructure and Committee on Administration, and twice chaired the Southern Legislative Conference Transportation Committee.

While in the Texas House from 1977 to 1995, Cain chaired the House Committee on Transportation and wrote the legislation that created the Texas Department of Transportation. He has served on the Capitol Preservation Board and the governing board of the Council of Governments.



**Doug Pitcock**  
*Owner, Chairman of the  
Board and CEO*  
Williams Brothers Construction  
Company  
Houston, Texas

A long-time council member, Doug Pitcock of Houston is owner, board chair and CEO of Williams Brothers Construction Company. He operates one of the largest highway and heavy contractors in the nation. Pitcock helped form the company in 1955 and has been a prominent leader in the transportation industry for more than 50 years.

Among his many accomplishments, Pitcock was appointed by Pres. Gerald Ford to serve on the National Transportation Policy Study Committee. He is a member of the Texas Transportation Hall of Honor and was named one of the Top 100 Private Sector Transportation Construction Professionals of the 20th Century by the American Road and Transportation Builders Association. He has also served as president of the Associated General Contractors of America, among other board positions.



## TTI Earns Recognition from Women's Transportation Seminar

**T**TI has been named Employer of the Year by the Heart of Texas Chapter of the Women's Transportation Seminar (WTS). The organization also honored Cindy Weatherby as its Woman of the Year. Weatherby directs TTI's Strategic Transportation Solutions Center.

The chapter presents its Employer of the Year award annually to a business or agency that has enhanced the transportation industry through its commitment to excellence and quality, established an outstanding record of affirmative action in hiring and promoting women at all employment levels, supported continuing education of its employees, and encouraged women students to enter the transportation field.

WTS notes that TTI's workforce is 47 percent female and that, over the past decade, female employment has jumped by 86 percent in executive and managerial positions, by 100 percent in research administration, and by 160 percent in senior research positions. The organization cites TTI's expansive professional development offerings, also noting that TTI's female staff members serve on the boards of numerous national organizations.

"We are honored that the WTS Heart of Texas Chapter has recognized TTI as its Employer of the Year, and we're also delighted to share the spotlight with Cinde Weatherby and her Woman of the Year award," said TTI Director Dennis Christiansen. "We



*Beverly Silas presents Dennis Christiansen with the 2013 WTS Employer of the Year award.*

applaud the organization's work, and we remain committed to the common goals and purpose that we share with them." ■

## Roop Recognized at Patent Awards Luncheon



*Roop*

**T**TI Assistant Agency Director Steve Roop was honored by the Texas A&M Office of Technology Commercialization for three patents he received as part of the Freight Shuttle System (FSS), an innovative approach to moving freight. The annual Patent and Innovation

Awards Luncheon was held April 26 at the Annenberg Presidential Conference Center at the George Bush Presidential Library.

Roop's 2012 patents represent various elements of the FSS, including the guideway and the rotating loading dock. Designed to reduce energy consumption, congestion and pollution while delivering cargo more securely and faster, the FSS could be used at border crossings or shipping ports. The patent for the overall FSS concept was issued in 2010. ■

## TTI Pavement Testing Technology Voted SHRP2 Top-Ranked Implementation Product

**A** recent survey conducted by the American Association of State Highway and Transportation Officials (AASHTO) of products developed under the Strategic Highway Research Program (SHRP2) ranked a TTI project highest for implementation. The AASHTO survey ranks SHRP2 products in the current three-year Implementation Plan, as well as new products coming from SHRP2 research.

Led by TTI Senior Research Engineer Tom Scullion and Associate Research Scientist Stephen Sebesta, the SHRP2 project involves two nondestructive techniques for detecting defect areas in new asphalt overlays during construction. "The problem that we are trying to solve is one that everybody has: cold- and low-density spots in new overlays, which lead to premature pavement failures," says Scullion. ■



## Turnbull Participates in National Forum on Women in Transportation



Turnbull

**T**TI Executive Associate Director Katie Turnbull participated in a Special Forum on Women in Transportation sponsored by the White House Office of Public Engagement and the U.S. Department of Transportation (USDOT) on April 4, 2013. Turnbull was one of

approximately 60 women leaders from industry, public agencies, professional organizations, universities and other groups gathering at the Eisenhower Executive Office Building with top-ranking personnel from the

White House and the USDOT to discuss increasing opportunities for women in transportation.

"It was a privilege to participate in the forum and to interact with the dynamic group of women," notes Turnbull. "We identified action steps to move the objectives forward [and] two individual action steps to pursue over the next six months."

The forum results will assist with the USDOT's participation in the Asia-Pacific Economic Cooperation Women in Transportation initiative. "I look forward to assisting with the action steps," says Turnbull. ■



Attendees of the White House Special Forum on Women in Transportation.

## Briaud Receives Kazakhstan's Aytaliev Honorable Medal

**T**TI Research Engineer Jean-Louis Briaud was honored March 4 during the opening ceremony of the Geo-institute Congress in San Diego, Calif. Askar Zhussupbekov, president of the Kazakhstan Geotechnical Society, presented Briaud with that country's highest honor — the Aytaliev Honorable Medal of Kazakhstan — bestowed upon a geotechnical engineer who demonstrates exceptional progress in soil mechanics, geotechnical engineering and underground construction. ■



Jean-Louis Briaud (left) and Askar Zhussupbekov during the presentation of the Aytaliev Honorable Medal of Kazakhstan to Briaud.

## TDS Program Named "Best Practice" in Highway Safety Report

**T**he Teens in the Driver Seat (TDS) Program has been highlighted as a best practice in the Texas Department of Transportation's 2012 *Texas Highway Safety Annual Report*. According to the report, "TDS is saving lives because young people are driving the program. Every element, every facet, and every refinement of TDS are influenced by young people. With active program elements for junior high school students all the way through college, the breadth of youth reached by the program is also unprecedented and unmatched." ■

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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.

**RESEARCH VIDEOS**

Access the research topics listed below via the URLs shown.

*Simulating Crash Tests at TTI's Proving Grounds:*  
<https://vimeo.com/68303730>

*TTI Research on the U.S.-Mexico Border:*  
<https://vimeo.com/66665274>

*TTI's San Antonio Office:*  
<http://www.youtube.com/watch?v=kNulwGw2IHl>

*TTI's Visibility Research Laboratory:*  
<http://www.youtube.com/watch?v=k-XHnnTxlvc>

*Voice-to-Text Study:*  
<https://vimeo.com/64641918>

**TECHNICAL REPORTS**

*Bioretention for Highway Stormwater Quality Improvement in Texas: Final Report*, by Ming-Han Li, **0-5949-4**, April 17, 2013.

*Development and MASH Full-Scale Crash Testing of a High-Mounting-Height Temporary Single Sign Support with Aluminum Sign*, by Chiara Dobrovolny, **9-1002-12-5**, April 4, 2013.

*Evaluation of Skid Measurements Used by TxDOT: Technical Report*, by Dick Zimmer, **0-6619-1**, May 16, 2013.

*Impact of Changes in Profile Measurement Technology on QA Testing of Pavement Smoothness: Technical Report*, by Emmanuel Fernando, **0-6610-1**, March 26, 2013.

*Improving DMS 9210 Requirements for Limestone Rock Asphalt — Year One Interim Report*, by Cindy Estakhri, **0-6686-1**, May 16, 2013.

*Initial Review of Rapid Moisture Measurement for Roadway Base and Subgrade*, by Stephen Sebesta, **0-6676-1**, May 17, 2013.

*MASH Full-Scale Crash Testing of 4-ft Mounting Height, 24"x30" Chevron Sign Installed on 5.5H:1V Slope Ditch*, by Chiara Silvestri Dobrovolny, **9-1002-12-6**, April 8, 2013.

*Optimizing Utility Owner Participation in the Project Development and Delivery Process*, by Cesar Quiroga, **0-6624-1**, April 22, 2013.

*Report from the Panama Canal Stakeholder Working Group*, by Katie Turnbull, **0-6800-1**, March 29, 2013.

*Signs on Concrete Median Barriers*, by Akram Abu-Odeh, **0-6646-1**, April 17, 2013.

*Studies to Assess the Impact of Nighttime Work Zone Lighting on Motorists*, by Melisa Finley, **0-6641-1**, May 29, 2013.

*Utility Investigation Best Practices and Effects on TxDOT Highway Improvement Projects*, by Edgar Kraus, **0-6631-1**, April 22, 2013.

*Worker Safety During Operations with Mobile Attenuators*, by LuAnn Theiss, **0-6707-1**, May 16, 2013.

**PROJECT SUMMARY REPORTS AND PRODUCTS**

*Developing a Mixture-Based Specification for Flexible Base: PowerPoint Presentation*, by Jon Epps, **0-6621-P3**, March 25, 2013.

*Developing Luminance-Based Mobile Highway Delineation Equipment and Level of Service Guidelines for Safe Nighttime High-Speed Travel*, by Paul Carlson, **0-6647-S**, May 6, 2013.

*Evaluation of Binder Aging and Its Influence in Aging of Hot Mix Asphalt Concrete*, by Charles Glover, **0-6009-S**, May 6, 2013.

*Evaluation of Skid Measurements Used by TxDOT*, by Emmanuel Fernando, **0-6619-S**, May 6, 2013.

*Evaluation of the Measures and the Development of a Plan to Reduce the Number and Mitigate the Severity of Crashes Involving Motorcyclists on Texas Highways*, by Patty Turner, **0-6712-S**, May 8, 2013.

*Guidebook: Managing Operating Costs for Rural and Small Urban Public Transit Systems*, by Suzie Edrington, **0-6694-P3**, May 22, 2013.

*Mixture Design Procedure for Flexible Base*, by Jon Epps, **0-6621-P1**, May 29, 2013.

*Mobile Luminance Data Collection System User Manual*, by Jeff Miles, **0-6647-P2**, April 18, 2013.

*Planning Tools to Assess the Real Estate Leveraging Potential for Roadways and Transit*, by Sharada Vadali, **0-6538-S**, April 4, 2013.

*Powerpoint Presentation and Handout Material for Summary of Spec Test Procedures Actions to Take for Non-compliance*, by Jon Epps, **0-6621-P2**, March 25, 2013.

*Price Adjustment Clauses*, by David Newcomb, **0-6799-S**, May 9, 2013.

*Seal Coat Binder Specification*, by David Newcomb, **0-6798-S**, May 9, 2013.

*Use of Fine Graded Asphalt Mixes*, by Tom Scullion, **0-6615-S**, May 8, 2013.

*Validate Surface Performance-Graded (SPG) Specification for Surface Treatment Binders*, by Amy Epps Martin, **0-6616-S**, May 2, 2013.

*Webinar Presentations for TxDOT Implementation Project 5-6386-01, Implementation of New Pavement Performance Prediction Models in PMIS*, by Nasir Gharaibeh, **5-6386-01-P1**, May 29, 2013.

